2550 Ventura Avenue
Santa Rosa, CA 95403

p: (707) 565-1900
f: (707) 565-1017

Scott Orr
Director

Michelle Arellano
Administration

Nathan Quarles
Engineering and Construction

Cecily Condon
Planning

Steve Mosiurchak
Fire Marshal

April 7, 2026

To: Interested Agencies

The following application has been filed with the Sonoma County Permit and Resource Management Department.

File Number:	**PLP25-0006**
Applicant Name:	**Kelso G. Barnett**
Owner Name:	**PetroMart Retail Group Inc**
Site Address:	**21837 Geyserville Ave., Geyserville**
APN:	**140-180-035**
Zoning:	**R3 B6 20 DU, RC50/25 SR**

Project Description: Major Subdivision and Design Review with Hearing for a housing project on 5.11 acres to create 93 residential condominiums throughout 17 buildings. The proposed project includes 204 parking spaces, 100+ bicycle parking spaces, and associated site improvements.

We are submitting the above application for your review and recommendation. Additional information is on file in this office.

Responses to referrals should include a combination of any or all of the following details:

(1) Statement of any environmental concerns or uncertainties your agency may have with the project.
(2) Comments you wish to make regarding the merits of the project.
(3) Identification of any missing information or application submittals that will preclude you from providing conditions and mitigations for this project in the future.
(4) Your proposed conditions of approval and/or mitigations for this project.

After reviewing this application, please respond to the planner with your *marked* response below:

[ ] Conditions will be provided and no further information is necessary.
[ ] Conditions will be provided and additional information is necessary.
[ ] Comments and/or concerns.
[ ] No comments or conditions.

Responsible agencies under CEQA are requested to indicate whether permits will be required for this project.

Your comments will be appreciated by April 21, 2026, and should be sent to the attention of:

PLP25-0006, Alisa Rossetti (Alisa Rossetti@sonoma-county.org). The Project Planner can also be reached at (707) 565-2605. **If no response is received by April 21, 2026, it will be assumed that no comments or conditions will be provided.**

Please send a copy of your comments to the applicant(s) or their representatives as indicated on the attached Planning Application.

[X] Sanitation
[X] Fire Prevention
[X] Grading and Storm Water
[X] Management Group
[X] Community Development Commission
[X] SPI (DTPW), Land Development
[X] SPI (DTPW), Drainage

February 19, 2026

Alisa Rossetti
Permit Sonoma
2550 Ventura Avenue
Santa Rosa, CA 95403

Alisa:

Thank you for your letter dated November 13, 2025 outlining the consistency review of our proposed project at 21837 Geyserville Avenue in Geyserville. We appreciate the time and thoughtful analysis your team devoted to reviewing the proposal.

As you know, we have presented the project to the community and received substantial feedback. That input, together with the comments contained in your letter, led us to make two significant modifications reflected in this consistency resubmittal:

- Replacement of 10 market-rate units with 20 deed-restricted affordable units, resulting in a total of 103 units on the site.
- Adjustments to the site plan to preserve the ability to provide emergency vehicle access to Canyon Road, should such access ultimately be required.

These changes deliver the project's affordable housing component while also addressing safety considerations identified during the community outreach process. We believe the revised proposal responds constructively to both community feedback and staff's comments, while continuing to advance the project's core objective of delivering much-needed housing in Geyserville.

As you are aware, under State Density Bonus Law, the provision of on-site deed-restricted affordable units makes the project eligible for certain benefits, including waivers and concessions. These requests are discussed below.

We appreciate staff's continued engagement on the project and the constructive feedback provided to date. The following sections respond to the points raised in your letter and outline how the revised proposal addresses each item.

Thank you,

Kelso G. Barnett

cc: Katrina Braehmer

Sonoma County General Plan
Open Space and Resource Conservation Element

Policy OSRC-3d: Establish a building setback of 20 feet along the Highway 101 Scenic Corridor in Urban Service Areas to be reserved for landscaping. Where a sound barrier or other sound mitigating structure must be located along a Scenic Corridor, ensure that the landscaped area is visible from the highway. Cooperate with State agencies to achieve compatible goals with regard to visual quality along Scenic Corridors.
Inconsistent

Response: *By providing on-site deed-restricted affordable units (10% low-income and 10% moderate-income), the project qualifies for benefits under the State Density Bonus Law, including waivers and concessions. Under the statute, a waiver allows a developer to deviate from a development standard when strict application of that standard would physically preclude construction of the project at the density permitted by the Density Bonus Law. Due to the physical constraints of the site, including its configuration, required circulation, emergency access considerations, and the presence of the Highway 101 Scenic Corridor, the project will request two waivers. As it relates to this specific policy/standard, we request a waiver from the 20-foot setback requirement along the Highway 101 Scenic Corridor and from the landscaped area requirement associated with a sound-mitigating structure.*

Policy OSRC-4a: Require that all new development projects, County projects, and signage utilize light fixtures that shield the light source so that light is cast downward and that are no more than the minimum height and power necessary to adequately light the proposed use.
Inconsistent

Response: *The project lighting plan has been revised to ensure consistency with the County's development standards. All proposed light fixtures have been modified to fully shield the light source so that illumination is directed downward. Fixture height and power have also been adjusted to the minimum necessary to adequately light the site while avoiding unnecessary light spill.*

Policy OSRC-8e: Prohibit, except as otherwise allowed by Policy OSRC-8d, grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots within any streamside conservation area. Consider an exception to this prohibition if:
[...] (4) It can be clearly demonstrated through photographs or other information that the affected area has no substantial value for riparian functions, or...[...]
Inconsistent

Response: *Our project biologist has evaluated the area identified in the County's letter and prepared the included analysis concluding that the project will not affect a riparian corridor and that the area in question does not provide substantial riparian functions. The analysis determined that the mapped corridor appears to correspond to an offsite concrete v-ditch associated with the freeway off-ramp that functions solely as a stormwater conveyance facility. The feature lacks a natural bed and bank, contains no riparian vegetation or canopy, and does not support wetlands or other riparian habitat. In addition, field verification and mapping analysis indicate that this drainage feature is located more than 65 feet from the project site and therefore outside the County's required 50-foot setback. Accordingly, the biologist concludes that the area does not support a riparian corridor and has no substantial value for riparian functions*

ZONING REGULATIONS (Sonoma County Code Chapter 26)
Article 08 – Residential Zones, Sec. 26-08-050 Multifamily development standards

J. Exterior Lighting. Exterior lighting shall be low mounted, downward casting and fully shielded to prevent glare. Lighting shall not wash out structures or any portions of the site. Light fixtures shall not be located at the periphery of the property and shall not spill over onto adjacent properties or into the night sky. Flood lights are not permitted.
Inconsistent

Response: *The project lighting plan has been revised to ensure consistency with the County's development standards. All proposed light fixtures have been modified to fully shield the light source so that illumination is directed downward. Fixture height and power have also been adjusted to the minimum necessary to adequately light the site while avoiding unnecessary light spill.*

Article 65 – RC Riparian Corridor Combining Zone, Subsection 26-65-030

Except as allowed by Section 26-65-040, grading, vegetation removal, agricultural cultivation, structures, roads, utility lines, and parking lots shall be prohibited within any stream channel or

streamside conservation area. A. An exception to this prohibition may be approved by the director with a zoning permit if: 1. It makes a parcel unbuildable, provided vegetation removal is minimized; 2. The use involves the minor expansion of an existing legally established structure in conformance with Article 94 where it is demonstrated that the expansion will be accomplished with minimum vegetation removal and protection of riparian functions; 3. The use involves only the maintenance, restoration, or reconstruction of an existing legally established structure or use in conformance with Article 94; or 4. The director determines that the affected area has no substantial value for riparian functions.

Inconsistent

Response: *Our project biologist has evaluated the area identified in the County's letter and prepared the included analysis concluding that the project will not affect a riparian corridor and that the area in question does not provide substantial riparian functions. The analysis determined that the mapped corridor appears to correspond to an offsite concrete v-ditch associated with the freeway off-ramp that functions solely as a stormwater conveyance facility. The feature lacks a natural bed and bank, contains no riparian vegetation or canopy, and does not support wetlands or other riparian habitat. In addition, field verification and mapping analysis indicate that this drainage feature is located more than 65 feet from the project site and therefore outside the County's required 50-foot setback. Accordingly, the biologist concludes that the area does not support a riparian corridor and has no substantial value for riparian functions.*

Article 86 – Parking Regulations

Sec. 26-86-010. – Required parking. All uses permitted in Chapter 26 of the Sonoma County Code shall provide on-site parking according to the following formulas, except when in conflict with state law. Condominiums and planned unit developments: 1 covered space/unit plus 1 uncovered guest space/unit.

Inconsistent

Response: *The project provides two on-site parking spaces per unit, both of which are covered. In addition, the project includes dedicated guest parking spaces and provides substantially more on-site parking than required under State Density Bonus parking standards, which allow 1.5 spaces per unit. While the project exceeds the overall parking quantity required, the spaces provided do not strictly meet the County's requirement that one space per unit be uncovered. Accordingly, the project requests a waiver from this uncovered parking requirement under State Density Bonus Law.*

Article 88 – General Exceptions and Special Use Standards, Subsection 26-88-040(f)

(f) Protect and encourage agricultural production by establishing a buffer between agricultural production on lands either designated in one (1) of the three (3) agricultural land use categories in the general plan or lands included within the AR zoning district, where any such lands abut a

nonagricultural land use conducted on land outside the three general plan land use categories. Generally, buffers shall be defined as a physical separation of one hundred (100) to two hundred feet (200'). These may be modified based upon topographic feature, a substantial tree stand, watercourse or similar existing feature. In some circumstances, a landscaped berm or other man-made feature may enhance the buffer. The requirement for buffer may be modified after hearing by the advisory agency following a written recommendation by the agricultural commissioner. [...] "Agricultural production," as used herein, means either an existing agricultural operation or an agricultural operation that would be a reasonably anticipated use. No buffer or setback shall be created by the acquisition of a portion of a parcel devoted to an agricultural operation.
Inconsistent

Response: *The project has been designed to respect the intent of the agricultural buffer requirement. Buildings are located approximately 100 feet from the existing vineyard vines on the adjacent parcel, providing a meaningful separation between residential uses and active agricultural production. However, because the code measures the buffer from the property line rather than the location of the vines, the project does not fully meet the literal requirement of a 100-foot setback from the parcel boundary. Due to the physical constraints of the site and the need to accommodate circulation, emergency access, and other project features, the project requests a waiver from the strict application of this standard under State Density Bonus Law. Notwithstanding this request, the site plan was deliberately designed to honor the agricultural buffer to the greatest extent feasible and to maintain a substantial separation from the neighboring vineyard operations.*

SUBDIVISION REGULATIONS (Sonoma County Code Chapter 25)
Article IV – Design Standards Generally, Section 25-42 Lots

(g) All residential lots shall have a minimum twenty-foot building setback line. Such setback shall be maintained on all street frontages on corner lots. A building setback line shall also be provided adjacent to streams and measured from the toe of the stream bank outward at a slope of 2.5:1 plus thirty feet or thirty feet outward from the top of bank, whichever is greater, or, where stream bank conditions do not reasonably allow such measurement because of the natural topography, bank erosion or other factors, a width shall be determined to reasonably meet the goals of this chapter.
Inconsistent

Response: *The project generally complies with the applicable setback requirements; however, due to site constraints and the need to develop the site at the minimum density permitted under State Density Bonus Law, certain buildings do not fully meet all front or corner setback standards. As a result, the project requests a waiver from the strict application of these setback requirements pursuant to State Density Bonus Law.*

Article IV. Design Standards Generally, Section 25-44 – General requirements

(M) Development allowed under the general plan in designated resource areas shall be permitted subject to the following design/siting requirements. [...] (3) Development shall not adversely affect the natural course or riparian habitat of any stream. Mitigation measures shall be required of the project where development may result in impacts to such areas.
Inconsistent

Response: *Our project biologist has evaluated the area identified in the County's letter and prepared the included analysis concluding that the project will not affect a riparian corridor and that the area in question does not provide substantial riparian functions. The analysis determined that the mapped corridor appears to correspond to an offsite concrete v-ditch associated with the freeway off-ramp that functions solely as a stormwater conveyance facility. The feature lacks a natural bed and bank, contains no riparian vegetation or canopy, and does not support wetlands or other riparian habitat. In addition, field verification and mapping analysis indicate that this drainage feature is located more than 65 feet from the project site and therefore outside the County's required 50-foot setback. Accordingly, the biologist concludes that the area does not support a riparian corridor and has no substantial value for riparian functions*

(P) Protect and encourage agricultural production by establishing a buffer between agricultural production on lands either designated in one (1) of the three (3) agricultural land use categories in the general plan or lands included within the "AR" zoning district, where any such lands abut a nonagricultural land use conducted on land outside the three (3) general plan land use categories. Generally, buffers shall be defined as a physical separation of one hundred feet (100') to two hundred feet (200'). These may be modified based upon topographic feature, a substantial tree stand, water course or similar existing feature. In some circumstances, a landscaped berm or other manmade feature may enhance the buffer. The requirement for buffer may be modified after hearing by the advisory agency following a written recommendation by the agricultural commissioner.
Inconsistent

Response: *The project has been designed to respect the intent of the agricultural buffer requirement. Buildings are located approximately 100 feet from the existing vineyard vines on the adjacent parcel, providing a meaningful separation between residential uses and active agricultural production. However, because the code measures the buffer from the property line rather than the location of the vines, the project does not fully meet the literal requirement of a 100-foot setback from the parcel boundary. Due to the physical constraints of the site and the need to accommodate circulation, emergency access, and other project features, the project requests a waiver from the strict application of this standard under State Density Bonus Law. Notwithstanding this request, the site plan was deliberately designed to honor the agricultural buffer to the greatest extent feasible and to maintain a substantial separation from the neighboring vineyard operations.*

SB 330 PRELIMINARY APPLICATION

A preliminary application for this project was submitted on January 10, 2025, in accordance with Government Code Section 65941.1. Preliminary applications reserve a project's right to only be subject to the ordinances, policies, and standards adopted and in effect when the preliminary application was submitted unless the number of residential units or square footage of construction changes by 20 percent or more (Government Code Sections 65941.1, 65589.5(o)). Please be advised that because the latest application materials show an increase of 20 percent or more in square footage of construction compared to the preliminary application, in accordance with Government Code Section 65941.1(d) the preliminary application is deemed not submitted until or unless a revised application is submitted that shows an increase of less than 20 percent.

Inconsistent

Response: *The apparent increase in square footage reflects a difference in how floor area was reported, rather than a substantive change to the project. The preliminary application identified net square footage, which refers to the interior, occupiable floor area within the residential units. Subsequent application materials and the project narrative instead reported gross square footage, which includes the total building area measured to the exterior walls and incorporates common areas, circulation space, mechanical areas, wall thickness, and other non-habitable building components. As a result, gross square footage is inherently larger than net square footage.*

To clarify this discrepancy, we have provided a square footage analysis demonstrating that net residential area typically represents approximately 65–70% of gross building area for this project by building. When the current project's net residential square footage is compared to the net square footage identified in the preliminary application, the difference remains within the 20 percent threshold established under Government Code Section 65941.1 – and actually is decreased by 5.1%.

While that demonstrates the discrepancy technically, it is also important to note that the overall scope of the project remains well within the statutory threshold when viewed more broadly. The preliminary application contemplated 93 residential units, while the current proposal includes 103 units, an increase of approximately 10.8 percent, which is clearly within the 20 percent allowance under the statute. Similarly, the preliminary application included 19 residential buildings, while the current proposal includes 20 buildings, representing only a modest increase in building count. At a basic level, the project is plainly consistent with the 20 percent limitation.

21837 GEYSERVILLE AVENUE
HOUSING ELEMENT SITE (GEY-1)

REVISED PROJECT STATEMENT
February 2026

Introduction

City Ventures is delighted to submit our proposal for a housing development located at 21837 Geyserville Avenue in Geyserville, an unincorporated area of Sonoma County. We look forward to the opportunity to collaborate with Sonoma County and are pleased to submit an application that responds to the housing goals envisioned in Sonoma County's recently certified Housing Element.

The 5.11-acre project site represents the housing opportunity site "GEY-1" in Sonoma County's 2023-31 Housing Element. The land use designation for the project site is Urban Residential. The zoning is the High-Density Residential District with a maximum density of 20 dwelling units an acre. The land, which is currently undeveloped, is proposed for 103 for-sale solar all-electric townhome-style condominiums, which at 20.16 units/acre is within the allowable density through use of State Density Bonus Law.

This housing development is designed with first-time homebuyers and young families in mind. The project is designed to be consistent with Sonoma County's Housing Element and the associated Environmental Impact Report which allowed for its approval. This proposed housing development is a Housing Development Project within the meaning of Government Code section 65589.5(h)(2) and has been designed to comply with applicable objective General Plan and subdivision standards and criteria as described in Government Code section 65589.5(j).

Per Sonoma County's Inclusionary Housing ordinance, 20% of the proposed homes must be deed-restricted affordable units. Since half of the deed restricted units (10% of the total) must be made available to families making 80% (low) of Sonoma County’s area median income, and the other half of the deed restricted units must be made available to families making 120% (moderate) of Sonoma County’s area median income, the project is eligible for State Density Bonus Law (Gov. Code, §§ 65915-65918) benefits, including waivers and concessions. Additionally, as the base density of the site (20 dua x 5.11-acres) is 102.2 units, we are required to provide 20.44 affordable units. We propose to construct 20 deed restricted affordable units and satisfy the 0.44-unit through the in-lieu fee option.

We can't wait to bring this thoughtful project program to life and bring much needed housing to Geyserville. The 83 market-rate homes are comprised of 3 bedrooms, with some homes optioning up to 4 bedrooms, ranging in size from ± 1,480-sf to 1,912-sf. The 20 deed-restricted affordable homes are comprised of 2-bedrooms and are just over 1,000 square feet. All homes will have their own private garage accessed by an internal private street with the front doors accessed from gracious paseos. Each home will come standard with solar panels and will incorporate a specific focus on healthy, energy efficient living.

The proposed 103-homes would be distributed throughout 17-buildings, contemplated to have a modern agrarian aesthetic. The project proposes 221 parking spaces, comprised of 2-dedicated spaces within each home's garage, as well as 15 surface parking stalls. The project will include over 100 bicycle parking spaces, with 103-long-term spaces located in each residential garage, and the remainder in onsite bicycle racks. The housing development will have extensive landscaping with new plantings chosen to complement the project design and setting.

City Ventures is respectfully requesting a Vesting Tentative Map permit from Sonoma County. City Ventures has previously submitted an application on January 2, 2025 for consideration under the State's SB330 Application.

City Ventures looks forward to working with Sonoma County to create a housing development just up the sculpture trail from Geyserville's charming downtown, so that more Sonoma County families can put down roots, just like the vineyards adjacent to the project site.

Materials, Finishes, and Colors

The residential buildings proposed to be developed at 21837 Geyserville Avenue feature a cohesive and contemporary architectural palette designed to complement the rural character of Geyserville while providing durability and visual interest.

Primary siding materials include a combination of horizontal lap siding, vertical board and batten, and smooth-finish fiber cement panels. These materials are durable, fire-resistant, and low maintenance, aligning with Wildland Urban Interface (WUI) requirements. Select units incorporate vertical wood-look siding (likely fiber cement with a woodgrain finish) and stucco elements at recessed bays or balconies for added texture and contrast. Clean-lined fiber cement trim and fascia boards frame windows and rooflines in contrasting neutral tones.

The color palette uses a mix of earth tones and modern neutrals:

- Main body colors include soft grays, taupes, and off-whites.
- Accent colors for trim, entries, and balconies include warm browns, charcoal, and muted olive green.
- Roofing materials are a mix of dimensional asphalt shingles in dark gray or weathered wood tones, selected for energy efficiency and fire resistance.

This neutral but warm palette helps the buildings blend into the surrounding landscape while creating distinct visual character through varied material application across elevations.

Fences, Walls, and Other Site Features

- Fencing: Residential yards and common areas will be enclosed with wood fencing and open metal or cable guardrails in some areas for visibility.
- Trash and utility enclosures: These are screened with painted CMU block walls and/or vertical wood slats, matching the overall project materials.
- Site walls and retaining features, where required, will use textured concrete or CMU with integrated landscape screening.

Lighting Plan

A complete photometric plan is included, but to briefly summarize:

- Wall-mounted sconce lighting is shown adjacent to unit entries and garage doors, using full-cutoff fixtures to minimize glare and light spill.
- Pedestrian-scale path lights and bollard fixtures will be incorporated along internal walkways and common areas for safety and wayfinding.
- Parking areas and internal streets will feature shielded pole lights designed to comply with County standards for residential lighting. These will be low-intensity, warm-white LEDs, positioned to avoid spillover to adjacent parcels.

All lighting will comply with dark-sky best practices, using downward-facing, fully shielded fixtures. The lighting design prioritizes resident safety and security while minimizing ambient light pollution and preserving the rural night sky character.

Surrounding Land Uses

The project site at 21837 Geyserville Avenue is located within the rural town of Geyserville in unincorporated Sonoma County. The 5.11-acre site is situated along Geyserville Avenue, a two-lane public roadway that provides direct access to the site. The surrounding area reflects a blend of residential, agricultural, and limited commercial uses characteristic of small-town Sonoma County.

Immediately adjacent to the site are several single-family residential properties located along Geyserville Avenue and on nearby parcels to the east and south. These homes are generally within 0 to 50 feet of the project's property line. To the south, approximately 0.2 miles from the site, is the Geyserville Inn, a local lodging establishment that serves both visitors and agricultural tourism. Agricultural land uses—including working vineyards and open space—surround the site to the north and east, with the broader area dominated by viticultural uses associated with the Dry Creek Valley and Alexander Valley appellations. U.S. Highway 101 runs just west of the site, separated by a narrow corridor and accessible via nearby on- and off-ramps.

The nearest sensitive land uses include a concentration of single-family residences immediately adjacent to the project site and along the surrounding street network. Geyserville Union Elementary School is located approximately 0.3 miles to the south of the site, within a short walking distance. The Geyserville New Tech Academy, serving middle and high school students, is located roughly 1.5 miles away. There are no hospitals or urgent care clinics in the immediate vicinity; however, regional medical services are available at Healdsburg District Hospital, located approximately 8 miles south of the site in the City of Healdsburg.

Proposed Structures: Gross Sq. Ft.

		Floor			
Building	Type	1	2	3	Total
A	401	5,738	5,772	5,074	16,584
B	301	4,696	4,731	4,251	13,678
C	302	4,455	4,474	4,112	13,041
D	100	2,888	2,915	2,630	8,433
E	400	5,686	5,724	5,069	16,479
F	501	6,677	6,717	5,887	19,281
G	500	6,201	6,290	5,686	18,177
H	400	5,686	5,724	5,069	16,479
I	400	5,686	5,724	5,069	16,479
J	400	5,686	5,724	5,069	16,479
K	400	5,686	5,724	5,069	16,479
L	502	6,112	6,190	5,691	17,993
M	302	4,818	4,886	4,251	13,955
N	200	3,814	3,808	3,453	11,075
O	201	3,936	3,963	3,453	11,352
P	600	5,860	5,895	5,440	17,195
Q	600	5,860	5,895	5,440	17,195
				Total:	**260,354**

*Note: Buildings identified on Sheet C2.0

Onsite Circulation

The proposed project at 21837 Geyserville Avenue includes a well-defined internal circulation network designed to support vehicles, bicycles, and pedestrians safely and efficiently.

The site is accessed directly from Geyserville Avenue, a public roadway. Internal vehicular circulation is organized around a primary loop road labeled Main Drive, which branches into five internal access drives: Drive A through Drive E. Main Drive/Drive A: 26 feet wide (two-way traffic with parking on one side), Drives B through E: 24 feet wide

The driveway entrance along Geyserville Avenue is aligned in relatively straight segments of the roadway with minimal obstructions with more than adequate sight distance for safe ingress and egress. Note that space has been left for a potential EVA to Canyon Road at the intersection of Main Drive/Drive B but will require further discussion with Caltrans.

Sidewalks run parallel to all internal drives, providing continuous pedestrian access to all units. There are no dedicated bike lanes shown within the site, though the internal streets are low-speed shared-use roads. The internal road loop, combined with turning radii at intersections comply with fire regulations and are sufficient for service vehicles, garbage trucks, and emergency access.

The project site is conveniently accessed from Highway 101 via nearby on/off ramps, with Geyserville Avenue serving as the main connector. Canyon Road to the south also supports circulation in the surrounding area. Geyserville Avenue is a public two-lane state highway (Highway 128) in fair to good condition and serves as the site's primary connection to regional and local destinations.

Estimated Trip Generation

A full transportation impact analysis and study is currently being prepared by W-Trans. For project statement purposes, please find the preliminary estimated trip generation calculations below.

ITE Trip Generation Manual, 11th Edition

Total Units	**103**	
Land Use Code	**230**	"Residential Condominium/Townhouse"

	Rate/Dwelling Unit
AM peak-hour	**0.44**
PM peak-hour	**0.39**
Weekday ADT	**5.81**

Directional Split	Inbound	Outbound
AM peak	**25%**	**75%**
PM peak	**60%**	**40%**

Trip Estimates for 103 Dwelling Units

	Inbound	**Outbound**	**Total Trips**
AM peak-hour	11	34	45
PM peak-hour	24	16	40
Weekday ADT			**598**

Transit Access & Active Transportation Context

The project site at 21837 Geyserville Avenue is served by Sonoma County Transit's Route 60, which provides intercity bus service connecting Geyserville to Cloverdale, Healdsburg, Windsor, and Santa Rosa. The nearest bus stop—an intercity "Park & Ride" stop on Geyserville Avenue—is located directly adjacent to the site. Route 60 operates daily, with buses departing Geyserville approximately every two hours in each direction. The system also offers bike racks on all buses.

Although there is no direct passenger rail station in Geyserville, the Sonoma–Marin Area Rail Transit (SMART) system has expanded service northward, with active passenger rail service now extending

to Windsor. There is also a planned expansion through Healdsburg and Cloverdale. Once operational, this regional rail line—combined with the adjacent multi-use SMART Pathway—will draw closer to the project site and offer additional transit options.

Pedestrian & Bicycle Facilities

Existing pedestrian infrastructure along the project frontage includes a paved sidewalk along Geyserville Avenue and internal walkways connecting bus stops, residential units, and shared amenities. Bicycle access along the site is currently accommodated on-road.
The Sonoma County Bicycle and Pedestrian Plan and related Countywide Active Transportation Plan promote the integration of transit, pedestrian, and bicycle networks.

Key policies direct the County to provide pedestrian and bicycle links to transit stops and emphasize safe route design where transit stops intersect bikeways. Bikeway design guidance within the plan further recommends signage, separated paths, and bus-stop accommodations such as bus-loading areas that don't conflict with bicycle lanes.

This parcel's direct bus stop location, supported by Sonoma County Transit's Route 60 service and multimodal integration, positions the development well within the County's Bicycle and Pedestrian Plan objectives. With future rail expansion and implementation of on-site pedestrian and bicycle enhancements, the project will support active transportation, transit use, and a sustainable regional mobility network.

Parking

More fully defined in the site coverage exhibit, as it relates to parking, there are 3,443-sf of open/outdoor parking on the site. This does not include each townhome's 2-car indoor garage on the ground floor. Dimensions of the stalls are shown on Sheet 2.0, but are 9' x 20'.

Water Supply

The proposed 103-unit residential development will be served by public water provided by the Cal-American Water Company, which operates the municipal water system in the Geyserville area. A will-serve letter has been issued.

No mutual water system or private well is proposed or required for the project. The development will connect to existing Cal-American infrastructure located within or adjacent to the project frontage. All domestic and fire water supply systems will be designed in coordination with Cal-American and in compliance with Sonoma County Fire Code standards.

The project site is not located within a medium- or high-priority Groundwater Management Basin as defined by the California Department of Water Resources. Furthermore, the property lies within a Class 1 – Major Groundwater Basin Area, indicating an area with relatively abundant groundwater resources. Accordingly, a Groundwater Study is not required under current County policy.

Water conservation measures will be incorporated throughout the development, including the use of high-efficiency plumbing fixtures and a low-water-use landscape palette consistent with Sonoma County's Water Efficient Landscape Ordinance (WELO).

Annual Water Demand Estimate

	Units	103				
			Gallons			**Acre Feet**
Component	**Avg. HH Size**	**Per Capita/Day**	**Unit/Day**	**Project/Day**	**Project/Year**	**Per Year**
Indoor Use	3	47	118	12,103	4,417,413	13.6
Landscape Irrigation				1,321	482,104	1.5
Total Demand				**13,423**	**4,899,517**	**15.0**
Notes:	Indoor per capita use (47 gallons per capita demand) follows California's current reside					
	indoor water efficiency standard for 2025.					

All proposed fixtures are water-efficient; actual indoor use could be slightly lower (42-45 GPCD) with high occupant conservation, or higher with heavy use. The landscape figure assumes compliance with MWELO evapotranspiration factors and remains constant; drought restrictions or smart irrigation controllers could reduce it further. The average household size of Sonoma County, 2.5, was used as the projected average household size of the project.

The project is expected to require 4,899,517 gallons per year of potable water under 2025 efficiency standards.

Sewage Disposal System

The proposed 103-unit townhome development will be served by a public sanitary sewer system. The site will connect to the existing public sewer infrastructure operated by Sonoma County Sanitation, which serves the Geyserville area.

The sewer system will be a gravity-fed collection system comprised of:

- 8-inch diameter SDR-26 PVC sewer mains installed within the private streets and common drive aisles.
- 6-inch lateral connections to each residential unit or shared building line, depending on configuration.

Sewer mains are located within the interior private drive loop and cul-de-sacs, as shown on Sheet C4.0. The system flows north-to-south, with the main line tying into an existing 10-inch public sewer main at the southern property boundary near the Geyserville Avenue frontage, as depicted on Sheet C4.1.

Two-way cleanouts and standard drop manholes are located at all necessary junctions and direction changes. Cleanouts are spaced in accordance with County standards and are labeled in

plan view. The final alignment, manhole placement, and invert elevations will be coordinated with Sonoma County Sanitation during improvement plan review.

No on-site septic systems are proposed. All wastewater generated by the development will be conveyed off-site via the public sewer system.

Solid Waste Disposal Facilities and Waste Reduction Opportunities

The project will include comprehensive on-site solid waste disposal facilities designed to promote sanitation, convenience, and sustainability. Each home will be provided with individual bins for garbage, recycling, and compost, in accordance with local waste management protocols and California state law (e.g., SB 1383 and AB 341).

These curbside containers will be stored in private garages and will be set out for collection on designated service days. In addition to individual household service, the development will feature one or more screened, trash and recycling containers to serve common areas. Placement will comply with fire safety, ADA access, and aesthetic standards. Curbside waste collection will be conducted by Recology, the local waste hauler for unincorporated Sonoma County.

To support waste reduction and diversion goals, the project incorporates the following strategies:

- Source Separation**:** Each household will have clearly labeled bins for landfill, recycling, and organics, enabling convenient source separation at the point of disposal.
- Recycling & Reuse**:** Informational materials will be provided to residents on how to recycle properly and where to donate or repurpose reusable goods.
- Composting**:** Organics bins will support the diversion of food scraps and yard waste, in line with state-mandated composting regulations.
- Construction Waste Management: During construction, the project will implement a waste diversion plan targeting a minimum 65% diversion rate of construction and demolition debris, per CalGreen standards.
- Resident Education: Outreach materials, signage, and welcome packets will reinforce best practices for waste sorting and reduction, helping to ensure high levels of participation and compliance.

These measures will enable efficient solid waste management while advancing the project's commitment to environmental responsibility and sustainability.

Emergency Services and Fire Hazard Assessment

The project site at 21837 Geyserville Avenue is located within a Very High Fire Hazard Severity Zone (VHFHSZ), as designated by Cal Fire. As such, wildfire risk is a significant planning consideration, and the project has been designed with appropriate access and circulation for emergency response.

The site is served by the Northern Sonoma County Protection District (GFPD). The nearest fire station is Geyserville Fire Station 1, located at 20975 Geyserville Avenue—approximately 1-mile south of the project site. The short travel distance and direct access via Geyserville Avenue ensure a rapid emergency response time.

Law enforcement services are provided by the Sonoma County Sheriff's Office, which maintains a regional presence. Additional backup is available from the California Highway Patrol due to the site's proximity to Highway 101.

Emergency medical response is coordinated through local fire stations and EMS providers. The nearest full-service hospital is Healdsburg District Hospital, located approximately 8 miles south, accessible via Highway 101.

The site includes a continuous loop circulation system (Main Drive), with multiple connecting drives (Drives A–E), ensuring adequate access and redundancy for emergency vehicles. The widths of internal drives range from 24 to 26 feet, compliant with standard fire department access requirements for residential developments.

Additionally, turning radii at intersections and driveway widths are sufficient for fire apparatus and fire lanes and hydrant locations will be finalized per Fire Department review and approval

As the site is located within a VHFHSZ, the homes will be constructed in accordance with Wildland Urban Interface (WUI) standards, including ignition-resistant building materials, defensible space, and fire-rated construction assemblies as required by the California Building Code and Fire Code.

Please note: the redesigned site plan allows room for a second point of egress/Emergency Vehicle Access to Canyon Road if required.

Site Biology

The project biologist visited the site and determined there is no riparian corridor. This was fully discussed in the Biological Resource Assessment as well as the addendum recently issues to demonstrate no setback is required, as there is also no riparian corridor offsite.

Additionally, there are no sensitive plant communities onsite and most of the site is comprised of fill material (fill soil) which does not support any sensitive community. Seasonal surveys have determined there are no rare plants. Additionally, the site is surrounded by a highway, a busy road, vineyards and development and does not provide a regional or local wildlife corridor.

Construction

The project will convert a 5.11-acre undeveloped site into 103 three-story townhomes with internal private streets, utilities, sidewalks, and landscaping.

Site grading will be required to establish level building pads, roadways, and proper stormwater drainage.

- Total Cut: 3,300 cubic yards
- Total Fill: 4,700 cubic yards
- Net Import: Approximately 1,400 cubic yards of fill material will be imported to balance the site.

- Spoils/stockpiles: Temporary stockpiling and staging will occur in open areas on the southern portion of the site, likely within the future Drive F or adjacent to Main Drive. Excess soil will be managed in accordance with County standards.

Site preparation will include clearing and grubbing, followed by mass grading with scrapers, dozers, and water trucks. No blasting or pile driving is proposed; all homes will be constructed on conventional slab-on-grade foundations with shallow footings, as supported by anticipated geotechnical conditions. Utility trenching and installation will follow the layouts in the preliminary utility plans. Internal streets will be constructed with structural sections including aggregate base and asphalt paving. Building construction will use light-frame wood over post-tensioned slabs.
As it relates to dust and erosion control, there will be use of water trucks, silt fencing, stabilized construction entrance, and daily cleanup. All equipment will have functional mufflers; no pile driving or other high-impact operations are proposed. Flaggers will be present during high-volume truck activity. Haul routes will be posted and coordinated to minimize neighborhood disruption.

This phased, balanced grading and conventional construction approach ensures compliance with County regulations while minimizing impacts to adjacent uses and reducing the need for extensive earthmoving or heavy industrial methods.

Noise

The ambient noise environment at 21837 Geyserville Avenue is characteristic of a rural-residential setting located at the edge of a small town within Sonoma County. The area is generally quiet, with intermittent noise typical of rural communities—such as local vehicular traffic, agricultural operations, and residential activity.

The project site fronts Geyserville Avenue, a two-lane collector road with light to moderate daily traffic. Traffic noise from local vehicles, including cars, delivery trucks, and agricultural equipment, is the most immediate and consistent noise source affecting the site.

The most prominent regional noise source is Highway 101, located approximately 0.1 to 0.2 miles west of the project boundary. While there is some intervening land and vegetation between the highway and the site, traffic on this major corridor—particularly heavy trucks and high-speed vehicles—contributes to low-to-moderate ambient noise levels, particularly on the western side of the site. Noise levels decrease with distance from the highway and are buffered by topography and existing structures.
Occasional noise from local events, utility operations, or community activity in the Geyserville town core may be perceptible but are infrequent and not considered significant contributors to the site's ongoing noise environment.

Overall, the ambient noise level is consistent with a semi-rural, low-density residential environment. Peak noise periods generally coincide with daytime traffic hours and agricultural activity, with significantly quieter conditions at night. While Highway 101 represents a consistent background source of noise, it is attenuated by distance and intervening land uses and is not expected to result in noise levels incompatible with residential development, particularly with modern construction practices and sound-rated building materials.

Hazards

Wildfire: The project is situated within a Very High Fire Hazard Severity Zone (VHFHSZ), as mapped in Sonoma County's General Plan Public Safety. The site's semi-rural woodland setting also places it within the Wildland–Urban Interface (WUI). Mitigation measures include incorporating defensible space and ignition-resistant landscaping, installing on-site fire hydrants per County and CalFire standards, and constructing dwellings to meet WUI building codes with fire-resistant siding, roofing, and vents.

Flood: Sonoma County's public safety maps show the project site outside FEMA-designated 100-year floodplains and dam-inundation zones. The site is however within the dam failure inundation area.

Earthquake: County maps identify moderate-to-high seismic shaking potential. All new buildings must comply with California Building Code seismic requirements. A site-specific geotechnical evaluation will guide foundation design and improvements, particularly to address liquefaction or ground settlement.

Landslide: County maps include designated zones with landslide risk, however, the relatively flat terrain of the site suggests minimal landslide exposure.

The above potential hazards are addressed in the following ways:

- Wildfire: code compliance, defensible space, ignition-resistant design
- Flood: stormwater management and site grading
- Earthquake: seismic-adapted foundations and structural systems
- Landslide: geotechnical review and erosion controls

These measures ensure that the project aligns with Sonoma County's Public Safety and Hazard Mitigation planning objectives, providing a well-prepared, safe development

Cortese List

The subject property is not located on a state list of sites containing hazardous materials compiled pursuant to Section 65962.5 of the Government Code or a hazardous waste site designated by DTSC pursuant to Section 25356 of the Health and Safety Code. Specifically, the site is not located on the Cortese List.

Setbacks

The proposed 103-unit townhome development has been designed to meet or exceed the required setbacks for the site's zoning designation. All buildings, driveways, parking areas, and other site features maintain appropriate distances from adjacent property lines. Any areas that don't meet a setback are minor and will be requested through the waiver process.

Buildings are sited a minimum of 10 to 27 feet from any property line. Closest distance occurs at Building D along the western property boundary: approximately 10 feet. Greatest distance occurs on the northern edge near Building Q: approximately 27 feet. Loop drive and all drive aisles maintain at least 5 to 15 feet from adjacent property lines, with wider setbacks at site entrances.

No drive aisle or turning movement encroaches within the minimum fire access or landscape buffer zone.

Fences & Walls

The project includes a variety of fencing and wall types designed to balance privacy, security, aesthetics, and functionality. All fencing and walls have been carefully sited and specified to comply with applicable zoning standards and community design goals.

A 6-foot high vinyl privacy fence is proposed along select portions of the project perimeter. This fence is intended to provide visual screening and separation from adjacent properties. Material will be durable vinyl in a neutral color, ensuring long-term low-maintenance performance.

Along prominent edges and locations where visual openness is desirable, such as fronting open space areas or road frontages, a 6-foot high tubular steel view fence will be used. This fence is designed to provide security without creating a closed-off appearance. The finish color will match the architectural palette. Private patios for residential units will be enclosed by 3.5-foot high tubular steel fences and gates. These provide a sense of delineation for private outdoor areas while maintaining openness and light.

A 6-foot high masonry sound wall is proposed along portions of the site adjacent to traffic noise sources, including the Redwood Highway off-ramp. This wall will be constructed of slump block in gray (or equal), offering acoustic buffering and visual consistency with adjacent improvements.

Retaining walls are proposed throughout the site where needed to accommodate grade changes. Wall heights will vary depending on location and existing topography and will be coordinated with the civil engineering drawings. Where exposed, retaining walls will be finished to blend with adjacent landscape and architectural elements.

Accessory Structures

Accessory structures are proposed throughout the development's common open space and amenity areas to support resident enjoyment, neighborhood cohesion, and compliance with County open space standards.

Freestanding shade structures (10-12 ft.) are provided within the central open space to offer sun protection over seating and picnic areas. These are open-air pergola-style elements, with final design to be consistent with the overall architectural character of the development. Park-style barbecue grills and picnic tables (3-4 feet for equipment) will be installed in designated areas to support outdoor dining and gatherings. These features are placed adjacent to seating areas under the shade structures.

A community garden with vineyard planting and seating areas is located in the social open space area. These areas are designed with decomposed granite surfacing, fruit trees, and planter beds. Seating is at standard bench height (~1.5–2 feet). Centralized mailbox structures (5-6 feet high) will be located near site entrances and designed to meet USPS standards for clustered mail delivery. These are standard prefabricated metal units, typically no more than 6 feet in height.

Bicycle racks (3-feet) are distributed across the site, particularly near guest parking areas and open space nodes. These are standard U-rack designs and are not taller than 3 feet. Pocket parks and

gathering areas will include art elements such as sculptures and vertical focal pieces. Final height and design of these elements will be provided as part of the art program and are not anticipated to exceed 6 feet.

Site Coverage

As demonstrated in the Site Coverage Exhibit, the total area in square feet of the lot covered by buildings and structures for the building lot coverage; provide the total area in square feet of the lot covered by impervious surfaces are as follows:

SITE COVERAGE	
Buildings	88,032
Walkways/Hardscape	24,757
AC Pavement (Driveway)	59,788
Parking	3,443
Total Impervious	**172,577**

Density Bonus Waivers

As previously discussed, the project is eligible for State Density Bonus Law (Gov. Code, §§ 65915-65918) benefits, including waivers and concessions. The following requested waivers are explained more thoroughly in the consistency response letter:

- Scenic Corridor Setback
- Agricultural Buffer Setback
- Uncovered Parking
- Front/Corner Setback

Affordable Units: Fractional Unit

Per Sonoma County's municipal code, "If calculating the number of units required by this Section results in a fractional unit requirement, the applicant may satisfy that fractional unit requirement by… "*c. performing an alternative equivalent action approved by the Director in compliance with Subsection 26-89-045.E (Alternative equivalent actions).*"

The base density for the site is 102 units. Twenty percent of 102 equals 20.44 units. Because of the design of the affordable housing building on site—specifically the use of interlocking/tandem unit configurations—the building can only accommodate an even number of affordable units. As a result, it is not feasible to designate a fractional unit, and converting an additional market-rate unit to affordable would impose a significant additional cost on the project.

While our preliminary research suggests that this cost could potentially be addressed through a concession, we instead propose to satisfy the remaining 0.44 unit obligation through payment of the County's in-lieu fee. The current in-lieu fee rate is $10.72 per square foot. Applied to the

project's total gross square footage, this results in a total in-lieu amount of $2,790,995, which represents the cost equivalent of providing 20 percent affordable housing. On a proportional basis, this equates to approximately $139,549 per one percent (or unit-equivalent). Applying this proportional calculation to the remaining 0.44 unit results in an in-lieu fee of $61,402 to satisfy the balance of the affordable housing requirement.

PROJECT TEAM

ARCHITECT
WHA
200 COMMERCE, SUITE 200
IRVINE, CA 92602
PHONE: (949) 250-0607
FAX:
CONTACT: Jakob Awerkamp
WEB/EMAIL: jakoba@whainc.com

OWNER
CITY VENTURES, LLC
1185 MASON STREET
SAN FRANCISCO, CA 94123
PHONE: (707) 758-3805
FAX:
CONTACT: Kelso G. Barnett
WEB/EMAIL: kbarnett@cityventures.com

CIVIL
ADOBE ASSOCIATES INC.
1220 N. DUTTON AVE.
SANTA ROSA, CA 95401
PHONE: (707) 541-2300
FAX:
CONTACT: Casey Talbolt P.E.
WEB/EMAIL: ctalbot@adobeinc.com

LANDSCAPE
C2 Collaborative
100 AVENIDA MIRAMAR
SAN CLEMENTE, CA 92672
PHONE: (949) 542-7703
FAX:
CONTACT: Christopher Fortunato
WEB/EMAIL: cfortunato@c2collaborative.com

COLORS
WHA
200 COMMERCE, SUITE 200
IRVINE, CA 92602
PHONE: (949) 250-0607
FAX:
CONTACT: Donna Aldrich, CID, LEED AP ID+C
WEB/EMAIL: donna@whainc.com

PROJECT SUMMARY

City Ventures is delighted to submit our proposal for a housing development located at 21837 Geyserville Avenue in Geyserville, an unincorporated area of Sonoma County. We look forward to the opportunity to collaborate with Sonoma County and are pleased to submit an application that responds to the housing goals envisioned in Sonoma County's recently certified Housing Element.

The 5.11-acre project site represents the housing opportunity site "GEY-1" in Sonoma County's 2023-31 Housing Element. The land use designation for the project site is Urban Residential. The zoning is the High Density Residential District with a density of 20 dwelling units an acre. The land, which is currently undeveloped, is proposed for 103 for-sale solar all-electric townhome-style condominiums, which at 20.2 units/acre is within the allowable density using State Density Bonus Law.

This housing development is designed with first-time homebuyers and young families in mind. The project is designed to be consistent with Sonoma County's Housing Element and the associated Environmental Impact Report which allowed for its approval. This proposed housing development is a Housing Development Project within the meaning of Government Code section 65589.5(h)(2) and has been designed to comply with applicable objective General Plan and subdivision standards and criteria as described in Government Code section 65589.5(j).

The revised project proposes to satisfy the inclusionary housing requirements through on-site, deed-restricted homes. Per Sonoma County's Inclusionary Housing ordinance, 10% of the homes will offered to families earning 80% of the area median income (low), and 10% will be offered to households earning 120% of the area median income (moderate). Since the revised project is eligible for State Density Bonus Law (Gov. Code, §§ 65915-65918) benefits, the project will also be requesting waivers and concessions, described in the updated project narrative.

We can't wait to bring this thoughtful project program to life and bring much needed housing to Geyserville. The market rate homes are comprised of 3 bedrooms, with some homes optioning up to 4 bedrooms, ranging in size from ± 1,480-sf to 1,912-sf. Each home has its own private garage accessed by an internal private street with the front doors accessed from gracious paseos. Each home will come standard with solar panels and will incorporate a specific focus on healthy, energy efficient living.

The proposed 103-homes would be distributed throughout 17-buildings, contemplated to have a modern agrarian aesthetic which will blend in within the neighborhood context. The project proposes 221 parking spaces, comprised of 2-dedicated spaces within each home's garage, as well as 15 surface parking stalls. The project will include over 100 bicycle parking spaces, with 103-long-term spaces located in each residential garage, and the remainder in onsite bicycle racks. The housing development will have extensive landscaping with new plantings chosen to complement the project design and setting.

City Ventures is respectfully requesting a Vesting Tentative Map permit from Sonoma County. City Ventures has previously submitted an application on January 2, 2025 for consideration under the State's SB330 Application. City Ventures looks forward to working with Sonoma County to create a housing development just up the sculpture trail from Geyserville's charming downtown, so that more Sonoma County families can put down roots, just like the vineyards adjacent to the project site.

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L-2 DESIGN IMAGERY
L-3 OPEN SPACE ENLARGEMENT
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VESTING TENTATIVE MAP SUBMITTAL

COVER SHEET - INDEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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Building It Forward

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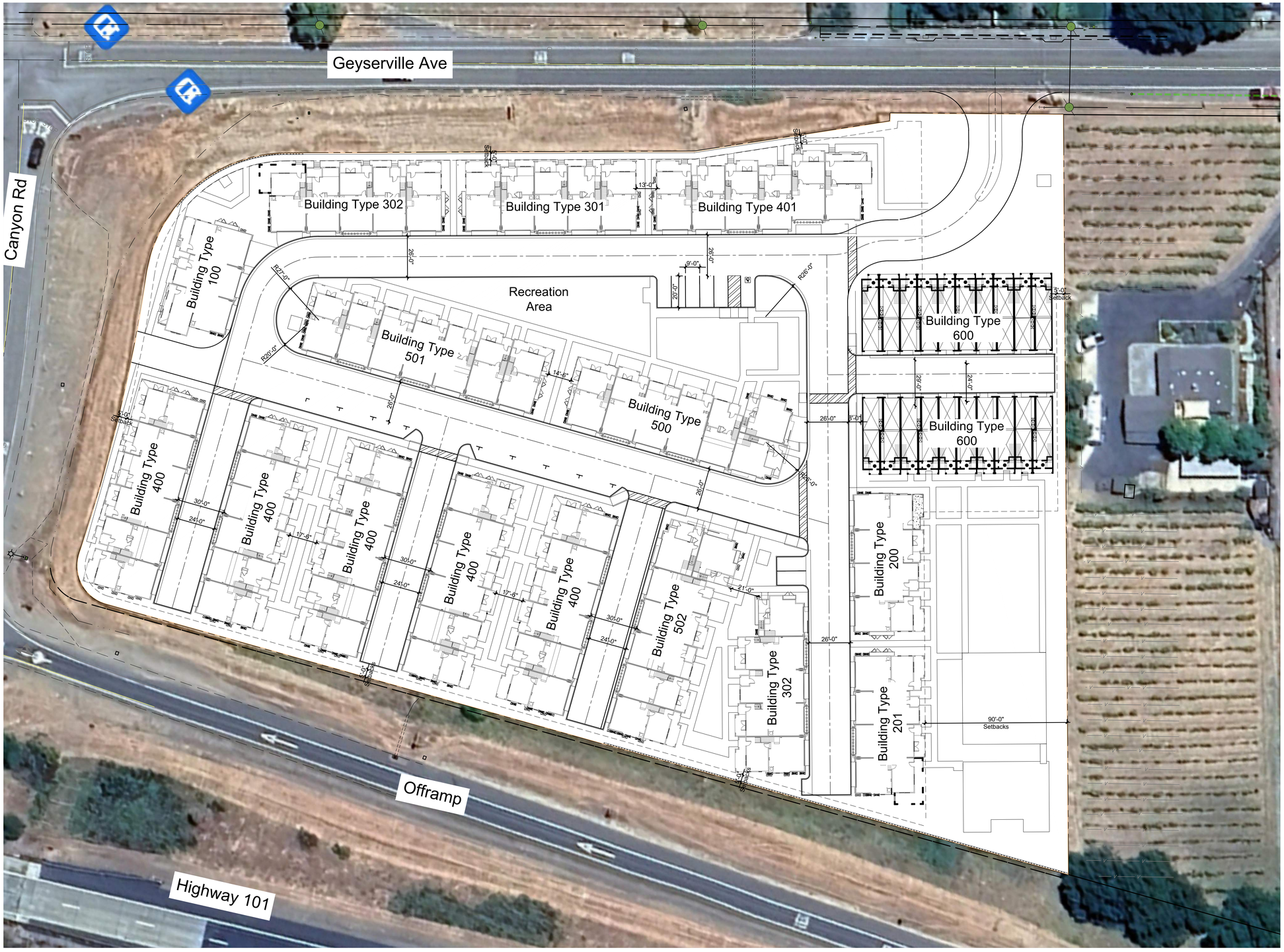

PROJECT INFORMATION

APN	140-180-035
Site Area	+/- 5.11 AC
Total Units	103 Du
Density	20.15 Du/Ac

UNITS

Unit Type	Bed / Bath	Sq. Ft.	#
P1	3 Bed / 2.5 Ba	± 1,480	5
P2	3 Bed (Opt 4 Bed)/ 2.5 Ba	± 1,746	26
P3	3 Bed (Opt 4 Bed) 2.5 Ba	± 1,812	25
P4	3 Bed (Opt 4 Bed)/ 2.5 Ba	± 1,912	27
P5	2 Bed/2 Ba	± 1,003	10
P6	2 Bed/2 Ba	± 1,030	10
Total			103

PARKING

Required	Spaces/Unit	Units	Spaces
2+ Bed	1.5	103	155
Guest	0.5	103	52
Total Required Parking			207

Type Provided	Spaces
Garage	206
Open	15
Total Provided Parking	221

Bicycle Private	2.0	103	206
Bicycle Open			7
Accessible Stalls	2%	103	3
EV Charging Stalls			

OPEN SPACE SUMMARY

Open Space Required

200SF/Unit	103 Units	20,600 SF

Private Open Space Provided

Unit Type	#	P.O.S.	Total
P1A	4	96 SF	384 SF
P1YA	1	96 SF	96 SF
P2A	26	148 SF	3,848 SF
P2B	5	148 SF	740 SF
P3	26	222 SF	5,772 SF
P4A	17	271 SF	4,607 SF
P4B	11	457 SF	5,027 SF
P4C	1	457 SF	457 SF
P4D	2	457 SF	914 SF
		21,845 SF X 50% =	10,923 SF

Common Open Space Provided	33,466 SF
Total Open Space Provided	44,392 SF

ZONING SUMMARY

Zoning	R3 B6 20 DU, RC50 SR
Land Use	UR 20

	Maximum	Provided
Max. Density	12-20 Du/Ac	18.19 Du/Ac
Max. Bldg Hgt	3 Stry (40ft Max.)	3 Stry (40ft Max.)

Fire Lane

Notes:

1. Site plan is for conceptual purposes only.
2. Site plan must be reviewed by planning, building, and fire departments for code compliance.
3. Base information per civil engineer.
4. Civil engineer to verify all setbacks and grading information
5. Building Footprints might change due to the final design elevation style.
6. Open space area is subject to change due to the balcony design of the elevation.
7. Building setbacks are measured from property lines to building foundation lines.

ARCHITECTURAL SITE PLAN

21837 GEYSERVILLE AVE

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A0.2

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Building 401 | Building 301 | Building 302 | Building 100

GEYSERVILLE AVE.

Building 300 | Building 100 | Building 400

CANYON ROAD

STREET SCENE ELEVATIONS

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A0.3

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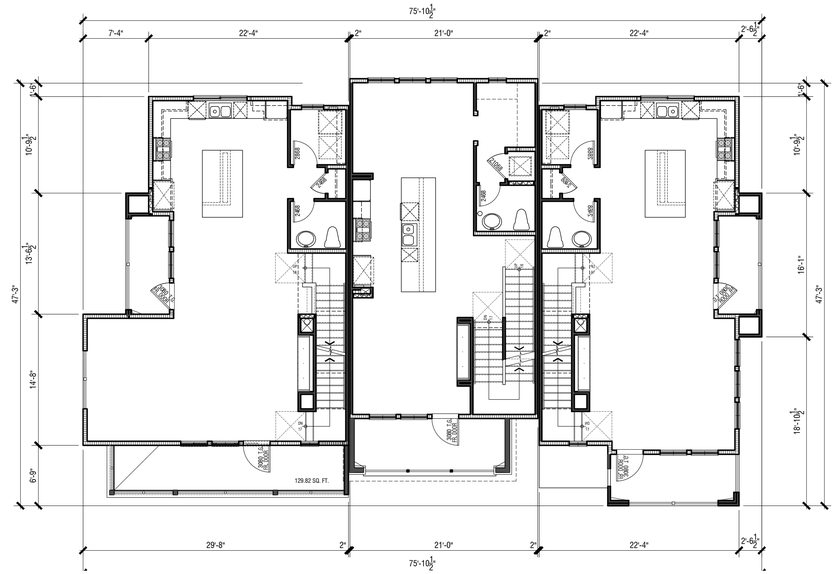
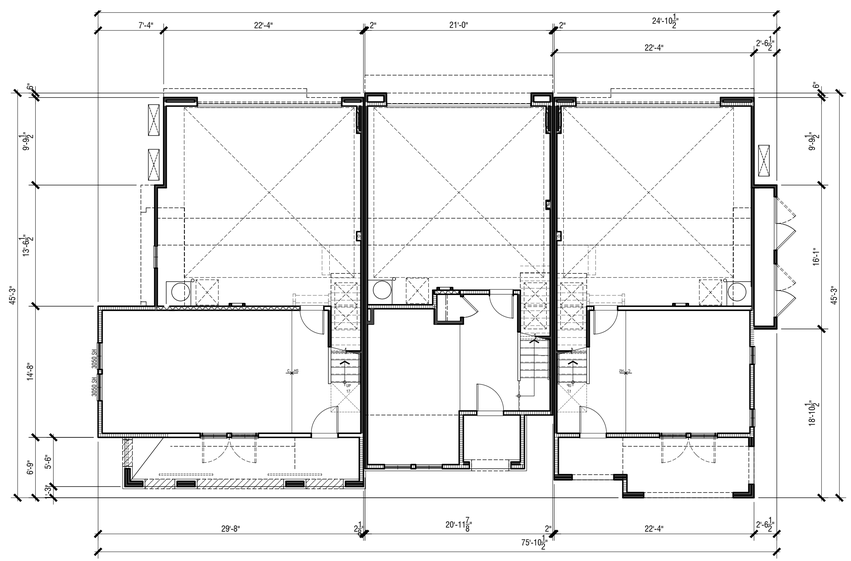


PLAN 4D PLAN 2A PLAN 4AX

Second Floor



PLAN 4D PLAN 2A PLAN 4AX

First Floor

BUILDING PLANS - BUILDING 100 - 3 PLEX

21837 GEYSERVILLE AVE

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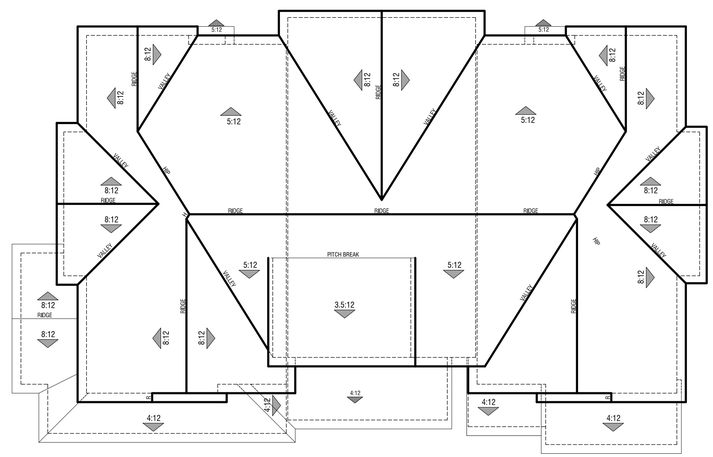
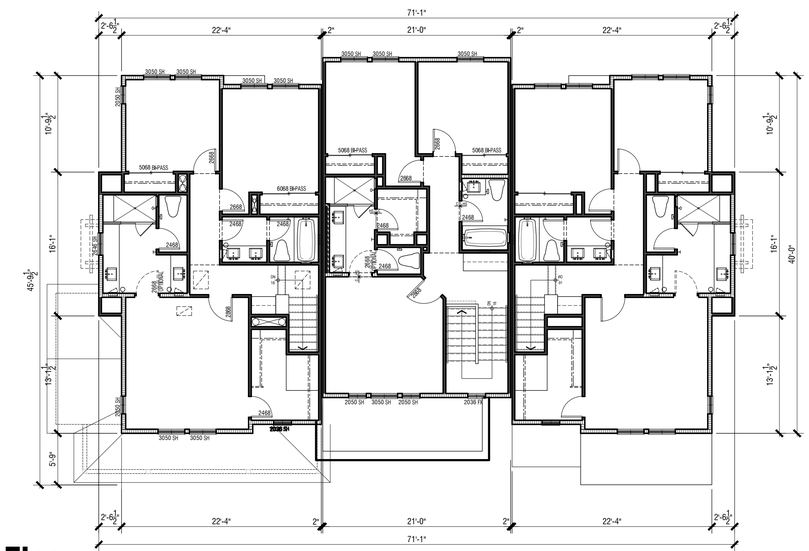


PLAN 4AX PLAN 2A PLAN 4A

Roof Plan



Third Floor

PLAN 4AX PLAN 2A PLAN 4A

BUILDING PLANS - BUILDING 100 - 3 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

A1.2

0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 100 - 3 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A1.3

0 4 8 16

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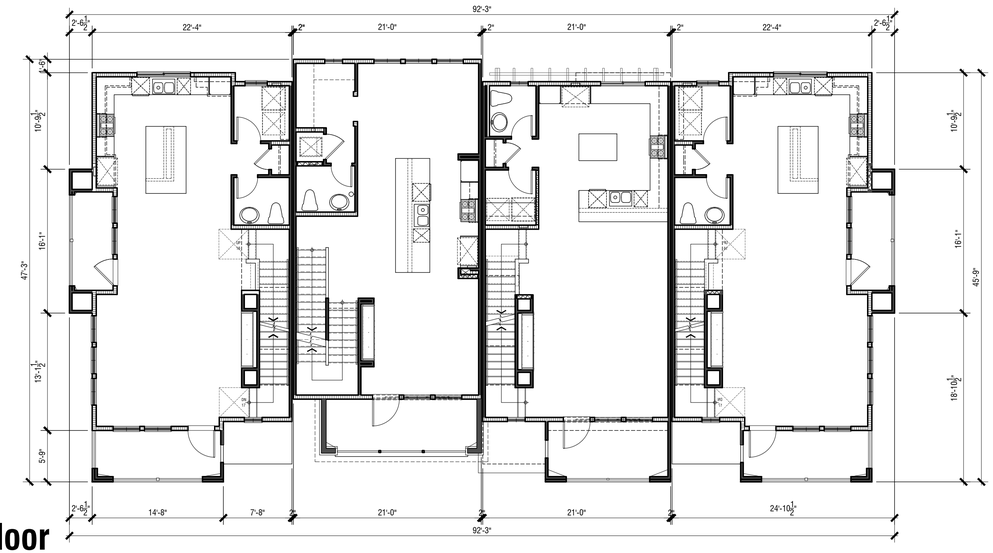
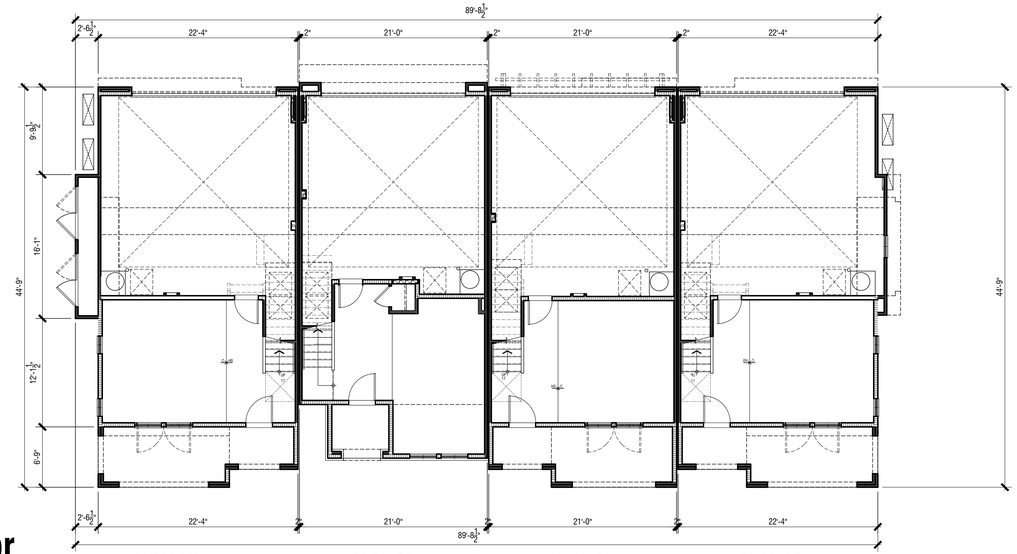
Second Floor



PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 4A

First Floor



PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 4A

BUILDING PLANS - BUILDING 200 - 4 PLEX

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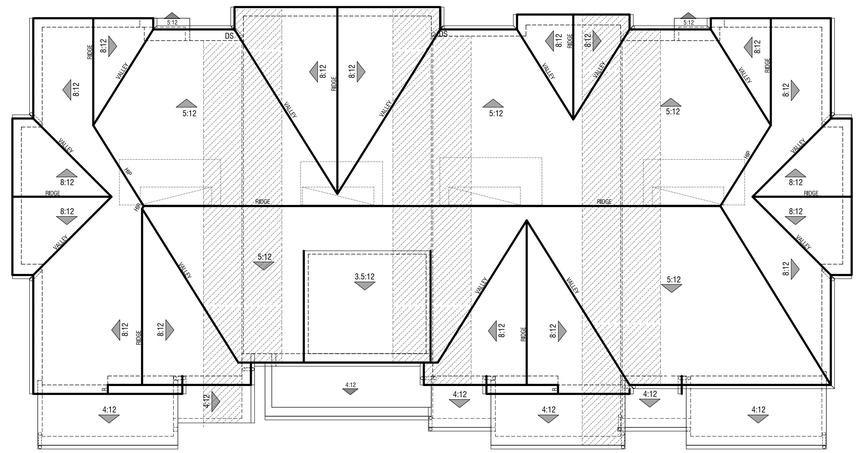
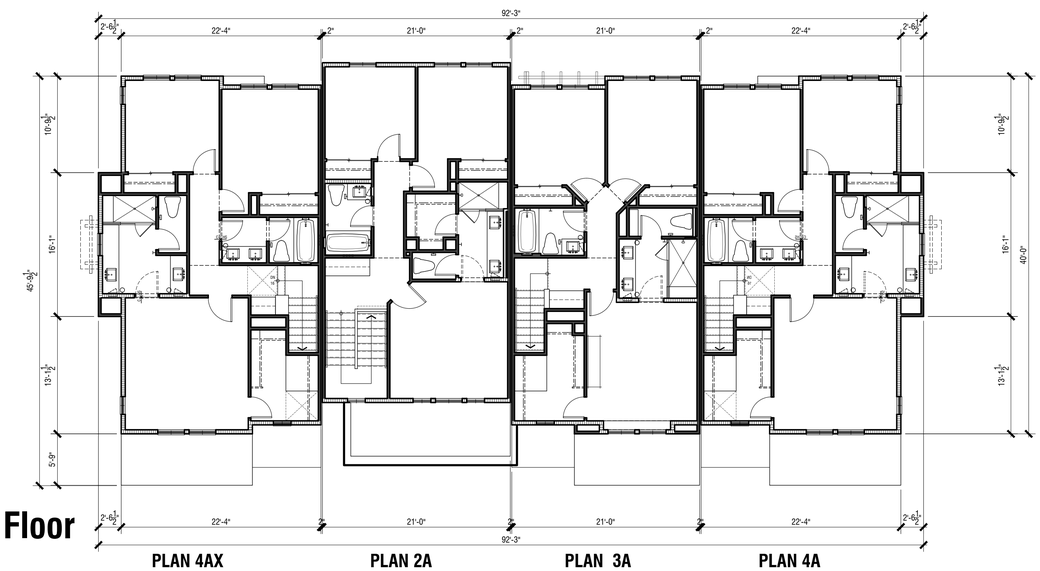
Roof Plan



Third Floor



BUILDING PLANS - BUILDING 200 - 4 PLEX

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0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 200 - 4 PLEX

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A2.3

0 4 8 16

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BUILDING SECTIONS - BUILDING 200

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A2.4

0 2.75 5.5 11

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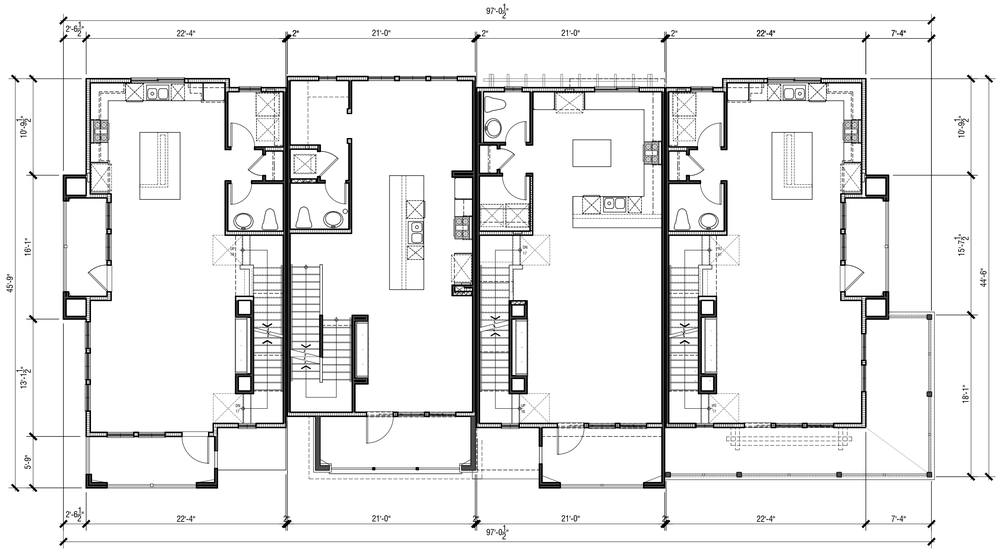
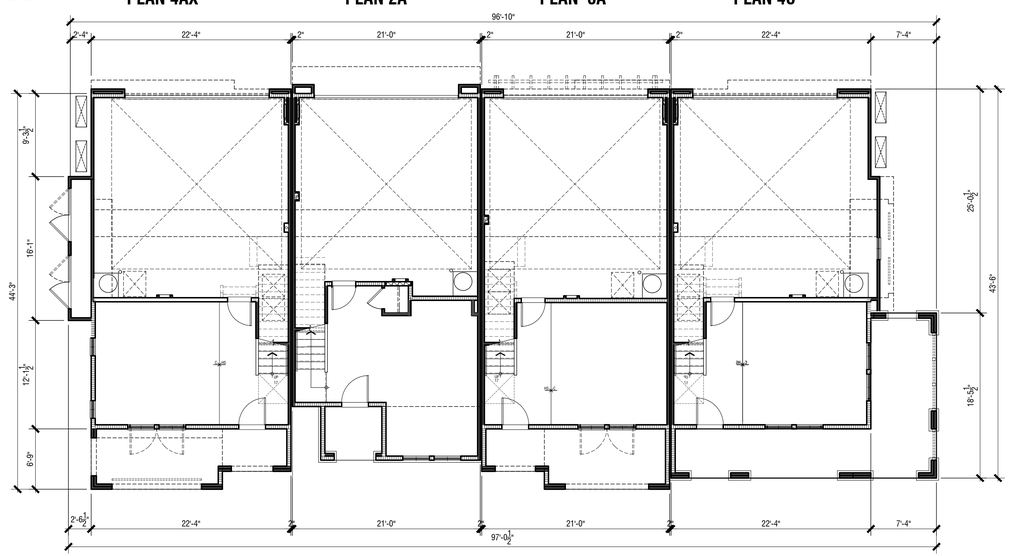


