930 Irwin Street, San Rafael, CA 94901

APNs: 014-123-27, 014-123-28 & 014-123-21

Project Narrative

The Project is a 210-unit multi-family infill residential development located at 930 Irwin Street between Fourth and Third Street ("the Property"). The Project has a base density of 177 units and will provide 18 Below Market Rate Units at the Low Income (LI) affordability level, which is 10% of the base units. The Project will provide a mix of studios, 1 bedroom, 2 bedroom, and 3 bedroom units, with an average unit size of 968 square feet for a total of 203,233 square feet of residential floor area. The Project is proposed to reach a maximum height of 86 feet. Amenities for residents include a courtyard pool with pool restroom, a community room and a terrace on the eighth floor, private patios, a game room, fitness center and yoga room, and a shared coworking space on the ground floor. On the fourth level there is a 3,400 sf podium garden to provide common space for residents. The proposed onsite uses will be entirely dedicated to for-rent residential apartments, with the parking garage and common-area amenities available for resident use only. The building will be staffed with approximately 4-5 full time employees, including leasing and maintenance professionals. Likely hours for the leasing office will be 9am - 6pm Monday-Friday, with reduced hours on the weekends depending on leasing activity. There will be no public access to the building, as all pedestrian and garage doors will be access-controlled and only accessible by residents, staff, and new prospective residents on an appointment-only basis.

I. Site Description

The Project site is comprised of three contiguous lots that will be merged into one lot, totaling approximately 40,200 square feet. The lots are 930 Irwin Street, which has an area of approximately 21, 900 sf; 523 Fourth Street, which has an area of 13,500 sf; and 910 Irwin Street, which has an area of 4,800 sf. The Project will have 240 feet of frontage on Fourth Street and 195 feet of frontage on Irwin Street. The Project includes the demolition of three commercial buildings and accompanying surface parking lots. Two of the parcels are zoned T5N 50/70 and one is zoned T4N 40/50, and all of the parcels are located in the Montecito Commercial Subarea of Downtown San Rafael. The Montecito Commercial Subarea provides a transition between Downtown and the residential areas further east, with new housing and commercial development on infill sites. New housing in this area is supported by the area's proximity to transit, amenities, and downtown San Rafael. This subarea is regulated by the San Rafael Downtown Precise Plan ("SRDPP") and the standards established by the Downtown Form Based Code ("DTFBC"). Per the SRDPP, 390 new residential units are ultimately anticipated to be developed in the Montecito Commercial District during the life of the SRDPP. Accordingly, the Project could provide 55% of this estimated development.

The Project is located approximately 0.12 miles from the San Rafael Transit Center and Downtown SMART station. Pursuant to Cal. Government Code section 65863.2(a), the Project does not need to provide a minimum amount of parking, however, in compliance with the applicable parking standards of the SRDPP, the Project provide 222 vehicular parking spaces for a total of 85,085 square feet of parking floor area. The Project also complies with the requirements of the SRDPP and provides 342 spaces for bicycles.

II. State Density Bonus

Due to the provision of 18 BMR units, the Project is a State Density Bonus Law ("SDBL") development per Cal. Government Code § 65915 and qualifies for a 20% density bonus. The Project is eligible for one concession or incentive and unlimited waivers or reductions in development standards. The Project is not currently requesting a concession or incentive.

The Project does not seek a height bonus as allowed by the SRDPP, but instead utilizes the provisions of the SDBL to accommodate waivers from the following development standards in order to physically accommodate the density of the Project as proposed:

- Waiver of 50' height limit in T5N 50/70 and 40' limit in T4N 40/50
- Waiver of 7' front and side street setback at the T4N 40/50 portion of site
- Waiver of 5' side yard setback at the T4N 40/50 portion of site
- Waiver of 15' rear yard setback at the T4N 40/50 portion of site
- Waiver of front and side stepbacks above 35'
- Waiver of setbacks for civic area

Per SRMC § 14.16.030(D)(G), a housing development is eligible for a waiver or reduction of any development standard that physically precludes the construction of a housing development at the densities or with the concessions or incentives permitted. There is no limit to the number of waivers or reductions that can be requested.

III. Affordable Housing

The Project will provide 10% of its units at the Low-Income affordability level. This complies with San Rafael's Affordable Housing requirement, which requires that developments of 15 units or more shall meet both a primary requirement to provide 5% LI units and a secondary requirement that can be satisfied by providing an additional 5% LI units.

IV. Project Operations and Logistics

a. Project Utilities, Trash, and Recycling Programs

The Project will be served by local utility companies for electric, gas, water, sanitary sewer, and trash needs as set forth below:

- PG&E – Electricity and Gas
- Marin Municipal Water District- Water
- Central Marin Sanitation Agency – Sanitary Sewer
- Marin Sanitary Service – Garbage and Recycling

The Project will provide separate receptacles for recycling. On trash collection days, the trash and recycling bins will be wheeled out from the trash rooms by the property management team to a trash loading area on 4th Street, adjacent to the proposed loading zones. Following pick up, the property management team will return the empty trash bins to the trash room, which is located inside the garage adjacent to the entrance on 4th Street.

The Project team met with Steve Rosa from Marin Sanitary Service (MSS) to discuss the waste management plan for this Project. MSS approved the Project's current proposed design for waste collection and pickup, with the proposed trash room located inside the garage, and bin staging area along the curb on 4th Street. MSS confirmed they would only pick up curbside and would never drive into a building or garage for bin pickup.

b. Designated Loading Zone Along 4th St.

As a result of delivery and rideshare services such as Amazon, DoorDash, and Uber double-parking out in the street if curbside loading zones are not provided, the Project is proposing one curbside loading zone in front of each lobby along 4th Street. Since 4th Street is already lined with parallel parking, the loading areas fit into the current parallel parking zone with no changes to the travel lanes or street design.

c. Anticipated Construction Timeline

The Project team expects construction duration to be twenty-seven (27) months from groundbreaking.

d. Demolition and Site Preparation. The site perimeter will be screened/fenced with temporary 6’ tall chain link panels, and approved Storm Water Pollution Prevention (SWPP) measures will be established. Thereafter, using a site logistics plan with approved haul routes, existing utilities will be severed, horizontal improvements removed, and the three structures located will be demolished. Once the debris has been removed from the site, clean fill will be brought onto the site and placed where needed. Concurrent with the onsite work, new offsite wet utilities will be installed to within 5’ of the property line and undergrounding of the existing overhead utilities will occur on 4th Street.

e. Best Management Practices

i. Construction. Mill Creek’s in-house construction team has delivered over 41,000 homes in it’s 14-year history, with a consistent track record of delivering residential communities on-time and with world-class execution thanks to our industry-leading construction personnel who all live

in the markets in which the developer operates, providing unparalleled local expertise and an extensive network of local contractors, vendors, and suppliers. Mill Creek's quality control systems include strict guidelines for budget management, cost control, safety and communication.

ii. Property Operations. Mill Creek is a leading Community Management firm across the United States, currently operating 24,000 homes across the country with a team of over 450 Property Management professionals. Mill Creek is currently ranked 3rd in J Turner Research ORA's ranking of Property Management firms (Division II). Mill Creek's brand value as a property operator can be attributed to the following policies designed to give our residents peace of mind.

- Mill Creek promises to make our customers' lives easier by helping them find the home they want and assisting with every detail of the move-in. Mill Creek seeks to make sure residents are happy long after they move in.
- Mill Creek provides a 100% Happy in Your Space Guarantee- if a resident is not 100% happy in their new home, they can move out within 30 days with no penalty.
- Mill Creek provides a Curve Ball Guarantee- if a resident is impacted by unexpected life events, such as losing a job or needing to care for a family member, they can terminate the lease early.

V. Entitlements Requested

The Project seeks a Major Environmental and Design Review permit and a Lot Line adjustment. The findings set forth at San Rafael Municipal Code section 14.25.090 can be made for the proposed Project.

Major Environmental and Design Review Permit Findings

A. That the project design is in accord with the general plan, the objectives of the zoning ordinance and the purposes of this chapter 14.25 et seq.;

The Project's design is in accord with the San Rafael General Plan 2040, the objectives of the zoning ordinance and the purposes of chapter 14.25 et seq. as set forth below.

i. General Plan Consistency

Pursuant to the San Rafael General Plan 2040, the Project's land use designation is Downtown Mixed-Use. This designation includes the highest development intensities in San Rafael and contains a mix of housing, office, retail, service, and public land uses. The Project site is also listed in Appendix B: Housing Site Inventory of the San Rafael Housing Element. Development in this area is guided by the SRDPP.

The Project complies with key policies and programs of San Rafael General Plan 2040 as provided below:

Policy LU-3.3: Housing Mix

Encourage a diverse mix of housing choices in terms of affordability, unit type, and size, including opportunities for both renters and owners.

Policy NH-1.3: Downtown Housing

Support Downtown's continued growth as a mixed-use neighborhood and quality residential environment. New Housing should include a mix of affordable and market-rate units, including expanded resources for unsheltered persons and extremely low-income households. Housing should take advantage of Downtown's amenities and views and contribute to its character as a dynamic neighborhood.

The Project complies with these standards because it would be in-fill development and include studios, 1 bedroom, 2 bedroom, and 3 bedroom units in an area of the city containing a variety of structures, including commercial, office, residential, and mixed-use. The Project would add residential units to the housing stock and includes eighteen (18) units at the low-income affordability level.

The Project site is located within walking distance of downtown, transit, and amenities, including, the Montecito shopping center, Whole Foods and United Market.

Policy LU-1.3: Land Use and Climate Change

Focus future housing and commercial development in areas where alternatives to driving are most viable and shorter trip lengths are possible, especially around transit stations, near services, and on sites with frequent bus service. This can reduce the greenhouse gas emissions associated with motor vehicle trips and support the City's climate action goals.

Policy H-3.5: Housing and Greenhouse Gas Emissions

Design and locate new housing in a way that supports the city's greenhouse gas reduction goals. This includes building new housing near transit and in locations where it is easier to walk to shopping, restaurants, services, work, school, and other destinations. It also includes reducing the use of non-renewable fossil fuels through electrification, decreased natural gas use, energy efficiency, and tree planting.

Policy M-3.8: Land Use and VMT

Encourage higher-density employment and residential uses near major transit hubs such as Downtown San Rafael, recognizing the potential for VMT reduction in areas where there are

attractive alternatives to driving, concentrations of complementary activities, and opportunities for shorter trips between different uses.

The Project site is located approximately 0.12 miles from the San Rafael Transit Center and Downtown SMART station and would be accessible by walking. Additionally, the Project site is located within walking distance of downtown and amenities, including, the Montecito shopping center, Whole Foods and United Market.

Policy CDP-4.5: Higher Density Design

Encourage high-quality architecture and landscape design in new higher-density housing and mixed use projects. Such projects should be designed to be compatible with nearby buildings and respect the character-defining features of the surrounding neighborhood or district.

Policy CDP- 4.6: Open Space in Multi-Family Housing

Require private outdoor areas such as decks and patios, as well as common space areas, in new multi-family development and mixed use housing. Common open space may include recreation facilities, gathering places, and site amenities such as picnic and play areas.

The Project provides private patios and there is a 3,400 sf podium garden to provide common open space for residents on the fourth level in addition to all of the Project Amenity rooms.

Policy CDP-4.7: Larger-Scale Buildings

Desing larger scale buildings to reduce their perceived mass. Encourage the incorporation of architectural elements such as towers, arcades, courtyards, and awnings to create visual interest, provide protection from the elements, and enhance orientation.

Policy CDP-4.8: Scale Transitions

Require sensitive scale and height transitions between larger and smaller structures. In areas where taller buildings are allowed, they should be designed to minimize shadows, loss of privacy, and dramatic contrasts with adjacent low-scale structures. Exceptions may be made where taller buildings are also permitted on the adjoining site.

The podium garden on the fourth level of the Project fronting Fourth Street reduces the perceived mass of the Project and creates visual interest due to the recessing of the building and the installation of landscaping. Additionally, there are recessed and landscaped terraces along the eastern and southern sides of the Project that also create visual interest, reduce the perceived bulk of the Project, and create a transition to adjacent properties.