Second Floor

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 4C



First Floor

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 4C

BUILDING PLANS - BUILDING 201 - 4 PLEX

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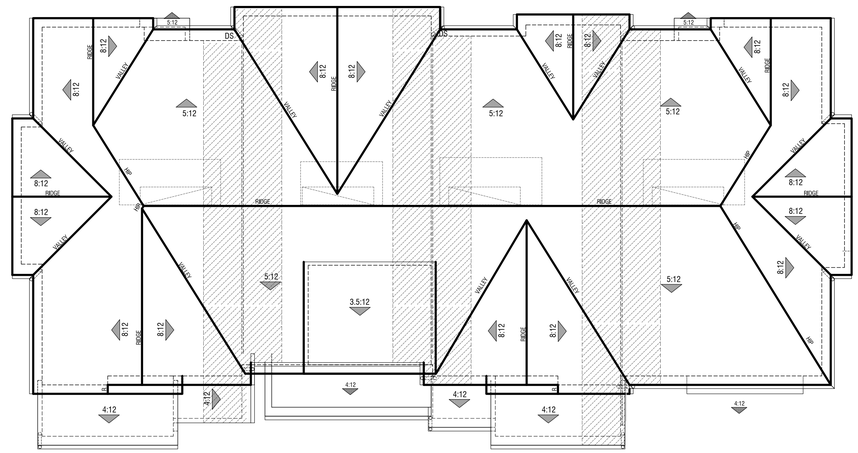
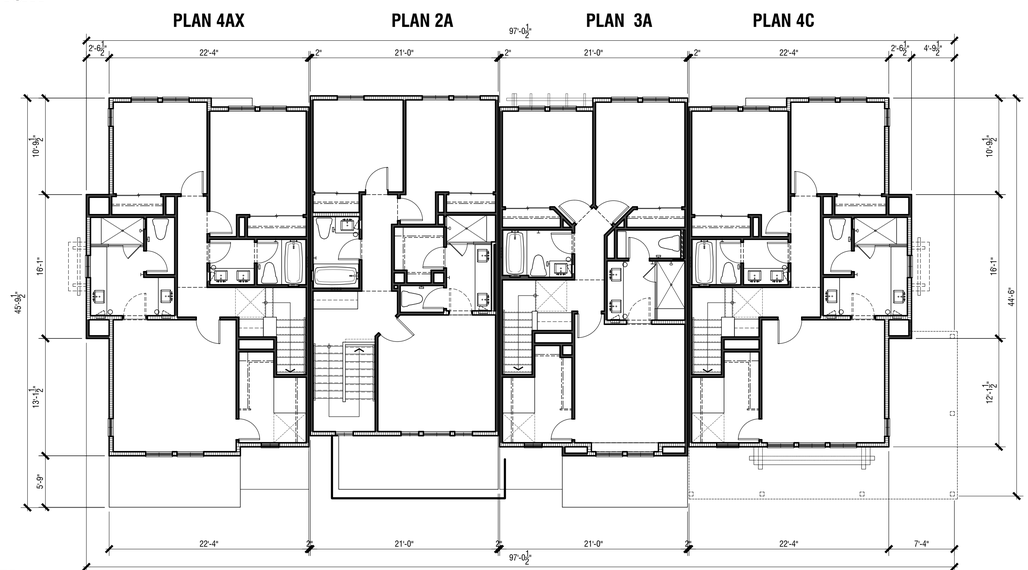


Roof Plan



Third Floor

BUILDING PLANS - BUILDING 201 - 4 PLEX

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A2.6

0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 201 - 4 PLEX

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A2.7

0 4 8 16

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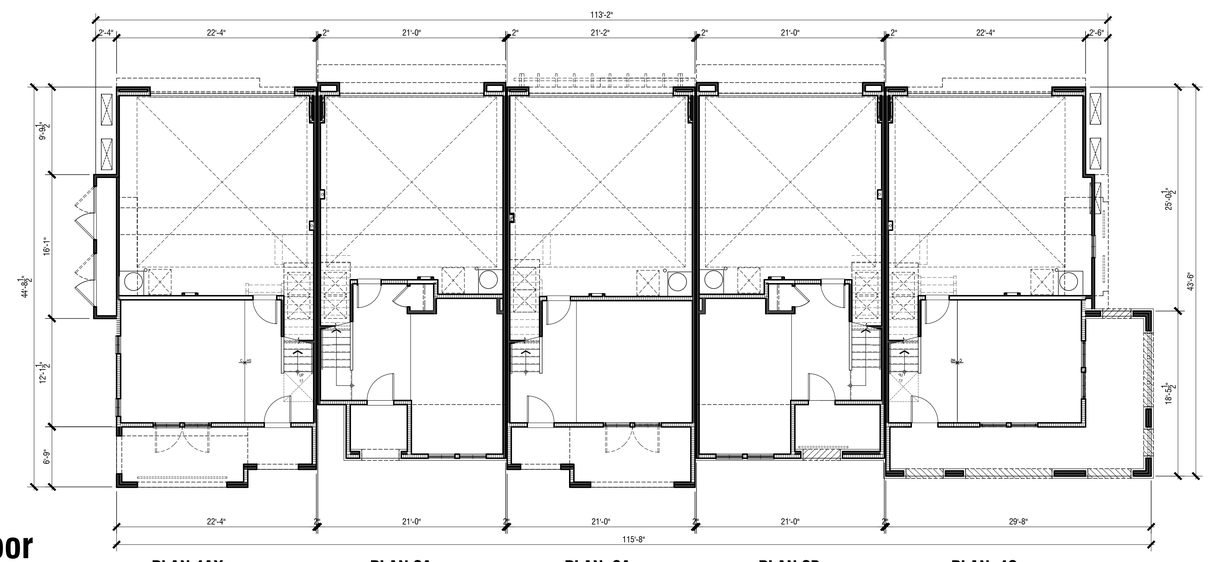
Second Floor

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4C



First Floor

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4C

BUILDING PLANS - BUILDING 300 - 5 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A3.1

0 4 8 16

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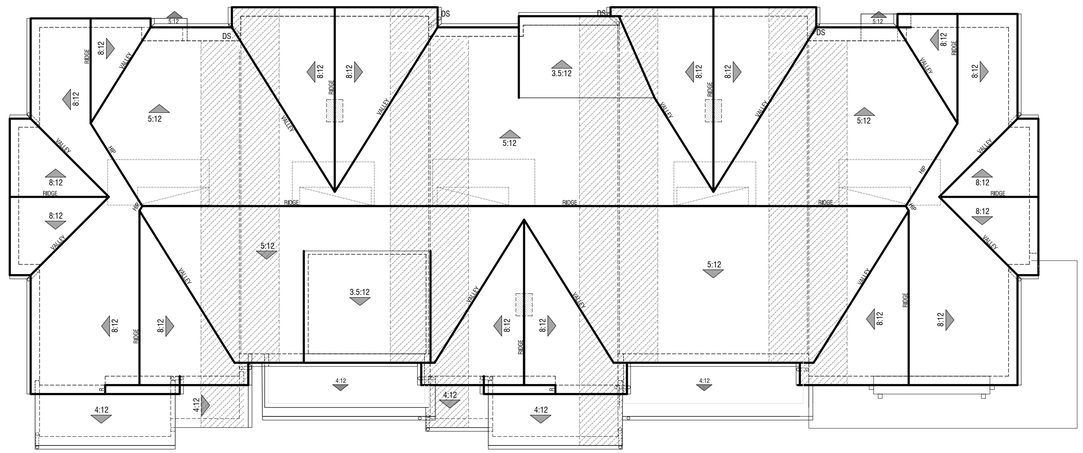
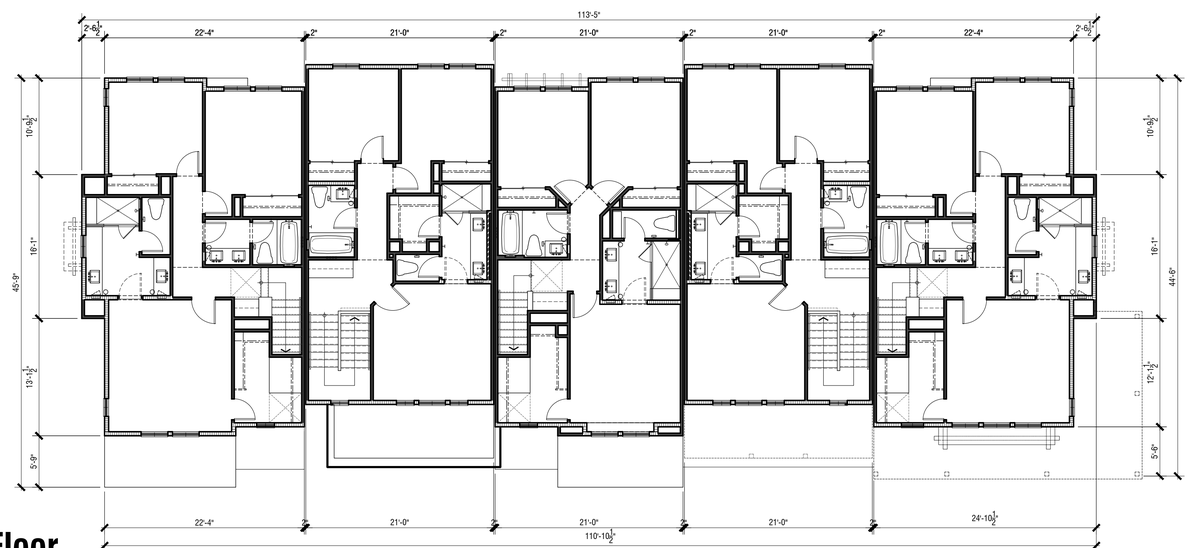


Roof Plan

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4C



Third Floor

PLAN 4AX | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4C

BUILDING PLANS - BUILDING 300 - 5 PLEX

21837 GEYSERVILLE AVE

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A3.2

0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 300 - 5 PLEX

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A3.3

0 4 8 16

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BUILDING 300 - BUILDING SECTION

BUILDING SECTION - BUILDING 300

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CITY VENTURES
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A3.4

0 2.75 5.5 11

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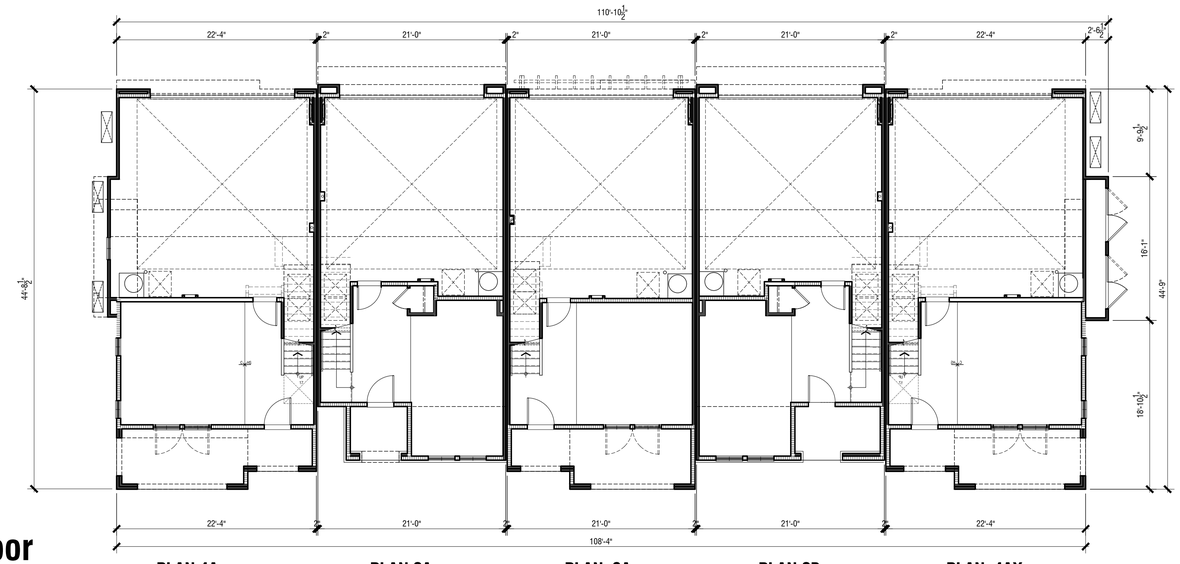
Second Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4AX



First Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4AX

BUILDING PLANS - BUILDING 301 - 5 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A3.5

0 4 8 16

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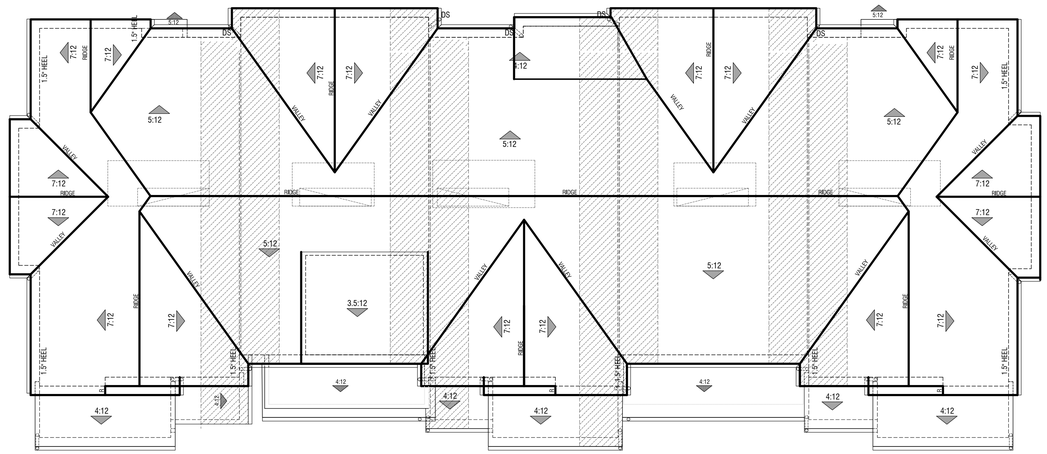
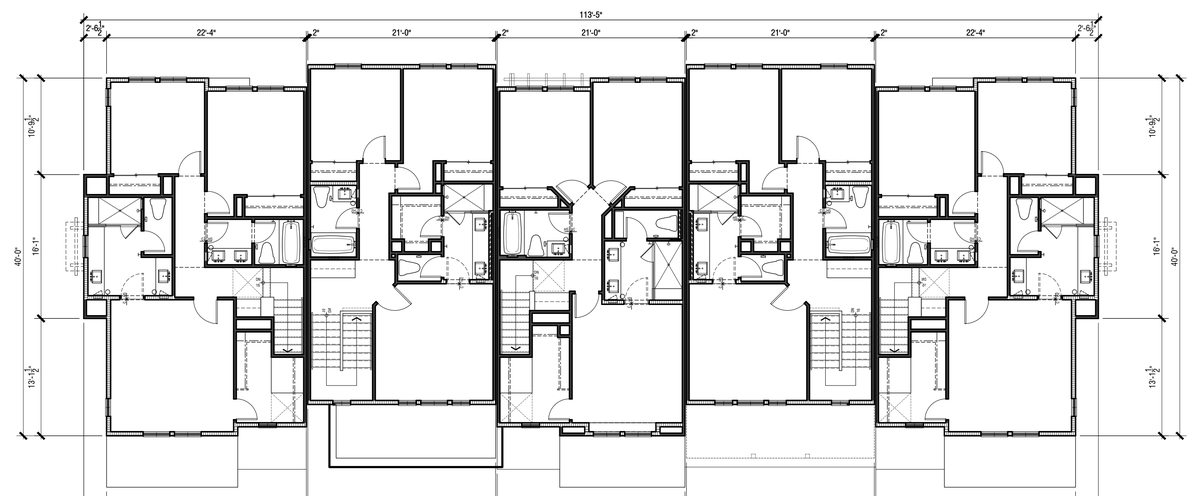


Roof Plan

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4AX



Third Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 4AX

BUILDING PLANS - BUILDING 301 - 5 PLEX

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 301 - 5 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A3.7

0 4 8 16

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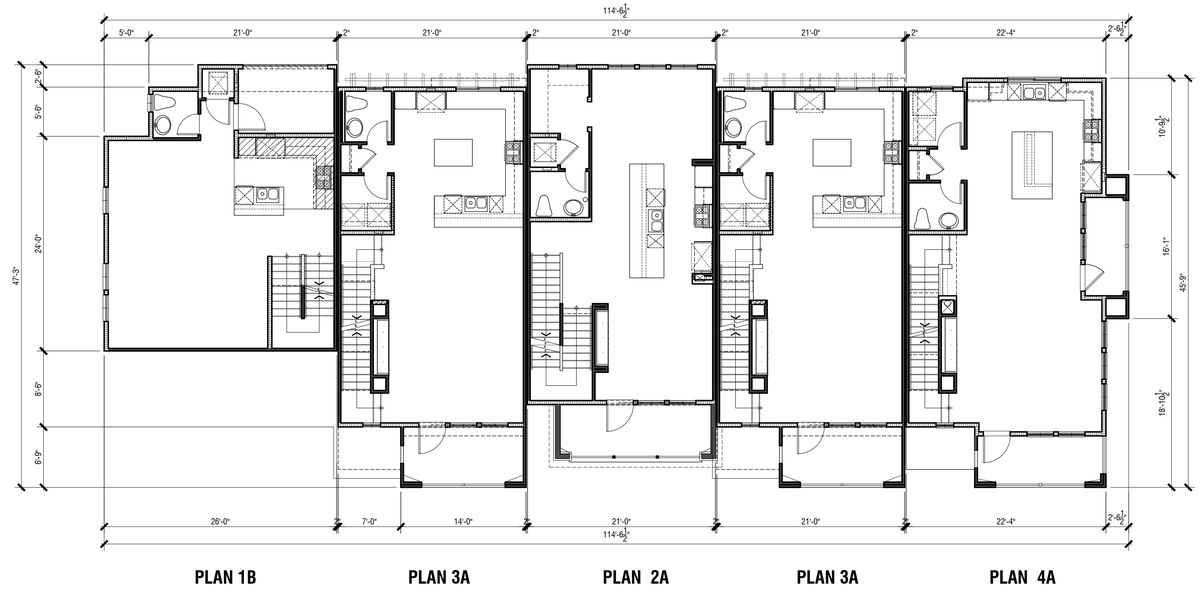
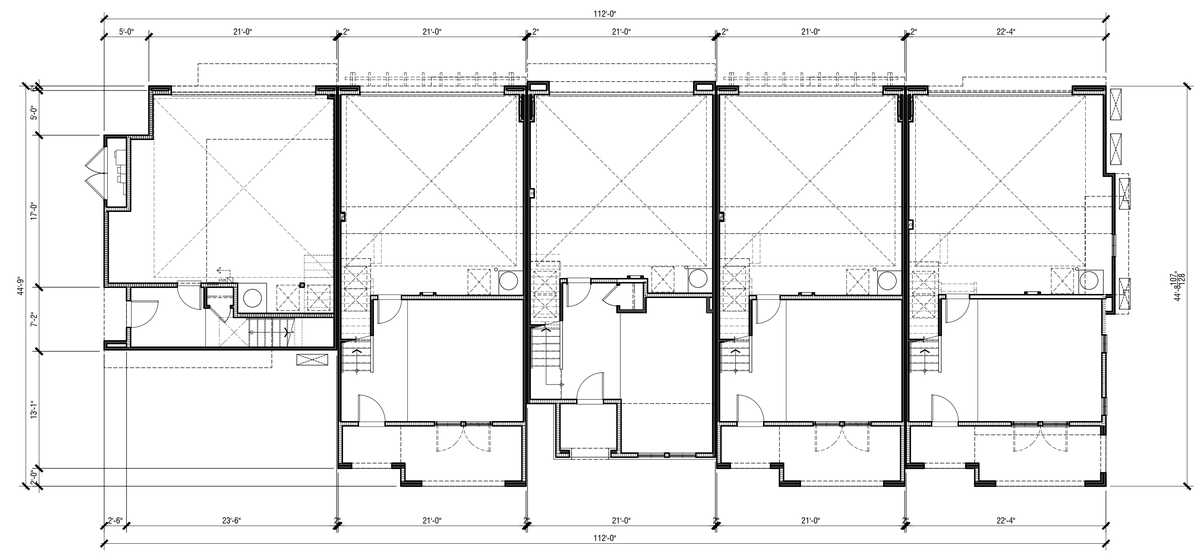
Second Floor



PLAN 1B | PLAN 3A | PLAN 2A | PLAN 3A | PLAN 4A

First Floor



PLAN 1B | PLAN 3A | PLAN 2A | PLAN 3A | PLAN 4A

BUILDING PLANS - BUILDING 302 - 5 PLEX

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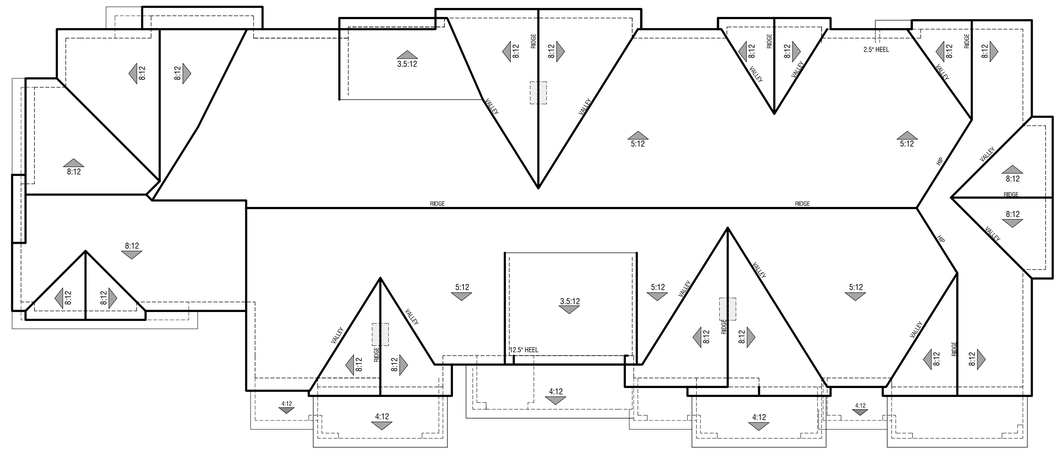
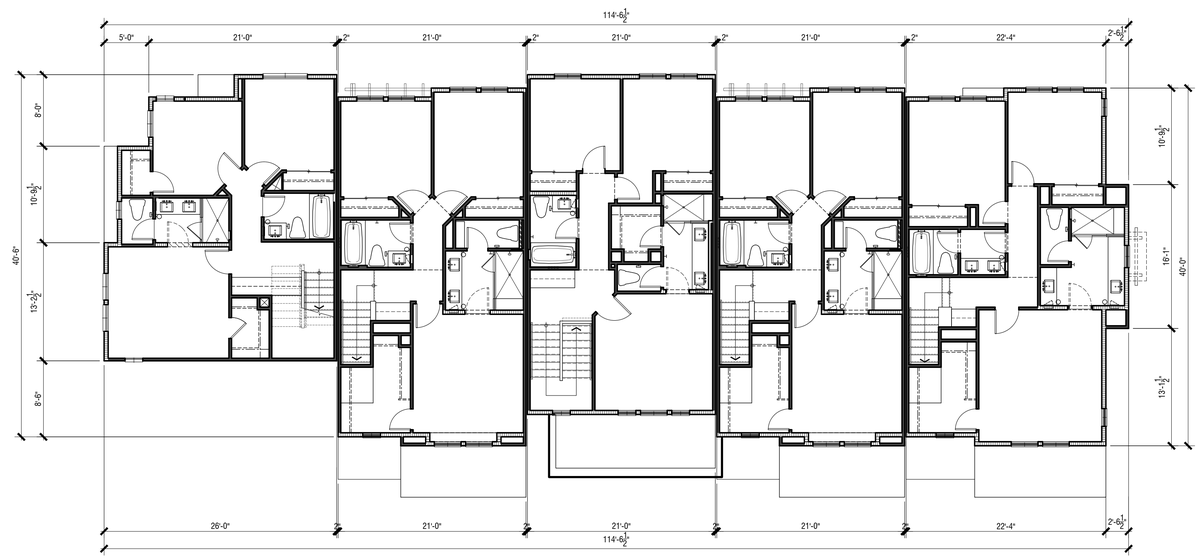


Roof Plan

PLAN 1B | PLAN 3A | PLAN 2A | PLAN 3A | PLAN 4A



Third Floor

PLAN 1B | PLAN 3A | PLAN 2A | PLAN 3A | PLAN 4A

BUILDING PLANS - BUILDING 302 - 5 PLEX

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A3.9

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Front

ELEVATIONS - BUILDING 302 - 5 PLEX

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A3.10

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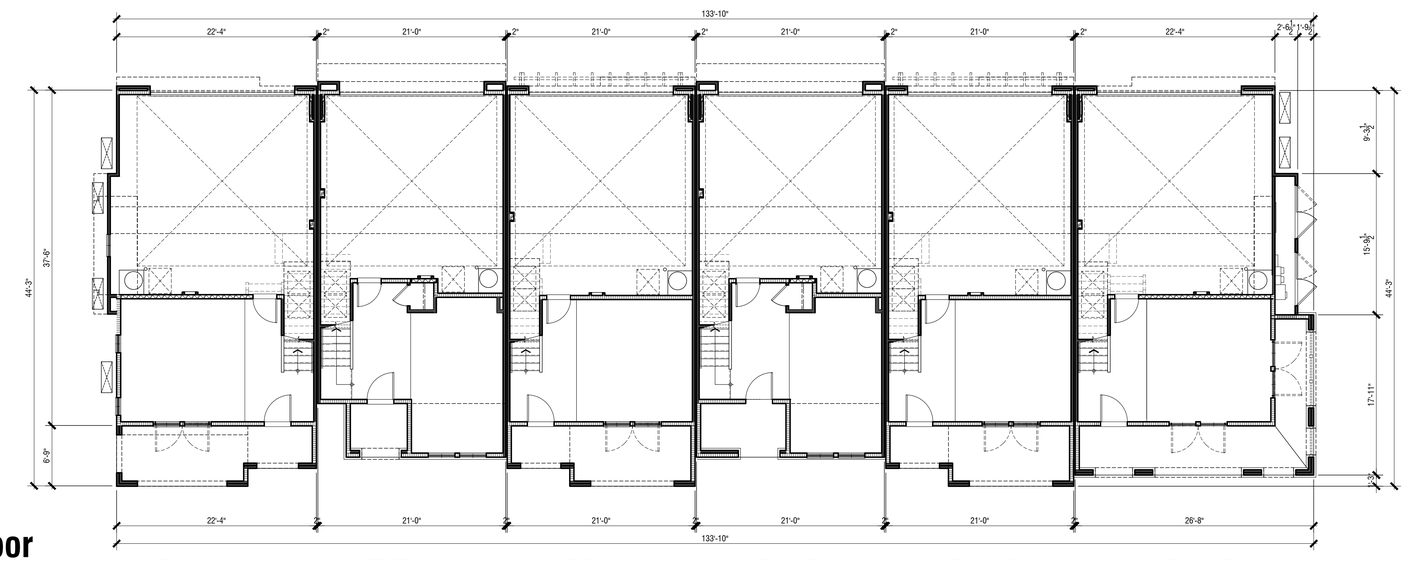
Second Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4BX



First Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4BX

BUILDING PLANS - BUILDING 400 - 6 PLEX

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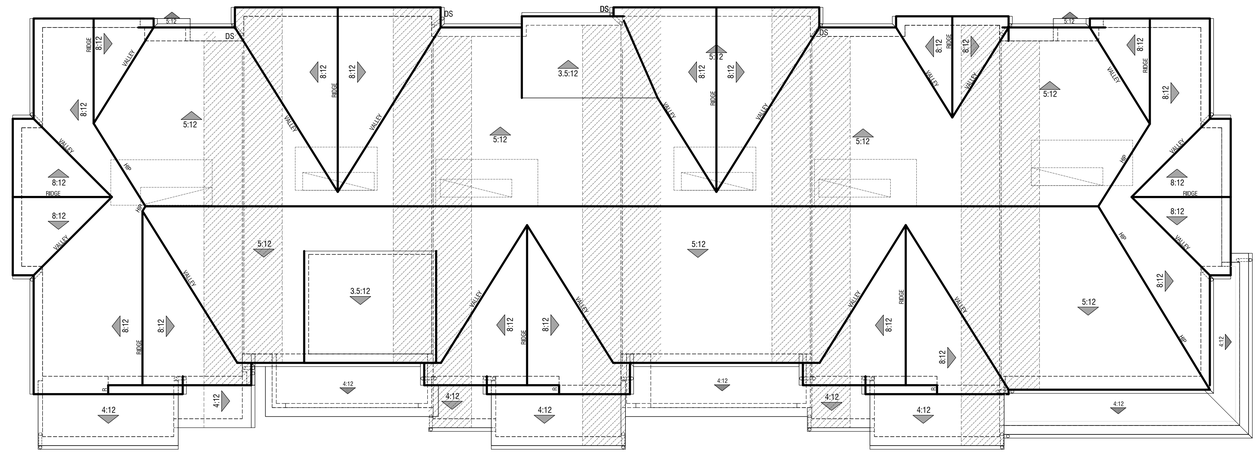
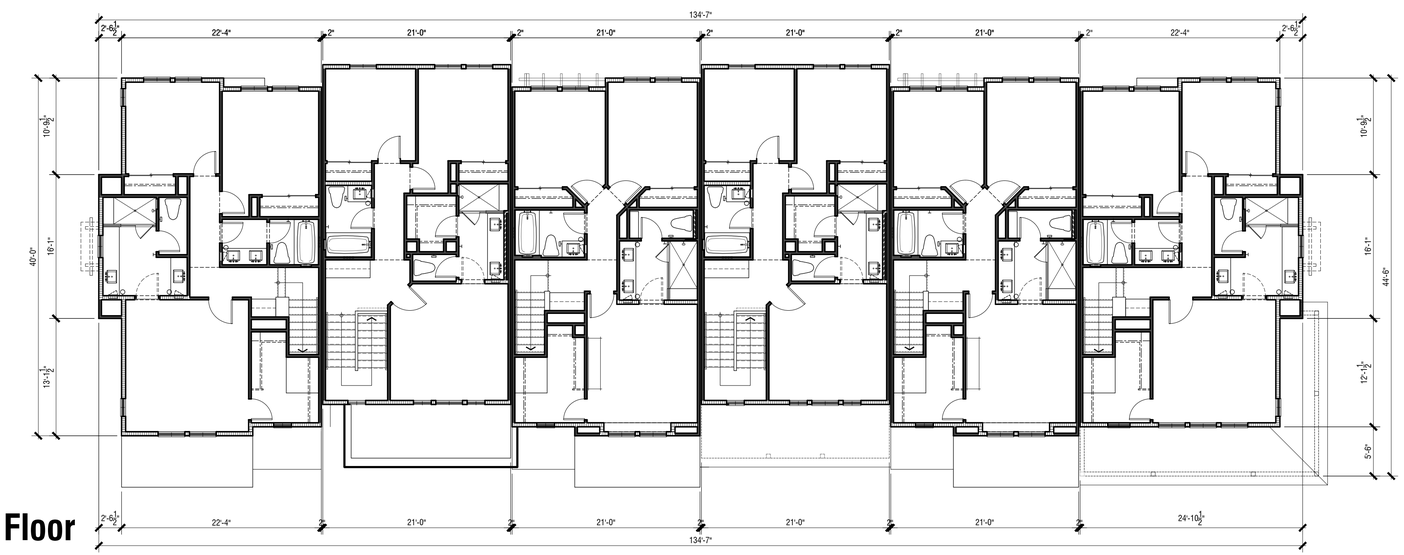


Roof Plan

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4BX



Third Floor

PLAN 4A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4BX

BUILDING PLANS - BUILDING 400 - 6 PLEX

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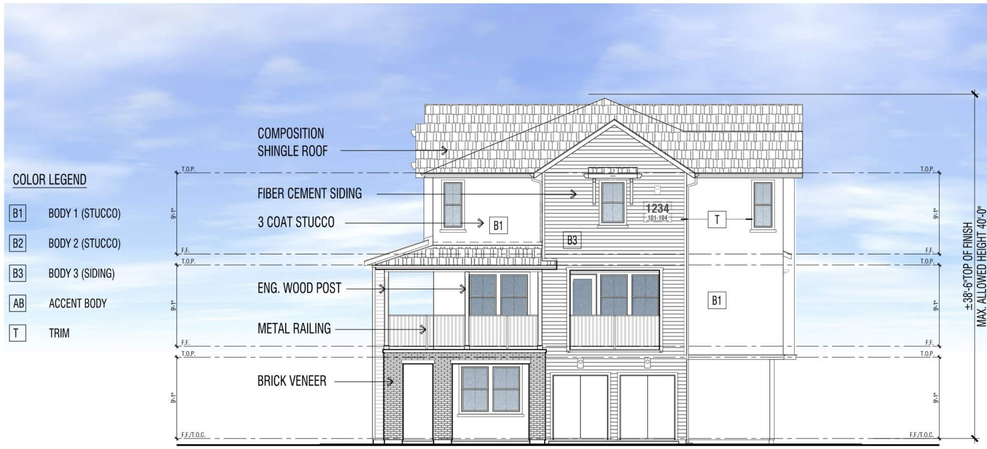

Right

Rear

Left

Front

ELEVATIONS - BUILDING 400 - 6 PLEX

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A4.3

0 4 8 16

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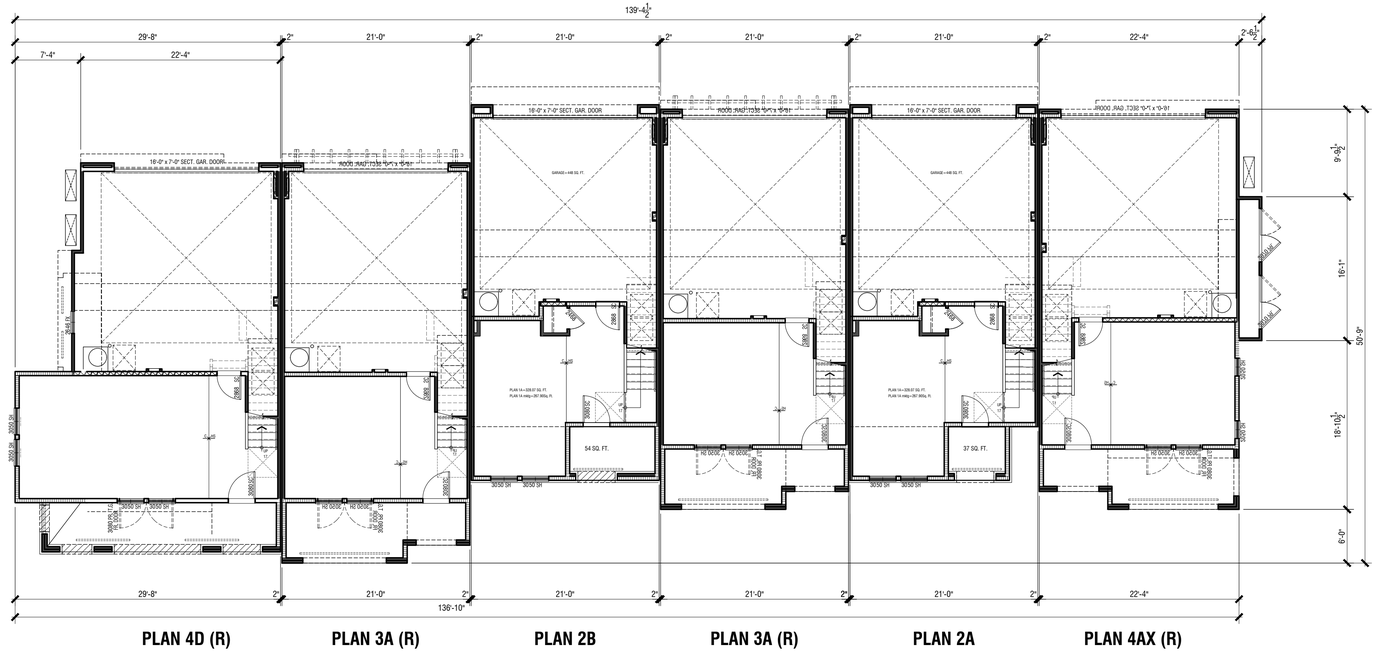
Second Floor



First Floor

BUILDING PLANS - BUILDING 401 - 6 PLEX

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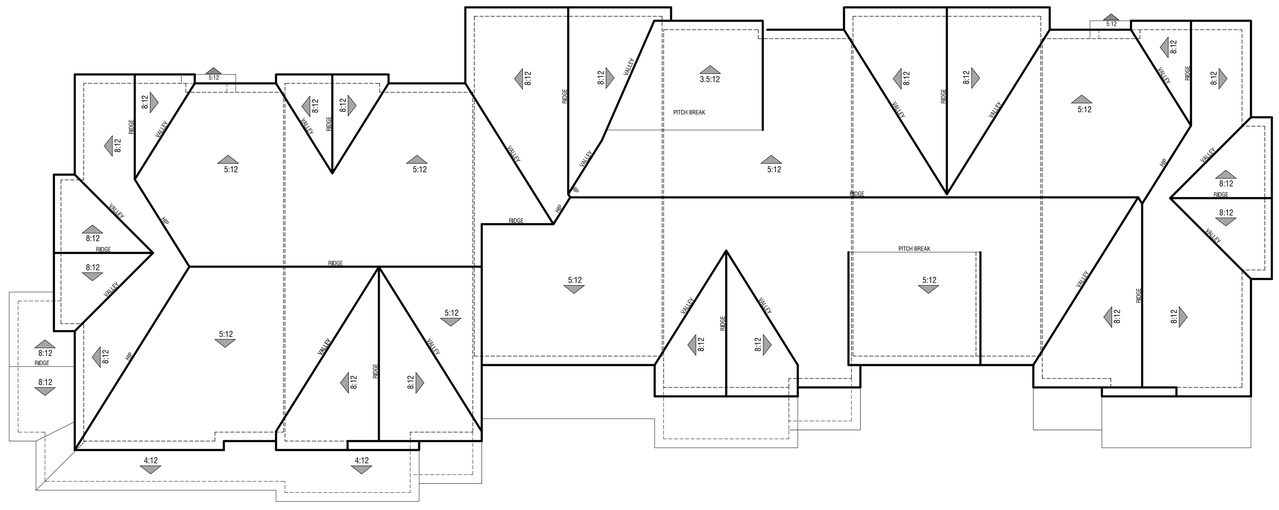

PLAN 4D (R) PLAN 3A (R) PLAN 2B PLAN 3A (R) PLAN 2A PLAN 4AX (R)

Roof Plan

PLAN 4D (R) PLAN 3A (R) PLAN 2B PLAN 3A (R) PLAN 2A PLAN 4AX (R)

Third Floor

BUILDING PLANS - BUILDING 401 - 6 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

A4.5

0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

ELEVATIONS - BUILDING 401 - 6 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

A4.6

0 4 8 16

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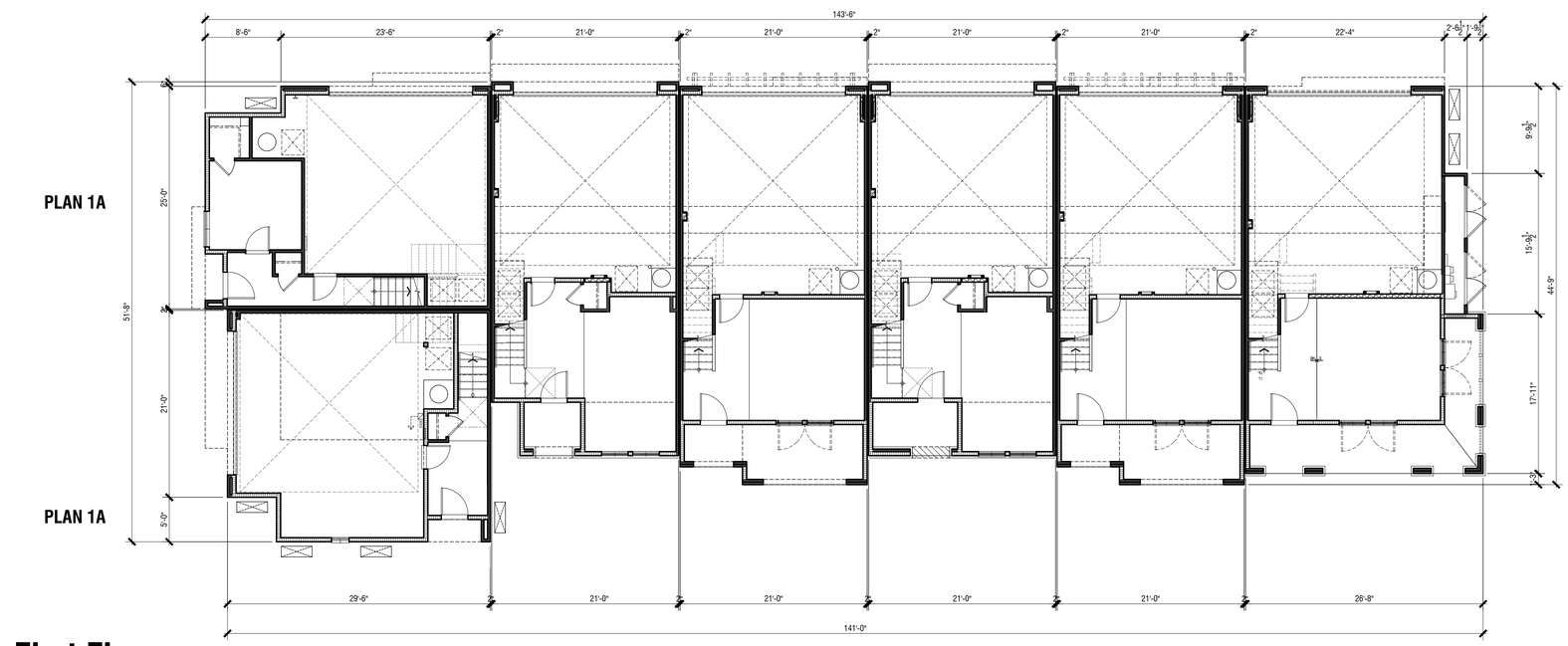
Second Floor



First Floor

BUILDING PLANS - BUILDING 500 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

A5.1

0 4 8 16

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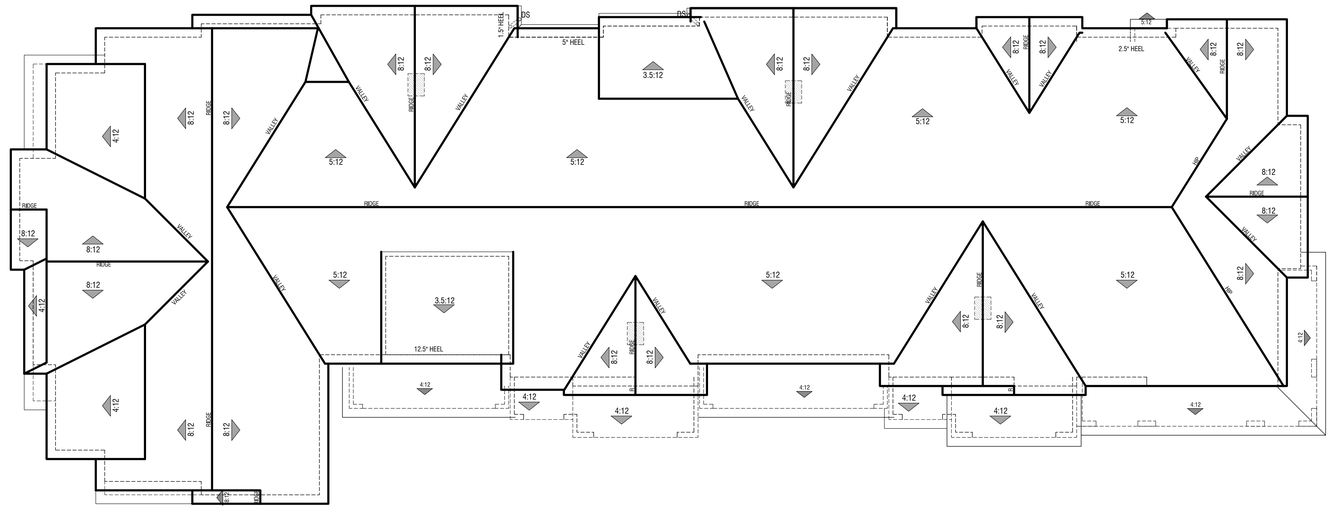

Roof Plan

PLAN 1A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4BX

PLAN 1AX

PLAN 1A

Third Floor

BUILDING PLANS - BUILDING 500 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A5.2

0 4 8 16

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COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 500 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A5.3

0 4 8 16

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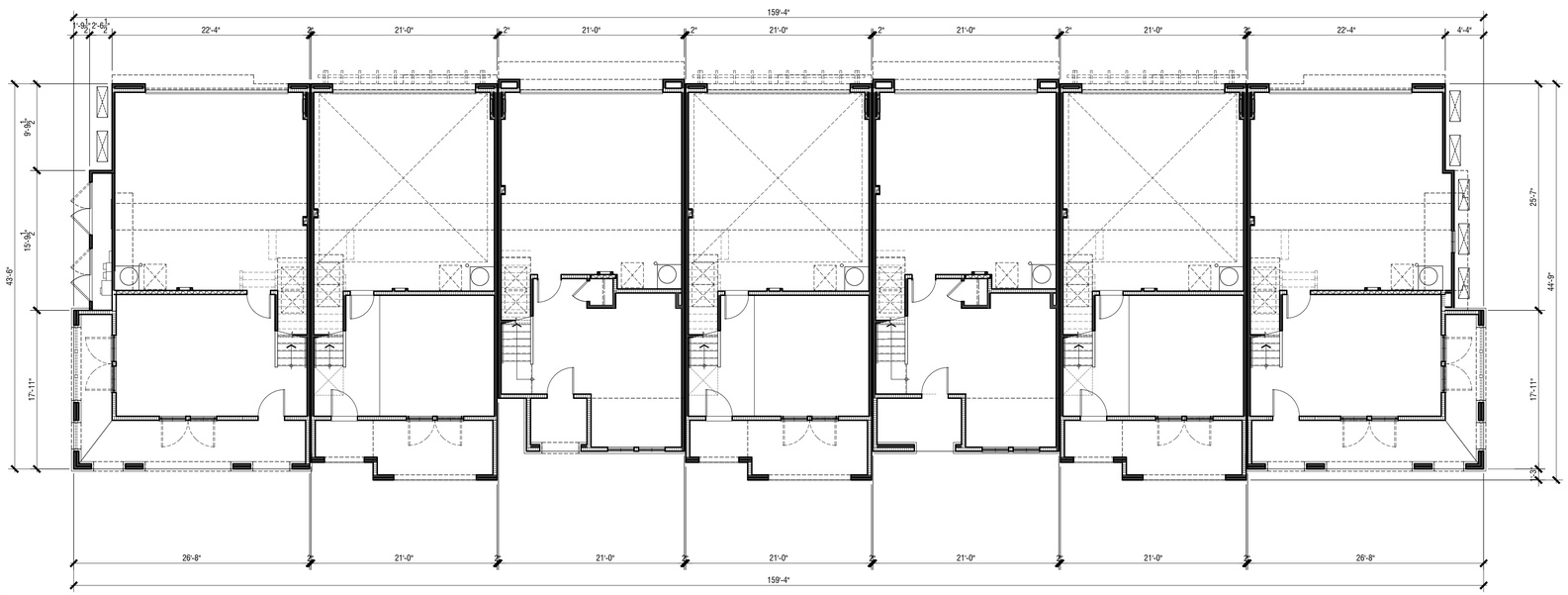
Second Floor

PLAN 4BX | PLAN 3A | PLAN 2A | PLAN 3A | PLAN 2B | PLAN 3A | PLAN 4B



First Floor

BUILDING PLANS - BUILDING 501 - 7 PLEX

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SONOMA COUNTY, CA

CITY VENTURES
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A5.4

0 4 8 16

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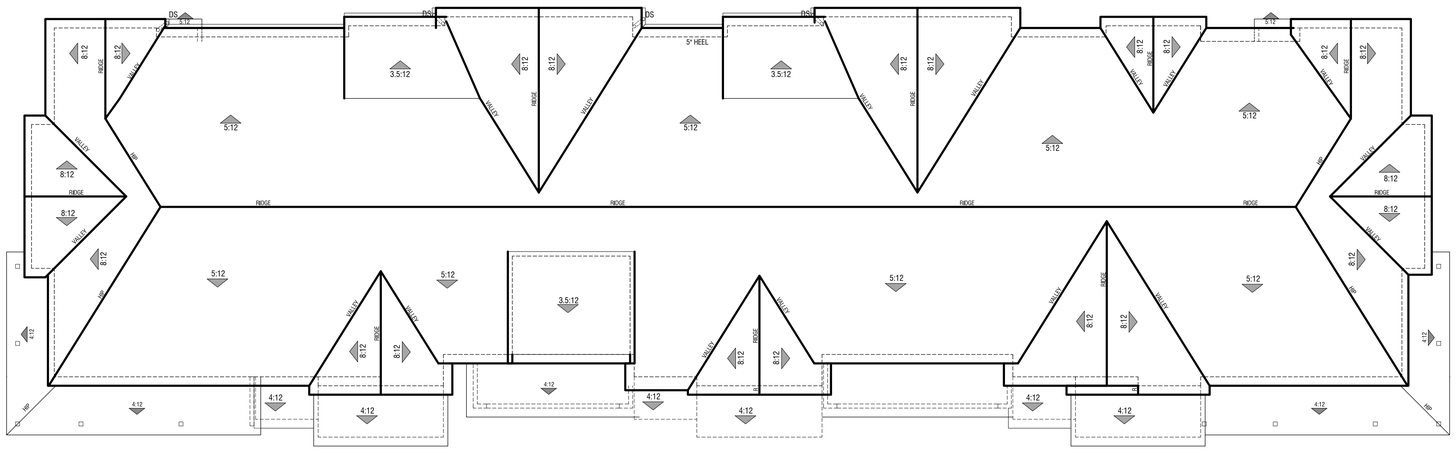
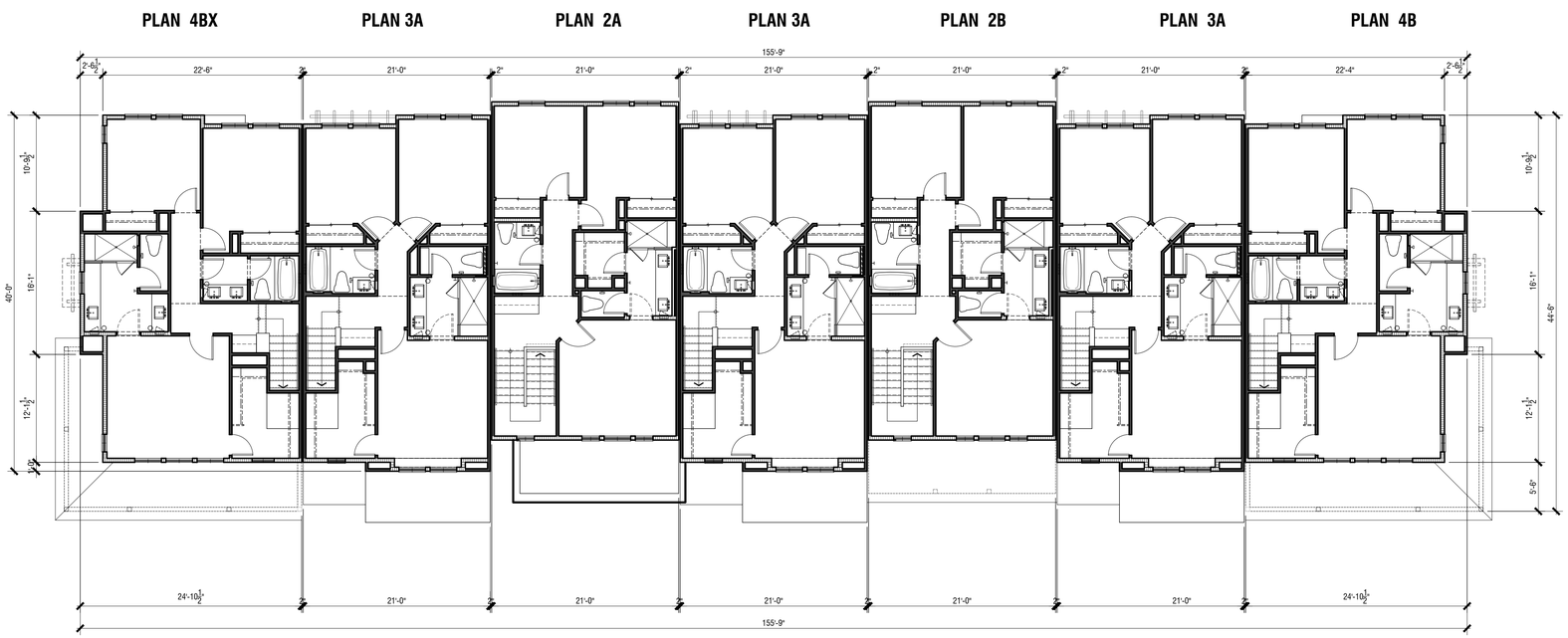


Roof Plan



Third Floor

BUILDING PLANS - BUILDING 501 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A5.5

0 4 8 16

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ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

Front

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

ELEVATIONS - BUILDING 501 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

A5.6

0 4 8 16

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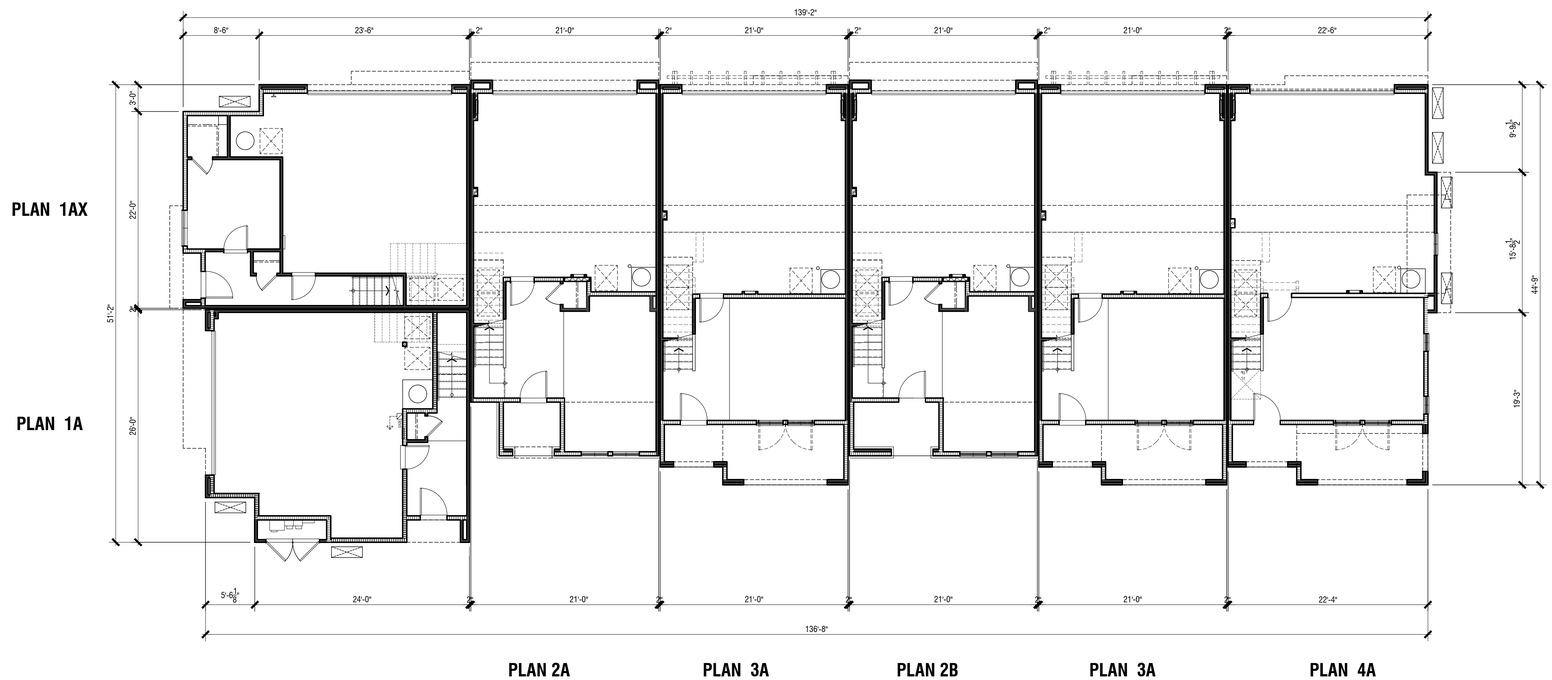
Second Floor



First Floor

BUILDING PLANS - BUILDING 502 - 7 PLEX

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SONOMA COUNTY, CA

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A5.7

0 4 8 16

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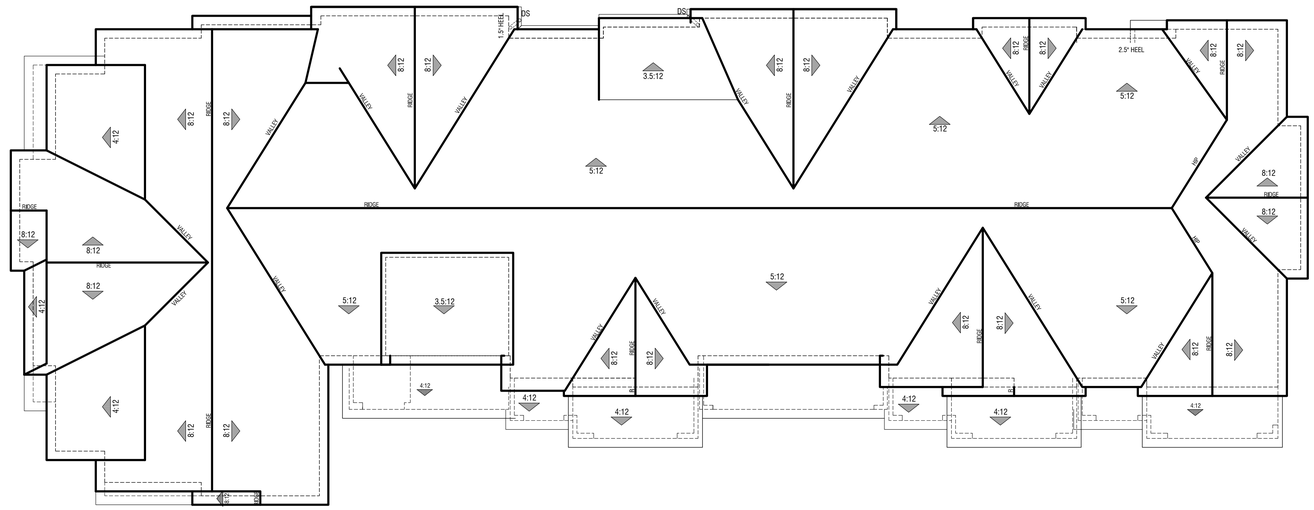

Roof Plan

Third Floor

BUILDING PLANS - BUILDING 502 - 7 PLEX

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SONOMA COUNTY, CA

CITY VENTURES
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A5.8

0 4 8 16

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WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Right

Rear

Left

COLOR LEGEND

B1	BODY 1 (STUCCO)
B2	BODY 2 (STUCCO)
B3	BODY 3 (SIDING)
AB	ACCENT BODY
T	TRIM

Front

ELEVATIONS - BUILDING 502 - 7 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
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A5.9

0 4 8 16

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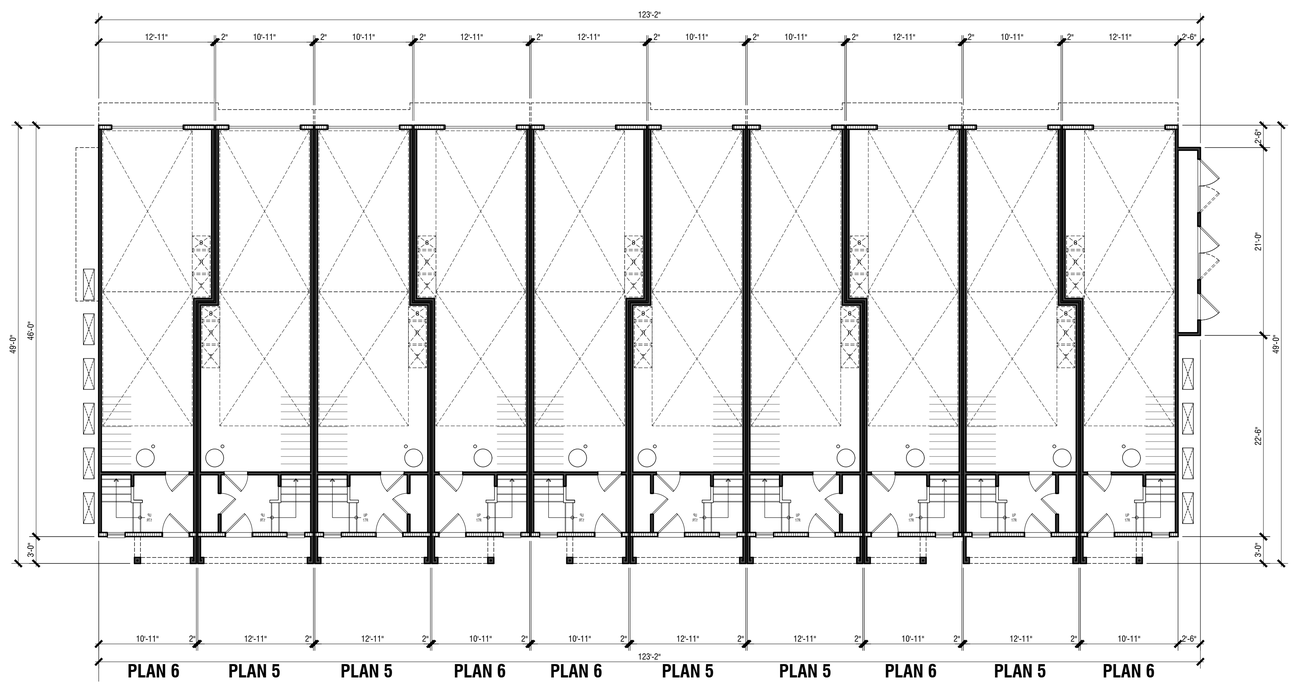
Second Floor



First Floor

BUILDING PLANS - BUILDING 600 - 10 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A6.1

0 4 8 16

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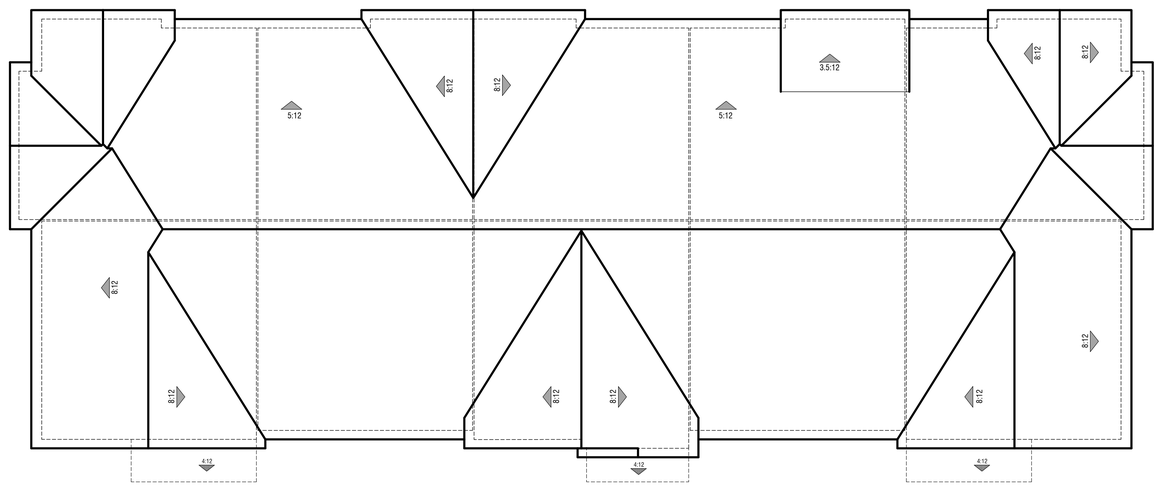
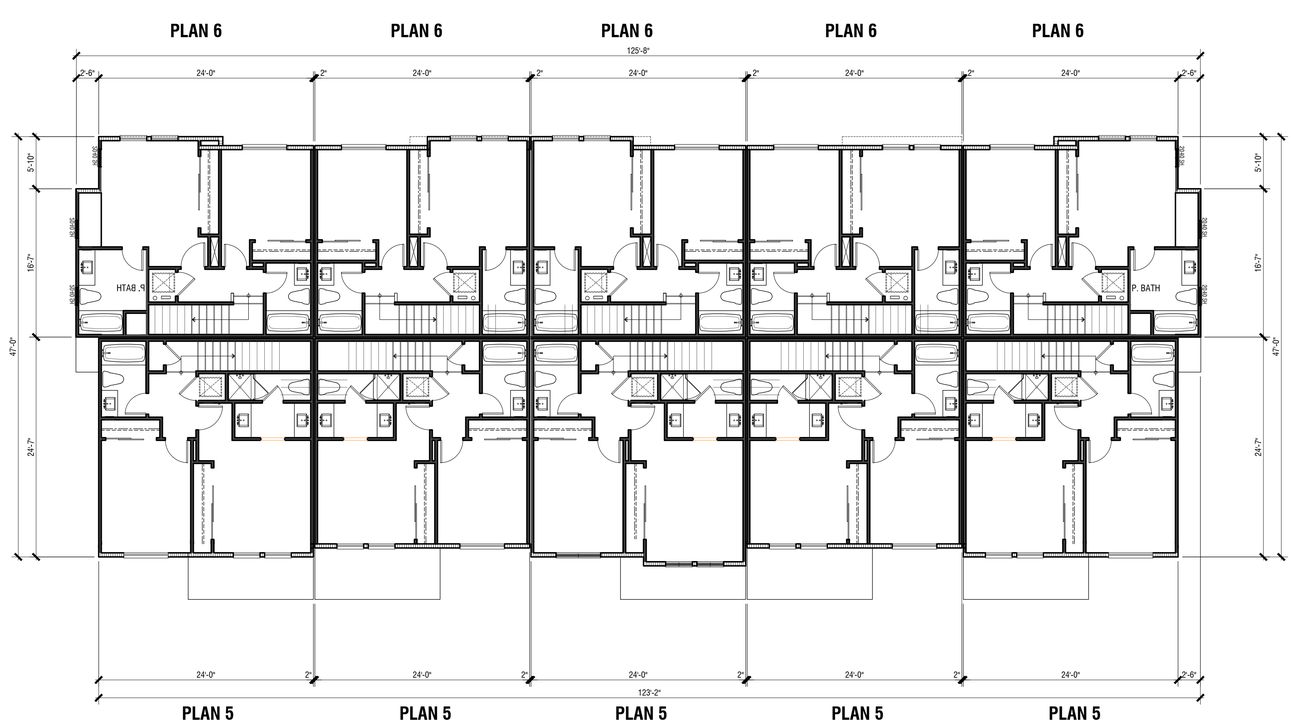


Roof Plan



Third Floor

BUILDING PLANS - BUILDING 600 - 10 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A6.2

0 4 8 16

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WHA.
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Right

Rear

Left

Front

ELEVATIONS - BUILDING 600 - 10 PLEX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

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A6.3

0 4 8 16

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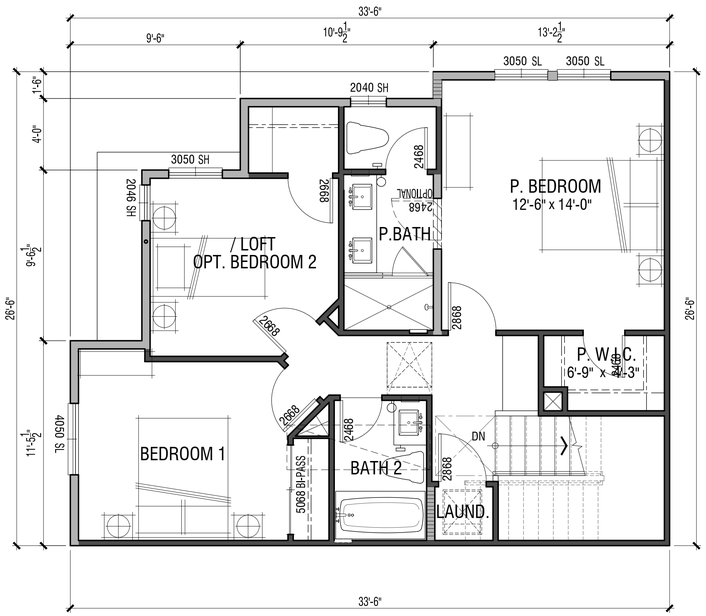
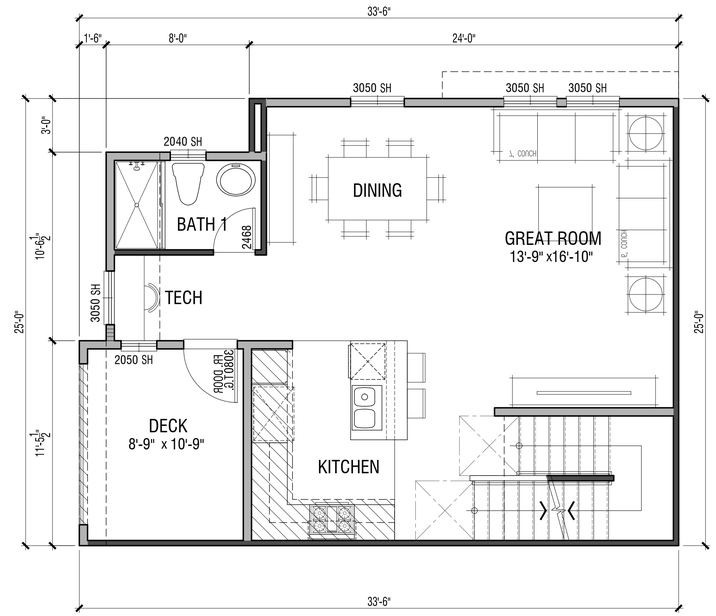
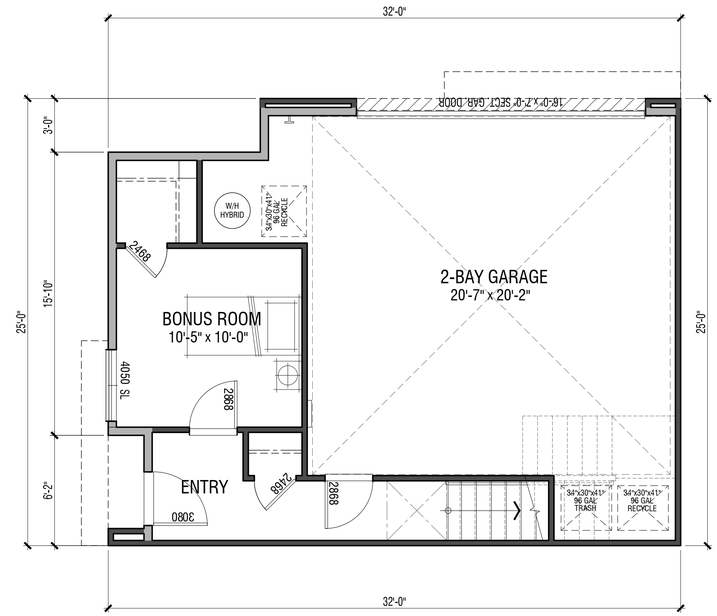