Policy CDP-4.10: Landscape Design

Encourage- and where appropriate require- privately owned and maintained landscaping that conserves water, contributes to neighborhood quality, complements building forms and materials, improves stormwater management and drainage, and enhances the streetscape. Natural elements such as plants should be an integral part of site development and should enhance the built environment while supporting water conservation goals.

The Project as designed keeps existing street trees in place and also plants additional trees and landscaping along the sidewalk. The proposed landscaping is designed to complement the primary mode of transit along Irwin and Fourth Streets, respectively.

Policy H-4.3: Affordable Housing Requirements

Require the inclusion of affordable housing units in market-rate housing projects. Ensire that affordable housing requirements are economically viable, do not negatively affect overall housing production, and provide sufficient flexibility for the private sector. When new affordable units are created, pursue deed restriction and affordability terms of at least 55 years so that fewer tenants are at risk of being displaced in any given year.

Policy H-4.14: Commercial to Residential Conversion

Encourage the adaptive reuse of older commercial buildings, including office and retail buildings, for housing.

ii. <u>Zoning Ordinance Consistency</u>

The Project site is located in the Downtown Mixed Use (DMU) District which allows for residential and commercial uses. The downtown mixed use district encompasses the 265-acre downtown area, which is the commerce and employment center of the city. Allowable uses, design intent, and development standards and regulations are defined and specified in the Downtown San Rafael Precise Plan and form-base code. The Project is consistent with San Rafael's primary and secondary affordable housing requirement through the provision of 10% of the proposed units at the Low Income affordability level.

B. That the project design is consistent with all applicable site, architecture and landscaping design criteria and guidelines for the district in which the site is located;

The Project complies with all applicable development standards and design criteria of the DTFBC through the use of State Density Bonus Law waivers in some instances.

C. That the project design minimizes adverse environmental impacts; and

The Project will be reviewed by city agencies and is required to comply with all agency regulations.

D. That the project design will not be detrimental to the public health, safety or welfare, nor materially injurious to properties or improvements in the vicinity.

The Project will be reviewed by all required city agencies. The applicant has submitted a geotechnical report. The Project site is located in Downtown San Rafael and is surrounded by urban development. The Project site is a developed site, fully graded, paved, and occupied with existing commercial/office buildings and has no value as habitat for endangered, rare, or threatened species. The Project would also not result in any significant effects relating to traffic, noise, air quality or water quality and the site can be adequately served by all required utilities and public services.

Lot Line Adjustment

Consistent with San Rafael Municipal Code chapter 15.05, the findings to approve the requested Lot Line Adjustment application can also be made.

The application is a request for lot line adjustment between fewer than four (4) parcels, where the land taken from one parcel is added to an adjoining parcel, and where a greater number of parcels than originally existed is not thereby created. The application is consistent with the San Rafael General Plan 2040 and is in conformance with the Zoning Ordinance and SRDPP.

Applicant-proposed Measures

The applicant always strives to be an active and responsible member of any community in which they develop. As part of this commitment, the applicant commissioned studies regarding the following topics:

- Transportation
- Air Quality
- Water Quality
- Greenhouse Gas Emissions, and
- Noise

These studies have been provided to the City for peer-review, and they conclude that this project will not have a significant impact on the environment. Specifically, please refer to the W-Trans Transportation Impact Study, Yorke Engineering Water Quality Study, and Yorke Engineering CalEEMod Air Quality, Greenhouse Gas, and Noise Impact Study.

As part of the application and project description, the applicant commits to implementing all of the assumptions and/or recommendations contained in these studies. Furthermore, as part of the application, the applicant commits to implementing the following measures as part of the project description:

1. Applicant will select a project liaison prior to Project commencement and erect onsite signage indicating the liaison's phone number and email for any project related issues. Said signage shall remain in place for the duration of the project.

2. Applicant will develop a construction management plan for review and approval by the City *before* the issuance of a building permit. Said plan will include delivery routes, dust management measures, and materials staging locations.

3. Applicant will engage a qualified archaeologist to be present for the initial phase of major ground disturbing activity at the project site. In the event that human skeletal remains are uncovered at the project site during ground-disturbing activities, all work shall immediately halt and the Marin County Coroner shall be contacted to evaluate the remains. If the County Coroner determines that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and all excavation and site preparation activities shall cease within a 50-foot radius of the find until appropriate arrangements are made. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, and avoidance measures (if applicable) shall be completed expeditiously. In the event that cultural resources of Native American origin are identified during construction, all work within 50 feet of the discovery shall be redirected. The project applicant and project construction contractor shall notify the City Planning Department within 24 hours. If the resource cannot be avoided, additional measures to avoid or reduce impacts to the resource and to address tribal concerns may be required.

4. All exterior lighting will be energy efficient where feasible; and shielded and directed downward and away from property lines to conceal light sources from view off-site and avoid spillover onto adjacent properties pursuant to SRMC §14.16.227.

5. All haul trucks transporting soil, sand, or other loose material off site will be covered. All visible mud or dirt tracked-out onto adjacent public roads will be removed. Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes. Clear signage will be provided for construction workers at all access points explaining the job site rules. All construction equipment will be maintained and properly tuned in accordance with manufacturers' specifications. During construction and demolition, any exposed soil and unpaved roads will be watered a minimum of three times a day. Paved roads will be swept.

6. The Project will comply with all applicable BAAQMD rules, regulations, and guidelines.

7. All landscaping will be maintained in good condition and any dead or dying plants, bushes, trees, or groundcover plantings shall be replaces with new healthy stock of a size appropriate and compatible with the remainder of the growth at the time of replacement.

8. A Stormwater Control Plan will be developed to identify non-structural and structural source controls and appropriate site design BMPs that would be incorporated into the

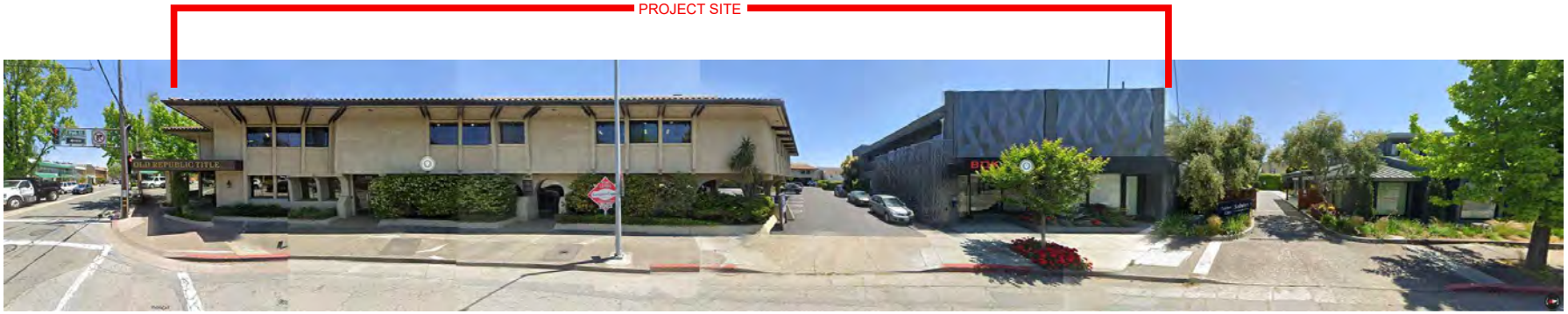
project to control pollutant runoff and provide storm water retention and/or infiltration in accordance with the BASMAA Post Construction Manual.

9. The building will be all electric and not use natural gas.

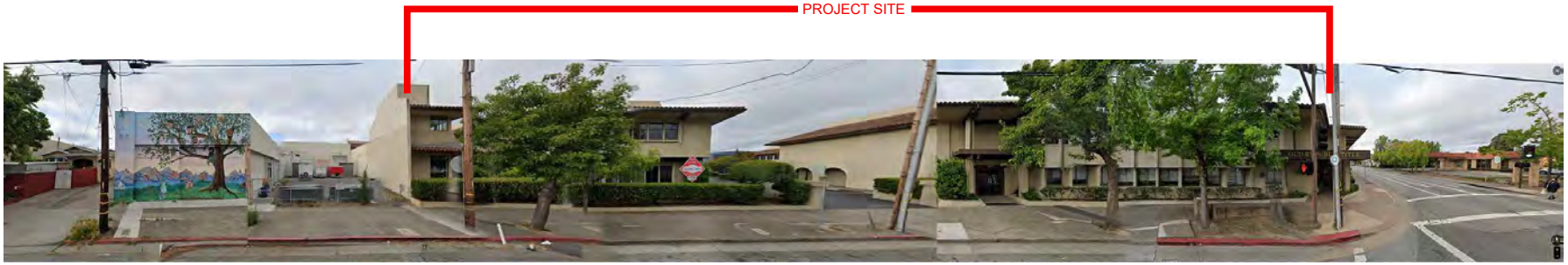
10. All construction work will take place during the City's allowable construction hours (i.e., 7:00 am to 6:00 pm Monday through Friday, and between 9:00 am and 6:00 pm on Saturdays). No work will be performed on Sundays or holidays. Applicant will post a sign at all entrances to the construction site upon commencement of construction, for the purpose of informing all contractors and subcontractors, their employees, agents, materialmen and all other persons at the construction site, of the basic requirements of this chapter.

Site Photos

MAP VIEW - ABOVE



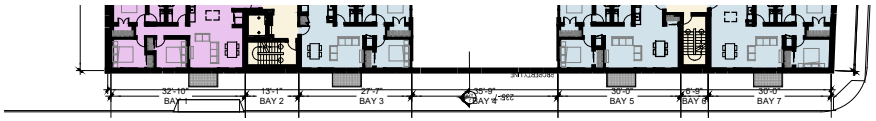
1. VIEW FROM IRWIN ST. - FACING EAST



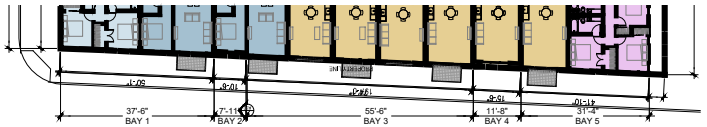
2. VIEW FROM 4TH ST. - FACING SOUTH

SITE PHOTOS
930 IRWIN ST.

Zoning Compliance Diagrams



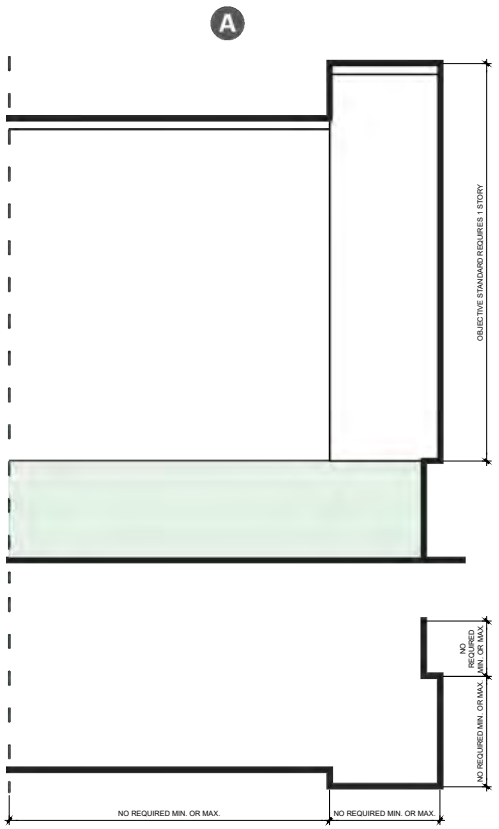
FOURTH STREET (WITH 7 BAYS)



IRWIN STREET (WITH 5 BAYS)

BASE - MIDDLE - TOP	OBJECTIVE STANDARD EXAMPLES (DSRPP PAGE 301)	OBJECTIVE STANDARDS (DSRPP PAGE 300)	COMPLIANCE
Division 3.2 Massing and Facade Articulation Stand **A. Description** New facades and facade modifications along a street or civic space shall be designed to visually express a base, middle, and top. **B. Applicability** New buildings and facade modifications over 75' in length along the adjacent street or civic space. **C. Standards** Ground Floor/ Distinct Base[1] A Middle B Top[2] C Combinations of colors, materials, and massing may be used to visually express a base, middle, and top. [1] The base may include multiple stories. [2] The top may include multiple stories. Note that upper stories that are stepped back do not count as part of the "top". To articulate the top, count only stories that are not stepped back from the "base" and "middle" of the building facade.	Chapter 3 — Downtown Form-Based Code *Division 3.2 Massing and Facade Articulation Standards* A Examples of 5, 7, 9 Bay Openings. B Examples of Symmetrical Compositions. C Examples of Asymmetrical Compositions. Elevation Plan Elevation Plan Adopted August 2021 Downtown San Rafael Precise Plan 301	**A. Description** New facades and facade modifications along a street or civic space shall be designed to appear as multiple buildings no greater than 75' in length. **B. Applicability** New buildings and facade modifications. **C. Standards/ General Character** Building facades shall be arranged in an orderly composition of window bays/openings based on prevalent patterns of 5, 7 or 9 bays. A Facades shall be designed in an orderly symmetrical or asymmetrical composition. Compositions (symmetrical) B Compositions (asymmetrical) C The pattern shall be visually expressed through the spacing of openings, physical recesses, projections or other techniques. The pattern may include the ground floor and its mezzanine.	COMPLIES. THE FACADE MODIFICATIONS ALONG A STREET OR CIVIC SPACE ARE DESIGNED TO APPEAR AS MULTIPLE BUILDINGS NO GREATER THAN 75' IN LENGTH COMPLIES. COMPLIES. THE BUILDING FACADES ARE ARRANGED IN AN ORDERLY COMPOSITION OF BAYS BASED ON PREVALENT PATTERN OF 5, 7 OR 9 BAYS. COMPLIES. COMPLIES. COMPLIES.