1A THIRD FLOOR



1A SECOND FLOOR



1A FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 1A, 1AX	
ROOM TYPE	QUANTITY
BEDROOM(S)	3
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 1A
FIRST LEVEL	237 SQ. FT.
SECOND LEVEL	655 SQ. FT.
THIRD LEVEL	672 SQ. FT.
TOTAL	1564 SQ. FT.
2-BAY GARAGE	471 SQ. FT.
COVERED ENTRY	10 SQ. FT.
DECK	93 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 1A AND 1AX

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

A7.1

0 2 4 8

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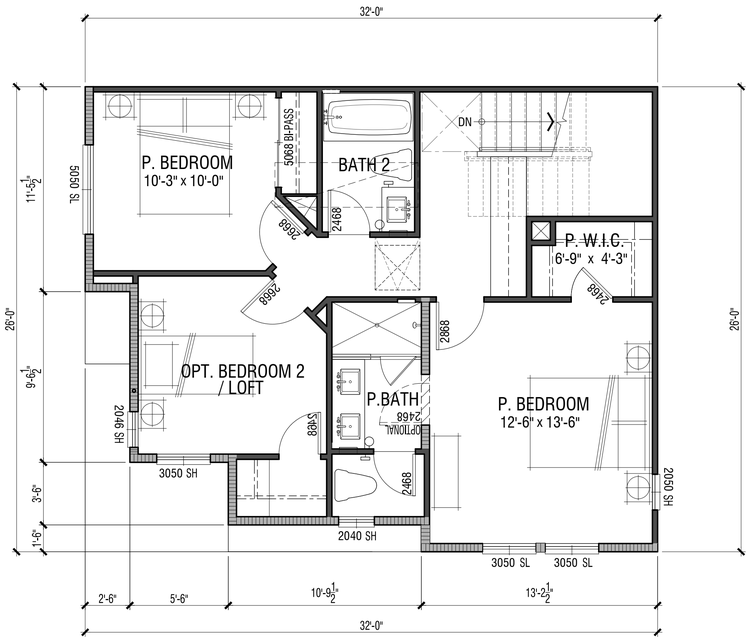
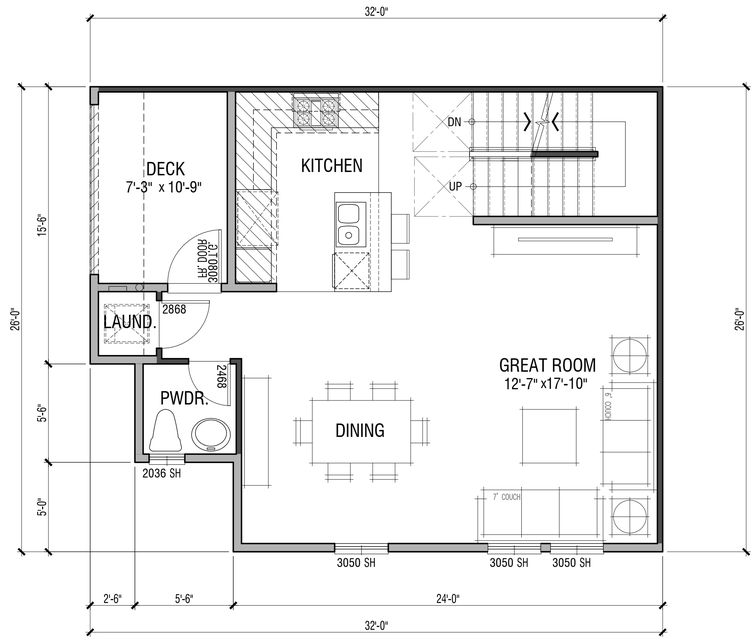
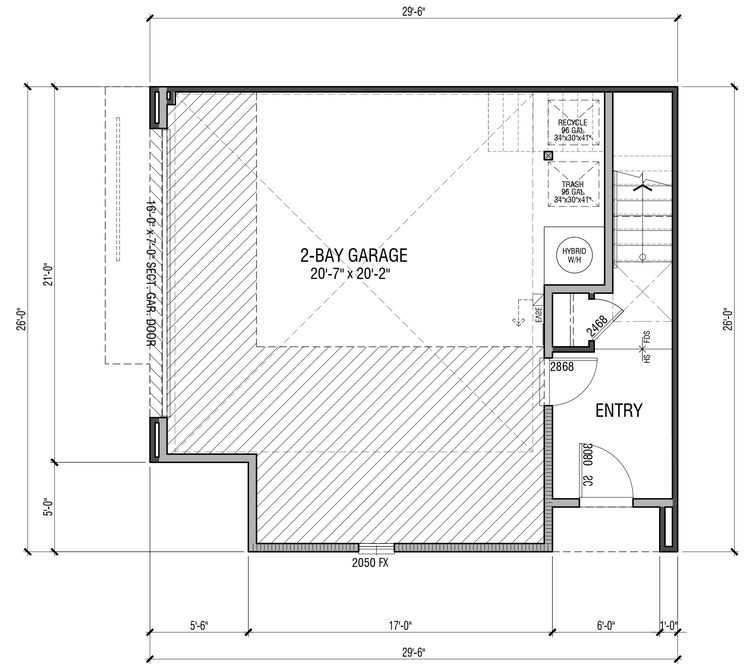


1B THIRD FLOOR



1B SECOND FLOOR



1B FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 1B	
ROOM TYPE	QUANTITY
BEDROOM(S)	3
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 1B
FIRST LEVEL	126 SQ. FT.
SECOND LEVEL	658 SQ. FT.
THIRD LEVEL	650 SQ. FT.
TOTAL	1434 SQ. FT.
2-BAY GARAGE	543 SQ. FT.
COVERED ENTRY	15 SQ. FT.
DECK	77 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 1B

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A7.1B

0 2 4 8

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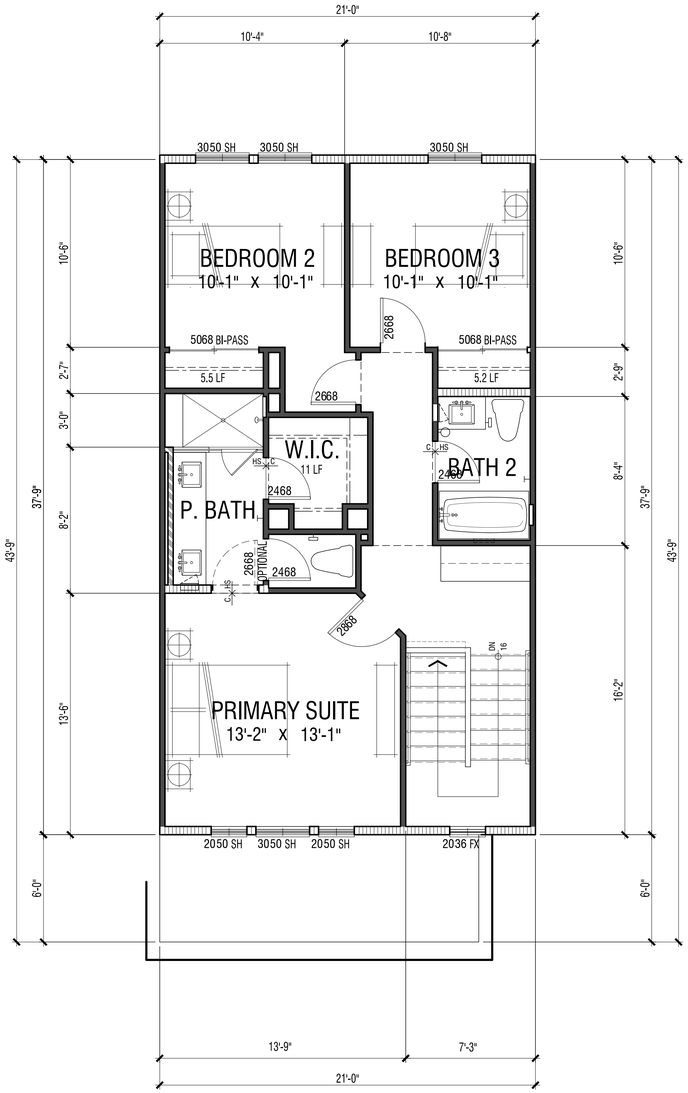
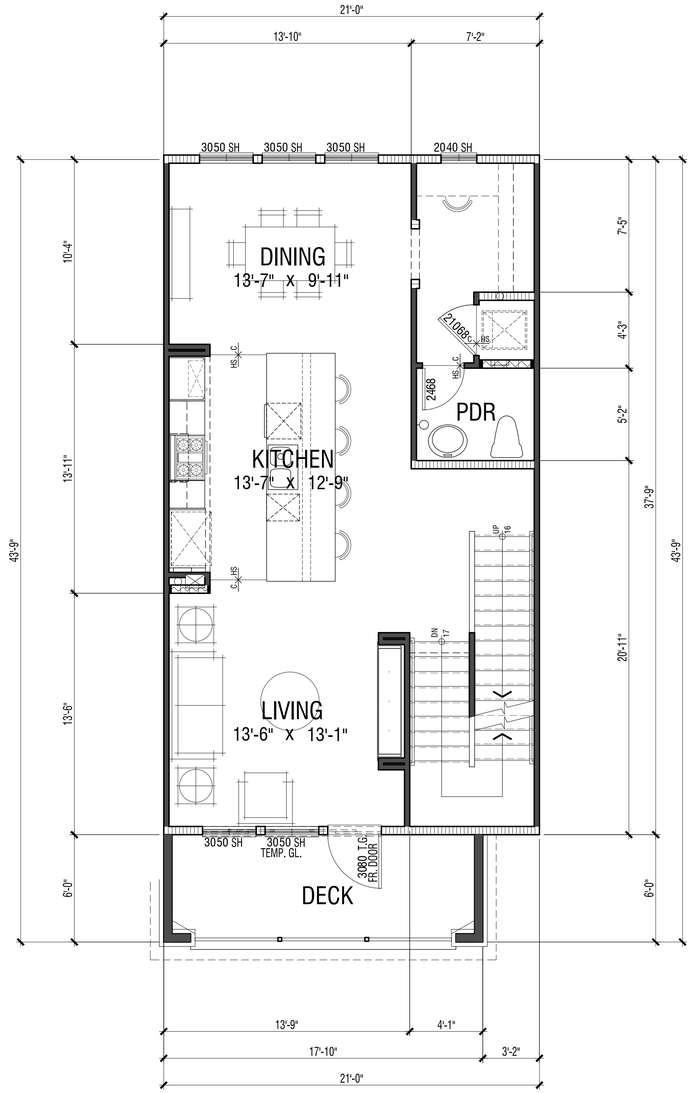
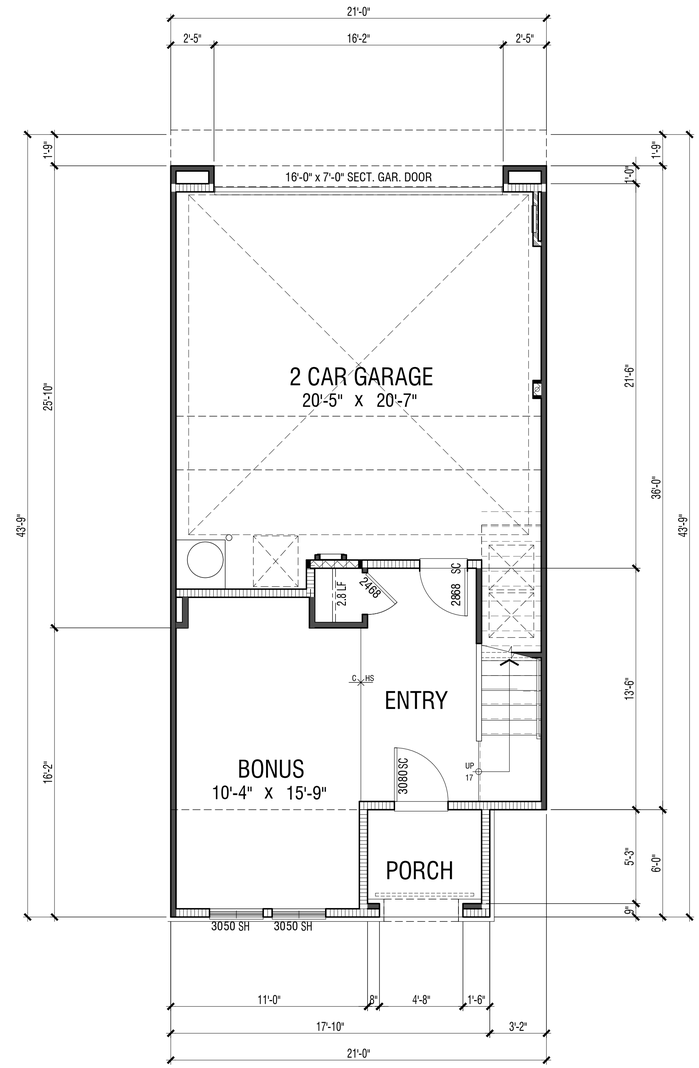


THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 2A&2B	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 2A
FIRST LEVEL	321 SQ. FT.
SECOND LEVEL	793 SQ. FT.
THIRD LEVEL	719 SQ. FT.
TOTAL	1833 SQ. FT.
2-BAY GARAGE	479 SQ. FT.
COVERED ENTRY	41 SQ. FT.
DECK	107 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 2A

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SONOMA COUNTY, CA

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A7.2

0 2 4 8

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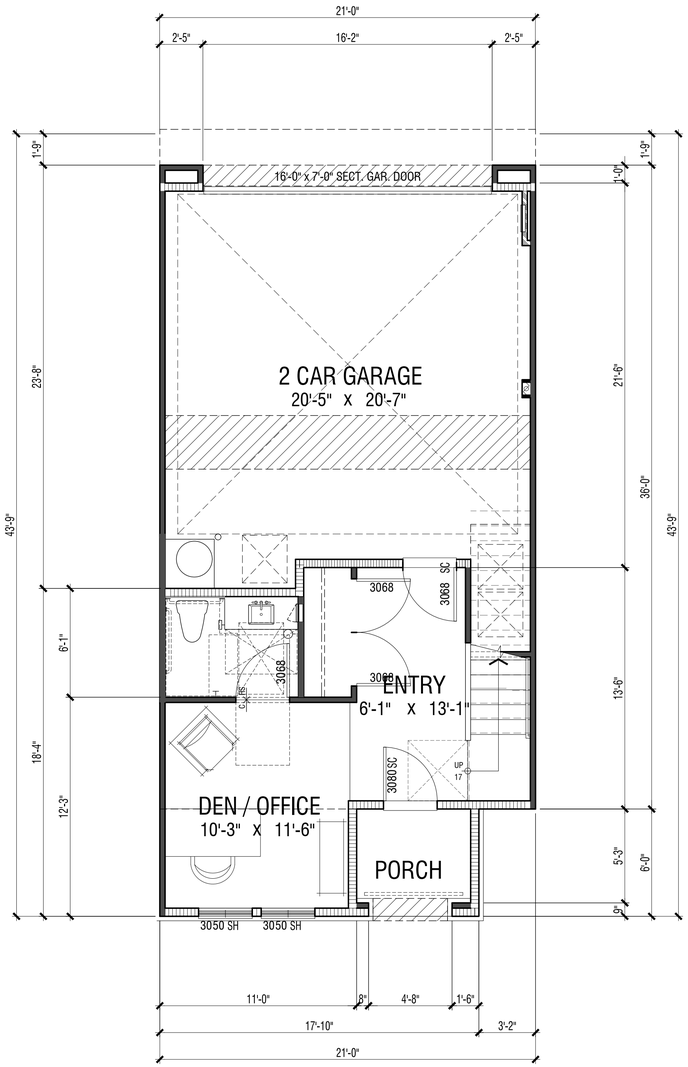
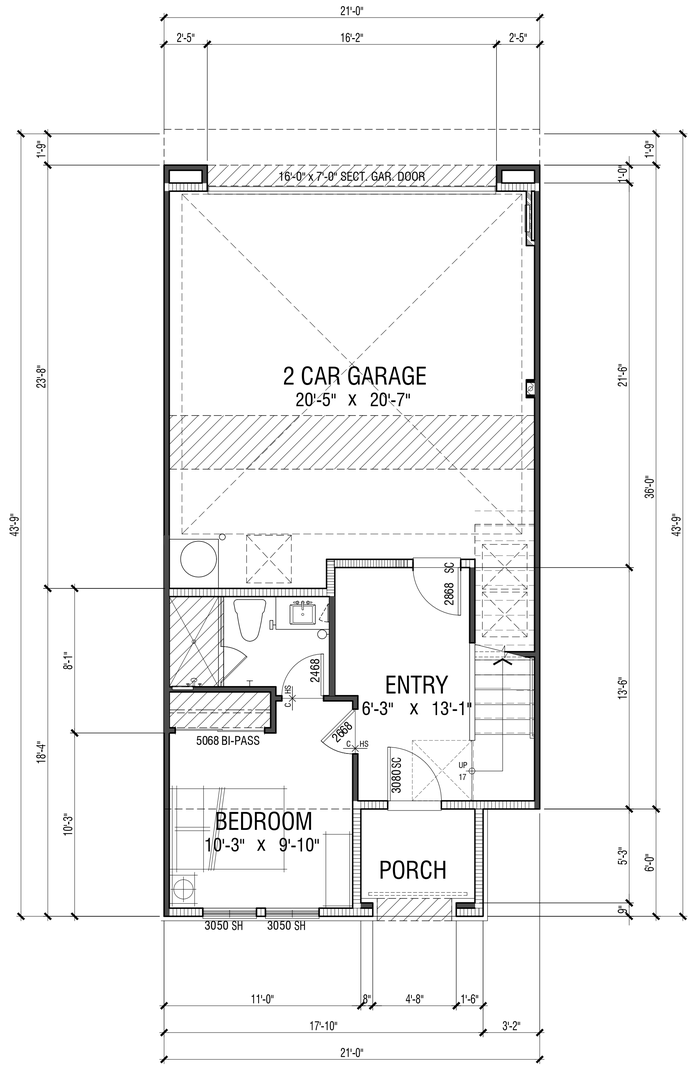
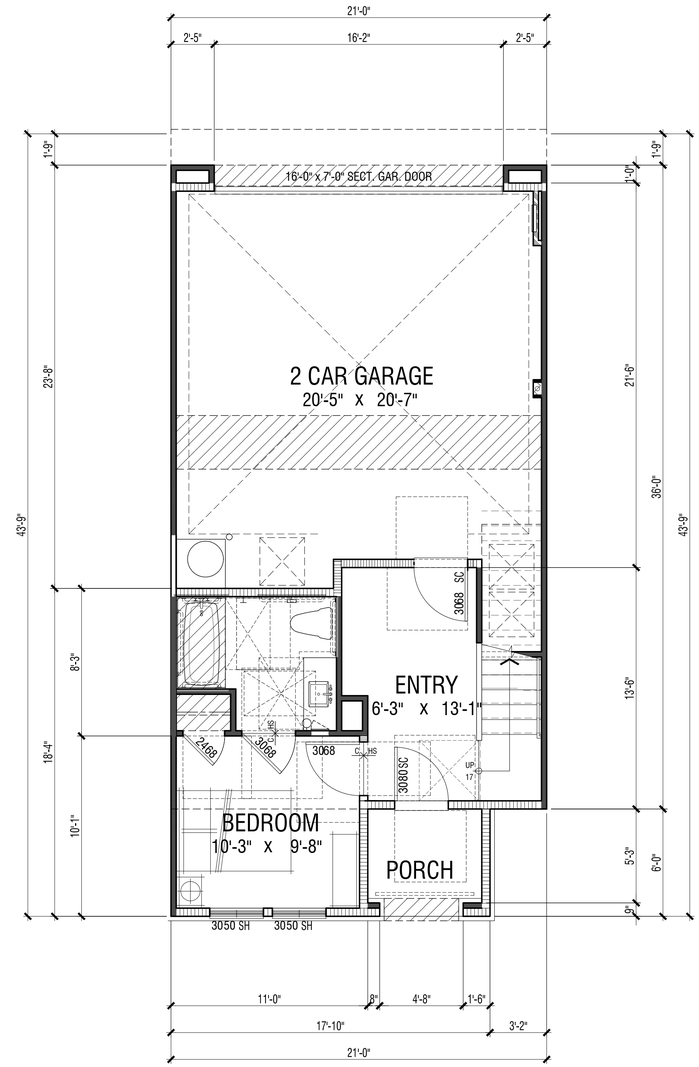


FIRST FLOOR ADAPTABLE DEN / OFFICE



FIRST FLOOR OPTIONAL BEDROOM



FIRST FLOOR ADAPTABLE OPT. BEDRM.

UNIT PLANS - UNIT 2A

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SONOMA COUNTY, CA

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A7.2A

0 2 4 8

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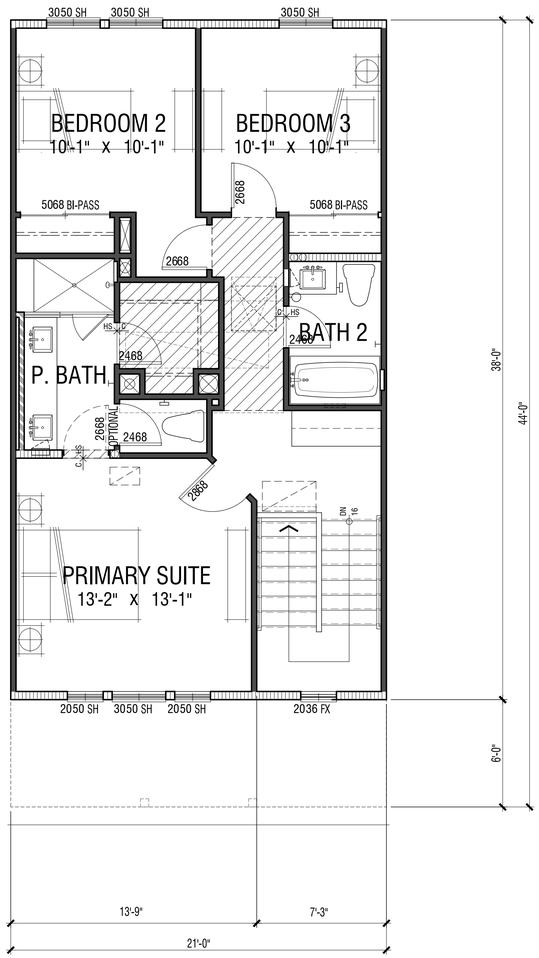
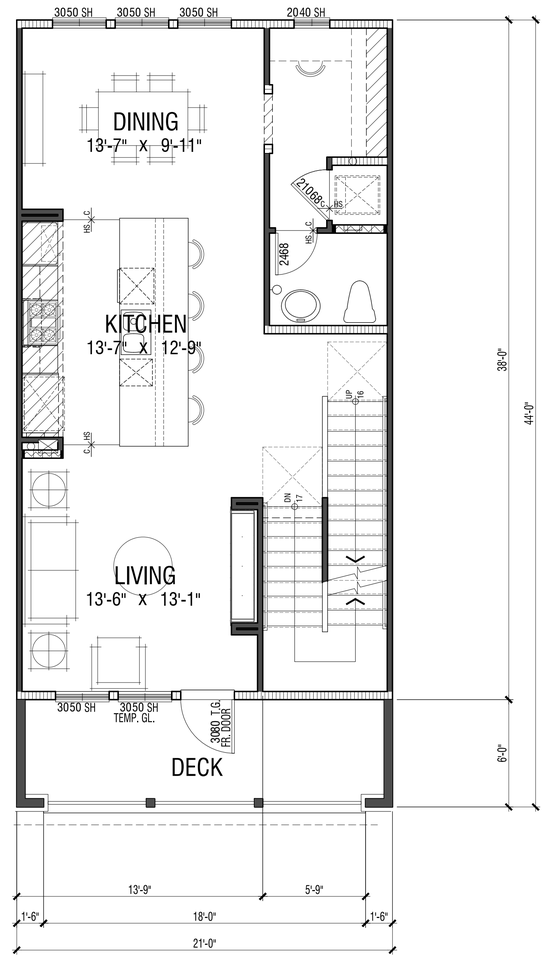
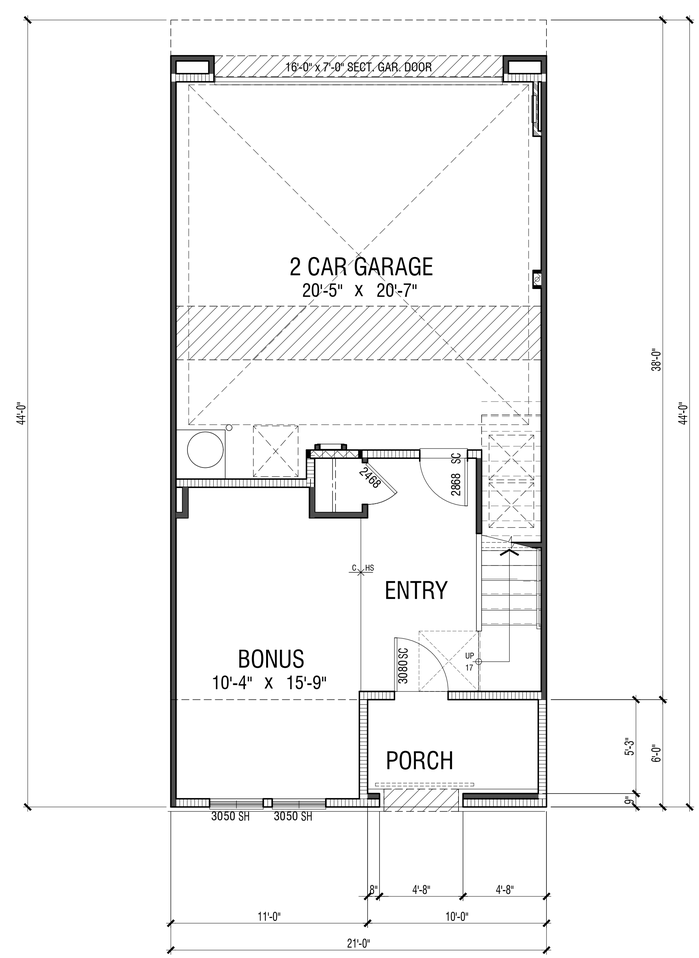


THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

UNIT PLANS - UNIT 2B

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SONOMA COUNTY, CA

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A7.2B

0 2 4 8

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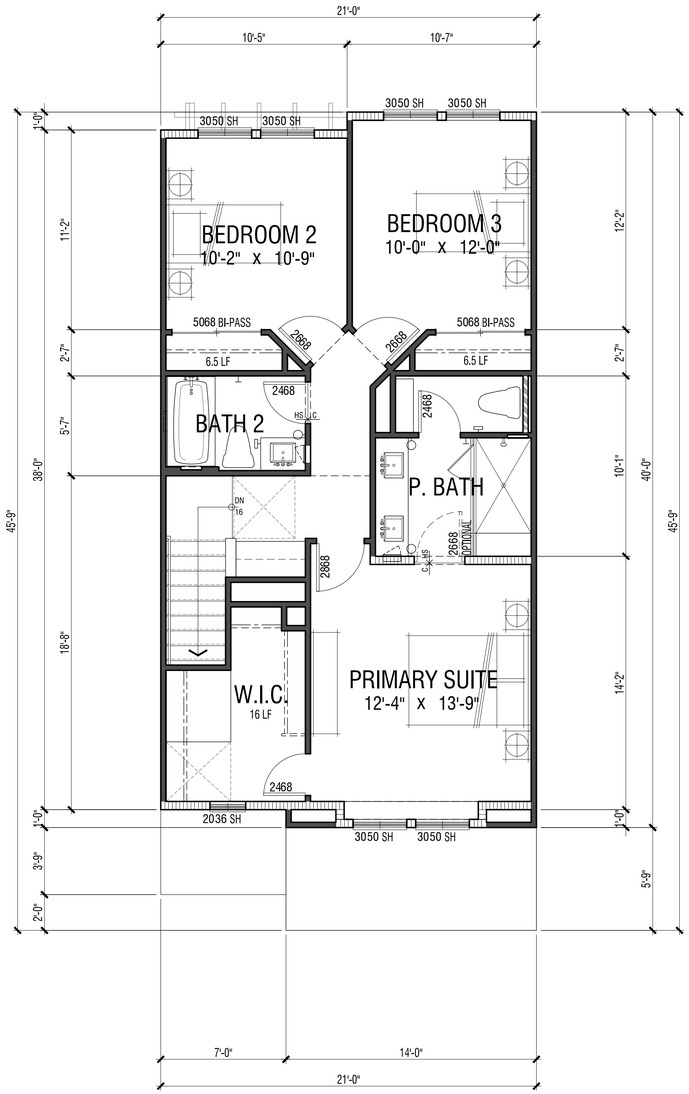

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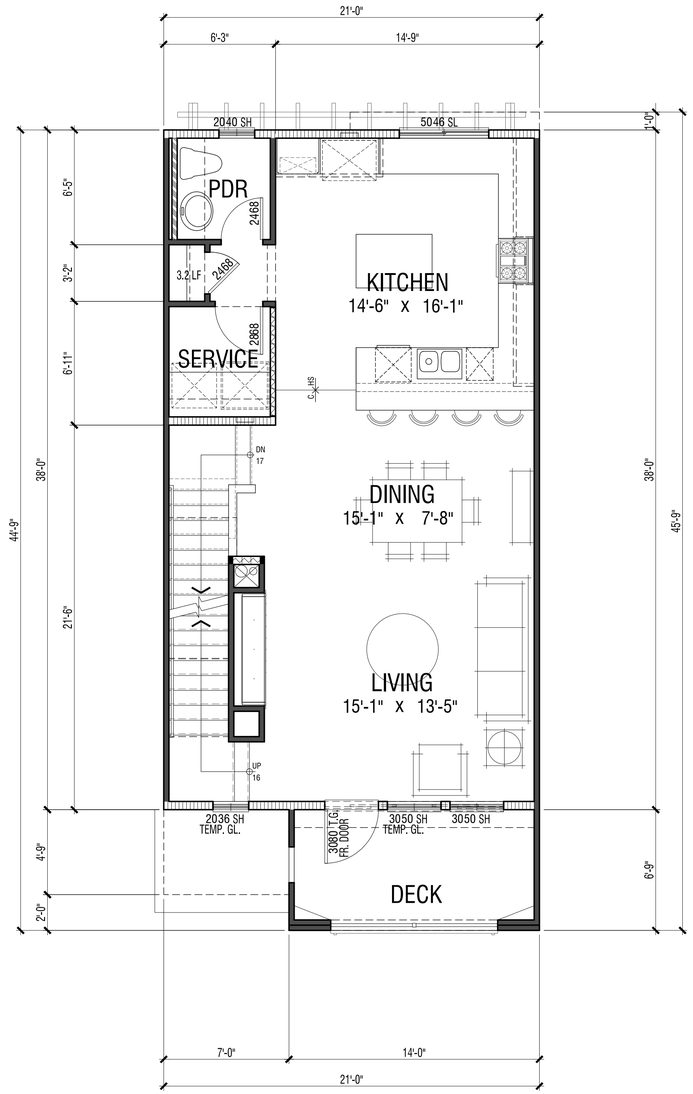
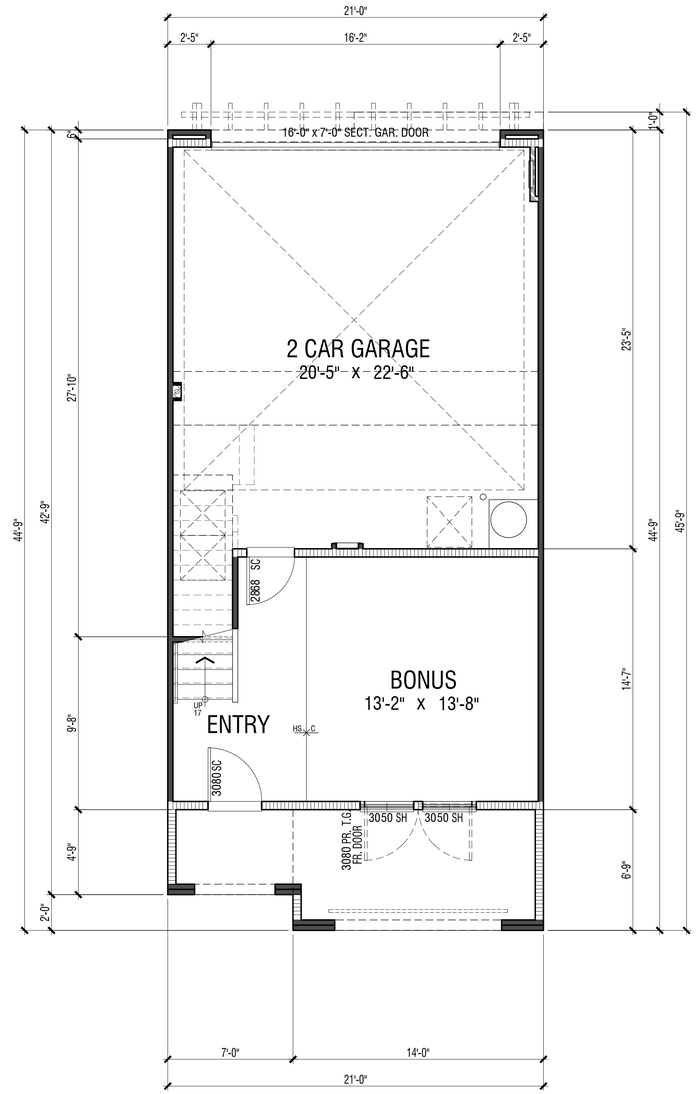


SECOND FLOOR



FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 3A	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 3A
FIRST LEVEL	288 SQ. FT.
SECOND LEVEL	798 SQ. FT.
THIRD LEVEL	780 SQ. FT.
TOTAL	1866 SQ. FT.
2-BAY GARAGE	499 SQ. FT.
COVERED ENTRY	128 SQ. FT.
DECK	94 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 3A

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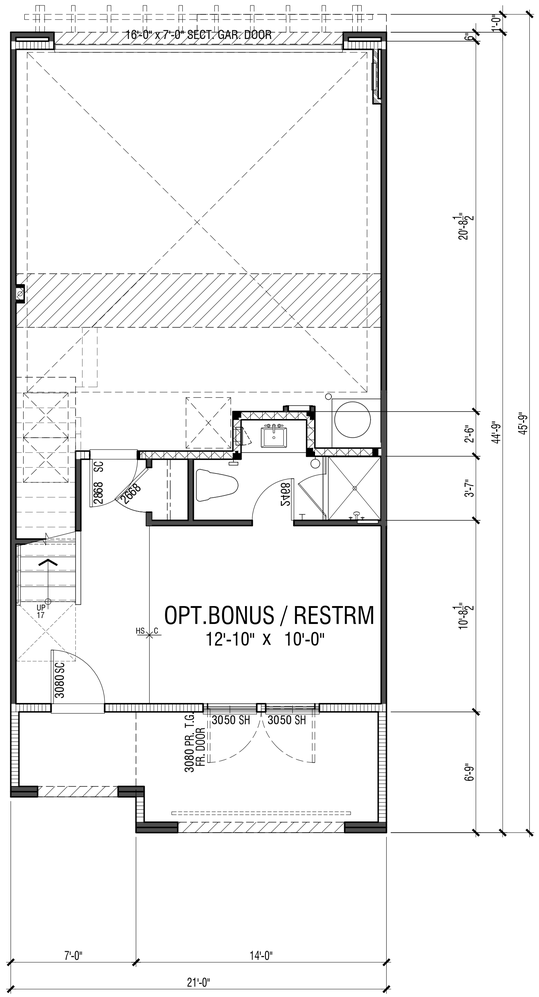
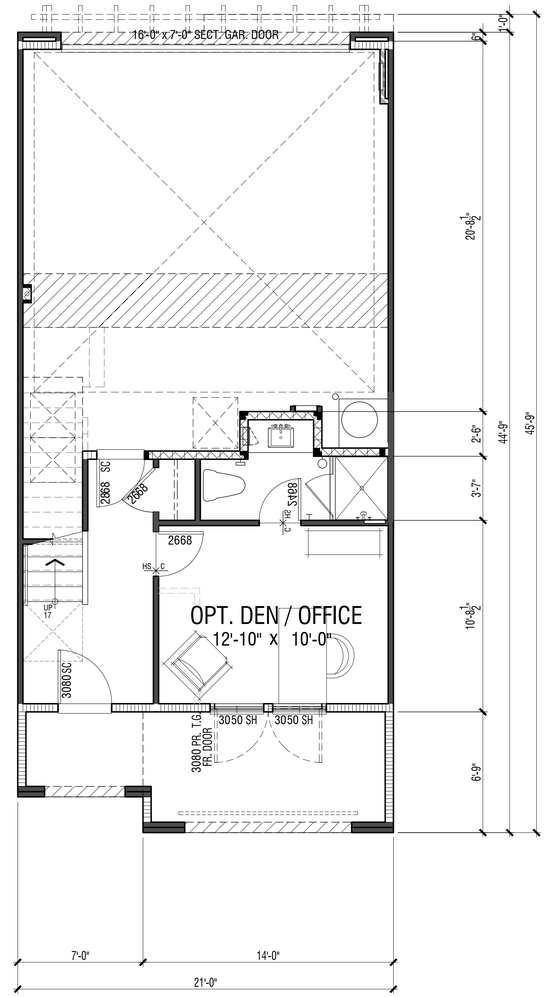
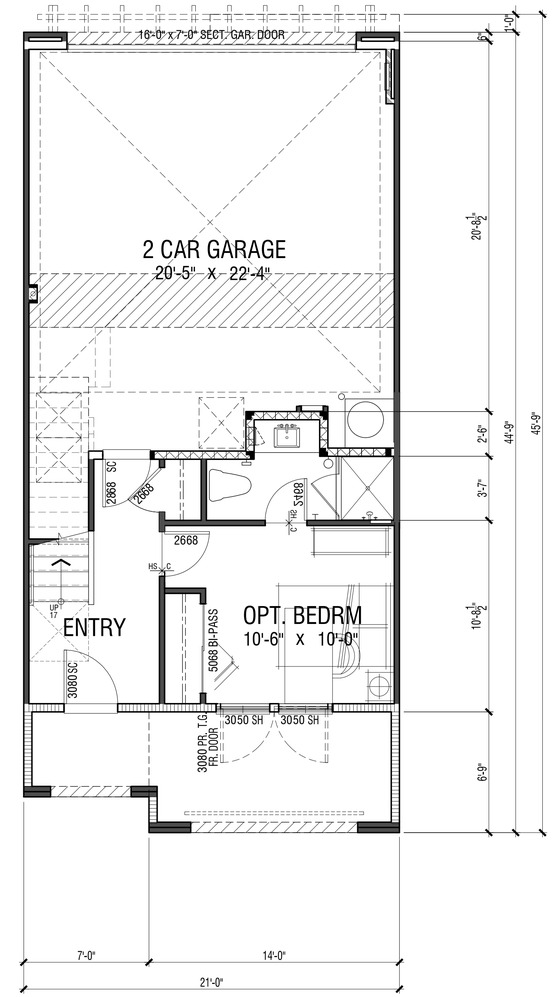


FIRST FLOOR OPTIONAL BATH ROOM



FIRST FLOOR OPTIONAL DEN / OFFICE



FIRST FLOOR OPTIONAL BED ROOM

UNIT PLANS - UNIT 3A OPTIONS

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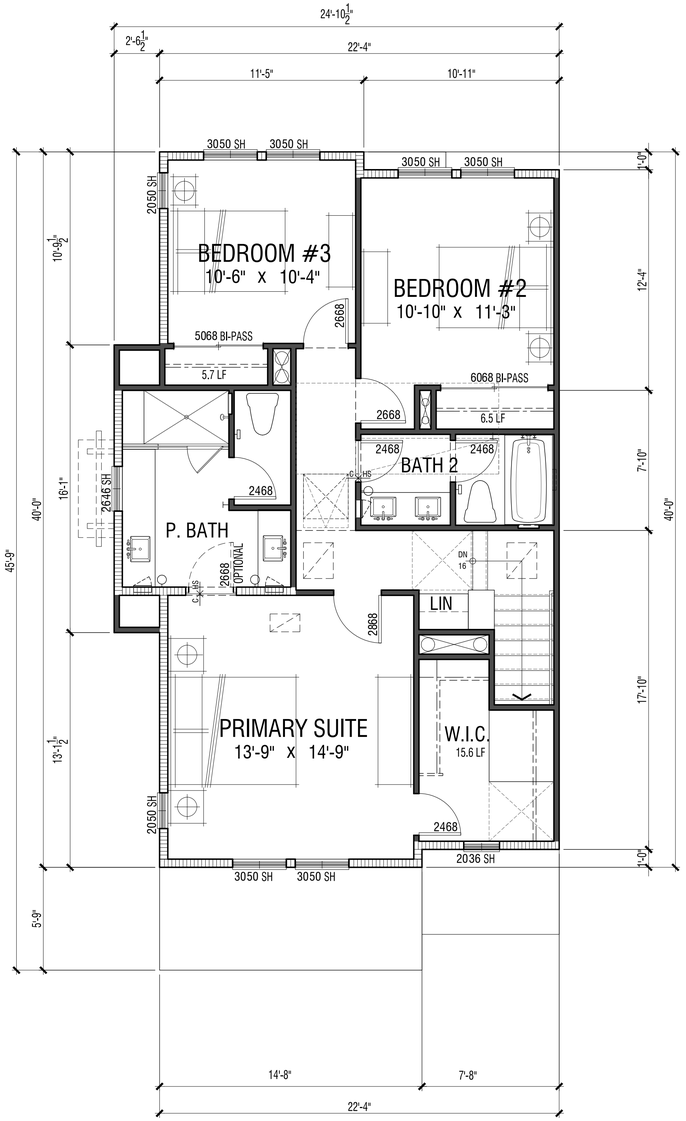

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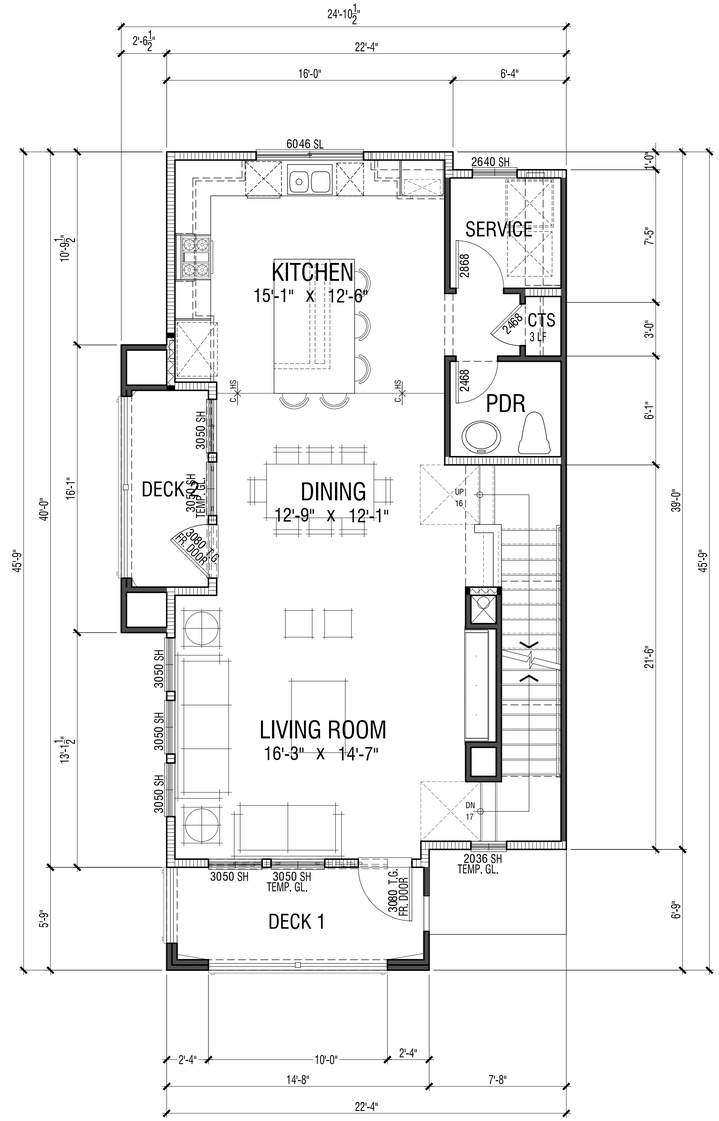

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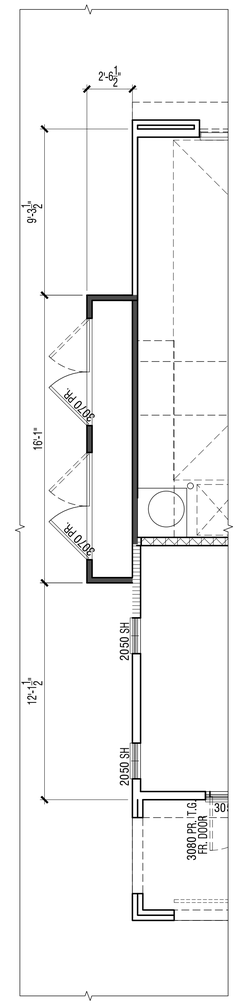
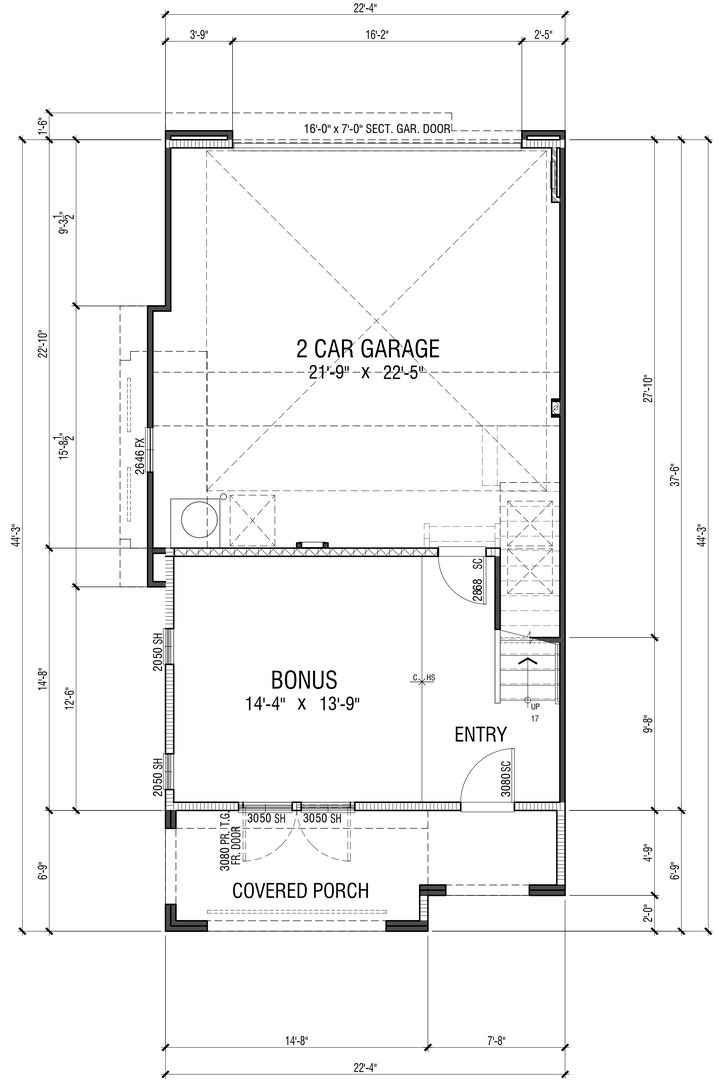


4AX



FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 4A & 4AX	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 4A & 4AX
FIRST LEVEL	298 SQ. FT.
SECOND LEVEL	850 SQ. FT.
THIRD LEVEL	899 SQ. FT.
TOTAL	2047 SQ. FT.
2-BAY GARAGE	544 SQ. FT.
COVERED ENTRY	135 SQ. FT.
DECK 1	84 SQ. FT.
DECK 2	52 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 4A & 4AX

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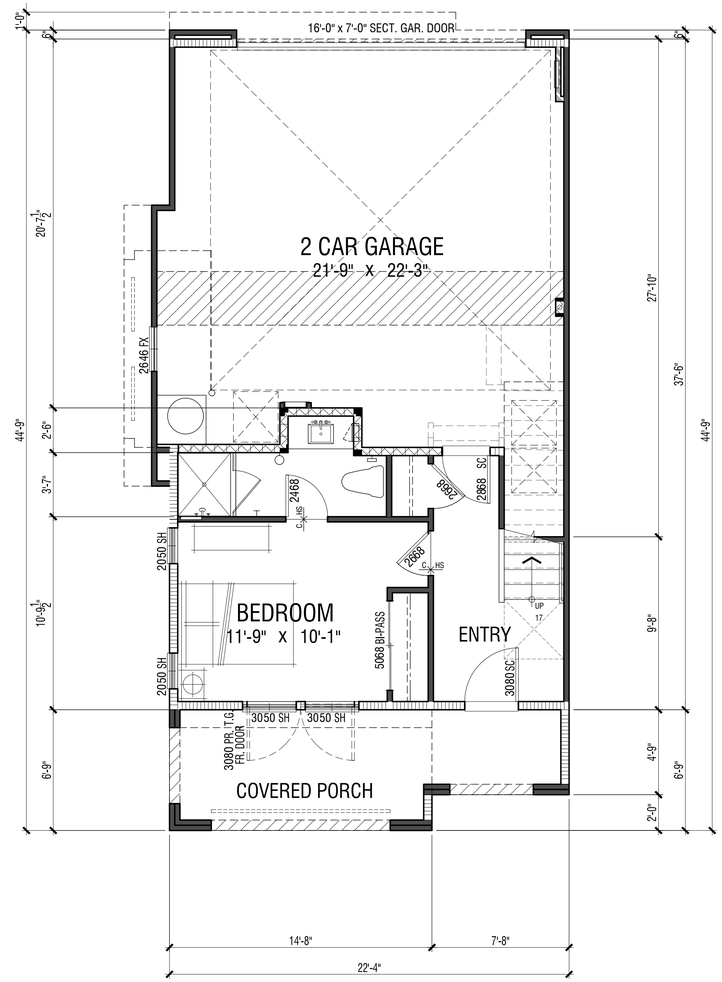
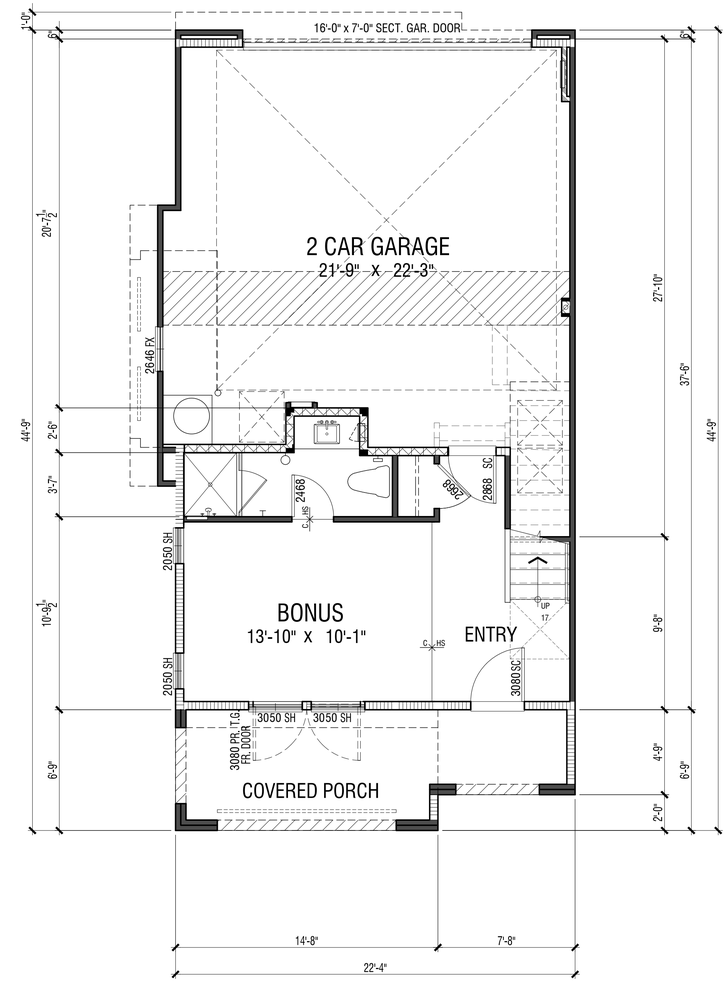


FIRST FLOOR OPTION BED ROOM



FIRST FLOOR OPTION BATH ROOM

UNIT PLANS - UNIT 4A OPTIONS

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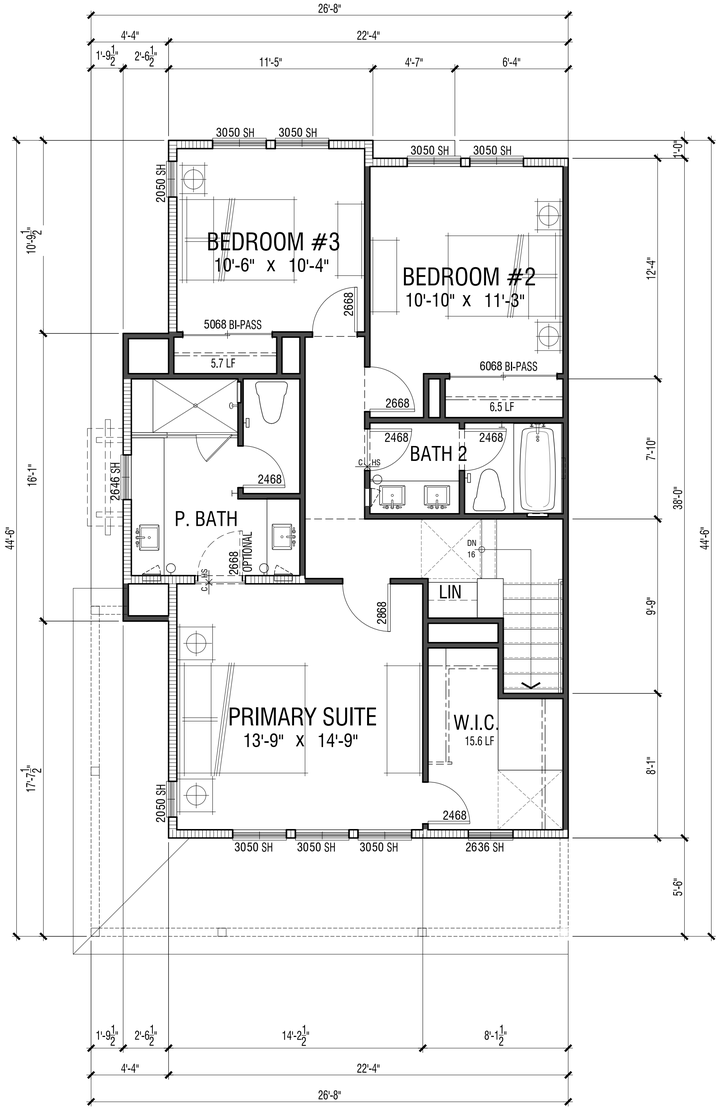

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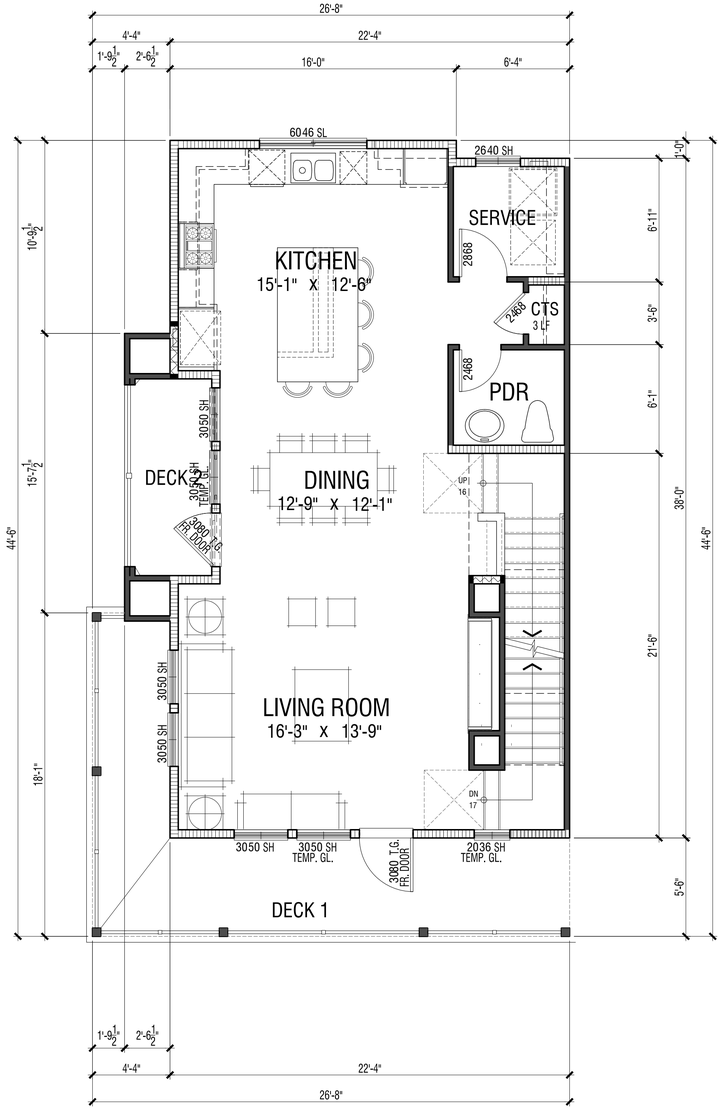

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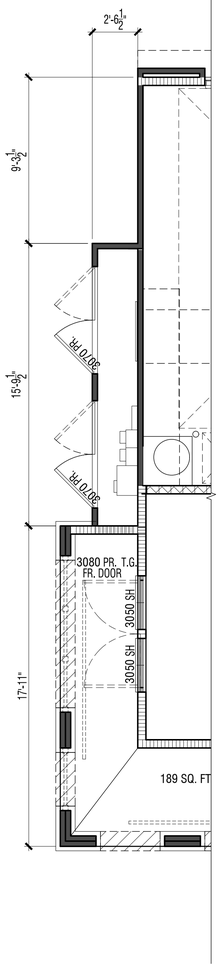
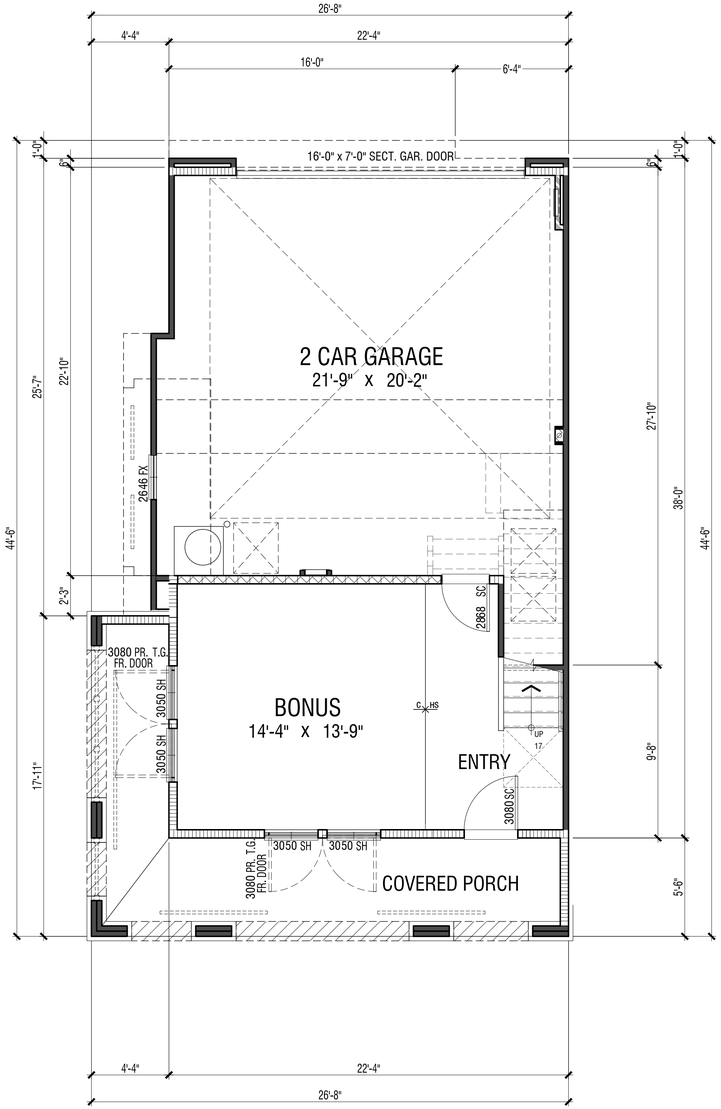


4BX



FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 4B & 4BX	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 4B & 4BX
FIRST LEVEL	309 SQ. FT.
SECOND LEVEL	835 SQ. FT.
THIRD LEVEL	845 SQ. FT.
TOTAL	1990 SQ. FT.
2-BAY GARAGE	528 SQ. FT.
COVERED ENTRY	200 SQ. FT.
DECK 1	200 SQ. FT.
DECK 2	55 SQ. FT.

UNIT PLANS - UNIT 4B

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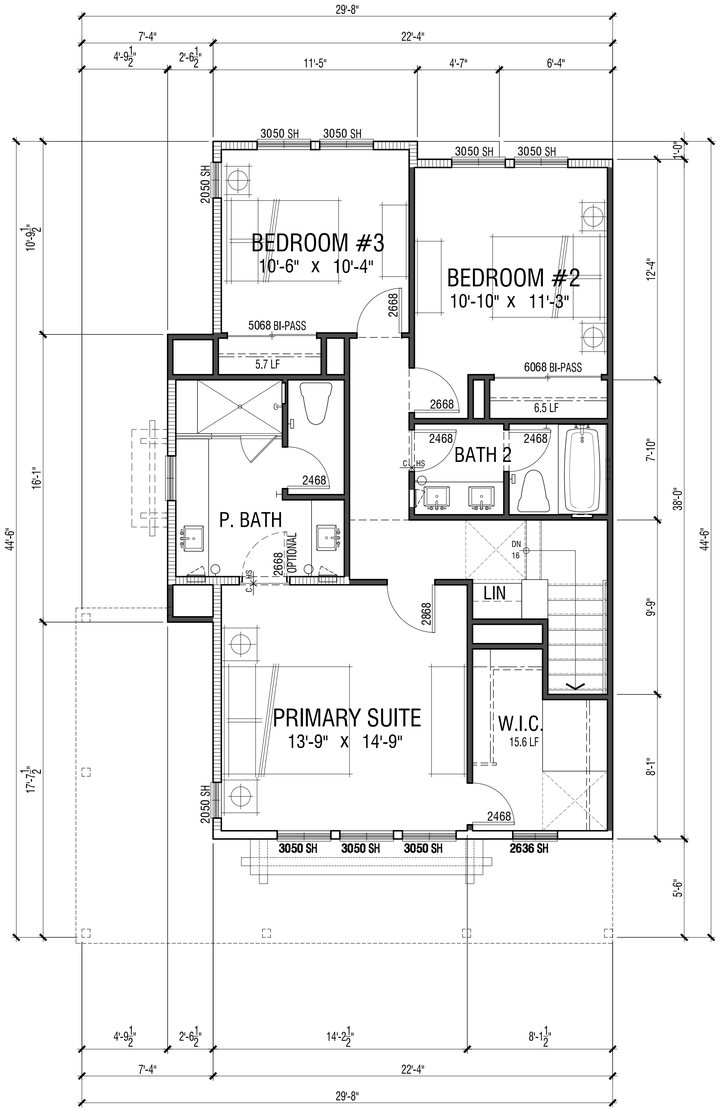

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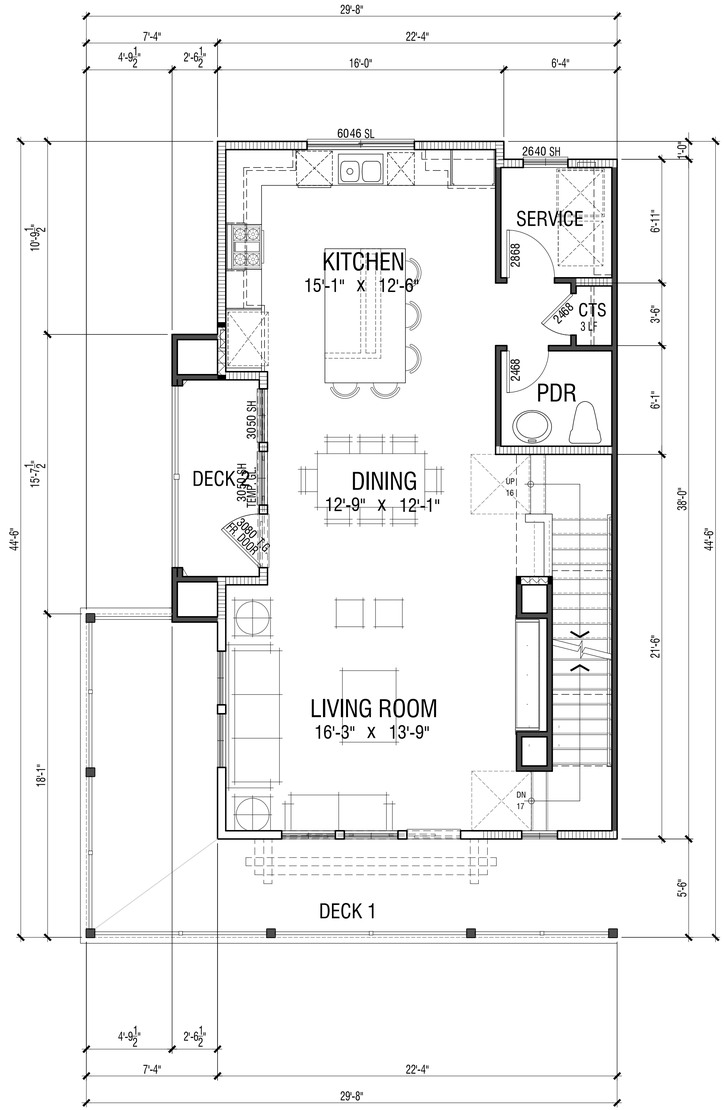

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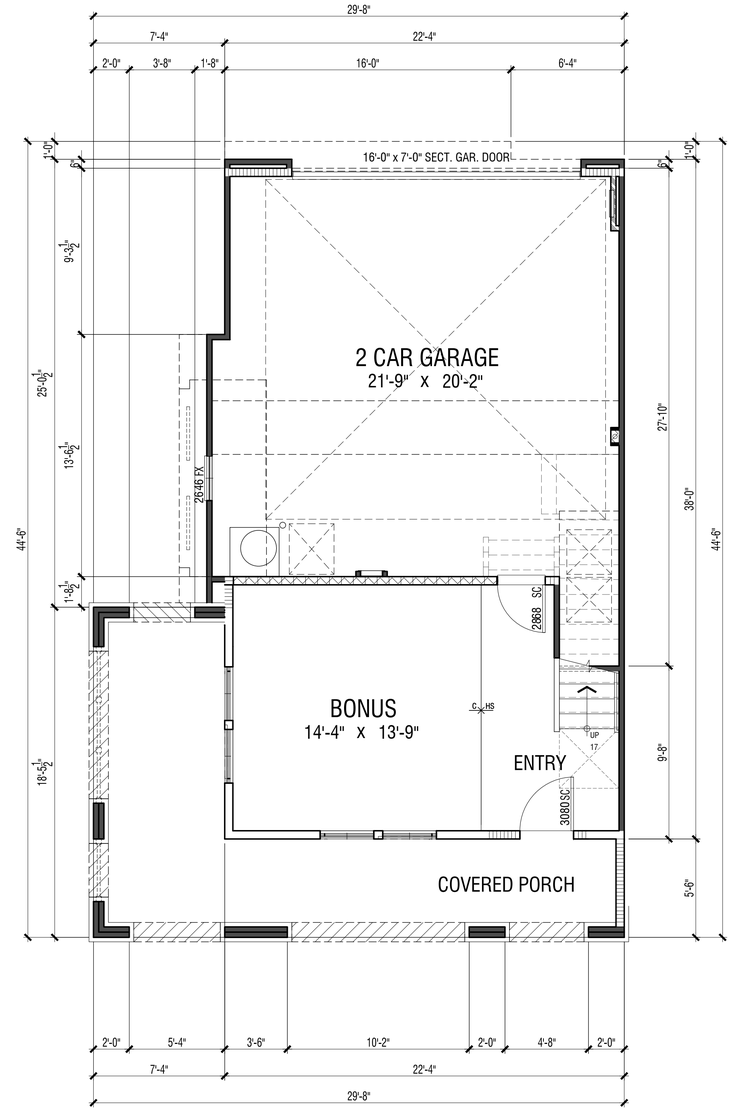

FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 4C	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 4C
FIRST LEVEL	309 SQ. FT.
SECOND LEVEL	835 SQ. FT.
THIRD LEVEL	845 SQ. FT.
TOTAL	1990 SQ. FT.
2-BAY GARAGE	528 SQ. FT.
COVERED ENTRY	258 SQ. FT.
DECK 1	254 SQ. FT.
DECK 2	53 SQ. FT.

UNIT PLANS - UNIT 4C

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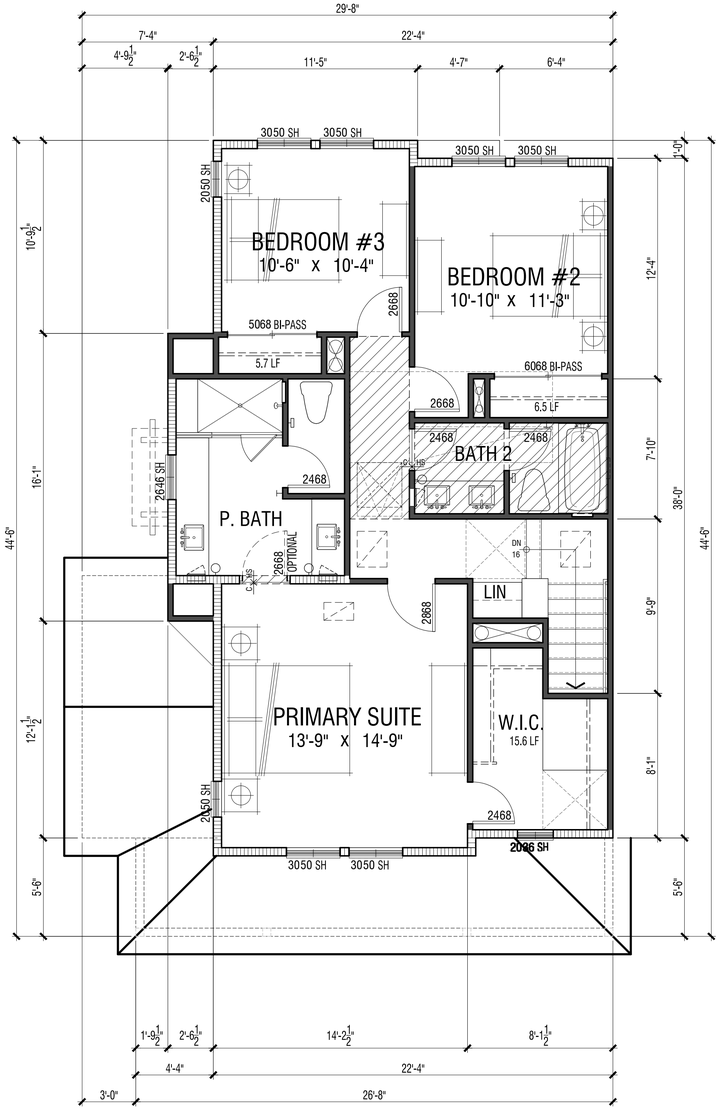

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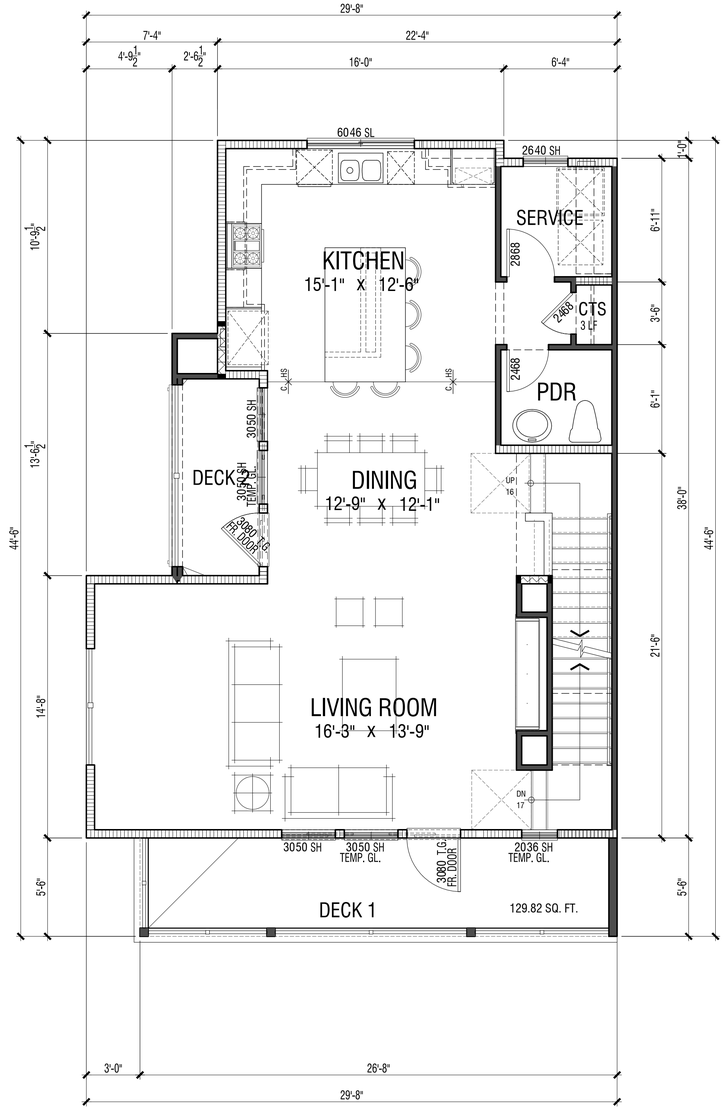

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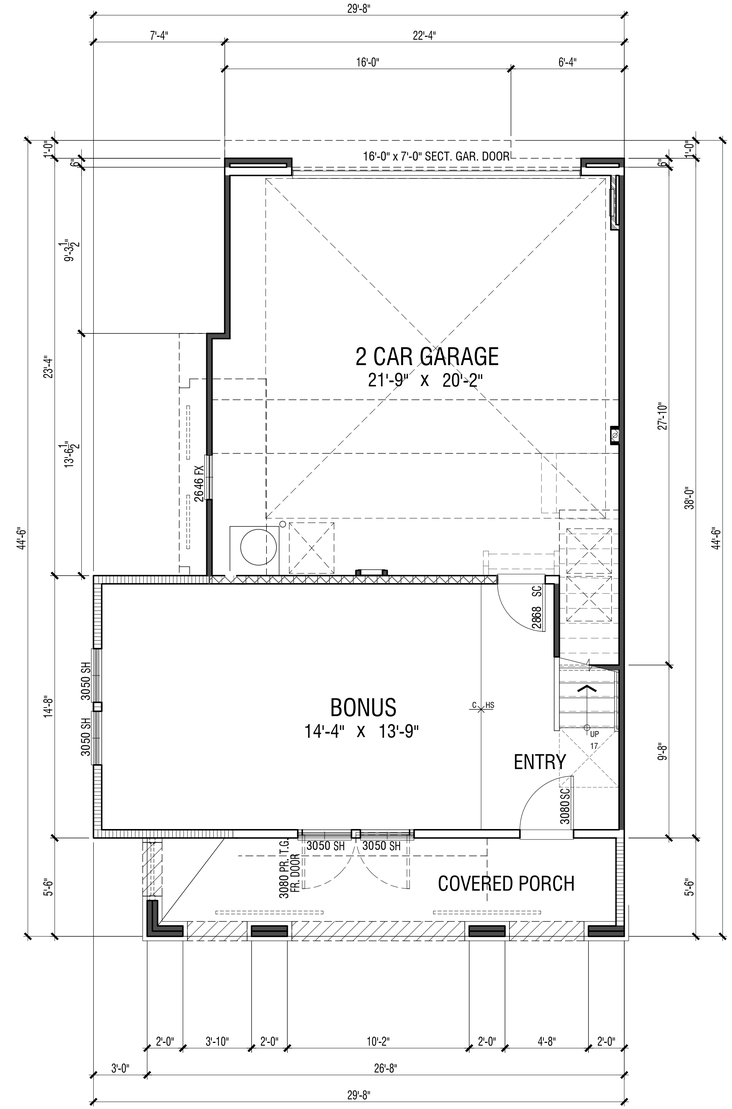

FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 4D	
ROOM TYPE	QUANTITY
BEDROOM(S)	3 (Opt. 4)
BATH(S)	2.5
FLOOR AREA TABLE	PLAN 4D
FIRST LEVEL	309 SQ. FT.
SECOND LEVEL	835 SQ. FT.
THIRD LEVEL	843 SQ. FT.
TOTAL	1988 SQ. FT.
2-BAY GARAGE	528 SQ. FT.
COVERED ENTRY	202 SQ. FT.
DECK 1	202 SQ. FT.
DECK 2	53 SQ. FT.

UNIT PLANS - UNIT 4D

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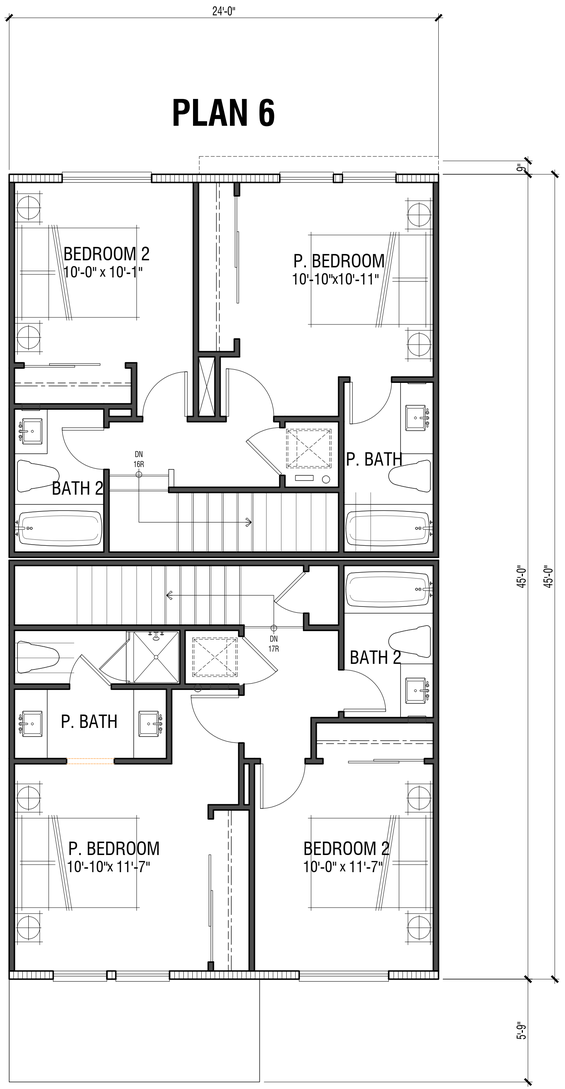
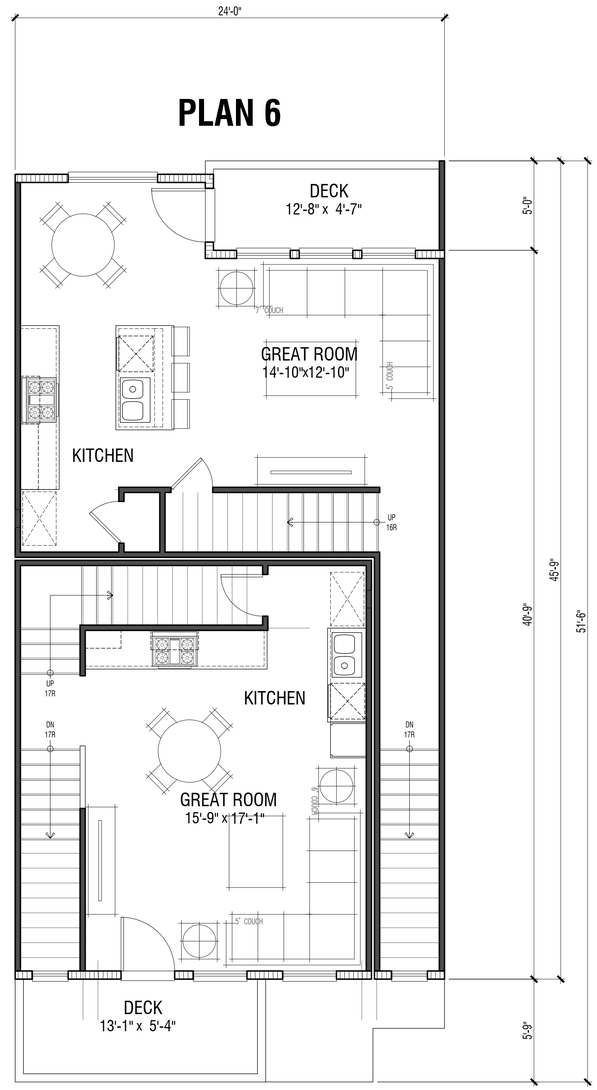


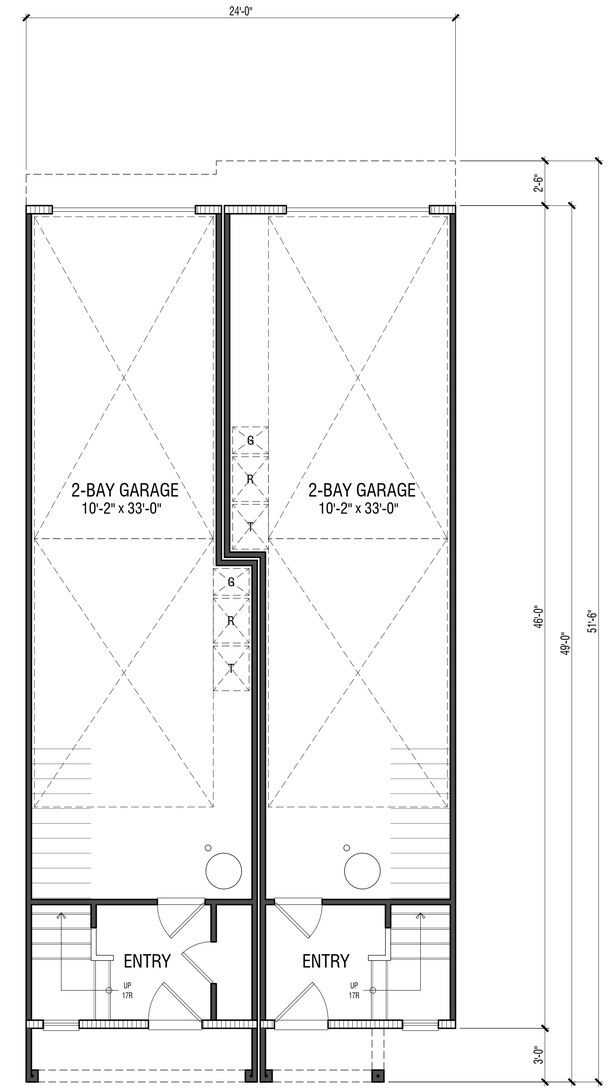
PLAN 5

THIRD FLOOR



PLAN 5

SECOND FLOOR



PLAN 5 PLAN 6

FIRST FLOOR

DWELLING PLAN SUMMARY - PLAN 5	
ROOM TYPE	QUANTITY
BEDROOM(S)	2
BATH(S)	2
FLOOR AREA TABLE	PLAN 5
FIRST LEVEL	121 SQ. FT.
SECOND LEVEL	466 SQ. FT.
THIRD LEVEL	502 SQ. FT.
TOTAL	1089 SQ. FT.
2-BAY GARAGE	465 SQ. FT.
COVERED ENTRY	39 SQ. FT.
DECK	80 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

DWELLING PLAN SUMMARY - PLAN 6	
ROOM TYPE	QUANTITY
BEDROOM(S)	2
BATH(S)	2
FLOOR AREA TABLE	PLAN 6
FIRST LEVEL	107 SQ. FT.
SECOND LEVEL	551 SQ. FT.
THIRD LEVEL	467 SQ. FT.
TOTAL	1125 SQ. FT.
2-BAY GARAGE	466 SQ. FT.
COVERED ENTRY	21 SQ. FT.
DECK	65 SQ. FT.

NOTE: SQUARE FOOTAGE MAY VARY DUE TO METHOD OF CALCULATION

UNIT PLANS - UNIT 5 & 6

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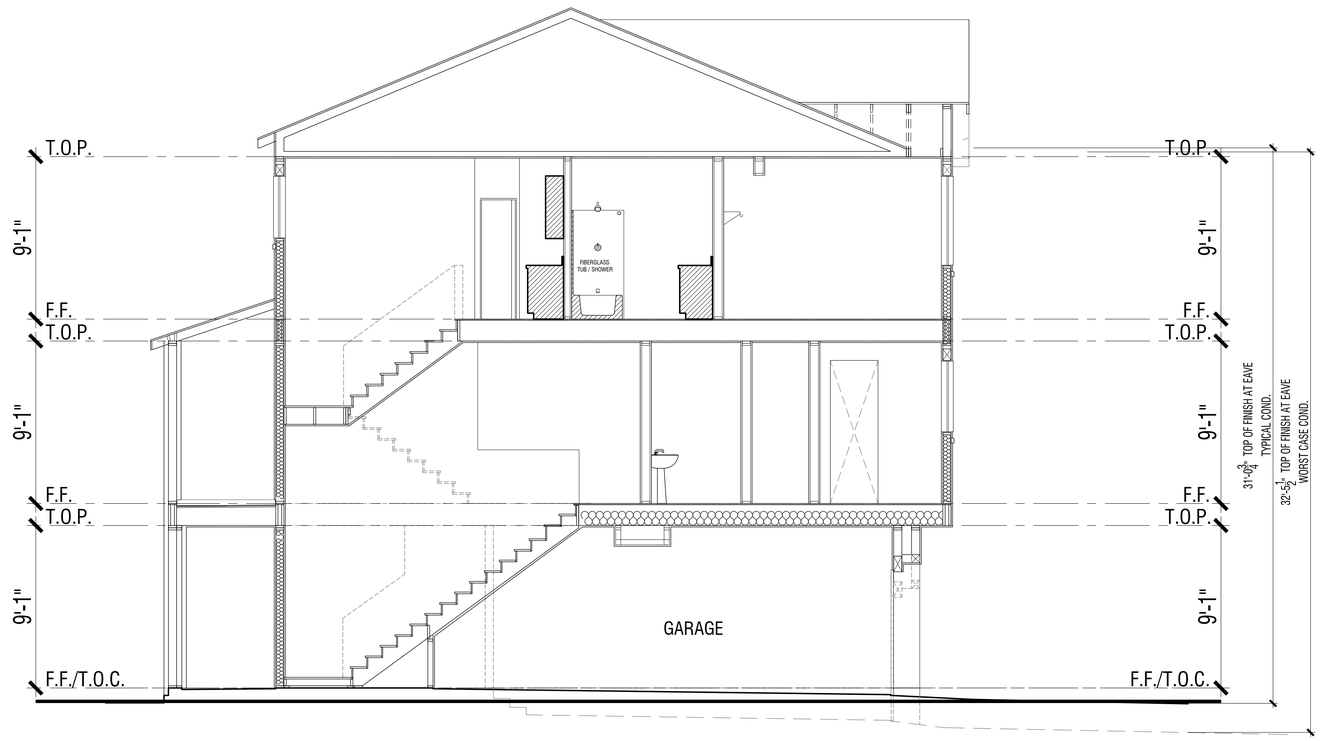

UNIT SECTION - UNIT 2A

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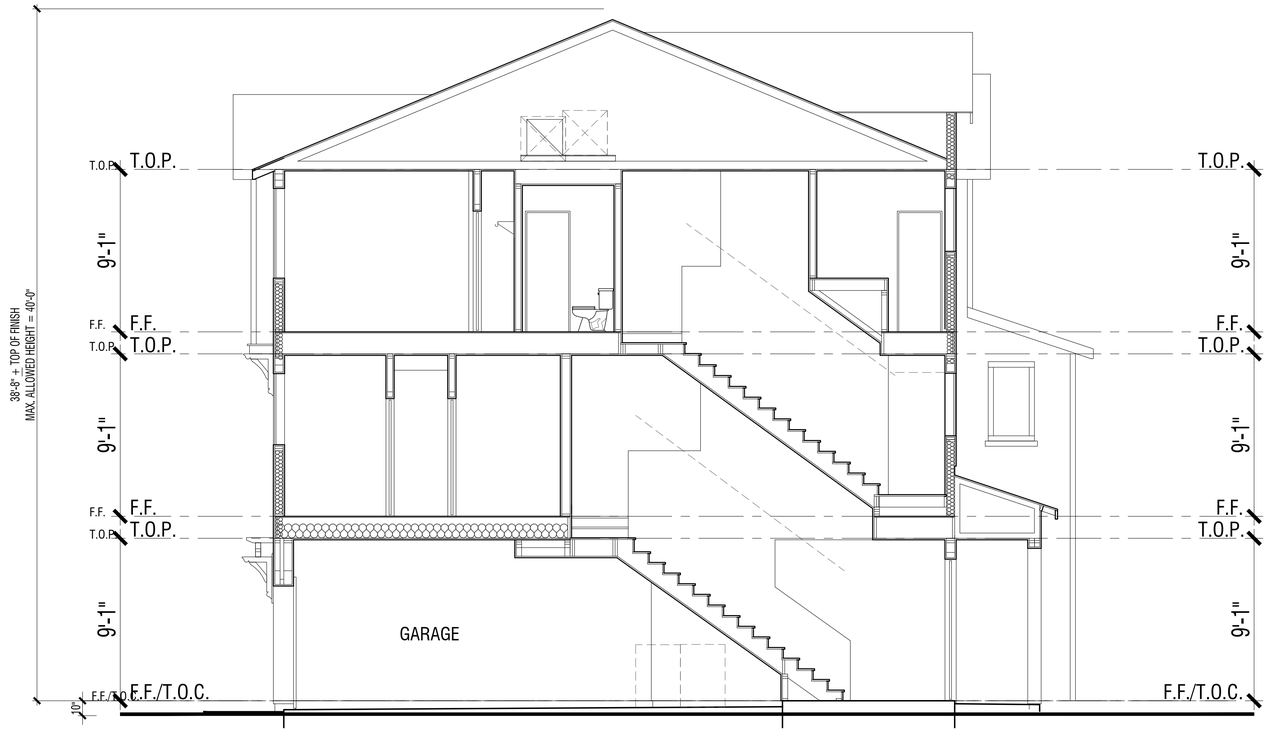

UNIT SECTION - UNIT 3A

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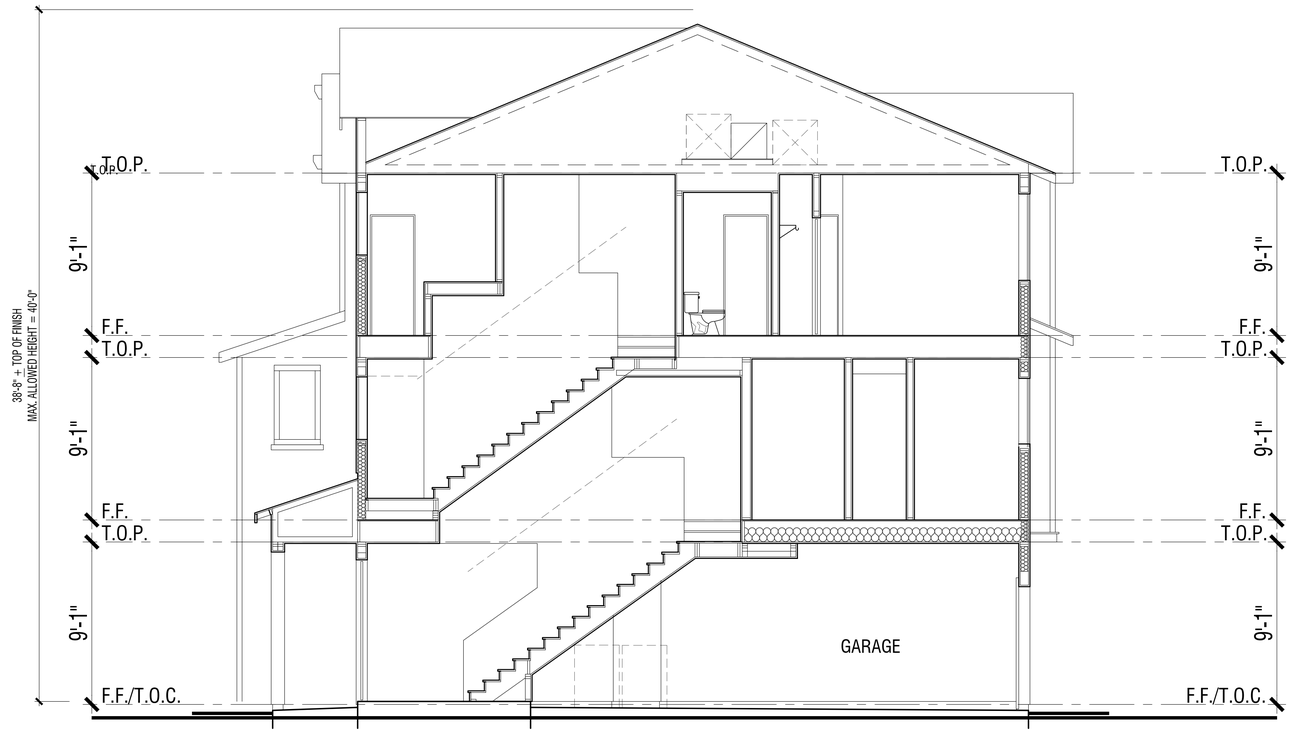

UNIT SECTION - UNIT 4A

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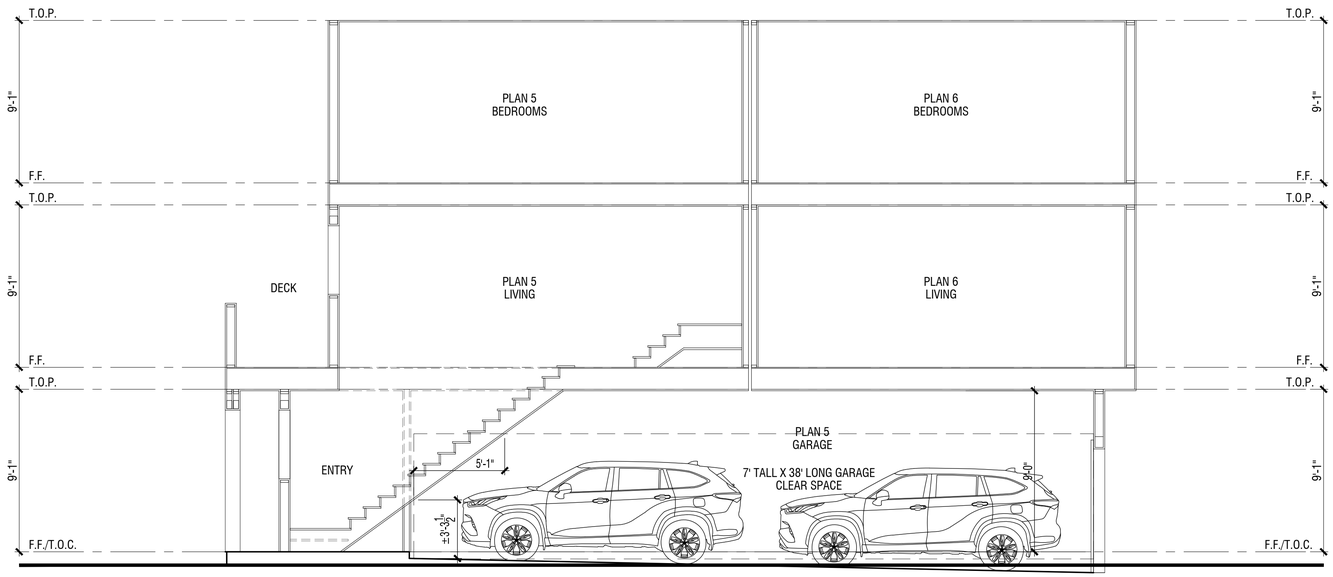

UNIT SECTION - UNIT 5 & 6

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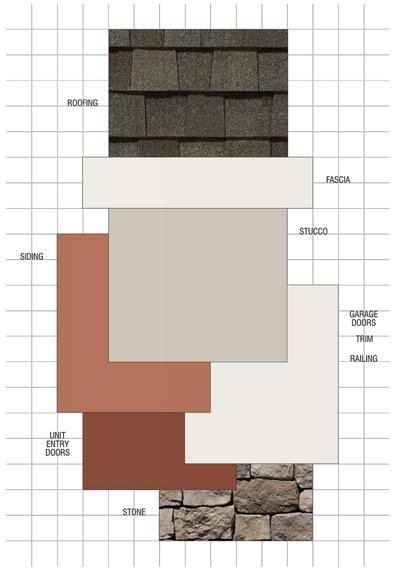

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April 11, 2025 | 2024269

SCHEME 1

All Buildings

For exact color refer to manufacturers' actual samples.
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PAGE 1 OF 3

[1]Conceptual Exterior Color & Materials

[1](Colors & materials will be finalized during building permits.)

SCHEME 1 — ALL BUILDINGS

Material	Color	Manufacturer
Roofing: Ashpalt Shingles	Weathered Wood Landmark Solaris Ref: .20 Emi: .91 A.SRI: 20 CRRC: 0668-0119	Certainteed
Gutters & Downspouts *(factory finish)*	Match Adjacent Color	TBD
Vinyl Windows *(factory finish)*	White	Milgard
Manufactured Stone *(standard raked joints)*	Moonlight Roughcut	Eldorado / Westlake
Grout at Manufactured Stone	Misty Cove	Orco
Stucco Color *(16/20 sand finish)*	SW 7043 Worldly Gray	Sherwin Williams
Siding Color *(applied to):* Corner Boards, Lap Siding	Match Dunn Edwards DE 5187 Weathered Saddle	Sherwin Williams
Trim Color *(applied to):* Barge Boards, Braces, Eaves, Fascia, French Doors, Gable Trusses, Garage Doors, Posts, Railing, Trim, Utility Doors	SW 7005 Pure White	Sherwin Williams
Accent Color *(applied to):* Unit Entry Doors	Match Dunn Edwards DEA 156 Cherry Cola	Sherwin Williams
Garage Door Weatherstrip *(factory finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase.
Contact Donna Aldrich (949) 250-0607.

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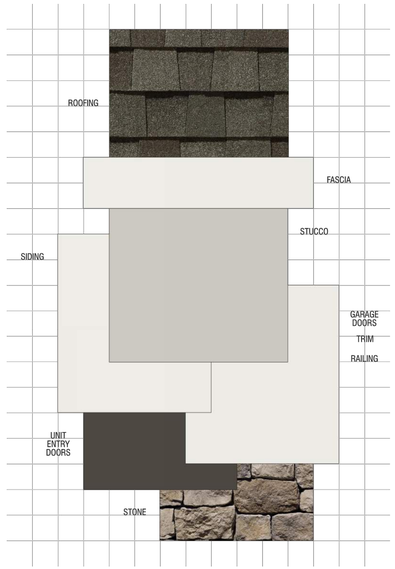
REVISIONS:

Number	Date	Description
1	4/11/25	Conceptual and finalization notations added.



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SCHEME 2

All Buildings

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PAGE 1 OF 3

[1]Conceptual Exterior Color & Materials

[1](Colors & materials will be finalized during building permits.)

SCHEME 1 — ALL BUILDINGS

Material	Color	Manufacturer
Roofing: Ashpalt Shingles	Weathered Wood Landmark Solaris Ref: .20 Emi: .91 A.SRI: 20 CRRC: 0668-0119	Certainteed
Gutters & Downspouts *(factory finish)*	Match Adjacent Color	TBD
Vinyl Windows *(factory finish)*	White	Milgard
Manufactured Stone *(standard raked joints)*	Moonlight Roughcut	Eldorado / Westlake
Grout at Manufactured Stone	Misty Cove	Orco
Stucco Color *(16/20 sand finish)*	SW 7043 Worldly Gray	Sherwin Williams
Siding Color *(applied to):* Corner Boards, Lap Siding	Match Dunn Edwards DE 5187 Weathered Saddle	Sherwin Williams
Trim Color *(applied to):* Barge Boards, Braces, Eaves, Fascia, French Doors, Gable Trusses, Garage Doors, Posts, Railing, Trim, Utility Doors	SW 7005 Pure White	Sherwin Williams
Accent Color *(applied to):* Unit Entry Doors	Match Dunn Edwards DEA 156 Cherry Cola	Sherwin Williams
Garage Door Weatherstrip *(factory finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase.
Contact Donna Aldrich (949) 250-0607.

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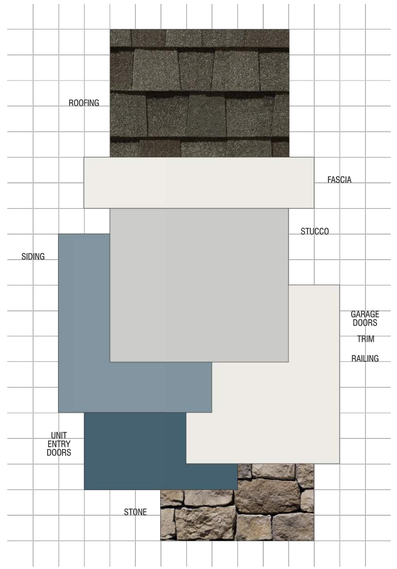
REVISIONS:

Number	Date	Description
1	4/11/25	Conceptual and finalization notations added.



21837 GEYSERVILLE AVE

Sonoma, California
CITY VENTURES
April 11, 2025 | 2024269

SCHEME 3

All Buildings

For exact color refer to manufacturers' actual samples.
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ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO

21837 GEYSERVILLE AVE

Sonoma, California
CITY VENUTRES
March 28, 2025 | 2024269
PAGE 1 OF 3

[1]Conceptual Exterior Color & Materials

[1](Colors & materials will be finalized during building permits.)

SCHEME 1 — ALL BUILDINGS

Material	Color	Manufacturer
Roofing: Ashpalt Shingles	Weathered Wood Landmark Solaris Ref: .20 Emi: .91 A.SRI: 20 CRRC: 0668-0119	Certainteed
Gutters & Downspouts *(factory finish)*	Match Adjacent Color	TBD
Vinyl Windows *(factory finish)*	White	Milgard
Manufactured Stone *(standard raked joints)*	Moonlight Roughcut	Eldorado / Westlake
Grout at Manufactured Stone	Misty Cove	Orco
Stucco Color *(16/20 sand finish)*	SW 7043 Worldly Gray	Sherwin Williams
Siding Color *(applied to):* Corner Boards, Lap Siding	Match Dunn Edwards DE 5187 Weathered Saddle	Sherwin Williams
Trim Color *(applied to):* Barge Boards, Braces, Eaves, Fascia, French Doors, Gable Trusses, Garage Doors, Posts, Railing, Trim, Utility Doors	SW 7005 Pure White	Sherwin Williams
Accent Color *(applied to):* Unit Entry Doors	Match Dunn Edwards DEA 156 Cherry Cola	Sherwin Williams
Garage Door Weatherstrip *(factory finish)*	Match Garage Door Color	TBD

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase.
Contact Donna Aldrich (949) 250-0607.

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REVISIONS:

Number	Date	Description
1	4/11/25	Conceptual and finalization notations added.

COLOR & MATERIAL SCHEMES

21837 GEYSERVILLE AVE

SONOMA COUNTY, CA

CITY VENTURES
Building It Forward

C&M
0 2 4 8

SUBMITTAL
2024269 | 2026-02-25

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ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA . SACRAMENTO

LEGEND

1. Project Entry with Signage
2. Vehicular Paver
3. Sidewalk
4. Central Open Space
   - Shade Structure
   - BBQ Grill
   - Picnic Table
5. Social Area
   - Event Lawn
   - Sculpture
   - Seating
6. Community Garden
   - Vineyard
   - Seating Area
7. Pocket Park A
   - Art Piece
   - Seat Wall
8. Pocket Park B
   - Turf Area
   - Bench
9. Bike Rack
10. Mailbox
11. Private Patio
12. Bio-Retention Basin per Civil Engineer
13. Transformer
14. Rock Mulch within 5' "Zero Zone"
15. Shrub Plating
16. Specimen Tree
17. Shade Tree
18. Retaining Wall (Refer to L-4)
19. Sound Wall (Refer to L-4)
20. Turfstone at Emergency Vehicle Area

CITY VENTURES
Building It Forward

21837 GEYSERVILLE AVE - CONCEPTUAL LANDSCAPE SITE PLAN

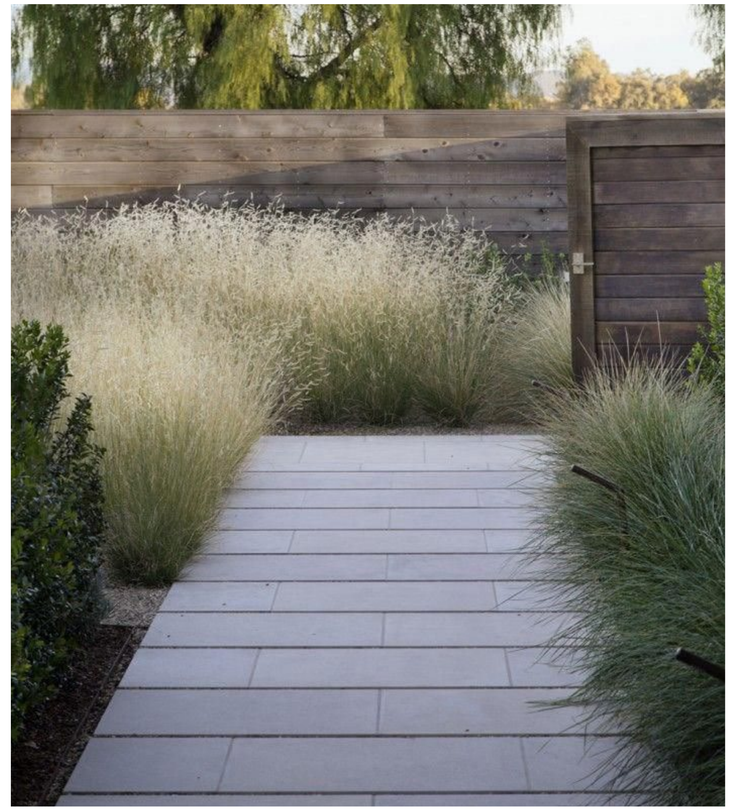
SONOMA COUNTY, CA

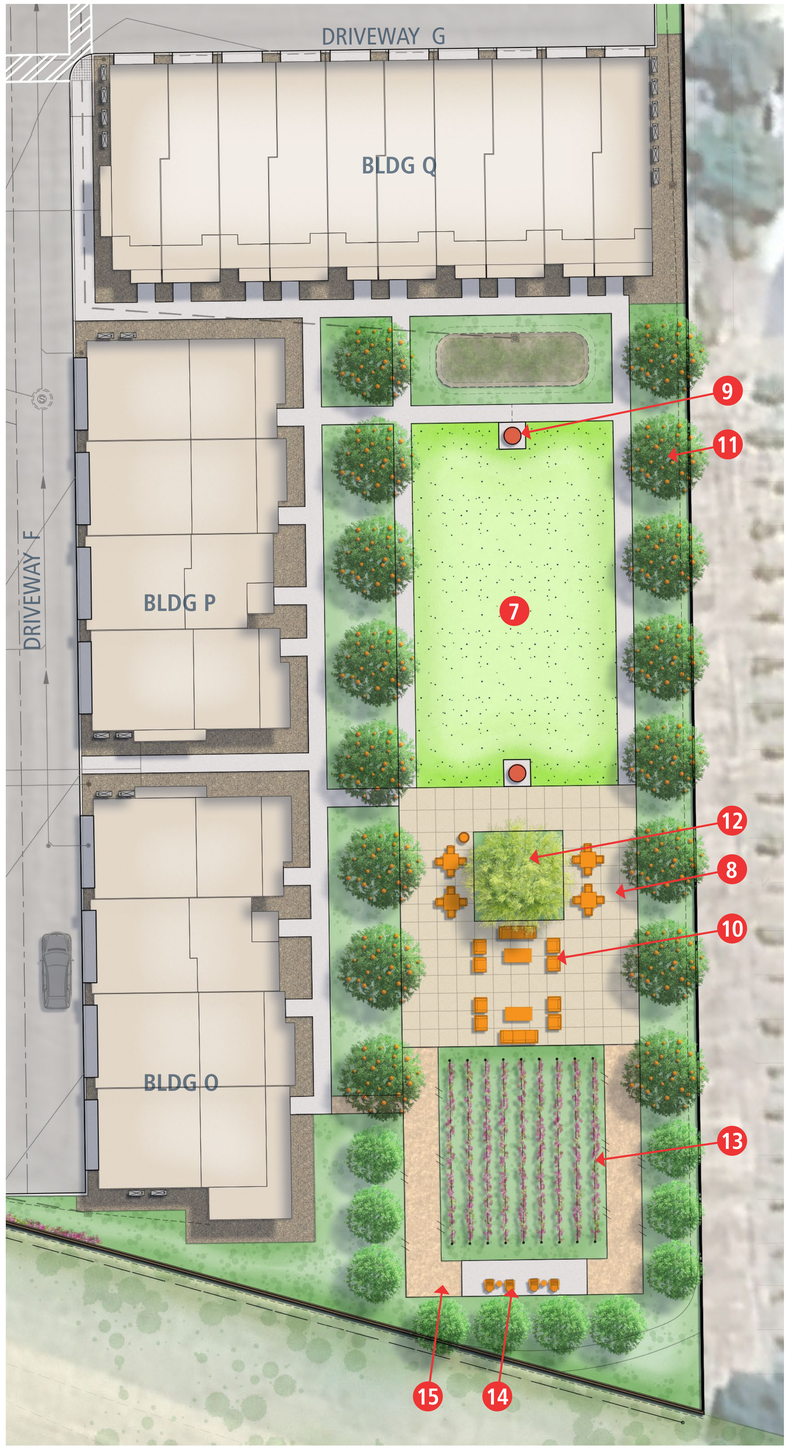
0 15' 30' 60'
Scale: 1" = 30'-0"

01.26.26

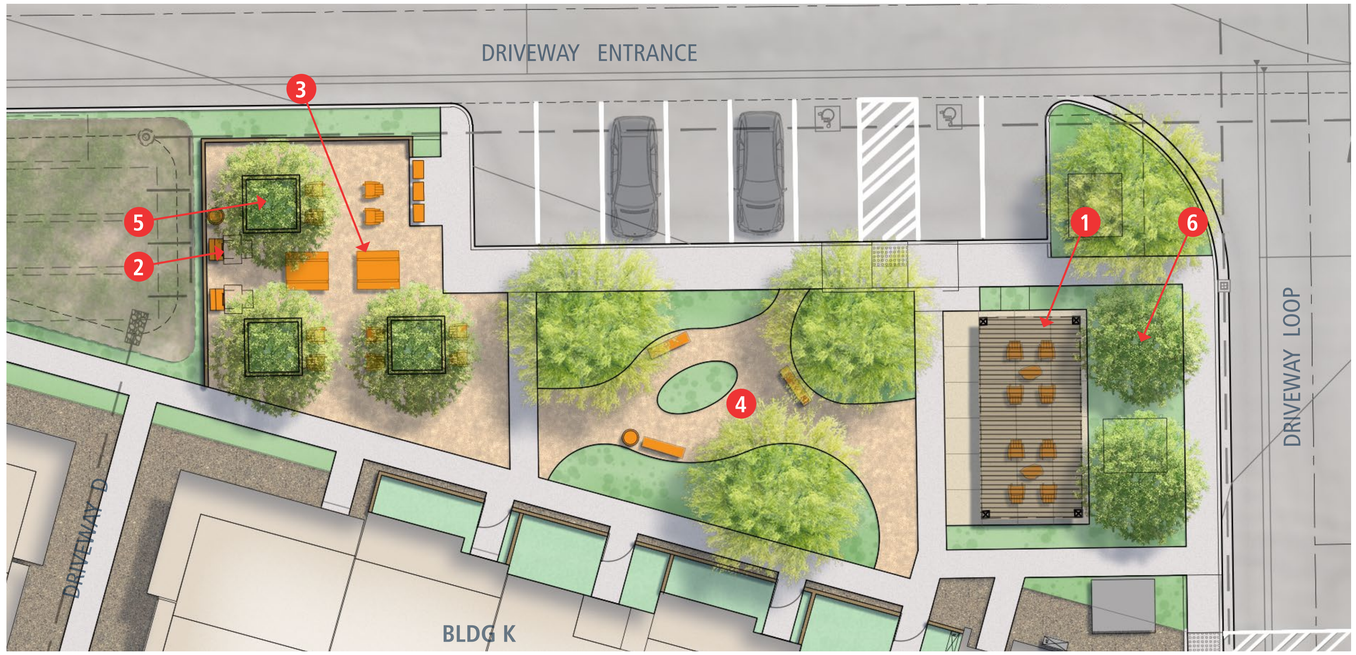
L-1

C2 Collaborative





B SOCIAL OPEN SPACE AND COMMUNIATY GARDEN
SCALE: 1/16"=1'-0"



A CENTRAL OPEN SPACE
SCALE: 1"=10'-0"

LEGEND

Central Open Space

1. Shade Structure
2. BBQ Grill
3. Picnic Table
4. Seating Area
5. Planter Pot
6. Shade Trees

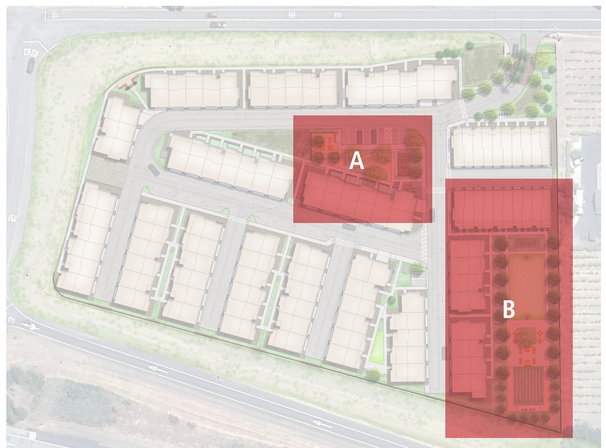
Social Area

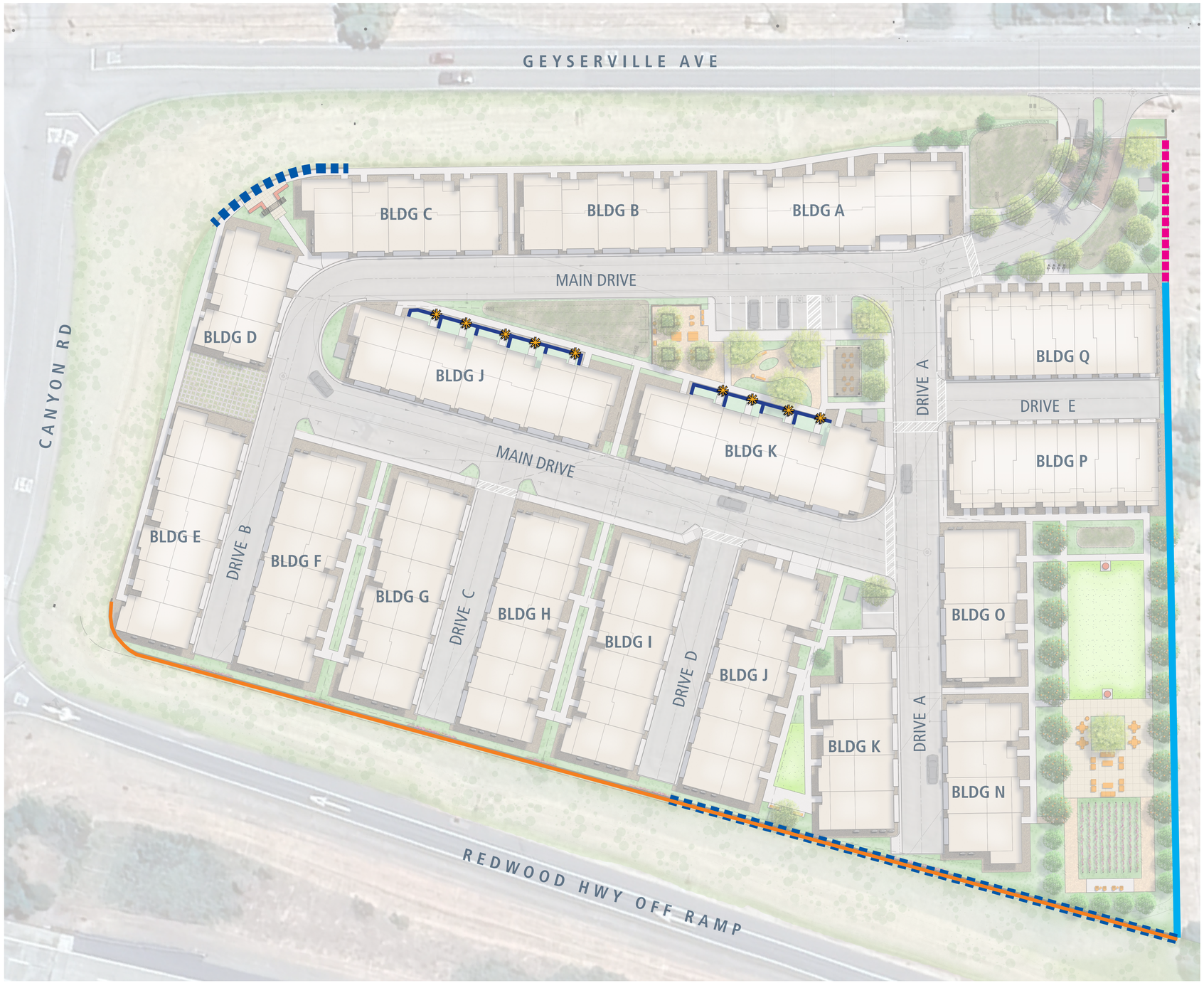
7. Event Lawn
8. Accent Concrete Paving
9. Accent Sculpture
10. Seating
11. Fruit Tree
12. Specimen Tree

Community Garden

13. Vineyard
14. Seating Area
15. Decomposed Granite

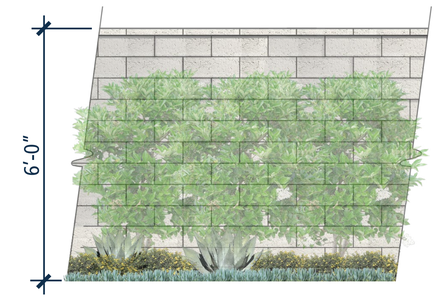
KEYMAP





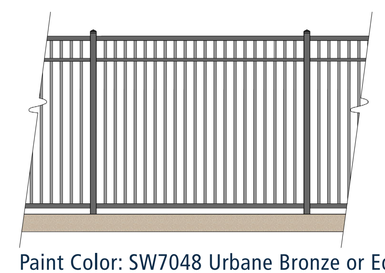
LEGEND

- Vinyl Perimeter Fence - 6'ht.
- Tubular Steel View Fence - 6'ht.
- Tubular Steel Patio Fence - 3.5'ht.
- Retaining Wall - height per Civil Engineer.
- Sound Wall - 6' ht.
- Tubular Steel Patio Gate - 3.5'ht.



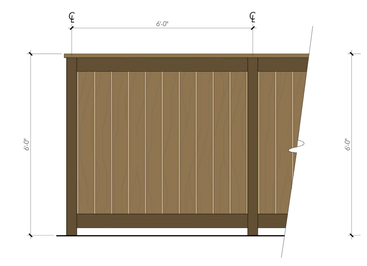
Slump Block - Gray (or Equal)

Sound Wall (6 ft.) / Retaining Wall (Height per Civil Engineer)



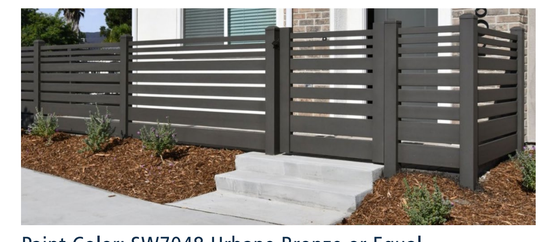
Paint Color: SW7048 Urbane Bronze or Equal

Tubular Steel View Fence



Color to Match Architure

Vinyl Perimeter Fence



Paint Color: SW7048 Urbane Bronze or Equal

Tubular Steel Patio Fence and Gate

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Building It Forward

21837 GEYSERVILLE AVE - CONCEPTUAL WALL AND FENCE PLAN

SONOMA COUNTY, CA

0 15' 30' 60'
Scale: 1" = 30'-0"

01.26.26

L-4

C2 Collaborative

LEGEND

- 5 ft "Zero Zone" (Rock Mulch)
- Low Water Use
- Medium Water Use
- High Water Use

Project Name: CTV217- Sonoma - Geyserville A

Date: January 26, 2026

WATER EFFICIENT WORK SHEET

Maximum Applied Water Allowance (MAWA)

Total MAWA = (Eto x 0.50 x LA in Sq.ft. x 0.62)+(Eto x 1.0 x SLA in Sq.ft. x 0.62)= Gallons per year for LA + SLA

Hydrozone:	Eto:	KL	LA Sq. Ft.	Conversion	SLA Sq. Ft.	MAWA
Landscaped Area	43.9	0.55	34,416	0.62	NA	515,197

MAWA= Maximum Applied Water Allowance (gallons per year)
Eto= Reference Evapotranspiration from Appendix C (inches per year)
0.50= Evapotraspiration Adjustment Factor (ETAF)
1.0= ETAF for Sprcial Landscaped Area
LA= Landscaped Area includes Special Landscape Area (square feet)
0.62= Conversion Factor (to gallons per square foot)
0.3= the additional ET adjustment Factor for Special Landscape Area (1.0- 0.7= 0.3)
SLA= Speical Landscape Area (square feet)

Applicant to fill in boxes below:

Eto (Reference Evapotranspiration from Appendix C inches per year)	**43.9**
Landscaped Area includes Special Landscape Area (square feet)	**34,416**
Speical Landscape Area (square feet)	**0**

Estimated Annual Water Use:

Total EAWU = (Eto x KL x LA in Sq.ft. / IE)= Gallons per Year

Hydrozone:	Eto:	KL	Sq. Ft.	Conversion	IE	EAWU
Very Low Water Use	43.9	0.1	-	0.62	0.81	-
Low Water Use	43.9	0.2	14,880	0.62	0.81	99,998
Medium Water Use S	43.9	0.5	15,400	0.62	0.81	258,738
High Water Use	43.9	0.8	4,136	0.62	0.73	123,367
Total EAWU:			34,416			482,104

EAWU= Estimated Applied Water Use (gallons per year)
Eto= Reference Evapotranspiration from Appendix C (inches per year)
KI= Landscape Coefficient
LA= Landscaped Area (square feet)
0.62= Conversion Factor (to gallons per square foot)
IE= Irrigation Efficiency= IME X DU (See definication in Appendix E for exmapIne IE percentages)
IME= Irrigation Management Efficiency (90%)
DU= Distribution Uniformity of Irrigation Head
KI= Ks x Kc x Kmc
Ks= species factor (range 1.0- 0.9) (see WUCOLS list for values)
Kd= density factor (range 0.5- 1.3) (see WUCOLS list for density value)
Kmc= microclimatic factor (range 0.5- 1.4) (see WUCOLS)

Table A- PF (Plant Factor)
Cool Season Turf= 0.8
Warm Season Turf= 0.7
High Water Use Plants= 0.7 (can be between 0.7-0.9)
Moderate Water Use Plants= 0.5 (can be between 0.4-0.6)
Low Water Use Plants= 0.2 (can be between 0.1-0.3)
Very Low Water Use Plants= 0.1

IE (Irrigation Efficiency)- Appendix E
Pop-up Stream Rotor= 0.73
Rotor Head= 0.76
Microspray= 0.76
Bubblers= 0.77
Drip Emitters= 0.81
Subsurface Irrigation= 0.81

Note:
All planting areas shall have a fully automatic irrigation system. Utilization water conserving features such as low-precipitation rate heads; low-flow micro sprays or drip irrigation, water sensors and multi-program controllers with weather station capability and drip circuit features. "Water Efficient Landscapes" irrigation system, scheduling and water use WELO calculations shall be designed to meet the requirements of the specifications of Sonoma County's Water-Efficient Landscape Ordinance, Article 7D3.

CITY VENTURES
Building It Forward

21837 GEYSERVILLE AVE - PRELIMINARY IRRIGATION CALCULATION
SONOMA COUNTY, CA

0 15' 30' 60'
Scale: 1"= 30'-0"

01.26.26

L-5

C2 Collaborative

TREE SCHEDULE:

	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WUCOLS
SPECIMEN TREE	Quercus verginiana	Southern Live Oak	36" Box	Per Plan	L
	Quercus agrifolia	Coastal Live Oak	36" Box	Per Plan	L
	Phoenix canariensis	Canary Island Date Palm	16' BTH	Per Plan	L
FRUIT TREE	Citrus reticulata	Mandarin Orange	24" Box	Per Plan	M
SCREENING TREE	Magnolia 'Little Gem'	Dwarf Magnolia	24" Box	Per Plan	M
	Prunus caroliniana	Carolina Cherry	24" Box	Per Plan	L
CANOPY TREE	Platanus racemosa	Western Sycamore	24" Box	Per Plan	M
	Melaleuca quinquenervia	Paperbark Tree	24" Box	Per Plan	L
	Arbutus unedo	Strawberry Tree	24" Box	Per Plan	L

VINE/ESPALIER SCHEDULE:

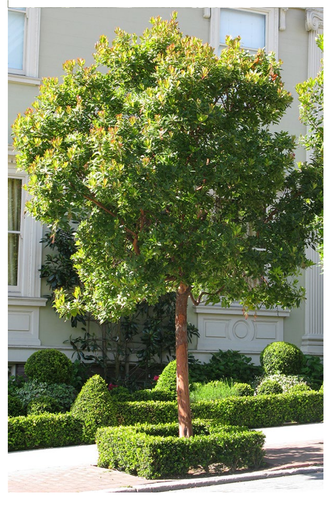
BOTANICAL NAME	COMMON NAME	SIZE	SPACING	
Vitis californica ' Roger's Red'	Roger's Red California Grape	1 gal.	Per Plan	L
Vitis labrusca 'Concord'	Concord Grape	Bare Root	Per Plan	L
Eriobotrya japonica	Japanese Loquat	5 gal.	Per Plan	L

SHRUB SCHEDULE:

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WUCOLS
Arctostaphylos densiflora 'Harmony'	Harmony Manzanita	5 gal.	48" o.c.	L
Buxus microphyllus var. japonicus 'Green Beauty'	Green Beauty Japanese Boxwood	1 gal.	16" o.c.	M
Calamagrostis x acutifolia 'Karl Foerster'	Feather Reed Grass	1 gal.	18" o.c.	M
Camellia sasanqua 'Shishi Gashira'	Shishi Gashira Camellia	5 gal.	30" o.c.	M
Dianella revoluta 'Little Rev'	Little Rev Flax Lily	1 gal.	18" o.c.	M
Euonymus fortunei	Wintercreeper Euonymus	5 gal.	24" o.c.	M
Festuca mairei	Atlas Fescue	1 gal.	24" o.c.	L
Festuca mairei	Atlas Fescue	5 gal.	30" o.c.	L
Frangula californica 'San Bruno'	San Bruno Coffeeberry	5 gal.	36" o.c.	L
Hakonechloa macra 'Aureola'	Golden Japanese Forest Grass	1 gal.	24" o.c.	M
Heteromeles arbutifolia	Toyon	15 gal.	60" o.c.	L
Ilex vomitoria 'Stoke's Dwarf'	Stoke's Dwarf Yaupon Holly	5 gal.	24" o.c.	L
Juncus patens	Spreading Rush	1 gal.	18" o.c.	L
Ligustrum japonicum 'Texanum'	Waxleaf Privet	5 gal.	30" o.c.	M
Lomandra longifolia 'Arctic Frost'	Arctic Frost Mat Rush	1 gal.	24" o.c.	L
Miscanthus sinensis var. condensatus	Large Silver Grass	1 gal.	36" o.c.	M
Muhlenbergia lindheimeri	Lindheimer's Muhly	1 gal.	24" o.c.	L
Podocarpus macrophyllus 'Maki'	Fern Podocarpus	5 gal.	30" o.c.	M
Polystichium munitum	Western Sword Fern	1 gal.	24" o.c.	M
Rhaphiolepis umbellata 'Minor'	Dwarf Yeddo Hawthorn	5 gal.	24" o.c.	L
Rosa floribunda 'Icecap'	Icecap Rose	5 gal.	30" o.c.	M
Salvia 'Amistad'	Friendship Sage	5 gal.	30" o.c.	-

GROUNDCOVER SCHEDULE:

BOTANICAL NAME	COMMON NAME	SIZE	SPACING	WUCOLS
Marathon II	Turf	Sodded	-	H
Carex pansa	Sand Dune Sedge	1 gal.	18" o.c.	M
Carex tumulicola	Foothill Sedge	1 gal.	18" o.c.	L
Geranium 'Rozanne'	Rozanne Geranium	1 gal.	24" o.c.	L
Heuchera maxima	Island Alum Root	1 gal.	12" o.c.	M
Sesleria autumnalis	Autumn Moor Grass	1 gal.	16" o.c.	M



CITY VENTURES
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21837 GEYSERVILLE AVE - CONCEPTUAL PLANT PALETTE

SONOMA COUNTY, CA

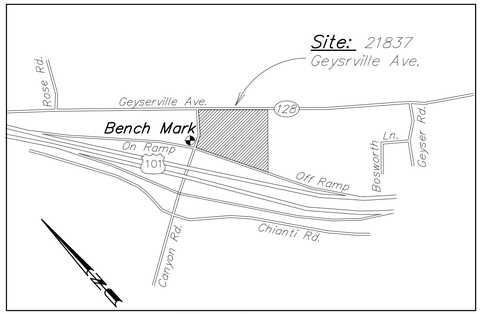
01.26.26

C2 Collaborative

21837 GEYSERVILLE AVENUE - VESTING TENTATIVE MAP

21837 Geyserville Ave, Geyserville, California

APN 140-180-035



LOCATION MAP

NOT TO SCALE

SHEET INDEX

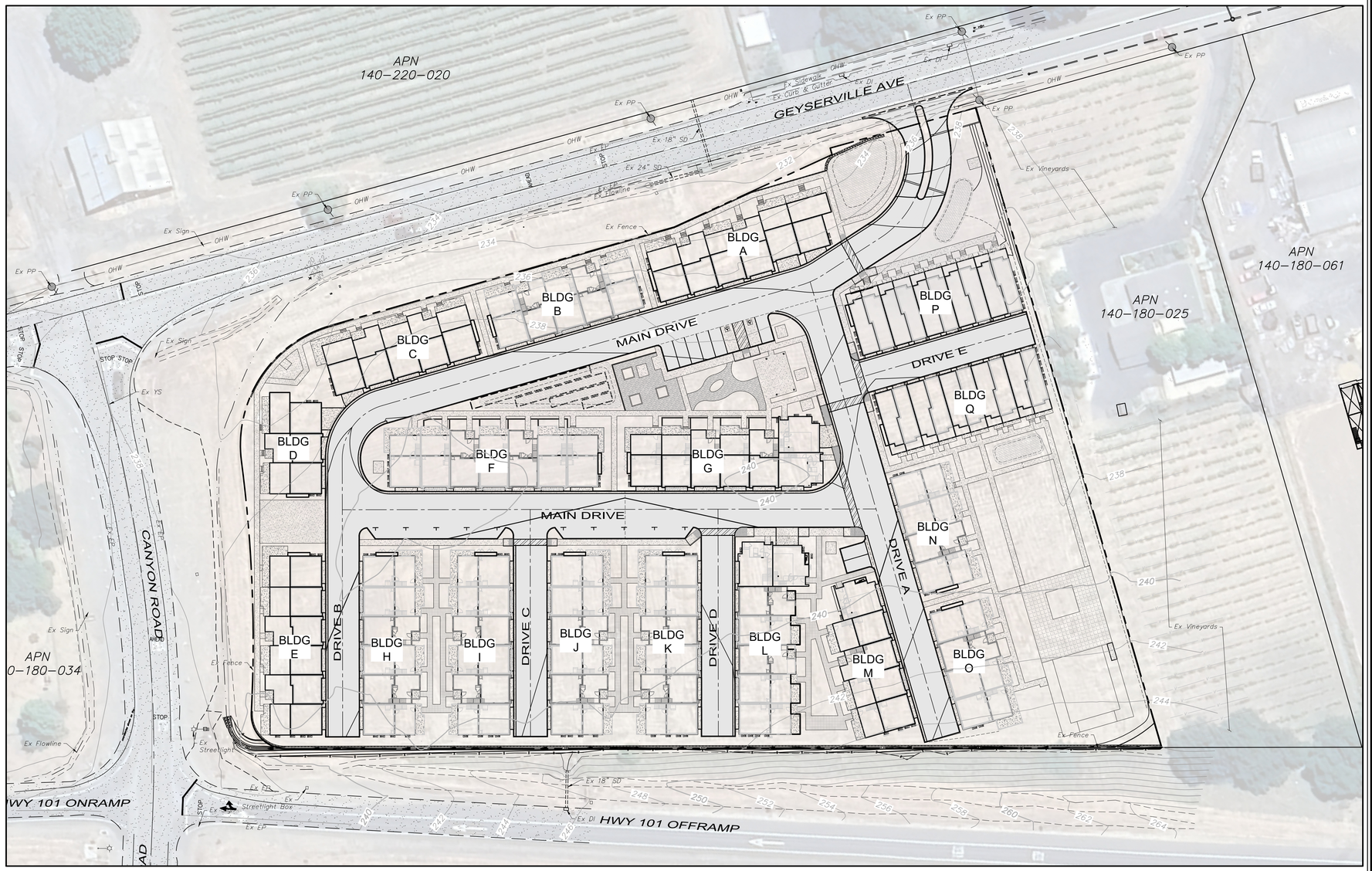
1.	C1.0	TITLE SHEET
2.	C2.0	SITE LAYOUT & TYPICAL STREET SECTIONS
3.	C2.1	VESTING TENTATIVE MAP
4–9.	C3.0–C3.5	PRELIMINARY GRADING & DRAINAGE PLANS
10–11.	C4.0–C4.1	PRELIMINARY UTILITY PLANS

SITE INFORMATION

TOTAL NO. OF UNITS:	103
SITE AREA:	5.11 ACRES
PRESENT ZONING:	R3 B6 20 DU, RC50 SR
LAND USE:	UR 20
HIGH FIRE SEVERITY ZONE:	YES

LEGEND

PROPOSED	EXISTING	DESCRIPTION
		PROPERTY BOUNDARY
		CURB & GUTTER
		SANITARY SEWER & MANHOLE
		SANITARY SEWER & CLEANOUT
		SANITARY SEWER LATERAL
		STORM DRAIN & MANHOLE
		STORM DRAIN & DRAINAGE INLET (DI)
		STORM DRAIN & AREA DRAIN (AD)
		ROOF DRAIN & DOWN SPOUT (DS)
		WATER SERVICE / WM WATER SERVICE / RPBP
		FIRE LINE / DDCV
		BLOW-OFF
		WATER MAIN & GATE VALVE
		FIRE HYDRANT
		STREET SIGN
		STREET NAME SIGN
		JOINT TRENCH COMPOSITE DRY UTILITY (BY OTHERS)
		TRANSFORMER (BY OTHERS)
		LIGHT STANDARD
		UTILITY POLE W/WO GUY WIRE
1 C3.0		DETAIL 1 ON SHEET C3.0
		DRAINAGE SWALE
		DAYLIGHT LINE
		APPROXIMATE LIMIT OF GRADING/DISTURBANCE
300	300	INDEX CONTOUR
299	299	INTERMEDIATE CONTOUR
GB		GRADE BREAK W/ SLOPE SYMBOL



OVERALL SITE PLAN

40' 20' 0 20' 40' 80' 120'

Graphic Scale: 1" = 40'

APPLICANT

City Ventures Homebuilding LLC
444 Spear Street, Suite 200
San Francisco, CA 94105
(646) 522-4260

ENGINEER

David R. Brown RCE 41833
Adobe Associates, Inc.
1220 N Dutton Avenue
Santa Rosa, CA 95401
Phone: (707) 541-2300

ARCHITECT

WHA Architects
200 Commerce, Suite 200
Irvine CA, 92602-5000
Phone: (949) 250-0607

SURVEYOR

Aaron R Smith PLS 7901
Adobe Associates, Inc.
1220 N Dutton Avenue
Santa Rosa, CA 95401
Phone: (707) 541-2300

LANDSCAPE

C2 Collaborative
100 Avenida Miramar
San Clemente, CA 92672
Phone: (949) 366-6624

GEOTECHNICAL

Quantum Geotechnical, Inc.
6288 San Ignacio Ave Suite A
San Jose, CA 95119
Phone: (408) 629-3822

ABBREVIATIONS

AAI	ADOBE ASSOCIATES, INC.	ESMT	EASEMENT	PUE	PUBLIC UTILITY EASEMENT
AB	AGGREGATE BASE	EX	EXISTING	RCE	REGISTERED CIVIL ENGINEER
AC	ASPHALT CONCRETE	FL	FLOWLINE	RCP	REINFORCED CONCRETE PIPE
AD	AREA DRAIN	FG	FINISH GRADE	R/W	RIGHT OF WAY
BLDG	BUILDING	FH	FIRE HYDRANT	RWL	RECLAIMED WATER LINE
BM	BENCH MARK	FS	FINISHED SURFACE	S	SLOPE
BOV	BLOWOFF VALVE	FSS	FIRE SAFE STANDARD	SAD	SEE ARCHITECTURAL DRAWINGS
C	COMPACT PARKING	GB	GRADE BREAK	SD	STORM DRAIN
CB	CATCH BASIN	GR	GRATE	SS	SANITARY SEWER
CL	CLASS	IG	INVERT GRADE	STA	STATION
℄	CENTERLINE	LF	LINEAR FEET	STD	STANDARD
CMP	CORRUGATED METAL PIPE	MAX	MAXIMUM	TC	TOP OF CURB
CO	CLEANOUT	ME	MATCH EXISTING	TOP	TOP OF PIPE
CONC	CONCRETE	MH	MANHOLE	TYP	TYPICAL
DI	DROP INLET	MIN	MINIMUM	W	WATER
DWG	DRAWING	NTS	NOT TO SCALE	WM	WATER METER
DWY	DRIVEWAY	NO	NUMBER	WV	WATER VALVE
EG	EXISTING GROUND	OC	ON CENTER	WWF	WELDED WIRE FABRIC
EP	EDGE OF PAVEMENT	PL	PROPERTY LINE		
EL	ELEVATION	PP	POWER POLE		

Revisions			
No.	Date	Description	Approved

adobe associates, inc.
civil engineering | land surveying | wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com
"A Service You Can Count On!"