OBJECTIVE STANDARDS COMPLIANCE
930 IRWIN ST.



Plan and elevation diagrams of Corner Elements.

A. Description

New facades and facade modifications shall be designed to include an orderly composition of window bays and openings.

B. Applicability

All new buildings and facade modifications.

C. Standards/ General Character

Buildings 100' or more in length along the street are required to include projected or recessed window bays, and shall be designed per Item A below. The recess may be achieved by a partial or complete window surround. Upto 3 bays may be grouped.

Allowed patterns for buildings at least 100' long:

Bay Windows: A
- Square a
- Chamfer b

Required stepbacks may be replaced by mansard roof forms with windows as follows:

30' to 50' overall height	Single Mansard B
50' to 90' overall height	Single Mansard B or Double Mansard C

Mansard roof forms are exempt from stepbacks.

Mansard roofs can include a maximum of 2 stories and must include the uppermost story.

All buildings facades shall be designed to include square or vertically - oriented windows and openings.

Windows may be grouped but the overall grouping shape is required to be square or vertical, except on shopfronts.

Facades within 1 block of a building with recessed windows and/or openings are required to include recessed windows with at least 4" of recess for at least 25% of the new or modified facade.

COMPLIES, THE FACADE IS DESIGNED TO INCLUDE AN ORDERLY COMPOSITION OF WINDOW BAYS AND OPENINGS.

COMPLIES.

COMPLIES, THE BUILDING INCLUDES SQUARE RECESSED WINDOW BAYS.

NOT APPLICABLE, THE PROJECT DOES NOT HAVE ANY MANSARD ROOFS.

COMPLIES.

COMPLIES.

WINDOW COMPLIANCE

A. Description

New facades and facade modifications shall be designed to include a corner element to give visual importance to the corner and enhance the public realm.

B. Applicability

New buildings and facade modifications where at least 1 facade along a street corner is over 150' in length.

C. Standards/ General Character

Square A

Octagonal B

Chamfer C

Only one corner element is required per eligible facade.

Corner elements shall incorporate at least 1 entire story within the composition and may extend from the ground floor through the top of the building.

Corner elements may exceed the maximum height allowed for the building by up to 10' for a horizontal area up to 20' x 20', only in cases where the top story is at the maximum allowed height.

Corner elements may be recessed or projected from the main facade by up to 4'. Projections over the right of way are allowed when at least 12' above the adjacent sidewalk. D

COMPLIES. THE PROJECT INCLUDES AT LEAST 1 CORNER ELEMENT THAT COMPLIES WITH THE REQUIRED OBJECTIVE STANDARDS.

COMPLIES. THE PROJECT INCLUDES AT LEAST 1 CORNER ELEMENT, BOTH STREET FACING FACADES ARE OVER 150' IN LENGTH.

COMPLIES. THE PROJECT INCLUDES AT LEAST 1 SQUARE CORNER ELEMENT.

COMPLIES. THE PROJECT INCLUDES AT LEAST 1 CORNER ELEMENT ON THE REQUIRED FACADE.
COMPLIES. THE CORNER ELEMENT INCORPORATES AT LEAST 1 ENTIRE STORY WITHIN THE COMPOSITION.

NOT APPLICABLE AS THIS IS AN OPTION NOT A REQUIREMENT.

COMPLIES. THE CORNER ELEMENT PROJECTS WITHIN THE 4' ALLOWANCE.

NOTE, THE OBJECTIVE STANDARDS DO NOT REQUIRE A MAXIMUM OR MINIMUM WIDTH OF THE CORNER ELEMENT.

PROPOSED COMPLIANT PROJECT	OBJECTIVE STANDARD DIAGRAM (DSRPP PAGE 303)	OBJECTIVE STANDARDS (DSRPP PAGE 302)	COMPLIANCE

OBJECTIVE STANDARDS COMPLIANCE
930 IRWIN ST.

TRACHTENBERG ARCHITECTS
2421 Fourth Street Berkeley, CA 94710
phone: 510.649.1414
www.TrachtenbergArch.com

930 Irwin Street
San Rafael, CA
December 20, 2024

4.C Density Bonus Statement

J. **Application for a Density Bonus and/or Concessions or Incentives for Residential Development Projects**. Application for a Density Bonus shall be made in the following manner:

a. Request for a Density Bonus and/or request for concessions or incentives for a residential project shall be made by filing a separate application along with the following information:

i. Density Bonus size requested:

20% Density Bonus

ii. Density Bonus submittal checklist: This checklist shall include, but not be limited to the following information: Property location; lot size, zoning allowable residential density, and allowable number of base units;

Property location: 930 Irwin Street, San Rafael, CA
Lot size: 40,200 SF
Zoning allowable residential density: Form Based Code
Allowable number of base units: 177 (see page 3)

iii. Density Bonus eligibility table: This table shall include: the Number of market rate units in the project; the number of affordable housing units proposed & level of affordability for each of the designated affordable units; the number of other eligible units (senior housing, supportive housing, etc); number of density bonus units requested; total allowable density bonus (see Table 3 of this City Council Resolution);

DENSITY BONUS ELIGIBILITY TABLE (Per State Density Bonus Law):	
Base Density (see page 3)	177
Low-Income percentage of base density	10%
Low-Income units (rounds up)	18
Density Bonus	20%
Bonus units (rounds up)	36
Maximum project with bonus units	213
Market rate units	195

iv. Project plans showing the total number of units, the number and location of the affordable units and the number and location of the proposed density bonus units;

See Sheets A0.1, A0.2 & A2.0-2.6 of project plans, dated 06.13.2024, for the 210 total units, 18 affordable units, and 33 density bonus units.

v. Parking Ratios Table: this table shall include the total number of proposed parking and the total number of required parking spaces for affordable housing units or for special projects as shown in Tables 1 and 2 above;

The project provides more parking than the minimum requirement per the DSRPP for zoning T5N 50/60 and T4N 40/50.

vi. List of requested Concessions/Incentives: The application shall include the total number of concessions or incentives being requested; the total number of concessions or incentives for which the project is eligible for by this City Council Resolution Table 4; a list of the requested concessions or Incentives; written financial documentation that demonstrates how the requested concessions/ incentives result in identifiable and actual cost reductions. The written statement shall include the actual cost reduction achieved through the concession/incentive and evidence that the concession/incentive allows the applicant to develop affordable housing at the specified affordable rents/sales price; The cost of reviewing any required financial data submitted as part of the application in support of a request for a concession or incentive, including, but not limited to, the cost to the city of hiring a consultant to review said data, shall be borne by the applicant;

As a density bonus project that provides at least 10% of the base project units as affordable, the project is eligible for 1 concessions/incentives.

However, the project as currently proposed does not request any concessions or incentives.

vii. A list of requested waivers or reduction of development standards. Any request for waivers or reduction of development standards shall be accompanied with evidence that the development standards for which a waiver is requested would have the effect of physically precluding the construction of a development at the densities or with the concessions or incentives permitted by Government Code Section 65915;

The following list of waivers or reduction of development standards are required in order to physically accommodate the proposed density bonus project:

- Waiver of 50’ height limit in T5N 50/70 and 40’ limit in T4N 40/50
- Waiver of 7’ front and side street setback at the T4N 40/50 portion of site
- Waiver of 5’ side yard setback at the T4N 40/50 portion of site
- Waiver of 15’ rear yard setback at the T4N 40/50 portion of site
- Waiver of front and side stepbacks above 35’
- Waiver of setbacks for civic area

viii. If a density bonus is requested for a qualified land donation, the application shall show the location of the land to be dedicated and provide evidence that the requirements of Subsection C.g. of this Section have been met, thus entitling the project to the requested density bonus;

Not applicable.

ix. If a density bonus is requested for construction of a child care facility the application shall show the location and square footage of the proposed facility and provide evidence that the requirements of Subsection C.f. above have been met, thus entitling the project to the requested density bonus.

Not applicable.

BASE PROJECT - ZONING INFORMATION

ZONING	T5N 50/70 & T4N 40/50
LOT AREA (SF)	40,200

T5N 50/70

	BASE ZONING	PROPOSED	COMPLIANCE
HEIGHT	50'	50'	COMPLIES
SETBACK - FRONT	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE STREET	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE	0' MIN.	0'	COMPLIES
SETBACK - REAR	0' MIN.	0'	COMPLIES
STEPBACKS - FRONT	10' MIN AT 35'*	*	COMPLIES
STEPBACKS - SIDE STREET	10' MIN AT 35'*	*	COMPLIES
STEPBACKS - REAR	10' MIN AT 35'*	*	COMPLIES
GROUND LEVEL CEILING	10' MIN.	10'-2"	COMPLIES

*NOT REQUIRED FOR MANSARD ROOFS

T4N 40/50

	BASE ZONING	PROPOSED	COMPLIANCE
HEIGHT	40'	40'	COMPLIES
SETBACK - FRONT	7' MIN.; 15' MAX	13'-6"	COMPLIES
SETBACK - SIDE STREET	7' MIN.; 15' MAX	7'	COMPLIES
SETBACK - SIDE	5' MIN	5'	COMPLIES
SETBACK - REAR	15' MIN	15'	COMPLIES
STEPBACKS - FRONT	10' MIN AT 35'*	*	COMPLIES
STEPBACKS - SIDE STREET	10' MIN AT 35'*	*	COMPLIES
STEPBACKS - REAR	10' MIN AT 35'*	*	COMPLIES
GROUND LEVEL CEILING	9' MIN.	10'-2"	COMPLIES

*NOT REQUIRED FOR MANSARD ROOFS

BASE PROJECT - CIVIC SPACE

	SITE WIDTH	RATIO	REQUIRED	PROVIDED
CIVIC AREA	235'-7"		1,000	1,000

BASE PROJECT - FLOOR AREA TABLE

	RESIDENTIAL	PARKING	TOTAL
LEVEL 5	26,044		26,044
LEVEL 4	36,602		36,602
LEVEL 3	36,602		36,602
LEVEL 2	36,602		36,602
LEVEL 1	35,457	908	36,365
BASEMENT PARKING 1		24,186	24,186
BASEMENT PARKING 2		22,793	22,793
BASEMENT PARKING 3		22,793	22,793
TOTAL	171,307	70,680	241,987
NUMBER OF UNITS	177		
AVERAGE UNIT SIZE	968		