David R. Brown, RCE 41833
My license expires 3/31/2028

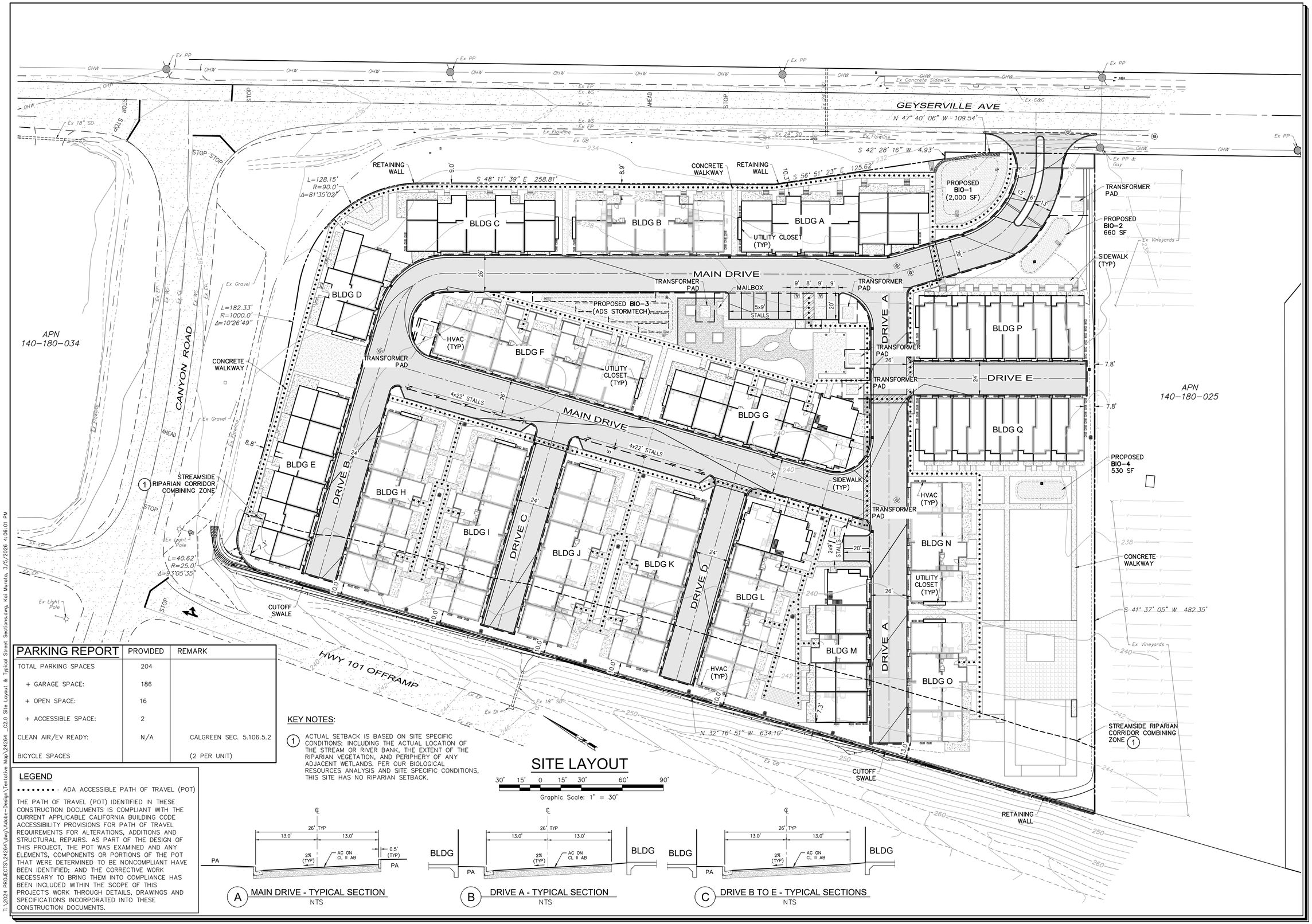
REGISTERED PROFESSIONAL ENGINEER ★ DAVID R. BROWN ★ No. 41833 Exp. 3/31/2028 ★ CIVIL ★ STATE OF CALIFORNIA

21837 GEYSERVILLE AVENUE
VESTING TENTATIVE MAP
TITLE SHEET
21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet
C1.0
1 of 11 Sheets
Job 24264

T:\2024 PROJECTS\24264\dwg\Adobe-Design\Tentative Map\24264 _C1.0 Title Sheet.dwg, Kai Murata, 3/5/2026 4:06:07 PM



PARKING REPORT	PROVIDED	REMARK
TOTAL PARKING SPACES	204	
+ GARAGE SPACE:	186	
+ OPEN SPACE:	16	
+ ACCESSIBLE SPACE:	2	
CLEAN AIR/EV READY:	N/A	CALGREEN SEC. 5.106.5.2
BICYCLE SPACES		(2 PER UNIT)

KEY NOTES:

1. ACTUAL SETBACK IS BASED ON SITE SPECIFIC CONDITIONS; INCLUDING THE ACTUAL LOCATION OF THE STREAM OR RIVER BANK, THE EXTENT OF THE RIPARIAN VEGETATION, AND PERIPHERY OF ANY ADJACENT WETLANDS. PER OUR BIOLOGICAL RESOURCES ANALYSIS AND SITE SPECIFIC CONDITIONS, THIS SITE HAS NO RIPARIAN SETBACK.

SITE LAYOUT

LEGEND

• • • • • • • • ADA ACCESSIBLE PATH OF TRAVEL (POT)

THE PATH OF TRAVEL (POT) IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WERE DETERMINED TO BE NONCOMPLIANT HAVE BEEN IDENTIFIED; AND THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS.

A MAIN DRIVE - TYPICAL SECTION
NTS

B DRIVE A - TYPICAL SECTION
NTS

C DRIVE B TO E - TYPICAL SECTIONS
NTS

No.	Date	Description	Approved

Revisions

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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP

SITE LAYOUT & TYPICAL STRETT SECTIONS

21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet
C2.0
2 of 11 Sheets
Job 24264

T:\2024 PROJECTS\24264\dwg\Adobe-Design\Tentative Map\24264_C2.0 Site Layout & Typical Street Sections.dwg, Kai Murata, 3/5/2026 4:06:01 PM

Vesting Tentative Map

For Condominium Purposes:

103 Residential Condo Units

21837 Geyserville Avenue, Geyserville Ca.

Assessor's Parcel Number 140-180-035

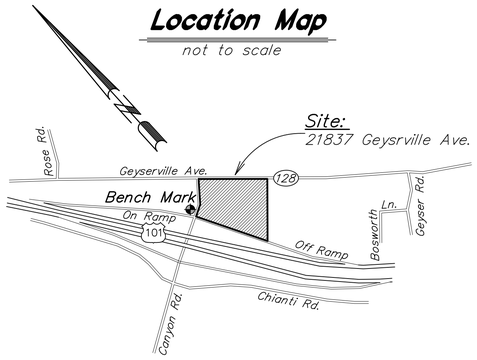
Per Gov. Code Section 66456.1, the subdivider intends to file and reserves the right to file multiple final maps.

CURRENT ZONING

HR (High Density Residential)

Location Map

not to scale



SURVEYOR/ENGINEER:

ADOBE ASSOCIATES, INC.
1220 N. Dutton Avenue
Santa Rosa, CA. 95401
(707) 541-2300 phone
(707) 541-2301 fax
asmith@adobeinc.com

OWNER/SUBDIVIDER:

City Ventures Homebuilding, LLC
c/o Michael Brewer
444 Spear Street, Suite 200
San Francisco, CA 94105
(646) 522-4260

General Notes

Property owner information is based upon that "Grant Deed" recorded under Document Number 2015-098500 of Official Records, Sonoma County Records. Property lines shown hereon are based upon found monumentation and record information delineated from that same "Grant Deed" recorded under Document Number 2015-098500. A field survey was performed by Adobe Associates, Inc. on June 1, 2005 and December 9, 2024.

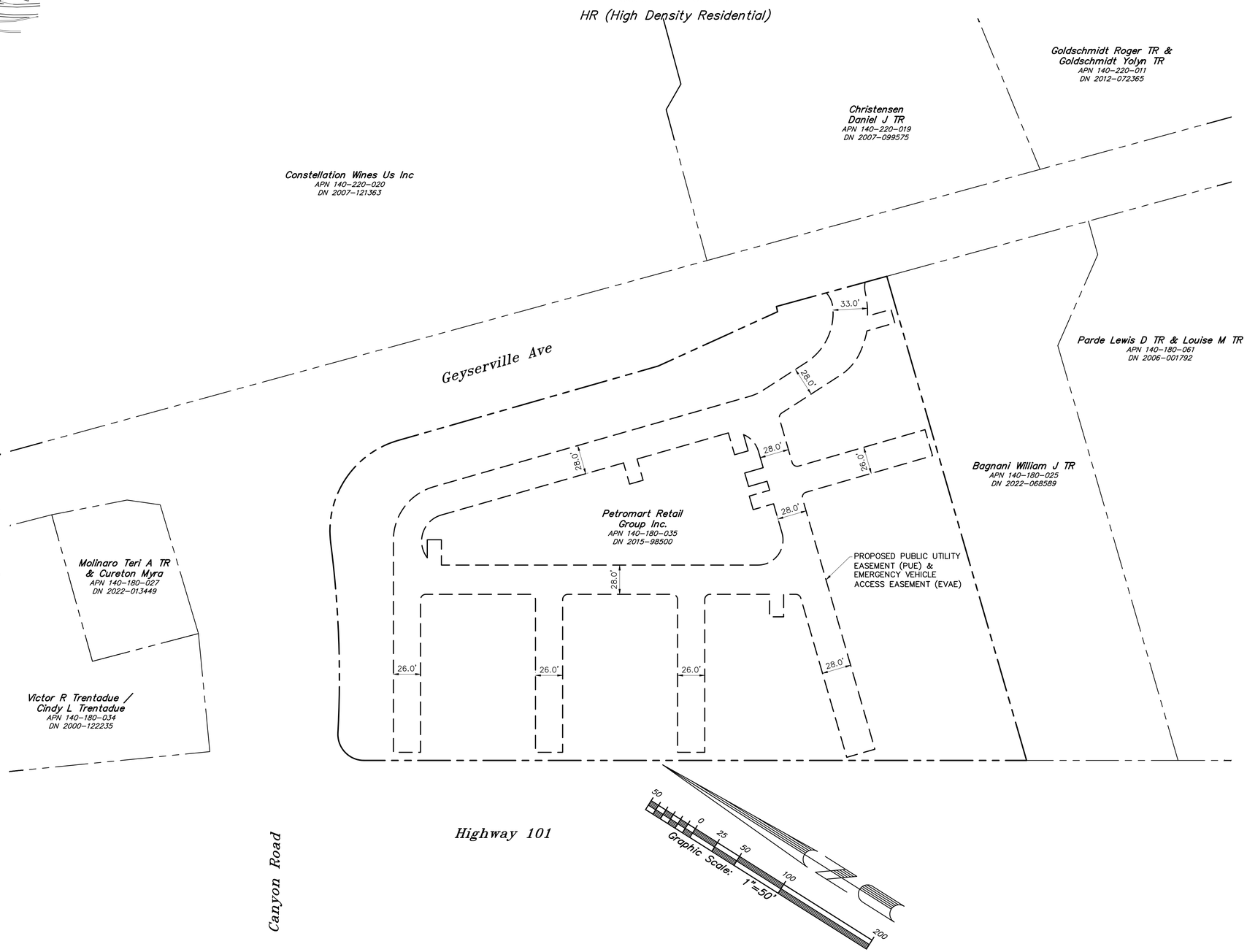
A "Record of Survey" is in process with this office and will be submitted to the County of Sonoma for review and subsequent recording pursuant to Section 8762 of the Professional Land Surveyor's Act.

Utilities and features shown hereon are based upon physical features observed at the time of this survey, such as paint markings, overhead wiring, utility poles, and utility boxes. For the location of under ground utilities, a subsurface utility locating company should be contacted.

Contours shown hereon are a 1' (one foot) vertical interval and are shown based upon a field survey performed by Adobe Associates, Inc., on June 1, 2005 and December 9, 2024.

Bench Mark:

Found 1/2" Iron Pin, 9.80 miles Southerly along U.S. Highway 101 from the junction of State Highway 128 at the North edge of Cloverdale, 218.2' Northeast of the center of the Northbound Lanes of Highway 101, 68.6' Northwest of the centerline of Canyon Road, 4.6' Northwest of a fence corner, access is though a 5" aluminum cap. Elevation = 239.25' (Datum NAVD 1988)



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STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

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21837 GEYSERVILLE AVENUE
VESTING TENTATIVE MAP
VESTING TENTATIVE MAP
21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet
C2.1
3 of 11 Sheets
Job 24264

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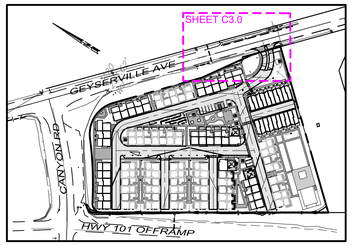
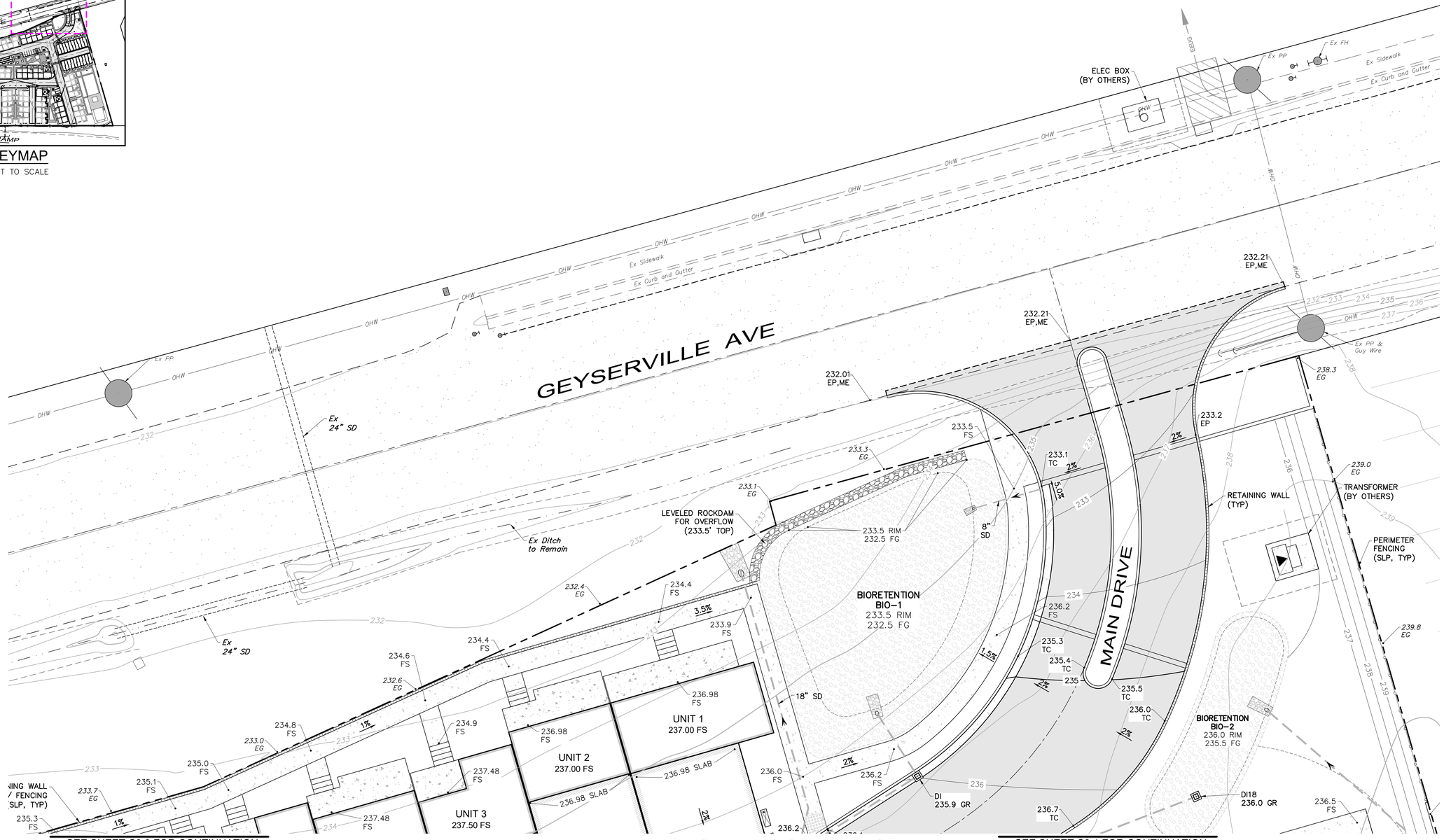


KEYMAP

NOT TO SCALE



SEE SHEET C3.3 FOR CONTINUATION

SEE SHEET C3.1 FOR CONTINUATION

PRELIMINARY GRADING & DRAINAGE PLAN

10' 5' 0 5' 10' 20' 30'

Graphic Scale: 1" = 10'

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21837 GEYSERVILLE AVENUE
VESTING TENTATIVE MAP
PRELIMINARY GRADING & DRAINAGE PLAN

21837 Geyserville Ave, Geyserville, California
APN 140–180–035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CTDB

Sheet
C3.0
4 of 11 Sheets
Job 24264

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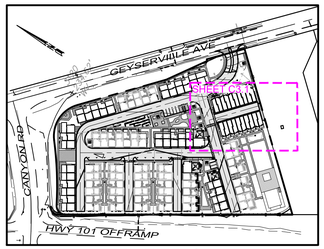

KEYMAP

NOT TO SCALE

PRELIMINARY GRADING & DRAINAGE PLAN

Graphic Scale: 1" = 10'

Revisions			
No.	Date	Description	Approved

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21837 GEYSERVILLE AVENUE
VESTING TENTATIVE MAP
PRELIMINARY GRADING & DRAINAGE PLAN

21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CTDB

Sheet C3.1

5 of 11 Sheets
Job 24264

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PRELIMINARY GRADING & DRAINAGE PLAN

Graphic Scale: 1" = 10'

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21837 GEYSERVILLE AVENUE
VESTING TENTATIVE MAP
PRELIMINARY GRADING & DRAINAGE PLAN
21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
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Checked by: CT,DB

Sheet
C3.2
6 of 11 Sheets
Job 24264

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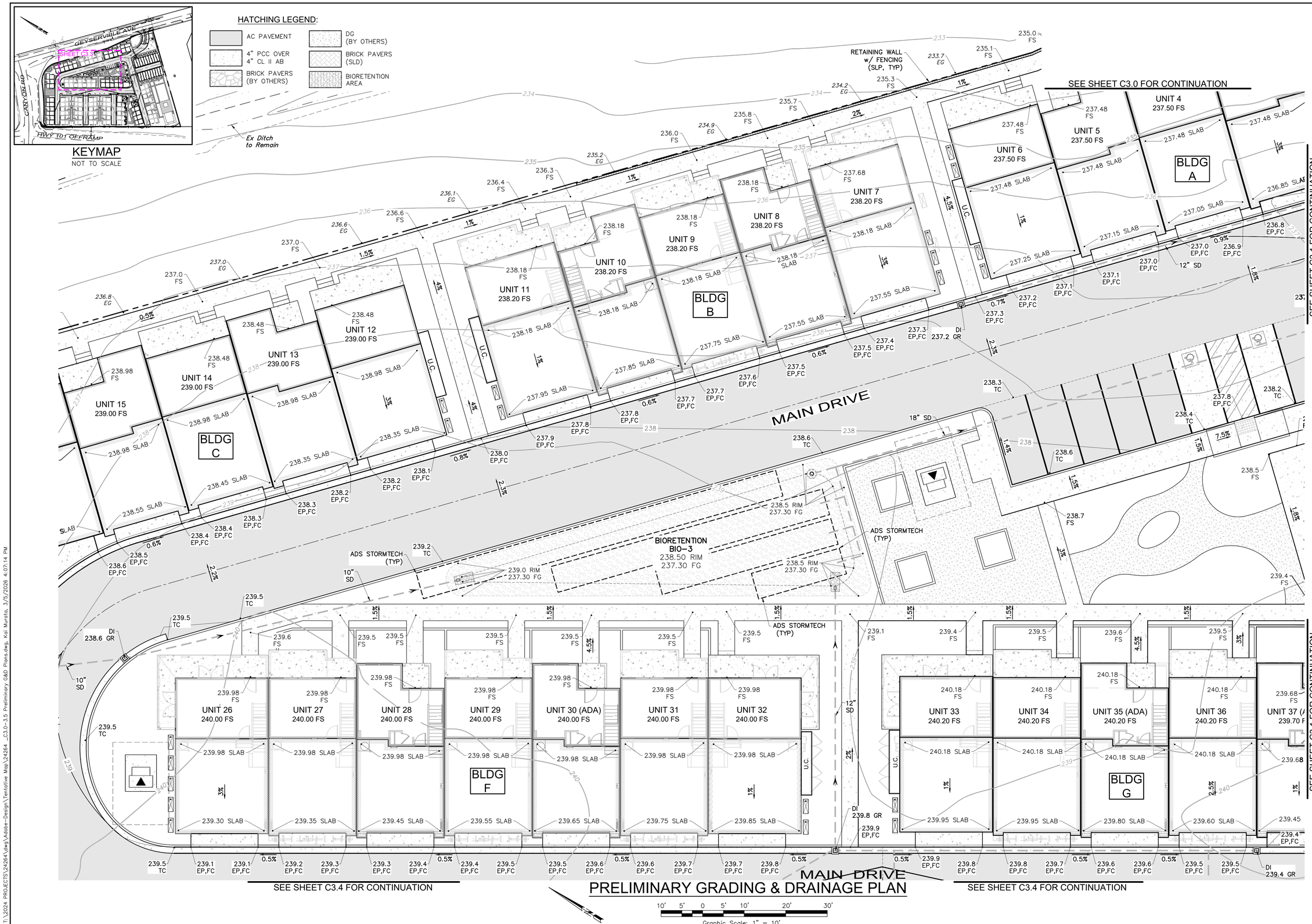

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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP
PRELIMINARY GRADING & DRAINAGE PLAN

21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet C3.3
7 of 11 Sheets
Job 24264

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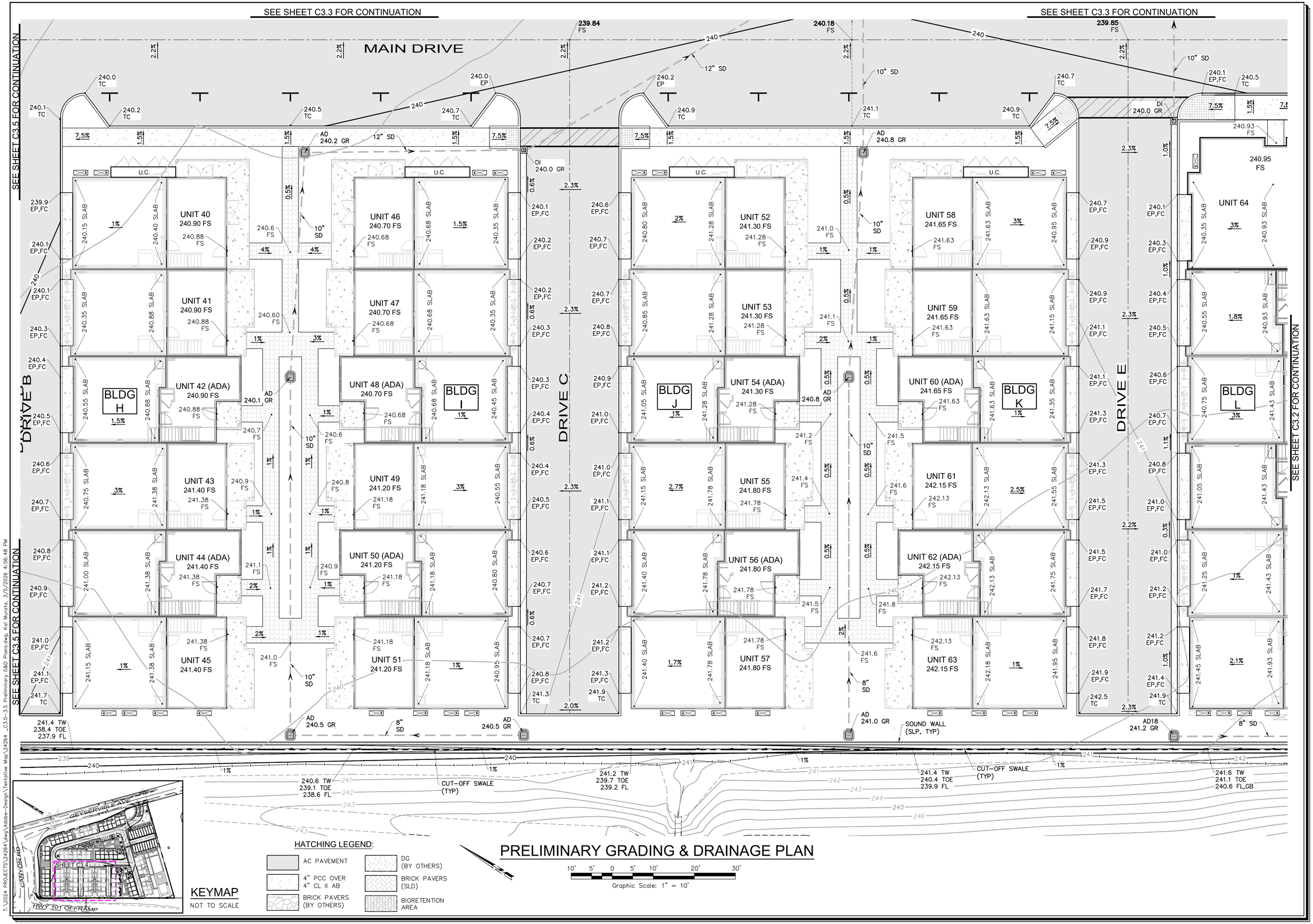

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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP

PRELIMINARY GRADING & DRAINAGE PLAN

21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet C3.4

8 of 11 Sheets
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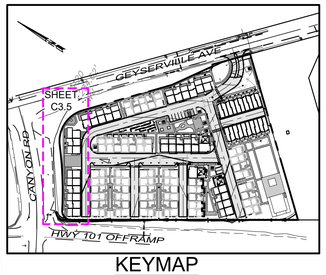
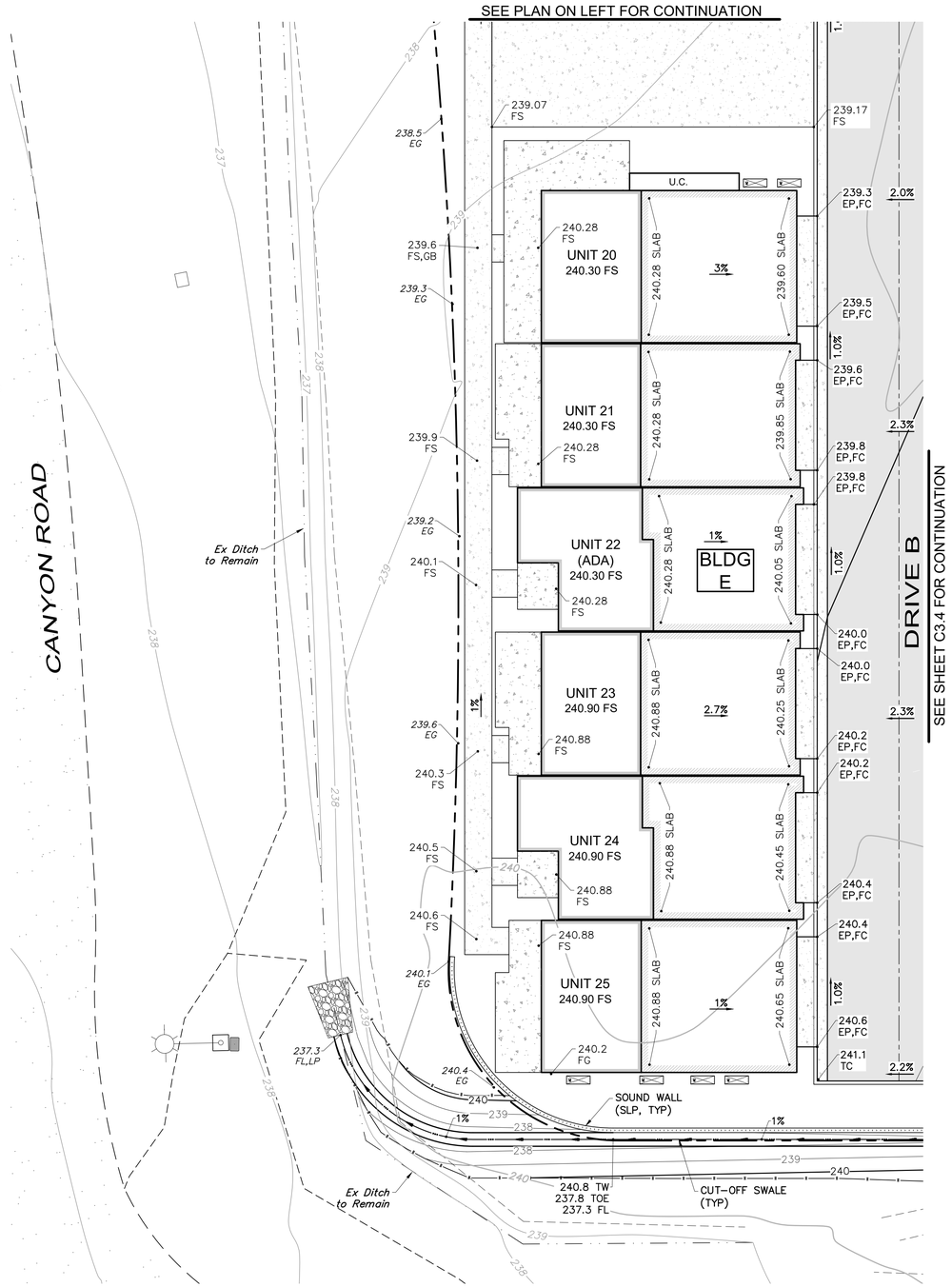


KEYMAP

NOT TO SCALE

HATCHING LEGEND:

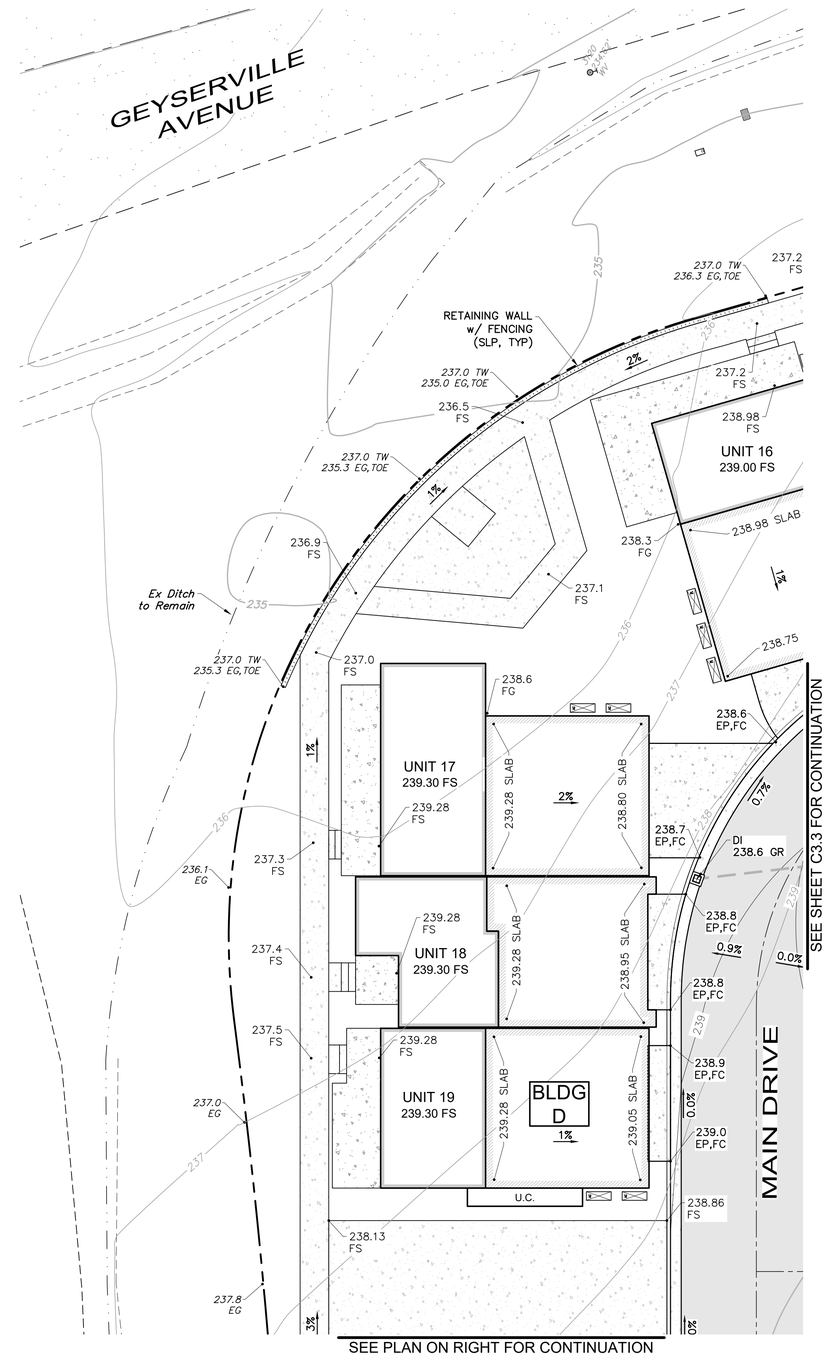
- AC PAVEMENT
- 4" PCC OVER 4" CL II AB
- BRICK PAVERS (BY OTHERS)
- DG (BY OTHERS)
- BRICK PAVERS (SLD)
- BIORETENTION AREA



PRELIMINARY GRADING & DRAINAGE PLAN

10' 5' 0 5' 10' 20' 30'

Graphic Scale: 1" = 10'



PRELIMINARY GRADING & DRAINAGE PLAN

10' 5' 0 5' 10' 20' 30'

Graphic Scale: 1" = 10'

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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP

PRELIMINARY GRADING & DRAINAGE PLAN

21837 Geyserville Ave, Geyserville, California

APN 140-180-035

SCALE: AS SHOWN

Date: January 6, 2026

Design by: KM

Drawn by: KM

Checked by: CTDB

Sheet C3.5

9 of 11 Sheets

Job 24264

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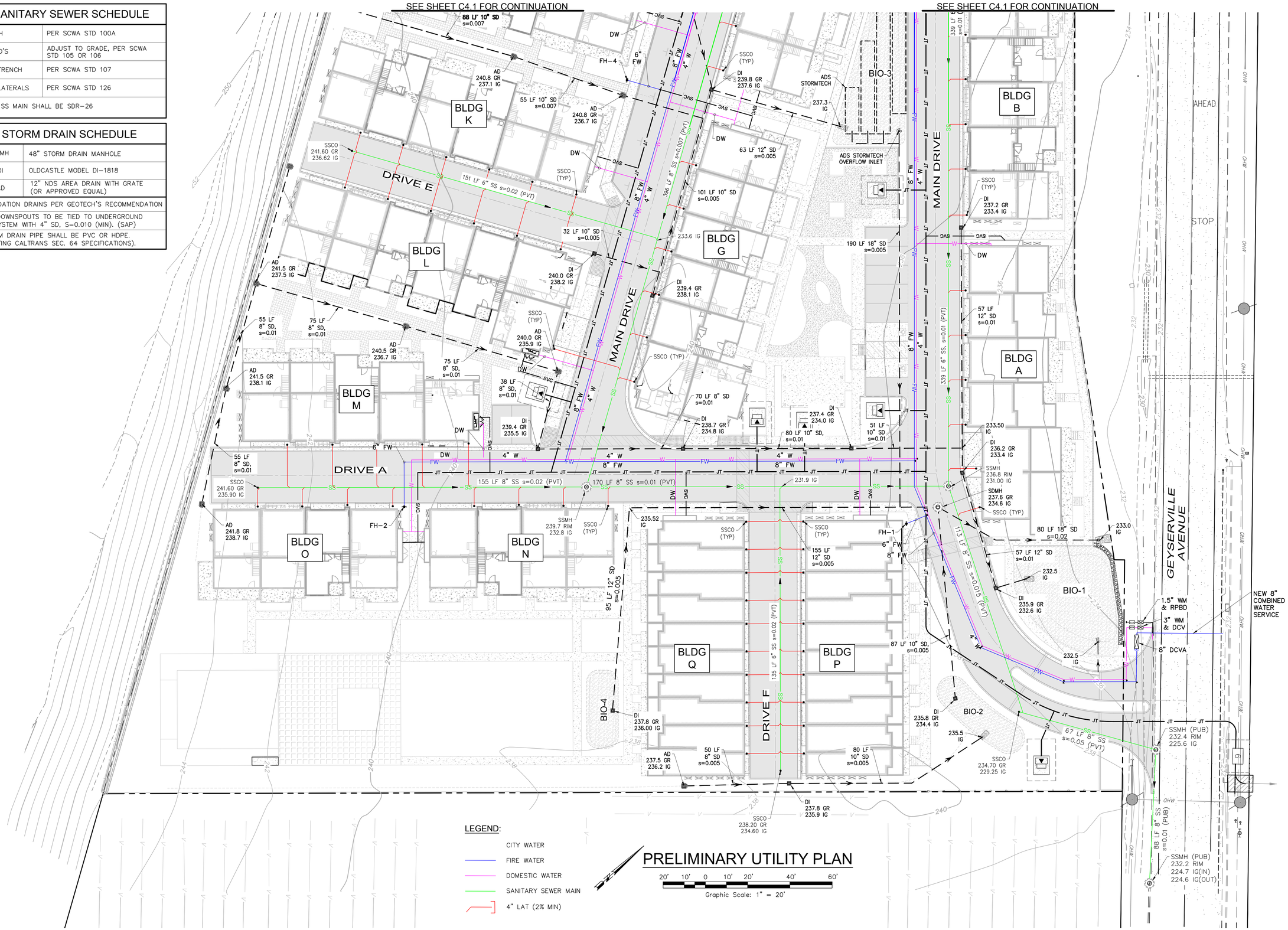
SANITARY SEWER SCHEDULE	
SSMH	PER SCWA STD 100A
SSCO'S	ADJUST TO GRADE, PER SCWA STD 105 OR 106
SS TRENCH	PER SCWA STD 107
SS LATERALS	PER SCWA STD 126
ALL SS MAIN SHALL BE SDR-26	

STORM DRAIN SCHEDULE	
SDMH	48" STORM DRAIN MANHOLE
DI	OLDCASTLE MODEL DI-1818
AD	12" NDS AREA DRAIN WITH GRATE (OR APPROVED EQUAL)
FOUNDATION DRAINS PER GEOTECH'S RECOMMENDATION	
ALL DOWNSPOUTS TO BE TIED TO UNDERGROUND SD SYSTEM WITH 4" SD, S=0.010 (MIN). (SAP)	
STORM DRAIN PIPE SHALL BE PVC OR HDPE. (MEETING CALTRANS SEC. 64 SPECIFICATIONS).	



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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP
PRELIMINARY UTILITY PLAN
21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

Sheet C4.0
10 of 11 Sheets
Job 24264

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SANITARY SEWER SCHEDULE	
SSMH	PER SCWA STD 100A
SSCO'S	ADJUST TO GRADE, PER SCWA STD 105 OR 106
SS TRENCH	PER SCWA STD 107
SS LATERALS	PER SCWA STD 126
ALL SS MAIN SHALL BE SDR-26	

STORM DRAIN SCHEDULE	
SDMH	48" STORM DRAIN MANHOLE
DI	OLDCASTLE MODEL DI-1818
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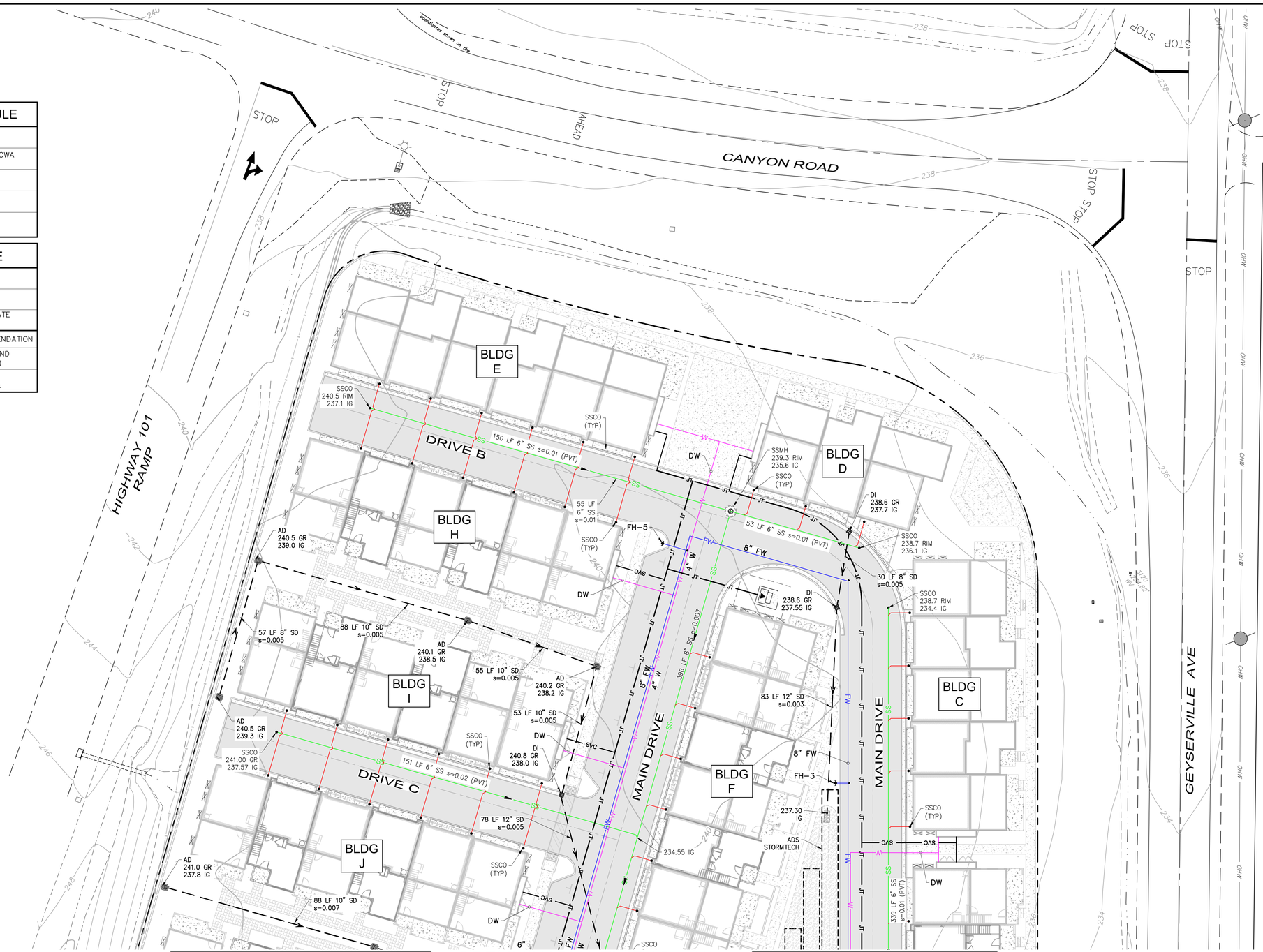

PRELIMINARY UTILITY PLAN

20' 10' 0 10' 20' 40' 60'

Graphic Scale: 1" = 20'

LEGEND:

- CITY WATER
- FIRE WATER
- DOMESTIC WATER
- SANITARY SEWER MAIN
- 4" LAT (2% MIN)

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21837 GEYSERVILLE AVENUE VESTING TENTATIVE MAP
PRELIMINARY UTILITY PLAN
21837 Geyserville Ave, Geyserville, California
APN 140-180-035

SCALE: AS SHOWN
Date: January 6, 2026
Design by: KM
Drawn by: KM
Checked by: CT,DB

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C4.1
11 of 11 Sheets
Job 24264

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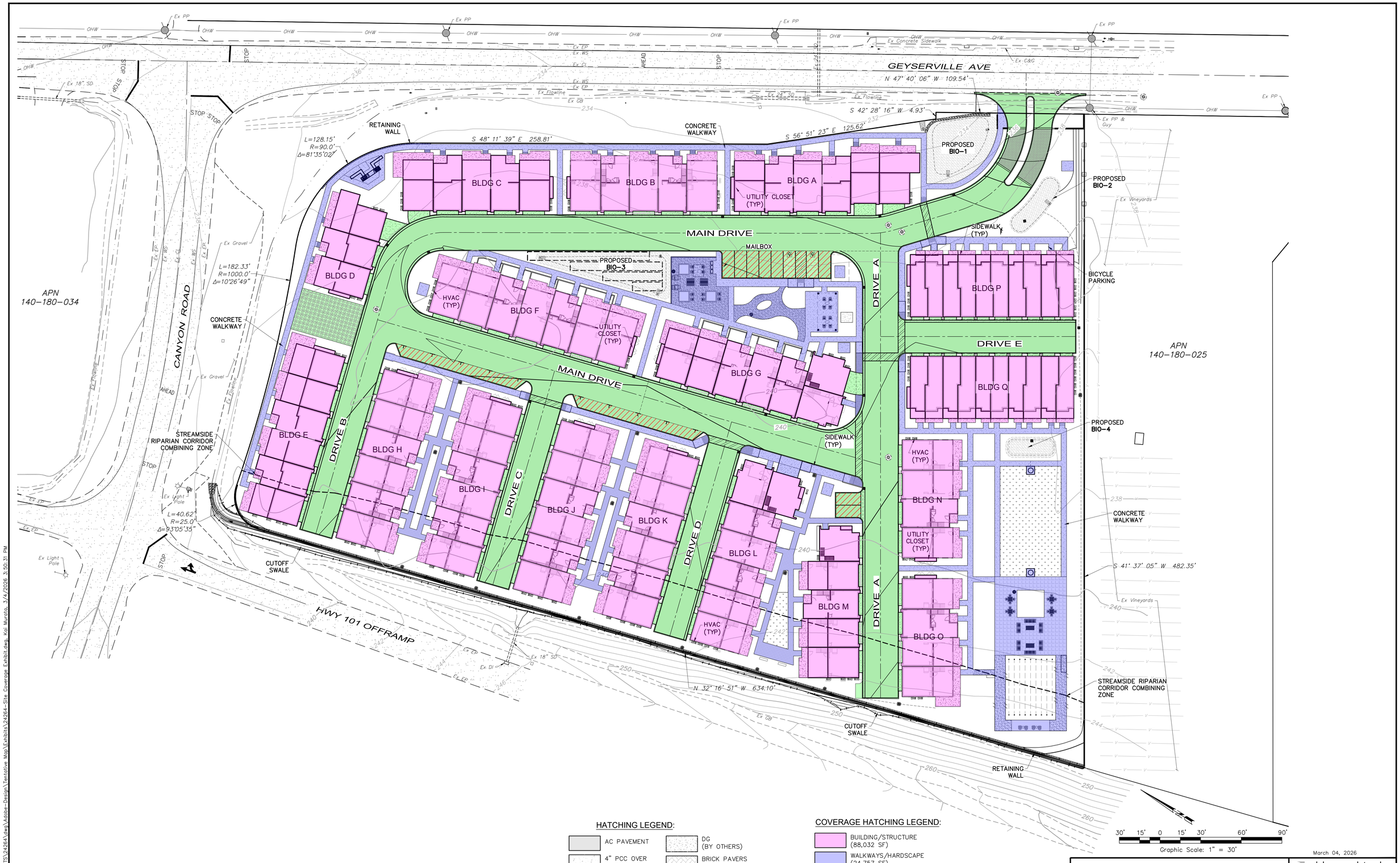

HATCHING LEGEND:

- AC PAVEMENT
- 4" PCC OVER 4" CL II AB
- BRICK PAVERS (BY OTHERS)
- DG (BY OTHERS)
- BRICK PAVERS (SLD)
- BIORETENTION AREA

COVERAGE HATCHING LEGEND:

- BUILDING/STRUCTURE (88,032 SF)
- WALKWAYS/HARDSCAPE (24,757 SF)
- DRIVEWAY/AC PAVEMENT (59,788 SF)
- PARKING (3,443 SF)

March 04, 2026

SITE COVERAGE EXHIBIT

21837 GEYSERVILLE AVENUE
21837 Geyserville Avenue, Geyserville, CA
APN 140-180-035

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REVISED PROJECT - FEBRUARY 2026

Plan Type	Floor 1Net SF	Floor 2 Net SF	Floor 3 Net SF	Floor 1Gross SF
Plan 1A	237	655	672	775
Plan 1AX	237	655	672	775
Plan 1B	126	658	650	740
Plan 2A	321	793	719	863
Plan 2B	321	793	719	882
Plan 3A	288	798	780	926
Plan 4A	298	850	899	1,000
Plan 4AX	298	850	899	1,025
Plan 4B	309	835	845	1,065
Plan 4BX	309	835	845	1,089
Plan 4C	309	835	845	1,122
Plan 4D	309	835	843	1,116
Plan 5	111	438	476	602
Plan 6	98	506	441	570

BUILDING 100	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B			0	0
Plan 3A			0	0
Plan 4A	1		298	850
Plan 4AX	1		298	850
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**3**	**1**	**917**	**2,493**

BUILDING 200	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B			0	0
Plan 3A	1		288	798
Plan 4A	1		298	850
Plan 4AX	1		298	850

Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**4**	**1**	**1,205**	**3,291**

BUILDING 201	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B			0	0
Plan 3A	1		288	798
Plan 4A	1		298	850
Plan 4AX	1		298	850
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**4**	**1**	**1,205**	**3,291**

BUILDING 300	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	1		288	798
Plan 4A			0	0
Plan 4AX	1		298	850
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C	1		309	835
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**5**	**1**	**1,537**	**4,069**

BUILDING 301	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0

Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	1		288	798
Plan 4A	1		298	850
Plan 4AX	1		298	850
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**5**	**1**	**1,526**	**4,084**

BUILDING 302	**# of Plans**	**# of Bldgs**	**Floor 1Net SF**	**Floor 2 Net SF**
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B	1		126	658
Plan 2A	1		321	793
Plan 2B			0	0
Plan 3A	2		576	1,596
Plan 4A	1		298	850
Plan 4AX			0	0
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**5**	**1**	**1,321**	**3,897**

BUILDING 400	**# of Plans**	**# of Bldgs**	**Floor 1Net SF**	**Floor 2 Net SF**
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	2		576	1,596
Plan 4A	1		298	850
Plan 4AX			0	0
Plan 4B			0	0
Plan 4BX	1		309	835
Plan 4C			0	0

Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**6**	**5**	**1,825**	**4,867**

BUILDING 401	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	2		576	1,596
Plan 4A			0	0
Plan 4AX	1		298	850
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D	1		309	835
Plan 5			0	0
Plan 6			0	0
Totals	**6**	**1**	**1,825**	**4,867**

BUILDING 500	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A	1		237	655
Plan 1AX			0	0
Plan 1B	1		126	658
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	2		576	1,596
Plan 4A			0	0
Plan 4AX			0	0
Plan 4B			0	0
Plan 4BX	1		309	835
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**7**	**1**	**1,890**	**5,330**

BUILDING 501	# of Plans	# of Bldgs	Floor 1Net SF	Floor 2 Net SF
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A	1		321	793

Plan 2B	1		321	793
Plan 3A	3		864	2,394
Plan 4A			0	0
Plan 4AX			0	0
Plan 4B	1		309	835
Plan 4BX	1		309	835
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**7**	**1**	**2,124**	**5,650**

BUILDING 502	**# of Plans**	**# of Bldgs**	**Floor 1Net SF**	**Floor 2 Net SF**
Plan 1A	1		237	655
Plan 1AX			0	0
Plan 1B	1		126	658
Plan 2A	1		321	793
Plan 2B	1		321	793
Plan 3A	2		576	1,596
Plan 4A	1		298	850
Plan 4AX			0	0
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5			0	0
Plan 6			0	0
Totals	**7**	**1**	**1,879**	**5,345**

BUILDING 600	**# of Plans**	**# of Bldgs**	**Floor 1Net SF**	**Floor 2 Net SF**
Plan 1A			0	0
Plan 1AX			0	0
Plan 1B			0	0
Plan 2A			0	0
Plan 2B			0	0
Plan 3A			0	0
Plan 4A			0	0
Plan 4AX			0	0
Plan 4B			0	0
Plan 4BX			0	0
Plan 4C			0	0
Plan 4D			0	0
Plan 5	5		555	2,190
Plan 6	5		490	2,530

Totals	**10**	**2**	**1,045**	**4,720**

PR

SB330 (NOV '24) PR

Floor 2 Gross SF	Floor 3 Gross SF
793	781
793	781
778	752
905	798
923	798
893	823
1,005	916
1,005	916
1,105	911
1,105	911
1,160	916
1,153	916
553	568
626	520

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
0	0	0	0	0
0	0	0	0	0
899	2,047	1,000	1,005	916
899	2,047	1,025	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2,517	**5,927**	**2,888**	**2,915**	**2,630**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
0	0	0	0	0
780	1,866	926	893	823
899	2,047	1,000	1,005	916
899	2,047	1,025	1,005	916

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3,297	**7,793**	**3,814**	**3,808**	**3,453**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
0	0	0	0	0
780	1,866	926	893	823
899	2,047	1,000	1,005	916
899	2,047	1,025	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3,297	**7,793**	**3,814**	**3,808**	**3,453**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
719	1,833	882	923	798
780	1,866	926	893	823
0	0	0	0	0
899	2,047	1,025	1,005	916
0	0	0	0	0
0	0	0	0	0
845	1,989	1,122	1,160	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3,962	**9,568**	**4,818**	**4,886**	**4,251**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
719	1,833	882	923	798
780	1,866	926	893	823
899	2,047	1,000	1,005	916
899	2,047	1,025	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
4,016	**9,626**	**4,696**	**4,731**	**4,251**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
650	1,434	740	778	752
719	1,833	863	905	798
0	0	0	0	0
1,560	3,732	1,852	1,786	1,646
899	2,047	1,000	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3,828	**9,046**	**4,455**	**4,474**	**4,112**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
719	1,833	882	923	798
1,560	3,732	1,852	1,786	1,646
899	2,047	1,000	1,005	916
0	0	0	0	0
0	0	0	0	0
845	1,989	1,089	1,105	911
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
4,742	**11,434**	**5,686**	**5,724**	**5,069**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798
719	1,833	882	923	798
1,560	3,732	1,852	1,786	1,646
0	0	0	0	0
899	2,047	1,025	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
843	1,987	1,116	1,153	916
0	0	0	0	0
0	0	0	0	0
4,740	**11,432**	**5,738**	**5,772**	**5,074**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
672	1,564	775	793	781
0	0	0	0	0
650	1,434	740	778	752
719	1,833	863	905	798
719	1,833	882	923	798
1,560	3,732	1,852	1,786	1,646
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
845	1,989	1,089	1,105	911
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
5,165	**12,385**	**6,201**	**6,290**	**5,686**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
719	1,833	863	905	798

719	1,833	882	923	798
2,340	5,598	2,778	2,679	2,469
0	0	0	0	0
0	0	0	0	0
845	1,989	1,065	1,105	911
845	1,989	1,089	1,105	911
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
5,468	**13,242**	**6,677**	**6,717**	**5,887**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
672	1,564	775	793	781
0	0	0	0	0
650	1,434	740	778	752
719	1,833	863	905	798
719	1,833	882	923	798
1,560	3,732	1,852	1,786	1,646
899	2,047	1,000	1,005	916
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
5,219	**12,443**	**6,112**	**6,190**	**5,691**

Floor 3 Net SF	Net Total SF	Floor 1Gross SF	Floor 2 Gross SF	Floor 3 Gross SF
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2,380	5,125	3,010	2,765	2,840
2,205	5,225	2,850	3,130	2,600

4,585	10,350	5,860	5,895	5,440

OJECT TOTAL (NET):	177,125		PROJECT TOTAL (GROSS):
OJECT TOTAL (NET):	186,701		
	-5.1%	*(within 20%)*	

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
0	
0	
2,921	
2,946	
0	
0	
0	
0	
0	
0	
8,433	**70.3%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
0	
2,642	
2,921	
2,946	

0	
0	
0	
0	
0	
0	
11,075	**70.4%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
0	
2,642	
2,921	
2,946	
0	
0	
0	
0	
0	
0	
11,075	**70.4%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
2,603	
2,642	
0	
2,946	
0	
0	
3,198	
0	
0	
0	
13,955	**68.6%**

Gross Total SF	% Net/Gross
0	

0	
0	
2,566	
2,603	
2,642	
2,921	
2,946	
0	
0	
0	
0	
0	
0	
13,678	**70.4%**

Gross Total SF	% Net/Gross
0	
0	
2,270	
2,566	
0	
5,284	
2,921	
0	
0	
0	
0	
0	
0	
0	
13,041	**69.4%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
2,603	
5,284	
2,921	
0	
0	
3,105	
0	

0	
0	
0	
16,479	**69.4%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	
2,603	
5,284	
0	
2,946	
0	
0	
0	
3,185	
0	
0	
16,584	**68.9%**

Gross Total SF	% Net/Gross
2,349	
0	
2,270	
2,566	
2,603	
5,284	
0	
0	
0	
3,105	
0	
0	
0	
0	
18,177	**68.1%**

Gross Total SF	% Net/Gross
0	
0	
0	
2,566	

2,603	
7,926	
0	
0	
3,081	
3,105	
0	
0	
0	
0	
19,281	**68.7%**

Gross Total SF	% Net/Gross
2,349	
0	
2,270	
2,566	
2,603	
5,284	
2,921	
0	
0	
0	
0	
0	
0	
0	
17,993	**69.2%**

Gross Total SF	% Net/Gross
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
0	
8,615	
8,580	

17,195	60.2%

260,077

Drainage Analysis

For the

Vesting Tentative Map

21387 Geyserville Ave, Geyserville CA
APN 140-180-035

JN 24264
March 5, 2026

Prepared for:
City Ventures Homebuilding LLC
444 Spear Street, Suite 200
San Francisco, CA 94105
(646) 522-4260

David R. Brown, RCE 41833
My license expires 3/31/2028

Prepared by:

adobe associates, inc.
civil engineering | land surveying | wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com

Prepared By: RMS
Checked By:

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1. Drainage Narrative

Vesting Tentative Map
Drainage Narrative

Project Description

This project is located at 21837 Geyserville Ave in Geyserville, California. The overall project site is approximately 5.1 acres. The existing property is currently undeveloped with grass throughout, see attached **Section 2, Aerial Photo**. This project proposes grading and drainage improvements for 103 units living complex, associated hardscaping and landscaping.

Existing slopes in the area of the project development range from 1 to 10 percent. Runoff from the highway 101 off ramp currently flows easterly to the site from an existing 18-inch drain pipe. Existing slopes from the center of the property site flow easterly towards an existing drainage ditch located along Geyserville Ave. The drainage ditch flows towards an existing 18-inch stormdrain pipe that continues to flow east past Geyserville Ave. Existing on-site and off-site drainage patterns will be maintained.

For the proposed development, the design intent is to maintain the natural and existing drainage course. Post construction conditions are shown on **Section 3, Impervious Area Map**. Drainage outlets have been placed to limit concentrated runoff as much as feasible, discharging into proposed bioretention facilities or ADS Stormtech chambers prior to sheet flowing through existing vegetation away from the project site. Runoff from the proposed project flows through a storm drain system easterly, discharging into the existing roadside swales located along Geyserville Ave until ultimately discharging east of the project site. Historic drainage patterns will remain and release points off the property will not be changed due to the development.

Methodology

Post construction conditions are shown on **Section 3, impervious Area Map.** The attached **Section 4, Weighted Runoff Curve Number Calculator** has been used to calculate pre and post construction curve numbers. Volume capture and treatment will be provided with a bio-retention facility. Due to the existing site grading, a portion of the AC driveway apron and sidewalk slopes away from the property towards the existing drainage swale located along Geyserville Ave making it difficult to treat. The bioretention facility (Bioretention-4) will be increased in size to provide offset volume capture. Volume capture will be offset with the bio-retention facility.

The BMP for the project was designed using the *City of Santa Rosa's LID Storm Water Calculator.* Attached **Section 5, Santa Rosa LID Calculator** has been used to calculate the BMP sizing. The types of BMP design used for the calculations were *P2-04 Roadside Bioretention – No Curb and Gutter* and ADS Stormtech Chambers. From the curve number analysis in **Section 4, Weighted Runoff Curve Number Calculator** post-construction curve numbers for DA1-DA4 were input into the LID calculator. The BMP's were sized using the *BMP Sizing Tool* section of the LID calculator until the BMP reached a percent requirement of one hundred percent for the bioretention. ADS Stormtech design tool was used for the sizing of DA-1 BMP, see **Section 5, Santa Rosa LID DA1**. The BMP area for DA-2 is 2,000 SF, DA-3 is 529 SF and DA-4 is 667 SF.

Table C-2 in the FMDM was used to determine the runoff curve numbers based on land use, hydraulic soil group (Soil Type C). Land use cover types used for this report was open space (Good), roofs and impervious area. Table C-2 runoff curve numbers were used in **Section 5, Weighted Runoff Curve Number Calculator.**

The Incremental Rational Method has been used to calculate the 10-year and 100-year peak runoff in accordance with the Sonoma County Water Agency (SCWA) Flood Management Design Manual (FMDM, 2020) as shown in **Section 8, 10-yr and 100-yr Incremental Rational Method Drainage Study.** Rainfall Intensity was taken from the NOAA Atlas 14, Point Precipitation Frequency Estimates and an Intensity Duration Frequency Curve (IDF Curve), see **Section 9, NOAA Atlas 14 – Point Precipitation Frequency Estimates & Intensity Duration Frequency Curve (IDF Curve).** The runoff coefficients (C-value) used for the Incremental Rational Method analysis were the most conservative for each hydrologic area to provide a more conservative analysis of peak flows in the storm drains and swales based on the Hydrologic Soil groups for each soil type and are presented in **Appendix II - Soil Analysis**.

Table C-1 in the FMDM was used to determine the runoff coefficient based on land use, hydraulic soil group (Soil Type C), and average slope. Land use and average slope were approximated using aerial imagery. Land use categories used for this report was Open Space (AG), Low Density (LD), Medium Density (MD), and High Density (HD). Table 3-3 in the FMDM was used to determine the estimated time of concentration (7 mins, 10 mins, 15 mins) based on the size of the drainage area.

Hydraulic Toolbox 4.4 was used to calculate the normal depth in conveyance facilities**.**

Hydraulics have been calculated using a Manning's roughness of 0.035 for grass lined and rock lines swales, and 0.012 for all pipes. **Appendix I – 10-yr Storm Event Stormdrain/Swale Analysis** present these hydraulic calculations for representative drainage features in worst-case scenarios (highest flow, lowest slope). The results indicate that the proposed drainage system has been sized to convey the design 10-yr flows

adequately, and that the system has extra capacity to handle and contain flows from 100-yr storm events. **Section 9, Overland Release Map** for depicted flow routes during potential 100-yr flood events or conveyance system failure.

Conclusion

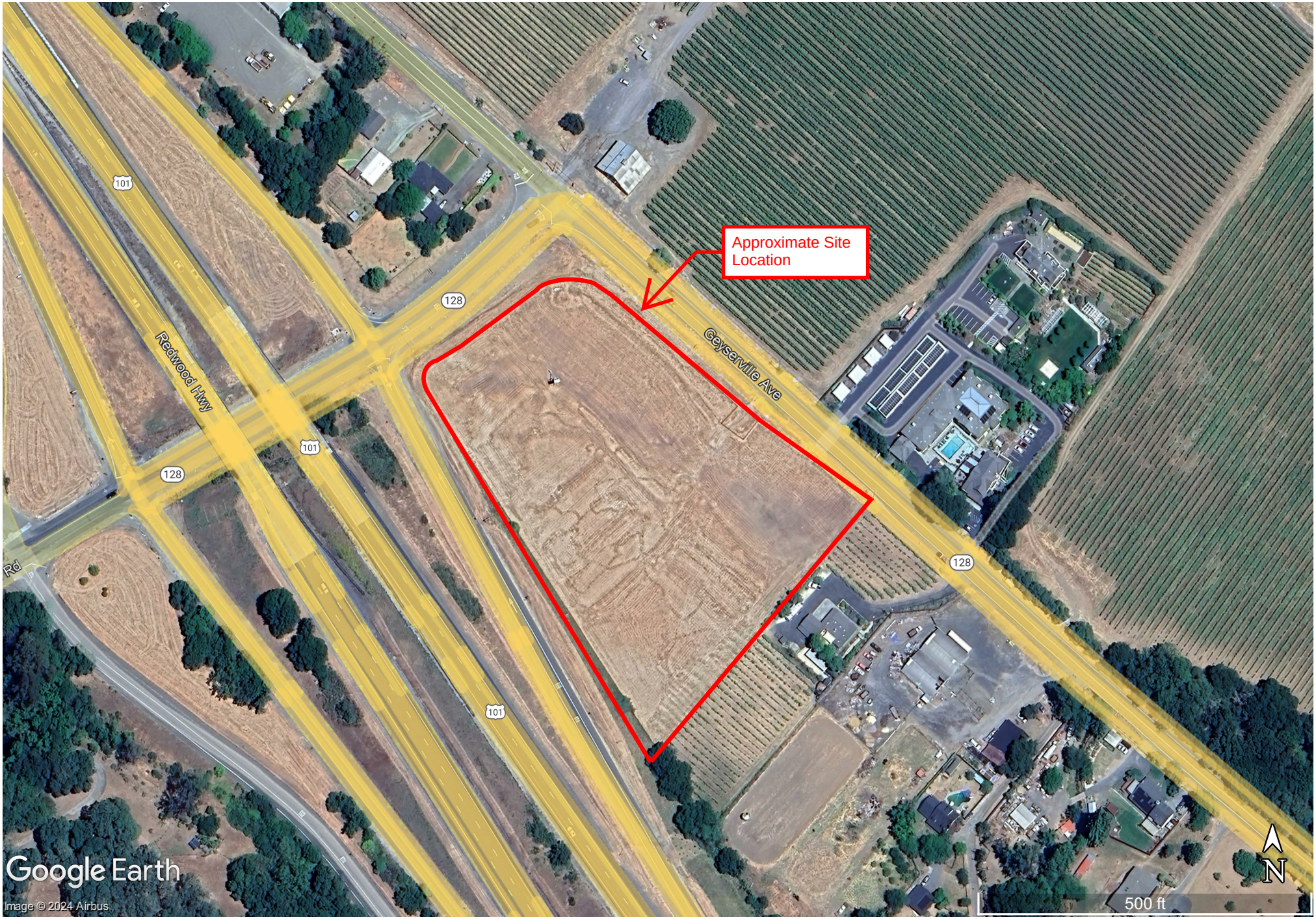
The proposed site improvements include measures to provide onsite runoff treatment and storage, meeting current LID criteria. The proposed site improvements will be directed towards existing vegetation for treatment. Due to the existing site grading, a portion of the AC walkway and sidewalk slopes away from the property frontage towards the existing drainage swale along Geyserville Ave. This portion of the driveway will be offset for storage volume towards the bioretention. Pollutants due to the addition of pavement may be a potential impact of the design and will be reduced due to runoff being directed through a bioretention facility and existing vegetation before leaving the property.

Potential impacts of the proposed design would be modifying the existing flow routing of the residence and watershed tributary boundaries. Possible impacts from the proposed improvements design would be an increase in pollutants due to the additional impervious surfacing. Pollutants will be treated via existing vegetation prior to discharging from the site, thereby alleviating the possible impacts of this development.