BASE PROJECT - UNIT TABLE

	STUDIO	1-BR	2-BR	3-BR	TOTAL
LEVEL 5	6	10	9	4	29
LEVEL 4	9	14	12	6	41
LEVEL 3	9	14	12	6	41
LEVEL 2	9	14	12	6	41
LEVEL 1	5	9	8	3	25
TOTAL	38	61	53	25	177

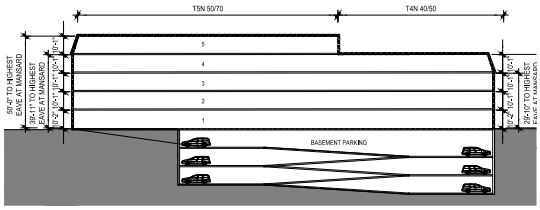
BASE PROJECT - VEHICULAR PARKING (Per DSRPP)

	UNITS	RATIO		TOTAL
STUDIO	38	0.75	1	29
1-BR UNITS	61	0.75	1	46
2-BR UNITS	53	1	1	53
3-BR UNITS	25	1.5	1	38
TOTAL REQUIRED	177			165
TOTAL PROVIDED				165

BASE PROJECT - BIKE PARKING (Per DSRPP)

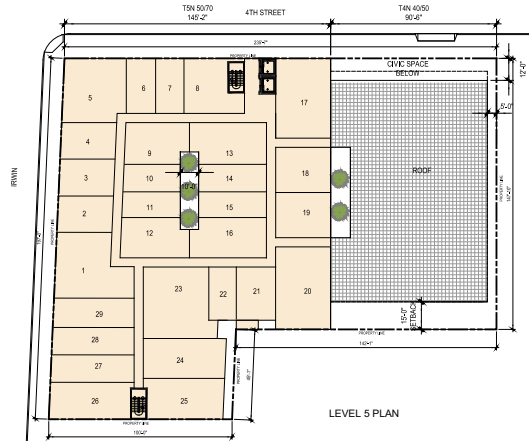
	UNITS	RATIO		TOTAL
STUDIO	38	1	1	38
1-BR UNITS	61	1	1	61
2-BR UNITS	53	2	1	106
3-BR UNITS	25	3	1	75
TOTAL REQUIRED				280
PROVIDED				280

2 - BASE PROJECT DATA



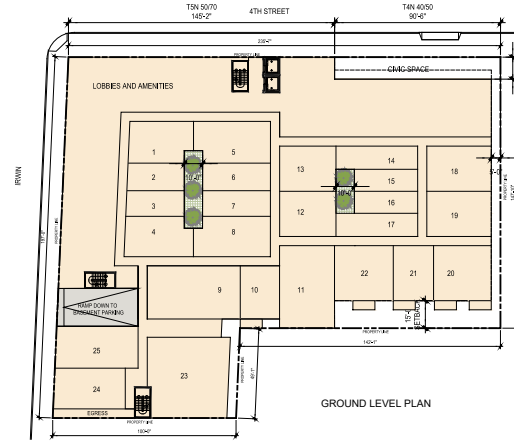
BASE PROJECT - HEIGHT DIAGRAM

BASE PROJECT INFO
930 IRWIN ST.

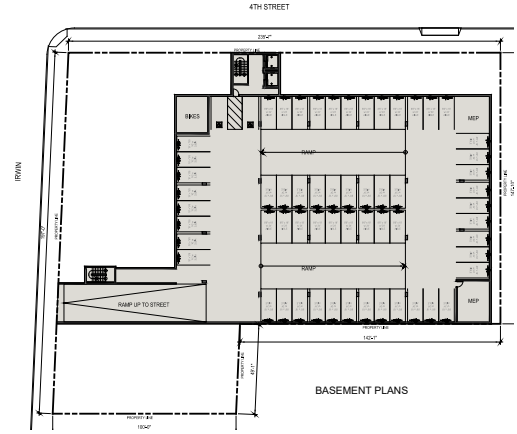


LEVEL 5 PLAN

LEVELS 2-4 PLAN



GROUND LEVEL PLAN

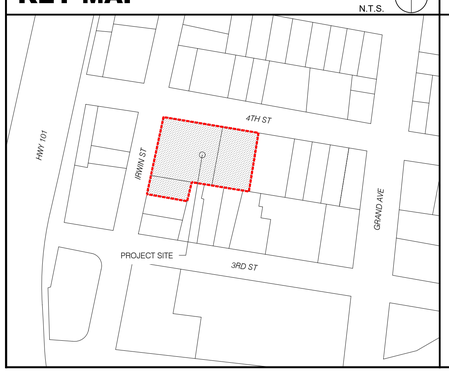


BASEMENT PLANS

1 - BASE PROJECT - PLANS

KEY MAP

N.T.S.



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www.millcreekplaces.com
&
Chris Hart, Founder
SEAGULL PRIME REAL ESTATE FUND
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ARCHITECT:
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www.yamasaki-la.com

LIGHTING:
Catherine Kise
LITE RITE DESIGN
562.430.6468
www.literite.com

PROJECT DESCRIPTION

PROJECT ADDRESS:
930 IRWIN STREET
SAN RAFAEL, CA 94901
(APN: 014-123-27, 014-123-28 & 014-123-21)

SCOPE OF WORK:
REMOVAL OF EXISTING COMMERCIAL STRUCTURES AND CONSTRUCTION OF A NEW 8-STORY RESIDENTIAL DEVELOPMENT WITH 210 DWELLING UNITS, GROUND LEVEL LOBBIES, AND PARKING GARAGE WITH STATE OF CALIFORNIA DENSITY BONUS.

ZONING CODE SUMMARY

(BASED ON THE SAN RAFAEL MUNICIPAL ZONING CODE)

ZONING: T5N 50/70 & T4N 40/50

SEE SHEET A0.1 FOR COMPLETE ZONING DATA

DRAWING LIST

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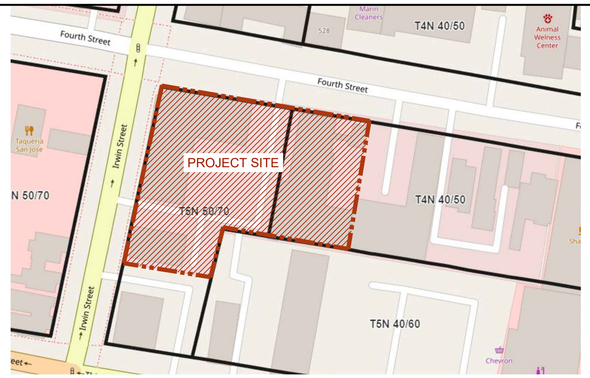
JOB: 2306

SHEET:

GENERAL
INFORMATION

A0.0



2 - ZONING MAP

-

PROPOSED PROEJCT - ZONING INFORMATION

ZONING	T5N 50/70 & T4N 40/50	
LOT AREA (SF)	40,200	
DENSITY BONUS ELIGIBILITY TABLE:		
BASE DENSITY	177	(968 SF AVG.)
LI PERCENTAGE OF BASE DENSITY	10%	
LI UNITS (ROUNDS UP)	18	
DENSITY BONUS	20%	
BONUS UNITS (ROUNDS UP)	36	
MAXIMUM PROJECT WITH BONUS UNITS	213	
PROPOSED PROJECT UNITS	210	(968 SF AVG.)

DENSITY BONUS CONCESSIONS / INCENTIVES:

WHILE THE PROJECT IS ELIGIBLE FOR ONE CONCESSION/INCENTIVE, THE PROJECT IS NOT CURRENTLY REQUESTING ANY CONCESSIONS OR INCENTIVES.

DENSITY BONUS WAIVERS

THE FOLLOWING WAIVERS ARE REQUESTED IN ORDER TO PHYSICALLY ACCOMMODATE THE DENSITY OF THE PROJECT AS PROPOSED: WAIVERS FOR HEIGHT, FRONT/SIDE/REAR SETBACKS, AND CIVIC SPACE SETBACKS

ZONING STANDARDS

T5N 50/70

	BASE ZONING	PROPOSED	COMPLIANCE
HEIGHT	50'	86'	COMPLIES W/ WAIVER
SETBACK - FRONT	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE STREET	0' MIN.; 15' MAX	0'	COMPLIES
SETBACK - SIDE	0' MIN.	0'-10'	COMPLIES
SETBACK - REAR	0' MIN.	0'-10'	COMPLIES
STEPBACKS - FRONT	10' MIN AT 35'*	0'	COMPLIES W/ WAIVER
STEPBACKS - SIDE STREET	10' MIN AT 35'*	0'	COMPLIES W/ WAIVER
STEPBACKS - REAR	10' MIN AT 35'*	10'	COMPLIES
GROUND LEVEL CEILING	10' MIN.	12'-8"	COMPLIES

*NOT REQUIRED FOR MANSARD ROOFS

T4N 40/50

	BASE ZONING	PROPOSED	COMPLIANCE
HEIGHT	40'	86'	COMPLIES W/ WAIVER
SETBACK - FRONT	7' MIN.; 15' MAX	0'	COMPLIES W/ WAIVER
SETBACK - SIDE STREET	7' MIN.; 15' MAX	0'	COMPLIES W/ WAIVER
SETBACK - SIDE	5' MIN	0'-10'	COMPLIES W/ WAIVER
SETBACK - REAR	15' MIN	0'-10'	COMPLIES W/ WAIVER
STEPBACKS - FRONT	10' MIN AT 35'*	0'	COMPLIES W/ WAIVER
STEPBACKS - SIDE STREET	10' MIN AT 35'*	0'	COMPLIES W/ WAIVER
STEPBACKS - REAR	10' MIN AT 35'*	10'	COMPLIES
GROUND LEVEL CEILING	9' MIN.	12'-8"	COMPLIES

*NOT REQUIRED FOR MANSARD ROOFS

1 - PROJECT DATA

-

CIVIC SPACE

	BASE ZONING	PROPOSED	COMPLIANCE
SETBACK TO CREATE CIVIC SPACE	1,000 SF	0	COMPLIES W/ WAIVER

FLOOR AREA TABLE

	RESIDENTIAL	PARKING / MEP	TOTAL
LEVEL 8	32,595	0	32,595
LEVEL 7	33,113	0	33,113
LEVEL 6	33,113	0	33,113
LEVEL 5	33,113	0	33,113
LEVEL 4	33,113	0	33,113
LEVEL 3	15,007	6,241	21,248
LEVEL 2	15,981	23,721	39,702
LEVEL 1.5	0	24,673	24,673
LEVEL 1	7,198	30,450	37,648
Total	203,233	85,085	288,318
NUMBER OF UNITS	210		
AVERAGE UNIT SIZE	968		

UNIT COUNT TABLE

	STUDIO	1-BR	2-BR	3-BR	TOTAL
LEVEL 8	9	13	9	5	36
LEVEL 7	9	13	9	6	37
LEVEL 6	9	13	9	6	37
LEVEL 5	9	13	9	6	37
LEVEL 4	8	13	9	6	36
LEVEL 3		3	10		13
LEVEL 2		2	12		14
LEVEL 1					0
TOTAL	44	70	67	29	210
	21%	33%	32%	14%	
BMR UNITS	4	6	6	2	18
	22%	33%	33%	11%	

VEHICULAR PARKING (Per DSRPP)

REQUIRED PARKING	UNITS	RATIO		TOTAL
STUDIO	44	0.75	1	33
1-BR UNITS	70	0.75	1	53
2-BR UNITS	67	1	1	67
3-BR UNITS	29	1.5	1	44
TOTAL REQUIRED PARKING	210			196
PARKING PROVIDED	210	1.06		222
LEVEL 3				17
LEVEL 2				73
LEVEL 1.5				73
LEVEL 1				59
ADA REQUIRED		2%		4.44
ADA PROVIDED				6

BIKE PARKING (Per DSRPP)

	UNITS	RATIO		TOTAL
STUDIOS	44	1	1	44
1-BR UNITS	70	1	1	70
2-BR UNITS	67	2	1	134
3-BR UNITS	29	3	1	87
TOTAL REQUIRED				335
PROVIDED				342

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SHEET:

ZONING DATA

A0.1

1 - VICINITY MAP
NTS

N

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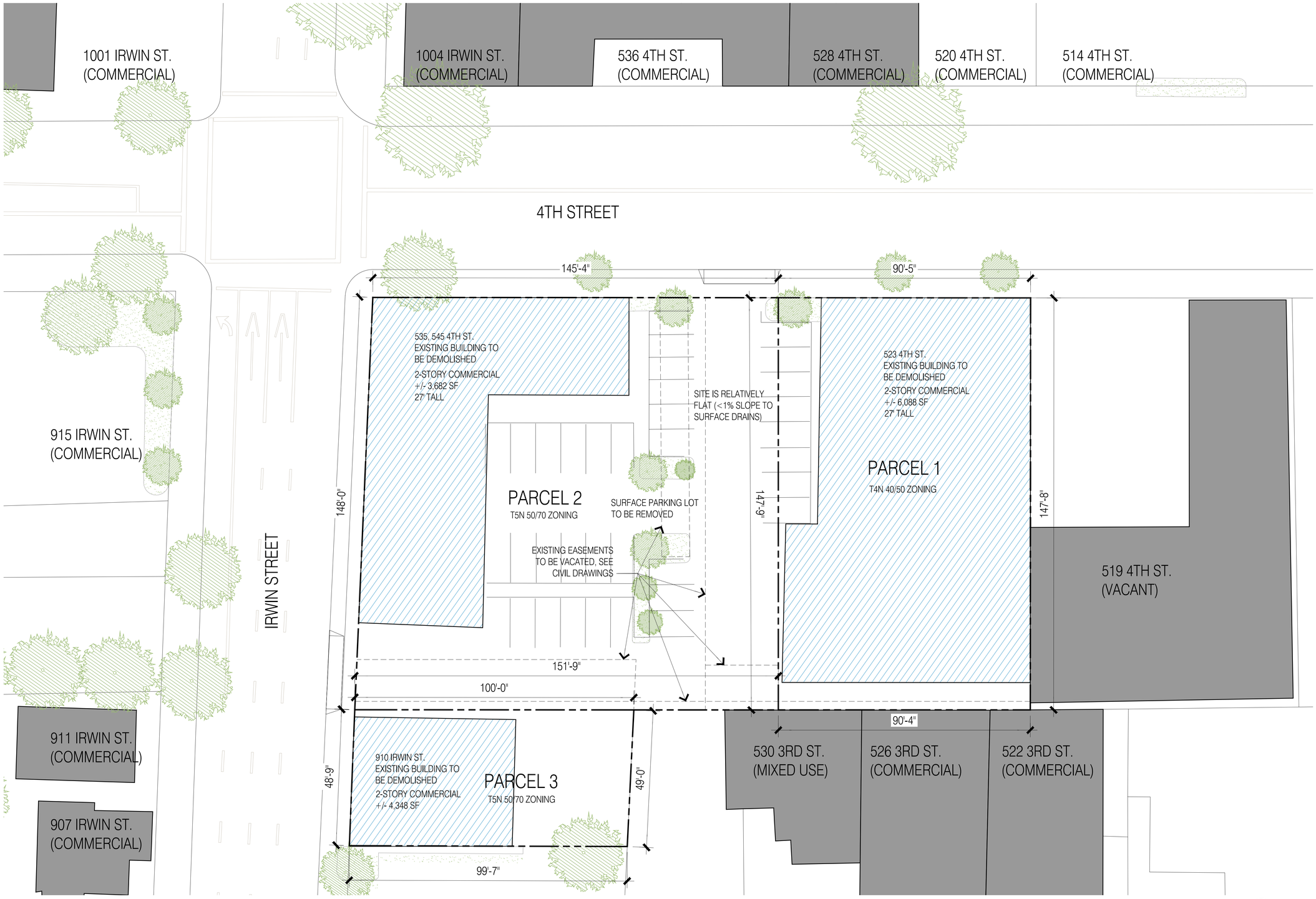
JOB: 2306

SHEET:

VICINITY MAP

A0.2



1 A2.0 EXISTING SITE & DEMO PLAN

1/32"=1'-0" @ 11x17 1/16"=1'-0" @ 24x36

0 4 8 16 32

N

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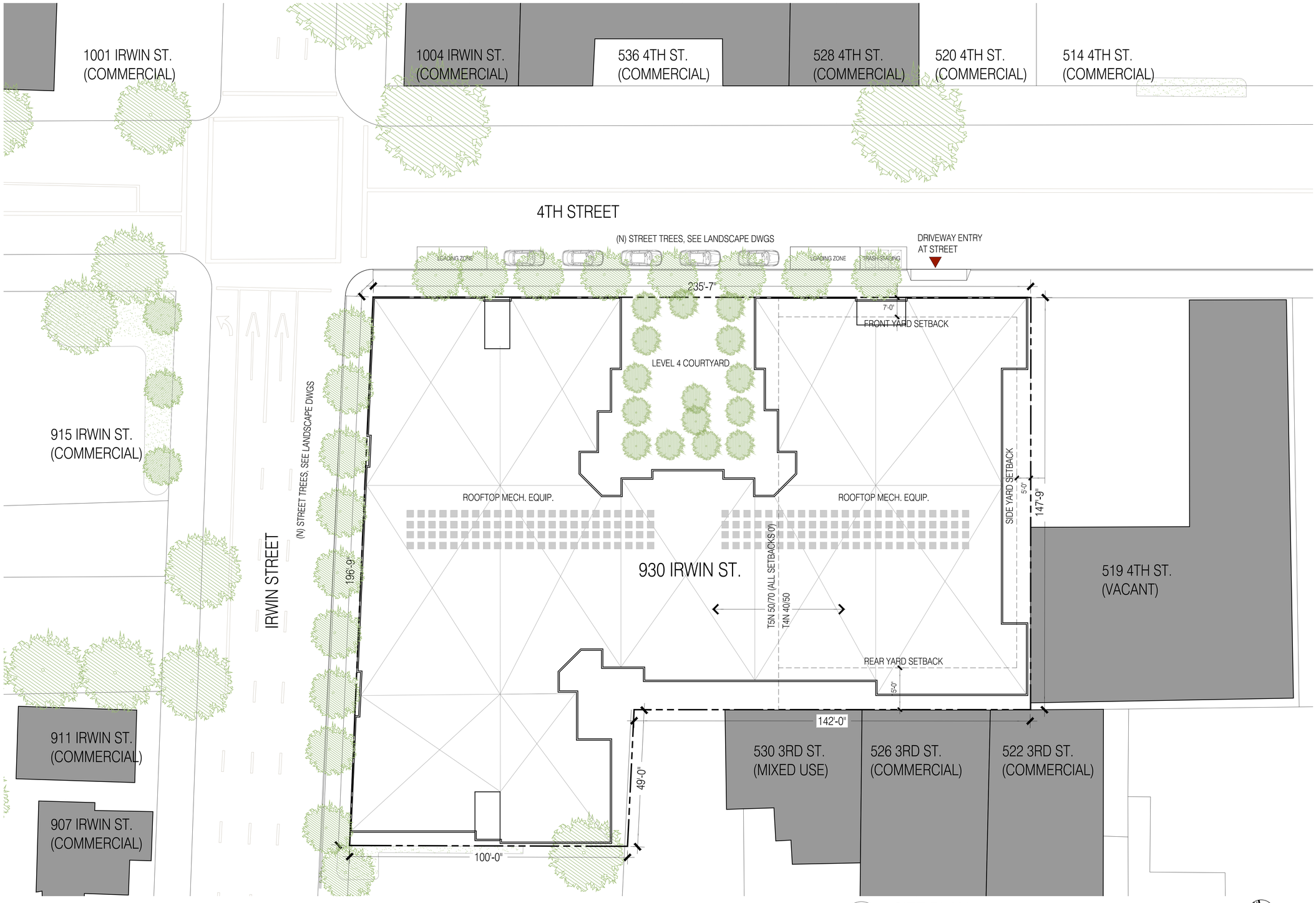
JOB: 2306

SHEET:

EXISTING
SITE & DEMO
PLAN

A2.0A



1 A2.0 SITE PLAN

1/32"=1'-0" @ 11x17 1/16"=1'-0" @ 24x36

0 4 8 16 32

N

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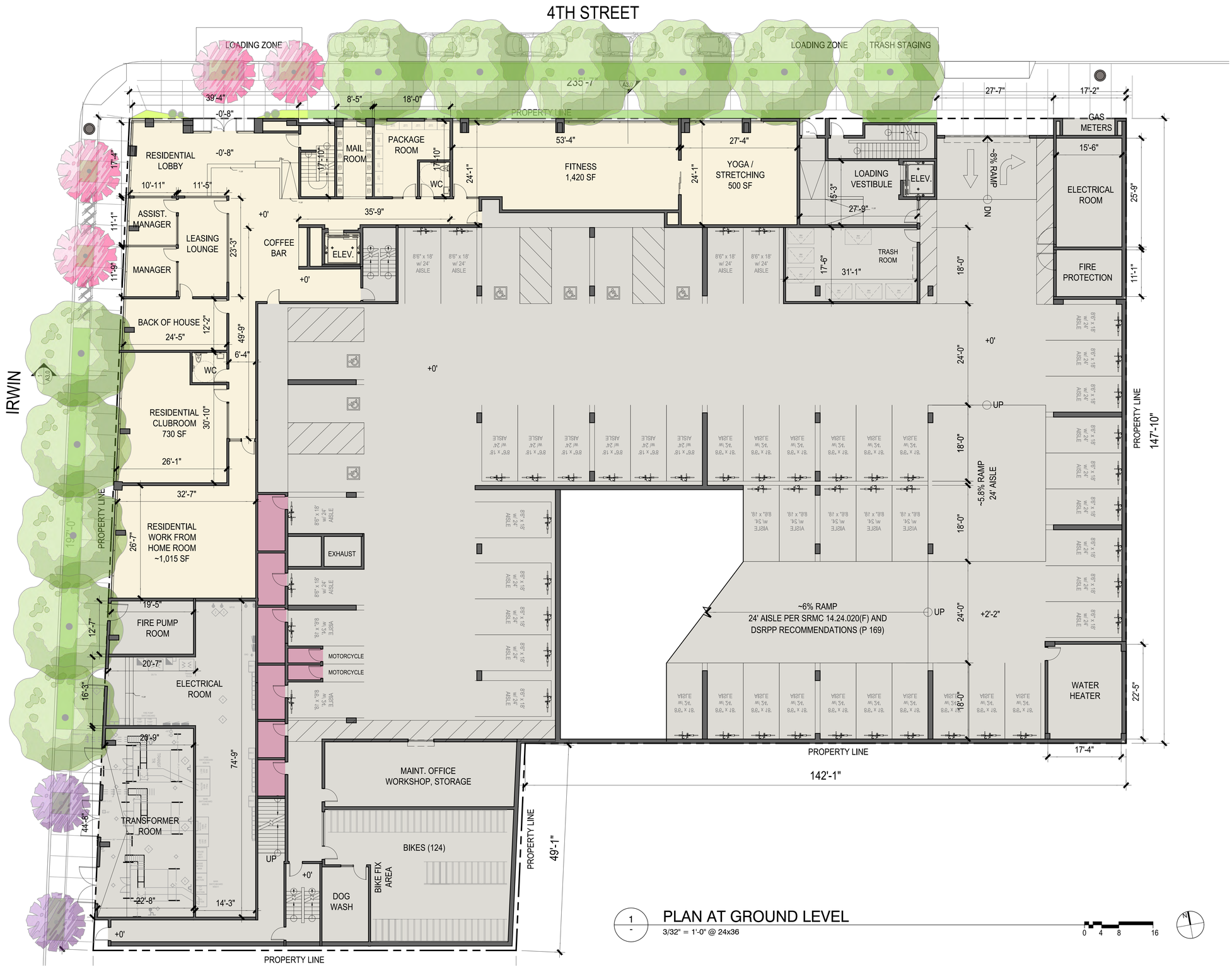
SHEET:

SITE PLAN

A2.0B



1 - PLAN AT GROUND LEVEL

3/32" = 1'-0" @ 24x36

0 4 8 16

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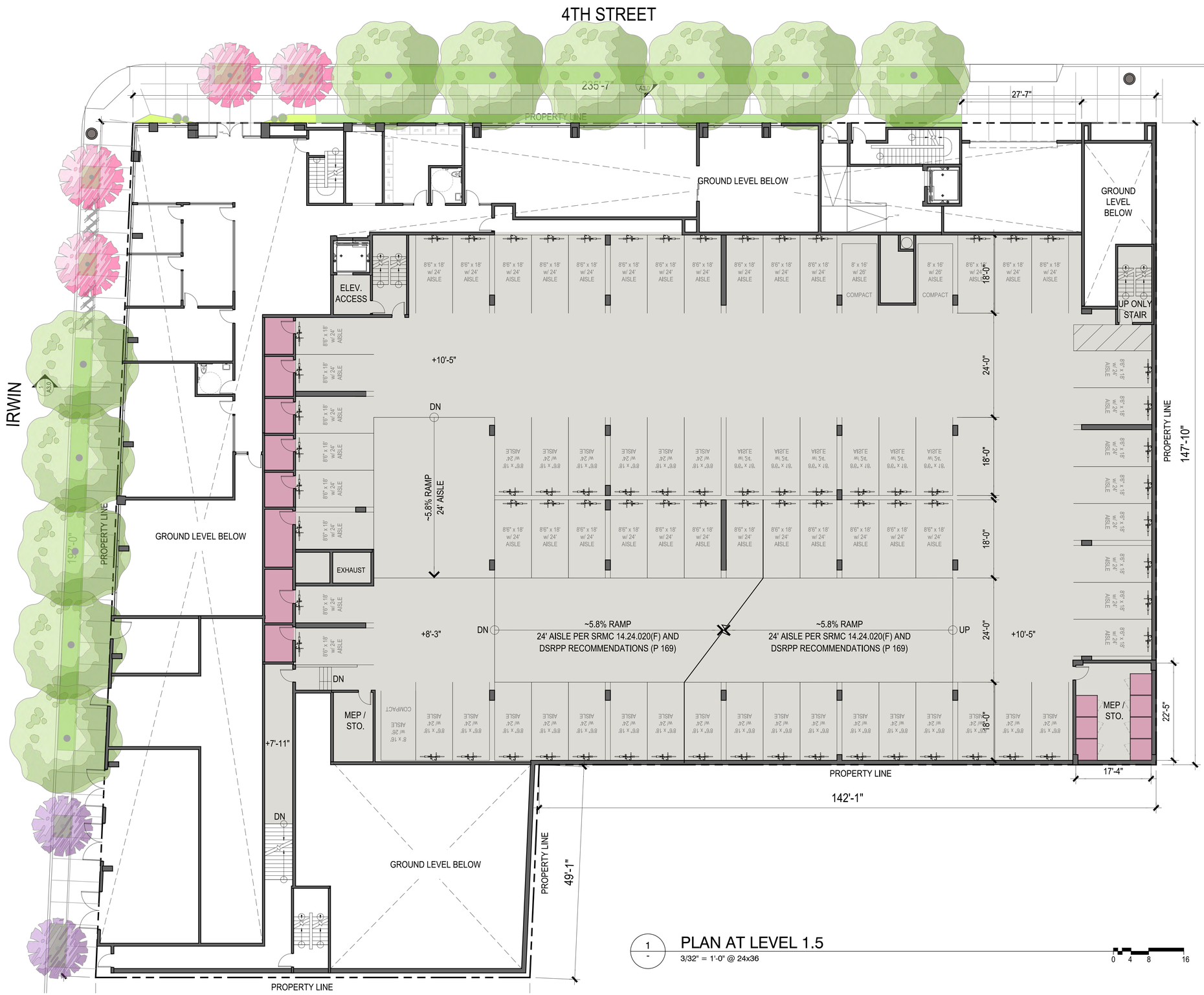
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

PLAN AT GROUND LEVEL

A2.0



1 / -
PLAN AT LEVEL 1.5
3/32" = 1'-0" @ 24x36

0 4 8 16

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SHEET:

PLANT AT LEVEL 1.5

A2.1

1 - PLAN AT LEVEL 2

3/32" = 1'-0" @ 24x36

0 4 8 16

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SHEET:

PLAN AT LEVEL 2

A2.2

1 - PLAN AT LEVEL 3

3/32" = 1'-0" @ 24x36

0 4 8 16

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SHEET:

PLAN AT LEVEL 3

A2.3

1 - PLAN AT LEVEL 4 PODIUM

3/32" = 1'-0" @ 24x36

0 4 8 16

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JOB: 2306

SHEET:

PLAN AT LEVEL 4 PODIUM

A2.4

1 - PLAN AT LEVELS 5

3/32" = 1'-0" @ 24x36

0 4 8 16

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12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

PLAN AT
LEVEL 5

A2.5

1 - PLAN AT LEVEL 6

3/32" = 1'-0" @ 24x36

0 4 8 16

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12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

PLAN AT LEVEL 6

A2.6

1 - PLAN AT LEVEL 7

3/32" = 1'-0" @ 24x36

0 4 8 16

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SHEET:

PLAN AT
LEVEL 7

A2.7

1 - PLAN AT LEVEL 8

3/32" = 1'-0" @ 24x36

0 4 8 16

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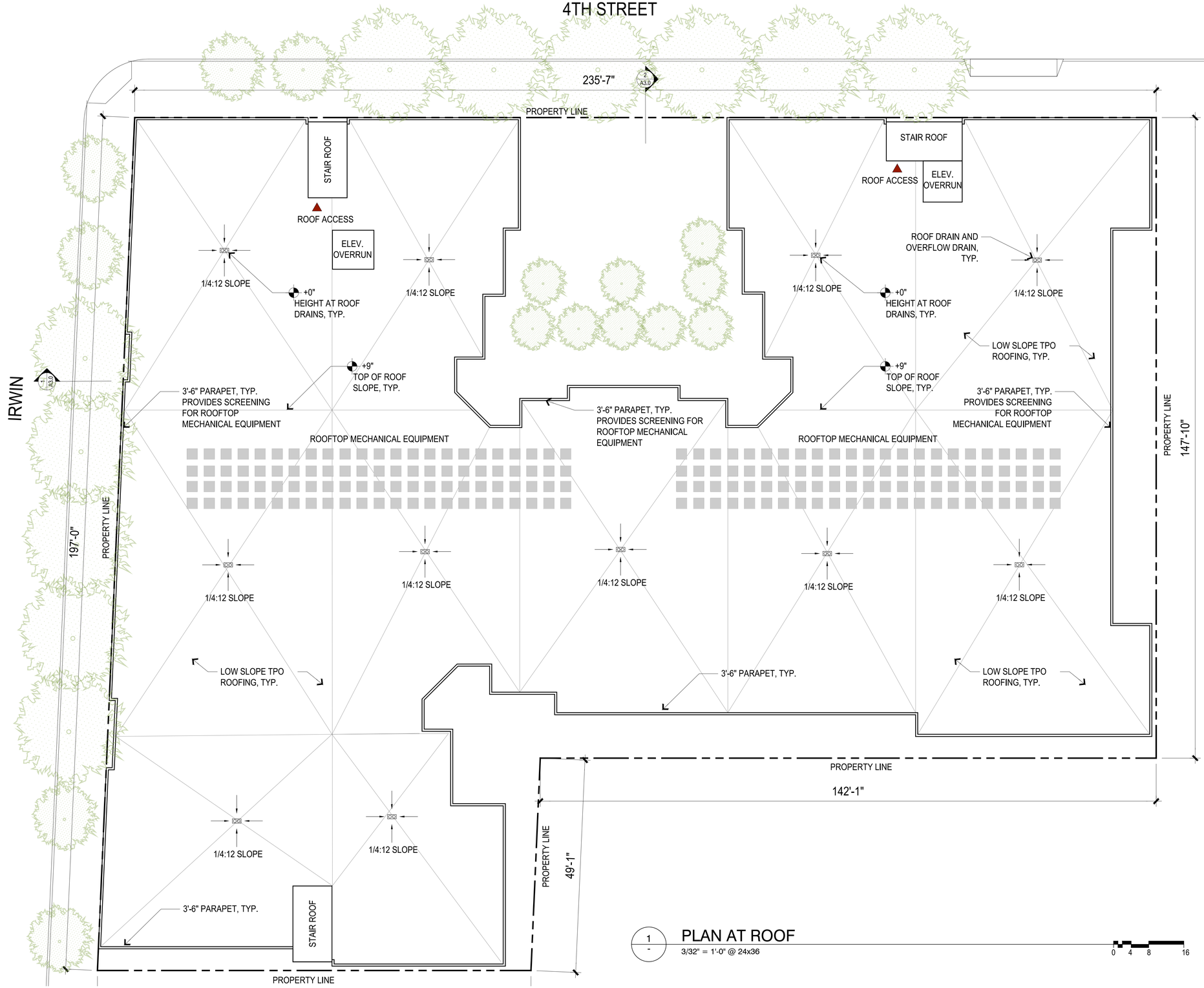
SHEET:

PLAN AT LEVEL 8

A2.8



1 PLAN AT ROOF
3/32" = 1'-0" @ 24x36

0 4 8 16

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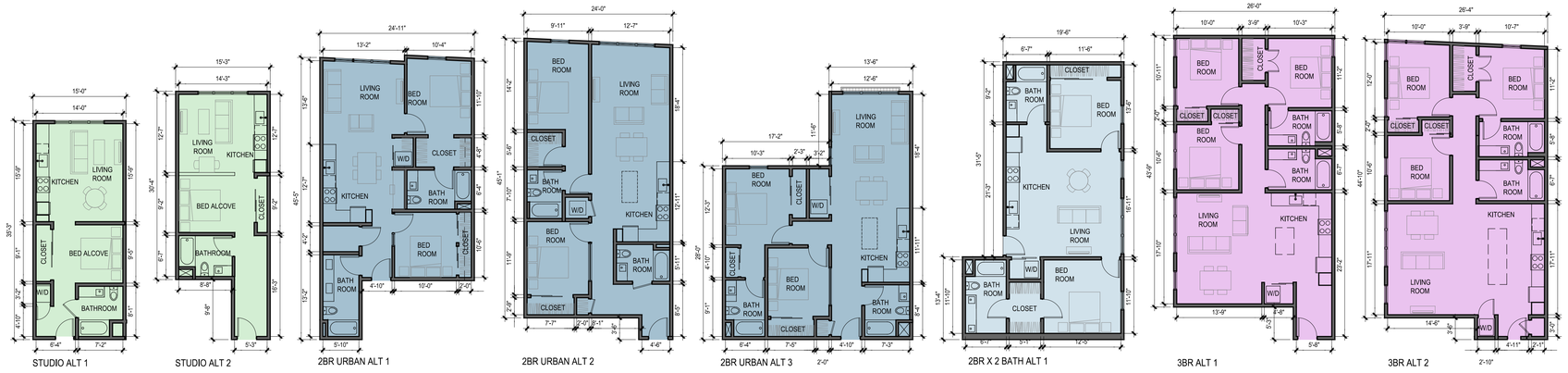
JOB: 2306

SHEET:

PLAN AT ROOF

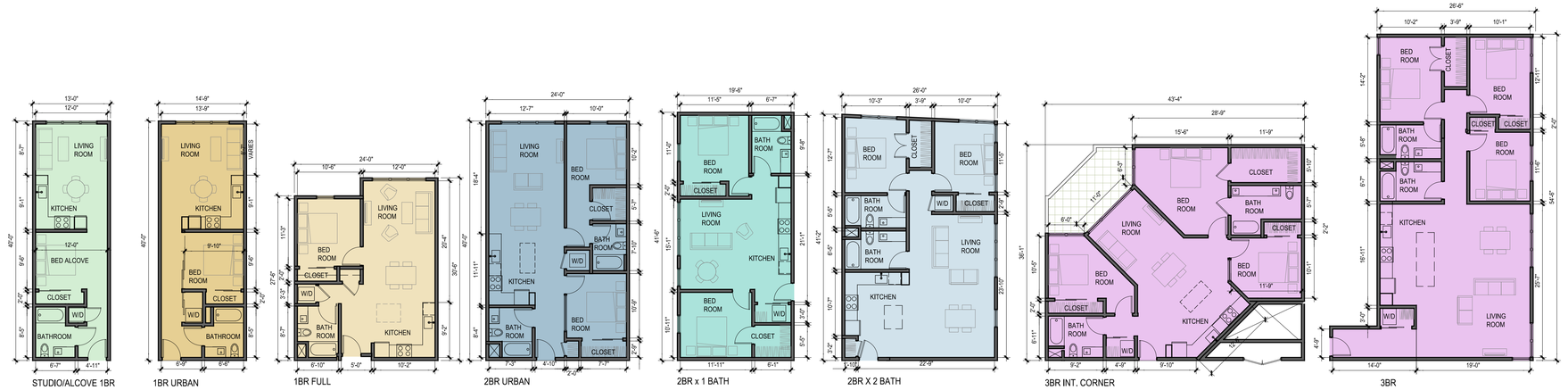
A2.9



2 - UNIQUE UNIT PLANS

3/32" = 1'-0" @ 24x36

0 5 10 20



1 - TYPICAL UNIT PLANS

3/32" = 1'-0" @ 24x36

0 5 10 20

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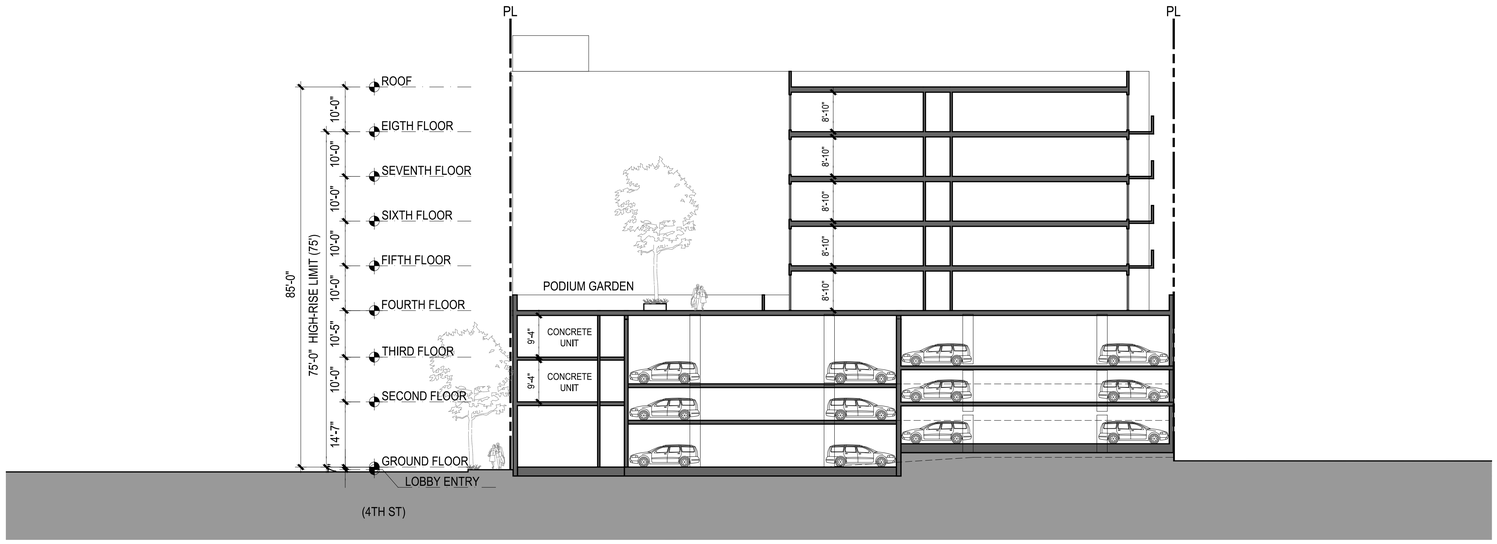
08.16.2024 PLANNING RESUBMITTAL
10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

UNIT PLANS

A2.10

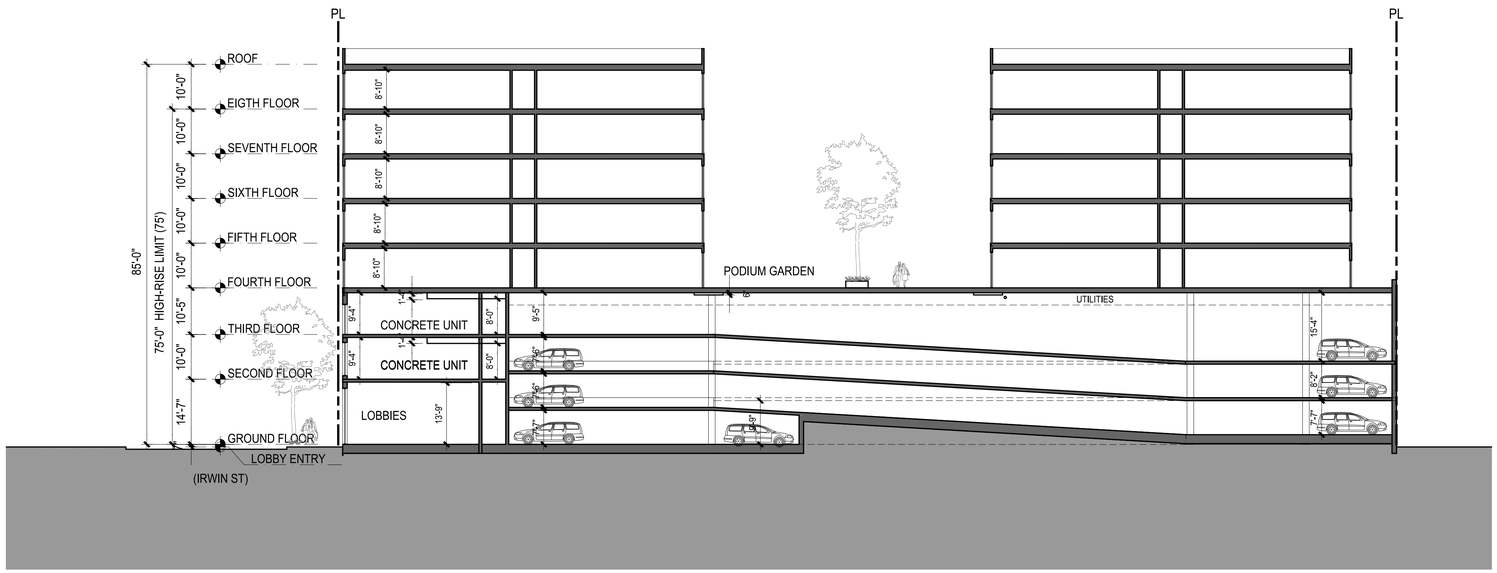


2
-

BUILDING SECTION - LOOKING EAST

1/16" = 1'-0" @ 24x36

0 4 8 16 32



1
-

BUILDING SECTION - LOOKING NORTH

1/16" = 1'-0" @ 24x36

0 4 8 16 32

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JOB: 2306

SHEET:

BUILDING
SECTIONS

A3.0

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12.20.2024 PLANNING RESUBMITTAL

1 / A3.1 EAST ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

JOB: 2306

SHEET:

BUILDING
ELEVATIONS

A3.1

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12.20.2024 PLANNING RESUBMITTAL

1 / A3.2 NORTH ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

JOB: 2306

SHEET:

BUILDING
ELEVATIONS

A3.2

1 A3.3 WEST ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

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10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

BUILDING ELEVATIONS

A3.3

1 A3.4 SOUTH ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

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10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

BUILDING ELEVATIONS

A3.4

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1 - PERSPECTIVE VIEW - 4TH STREET LOOKING EAST

-

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10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

CONCEPTUAL
RENDERING

A3.5

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1 - PERSPECTIVE VIEW - IRWIN STREET LOOKING NORTH

-

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08.16.2024 PLANNING RESUBMITTAL
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12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

CONCEPTUAL
RENDERING

A3.6

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1
-

PERSPECTIVE VIEW - IRWIN STREET LOOKING SOUTH

-

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06.13.2024 PLANNING SUBMITTAL
08.16.2024 PLANNING RESUBMITTAL
10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

CONCEPTUAL
RENDERING

A3.7

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1
-
PERSPECTIVE VIEW - 4TH STREET LOOKING WEST
-

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06.13.2024 PLANNING SUBMITTAL
08.16.2024 PLANNING RESUBMITTAL
10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

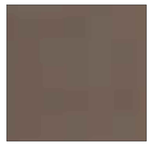
SHEET:

CONCEPTUAL
RENDERING

A3.8

PAINTED SIDING

INTEGRAL COLOR STUCCO



VINYL WINDOWS

DARK GRAY STUCCO

1 - EAST ELEVATION

3/64"=1'-0" @ 11X17 3/32" = 1'-0" @ 24X36

0 4 8 16

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08.16.2024 PLANNING RESUBMITTAL
10.18.2024 PLANNING RESUBMITTAL
12.20.2024 PLANNING RESUBMITTAL

JOB: 2306

SHEET:

BUILDING MATERIALS

MAT

TITLE REPORT (PTR1)

THE PRELIMINARY TITLE REPORT USED IN THIS SURVEY WAS ISSUED BY CHICAGO TITLE COMPANY, ORDER NO. 98205932-982-SK-JM, UPDATE D, DATED MARCH 22, 2024 AT 7:30 A.M., REFERRED TO HEREON AS THE "PTR1".

TITLE TO SAID ESTATE IS VESTED IN (PTR1):

SEAGULL PRIME REAL ESTATE FUND, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY

THE ESTATE OR INTEREST IN THE LAND IS (PTR1):

A FEE

LEGAL DESCRIPTION (PTR1)

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN RAFAEL, IN THE COUNTY OF MARIN, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCELS 1 AND 2, AS SHOWN ON THAT CERTAIN PARCEL MAP ENTITLED, "PARCEL MAP, HUT PROPERTIES LAND DIVISION AND LOT LINE ADJUSTMENT LOTS 7 TO 11 & 22 FOREST PARK 5 R.M. 31, SAN RAFAEL, CALIFORNIA", FILED AUGUST 24, 1979 IN VOLUME 17, PAGE 1 OF PARCEL MAPS, MARIN COUNTY RECORDS.

APN: 014-123-28

EXCEPTIONS (PTR1)