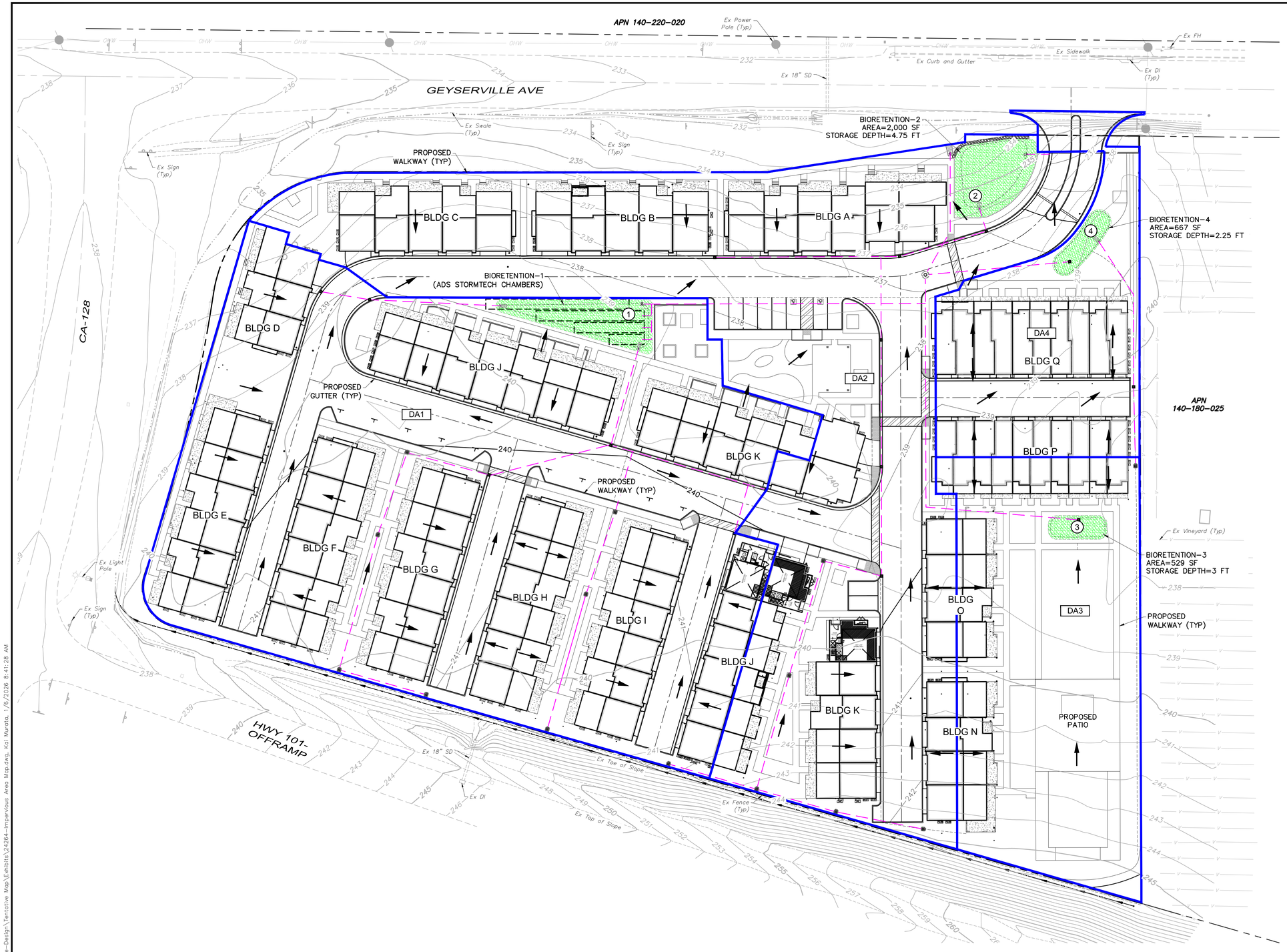
In accordance with the SCWA Flood Control Design Criteria, all drainage facilities are designed to convey, without surcharge, runoff from the 10-yr storm event. The project adheres to and meets Sonoma County Code Chapter 11 and Chapter 11A. Autodesk *Hydraulic Toolbox* has been used to calculate normal depth in the storm drain pipes and swales.

2. Aerial Photo

Geyserville Ave Tentative Map



3. Impervious Area Map



DRAINAGE AREA TABLE

DA1 =2.18 AC (94,998 SF)
CN=93
HYDROLOGICAL SOIL TYPE=C

DA2 =1.85 AC (80,778 SF)
CN=92
HYDROLOGICAL SOIL TYPE=C

DA3 =0.70 AC (30,662 SF)
CN=84
HYDROLOGICAL SOIL TYPE=C

DA4 =0.43 AC (18,935 SF)
CN=91
HYDROLOGICAL SOIL TYPE=C

DRAINAGE AREA LEGEND

- DA1 — DRAINAGE MANAGEMENT AREA
- (1) — POINT OF CONCENTRATION
- DRAINAGE AREA BOUNDARY
- PROPERTY LINE (℄)
- DIRECTION OF FLOW
- STORM DRAIN LINE

DRAINAGE ROUTING

DA1 → (1)
DA2 → (2)
DA3 → (3)
DA4 → (4)

HATCHING LEGEND:

- AC PAVEMENT
- 4" PCC OVER 4" CL II AB
- BRICK PAVERS (BY OTHERS)
- TURF (BY OTHERS)
- BRICK PAVERS (SLD)
- BIORETENTION AREA

30' 15' 0 15' 30' 60' 90'
Graphic Scale: 1" = 30'

January 5, 2026

NOTE:

REFER TO SUBMITTED GRADING & DRAINAGE PLANS FOR INVERTS, FLOW LINES, TOP OF GRATE ELEVATIONS AND DRAINAGE SPECIFICATIONS

THIS MAP IS FOR REFERENCE ONLY

PROPOSED CONDITIONS MAP

VESTING TENTATIVE MAP
21837 Geyserville Ave, Geyserville, CA
APN 140-180-035

adobe associates, inc.
civil engineering I land surveying I wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com
"A Service You Can Count On!"

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4. Weighted Runoff Curve Number and Runoff

Weighted Runoff Curve Number

Project:	**Geyserville "A"**	By:	**RMS**	Date:	**12/24/2025**
Location:	**DA1**				

----- POST-Construction Condtitions -----

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN* Tables 2-2(a-d)	TR-55 CN* Figure 2-3	TR-55 CN* Figure 2-4	Area Acres Miles^2 Percent	Product of CNxArea
Arbuckle Gravelly, Hydrologic Soil Group C	Ex. Open Space (Good)	74			0.41	30.34
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Impervious Area	98			1.77	173.46
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00
				Totals	2.18	203.8

*Use only one CB source per line

CN (weighted) = Total Product / Total Area = 93.49 **Use CN** 93

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Weighted Runoff Curve Number

Project:	**Geyserville "A"**	By:	**RMS**	Date:	**12/24/2025**
Location:	**DA2**				

----- POST-Construction Condtitions -----

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN* Tables 2-2(a-d)	TR-55 CN* Figure 2-3	TR-55 CN* Figure 2-4	Area Acres Miles^2 Percent	Product of CNxArea
Arbuckle Gravelly, Hydrologic Soil Group C	Ex. Open Space (good)	74			0.450	33.30
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Roof	98			0.00	0.00
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Impervious Area	98			1.40	137.20
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00

*Use only one CB source per line

Totals 1.85 170.5

CN (weighted) = Total Product / Total Area = 92.16 **Use CN** 92

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Weighted Runoff Curve Number

Project:	**Geyserville "A"**	By:	**RMS**	Date:	**12/24/2025**
Location:	**DA3**				

----- POST-Construction Condtitions -----

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN* Tables 2-2(a-d)	TR-55 CN* Figure 2-3	TR-55 CN* Figure 2-4	Area Acres Miles^2 Percent	Product of CNxArea
Arbuckle Gravelly, Hydrologic Soil Group C	Ex. Open Space (good)	74			0.411	30.44
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Roof	98			0.16	15.68
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Impervious Area	98			0.13	12.61
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00

*Use only one CB source per line

Totals 0.70 58.7288

CN (weighted) = Total Product = 83.90 **Use CN** 84

Total Area

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Weighted Runoff Curve Number

Project:	**Geyserville "A"**	By:	**RMS**	Date:	**12/24/2025**
Location:	**DA4**				

----- POST-Construction Condtitions -----

1. Runoff Curve Number

Soil Name and Hydrologic Group (Appendix A)	Cover Description (cover type, treatment and hydrologic condition; percent impervious; unconnected/connected impervious ratio)	TR-55 CN* Tables 2-2(a-d)	TR-55 CN* Figure 2-3	TR-55 CN* Figure 2-4	Area Acres Miles^2 Percent	Product of CNxArea
Arbuckle Gravelly, Hydrologic Soil Group C	Ex. Open Space (Good)	74			0.13	9.62
Arbuckle Gravelly, Hydrologic Soil Group C	Proposed Impervious Area	98			0.30	29.40
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00
						0.00
				Totals	0.43	39.02

*Use only one CB source per line

CN (weighted) = Total Product / Total Area = 90.74 **Use CN** 91

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5. Santa Rosa LID Calculator

STORM WATER CALCULATOR

LID BMP Summary Page & Site Global Values

Project Information:

Project Name:	Geyserville
Address/Location:	21837 Geyserville Ave
Designer:	RMS
Date:	12/31/2025

Site Information:

Mean Seasonal Precipitation (MSP) of Project Site:	41.00	(inches)
K=MSP/30 K=	1.37	
Impervious area - pre development:	0.0	ft^2
Impervious area - post development:	158,558.0	ft^2

Based upon the pre and post development impervious area, the post construction BMP requirement is:

100% Capture & Treatment

Summary of Saved BMP Results:

		Tributary Area		Requirements		BMP Design Results						
							Hydromodification Control		Flow Base Treatment		Delta Volume Capture	
	BMP ID:	Tributary Area (ft^2.)	Runoff Reduction Measures (Y/N)	Type of Requirement Met	Type of BMP Design	Percent Achieved	Required $V_{Hydromod}$ (ft^3)	Achieved (ft^3)	Required Q Treatment (cfs)	Achieved (ft^3)	Required Vdelta (ft^3)	Achieved (ft^3)
1	DA1	94,998	No	Hydromod Volume Capture	Other: Detention	0.0	5945.9248	0.0000	See ADS Stormtech			
2	DA2	80,778	No	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	103.4	4642.3115	4800.0001				
3	DA3	30,662	No	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	104.7	858.8426	899.3000				
4	DA4	18,935	No	Hydromod Volume Capture	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter	113.5	999.0106	1133.9000				
5												
6												
7												
8												
9												
10												
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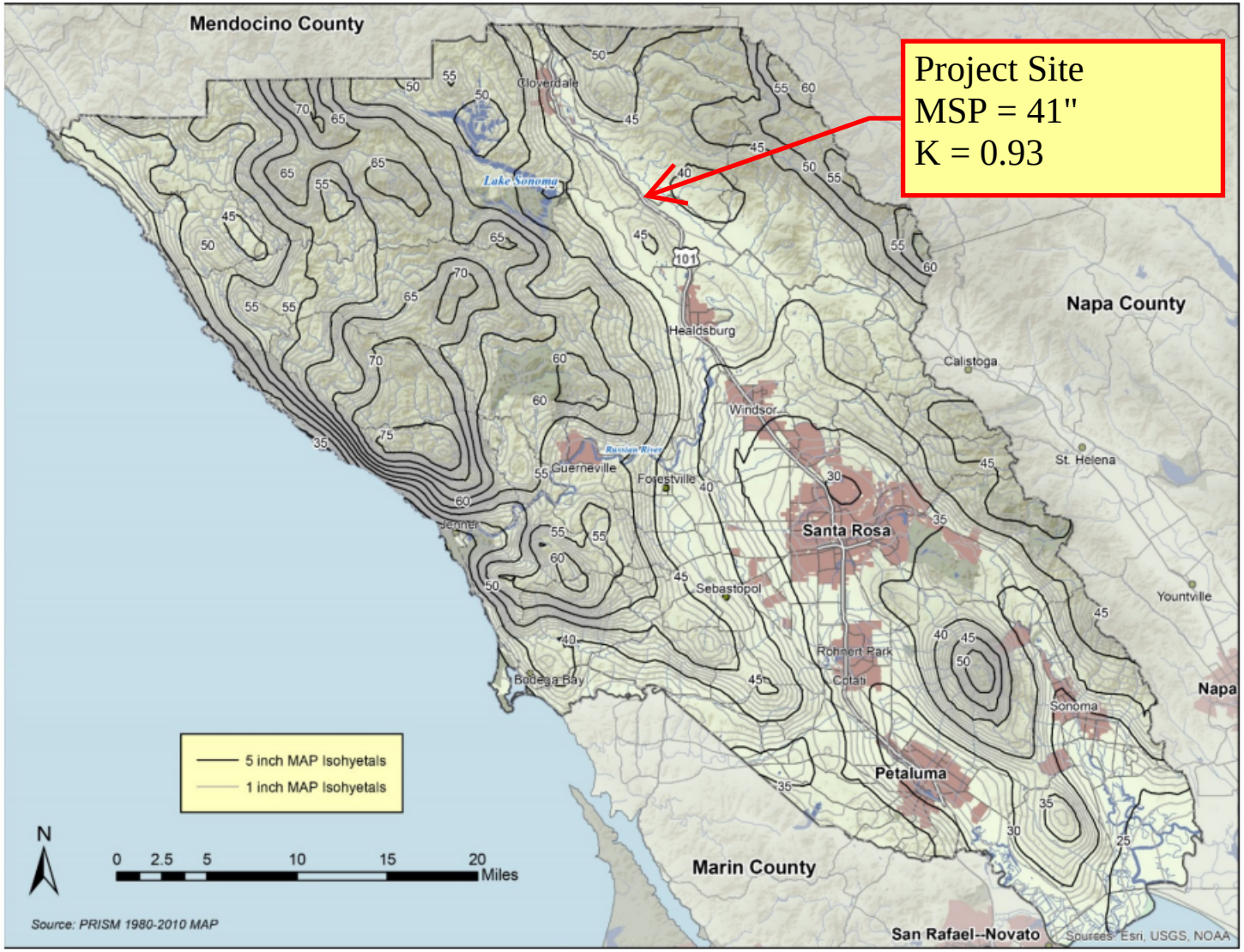


Figure D.2-1. Mean Annual Precipitation

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Geyserville

BMP ID:	DA1
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Other: Detention
BMP's Physical Tributary Area:	94,998.0 ft^2
Description/Notes:	ADS STORMTECH Chambers

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 5,945.92 ft^3

Post development hydrologic soil type within tributary area:	C: 0.05 - 0.15 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST} :	
User Composite post development CN:	93.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 0.00 %

	BMP Volume Below Ground			Ponded Water Above Ground	
Porosity:	0.96				
Depth below perforated pipe if present:	0.00	ft	Depth:	0.00	ft
Width:	0.00	ft	Width:	0.00	ft
Length:	0.00	ft	Length:	0.00	ft
Area:	0.00	ft^2	Area:	0.00	ft^2

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	No
Project Name:	Geyserville "A"
Bed Name	Bed 1
Engineer:	Kaha'i Murata
Project Location:	California
Measurement Type:	Imperial
Required Storage Volume:	5950 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(10 ft. x 100 ft.)

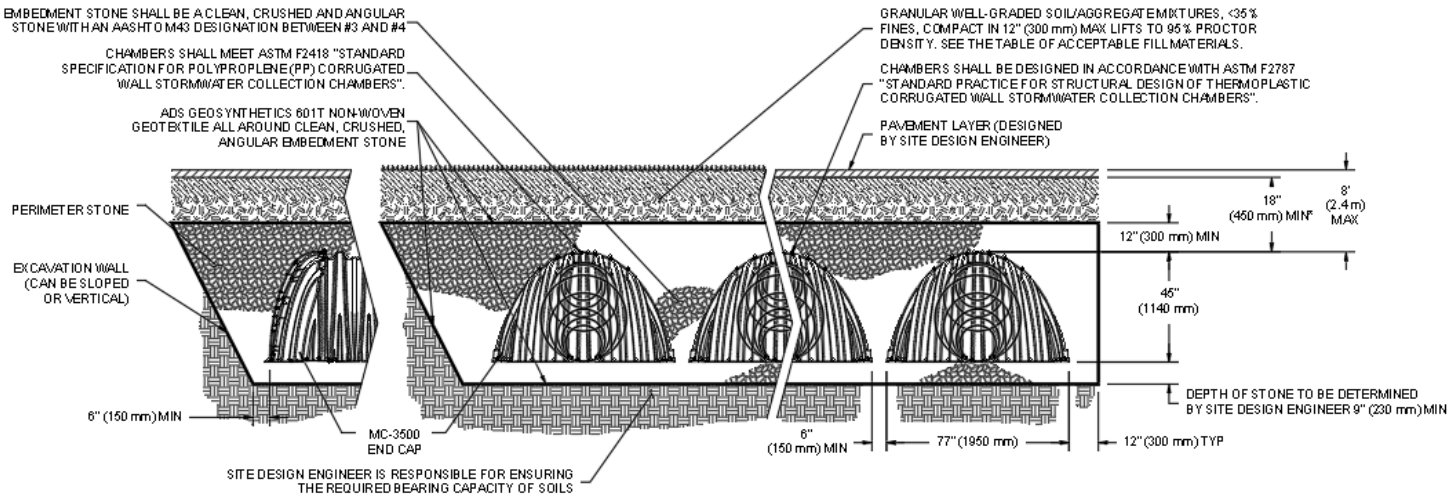
Results

System Volume and Bed Size

Installed Storage Volume:	2706.22 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	13
Number Of End Caps Required:	2
Chamber Rows:	1
Maximum Length:	98.87 ft.
Maximum Width:	8.42 ft.
Approx. Bed Size Required:	832.13 square ft.

System Components

Amount Of Stone Required (0% Overage):	58 cubic yards
(Cubic yard to ton factor:1.4):	81.16 tons
Volume Of Excavation (Not Including Fill):	170 cubic yards
Total Non-woven Geotextile Required:	380 square yards
Woven Geotextile Required (excluding Isolator Row):	0 square yards
Woven Geotextile Required (Isolator Row):	114 square yards
Total Woven Geotextile Required:	114 square yards
Impervious Liner Required:	0 square yards



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24"

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	No
Project Name:	Geyserville "A"
Bed Name	Bed 2
Engineer:	Kaha'i Murata
Project Location:	California
Measurement Type:	Imperial
Required Storage Volume:	5950 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(9 ft. x 78 ft.)

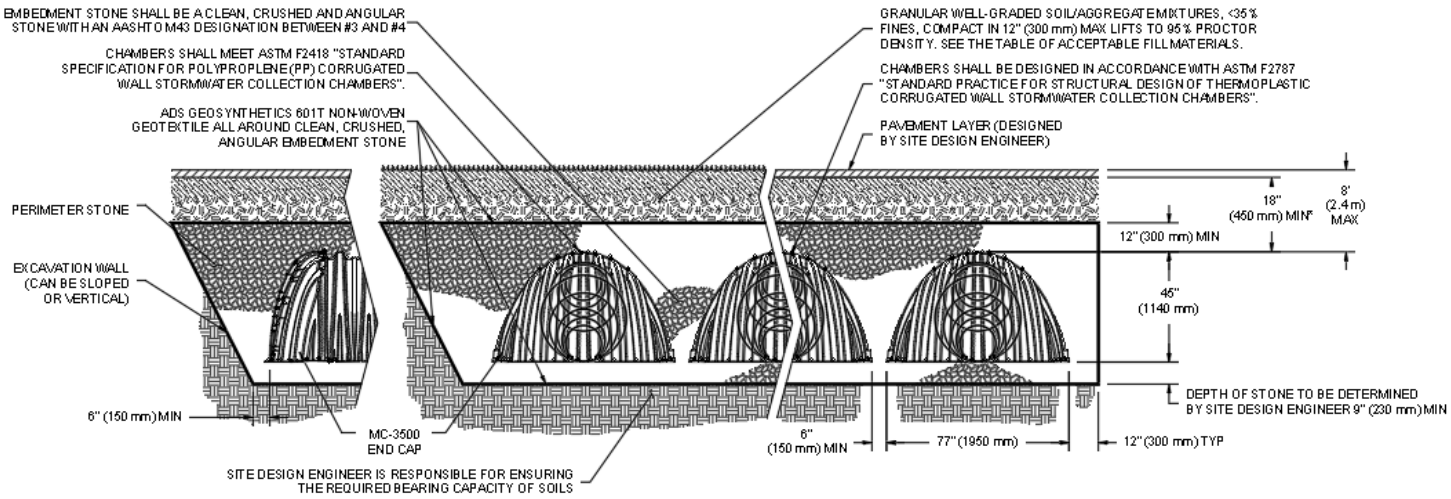
Results

System Volume and Bed Size

Installed Storage Volume:	2110.20 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	10
Number Of End Caps Required:	2
Chamber Rows:	1
Maximum Length:	77.37 ft.
Maximum Width:	8.42 ft.
Approx. Bed Size Required:	651.17 square ft.

System Components

Amount Of Stone Required (0% Overage):	58 cubic yards
(Cubic yard to ton factor:1.4):	81.16 tons
Volume Of Excavation (Not Including Fill):	133 cubic yards
Total Non-woven Geotextile Required:	300 square yards
Woven Geotextile Required (excluding Isolator Row):	0 square yards
Woven Geotextile Required (Isolator Row):	88 square yards
Total Woven Geotextile Required:	88 square yards
Impervious Liner Required:	0 square yards



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24"

User Inputs

Chamber Model:	MC-3500
Outlet Control Structure:	No
Project Name:	Geyserville "A"
Bed Name	Bed 3
Engineer:	Kaha'i Murata
Project Location:	California
Measurement Type:	Imperial
Required Storage Volume:	5950 cubic ft.
Stone Porosity:	40%
Stone Foundation Depth:	9 in.
Stone Above Chambers:	12 in.
Average Cover Over Chambers:	18 in.
Design Constraint Dimensions:	(9 ft. x 54 ft.)

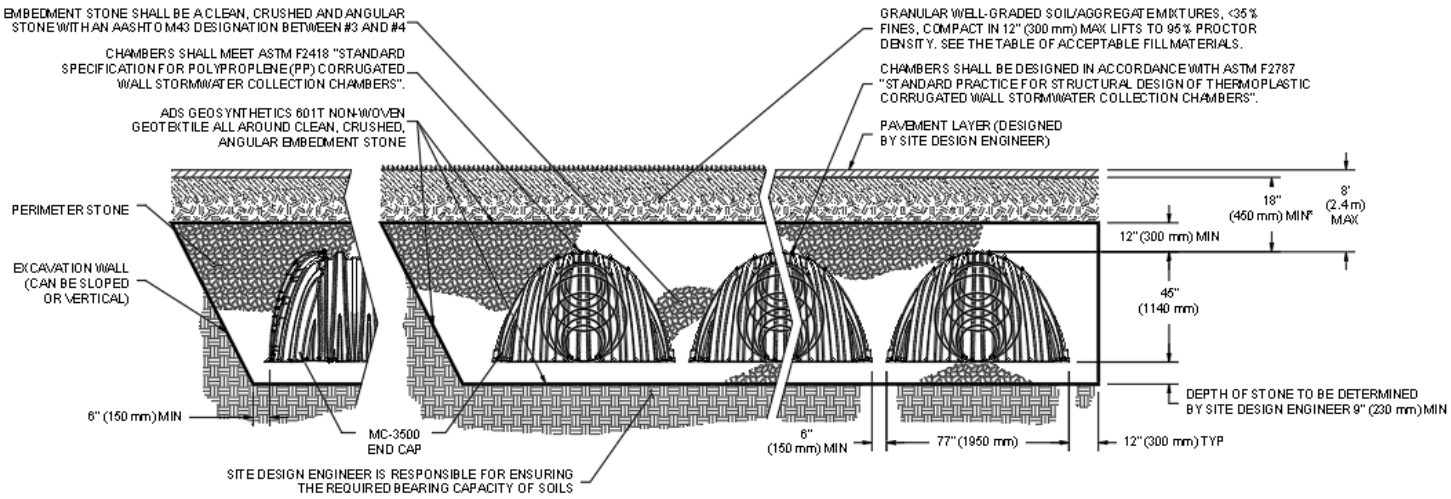
Results

System Volume and Bed Size

Installed Storage Volume:	1315.52 cubic ft.
Storage Volume Per Chamber:	109.90 cubic ft.
Number Of Chambers Required:	6
Number Of End Caps Required:	2
Chamber Rows:	1
Maximum Length:	48.70 ft.
Maximum Width:	8.42 ft.
Approx. Bed Size Required:	409.89 square ft.

System Components

Amount Of Stone Required (0% Overage):	58 cubic yards
(Cubic yard to ton factor:1.4):	81.16 tons
Volume Of Excavation (Not Including Fill):	84 cubic yards
Total Non-woven Geotextile Required:	194 square yards
Woven Geotextile Required (excluding Isolator Row):	0 square yards
Woven Geotextile Required (Isolator Row):	55 square yards
Total Woven Geotextile Required:	55 square yards
Impervious Liner Required:	0 square yards



*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24"

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Geyserville

BMP ID:	DA2
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	80,778.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 4,642.31 ft^3

Post development hydrologic soil type within tributary area:	C: 0.05 - 0.15 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	92.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 103.40 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	4.75	ft	Depth: 0.50	ft
Width:	0.00	ft	Width: 0.00	ft
Length:	0.00	ft	Length: 0.00	ft
Area:	2,000.00	ft^2	Area: 2,000.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Geyserville

BMP ID:	DA3
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	30,662.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 858.84 ft^3

Post development hydrologic soil type within tributary area:	C: 0.05 - 0.15 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	84.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 104.71 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.50	ft
Width:	0.00	ft	Width: 0.00	ft
Length:	0.00	ft	Length: 0.00	ft
Area:	529.00	ft^2	Area: 529.00	ft^2

STORM WATER CALCULATOR

BMP Tributary Parameters

Project Name: Geyserville

BMP ID:	DA4
BMP Design Criteria:	100% Capture & Treatment
Type of BMP Design:	Priority 1: P1-02 Roadside Bioretention - No Curb and Gutter
BMP's Physical Tributary Area:	18,935.0 ft^2
Description/Notes:	

Hydromodification Requirement: 100% Volume Capture; $V_{HYDROMOD}$

$V_{HYDROMOD}$ = 999.01 ft^3

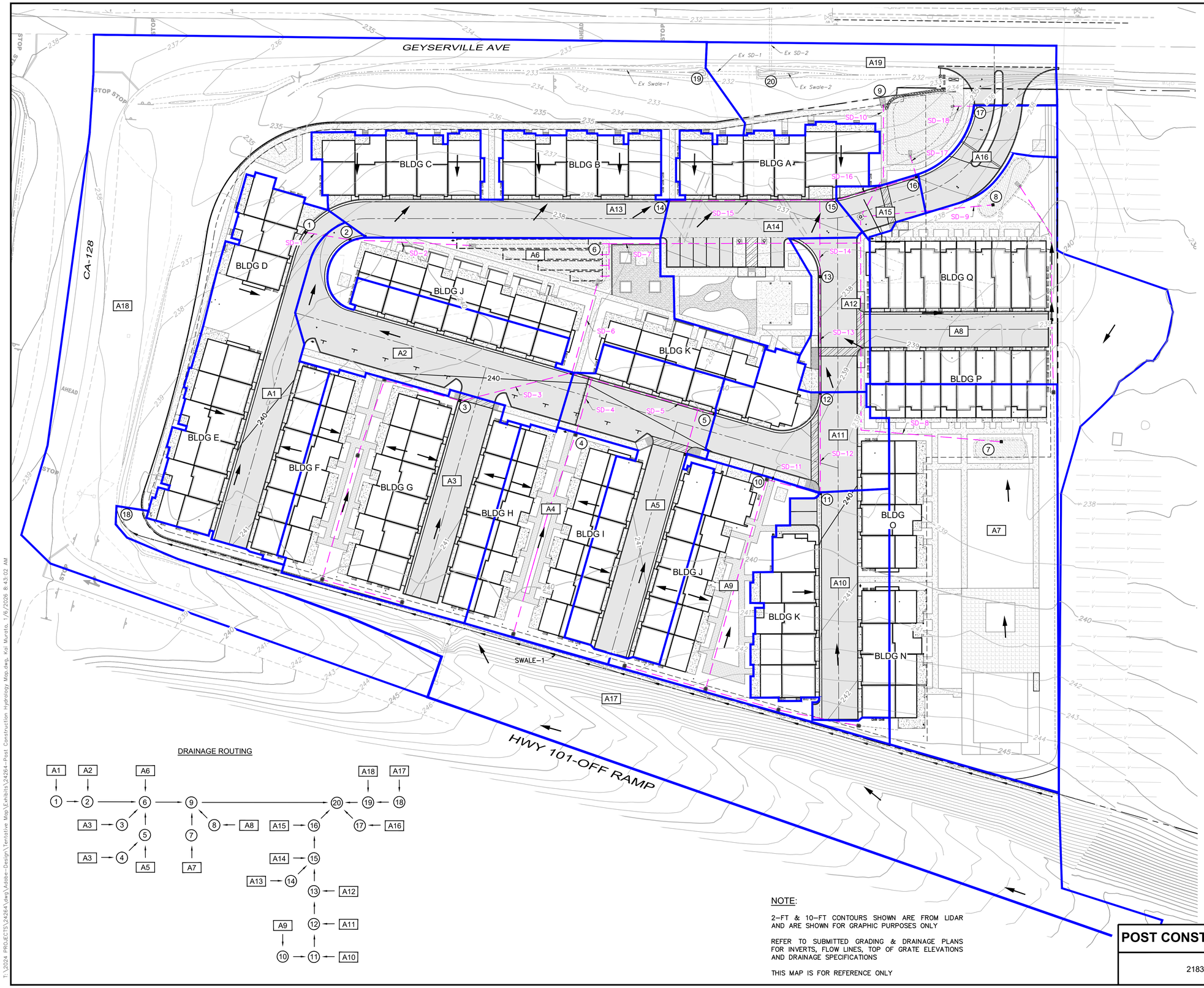
Post development hydrologic soil type within tributary area:	C: 0.05 - 0.15 in/hr infiltration (transmission) rate
Post development ground cover description:	Brush: weed-grass mixture with brush major element - Poor (<50% ground cover)
CN_{POST}:	
User Composite post development CN:	91.0

BMP Sizing Tool: Hydromodification Requirement

Percent of Goal Achieved = 113.50 %

	BMP Volume Below Ground		Ponded Water Above Ground	
Porosity:	0.40			
Depth below perforated pipe if present:	3.00	ft	Depth: 0.50	ft
Width:	0.00	ft	Width: 0.00	ft
Length:	0.00	ft	Length: 0.00	ft
Area:	667.00	ft^2	Area: 667.00	ft^2

6. Post-Construction Hydrology Map



DRAINAGE AREA LEGEND

- A1 — DRAINAGE MANAGEMENT AREA
- 1 — POINT OF CONCENTRATION
- DRAINAGE AREA BOUNDARY
- PROPERTY LINE (P.L.)
- DIRECTION OF FLOW
- STORM DRAIN LINE

HATCHING LEGEND:

- AC PAVEMENT
- 4" PCC OVER 4" CL II AB
- BRICK PAVERS (BY OTHERS)
- TURF (BY OTHERS)
- BRICK PAVERS (SLD)
- BIORETENTION AREA

DRAINAGE AREA	ACRES	C	t (min)	LAND USE*	SOIL TYPE	AVE SLOPE (%)
A1	0.44	0.90	10.00	HD	C	>2-6
A2	0.27	0.90	10.00	HD	C	>2-6
A3	0.46	0.90	10.00	HD	C	>2-6
A4	0.24	0.65	10.00	MD	C	>2-6
A5	0.35	0.90	10.00	HD	C	>2-6
A6	0.35	0.74	10.00	MD	C	>2-6
A7	0.70	0.53	10.00	LD	C	>2-6
A8	0.54	0.74	15.00	MD	C	>2-6
A9	0.23	0.74	10.00	MD	C	>2-6
A10	0.30	0.90	10.00	HD	C	>2-6
A11	0.19	0.90	10.00	HD	C	>2-6
A12	0.11	0.90	10.00	HD	C	>2-6
A13	0.36	0.90	10.00	HD	C	>2-6
A14	0.37	0.90	10.00	HD	C	>2-6
A15	0.04	0.90	7.00	HD	C	>2-6
A16	0.09	0.90	7.00	HD	C	>2-6
A17	0.84	0.90	10.00	HD	C	>2-6
A18	1.52	0.74	15.00	MD	C	>2-6
A19	0.32	0.68	10.00	MD	C	>2-6

*LAND USE DESIGNATION
(TABLE C-1, SONOMA COUNTY FMDM)
HD - HIGH DENSITY
LD - LOW DENSITY
MD - MEDIUM DENSITY
MLD - MEDIUM/LOW DENSITY
R - RURAL
B/C - BUSINESS OR COMMERCIAL
I - INDUSTRIAL
P - PARKS AND RECREATION
AG - AGRICULTURAL OR OPEN SAPACE

DRAINAGE ROUTING

NOTE:

2-FT & 10-FT CONTOURS SHOWN ARE FROM LIDAR AND ARE SHOWN FOR GRAPHIC PURPOSES ONLY

REFER TO SUBMITTED GRADING & DRAINAGE PLANS FOR INVERTS, FLOW LINES, TOP OF GRATE ELEVATIONS AND DRAINAGE SPECIFICATIONS

THIS MAP IS FOR REFERENCE ONLY

30' 15' 0 15' 30' 60' 90'
Graphic Scale: 1" = 30'

December 24, 2025

POST CONSTRUCTION HYDROLOGY MAP

VESTING TENTATIVE MAP
21837 Geyserville Ave, Geyserville, CA
APN 140-180-035

adobe associates, inc.
civil engineering | land surveying | wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
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7. 10 and 100 Year Rational Method Drainage Study

Incremental Rational Method Drainage Study

10 -Yr Storm Event Post Construction

Project: 24264-Geyserville "A" **Date:** 1/5/2026

Point of Concentration	Area	Elevation	Distance	Slope	V(ft/s)	Travel Time (min)	Total Time (min)	I	C	A	A_{total}	AC	Sum AC	Q (cfs)	Remarks
10 year															
ON SITE FLOW RATES															
1	A 1	-	-	-	-	10.00	10.00	2.35	0.90	0.44	0.44	0.40	0.40	0.93	Total Flow to SD-1
2	A 2	-	-	-	-	10.00	10.00	2.35	0.90	0.27	0.27	0.24	0.24	0.57	Overland Flow to SD-2
2								2.35	Combines A1-A2				0.64	1.50	Total Flow to SD-2
3	A 3	-	-	-	-	10.00	10.00	2.35	0.90	0.46	0.46	0.41	0.41	0.97	Total Flow to SD-3
4	A 4	-	-	-	-	10.00	10.00	2.35	0.65	0.24	0.24	0.15	0.15	0.36	Total Flow to SD-4
5	A 5	-	-	-	-	10.00	10.00	2.35	0.90	0.35	0.35	0.31	0.31	0.74	Total Flow to SD-5
5								2.35	Combines A3-A5				0.88	2.08	Total Flow to SD-6
6	A 6	-	-	-	-	10.00	10.00	2.35	0.74	0.35	0.35	0.26	0.26	0.61	Overland Flow to SD-7
6								2.35	Combines A1-A6				1.78	4.19	Total Flow to SD-7
7	A 7	-	-	-	-	10.00	10.00	2.35	0.53	0.70	0.70	0.37	0.37	0.87	Total Flow to SD-8
8	A 8	-	-	-	-	15.00	15.00	1.91	0.74	0.54	0.54	0.40	0.40	0.77	Total Flow to SD-9
9								1.91	Combines A1-A8				2.55	4.88	Total Flow to SD-10
10	A 9	-	-	-	-	10.00	10.00	2.35	0.74	0.23	0.23	0.17	0.17	0.40	Total Flow to SD-11
11	A 10	-	-	-	-	10.00	10.00	2.35	0.90	0.30	0.30	0.27	0.27	0.63	Overland Flow to SD-12
11								2.35	Combines A9-A10				0.44	1.03	Total Flow to SD-12
12	A 11	-	-	-	-	10.00	10.00	2.35	0.90	0.19	0.19	0.17	0.17	0.40	Overland Flow to SD-13
12								2.35	Combines A9-A11				0.60	1.42	Total Flow to SD-13
13	A 12	-	-	-	-	10.00	10.00	2.35	0.90	0.11	0.11	0.10	0.10	0.22	Overland Flow to SD-14
13								2.35	Combines A9-A12				0.70	1.65	Total Flow to SD-14
14	A 13	-	-	-	-	10.00	10.00	2.35	0.90	0.36	0.36	0.33	0.33	0.77	Total Flow to SD-15
15	A 14	-	-	-	-	10.00	10.00	2.35	0.90	0.37	0.37	0.33	0.33	0.77	Overland Flow to SD-16
15								2.35	Combines A9-A14				1.35	3.19	Total Flow to SD-16
16	A 15	-	-	-	-	7.00	7.00	2.82	0.90	0.04	0.04	0.03	0.03	0.09	Overland Flow to SD-17
16								2.35	Combines A9-A15				1.39	3.27	Total Flow to SD-17
17	A 16	-	-	-	-	7.00	7.00	2.82	0.90	0.09	0.09	0.08	0.08	0.22	Total Flow to SD-18

18	**A 17**	**-**	**-**	**-**	**-**	10.00	**10.00**	**2.35**	0.90	0.84	**0.84**	**0.76**	**0.76**	**1.78**	**Overland Flow to Swale-1**
19	**A 18**	**-**	**-**	**-**	**-**	15.00	**15.00**	**1.91**	0.74	1.52	**1.52**	**1.12**	**1.12**	**2.15**	**Overland Flow to Ex Swale-1 and Flow to Ex SD-1**
19								**1.91**	**Combines A17-A18**				**1.88**	**3.60**	**Total Flow to to Ex Swale-1 and Ex SD-1**
20	**A 19**	**-**	**-**	**-**	**-**	10.00	**10.00**	**2.35**	0.68	0.32	**0.32**	**0.22**	**0.22**	**0.51**	**Overland Flow to Ex Swale-2 and Flow to Ex SD-2**
20								**1.91**	**Combines A1-A19**				**6.11**	**11.71**	**Total Flow to Ex Swale-2 and Ex SD-2**

ON SITE - POST CONSTRUCTION RUNOFF COEFFICIENT

DRAINAGE AREA	ACRES	C	t (min)	LAND USE*	SOIL TYPE	AVE SLOPE (%)
A 1	0.44	0.90	10.00	HD	C	>2-6
A 2	0.27	0.90	10.00	HD	C	>2-6
A 3	0.46	0.90	10.00	HD	C	>2-6
A 4	0.24	0.65	10.00	MD	C	>2-6
A 5	0.35	0.90	10.00	HD	C	>2-6
A 6	0.35	0.74	10.00	MD	C	>2-6
A 7	0.70	0.53	10.00	LD	C	>2-6
A 8	0.54	0.74	15.00	MD	C	>2-6
A 9	0.23	0.74	10.00	MD	C	>2-6
A 10	0.30	0.90	10.00	HD	C	>2-6
A 11	0.19	0.90	10.00	HD	C	>2-6
A 12	0.11	0.90	10.00	HD	C	>2-6
A 13	0.36	0.90	10.00	HD	C	>2-6
A 14	0.37	0.90	10.00	HD	C	>2-6
A 15	0.04	0.90	7.00	HD	C	>2-6
A 16	0.09	0.90	7.00	HD	C	>2-6
A 17	0.84	0.90	10.00	HD	C	>2-6
A 18	1.52	0.74	15.00	MD	C	>2-6
A 19	0.32	0.68	10.00	MD	C	>2-6

***Land Use Designation**

HD - High Density
LD - Low Density
MD - Medium Density
MLD - Medium/Low Density
R - Rural
B/C - Business or Commercial
I - Industrial
P - Parks and Recreation
AG - Agricultural or Open Space

Reference Table C-1 of the Sonoma County FMDM, 2020.

Rainfall Intensity vs Duration

$$I = 7.62 / t^{0.51}$$

I = intensity (in/hour)

t = time of concentration (minutes)

Incremental Rational Method Drainage Study

100 -Yr Storm Event Post Construction

Project: 24264-Geyserville "A" **Date:** 1/5/2026

Point of Concentration	Area	Elevation	Distance	Slope	V(ft/s)	Travel Time (min)	Total Time (min)	I	C	A	A_{total}	AC	Sum AC	Q (cfs)	Remarks
100 year															
ON SITE FLOW RATES															
1	A 1	-	-	-	-	10.00	10.00	3.48	0.90	0.44	0.44	0.40	0.40	1.38	Total Flow to SD-1
2	A 2	-	-	-	-	10.00	10.00	3.48	0.90	0.27	0.27	0.24	0.24	0.85	Overland Flow to SD-2
2								3.48	Combines A1-A2				0.64	2.23	Total Flow to SD-2
3	A 3	-	-	-	-	10.00	10.00	3.48	0.90	0.46	0.46	0.41	0.41	1.44	Total Flow to SD-3
4	A 4	-	-	-	-	10.00	10.00	3.48	0.65	0.24	0.24	0.15	0.15	0.54	Total Flow to SD-4
5	A 5	-	-	-	-	10.00	10.00	3.48	0.90	0.35	0.35	0.31	0.31	1.09	Total Flow to SD-5
5								3.48	Combines A3-A5				0.88	3.07	Total Flow to SD-6
6	A 6	-	-	-	-	10.00	10.00	3.48	0.74	0.35	0.35	0.26	0.26	0.90	Overland Flow to SD-7
6								3.48	Combines A1-A6				1.78	6.20	Total Flow to SD-7
7	A 7	-	-	-	-	10.00	10.00	3.48	0.53	0.70	0.70	0.37	0.37	1.29	Total Flow to SD-8
8	A 8	-	-	-	-	15.00	15.00	2.84	0.74	0.54	0.54	0.40	0.40	1.13	Total Flow to SD-9
9								2.84	Combines A1-A8				2.55	7.24	Total Flow to SD-10
10	A 9	-	-	-	-	10.00	10.00	3.48	0.74	0.23	0.23	0.17	0.17	0.59	Total Flow to SD-11
11	A 10	-	-	-	-	10.00	10.00	3.48	0.90	0.30	0.30	0.27	0.27	0.92	Overland Flow to SD-12
11								3.48	Combines A9-A10				0.44	1.52	Total Flow to SD-12
12	A 11	-	-	-	-	10.00	10.00	3.48	0.90	0.19	0.19	0.17	0.17	0.59	Overland Flow to SD-13
12								3.48	Combines A9-A11				0.60	2.10	Total Flow to SD-13
13	A 12	-	-	-	-	10.00	10.00	3.48	0.90	0.11	0.11	0.10	0.10	0.33	Overland Flow to SD-14
13								3.48	Combines A9-A12				0.70	2.44	Total Flow to SD-14
14	A 13	-	-	-	-	10.00	10.00	3.48	0.90	0.36	0.36	0.33	0.33	1.14	Total Flow to SD-15
15	A 14	-	-	-	-	10.00	10.00	3.48	0.90	0.37	0.37	0.33	0.33	1.14	Overland Flow to SD-16
15								3.48	Combines A9-A14				1.35	4.72	Total Flow to SD-16
16	A 15	-	-	-	-	7.00	7.00	4.17	0.90	0.04	0.04	0.03	0.03	0.14	Overland Flow to SD-17
16								3.48	Combines A9-A15				1.39	4.83	Total Flow to SD-17
17	A 16	-	-	-	-	7.00	7.00	4.17	0.90	0.09	0.09	0.08	0.08	0.32	Total Flow to SD-18

18	**A 17**	**-**	**-**	**-**	**-**	10.00	**10.00**	**3.48**	0.90	0.84	**0.84**	**0.76**	**0.76**	**2.63**	**Overland Flow to Swale-1**
19	**A 18**	**-**	**-**	**-**	**-**	15.00	**15.00**	**2.84**	0.74	1.52	**1.52**	**1.12**	**1.12**	**3.19**	**Overland Flow to Ex Swale-1 and Flow to Ex SD-1**
19								**2.84**	**Combines A17-A18**				**1.88**	**5.34**	**Total Flow to to Ex Swale-1 and Ex SD-1**
20	**A 19**	**-**	**-**	**-**	**-**	10.00	**10.00**	**3.48**	0.68	0.32	**0.32**	**0.22**	**0.22**	**0.76**	**Overland Flow to Ex Swale-2 and Flow to Ex SD-2**
20								**2.84**	**Combines A1-A19**				**6.11**	**17.35**	**Total Flow to Ex Swale-2 and Ex SD-2**

ON SITE - POST CONSTRUCTION RUNOFF COEFFICIENT

DRAINAGE AREA	ACRES	C	t (min)	LAND USE*	SOIL TYPE	AVE SLOPE (%)
A 1	0.44	0.90	10.00	HD	C	>2-6
A 2	0.27	0.90	10.00	HD	C	>2-6
A 3	0.46	0.90	10.00	HD	C	>2-6
A 4	0.24	0.65	10.00	MD	C	>2-6
A 5	0.35	0.90	10.00	HD	C	>2-6
A 6	0.35	0.74	10.00	MD	C	>2-6
A 7	0.70	0.53	10.00	LD	C	>2-6
A 8	0.54	0.74	15.00	MD	C	>2-6
A 9	0.23	0.74	10.00	MD	C	>2-6
A 10	0.30	0.90	10.00	HD	C	>2-6
A 11	0.19	0.90	10.00	HD	C	>2-6
A 12	0.11	0.90	10.00	HD	C	>2-6
A 13	0.36	0.90	10.00	HD	C	>2-6
A 14	0.37	0.90	10.00	HD	C	>2-6
A 15	0.04	0.90	7.00	HD	C	>2-6
A 16	0.09	0.90	7.00	HD	C	>2-6
A 17	0.84	0.90	10.00	HD	C	>2-6
A 18	1.52	0.74	15.00	MD	C	>2-6
A 19	0.32	0.68	10.00	MD	C	>2-6

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P - Parks and Recreation
AG - Agricultural or Open Space

Reference Table C-1 of the Sonoma County FMDM, 2020.

Rainfall Intensity vs Duration

$$I = 11.14 / t^{0.505}$$

I = intensity (in/hour)

t = time of concentration (minutes)

Intensity Duration Frequency Curve (IDF Curve)

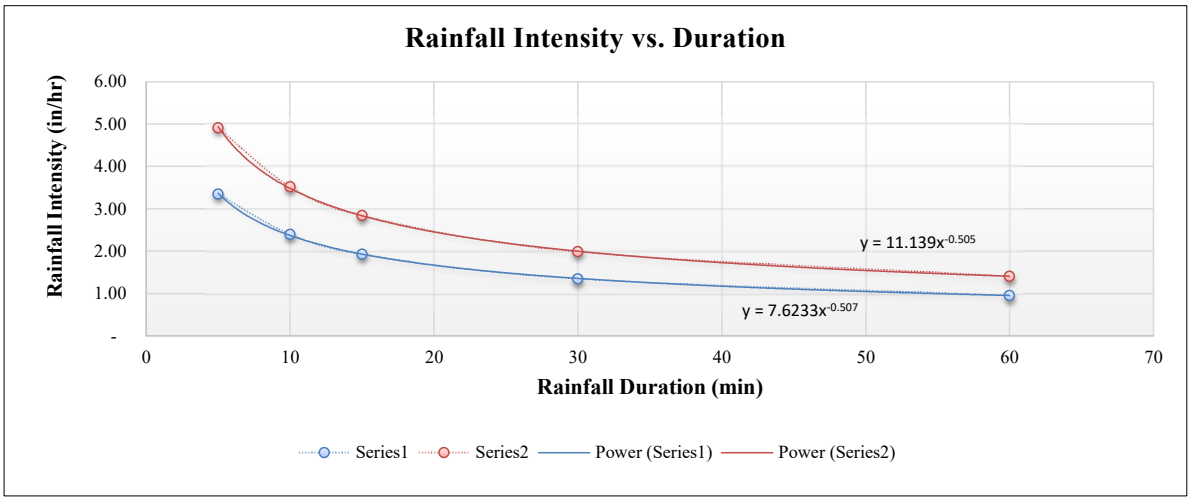
NOAA Atlas 14 Point Precipitation Frequency Estimates

https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html

Project: Geyserville "A" **Date:** 1/5/2026

JN: 24264 **Designer:** RMS

Location: Santa Rosa, CA



NOAA Atlas 14 Data Rainfall Intensity (in/hr)		
Duration (min)	**10-yr**	**100-yr**
5	3.35	4.91
10	2.40	3.52
15	1.93	2.84
30	1.35	1.99
60	0.96	1.41

Rainfall Intensity vs Duration

$$I = a * t^b$$

I = intensity (in/hour)
t = time of concentration/ rainfall duration (minutes)

10-Year Trendline Values	
a =	7.620
b =	-0.51

100-Year Trendline Values	
a =	11.14
b =	-0.505

8. NOAA Atlas 14 – Point Precipitation Frequency Estimates & Intensity Duration Frequency Curve (IDF Curve)

NOAA Atlas 14, Volume 6, Version 2
Location name: Geyserville, California, USA*
Latitude: 38.7133°, Longitude: -122.917°
Elevation: 239 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.87 (1.67-2.14)	2.32 (2.05-2.64)	2.89 (2.56-3.30)	3.35 (2.93-3.85)	3.96 (3.34-4.75)	4.44 (3.65-5.45)	4.91 (3.92-6.22)	5.40 (4.16-7.06)	6.05 (4.45-8.30)	6.55 (4.63-9.35)
10-min	1.34 (1.19-1.53)	1.66 (1.48-1.89)	2.07 (1.83-2.36)	2.40 (2.10-2.77)	2.84 (2.39-3.41)	3.18 (2.61-3.91)	3.52 (2.81-4.45)	3.87 (2.99-5.06)	4.33 (3.19-5.95)	4.69 (3.32-6.70)
15-min	1.08 (0.964-1.23)	1.34 (1.19-1.52)	1.67 (1.48-1.90)	1.93 (1.70-2.23)	2.29 (1.93-2.75)	2.56 (2.10-3.15)	2.84 (2.26-3.59)	3.12 (2.41-4.08)	3.50 (2.57-4.80)	3.78 (2.68-5.40)
30-min	0.758 (0.674-0.862)	0.938 (0.832-1.07)	1.17 (1.03-1.33)	1.35 (1.19-1.56)	1.60 (1.35-1.92)	1.79 (1.47-2.21)	1.99 (1.59-2.51)	2.18 (1.69-2.85)	2.45 (1.80-3.36)	2.65 (1.87-3.78)
60-min	0.537 (0.477-0.610)	0.663 (0.589-0.755)	0.827 (0.731-0.944)	0.958 (0.840-1.10)	1.14 (0.956-1.36)	1.27 (1.04-1.56)	1.41 (1.12-1.78)	1.54 (1.19-2.02)	1.73 (1.28-2.38)	1.88 (1.33-2.68)
2-hr	0.419 (0.373-0.476)	0.511 (0.454-0.582)	0.628 (0.556-0.717)	0.720 (0.631-0.830)	0.841 (0.709-1.01)	0.931 (0.765-1.14)	1.02 (0.814-1.29)	1.11 (0.856-1.45)	1.22 (0.900-1.68)	1.31 (0.925-1.87)
3-hr	0.363 (0.323-0.413)	0.441 (0.391-0.501)	0.538 (0.476-0.614)	0.614 (0.538-0.708)	0.713 (0.600-0.855)	0.785 (0.646-0.966)	0.856 (0.684-1.08)	0.927 (0.716-1.21)	1.02 (0.748-1.40)	1.08 (0.766-1.55)
6-hr	0.282 (0.251-0.320)	0.341 (0.303-0.388)	0.415 (0.367-0.473)	0.471 (0.413-0.543)	0.544 (0.458-0.652)	0.597 (0.490-0.733)	0.647 (0.517-0.819)	0.697 (0.538-0.911)	0.760 (0.559-1.04)	0.805 (0.569-1.15)
12-hr	0.204 (0.182-0.232)	0.253 (0.224-0.288)	0.312 (0.276-0.356)	0.357 (0.313-0.412)	0.415 (0.349-0.497)	0.456 (0.375-0.561)	0.496 (0.396-0.627)	0.534 (0.413-0.698)	0.583 (0.429-0.800)	0.618 (0.437-0.882)
24-hr	0.144 (0.130-0.164)	0.183 (0.165-0.209)	0.231 (0.207-0.263)	0.267 (0.238-0.307)	0.313 (0.270-0.371)	0.346 (0.293-0.417)	0.378 (0.313-0.465)	0.408 (0.330-0.516)	0.447 (0.348-0.586)	0.475 (0.359-0.642)
2-day	0.096 (0.086-0.109)	0.122 (0.110-0.139)	0.155 (0.138-0.176)	0.179 (0.159-0.206)	0.211 (0.182-0.249)	0.233 (0.197-0.281)	0.255 (0.211-0.313)	0.275 (0.222-0.348)	0.302 (0.235-0.395)	0.320 (0.242-0.433)
3-day	0.074 (0.066-0.084)	0.095 (0.085-0.108)	0.120 (0.107-0.137)	0.139 (0.124-0.160)	0.163 (0.141-0.193)	0.181 (0.153-0.218)	0.198 (0.164-0.243)	0.214 (0.173-0.270)	0.234 (0.183-0.307)	0.249 (0.188-0.337)
4-day	0.062 (0.055-0.070)	0.079 (0.071-0.090)	0.100 (0.090-0.114)	0.116 (0.103-0.133)	0.137 (0.118-0.162)	0.151 (0.128-0.182)	0.165 (0.137-0.203)	0.179 (0.144-0.226)	0.196 (0.152-0.257)	0.208 (0.157-0.282)
7-day	0.044 (0.039-0.050)	0.056 (0.050-0.063)	0.070 (0.063-0.080)	0.082 (0.072-0.094)	0.096 (0.083-0.113)	0.106 (0.090-0.128)	0.116 (0.096-0.142)	0.125 (0.101-0.158)	0.137 (0.107-0.179)	0.145 (0.110-0.197)
10-day	0.035 (0.031-0.040)	0.044 (0.040-0.051)	0.056 (0.050-0.064)	0.065 (0.058-0.075)	0.076 (0.066-0.090)	0.084 (0.071-0.102)	0.092 (0.076-0.113)	0.099 (0.080-0.126)	0.109 (0.085-0.143)	0.115 (0.087-0.156)
20-day	0.023 (0.020-0.026)	0.029 (0.026-0.033)	0.037 (0.033-0.042)	0.043 (0.038-0.049)	0.050 (0.043-0.060)	0.056 (0.047-0.067)	0.061 (0.050-0.075)	0.065 (0.053-0.083)	0.071 (0.055-0.094)	0.075 (0.057-0.102)
30-day	0.018 (0.016-0.021)	0.023 (0.021-0.027)	0.030 (0.026-0.034)	0.034 (0.030-0.039)	0.040 (0.035-0.048)	0.044 (0.037-0.053)	0.048 (0.040-0.059)	0.052 (0.042-0.066)	0.056 (0.044-0.074)	0.060 (0.045-0.081)
45-day	0.015 (0.013-0.017)	0.019 (0.017-0.022)	0.024 (0.022-0.028)	0.028 (0.025-0.032)	0.033 (0.028-0.039)	0.036 (0.030-0.043)	0.039 (0.032-0.048)	0.042 (0.034-0.053)	0.046 (0.035-0.060)	0.048 (0.036-0.065)
60-day	0.013 (0.012-0.015)	0.017 (0.015-0.019)	0.021 (0.019-0.024)	0.024 (0.022-0.028)	0.028 (0.024-0.034)	0.031 (0.026-0.038)	0.034 (0.028-0.042)	0.036 (0.029-0.046)	0.039 (0.031-0.052)	0.041 (0.031-0.056)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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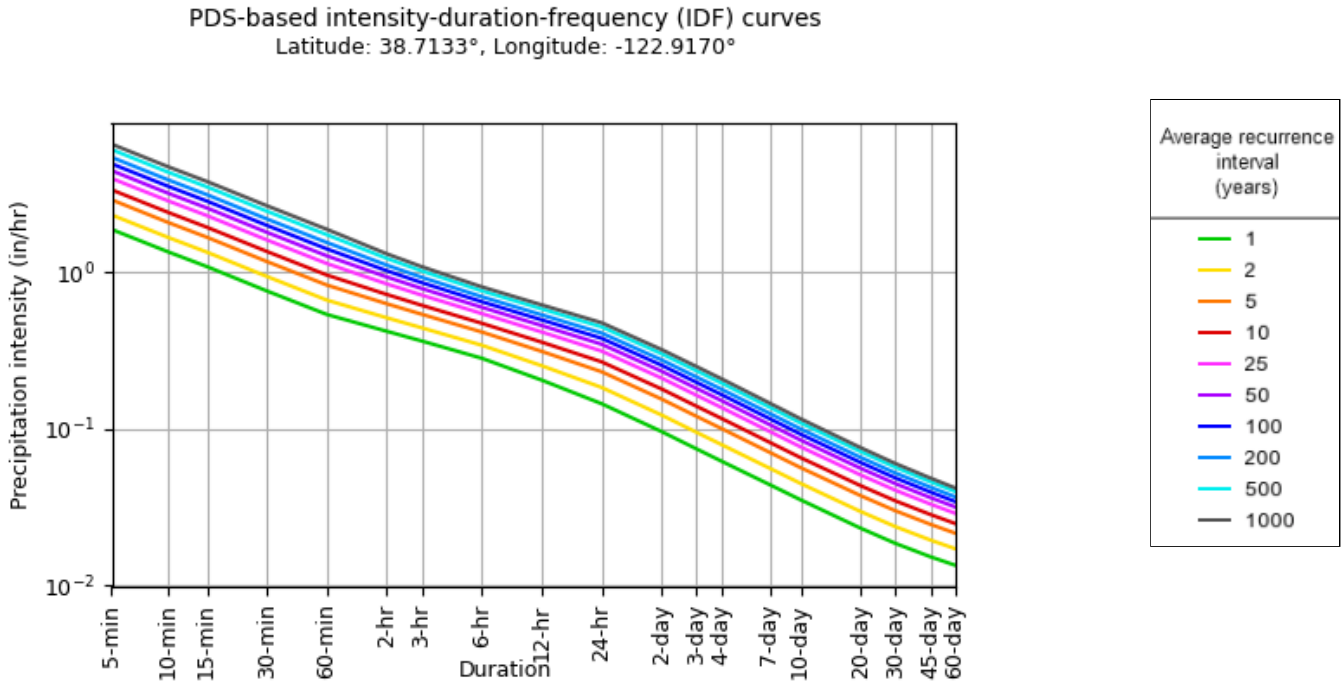
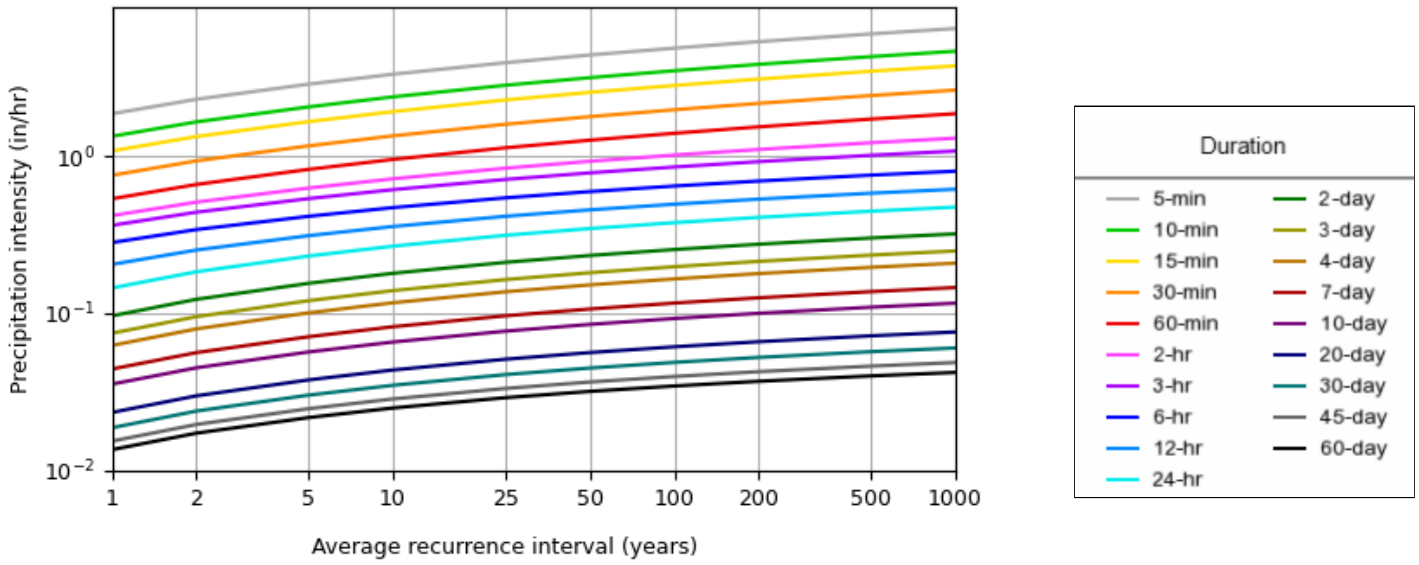
PF graphical





NOAA Atlas 14, Volume 6, Version 2 Created (GMT): Tue Dec 17 18:58:18 2024

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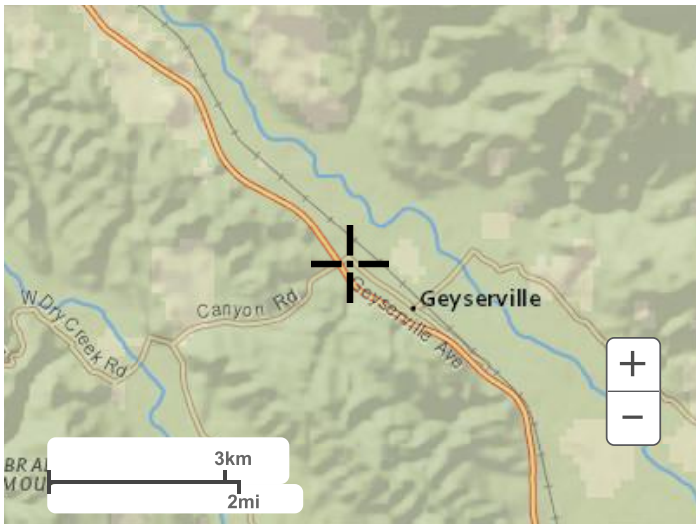
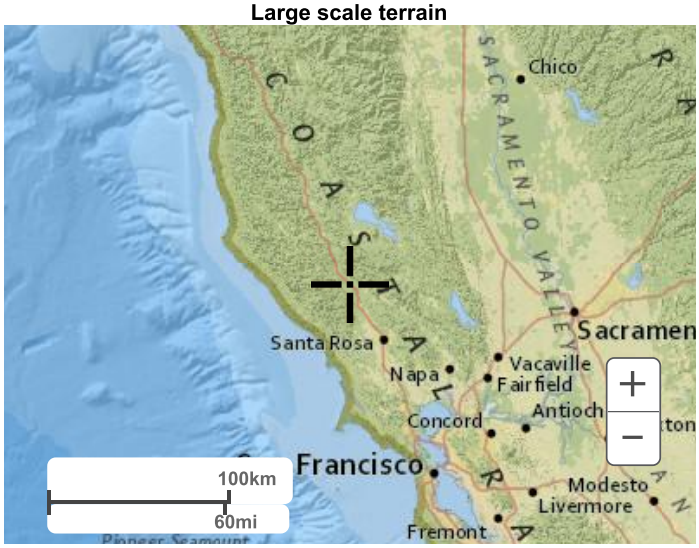
Maps & aerials

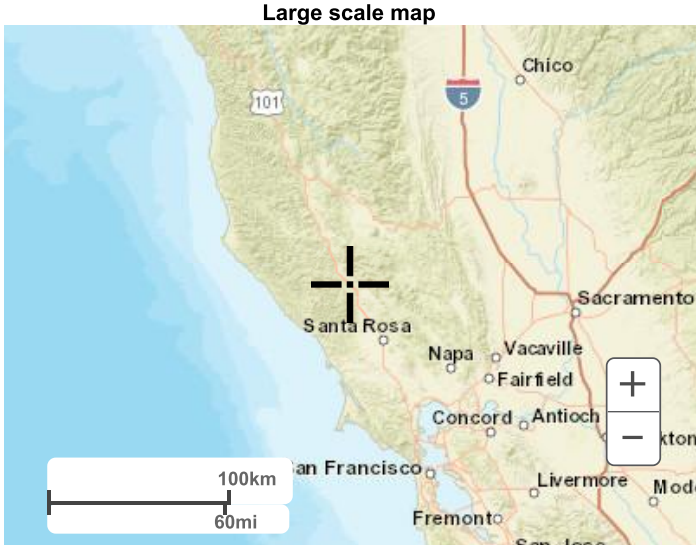
Small scale terrain



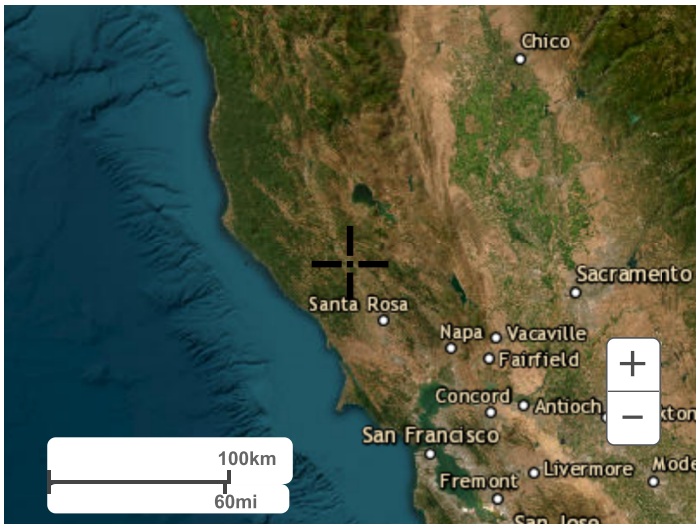
Large scale terrain



Large scale map



Large scale aerial



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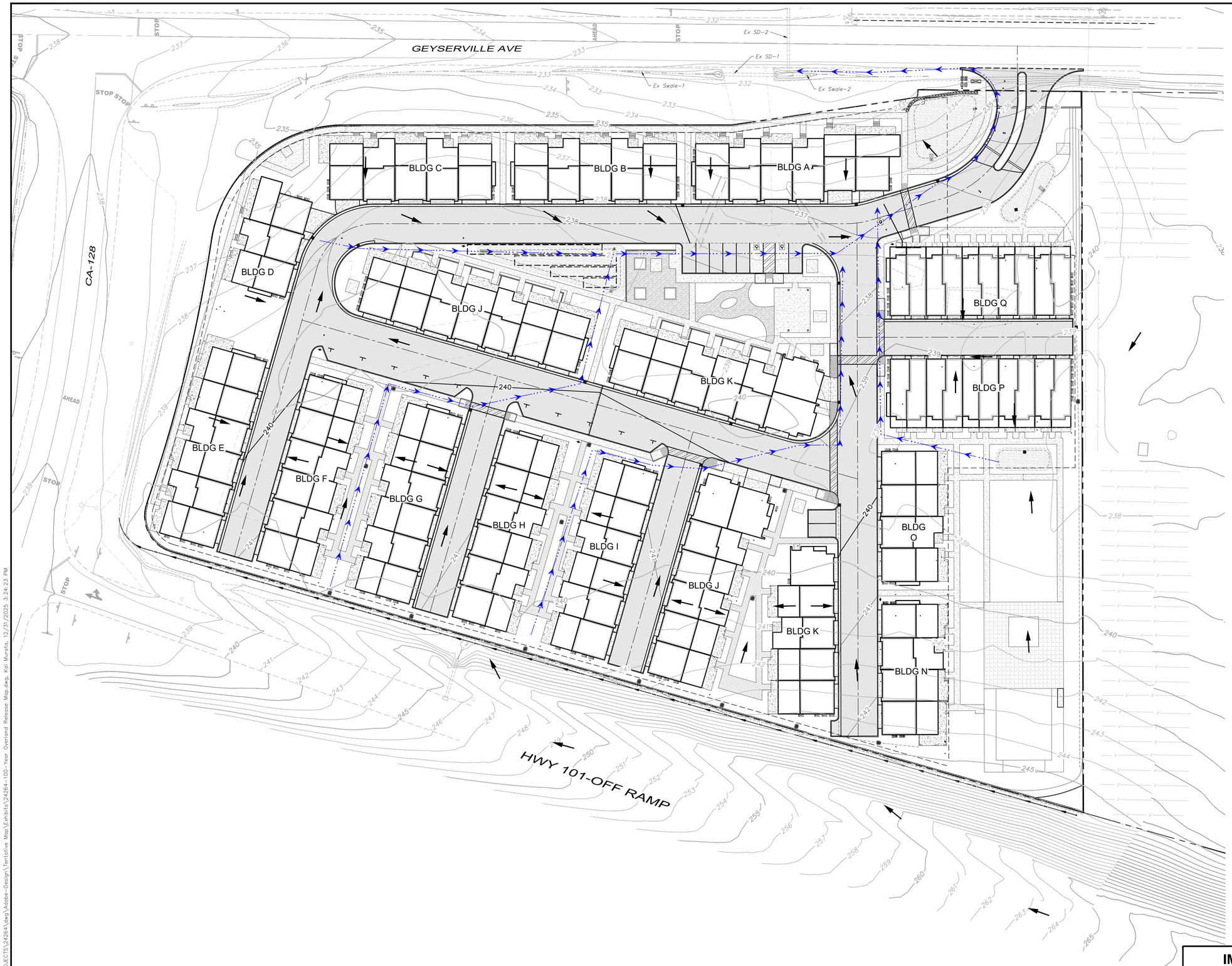
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

9. 100-Year Overland Release Map



DRAINAGE AREA LEGEND

- PROPERTY LINE (PL)
- DIRECTION OF FLOW
- 100-YEAR OVERLAND RELEASE ROUTE

HATCHING LEGEND:

- AC PAVEMENT
- 4" PCC OVER 4" CL II AB
- BRICK PAVERS (BY OTHERS)
- TURF (BY OTHERS)
- BRICK PAVERS (SLD)
- BIORETENTION AREA

NOTE:

2-FT & 10-FT CONTOURS SHOWN ARE FROM LIDAR AND ARE SHOWN FOR GRAPHIC PURPOSES ONLY

REFER TO SUBMITTED GRADING & DRAINAGE PLANS FOR INVERTS, FLOW LINES, TOP OF GRATE ELEVATIONS AND DRAINAGE SPECIFICATIONS

THIS MAP IS FOR REFERENCE ONLY

30' 15' 0 15' 30' 60' 90'

Graphic Scale: 1" = 30'

December 31, 2025

IMPERVIOUS AREA MAP

VESTING TENTATIVE MAP
21837 Geyserville Ave, Geyserville, CA
APN 140-180-035

adobe associates, inc.
civil engineering | land surveying | wastewater
1220 N. Dutton Ave., Santa Rosa, CA 95401
P. (707) 541-2300 F. (707) 541-2301
Website: www.adobeinc.com
"A Service You Can Count On!"

T:\2024 PROJECTS\24264\dwg\Adobe-Design\Tentative Map\Exhibits\24264-100-Year Overland Release Map.dwg, Kai Murata, 12/31/2025 3:24:23 PM

Appendix I

10-Year Hydrology & Hydraulic Analysis Results

Hydraulic Analysis Report

Project Data

Project Title: Geyserville “A”

Designer: RMS

Project Date: Tuesday, January 06, 2026

Project Units: U.S. Customary Units

Notes:

Channel Analysis: SD-1

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.6700 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 0.9300 cfs

Result Parameters

Depth: 0.5440 ft

Area of Flow: 0.3066 ft^2

Wetted Perimeter: 1.5038 ft

Hydraulic Radius: 0.2039 ft

Average Velocity: 3.0333 ft/s

Top Width: 0.5236 ft

Froude Number: 0.6986

Critical Depth: 0.4567 ft

Critical Velocity: 3.6329 ft/s

Critical Slope: 0.0075 ft/ft

Critical Top Width: 0.62 ft

Calculated Max Shear Stress: 0.1697 lb/ft^2

Calculated Avg Shear Stress: 0.0636 lb/ft^2

Channel Analysis: SD-2

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0030 ft/ft

Manning's n: 0.0120

Flow: 1.5000 cfs

Result Parameters

Depth: 0.6221 ft

Area of Flow: 0.5136 ft^2

Wetted Perimeter: 1.8175 ft

Hydraulic Radius: 0.2826 ft

Average Velocity: 2.9206 ft/s

Top Width: 0.9697 ft

Froude Number: 0.7072

Critical Depth: 0.5190 ft

Critical Velocity: 3.6431 ft/s

Critical Slope: 0.0053 ft/ft

Critical Top Width: 1.00 ft

Calculated Max Shear Stress: 0.1165 lb/ft^2

Calculated Avg Shear Stress: 0.0529 lb/ft^2

Channel Analysis: SD-3

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 0.9700 cfs

Result Parameters

Depth: 0.4119 ft

Area of Flow: 0.3050 ft^2

Wetted Perimeter: 1.3936 ft

Hydraulic Radius: 0.2189 ft

Average Velocity: 3.1801 ft/s

Top Width: 0.9843 ft

Froude Number: 1.0068

Critical Depth: 0.4133 ft

Critical Velocity: 3.1651 ft/s

Critical Slope: 0.0049 ft/ft

Critical Top Width: 0.98 ft

Calculated Max Shear Stress: 0.1285 lb/ft^2

Calculated Avg Shear Stress: 0.0683 lb/ft^2

Channel Analysis: SD-4

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0070 ft/ft

Manning's n: 0.0120

Flow: 0.3600 cfs

Result Parameters

Depth: 0.2406 ft

Area of Flow: 0.1302 ft^2

Wetted Perimeter: 0.9438 ft

Hydraulic Radius: 0.1379 ft

Average Velocity: 2.7657 ft/s

Top Width: 0.7532 ft

Froude Number: 1.1724

Critical Depth: 0.2612 ft

Critical Velocity: 2.4681 ft/s

Critical Slope: 0.0051 ft/ft

Critical Top Width: 0.77 ft

Calculated Max Shear Stress: 0.1051 lb/ft^2

Calculated Avg Shear Stress: 0.0602 lb/ft^2

Channel Analysis: SD-5

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 0.7400 cfs

Result Parameters

Depth: 0.3882 ft

Area of Flow: 0.2483 ft^2

Wetted Perimeter: 1.2500 ft

Hydraulic Radius: 0.1986 ft

Average Velocity: 2.9806 ft/s

Top Width: 0.8283 ft

Froude Number: 0.9594

Critical Depth: 0.3797 ft

Critical Velocity: 3.0667 ft/s

Critical Slope: 0.0054 ft/ft

Critical Top Width: 0.83 ft

Calculated Max Shear Stress: 0.1211 lb/ft^2

Calculated Avg Shear Stress: 0.0620 lb/ft^2

Channel Analysis: SD-6

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 2.0800 cfs

Result Parameters

Depth: 0.6534 ft

Area of Flow: 0.5437 ft^2

Wetted Perimeter: 1.8827 ft

Hydraulic Radius: 0.2888 ft

Average Velocity: 3.8257 ft/s

Top Width: 0.9518 ft

Froude Number: 0.8920

Critical Depth: 0.6157 ft

Critical Velocity: 4.0995 ft/s

Critical Slope: 0.0059 ft/ft

Critical Top Width: 0.97 ft

Calculated Max Shear Stress: 0.2039 lb/ft^2

Calculated Avg Shear Stress: 0.0901 lb/ft^2

Channel Analysis: SD-7

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 4.1900 cfs

Result Parameters

Depth: 0.7682 ft

Area of Flow: 0.9109 ft^2

Wetted Perimeter: 2.3927 ft

Hydraulic Radius: 0.3807 ft

Average Velocity: 4.5996 ft/s

Top Width: 1.4996 ft

Froude Number: 1.0400

Critical Depth: 0.7844 ft

Critical Velocity: 4.4804 ft/s

Critical Slope: 0.0047 ft/ft

Critical Top Width: 1.50 ft

Calculated Max Shear Stress: 0.2397 lb/ft^2

Calculated Avg Shear Stress: 0.1188 lb/ft^2

Channel Analysis: SD-8

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 0.8700 cfs

Result Parameters

Depth: 0.4267 ft

Area of Flow: 0.2802 ft^2

Wetted Perimeter: 1.3271 ft

Hydraulic Radius: 0.2111 ft

Average Velocity: 3.1047 ft/s

Top Width: 0.8297 ft

Froude Number: 0.9415

Critical Depth: 0.4134 ft

Critical Velocity: 3.2320 ft/s

Critical Slope: 0.0056 ft/ft

Critical Top Width: 0.83 ft

Calculated Max Shear Stress: 0.1331 lb/ft^2

Calculated Avg Shear Stress: 0.0659 lb/ft^2

Channel Analysis: SD-9

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0050 ft/ft

Manning's n: 0.0120

Flow: 0.7700 cfs

Result Parameters

Depth: 0.3972 ft

Area of Flow: 0.2557 ft^2

Wetted Perimeter: 1.2681 ft

Hydraulic Radius: 0.2017 ft

Average Velocity: 3.0111 ft/s

Top Width: 0.8292 ft

Froude Number: 0.9555

Critical Depth: 0.3878 ft

Critical Velocity: 3.1047 ft/s

Critical Slope: 0.0054 ft/ft

Critical Top Width: 0.83 ft

Calculated Max Shear Stress: 0.1239 lb/ft^2

Calculated Avg Shear Stress: 0.0629 lb/ft^2

Channel Analysis: SD-10

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0200 ft/ft

Manning's n: 0.0120

Flow: 4.8800 cfs

Result Parameters

Depth: 0.5666 ft

Area of Flow: 0.6112 ft^2

Wetted Perimeter: 1.9856 ft

Hydraulic Radius: 0.3078 ft

Average Velocity: 7.9842 ft/s

Top Width: 1.4545 ft

Froude Number: 2.1705

Critical Depth: 0.8496 ft

Critical Velocity: 4.7262 ft/s

Critical Slope: 0.0049 ft/ft

Critical Top Width: 1.49 ft

Calculated Max Shear Stress: 0.7071 lb/ft^2

Calculated Avg Shear Stress: 0.3842 lb/ft^2

Channel Analysis: SD-11

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.6700 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 0.4000 cfs

Result Parameters

Depth: 0.2523 ft

Area of Flow: 0.1214 ft^2

Wetted Perimeter: 0.8853 ft

Hydraulic Radius: 0.1372 ft

Average Velocity: 3.2936 ft/s

Top Width: 0.6493 ft

Froude Number: 1.3420

Critical Depth: 0.2941 ft

Critical Velocity: 2.6854 ft/s

Critical Slope: 0.0057 ft/ft

Critical Top Width: 0.66 ft

Calculated Max Shear Stress: 0.1574 lb/ft^2

Calculated Avg Shear Stress: 0.0856 lb/ft^2

Channel Analysis: SD-12

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.6700 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 1.0300 cfs

Result Parameters

Depth: 0.4436 ft

Area of Flow: 0.2477 ft^2

Wetted Perimeter: 1.2736 ft

Hydraulic Radius: 0.1945 ft

Average Velocity: 4.1574 ft/s

Top Width: 0.6338 ft

Froude Number: 1.1718

Critical Depth: 0.4809 ft

Critical Velocity: 3.8028 ft/s

Critical Slope: 0.0081 ft/ft

Critical Top Width: 0.60 ft

Calculated Max Shear Stress: 0.2768 lb/ft^2

Calculated Avg Shear Stress: 0.1214 lb/ft^2

Channel Analysis: SD-13

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 1.4200 cfs

Result Parameters

Depth: 0.4656 ft

Area of Flow: 0.3124 ft^2

Wetted Perimeter: 1.4053 ft

Hydraulic Radius: 0.2223 ft

Average Velocity: 4.5448 ft/s

Top Width: 0.8238 ft

Froude Number: 1.3005

Critical Depth: 0.5342 ft

Critical Velocity: 3.8582 ft/s

Critical Slope: 0.0066 ft/ft

Critical Top Width: 0.80 ft

Calculated Max Shear Stress: 0.2906 lb/ft^2

Calculated Avg Shear Stress: 0.1387 lb/ft^2

Channel Analysis: SD-14

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.8300 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 1.6500 cfs

Result Parameters

Depth: 0.5130 ft

Area of Flow: 0.3511 ft^2

Wetted Perimeter: 1.5015 ft

Hydraulic Radius: 0.2338 ft

Average Velocity: 4.6998 ft/s

Top Width: 0.8065 ft

Froude Number: 1.2554

Critical Depth: 0.5767 ft

Critical Velocity: 4.1120 ft/s

Critical Slope: 0.0072 ft/ft

Critical Top Width: 0.76 ft

Calculated Max Shear Stress: 0.3201 lb/ft^2

Calculated Avg Shear Stress: 0.1459 lb/ft^2

Channel Analysis: SD-15

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 0.7700 cfs

Result Parameters

Depth: 0.3029 ft

Area of Flow: 0.2008 ft^2

Wetted Perimeter: 1.1656 ft

Hydraulic Radius: 0.1723 ft

Average Velocity: 3.8342 ft/s

Top Width: 0.9190 ft

Froude Number: 1.4455

Critical Depth: 0.3667 ft

Critical Velocity: 2.9503 ft/s

Critical Slope: 0.0048 ft/ft

Critical Top Width: 0.96 ft

Calculated Max Shear Stress: 0.1890 lb/ft^2

Calculated Avg Shear Stress: 0.1075 lb/ft^2

Channel Analysis: SD-16

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 3.1900 cfs

Result Parameters

Depth: 0.6932 ft

Area of Flow: 0.5809 ft^2

Wetted Perimeter: 1.9674 ft

Hydraulic Radius: 0.2953 ft

Average Velocity: 5.4911 ft/s

Top Width: 0.9224 ft

Froude Number: 1.2193

Critical Depth: 0.7646 ft

Critical Velocity: 4.9503 ft/s

Critical Slope: 0.0079 ft/ft

Critical Top Width: 0.85 ft

Calculated Max Shear Stress: 0.4325 lb/ft^2

Calculated Avg Shear Stress: 0.1843 lb/ft^2

Channel Analysis: SD-17

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.0000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 3.2700 cfs

Result Parameters

Depth: 0.7064 ft

Area of Flow: 0.5931 ft^2

Wetted Perimeter: 1.9963 ft

Hydraulic Radius: 0.2971 ft

Average Velocity: 5.5135 ft/s

Top Width: 0.9108 ft

Froude Number: 1.2041

Critical Depth: 0.7744 ft

Critical Velocity: 5.0105 ft/s

Critical Slope: 0.0080 ft/ft

Critical Top Width: 0.84 ft

Calculated Max Shear Stress: 0.4408 lb/ft^2

Calculated Avg Shear Stress: 0.1854 lb/ft^2

Channel Analysis: SD-18

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 0.6700 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 0.2200 cfs

Result Parameters

Depth: 0.1846 ft

Area of Flow: 0.0790 ft^2

Wetted Perimeter: 0.7404 ft

Hydraulic Radius: 0.1067 ft

Average Velocity: 2.7852 ft/s

Top Width: 0.5986 ft

Froude Number: 1.3512

Critical Depth: 0.2156 ft

Critical Velocity: 2.2448 ft/s

Critical Slope: 0.0055 ft/ft

Critical Top Width: 0.63 ft

Calculated Max Shear Stress: 0.1152 lb/ft^2

Calculated Avg Shear Stress: 0.0666 lb/ft^2

Channel Analysis: Swale-1

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0350

Flow: 1.7800 cfs

Result Parameters

Depth: 0.6806 ft

Area of Flow: 0.9265 ft^2

Wetted Perimeter: 3.0439 ft

Hydraulic Radius: 0.3044 ft

Average Velocity: 1.9212 ft/s

Top Width: 2.7225 ft

Froude Number: 0.5804

Critical Depth: 0.5475 ft

Critical Velocity: 2.9690 ft/s

Critical Slope: 0.0319 ft/ft

Critical Top Width: 2.19 ft

Calculated Max Shear Stress: 0.4247 lb/ft^2

Calculated Avg Shear Stress: 0.1899 lb/ft^2

Channel Analysis: Ex-Swale-1

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Longitudinal Slope: 0.0183 ft/ft

Manning's n: 0.0350

Flow: 3.6000 cfs

Result Parameters

Depth: 0.7914 ft

Area of Flow: 1.2527 ft^2

Wetted Perimeter: 3.5393 ft

Hydraulic Radius: 0.3539 ft

Average Velocity: 2.8738 ft/s

Top Width: 3.1657 ft

Froude Number: 0.8051

Critical Depth: 0.7257 ft

Critical Velocity: 3.4181 ft/s

Critical Slope: 0.0291 ft/ft

Critical Top Width: 2.90 ft

Calculated Max Shear Stress: 0.9037 lb/ft^2

Calculated Avg Shear Stress: 0.4042 lb/ft^2

Channel Analysis: Ex-Swale-2

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 2.0000 ft/ft

Side Slope 2 (Z2): 2.0000 ft/ft

Longitudinal Slope: 0.0181 ft/ft

Manning's n: 0.0350

Flow: 11.7100 cfs

Result Parameters

Depth: 1.2342 ft

Area of Flow: 3.0467 ft^2

Wetted Perimeter: 5.5197 ft

Hydraulic Radius: 0.5520 ft

Average Velocity: 3.8435 ft/s

Top Width: 4.9369 ft

Froude Number: 0.8622

Critical Depth: 1.1632 ft

Critical Velocity: 4.3275 ft/s

Critical Slope: 0.0248 ft/ft

Critical Top Width: 4.65 ft

Calculated Max Shear Stress: 1.3940 lb/ft^2

Calculated Avg Shear Stress: 0.6234 lb/ft^2

Channel Analysis: Ex SD-1

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 2.0000 ft

Longitudinal Slope: 0.0060 ft/ft

Manning's n: 0.0120

Flow: 3.6000 cfs

Result Parameters

Depth: 0.5901 ft

Area of Flow: 0.7747 ft^2

Wetted Perimeter: 2.2970 ft

Hydraulic Radius: 0.3372 ft

Average Velocity: 4.6472 ft/s

Top Width: 1.8243 ft

Froude Number: 1.2568

Critical Depth: 0.6641 ft

Critical Velocity: 3.9483 ft/s

Critical Slope: 0.0038 ft/ft

Critical Top Width: 1.88 ft

Calculated Max Shear Stress: 0.2210 lb/ft^2

Calculated Avg Shear Stress: 0.1263 lb/ft^2

Channel Analysis: Ex SD-2

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 1.5000 ft

Longitudinal Slope: 0.0100 ft/ft

Manning's n: 0.0120

Flow: 11.7100 cfs

Result Parameters

Depth: 1.2727 ft

Area of Flow: 1.5984 ft^2

Wetted Perimeter: 3.5128 ft

Hydraulic Radius: 0.4550 ft

Average Velocity: 7.3260 ft/s

Top Width: 1.0758 ft

Froude Number: 1.0591

Critical Depth: 1.3022 ft

Critical Velocity: 7.1869 ft/s

Critical Slope: 0.0097 ft/ft

Critical Top Width: 1.01 ft

Calculated Max Shear Stress: 0.7941 lb/ft^2

Calculated Avg Shear Stress: 0.2839 lb/ft^2

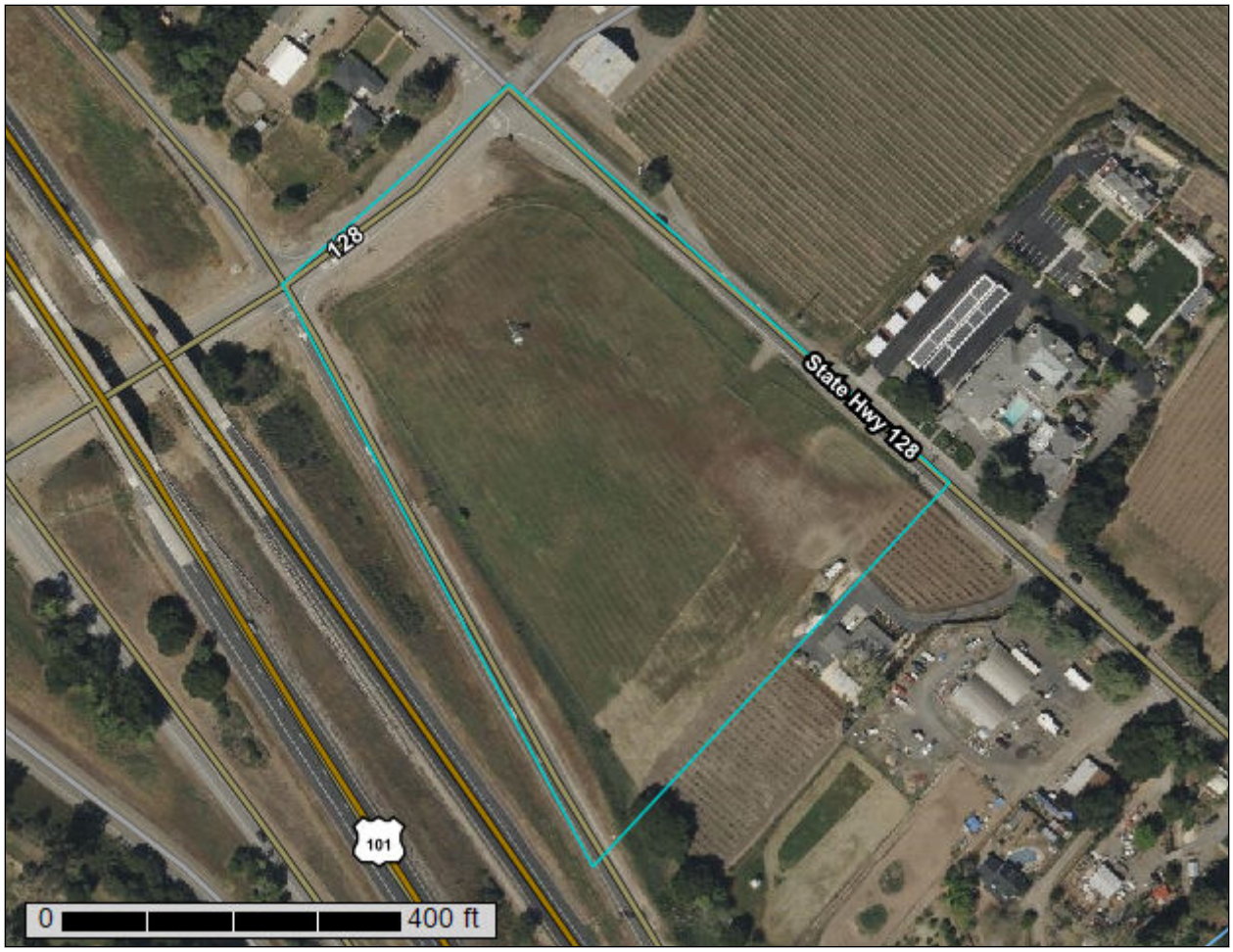
Appendix II
Soil Analysis

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sonoma County, California



December 9, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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AkB—Arbuckle gravelly loam, 0 to 5 percent slopes.....10
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Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,860 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sonoma County, California
Survey Area Data: Version 18, Sep 8, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 26, 2022—Apr 25, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AkB	Arbuckle gravelly loam, 0 to 5 percent slopes	8.1	99.8%
JoF	Josephine loam, 30 to 50 percent slopes	0.0	0.2%
YnA	Yolo loam, 0 to 10 percent slopes, moist, MLRA 14	0.0	0.0%
Totals for Area of Interest		**8.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sonoma County, California

AkB—Arbuckle gravelly loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hf9y
Elevation: 100 to 1,600 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 57 to 64 degrees F
Frost-free period: 200 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Arbuckle and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arbuckle

Setting

Landform: Terraces, hills
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 6 inches: gravelly loam
H2 - 6 to 27 inches: loam
H3 - 27 to 72 inches: gravelly clay loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R014XG924CA - Loamy Upland
Hydric soil rating: No

Minor Components

Haire

Percent of map unit: 7 percent
Hydric soil rating: No

Pleasanton

Percent of map unit: 7 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

JoF—Josephine loam, 30 to 50 percent slopes

Map Unit Setting

National map unit symbol: hfft
Elevation: 1,200 to 5,000 feet
Mean annual precipitation: 50 inches
Mean annual air temperature: 55 degrees F
Frost-free period: 125 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Josephine and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Josephine

Setting

Landform: Mountain slopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Residuum weathered from sedimentary rock

Typical profile

H1 - 0 to 13 inches: gravelly loam
H2 - 13 to 35 inches: gravelly clay loam
H3 - 35 to 45 inches: gravelly fine sandy loam
H4 - 45 to 59 inches: weathered bedrock

Properties and qualities

Slope: 30 to 50 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R014XG924CA - Loamy Upland
Hydric soil rating: No

Minor Components

Boomer

Percent of map unit: 5 percent
Hydric soil rating: No

Hugo

Percent of map unit: 5 percent
Hydric soil rating: No

Laughlin

Percent of map unit: 5 percent
Hydric soil rating: No

YnA—Yolo loam, 0 to 10 percent slopes, moist, MLRA 14

Map Unit Setting

National map unit symbol: 2w89n
Elevation: 10 to 850 feet
Mean annual precipitation: 25 to 57 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Yolo, moist, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yolo, Moist

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 6 inches: loam
A - 6 to 24 inches: silt loam
C1 - 24 to 45 inches: silt loam

C2 - 45 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Maximum salinity: Nonsaline (0.3 to 0.5 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 12.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: B
Ecological site: R014XG907CA - Loamy Bottom
Hydric soil rating: No

Minor Components

Cortina

Percent of map unit: 5 percent

Cole

Percent of map unit: 5 percent

Bale

Percent of map unit: 5 percent

Appendix III

Fact Sheet – Bioretention & ADS Stormtech

FACT SHEET- BIORETENTION

BIORETENTION

Also know as: Rain garden, roadside bioretention, and bioretention cell

DESCRIPTION

The bioretention area best management practice (BMP) functions as a soil and plant-based filtration and infiltration feature that removes pollutants through a variety of natural physical, biological, and chemical treatment processes.

ADVANTAGES

- Can be designed to achieve Treatment, Delta Volume Capture, or Hydromodification requirements.
- Enhances water quality of downstream water bodies through natural processes.
- Aesthetically pleasing.
- The vegetation can provide shade and wind breaks, absorbs noise, reduces heat island effects and improves an area's landscape.
- Provides habitat for birds and attracts other pollinators like butterflies and bees.
- Does not interrupt utility installation.
- Does not interfere with tree planting.

FACT SHEET- BIORETENTION

LIMITATIONS

- Specialized design is required for areas where street slopes exceed 10%.
- Should not be used in areas of know contamination. If soil and/or groundwater contamination is present on the site or within a 100' radius of the proposed BMP location, the North Coast Regional Water Quality Control Board will need to be contacted and the site reviewed.
- Should not be used in areas of high groundwater. In general a minimum of 2' of clearance should be provided between the bottom of the bioretention cell and seasonal high groundwater.
- Should not be used in areas of slope instability where infiltrated storm water may cause failure. Slope stability should be determined by a licensed geotechnical engineer.
- Do not use in locations that can negatively impact building foundation or footings. Location shall be approved by a licensed Geotechnical Engineer.

KEY DESIGN FEATURES

<u>ALL BIORETENTION</u>

- Structural soil should be used within the bioretention area requiring load bearing capacity (adjacent to roadways and/or buildings).
- Structural soil, if used, shall be installed as described in Appendix E.
- Some BMPs may not require the use of structural soil and a more organic type planting soil and/or treatment media may be used in its place. It may be possible in some cases to use native soil or to amend the native soil so that it is suitable. Use of non-structural soil will depend on evaluation of the criteria in "Chapter 4-Site Assessment" as well as consideration of structural needs and may require evaluation by a licensed Geotechnical Engineer.
- Underlining native soil should remain un-compacted to preserve infiltration capacity. Fence off the area during construction to protect it from compaction.
- Bottom of bioretention should be un-lined to allow infiltration into native soil.
- Moisture barrier must be installed vertically to protect road sub-base and any trenches adjacent to the bioretention area.
- If used, pervious concrete shall be designed and installed as described in Appendix E and protected during construction to prevent sediment loading.
- If the porous gutter design option is used additional trash and sediment capture BMPs is required.
- A curb opening type design may be used in place of a porous gutter if appropriate for the project and does not require additional trash capture.
- Bioretention areas shall be planted with plants from the approved **Plant List** and **Tree List** included in Appendix F and shall be planted to achieve 51% cover.
- All bioretention areas shall be designed with a designated high flow bypass inlet for storms larger than the design storm.

- For designs that include perforated pipe, the 6" perforated pipe must be installed a minimum of 6" below the adjacent road structural section.
- Perforated pipe shall be installed in straight runs only.
- The volume below the perforated pipe must be sufficient to hold and infiltrate the design volume.

SIZING DESIGN- GOAL AND REQUIREMENTS

- **For all projects:** The treatment component requires that all of the runoff generated by this water quality design storm from impermeable surfaces must be treated on site for the pollutants of concern.
- ***For projects that increase the amount of impervious surface, but create or replace less than a total of one acre:*** The **Delta Volume Capture** component requires that any increase in volume due to development for the water quality design storm must be infiltrated and/or reused on site. Further discussion of the Treatment and Delta Volume Capture requirements and the accompanying formulas can be found in Chapter 6.
- ***For projects that create or replace one acre or more of impervious surface*:** These larger projects must mitigate their impacts by meeting the **Hydromodification Requirement** by capturing 100% of the post development volume generated by the water quality rain event.
- All calculations shall be completed using the "Storm Water Calculator" available at www.srcity.org/stormwaterLID.

INSPECTION AND MAINTENANCE REQUIREMENTS

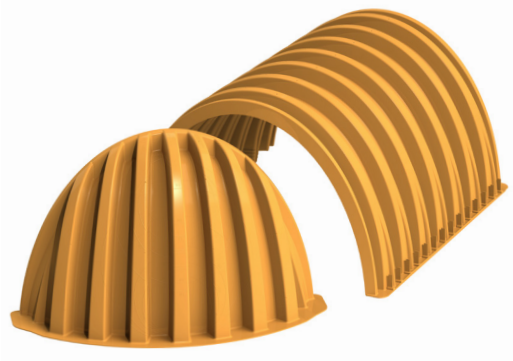
A maintenance plan shall be provided with the Final SWLID Submittal. The maintenance plan shall include recommended maintenance practices, state the parties responsible for maintenance and upkeep, specify the funding source for ongoing maintenance with provisions for full replacement when necessary and provide site specific inspection checklist.

At a minimum maintenance shall include the following:

- Dry street sweeping upon completion of construction
- Dry street sweeping annually, and
    - When water is observed flowing in the gutter during a low intensity storm.
    - Algae is observed in the gutter.
    - Sediment/debris covers 1/3 of the gutter width or more.
- Inspect twice annually for sedimentation and trash accumulation in the gutter. Obstructions and trash shall be removed and properly disposed of.
- Inspect twice during the rainy season for ponded water.
- Pesticides and fertilizers shall not be used in the bioretention area.
- Plants should be pruned, weeds pulled and dead plants replaced as needed.

StormTech® MC-3500 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



Nominal Chamber Specifications
(not to scale)

Size (L x W x H)
90” x 77” x 45”
2286 mm x 1956 mm x 1143 mm

Chamber Storage
109.9 ft³ (3.11 m³)

Min. Installed Storage*
175.0 ft³ (4.96 m³)

Weight
134 lbs (60.8 kg)

Shipping
15 chambers/pallet
7 end caps/pallet
7 pallets/truck

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below chambers, 6” (150 mm) of stone between chambers/ end caps and 40% stone porosity.

Nominal End Cap Specifications
(not to scale)

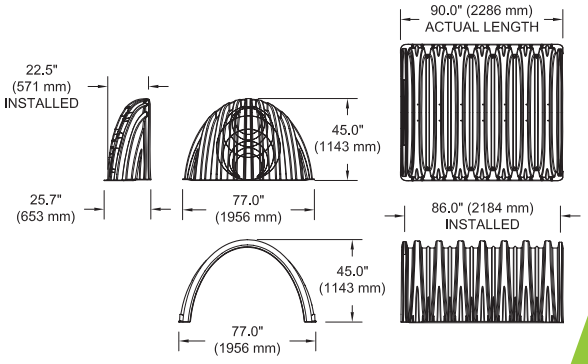
Size (L x W x H)
26.5” x 71” x 45.1”
673 mm x 1803 mm x 1145 mm

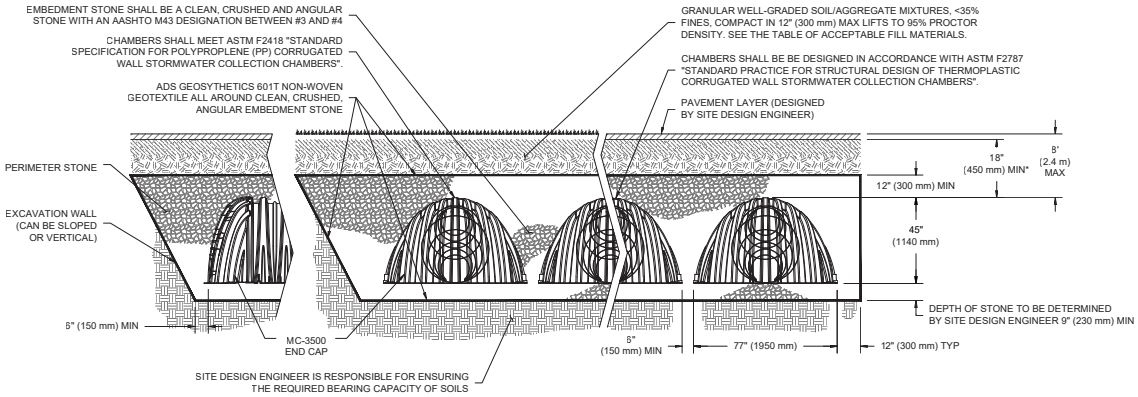
End Cap Storage
14.9 ft³ (0.42 m³)

Min. Installed Storage*
45.1 ft³ (1.28 m³)

Weight
49 lbs (22.2 kg)

*Assumes a minimum of 12” (300 mm) of stone above, 9” (230 mm) of stone below, 6” (150 mm) of stone perimeter, 6” (150 mm) of stone between chambers/ end caps and 40% stone porosity.





*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 24" (600 mm).

ADS StormTech™

StormTech MC-3500 Specifications

Storage Volume Per Chamber

	Bare Chamber Storage ft³ (m³)	Chamber and Stone Foundation Depth in. (mm)			
		9 in (230 mm)	12 in (300 mm)	15 in (375 mm)	18 in (450 mm)
Chamber	109.9 (3.11)	175.0 (4.96)	179.9 (5.09)	184.9 (5.24)	189.9 (5.38)
End Cap	14.9 (0.42)	45.1 (1.28)	46.6 (1.32)	48.3 (1.37)	49.9 (1.41)

Note: Assumes 6" (150 mm) row spacing, 40% stone porosity, 12" (300 mm) stone above and includes the bare chamber/end cap volume.

Amount of Stone Per Chamber

English Tons (yds³)	Stone Foundation Depth			
	9 in	12 in	15 in	18 in
Chamber	8.5 (6.0)	9.1 (6.5)	9.7 (6.9)	10.4 (7.4)
End Cap	3.9 (2.8)	4.1 (2.9)	4.3 (3.1)	4.5 (3.2)
Metric Kilograms (m³)	**230 mm**	**300 mm**	**375 mm**	**450 mm**
Chamber	7711 (4.6)	8255 (5.0)	8800 (5.3)	9435 (5.7)
End Cap	3538 (2.1)	3719 (2.2)	3901 (2.4)	4082 (2.5)

Note: Assumes 12" (300 mm) of stone above and 6" (150 mm) row spacing and 6" (150 mm) of perimeter stone in front of end caps.

Volume Excavation Per Chamber yd³ (m³)

	Stone Foundation Depth			
	9 in (230 mm)	12 in (300 mm)	15 in (375mm)	18 in (450 mm)
Chamber	11.9 (9.1)	12.4 (9.5)	12.8 (9.8)	13.3 (10.2)
End Cap	4.0 (3.1)	4.1 (3.3)	4.3 (3.3)	4.4 (3.4)

Note: Assumes 6" (150 mm) of separation between chamber rows and 24" (600 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

Working on a project?
Visit us at adspipe.com/stormtech and utilize the Design Tool

adspipe.com
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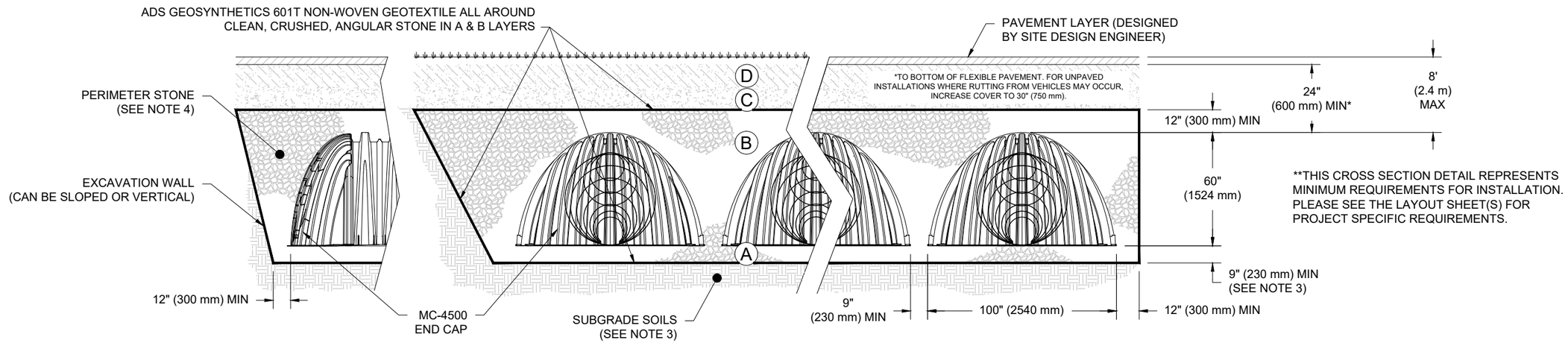
ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

STANDARD CROSS SECTION
MC-4500 CHAMBER
STORMTECH

DATE: 02/17/2025 | DRAWN: SMW
DRAWING #: 724-420 | CHECKED: JLM

DATE	DRWN	CHKD	DESCRIPTION

StormTech®
Chamber System
1-800-821-6710 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

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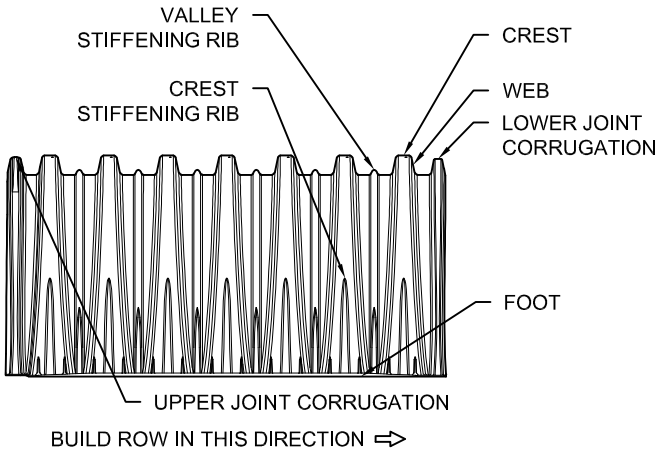
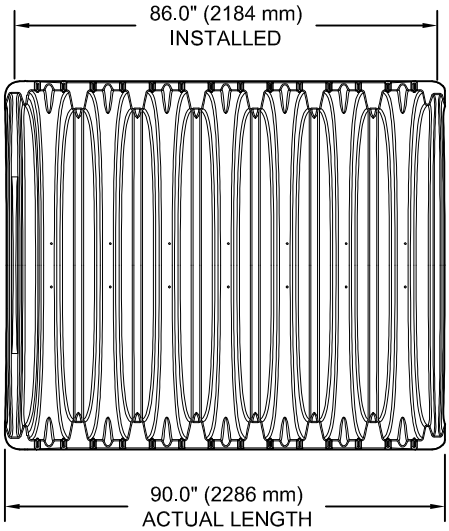
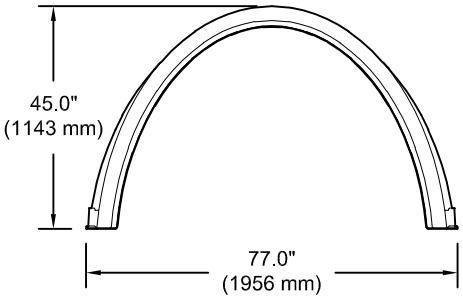
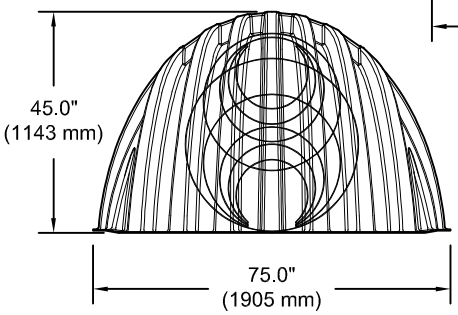
MC-3500 TECHNICAL SPECIFICATION

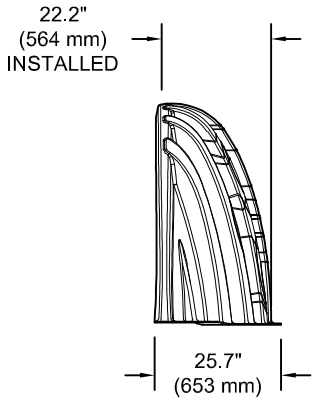
NTS











NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	77.0" X 45.0" X 86.0"	(1956 mm X 1143 mm X 2184 mm)
CHAMBER STORAGE	109.9 CUBIC FEET	(3.11 m³)
MINIMUM INSTALLED STORAGE*	175.0 CUBIC FEET	(4.96 m³)
WEIGHT	134 lbs.	(60.8 kg)

NOMINAL END CAP SPECIFICATIONS

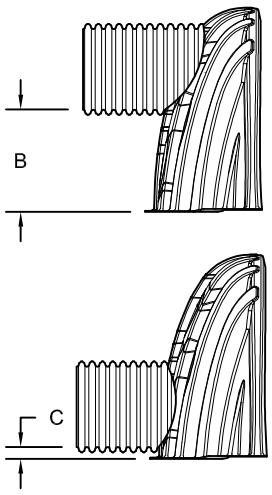
SIZE (W X H X INSTALLED LENGTH)	75.0" X 45.0" X 22.2"	(1905 mm X 1143 mm X 564 mm)
END CAP STORAGE	14.9 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	45.1 CUBIC FEET	(1.28 m³)
WEIGHT	49 lbs.	(22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" (152 mm) STONE BETWEEN CHAMBERS, 6" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

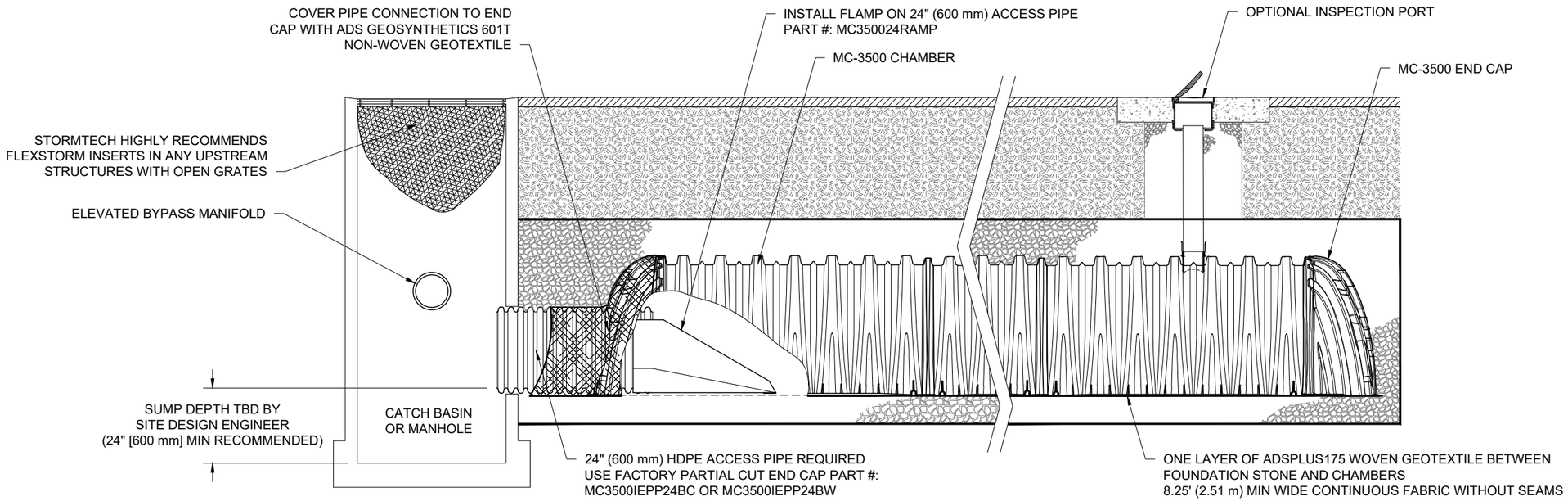
PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"
END CAPS WITH A WELDED CROWN PLATE END WITH "C"

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	---
MC3500IEPP06B		---	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	---
MC3500IEPP08B		---	0.81" (21 mm)
MC3500IEPP10T	10" (250 mm)	29.04" (738 mm)	---
MC3500IEPP10B		---	0.93" (24 mm)
MC3500IEPP12T	12" (300 mm)	26.36" (670 mm)	---
MC3500IEPP12B		---	1.35" (34 mm)
MC3500IEPP15T	15" (375 mm)	23.39" (594 mm)	---
MC3500IEPP15B		---	1.50" (38 mm)
MC3500IEPP18TC	18" (450 mm)	20.03" (509 mm)	---
MC3500IEPP18TW			
MC3500IEPP18BC		---	1.77" (45 mm)
MC3500IEPP18BW			
MC3500IEPP24TC	24" (600 mm)	14.48" (368 mm)	---
MC3500IEPP24TW			
MC3500IEPP24BC		---	2.06" (52 mm)
MC3500IEPP24BW			
MC3500IEPP30BC	30" (750 mm)	---	2.75" (70 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.



MC-3500 ISOLATOR ROW PLUS DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

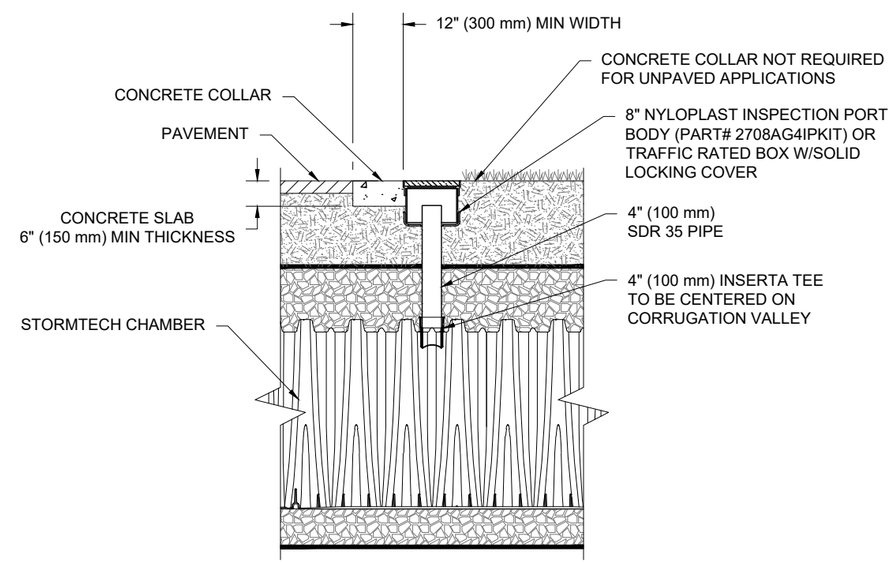
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)

NTS

MC-3500

ISOLATOR ROW PLUS DETAILS

DATE: 8/03/22 DRAWN: KLJ

PROJECT #: CHECKED: KLJ

DATE	DRWN	CHKD	DESCRIPTION

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

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Isolator® Row Plus
O&M Manual

ADS StormTech™

The Isolator® Row Plus

Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row Plus is a technique to inexpensively enhance Total Suspended Solids (TSS), Total Phosphorus (TP), Total Petroluem Hydrocarbons (TPH) and Total Nitrogen (TN) removal with easy access for inspection and maintenance.

The Isolator Row Plus

The Isolator Row Plus is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, SC-800, MC-3500, MC-4500 or MC-7200 models, are lined with filter fabric and connected to a closely located manhole for easy access. The fabric lined chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row Plus and passes through the filter fabric. The open bottom chambers allow stormwater to flow vertically out of the chambers. Sediments are captured in the Isolator Row Plus protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS Isolator Row and Plus fabric are placed between the stone and the Isolator Row Plus chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting.

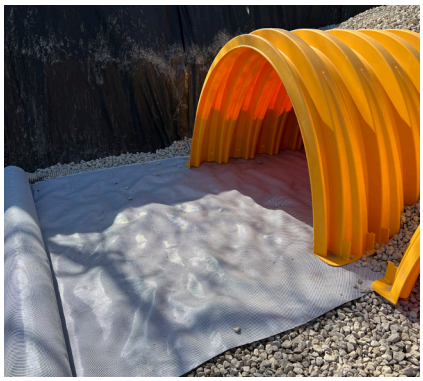
The Isolator Row Plus is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row Plus and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. After Stormwater flows through the Isolator Row Plus and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row Plus Flamp™ is a flared end ramp apparatus attached to the inlet pipe on the inside of the chamber end cap. The FLAMP provides a smooth transition from pipe invert to fabric bottom. It is configured to improve chamber function performance by enhancing outflow of solid debris that would otherwise collect at the chamber's end, or more difficult to remove and require confined space entry into the chamber area. It also serves to improve the fluid and solid flow into the access pipe during maintenance and cleaning and to guide cleaning and inspection equipment back into the inlet pipe when complete.

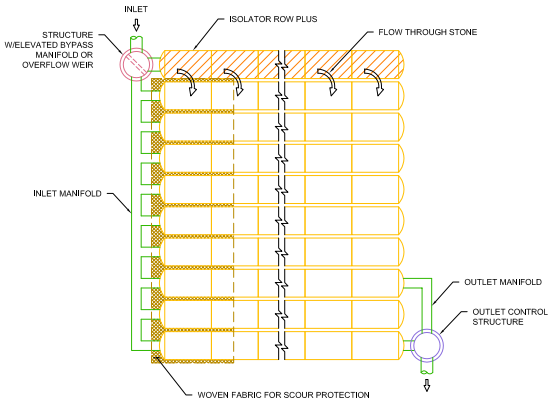
The Isolator Row Plus may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row Plus to minimize maintenance requirements and maintenance costs.

Note: *See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row Plus.*

Looking down the Isolator Row Plus from the manhole opening, ADS Plus Fabric is shown between the chamber and stone base.



StormTech Isolator Row Plus with Overflow Structure (not to scale)



Isolator Row Plus Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row Plus should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

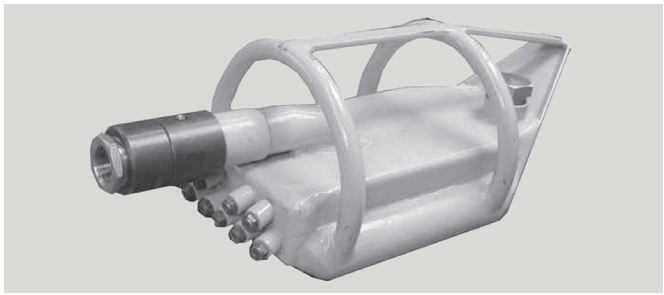
The Isolator Row Plus incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3" (75 mm) throughout the length of the Isolator Row Plus, clean-out should be performed.

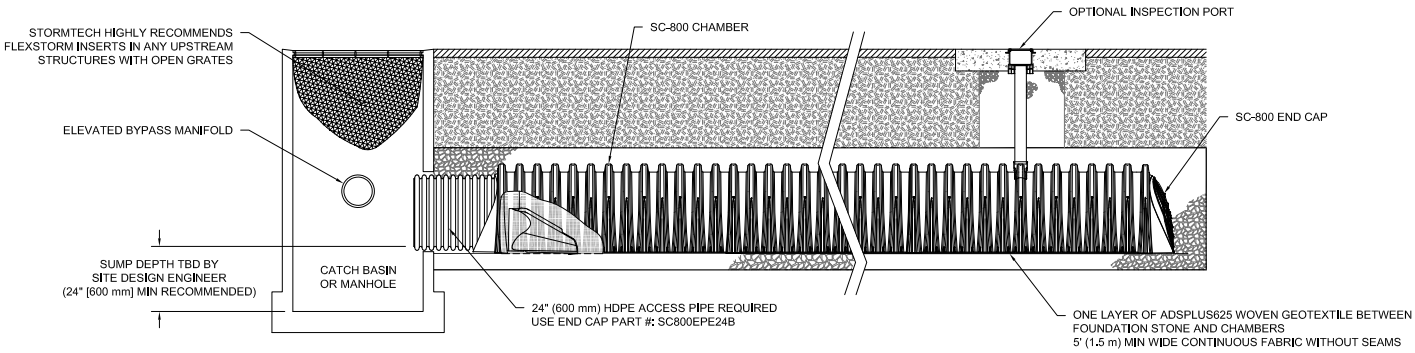
Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entry.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45” are best. StormTech recommends a maximum nozzle pressure of 2000 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row Plus lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Row Plus that have ADS Plus Fabric (as specified by StormTech) over their angular base stone.**



StormTech Isolator Row Plus (*not to scale*)



Isolator Row Plus Step By Step Maintenance Procedures

Step 1

Inspect Isolator Row Plus for sediment.

A) Inspection ports (if present)
   i. Remove lid from floor box frame
   ii. Remove cap from inspection riser
   iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
   iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.

B) All Isolator Row Plus
   i. Remove cover from manhole at upstream end of Isolator Row Plus
   ii. Using a flashlight, inspect down Isolator Row Plus through outlet pipe
      1. Mirrors on poles or cameras may be used to avoid a confined space entry
      2. Follow OSHA regulations for confined space entry if entering manhole
   iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2.
   If not, proceed to Step 3.

Step 2

Clean out Isolator Row Plus using the JetVac process.

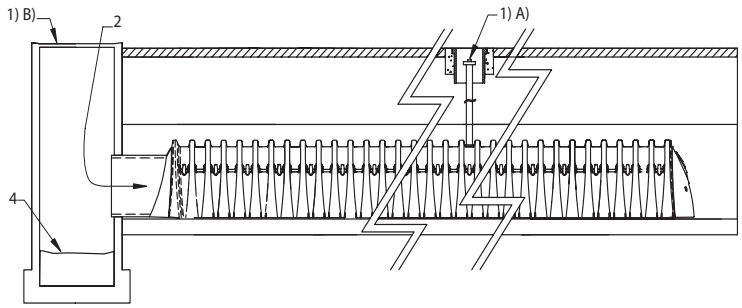
A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
B) Apply multiple passes of JetVac until backflush water is clean
C) Vacuum manhole sump as required

Step 3

Replace all caps, lids and covers, record observations and actions.

Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



Sample Maintenance Log

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row Plus, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

adspipe.com

800-821-6710

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StormTech® Installation Guide
MC-3500 & MC-4500 Chamber

StormTech
Installation Video

Required Materials and Equipment List

- Acceptable fill materials per Table 1
- ADS Plus and non-woven geotextile fabrics
- StormTech solid end caps, pre-cored and pre-fabricated end caps
- StormTech chambers, manifolds and fittings

Note: MC-3500 chamber pallets are 77" x 90" (2.0 m x 2.3 m) and weigh about 2010 lbs. (912 kg) and MC-4500 pallets are 100" x 52" (2.5 m x 1.3 m) and weigh about 840 lbs. (381 kg). Unloading chambers requires 72" (1.8 m) (min.) forks and/or tie downs (straps, chains, etc).

Important Notes:

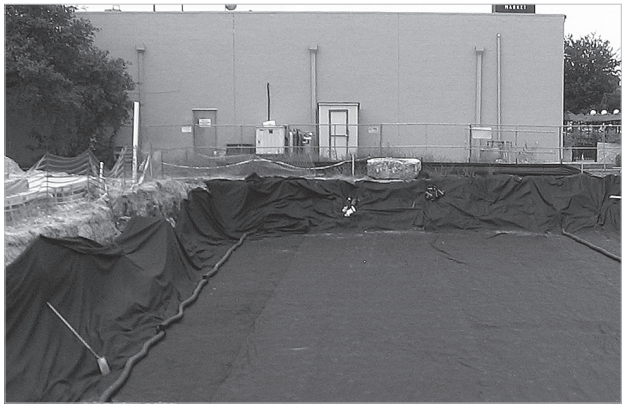
A. This installation guide provides the minimum requirements for proper installation of chambers. Nonadherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.

B. Use of a dozer to push embedment stone between the rows of chambers may cause damage to chambers and is not an acceptable backfill method. Any chambers damaged by using the "dump and push" method are not covered under the StormTech standard warranty.

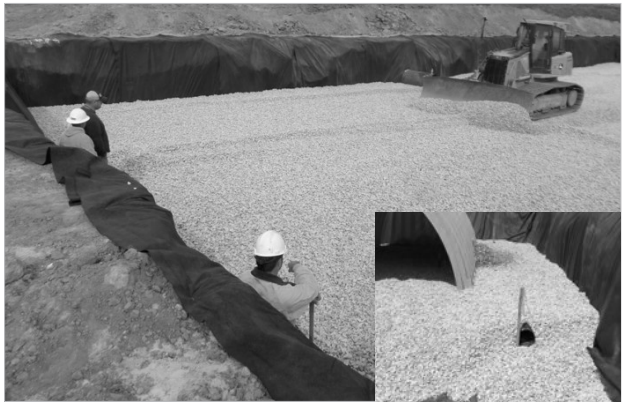
C. Care should be taken in the handling of chambers and end caps. End caps must be stored standing upright. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

Requirements for System Installation

Excavate bed and prepare subgrade per engineer's plans. Plans and specifications should include Best Management Practices (BMPs) to deter contamination of open pits during construction.



Place non-woven geotextile over prepared soils and up excavation walls.



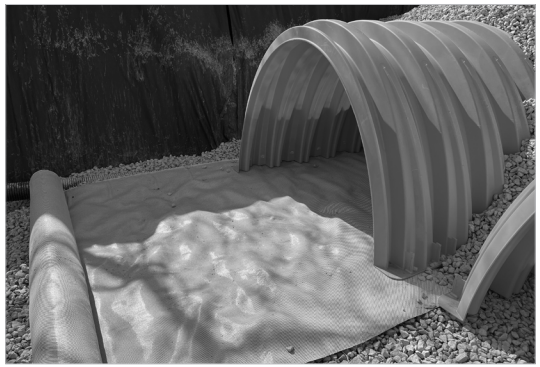
Place clean, crushed, angular stone foundation 9" (230 mm) min. Install underdrains if required. Compact to achieve a flat surface.

Manifold, Scour Fabric and Chamber Assembly

Install manifolds and lay out ADS PLUS fabric at inlet rows [min. 17.5 ft (5.33 m)] at each inlet end cap. Place a continuous piece (no seams) along entire length of Isolator® PLUS Row(s).

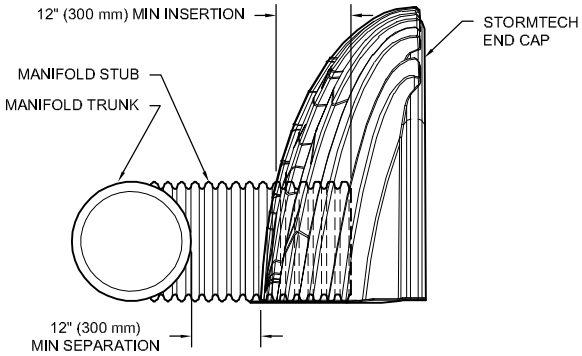
Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.

Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled “Lower Joint – Overlap Here” and “Build this direction – Upper Joint” Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. Maintain minimum 6” (150 mm) spacing between MC-3500 rows and 9” (230 mm) spacing between MC-4500 rows.



Place a continuous layer of ADS PLUS fabric between the foundation stone and the Isolator Row PLUS chambers, making sure the fabric lays flat and extends the entire width of the chamber feet.
When used on an Isolator Row PLUS, a 24” FLAMP (flared end ramp) is attached to the inside of the inlet pipe with a provided threaded rod and bolt. The FLAMP then lays on top of the ADS PLUS fabric.

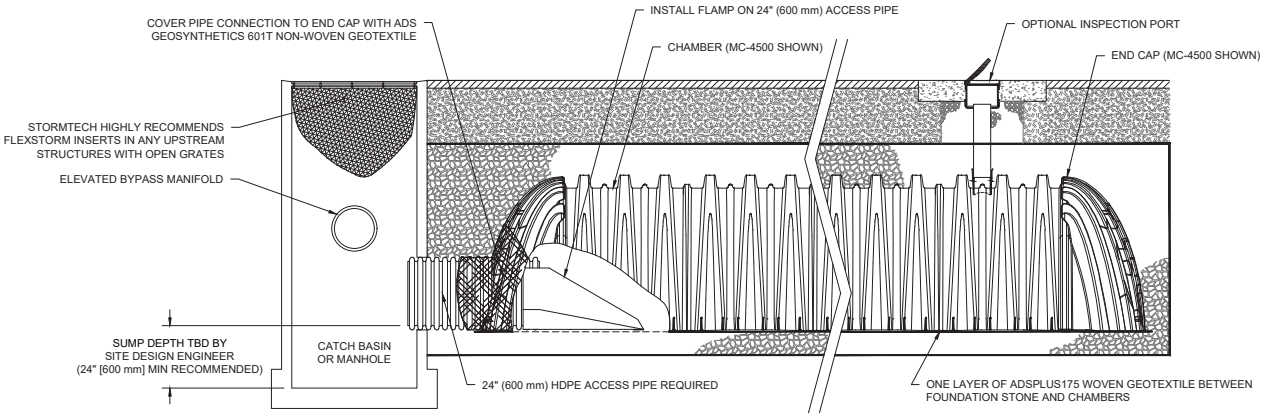
Manifold Insertion



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

Insert inlet and outlet manifolds a minimum 12” (300 mm) into chamber end caps. Manifold header should be a minimum 12” (300 mm) from base of end cap.

StormTech Isolator Row Plus Detail

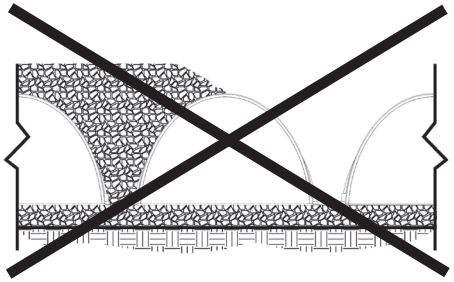


Initial Anchoring of Chambers – Embedment Stone

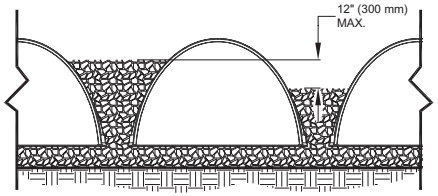
Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.

No equipment shall be operated on the bed at this stage of the installation. Excavators must be located off the bed. Dump trucks shall not dump stone directly on to the bed. Dozers or loaders are not allowed on the bed at this time.

Backfill of Chambers – Embedment Stone

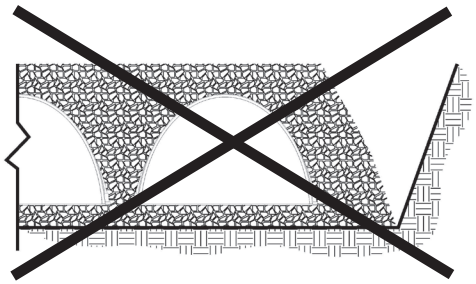


Uneven Backfill

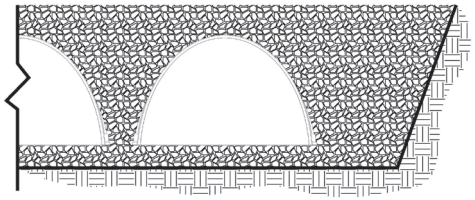


Even Backfill

Backfill chambers evenly. Stone column height should never differ by more than 12” (300 mm) between adjacent chamber rows or between chamber rows and perimeter.



Perimeter Not Backfilled

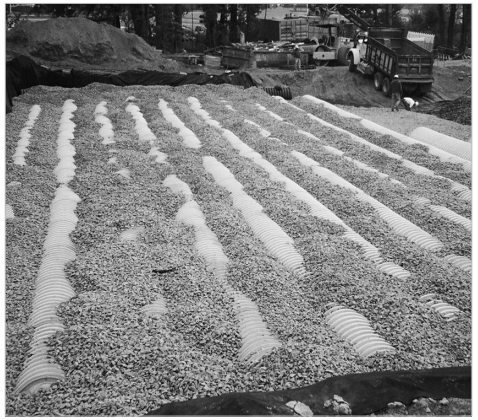


Perimeter Fully Backfilled

Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

Backfill of Chambers – Embedment Stone and Cover Stone

Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers and a minimum 12” (300 mm) of cover stone is in place. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls. The recommended backfill methods are with a stone conveyor outside of the bed or build as you go with an excavator inside the bed reaching along the rows. Backfilling while assembling chambers rows as shown in the picture will help to ensure that equipment reach is not exceeded.

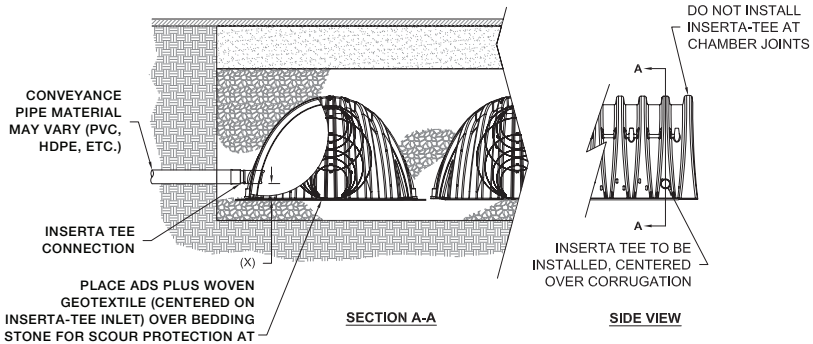


Only after chambers have been backfilled to top of chamber and with a minimum 12” (300 mm) of cover stone on top of chambers can skid loaders and small LGP dozers be used to final grade cover stone and backfill material in accordance with ground pressure limits in Table 2. Equipment must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends the contractor inspect chamber rows before placing final backfill. Any chambers damaged by construction equipment shall be removed and replaced.

Final Backfill of Chambers – Fill Material

Install non-woven geotextile over stone. Geotextile must overlap 24” (600 mm) where edges meet. Compact at 18” (450 mm) of fill for MC-3500 and 24” (600 mm) of fill for MC-4500. Roller travel parallel with rows.

Inserta Tee Detail



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
MC-3500	12" (250 mm)	6" (150 mm)
MC-4500	12" (250 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

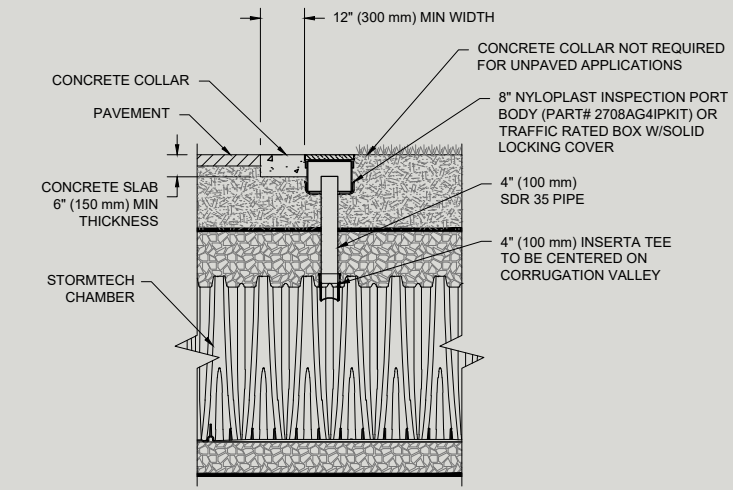
Table 1- Acceptable Fill Materials

Material Location	Description	AASHTO M43 Designation[1]	Compaction/Density Requirement
(D) **Final Fill:** Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that the pavement subbase may be part of the 'D' layer.	Any soil/rock materials, native soils or per engineer's plans. Check plans for pavement subgrade requirements.	N/A	Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.
(C) **Initial Fill:** Fill Material for layer 'C' starts from the top of the embedment stone ('B' layer) to 18" (450 mm) for MC-3500 and 24" (600 mm) for MC-4500 above the top of the chamber. Note that pavement subbase may be part of the 'C' layer.	Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. Most pavement subbase materials can be used in lieu of this layer.	AASHTO M145[1] A-1, A-2-4, A-3 or AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	Begin compaction after min. 18" (450 mm) for MC-3500 and 24" (600 mm) for MC-4500 of material over the chambers is reached. Compact additional layers in 12" (300 mm) max. lifts to a min. 95% Proctor density for well-graded material and 95% relative density for processed aggregate materials.
(B) **Embedment Stone:** Embedment Stone surrounding chambers from the foundation stone to the 'C' layer above.	Clean, crushed, angular stone or Recycled Concrete[4]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	No compaction required.
(A) **Foundation Stone:** Foundation Stone below the chambers from the subgrade up to the foot (bottom) of the chamber.	Clean, crushed, angular stone or Recycled Concrete[4]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	Place and compact in 9" (225 mm) lifts using two full coverages with a vibratory compactor.[2, 3]

Please Note:

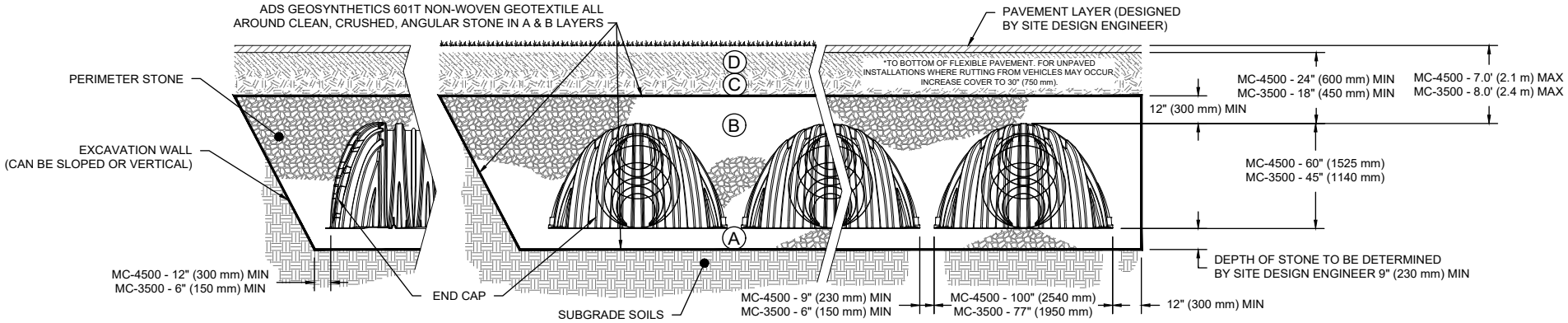
1. The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular no. 4 (AASHTO M43) stone".
2. StormTech compaction requirements are met for 'A' location materials when placed and compacted in 9" (230 mm) (max) lifts using two full coverages with a vibratory compactor.
3. Where infiltration surfaces may be comprised by compaction, for standard installations and standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact StormTech for compaction requirements.
4. Where recycled concrete aggregate is used in layers 'A' or 'B' the material should also meet the acceptable criteria outlined in ADS Technical Note 6.20 "Recycled Concrete Structural Backfill".

Figure 1- Inspection Port Detail



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

Figure 2 - Fill Material Locations



Notes:

1. 36" (900 mm) of stabilized cover materials over the chambers is recommended during the construction phase if general construction activities, such as full dump truck travel and dumping, are to occur over the bed.
2. During paving operations, dump truck axle loads on 18" (450mm) of cover for MC-3500s may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 18" (450mm) of cover for MC-3500s exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.
3. Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.
4. Mini-excavators (<8,000lbs/3,628 kg) can be used with at least 12" (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.
5. StormTech does not require compaction of initial fill at 18" (450 mm) of cover. However, requirements by others for 6" (150 mm) lifts may necessitate the use of small compactors at 18" (450 mm) of cover.
6. Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.
7. Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.

Call StormTech at **888.892.2694** for technical and product information or visit www.stormtech.com

Table 2 - Maximum Allowable Construction Vehicle Loads[6]

Material Location	Fill Depth over Chambers in. (mm)	Maximum Allowable Wheel Loads		Maximum Allowable Track Loads[6]		Maximum Allowable Roller Loads
		Max Axle Load for Trucks lbs (kN)	Max Wheel Load for Loaders lbs (kN)	Track Width in. (mm)	Max Ground Pressure psf (kPa)	Max Drum Weight or Dynamic Force lbs (kN)
Ⓓ Final Fill Material	36" (900) Compacted	32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	4050 (194) 2760 (132) 2130 (102) 1770 (84) 1530 (73)	38,000 (169)
Ⓒ Initial Fill Material	24" (600) Compacted	32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2750 (131) 1920 (92) 1520 (73) 1310 (63) 1180 (56)	20,000 (89)
	24" (600) Loose/Dumped	MC-3500 32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2430 (116) 1730 (82) 1390 (66) 1210 (58) 1100 (52)	16,000 (71)
		MC-4500 24,000 (107)	12,000 (53)			
	18" (450)	MC-3500 32,000 (142)	16,000 (71)	12" (305) 18" (457) 24" (610) 30" (762) 36" (914)	2140 (102) 1530 (73) 1260 (60) 1120 (53) 1030 (49)	5,000 (22) (static loads only)[5]
		MC-4500 24,000 (107)	12,000 (53)			
Ⓑ Embedment Stone	12" (300)	Not Allowed	Not Allowed	12" (305) 18" (457) 24" (610) 30" (762)	1100 (53) 710 (34) 660 (32) 580 (28)	Not Allowed
	6" (150)	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not Allowed

Table 3 - Placement Methods and Descriptions

Material Location	Placement Methods/ Restrictions	Wheel Load Restrictions	Track Load Restrictions	Roller Load Restrictions
		See Table 2 for Maximum Construction Loads		
Ⓓ Final Fill Material	A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.	36" (900 mm) minimum cover required for dump trucks to dump over chambers.	Dozers to push parallel to rows.[4]	Roller travel parallel to rows only until 36" (900 mm) compacted cover is reached.
Ⓒ Initial Fill Material	Excavator positioned off bed recommended. Small excavator allowed over chambers. Small dozer allowed.	Asphalt can be dumped into paver when compacted pavement subbase reaches 18" (450 mm) for MC-3500 and 24" (600 mm) for MC-4500 above top of chambers.	Small LGP track dozers & skid loaders allowed to grade cover stone with at least 12" (300 mm) stone under tracks at all times. Equipment must push parallel to rows at all times.	Use dynamic force of roller only after compacted fill depth reaches 18" (450 mm) for MC-3500 and 24" (600 mm) for MC-4500 over chambers. Roller travel parallel to chamber rows only.
Ⓑ Embedment Stone	No equipment allowed on bare chambers. Use excavator or stone conveyor positioned off bed or on foundation stone to evenly fill around all chambers to at least the top of chambers.	No wheel loads allowed. Material must be placed outside the limits of the chamber bed.	No tracked equipment is allowed on chambers until a min. 12" (300 mm) cover stone is in place.	No rollers allowed.
Ⓐ Foundation Stone	No StormTech restrictions. Contractor responsible for any conditions or requirements by others relative to subgrade bearing capacity, dewatering or protection of subgrade.			

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StormTech® Standard Limited Warranty

STANDARD LIMITED WARRANTY OF STORMTECH LLC ("STORMTECH"): PRODUCTS

(A) This Limited Warranty applies solely to the StormTech chambers and end plates manufactured by StormTech and sold to the original purchaser (the "Purchaser"). The chambers and end plates are collectively referred to as the "Products."

(B) The structural integrity of the Products, when installed strictly in accordance with StormTech's written installation instructions at the time of installation, are warranted to the Purchaser against defective materials and workmanship for one (1) year from the date of purchase. Should a defect appear in the Limited Warranty period, the Purchaser shall provide StormTech with written notice of the alleged defect at StormTech's corporate headquarters within ten (10) days of the discovery of the defect. The notice shall describe the alleged defect in reasonable detail. StormTech agrees to supply replacements for those Products determined by StormTech to be defective and covered by this Limited Warranty. The supply of replacement products is the sole remedy of the Purchaser for breaches of this Limited Warranty. StormTech's liability specifically excludes the cost of removal and/or installation of the Products.

(C) THIS LIMITED WARRANTY IS EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE PRODUCTS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

(D) This Limited Warranty only applies to the Products when the Products are installed in a single layer. UNDER NO CIRCUMSTANCES, SHALL THE PRODUCTS BE INSTALLED IN A MULTI-LAYER CONFIGURATION.

(E) No representative of StormTech has the authority to change this Limited Warranty in any manner or to extend this Limited Warranty. This Limited Warranty does not apply to any person other than to the Purchaser.

(F) Under no circumstances shall StormTech be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the Products, or the cost of other goods or services related to the purchase and installation of the Products. For this Limited Warranty to apply, the Products must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and StormTech's written installation instructions.

(G) THE LIMITED WARRANTY DOES NOT EXTEND TO INCIDENTAL, CONSEQUENTIAL, SPECIAL OR INDIRECT DAMAGES. STORMTECH SHALL NOT BE LIABLE FOR PENALTIES OR LIQUIDATED DAMAGES, INCLUDING LOSS OF PRODUCTION AND PROFITS; LABOR AND MATERIALS; OVERHEAD COSTS; OR OTHER LOSS OR EXPENSE INCURRED BY THE PURCHASER OR ANY THIRD PARTY. SPECIFICALLY EXCLUDED FROM LIMITED WARRANTY COVERAGE ARE DAMAGE TO THE PRODUCTS ARISING FROM ORDINARY WEAR AND TEAR; ALTERATION, ACCIDENT, MISUSE, ABUSE OR NEGLECT; THE PRODUCTS BEING SUBJECTED TO VEHICLE TRAFFIC OR OTHER CONDITIONS WHICH ARE NOT PERMITTED BY STORMTECH'S WRITTEN SPECIFICATIONS OR INSTALLATION INSTRUCTIONS; FAILURE TO MAINTAIN THE MINIMUM GROUND COVERS SET FORTH IN THE INSTALLATION INSTRUCTIONS; THE PLACEMENT OF IMPROPER MATERIALS INTO THE PRODUCTS; FAILURE OF THE PRODUCTS DUE TO IMPROPER SITING OR IMPROPER SIZING; OR ANY OTHER EVENT NOT CAUSED BY STORMTECH. A PRODUCT ALSO IS EXCLUDED FROM LIMITED WARRANTY COVERAGE IF SUCH PRODUCT IS USED IN A PROJECT OR SYSTEM IN WHICH ANY GEOTEXTILE PRODUCTS OTHER THAN THOSE PROVIDED BY ADVANCED DRAINAGE SYSTEMS ARE USED. THIS LIMITED WARRANTY REPRESENTS STORMTECH'S SOLE LIABILITY TO THE PURCHASER FOR CLAIMS RELATED TO THE PRODUCTS, WHETHER THE CLAIM IS BASED UPON CONTRACT, TORT, OR OTHER LEGAL THEORY.

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ADS 0601T/O NONWOVEN GEOTEXTILE SPECIFICATION

Scope

This specification describes ADS 0601T/O nonwoven geotextile.

Filter Fabric Requirements

ADS 0601T/O is an orange nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. ADS 0601T/O is inert to biological degradation and resists naturally encountered chemicals, alkali and acids. ADS 0601T/O conforms to the physical property values listed below:

Filter Fabric Properties

Property	Test Method	Unit	Typical Value[1] MD	Typical Value[1] CD
Grab Tensile Strength	ASTM D4632	lbs (N)	175 (779)	175 (779)
Grab Tensile Elongation	ASTM D4632	%	75	75
Trapezoid Tear Strength	ASTM D4533	lbs (N)	85 (378)	85 (378)
CBR Puncture Strength	ASTM D6241	lbs (N)	480 (2136)	480 (2136)
Permittivity	ASTM D4491	sec^{-1}	1.5	1.5
Flow Rate	ASTM D4491	$gal/min/ft^2$ ($l/min/m^2$)	105 (4278)	105 (4278)
UV Resistance (at 500 hours)[1]	ASTM D4355	% strength retained	80	80

Physical Properties

Property	Test Method	Unit	Typical Value[2]
Weight	ASTM D5161	oz/yd^2 (g/m^2)	6.5 (220)
Thickness	ASTM D5199	mils (mm)	65 (1.7)
Roll Dimensions (W x L)	-	ft (m)	15 x 300 (4.5 x 91)
Roll Area	-	yd^2 (m^2)	500 (418)
Estimated Roll Weight	-	lb (kg)	220 (100)

1 Modified, Minimum Test Value
2 ASTM D4439 Standard Terminology for Geosynthetics: typical value, n-*for geosynthetics*, the mean value calculated from documented manufacturing quality control test results for a defined population obtained from one test method associated with on specific property.

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ADS PLUS WOVEN GEOTEXTILE SPECIFICATION

For use with StormTech® Isolator® Row Plus

Scope

This specification describes ADS Plus woven geotextile.

ADS Plus woven geotextile fabrics are woven polypropylene materials offering optimum performance when used in stabilization applications. Produced from first quality raw materials, they provide the perfect balance of strength and separation in styles capable of functioning exceptionally well in a wide range of performance requirements.

Filter Fabric Properties

Property[1]	Test Method	Unit	M.A.R.V. (Minimum Average Roll Value)[2]
Weight	ASTM D5261	oz/yd^2 (g/m^2)	8.0 (271.25)
Grab Tensile Strength	ASTM D4632	lbs (kN)	325 (1.45)
Grab Elongation	ASTM D4632	%	15
Trapezoidal Tear Strength	ASTM D4533	lbs (kN)	125 (0.89)
CBR Puncture Resistance	ASTM D6241	lbs (kN)	1,124 (5.0)

1. The property values listed above are subject to change without notice.
2. Minimum Average Roll Values (MARV) is calculated as the average minus two standard deviations. Statistically, it yields approximately 97.5% degree of confidence that any samples taken from quality assurance testing will meet or exceed the values described above.

Dimensions

ADS Plus shall be delivered to the jobsite in roll form with each roll individually identified and nominally measuring 12.5’ (3.8 m) width x 360’ (110 m) length for Plus125 and 6.25’ (1.9 m) width x 360’ (110 m) length for Plus625.

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MONK & ASSOCIATES INC. – BIOLOGICAL CONSULTANTS
1136 Saranap Avenue Suite Q | Walnut Creek, CA 94595 | (925) 947-4867 | www.monkassociates.com

March 5, 2026

City Ventures
444 Spear Street Ste 200
San Francisco, California 94105
Contact: Mr. Kelso Barnett
Email: kbarnett@cityventures.com

Attention: Mr. Kelso Barnett

RE: Response to Sonoma County Consistency Letter Regarding Riparian Corridor Setback Along 21837 Geyserville Avenue Project Site Geyserville, California

Dear Mr. Barnett

On behalf of City Ventures (the applicant), Monk & Associates, Inc. (M&A) has prepared this letter for submittal to Sonoma County in response to the County's Consistency Letter which states:

> *The applicant proposes new buildings and development within a designated Riparian Corridor setback area. Policy OSRC-8d contains allowances for development within the Riparian Corridor if it can be proven that the affected area has no substantial value for riparian functions. Additional information stating that the affected area has no substantial value for riparian functions is required.*

The purpose of this letter is to provide sufficient information to demonstrate to the County that the project will not affect a Riparian Corridor and further, the area in question does not support a riparian canopy and provides no substantial riparian functions. Upon review of site photographs, the Sonoma County stormdrain system[1], Sonoma County Riparian Corridor RC[2] and the National Wetlands Inventory (NWI)[3], it is clear that what is being shown as a "Riparian Corridor (RC) with a 50-foot setback from top of bank" along the west side of the project site is an offsite concrete v-ditch on the west side of the freeway off-ramp (i.e. the opposite side of the off-ramp than the project site.) which daylights from a drop-inlet at the northern edge of the off-

[1] https://sonomacounty.maps.arcgis.com

[2] https://sonomacounty.maps.arcgis.com

[3] https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper

ramp and flows approximately 735 feet northwest along the west side of the freeway offramp before entering another drop inlet where it reenters the County's storm drain system. There is no woody vegetation such as trees or shrubs (i.e., riparian vegetation) associated with this v-ditch. Please note that there is no upstream NWI mapped feature or USGS blue-line feature that has surface connection to this v-ditch nor any indication of underground connection.

Several points should be considered with respect to the proposed project and the adjacent mapped designated RC setback area.

1) The CDFW does not typically consider concrete v-ditches to be part of Fish and Game Code (FGC) 1602 jurisdiction as they have ***no natural bed and bank*** as well as minimal functions and services, conveyance of stormwater. This v-ditch runs along the shoulder of a freeway off-ramp and is comprised primarily of upland, non-native ruderal herbaceous vegetation on either side of this concrete-lined feature as it is a managed roadside. There is no riparian vegetation associated with this man-made feature or any adjacent wetlands. It is a feature that was purely constructed in uplands to convey road runoff and stormwater.

2) Given that the Riparian Combining Zone Area Planning Area 2 for Cloverdale/N.E. County Map is "for illustrative purposes only" and "the Riparian Corridor Setback shown on this map is approximate," it is important to note that the actual concrete v-ditch (to which the RC setback is referring) is on the ***opposite side of the freeway off-ramp from the project site and is, in actuality, more than 65 feet west of the project site.*** This would put the proposed project more than 50 feet from the concrete v-ditch, thus ***adhering to the County-required setback and putting the v-ditch well outside any area of affect for this project.***

3) Excepting the northwest most corner of the project site (which is essentially level with the roadway), the entire western side of the project site is lower than the offsite concrete v-ditch on the west side of the off-ramp (i.e. water will flow from the off-ramp down to the project site) so no overland flows from the project will reach the v-ditch. Further, a Storm Water Pollution Prevention Plan will ensure that no sediment is conveyed to the ditch or any downstream receiving waters.

In summary, the concrete v-ditch has minimal functions and services, is limited solely to stormwater conveyance with no natural bed and bank, no riparian vegetation or adjacent potential wetlands and would not be considered a "stream" and within FGC 1602 jurisdiction. Further, upon ground-truthing and analysis of aerial photography, the concrete v-ditch which is the only conveyance of flows, either daylighted or as underground mapped County stormdrain system, located in the vicinity of the mapped RC setback that overlaps with the project site, is located *more than 65 feet from the project site* and **outside** the required 50-foot setback under Article 65 of Sonoma County Code.

Should you have any questions or wish to discuss any other aspect of this project, please do not hesitate to contact me at (925) 947-4867 extension 206 or Christy@monkassociates.com.

Sincerely,

Christy Owens

Christy Owens
Associate Biologist

CITY VENTURES
21837 GEYSERVILLE AVE.
GEYSERVILLE SONOMA COUNTY CALIFORNIA

GARDCO by Signify

Site & Area

PureForm

LED post top with comfort optics

Gardco PureForm LED post top features a sleek, low profile design. Comfort optics are designed to enhance visual comfort by reducing glare. Type 1, 2, 3, and 5 optical distributions are available with lumen output up to 9000 lumens. A full range of control options provides additional energy savings. Optional integral emergency battery backup is available for path-of-egress illumination.

Project:
Location:
Cat.No:
Type:
Lamps: Qty:
Notes:

Ordering guide

example: PPT-140L-450-NW-G2-T3-1-UNV-DGY

Prefix	Number of LEDs	Drive Current	LED Color - Generation	Mounting	Distribution	Emergency	Voltage
PPT							
PPT PureForm post top, comfort optics	140L 140 LEDs	450 450mA 650 650mA 1150 1150mA [1] 1675 1675mA [1] 2100 2100mA [1,2]	WW-G2 Warm White 3000K, 70 CRI Generation 2 NW-G2 Neutral White 4000K, 70 CRI Generation 2 CW-G2 Cool White 5000K, 70 CRI Generation 2 WY-G2 Warm Yellow 2700K, 80 CRI Generation 2 [3] AM-G2 Direct Amber (590nm) Generation 2 [3]	T3 Mounts to a 3" x 4" Tenon (standard) T2 Mounts to a 2-3/8" x 4" Tenon (must be ordered and shipped as a separate accessory)	1 Comfort Type 1 2 Comfort Type 2 3 Comfort Type 3 5 Comfort Type 5	Leave blank for no battery EBPC Emergency battery pack cold weather [2,4,5,6,7] EBP Emergency battery pack [1,4,5,7]	120 120V 208 208V 240 240V 277 277V 347 347V 480 480V UNV 120-277V (50/60Hz) HVU 347-480V (50/60Hz)

Options

Dimming controls	Motion sensing	Photo-sensing	Electrical	Finish
DD 0-10V External dimming (by others) [4] FAWS Field Adjustable [4,5] SW Interface module for SiteWise [4,6,8] LLC3 Integral wireless module with #3 lens [4,5,6,7] BL Bi-level functionary with motion sensor [4] DynaDimmer: Automatic Profile Dimming [4,7] CS50 Security 50% Dimming, 7 hours CM50 Median 50% Dimming, 8 hours CE50 Economy 50% Dimming, 9 hours DA50 All Night 50% Dimming CS30 Security 30% Dimming, 7 hours CM30 Median 30% Dimming, 8 hours CE30 Economy 30% Dimming, 9 hours DA30 All Night 30% Dimming	IMRI3 Integral with #3 lens	PCB Photocontrol Button [7,9] TLRD5 Twist Lock Receptacle 5 Pin [10] TLRD7 Twist Lock Receptacle 7 Pin [10] TLRPC Twist Lock Receptacle w/Photocell [6,9]	Fusing F1 Single (120, 277, 347VAC) [9] F2 Double (208, 240, 480VAC) [9] F3 Canadian Double Pull (208, 240, 480VAC) [9] Surge Protection (10kA standard) SP2 Increased 20kA	Textured BK Black WH White BZ Bronze DGY Dark Gray MGY Medium Gray Customer specified RAL Specify optional color or RAL (ex: RAL7024) CC Custom color (Must supply color chip for required factory quote)

1. 1150, 1675, and 2100mA not available with emergency battery backup (EBP).
2. 2100mA not available with emergency battery backup cold weather (EBPC).
3. Extended lead times apply. Contact factory for details.
4. Not available with other control options.
5. Not available with motion sensor.
6. Not available with photocontrol.
7. Not available in 347 or 480V.
8. Available only in 120 or 277V.
9. Must specify input voltage.
10. Dimming will not be connected to NEMA receptacle if ordering with other control options.
11. Not available in 480V

DLC cULus

PPT PureForm LED post top

Site & Area – with Comfort Optics

PureForm Accessories (order separately)

PPT-T2
Post top tenon adapter for 2 3/8" x 4"

LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type 1 Lumen Output	Type 1 BUG Rating	Type 1 Efficacy (LPW)	Type 2 Lumen Output	Type 2 BUG Rating	Type 2 Efficacy (LPW)	Type 3 Lumen Output	Type 3 BUG Rating	Type 3 Efficacy (LPW)	Type 5 Lumen Output	Type 5 BUG Rating	Type 5 Efficacy (LPW)
PPT-140L-450-NW-G2-x-UNV	140	450	4000	22	1971	B1-U0-G1	88	1951	B1-U0-G1	87	2421	B1-U0-G1	109	2254	B1-U0-G1	101
PPT-140L-650-NW-G2-x-UNV	140	650	4000	30	2636	B1-U0-G1	87	2609	B1-U0-G1	86	3237	B1-U0-G1	106	3014	B2-U0-G1	99
PPT-140L-1150-NW-G2-x-UNV	140	1150	4000	52	4736	B2-U0-G2	91	4686	B2-U0-G2	90	5816	B2-U0-G2	111	5415	B3-U0-G2	104
PPT-140L-1675-NW-G2-x-UNV	140	1675	4000	75	6574	B3-U0-G3	87	6506	B2-U0-G2	86	8074	B2-U0-G3	106	7517	B3-U0-G2	99
PPT-140L-2100-NW-G2-x-UNV	140	2100	4000	96	7871	B3-U0-G3	82	7789	B3-U0-G3	81	9011	B3-U0-G3	94	8999	B3-U0-G2	94

Values from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental variables, LED and driver tolerances, and field measurement considerations. It is highly recommended to confirm performance with a photometric layout.

NOTE: Some data may be scaled based on tests of similar (but not identical) luminaires. Contact factory for configurations not shown.

LED Wattage and lumen values (Emergency Mode)

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Temp. Range (°C)	Avg. System Watts Normal Mode	Avg. System Watts Emergency Mode	Type 1 Normal Mode	Type 1 Emergency Mode	Type 2 Normal Mode	Type 2 Emergency Mode	Type 3 Normal Mode	Type 3 Emergency Mode	Type 5 Normal Mode	Type 5 Emergency Mode
PPT-140L-450-NW-G2-x-EBP-UNV	140	450	4000	0 to 40	22	10	1971	1526	1951	1510	2421	1747	2254	1744
PPT-140L-650-NW-G2-x-EBP-UNV	140	650	4000	0 to 40	30	10	2636	1526	2609	1510	3237	1747	3014	1744
PPT-140L-450-NW-G2-x-EBPC-UNV	140	450	4000	-20 to 40	22	18	1971	2178	1951	2155	2421	2493	2254	2490
PPT-140L-650-NW-G2-x-EBPC-UNV	140	650	4000	-20 to 40	30	18	2636	2178	2609	2155	3237	2493	3014	2490
PPT-140L-1150-NW-G2-x-EBPC-UNV	140	1150	4000	-20 to 40	52	18	4736	2178	4686	2155	5816	2493	5415	2490
PPT-140L-1675-NW-G2-x-EBPC-UNV	140	1675	4000	-20 to 40	75	18	6574	2178	6506	2155	8074	2493	7517	2490

For emergency EBPC and EBP option, publish values are based on initial lumens.

Predicted Lumen Depreciation Data

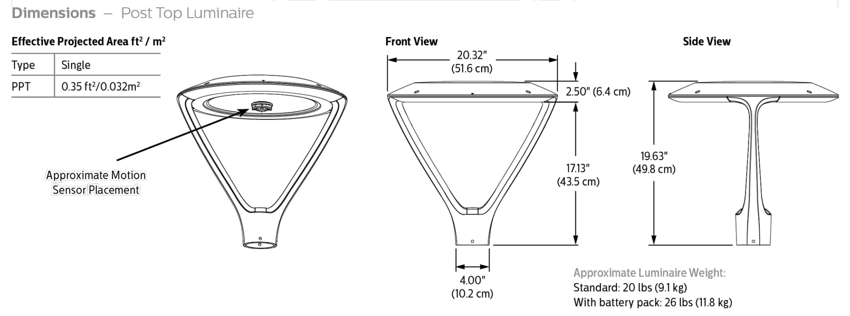
Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours

Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 2100mA	>100,000 hours	>60,000 hours	>84%

Dimensions – Post Top Luminaire

Effective Projected Area ft² / m²

Type	Single
PPT	0.35 ft²/0.032m²



Approximate Luminaire Weight:
Standard: 20 lbs (9.1 kg)
With battery pack: 26 lbs (11.8 kg)

LEGEND

ESL	EXISTING STREET LIGHT CONDUIT
SL	PROPOSED STREET LIGHT CONDUIT
X'(XX"S.L. COND.)	STREET LIGHTING CONDUIT LABEL, X' INDICATES CONDUIT LENGTH, (XX"S.L. COND.) INDICATES CONDUIT SIZE
X'(XX)	STREET LIGHTING WIRE LABEL, X' INDICATES WIRE LENGTH, (XX) INDICATES WIRE TYPE.
(2W)	2-#8 CU. WIRE (SEE NOTE 15)
(3W)	3-#8 CU. WIRE (SEE NOTE 15)
(3WG)	2-#8 CU. WIRE & 1-#8 BARE CU. GROUND (UNLESS OTHERWISE NOTED); SEE NOTE 15 & GROUNDING DETAIL
(4WG)	3-#8 CU. WIRE & 1-#8 BARE CU. GROUND (UNLESS OTHERWISE NOTED); SEE NOTE 15 & GROUNDING DETAIL
	EXISTING TRAFFIC SIGNAL
	STREET LIGHTING PULL BOX STATE TYPE #3 1/2, 10" x 17" x 12"
	STREET LIGHTING GROUND BOX STATE TYPE #5, 13" x 24" x 12"
	PROPOSED PRIVATE STREET LIGHT, POST TOP
	PROPOSED PRIVATE LIGHTING BOLLARD
	PROPOSED EXTERIOR GARAGE LIGHT, WALL MOUNT (BY OTHERS)
	PROPOSED EXTERIOR FRONT LIGHT, WALL MOUNT (BY OTHERS)
	EXISTING STREET LIGHT, POST TOP
	EXISTING STREET LIGHT, SINGLE ARM
(X)	CIRCUIT NUMBER/PHASE (SEE ELECTRIC SOURCE DETAILS)
(XXXX)	POLE NUMBER
POS	STREET LIGHT POINT OF SERVICE
F/C	FACE OF CURB

CONSTRUCTION LABOR AND MATERIAL RESPONSIBILITY

STREET LIGHTING SYSTEM (PRIVATE)

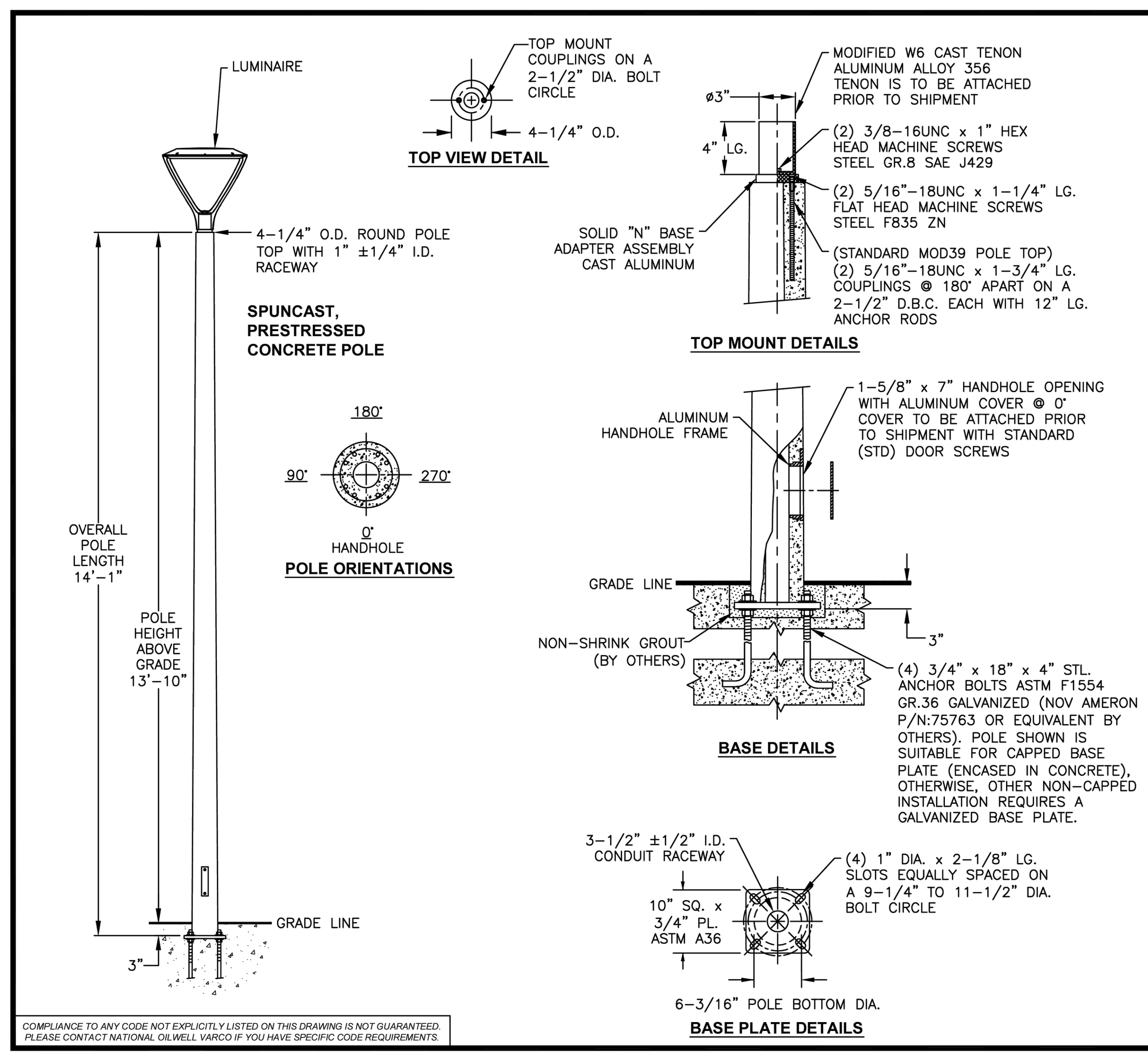
	P.G.&E.	CONTRACTOR
WIRE: FURNISH	○	●
WIRE: INSTALL	○	●
CONDUIT: FURNISH	○	●
CONDUIT: INSTALL	○	●
BASES: FURNISH	○	●
BASES: INSTALL	○	●
LUMINAIRES: FURNISH	○	●
LUMINAIRES: INSTALL	○	●
SPLICE BOXES: FURNISH	○	●
SPLICE BOXES: INSTALL	○	●
SPLICE BOXES: EXCAVATE	○	●
POLES & ARMS: FURNISH	○	●
POLES & ARMS: INSTALL	○	●

SCHEDULE: LS3
INSTALL IN JOINT TRENCH: NO
INSTALL IN SEPARATE TRENCH: YES
CONDUIT SIZE: 2"
CONDUIT TYPE: SCH. 40
WIRE SIZE: VARIES TYPE: CU

ADDITIONAL NOTES:
-PRIVATE LIGHTS TO BE MAINTAINED BY H.O.A (HOMEOWNER ASSOCIATION) UPON TRACT ACCEPTANCE.

STREET LIGHTING NOTES

1. ALL MATERIAL AND WORKMANSHIP SHALL FULLY CONFORM WITH THE NATIONAL ELECTRIC CODE AND STANDARD SPECIFICATIONS AND DETAILS OF THE CITY OF GEYSERVILLE.
2. THE ELECTRICAL CONTRACTOR SHALL INSTALL THE UNDERGROUND SERVICE FROM THE LUMINAIRE TO H.O.A. SERVICE POINT AND TERMINATE CONDUIT AND WIRES AT BOX AS DIRECTED BY THE CITY.
3. KEEP STREET LIGHTS A MINIMUM OF 3 FEET AWAY FROM THE EDGE OF DRIVEWAYS, SEWER AND WATER LATERALS AND 5 FEET AWAY FROM FIRE HYDRANTS & CATCH BASINS.
4. TWO OR MORE STREET LIGHTS ON THE SAME CIRCUIT SHALL BE WIRED TO BALANCE THE LOAD. (SEE WIRING DIAGRAM), UNLESS OTHERWISE NOTED.
5. CONDUIT AND FITTINGS: ALL CONDUIT AND FITTINGS SHALL BE U.L. APPROVED SCHEDULE 40 P.V.C., USE MINIMUM 2" SCH. 40 P.V.C. CONDUIT AND FITTINGS BELOW GRADE, UNLESS OTHERWISE NOTED OR REQUIRED. MINIMUM RADIUS BENDS SHALL BE 18". FOR ABOVE GROUND INSTALLATION USE METALLIC RIGID STEEL CONDUIT. PROVIDE PULL WIRE IN EMPTY CONDUITS. ALL CROSSINGS TO BE PERPENDICULAR TO STREET.
6. CONDUIT DEPTH: 24" UNDER SIDEWALK: 24" UNDER PLANTER STRIP: 30" UNDER PAVEMENT.
7. CABLE: CABLE SHALL BE U.L. A.W.G. NO. 8, 7-STRAND SOFT COPPER, TYPE THW OR THWN WITH MINIMUM OF 3/64" (40 MIL) POLYVINYL CHLORIDE INSULATION, UNLESS OTHERWISE NOTED. U.L. LISTED 600 VOLT, NO. 10 IN POLE MAY BE USED (40 MIL INSULATION).
8. SPLICE BOXES: SPLICE BOXES SHALL BE NO. 3-1/2 STATE TYPE WITH LID AND BRASS HOLD DOWN BOLTS, UNLESS OTHERWISE NOTED. LIDS TO BE INSCRIBED 'STREET LIGHTING'. SPLICE BOXES SHALL NOT BE MORE THAN 200 FEET APART ON LONG RUNS. SPLICE BOXES TO BE SET ON A CONCRETE FOOTING WHEN SUBJECT TO TRAFFIC LOAD.
9. FUSES: EACH POLE SHALL BE FUSED WITH WATERPROOF IN-LINE FUSE HOLDERS AT EACH ADJACENT BOX WITH 5 AMP FUSE. FOR DUPLEX LIGHTS, EACH LUMINAIRE SHALL BE FUSED SEPARATELY.
10. SPLICING: ALL SPLICES SHALL BE MADE IN HAND HOLES OR SPLICE BOXES ONLY. SPLICES SHALL BE MADE WITH "STACK -ON" CRIMP JOINTS, "SCOTCH LOCK" FASTENERS, OR APPROVED EQUAL. ON SPLICES MADE BELOW GRADE, WRAP WITH MOISTURE PROOF INSULATION THICKNESS.
11. POLE NUMBERS: OBTAIN AND PLACE POLE NUMBERS ON ALL STREET LIGHT STANDARDS AS REQUIRED. COORDINATE WITH PG&E AND/OR CITY FOR THEIR REQUIREMENTS.
12. TRENCH: CONDUIT CANNOT BE PLACED IN JOINT TRENCH. THE CONDUIT LAYOUT IS SHOWN SCHEMATICALLY. SEE COMPOSITE DRAWING FOR TRENCH AND BOX LOCATIONS. ANY INCIDENTAL TRENCHING NOT PROVIDED BY TRENCHING AGENT IS CONTRACTOR'S RESPONSIBILITY.
13. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT FIRST NOTIFYING TARRAR UTILITY CONSULTANTS.
14. TARRAR UTILITY CONSULTANTS ASSUMES NO RESPONSIBILITY FOR ANY VARIANCE BETWEEN THESE PLANS AND THE ACTUAL FIELD CONDITIONS. CONTRACTOR SHOULD REVIEW PROJECT SITE PRIOR TO SUBMITTING ITS BID.
15. CONTRACTOR TO CONSULT WITH LOCAL AGENCIES FOR THEIR CIRCUIT GROUNDING REQUIREMENTS. IF GROUND WIRE IS REQUIRED IN CONDUIT, INSTALL ACCORDINGLY.
16. LEGEND SYMBOLS ARE SHOWN IN STREET AREA FOR CLARITY. INSTALL BEHIND CURB AND/OR SIDEWALK PER THE CITY SPECIFICATIONS KEEP CLEAR OF DRIVEWAYS AND PATHWAYS (TYPICAL).
17. CENTERLINE OF STREET LIGHTS SHALL BE LOCATED ON THE LOT LINE UNLESS OTHERWISE NOTED ON THESE PLANS.
18. ANY CHANGES OR MODIFICATIONS TO PROPOSED STREET LIGHT LOCATIONS SHALL BE APPROVED, IN WRITING, BY THE CITY PRIOR TO INSTALLATION.
19. SET ALL STREET LIGHTS TO ULTIMATE FINISHED GRADE. CONSULT WITH CITY FOR PROPER PHYSICAL PROTECTION AND/OR SIGNING AND STRIPING ADJACENT TO ANY STREET LIGHTS INSTALLED IN THEIR ULTIMATE LOCATIONS THAT ARE NOT PROTECTED BY A VERTICAL CURB. BERM AND COMPACT EARTH TO FINISHED GRADE A MINIMUM OF 5' AROUND STREET LIGHT BASES AT THESE LOCATIONS.
20. CONTACT U.S.A. (2) FULL WORKING DAYS PRIOR TO STARTING WORK IF EXISTING UTILITIES CONFLICT WITH POLE LOCATION, FIELD ADJUST TO CLEAR EXISTING UTILITIES A MINIMUM OF 3'-0".
21. STREET LIGHT CONDUIT BENDS SHALL HAVE A MINIMUM 18" RADIUS. UNLESS OTHERWISE SHOWN ON THE PLANS, NO BEND SHALL BE INSTALLED IN THE STREET LIGHT SYSTEM WITHOUT PRIOR APPROVAL OF THE CITY INSPECTOR.
22. ALL BOXES ARE TO BE INSTALLED WITHIN THE R/W AND/OR P.U.E. AREA.



REV.	DATE	DESCRIPTION	DRN.	APPR.

"F" LEVEL CONFIG CODES

OPTION CLASS	ENTRY	INFO.
COATING	I	
HH COVER	66516E	
DOOR SCRS	STD	

"P" LEVEL CONFIG CODES

OPTION CLASS	ENTRY	INFO.
MIX	51	
FINISH	3	
BASEPLATE	45313	NOTE 8
POLE TOP CON.	MOD39	

CONTEMPORARY ROUND BASE PLATE POLE

POLE DESIG-NATION	POLE HEIGHT ABOVE GRADE	OVERALL POLE LENGTH	BOLT CIRCLE	BASE O.D.	ULTIMATE G.L. MOMENT (ft.-lbs.)	POLE WEIGHT (lbs.)
1C614	13'-10"	14'-1"	9-3/4"	6-3/16"	8,800	320

( ) POLES REQUIRED, EACH WITH:
(1) MODIFIED W6 CAST AL TENON ASSEMBLY Ø3" X 4" LG. (P/N: 40093EM4A)
(1) TENON SOLID N-BASE ASSEMBLY (P/N: 40021E-1A)
(4) 3/4" X 18" X 4" GR 36 ANCHOR BOLTS (P/N: 75763)

NOTES:
1. MIX (513I): BROWN NATURAL, EXPOSED AGGREGATE FINISH, WITH AMERSHIELD ANTI-GRAFFITI COATING.
2. ASTM C-150 TYPE III GRAY CEMENT.
3. f'c @ 28 DAYS = 6,000 PSI, USING SPUN CYLINDER TEST.
4. f'c @ 28 DAYS = 5,000 PSI, USING ASTM C-31 CYLINDER TEST.
5. POLES MANUFACTURED PER ASTM C-1089-13 SPECIFICATIONS.
6. PROTECTIVE COAT EXPOSED P.C. WIRES AT POLE ENDS.
7. BASEPLATE ASTM A36, FULLY PRESTRESSED WITH (4) 5/16" DIA. PRESTRESSING CABLES (ASTM A-416).
8. POLE SHOWN IS SUITABLE FOR CAPPED BASE PLATE (ENCASED IN CONCRETE), OTHERWISE, OTHER NON-CAPPED INSTALLATION REQUIRES A GALVANIZED BASE PLATE.
9. THE POLE (& IMPLIED TENON TOP ASSEMBLY) DEPICTED ON THIS DRAWING IS DESIGNED TO WITHSTAND THE LOADS IMPARTED BY A SINGLE POST TOP LUMINAIRE (NOT TO EXCEED 2.5 SQ. FT. EPA, 50 LBS.) AS DESIGNED PER THE 2013 AASHTO LTS-6 USING A 90 MPH WIND ZONE (3-SECOND GUSTS) CRITERIA FOR STREET LIGHT POLES. NO TORSIONAL LOADS (ARM OR TWIST) ANALYZED. PLEASE CONTACT & ADVISE MANUFACTURER IF INTENDED LOADING EXCEEDS THESE VALUES.

APPROVED BY DATE

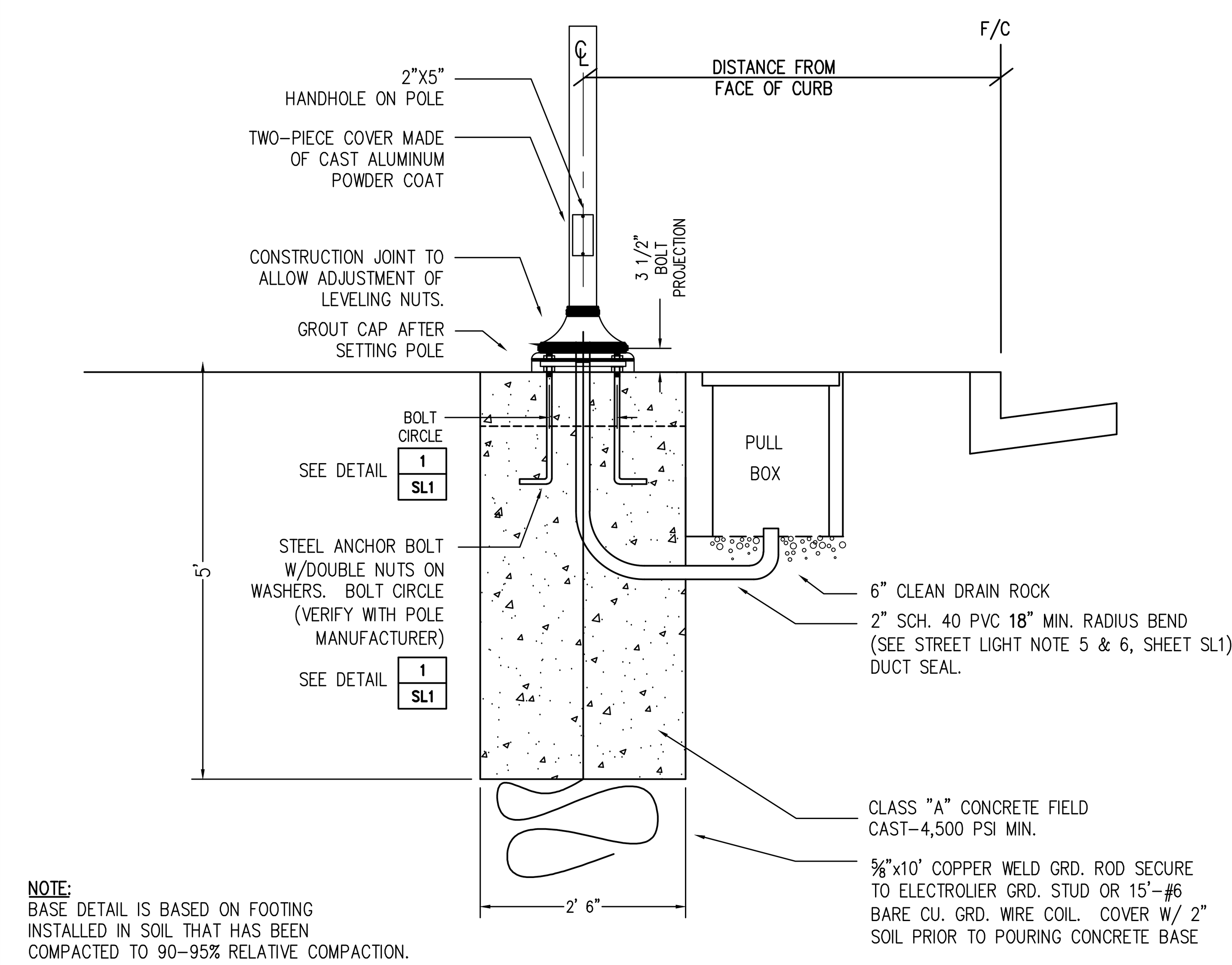
C614 POLE WITH TENON ASSEMBLY

THIS DOCUMENT CONTAINS INFORMATION WHICH IS PROPRIETARY TO NATIONAL OILWELL VARCO. IT SHALL NOT BE REPRODUCED, USED OR DISCLOSED TO ANYONE WITHOUT THE PRIOR WRITTEN PERMISSION OF NATIONAL OILWELL VARCO.

Ameron | DRAWN: A.F. | DATE: 05/31/2019 | SCALE: N.T.S. | DWG. NO. 1905-069 | REV –

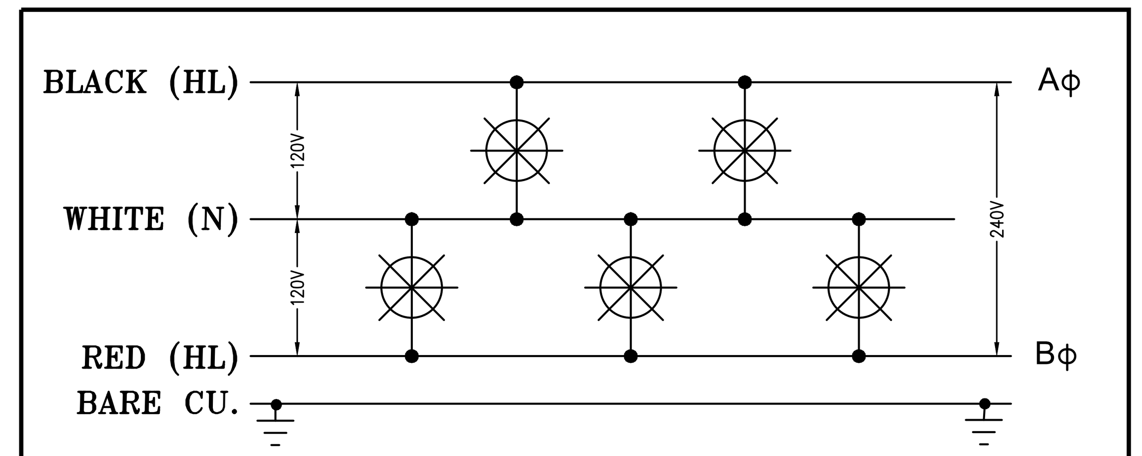
MANUFACTURER REP.:
ASSOCIATED LIGHTING REPS., INC.
(510) 295-3520
OAKLAND, CA
REP: KRISTIAN REYES

1 / SL1 — PRIVATE STREET LIGHT DETAIL
NOT TO SCALE



NOTE:
BASE DETAIL IS BASED ON FOOTING INSTALLED IN SOIL THAT HAS BEEN COMPACTED TO 90-95% RELATIVE COMPACTION.

2 / SL1 — STREET LIGHT FOUNDATION DETAIL
NOT TO SCALE



120/240 VOLT WIRING DIAGRAM
SEE GENERAL NOTE #4
NOT TO SCALE

FOR REVIEW ONLY

813 First Street
Brentwood, CA 94513
(925) 240-2595
(925) 240-7013 fax
www.tarrar.com

TARRAR UTILITY CONSULTANTS

- Planning
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- Joint Trench
- Street Lighting
- Fiber Optic
- T-24
- PG&E Gas Design
- PG&E Elec Design
- M.E.P. Design
- Cost Analysis
- Due Diligence

STREET LIGHTING GENERAL NOTES AND DETAILS

CITY VENTURES
21837 GEYSERVILLE AVE.
GEYSERVILLE CALIFORNIA

NO.	REVISIONS	BY	DATE

DATE: DECEMBER 2024 | DATE LAST WORKED ON: 3/3/2026
SCALE: NOT TO SCALE | DRAWN: SM | CHECKED: KT
JOB NO.: 224170 | PRELIMINARY NOT FOR CONSTRUCTION
INTENT TO CONSTRUCT

811 CALL BEFORE YOU DIG USA UNDERGROUND SERVICE ALERT

SHEET SL1 OF SL3 SHEETS

GARDCO

Site and Area

PureForm

PBL LED bollard

Gardco PureForm LED bollard PBL integrates a sleek, low profile design, extraordinary light output, and energy savings into an innovative pedestrian scale luminaire. PureForm bollard features a high performance optical system designed to achieve wide spacings and full cutoff performance. Three heights available for a customized look. IP66 optics ensure dust or moisture will never interfere with performance.

Project:	21837 GEYSERVILLE AVENUE
Location:	GEYSERVILLE
Cat.No:	PBL-42-14L-200-NW-G2-3-UNV
Type:	
Lamps:	Qty: 26
Notes:	

Ordering guide

example: PBL-42-14L-450-NW-G2-5-UNV

Luminaire	Shaft Height	Number of LEDs	Drive Current	LED Color – generation	Distribution	Emergency	Voltage
PBL	42	14L	200	NW-G2	3		UNV
PBL PureForm bollard	36 Standard Shaft 36" 42 Standard Shaft 42" 60 Standard Shaft 60"	14L 14 LEDs (full ring)	100 100mA 200 200mA 350 350mA 450 450mA 600 600mA 800 800mA 1050 1050mA	WW-G2 Warm White 3000K, 80CRI Generation 2 NW-G2 Neutral White 4000K, 80CRI Generation 2 CW-G2 Cool White 5000K, 80CRI Generation 2	Type 3 3 Type 3 Type 5 5 Type 5	Leave blank for no battery EBP Emergency battery [2,7,10]	120 120V 208 208V 240 240V 277 277V 347 347V 480 480V UNV 120-277V (50/60hZ)

Options

Dimming controls	Motion Sensing	Photo-sensing	Electrical	Finish
DD 0-10V External dimming (by others) [3,4] FAWS Field Adjustable [3,4] LLC Wireless controls without PIR sensor [3,4,5] BL Bi-level functionary with motion sensor [3,11]	IMRI Integral Infrared [6,11]	PCB Photocontrol button [8,10,12]	Fusing F1 Single (120, 277, 347VAC)[8] F2 Double (208, 240, 480VAC)[8] F3 Canadian Double Pull (208, 240, 480VAC)[8]	Textured BK Black WH White BZ Bronze DGY Dark Gray MDY Medium Gray
DynaDimmer: Automatic Profile Dimming [3,4] CS50 Security 50% dimming, 7 hours CM50 Median 50% dimming, 8 hours CS30 Security 30% dimming, 7 hours CM30 Median 30% dimming, 8 hours			Surge Protection (10kA standard) SP2 Increased 20kA GFCI Ground Fault Interrupt Outlet[9]	Customer Specified RAL Special optional color or RAL (ex: RAL7024) CC Custom color (must supply color chip for required factory quote)

1. Extended lead times apply. Contact factory for details.
2. Not available in 100, 200 or 350mA.
3. Not available with other control options.
4. Not available with motion sensor.
5. Not available with photocontrol.
6. Available only with BL dimming control.
7. Not available with LLC and CS/CM.
8. Must specify input voltage.
9. Available in 120V only.
10. Not available in 347 or 480V.
11. Not available in 100, 200, and 1050mA.
12. Not available with LLC.

Accessories

Service	12NC	Description
	(4) 3/8X8X1.5 A/B 2N-2W-1LW + (1) Template	
For shipment with the bollard (order 1 per bollard)	912401538601	KIT, PBL ANCHOR BOLTs & TEMPL

DARKSKY APPROVED Reduces light pollution Certified by DarkSky.org 3000K only · DLC LISTED · cULus

PBL PureForm LED bollard

LED Wattage and Lumen Values

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Average System Watts	Type 3 Lumen Output	Type 3 BUG Rating	Type 3 Efficacy (LPW)	Type 5 Lumen Output	Type 5 BUG Rating	Type 5 Efficacy (LPW)
3000K										
PBL-14L-100-WW-G2-x	14	100	3000	5.9	551	B0-U0-G0	125	592	B1-U0-G0	100
PBL-14L-200-WW-G2-x	14	200	3000	10.3	1077	B0-U0-G0	138	1158	B1-U0-G0	112
PBL-14L-350-WW-G2-x	14	350	3000	17.1	1812	B0-U0-G0	116	1948	B1-U0-G0	114
PBL-14L-450-WW-G2-x	14	450	3000	22.0	2268	B0-U0-G1	140	2439	B2-U0-G1	111
PBL-14L-600-WW-G2-x	14	600	3000	28.8	2898	B1-U0-G1	132	3116	B2-U0-G1	108
PBL-14L-800-WW-G2-x	14	800	3000	38.1	3663	B1-U0-G1	125	3938	B2-U0-G1	103
PBL-14L-1050-WW-G2-x	14	1050	3000	50.1	4471	B1-U0-G1	126	4806	B3-U0-G1	96
4000K										
PBL-14L-100-NW-G2-x	14	100	4000	5.9	586	B0-U0-G0	99	630	B1-U0-G0	106
PBL-14L-200-NW-G2-x	14	200	4000	10.3	1146	B0-U0-G0	111	1232	B1-U0-G0	119
PBL-14L-350-NW-G2-x	14	350	4000	17.1	1927	B0-U0-G0	113	2072	B2-U0-G0	121
PBL-14L-450-NW-G2-x	14	450	4000	22.0	2413	B0-U0-G1	110	2594	B2-U0-G1	118
PBL-14L-600-NW-G2-x	14	600	4000	28.8	3083	B1-U0-G1	107	3315	B2-U0-G1	115
PBL-14L-800-NW-G2-x	14	800	4000	38.1	3897	B1-U0-G1	102	4190	B3-U0-G1	110
PBL-14L-1050-NW-G2-x	14	1050	4000	50.1	4756	B1-U0-G1	95	5113	B3-U0-G1	102

Values from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental variables, LED and driver tolerances, and field measurement considerations. It is highly recommended to confirm performance with a photometric layout.

NOTE: Some data may be scaled based on tests of similar (but not identical) luminaires. Contact factory for configurations not shown.

LED Wattage and Lumen Values (Emergency Mode)

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Avg. System Watts Normal Mode	Avg. System Watts Emergency Mode	Lumen Outputs Type 3 Normal Mode	Lumen Outputs Type 3 Emergency Mode	Lumen Outputs Type 5 Normal Mode	Lumen Outputs Type 5 Emergency Mode
PBL-14L-450-NW-G2-xx-EBP	14	450	4000	23.1	10.4	2007	1211	2195	1324
PBL-14L-600-NW-G2-xx-EBP	14	600	4000	30.3	10.4	2551	1211	2789	1324
PBL-14L-800-NW-G2-xx-EBP	14	800	4000	40.5	10.4	3198	1211	3497	1324
PBL-14L-1050-NW-G2-xx-EBP	14	1050	4000	53.8	10.4	3853	1211	4213	1324

For emergency EBP option, publish values are based on initial lumens.

Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours

Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 1050mA	>100,000 hours	>60,000 hours	>95%

1 / SL2 **PRIVATE LIGHTING BOLLARD DETAIL**

NOT TO SCALE

GARDCO

Wall Mount

GeoForm

GBS LED wall sconce

Gardco GeoForm block small LED wall sconce features a compact geometric design that will complement a range of architectural styles. GeoForm is available with two light engines: precision plus optics which feature type 2, 3, and 4 distributions, as well as light effects optics which offer wall wash, spot, and pencil beam distributions. GeoForm with light effects may be inverted for a wet location uplight option. A diffuse lens is also available for over doorway applications. Emergency battery backup option provides path-of-egress illumination and multiple control options further enhance energy savings.

Project:	21837 GEYSERVILLE AVENUE
Location:	GEYSERVILLE
Cat.No:	GBS-A01-740-T3M-UNV
Type:	FAWS 2 - 50% OUTPUT
Lamps:	10.2 W Qty: 17
Notes:	

Ordering guide

example: GBS-A03-840-T3M-UNV-MG

Luminaire	Configuration (nom. lumens)	Color Temperature	Distribution	Voltage	Dimming Controls[2]	Electrical	Options	Finish
GBS	A01	740	T3M	UNV				
GBS GeoForm Block Small	Precision Plus optics A01[1] 1,500 lumens A02[1] 2,500 lumens A03 4,000 lumens A04 5,000 lumens A05 6,000 lumens Light Effects optics B01[3] 700 lumens B02[3] 1,100 lumens B03[3] 2,200 lumens	830 80CRI 3000K 840 80CRI 4000K 740 70CRI 4000K 750 70CRI 5000K 830 80CRI 3000K 840 80CRI 4000K	T2M Type 2 T3M Type 3 T4M Type 4 DFL Diffusing lens WAW Wall Wash SPT Spot PEN Pencil Beam	120 120V 208 208V 240 240V 277 277V UNV 120-277V 347 347V 480 480V HVU 347-480V	none Leave blank (0-10V dimming driver standard) DLEA[2] Dimming Leads Externally Accessible (controls by others) FAWS[2] Field Adjustable Wattage Selector	none Leave blank (10kV kA surge protection standard) SP2 Surge Protector 20kV/10kA (option) FS1 Single Fuse (120, 277, or 347VAC) FS2 Double Fuse (208V, 240V, or 480V) PCB[4] Photocontrol Button (120-277V)	none Leave blank EM[1,6] Emergency Battery Pack (0-40°C) BAC[5] Meets the requirements of the Buy American Act of 1933 (BAA)	Textured BK Black WH White BZ Bronze DG Dark Gray MG Medium Gray Customer specified OC Specify optional color or RAL, contact factory SC Special Color (must supply color chip, requires factory quote)

1. Only available from 120-277V, or in UNV.
2. Only one option can be selected from Dimming Controls column.
3. Not available with Emergency battery pack.
4. Only available from 120-277V, must specify voltage.
5. Failure to properly select the "BAC" suffix could result in you receiving product that is not BAA compliant product with no recourse for an RMA or refund. This BAC designation hereunder does not address (i) the applicability of, or availability of a waiver under, the Trade Agreements Act, or (ii) the "Buy America" domestic content requirements imposed on states, localities, and other non-federal entities as a condition of receiving funds administered by the Department of Transportation or other federal agencies.
6. Consult Signify to confirm whether specific accessories are BAA-compliant.

Luminaire Accessories (order separately)[6]

GF-WS-BK Wall Mounted Box for surface conduit, painted black

GF-INV Inversion Mounting kit (required with inverted mounting)

DARKSKY APPROVED Reduces light pollution Certified by DarkSky.org · DLC LISTED PREMIUM · cULus

3 / SL2 **EXTERIOR GARAGE LIGHT, WALL MOUNT DETAIL**

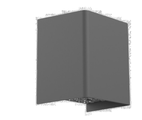
NOT TO SCALE

GARDCO

Wall Mount

GeoForm

GBS LED wall sconce



Gardco GeoForm block small LED wall sconce features a compact geometric design that will complement a range of architectural styles. GeoForm is available with two light engines: precision plus optics which feature type 2, 3, and 4 distributions, as well as light effects optics which offer wall wash, spot, and pencil beam distributions. GeoForm with light effects may be inverted for a wet location uplight option. A diffuse lens is also available for over doorway applications. Emergency battery backup option provides path-of-egress illumination and multiple control options further enhance energy savings.

Project:	21837 GEYSERVILLE AVENUE
Location:	GEYSERVILLE
Cat.No:	GBS-A01-740-T4M-UNV
Type:	FAWS 2 - 50% OUTPUT
Lamps:	10.2 W Qty: 44
Notes:	

Ordering guide

example: GBS-A03-840-T3M-UNV-MG

Luminaire	Configuration (nom. lumens)	Color Temperature	Distribution	Voltage	Dimming Controls[2]	Electrical	Options	Finish
GBS	A01	740	T4M	UNV				
GBS GeoForm Block Small	Precision Plus optics A01[1] 1,500 lumens A02[1] 2,500 lumens A03 4,000 lumens A04 5,000 lumens A05 6,000 lumens Light Effects optics B01[3] 700 lumens B02[3] 1,100 lumens B03[3] 2,200 lumens	830 80CRI 3000K 840 80CRI 4000K 740 70CRI 4000K 750 70CRI 5000K 830 80CRI 3000K 840 80CRI 4000K	T2M Type 2 T3M Type 3 T4M Type 4 DFL Diffusing lens WAW Wall Wash SPT Spot PEN Pencil Beam	120 120V 208 208V 240 240V 277 277V UNV 120-277V 347 347V 480 480V HVU 347-480V	none Leave blank (0-10V dimming driver standard) DLEA[2] Dimming Leads Externally Accessible (controls by others) FAWS[2] Field Adjustable Wattage Selector	none Leave blank (10kV kA surge protection standard) SP2 Surge Protector 20kV/10kA (option) FS1 Single Fuse (120, 277, or 347VAC) FS2 Double Fuse (208V, 240V, or 480V) PCB[4] Photocontrol Button (120-277V)	none Leave blank EM[1,6] Emergency Battery Pack (0-40°C) BAC[5] Meets the requirements of the Buy American Act of 1933 (BAA)	Textured BK Black WH White BZ Bronze DG Dark Gray MG Medium Gray Customer specified OC Specify optional color or RAL, contact factory SC Special Color (must supply color chip, requires factory quote)

1. Only available from 120-277V, or in UNV.
2. Only one option can be selected from Dimming Controls column.
3. Not available with Emergency battery pack.
4. Only available from 120-277V, must specify voltage.
5. Failure to properly select the "BAC" suffix could result in you receiving product that is not BAA compliant product with no recourse for an RMA or refund. This BAC designation hereunder does not address (i) the applicability of, or availability of a waiver under, the Trade Agreements Act, or (ii) the "Buy America" domestic content requirements imposed on states, localities, and other non-federal entities as a condition of receiving funds administered by the Department of Transportation or other federal agencies.
6. Consult Signify to confirm whether specific accessories are BAA-compliant.

Luminaire Accessories (order separately)[6]

GF-WS-BK Wall Mounted Box for surface conduit, painted black

GF-INV Inversion Mounting kit (required with inverted mounting)

DARKSKY APPROVED Reduces light pollution Certified by DarkSky.org · DLC LISTED PREMIUM · cULus

4 / SL2 **EXTERIOR GARAGE LIGHT, WALL MOUNT DETAIL**

NOT TO SCALE

AFX®

LOCATION		DATE
PREPARED BY		QUANTITY 91
COMMENTS		FIXTURE TYPE
CATALOG NUMBER		

Stratford LED Outdoor Sconce
SATW Series

Features
Modern Outdoor LED wall lantern with clear crackle glass.
Dusk-to-Dawn Photocell tuns light on at night and off in the morning. The lantern mounts to a standard junction box (not included).

Construction
All aluminum die-cast housing.Power supply connections must be made inside a junction box (not included).

Finish
Black powder coat finish.

Diffuser
Clear blown glass diffuser features a crackle pattern for an attractive light dispersion.

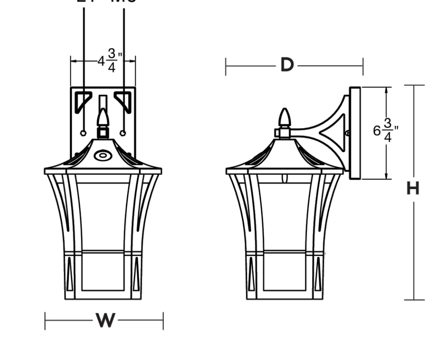
Electrical
Input 120 VAC / 60 HZ .09A
Photocell control light operation switching on at dusk and shut off at dawn.
Not compatible with dimmers.
Minimum starting temp -4° F/-20° C

LED
Integrated LED module capable of producing:
11W = 1100 source lumens, 725 delivered lumens
3000K (CCT). Rated for 50,000 Hrs. 90 CRI.

Certification
All fixtures are cETLus listed for wet locations.
Title 24/JA8 Compliant

Warranty
Limited warranty: This fixture is free from defects in materials and workmanship for a period of 5 years from date of purchase.

Specifications and dimensions subject to change without notice.



Ordering Information:

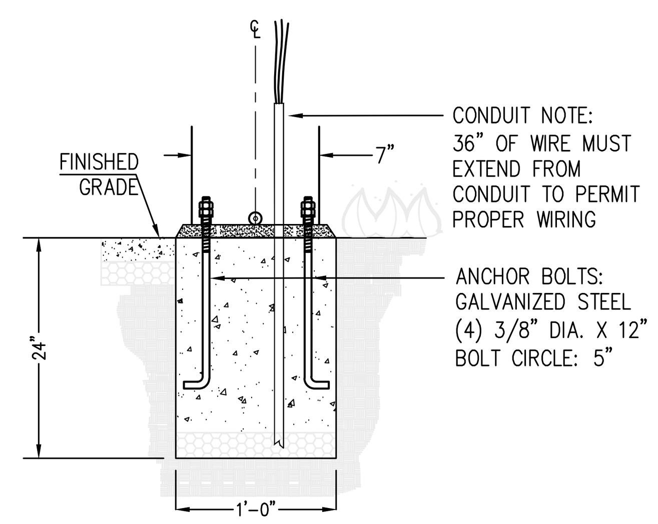
Black	LED	Source Lumens	Delivered Lumens	CCT	H	W	D
SATW091508L30ENBK	11W	1100	725	3000K	15-1/4"	8-1/2"	9-3/4"

2345 N. Ernie Krueger Circle • Waukegan, IL. 60087 • P: 847.249.5970 • F: 847.249.2618 • AFXinc.com

R1/21

5 / SL2 **EXTERIOR FRONT LIGHT, WALL MOUNT DETAIL**

NOT TO SCALE



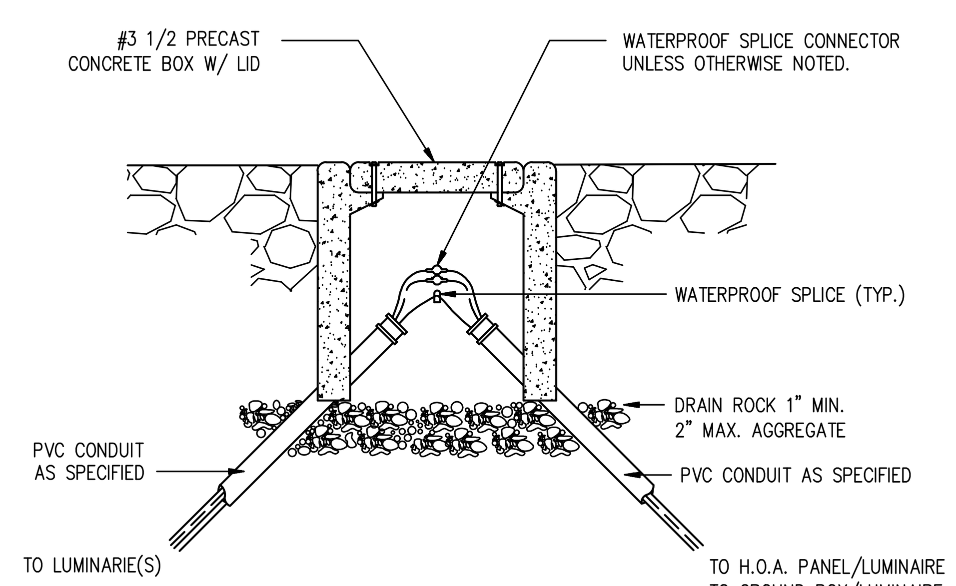
NOTE:
BASE DETAIL IS BASED ON FOOTING INSTALLED IN SOIL THAT HAS BEEN COMPACTED TO 90–95% RELATIVE COMPACTION.

2 / SL2 **PRIVATE BOLLARD BASE DETAIL**

NOT TO SCALE

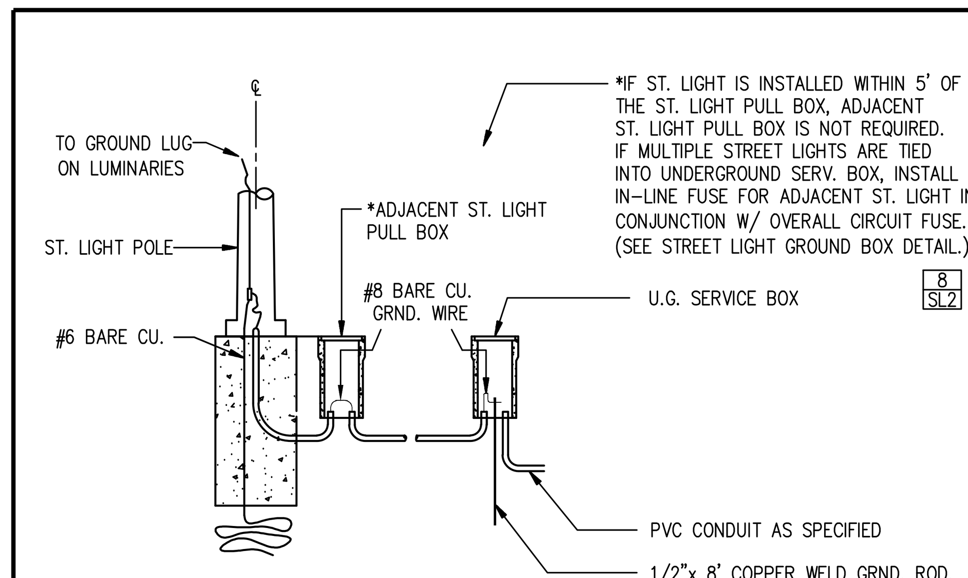
VOLTAGE DROP CALCULATIONS

LOCATION	DISTANCE	LOAD WATT	LOAD VOLT/AMP	VOLTAGE 120/240	WIRE SIZE	% VOLTAGE DROP



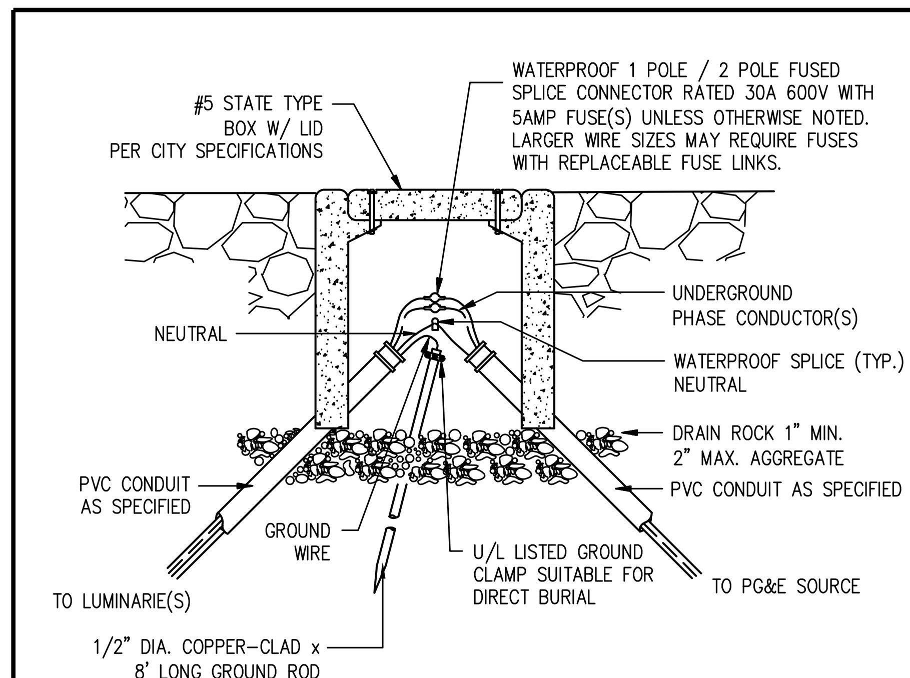
6 / SL2 **STREET LIGHTING PULL BOX DETAIL**

NOT TO SCALE



7 / SL2 **STREET LIGHTING GROUNDING DETAIL**

NOT TO SCALE



8 / SL2 **STREET LIGHT GROUND BOX DETAIL**

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FOR REVIEW ONLY

813 First Street
Brentwood, CA 94513
(925) 240-2595
(925) 240-7013 fax
www.tarrar.com

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STREET LIGHTING GENERAL NOTES AND DETAILS

CITY VENTURES
21837 GEYSERVILLE AVE.
GEYSERVILLE CALIFORNIA

NO.	REVISIONS	BY	DATE

DATE: DECEMBER 2024	DATE LAST WORKED ON: 3/3/2026	
SCALE: NOT TO SCALE	DRAWN: SM	CHECKED: KT
JOB NO.: 224170	PRELIMINARY NOT FOR CONSTRUCTION	
INTENT TO CONSTRUCT		

811 CALL BEFORE YOU DIG · USA · UNDERGROUND SERVICE ALERT

SHEET SL2 OF SL3 SHEETS