1. THE HEREIN DESCRIBED PROPERTY LIES WITHIN THE BOUNDARIES OF A MELLO-ROOS COMMUNITY FACILITIES DISTRICT (CFD), CFD NO 2014-1, FOR: CLEAN ENERGY, DISCLOSED BY: ASSESSMENT DIAGRAM, RECORDING DATE: AUGUST 28, 2015, RECORDING NO.: 2015-0041880, OF OFFICIAL RECORDS (PTR EXC. 5 - NOT PLOTTABLE).
2. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS (PTR EXC. 6 - NOT PLOTTABLE).
3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS RESERVED IN A DOCUMENT; RESERVED BY: LEON F. DOUGLASS, ET UX, PURPOSE: SEWER LINE, RECORDING DATE: JUNE 18, 1924, RECORDING NO: BOOK 50, PAGE 198, OF OFFICIAL RECORDS, AFFECTS: THE SOUTHERLY 3' OF PARCEL 2, RESERVED BY: PETER BACIGALUPI JR. AND EVELYN BACIGALUPI, PURPOSE: SEWER LINE, RECORDING DATE: JULY 15, 1925, RECORDING NO: BOOK 73, PAGE 274, OF OFFICIAL RECORDS, AFFECTS: THE SOUTHERLY 3' OF PARCEL 2, RESERVED BY: PETER BACIGALUPI JR. AND EVELYN BACIGALUPI, PURPOSE: SEWER LINE, RECORDING DATE: SEPTEMBER 18, 1925, RECORDING NO: BOOK 79, PAGE 31, OF OFFICIAL RECORDS, AFFECTS: THE SOUTHERLY 3' OF PARCEL 1 (PTR EXC. 7 - PLOTTED).
4. MATTERS CONTAINED IN THAT CERTAIN DOCUMENT ENTITLED: DISPOSITION AND DEVELOPMENT AGREEMENT, DATED: SEPTEMBER 19, 1978, EXECUTED BY: HELLMAN-TURRINI PROPERTIES AND SAN RAFAEL REDEVELOPMENT AGENCY, RECORDING DATE: JULY 11, 1979, RECORDING NO: BOOK 3576, PAGE 367, OF OFFICIAL RECORDS, REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS, MATTERS CONTAINED IN THAT CERTAIN DOCUMENT, ENTITLED: NOTICE OF CERTIFICATE OF COMPLETION, EXECUTED BY: SAN RAFAEL REDEVELOPMENT AGENCY, RECORDING DATE: NOVEMBER 10, 1980, RECORDING NO: BOOK 3789, PAGE 103, OF OFFICIAL RECORDS, REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS (PTR EXC. 9 - NOT PLOTTABLE).
5. COVENANTS, CONDITIONS AND RESTRICTIONS, AS SET FORTH IN THE DOCUMENT, RECORDING DATE: JULY 11, 1979, RECORDING NO: 3807, BOOK 3576, PAGE 421, OF OFFICIAL RECORDS (PTR EXC. 10 - NOT PLOTTABLE).
6. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS DELINEATED OR AS OFFERED FOR DEDICATION, ON THE PARCEL MAP FILED AUGUST 24, 1979, IN BOOK 17 OF PARCEL MAPS, PAGE 1; PURPOSE: DRIVEWAY AND VEHICULAR PARKING EASEMENTS, AFFECTS: AS DELINEATED THEREON (PTR EXC. 11 - PLOTTED).
7. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT, GRANTED TO: PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION, PURPOSE: UNDERGROUND CONDUITS, PIPES, MANHOLES, SERVICE BOXES, ETC., RECORDING DATE: MARCH 14, 1980, RECORDING NO: 10922, BOOK 3690, PAGE 165, OF OFFICIAL RECORDS, AFFECTS: AS DESCRIBED THEREIN (PTR EXC. 13 - PLOTTED).
8. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT, GRANTED TO: MARTIN E. BARRETT, TRUSTEE, CHASE INTERNATIONAL TRUST, PURPOSE: INGRESS AND EGRESS, DATED: JUNE 26, 1984, RECORDING DATE: JULY 13, 1984, RECORDING NO: 84033843, OF OFFICIAL RECORDS (PTR EXC. 14 - PLOTTED).
9. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT, GRANTED TO: DONALD F. WALTERS, AN UNMARRIED MAN AND CHARLES S. YONAN, AN UNMARRIED MAN AS JOINT TENANTS, PURPOSE INGRESS AND EGRESS, RECORDING DATE JULY 13, 1984, RECORDING NO 84-33844, OF OFFICIAL RECORDS, AFFECTS AS DESCRIBED THEREIN (PTR EXC. 15 - PLOTTED).

TITLE REPORT (PTR2)

THE PRELIMINARY TITLE REPORT USED IN THIS SURVEY WAS ISSUED BY CHICAGO TITLE COMPANY, ORDER NO. 98206210-982-SK-JM, DATED JULY 31, 2024 AT 7:30 A.M., AMENDED AUGUST 7, 2024, AMENDMENT NO. B, REFERRED TO HEREON AS THE "PTR2".

TITLE TO SAID ESTATE IS VESTED IN (PTR2):

910 IRWIN STREET, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY

THE ESTATE OR INTEREST IN THE LAND IS (PTR2):

A FEE AS TO PARCEL(S) ONE

EASEMENT(S) MORE FULLY DESCRIBED BELOW AS TO PARCEL(S) TWO

LEGAL DESCRIPTION (PTR2)

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN RAFAEL, IN THE COUNTY OF MARIN, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL ONE:

LOT 23, AS SHOWN UPON THAT CERTAIN MAP ENTITLED, "MAP OF FORREST PARK", FILED FOR RECORD APRIL 9, 1924 IN VOLUME 5 OF MAPS AT PAGE 31, MARIN COUNTY RECORDS.

PARCEL TWO:

AN EASEMENT FOR INGRESS AND EGRESS PURPOSES (WITHOUT THE RIGHT TO PARK ANY VEHICLE) OVER THE FOLLOWING DESCRIBED PROPERTY:

BEGINNING AT A POINT BEING THE SOUTHWESTERLY CORNER OF PARCEL 2, AS SHOWN UPON THAT CERTAIN PARCEL MAP ENTITLED, "PARCEL MAP, HUT PROPERTIES LAND DIVISION AND LOT LINE ADJUSTMENT" FILED FOR RECORD AUGUST 24, 1979 IN VOLUME 17 OF PARCEL MAPS AT PAGE 1, MARIN COUNTY RECORDS; THENCE ALONG THE SOUTHWESTERLY LINE OF SAID PARCEL TWO SOUTH 81° 15' EAST 100.0 FEET; THENCE LEAVING SAID SOUTHWESTERLY LINE NORTH 11° 15' EAST 20 FEET; THENCE NORTH 81° 15' WEST 100 FEET; MORE OR LESS, TO A POINT ON THE NORTHWESTERLY LINE OF SAID PARCEL TWO, DISTANT THEREON NORTH 11° 15' EAST 20 FEET FROM THE POINT OF BEGINNING; THENCE ALONG SAID NORTHWESTERLY LINE SOUTH 11° 15' WEST 20 FEET TO THE POINT OF BEGINNING.

SAID EASEMENT IS GRANTED AS APPURTENANT TO LOT 23, AS SHOWN UPON THAT CERTAIN MAP ENTITLED, "FORREST PARK, SAN RAFAEL", FILED FOR RECORD APRIL 9, 1924 IN VOLUME 5 OF MAPS AT PAGE 31, MARIN COUNTY RECORDS.

APN: 014-123-21

EXCEPTIONS (PTR2)

1. THE LAND LIES WITHIN THE BOUNDARIES OF AN IMPROVEMENT DISTRICT, COMMUNITY FACILITIES DISTRICT NO. 2014-1 (CLEAN ENERGY) (PTR EXC. 5 - NOT PLOTTABLE).
2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO AS RESERVED IN A DOCUMENT; RESERVED BY: HUT PROPERTIES, A GENERAL PARTNERSHIP, PURPOSE: INGRESS AND EGRESS, RECORDING DATE: JULY 13, 1984, RECORDING NO: 84033843, OF OFFICIAL RECORDS, AFFECTS: PARCEL TWO, REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS (PTR EXC. 6 - PLOTTED).
3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT, GRANTED TO: UNITED BUSINESS SERVICES INC. A CALIFORNIA CORPORATION, PURPOSE: INGRESS AND EGRESS, RECORDING DATE: SEPTEMBER 20, 1984, RECORDING NO: 84045080, OF OFFICIAL RECORDS, AFFECTS: PARCEL TWO, REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS (PTR EXC. 7 - PLOTTED).

NOTES

1. EASEMENTS AND/OR RIGHTS OF WAY ARE SHOWN HEREON PER THE PTR. OTHER EASEMENTS AND/OR RIGHTS OF WAY OF RECORD, IF ANY, ARE NOT SHOWN HEREON.
2. DATE OF FIELD SURVEY: MAY 6, 15, 24, JUNE 21, AND JULY 11, 19 AND 22, 2024.
3. UTILITY JURISDICTIONS / PROVIDERS ARE AS FOLLOWS:
   STORM DRAINS: CITY OF SAN RAFAEL
   SANITARY SEWER: CENTRAL MARIN SANITATION AGENCY
   WATER: MARIN MUNICIPAL WATER DISTRICT
   ELECTRICITY/NATURAL GAS: PACIFIC GAS & ELECTRIC CO.
4. THERE ARE NO CEMETERIES ON OR WITHIN 100 FEET OF THE SUBJECT PROPERTIES.
5. THE SURVEYED PROPERTY IS THE SAME AS THE PROPERTY DESCRIBED IN THE PRELIMINARY TITLE REPORT.
6. THE LEGAL DESCRIPTIONS MATHEMATICALLY CLOSE.
7. THERE ARE NO WETLAND AREAS IN THE SUBJECT PROPERTY.
8. THERE IS NO OBSERVED EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP, OR SANITARY LANDFILL.

REFERENCES

(R1) RECORD OF SURVEY, FILED JANUARY 27, 2023 IN BOOK 2023 OF MAPS, AT PAGE 33, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA.

(R2) MAP ENTITLED "FORREST PARK, SUBDIVISION OF BLOCK 56, COLEMAN ADDITION, SAN RAFAEL, CAL.", FILED APRIL 09, 1924 IN BOOK 5 OF MAPS, AT PAGE 31, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA.

(R3) PARCEL MAP FILED AUGUST 24, 1979 IN BOOK 17 OF PARCEL MAPS, AT PAGE 1, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA.

(R4) RECORD OF SURVEY, FILED DECEMBER 17, 2021 IN BOOK 2021 OF MAPS, AT PAGE 221, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA.

(R5) RECORD OF SURVEY, FILED JUNE 04, 1970 IN BOOK 9 OF SURVEYS, AT PAGE 27, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA.

BASIS OF BEARINGS

THE BASIS OF BEARINGS OF THIS SURVEY IS BASED ON THE OCCUPANCY OF FENCES AND BUILDINGS ALONG THE MEDIAN LINE OF THE BLOCK AS SHOWN ON THAT CERTAIN MAP ENTITLED "FORREST PARK, SUBDIVISION OF BLOCK 56, COLEMAN ADDITION, SAN RAFAEL, CAL.", FILED APRIL 09, 1924 IN BOOK 5 OF MAPS, AT PAGE 31, IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY, STATE OF CALIFORNIA. TAKEN AS SOUTH 81°15'00" EAST.

BENCHMARK

NGS PID HT1752, DESIGNATION Y 107 RESET, BEING A NGS VERTICAL CONTROL DISK SET IN BRIDGE RAIL, LOCATED 0.1 MILE SOUTHEAST OF THE OLD NORTHWESTERN PACIFIC RAILROAD STATION, AT THE NORTHWEST CORNER OF SECOND STREET BRIDGE NO. 27-33, SET IN THE TOP OF THE NORTH CONCRETE GUARD RAIL OVER THE WEST CONCRETE ABUTMENT, 79.2 FEET EAST OF THE CENTER LINE OF HETHERTON STREET, 33.7 FEET NORTH OF THE CENTER LINE OF SECOND STREET, 4.4 FEET EAST OF THE NORTHWEST CORNER OF THE BRIDGE, AND ABOUT 2 FEET HIGHER THAN THE STREET. ELEVATION = 12.00 FEET, NAVD88

EASEMENT NOTES

(1) EASEMENT FOR INGRESS AND EGRESS PURPOSES (WITHOUT THE RIGHT TO PARK ANY VEHICLE) IN FAVOR OF HUT PROPERTIES, A GENERAL PARTNERSHIP, RECORDED JULY 13, 1984 AS DOCUMENT NUMBER 84-033843, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(2) EASEMENT FOR INGRESS AND EGRESS PURPOSES (WITHOUT THE RIGHT TO PARK ANY VEHICLE) IN FAVOR OF UNITED BUSINESS SERVICES INC., A CALIFORNIA CORPORATION, RECORDED SEPTEMBER 20, 1984 AS DOCUMENT NUMBER 84-045080, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(3) 3' SEWER LINE EASEMENT RESERVED BY LEON F. DOUGLASS, ET UX., RECORDED JUNE 18, 1924 IN BOOK 50, AT PAGE 198, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(4) 3' SEWER LINE EASEMENT RESERVED BY PETER BACIGALUPI JR. AND EVELYN BACIGALUPI RECORDED JULY 15, 1925 IN BOOK 73, AT PAGE 274, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(5) 3' SEWER LINE EASEMENT RESERVED BY PETER BACIGALUPI JR. AND EVELYN BACIGALUPI RECORDED SEPTEMBER 18, 1925 IN BOOK 79, AT PAGE 31, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(6) NON-EXCLUSIVE DRIVEWAY EASEMENT APPURTENANT TO AND FOR BENEFIT OF PARCEL 1 PER 17 PM 1.

(7) VEHICULAR PARKING EASEMENT APPURTENANT TO AND FOR BENEFIT OF PARCEL 1 PER 17 PM 1.

(8) APPROXIMATE LOCATION OF UNDERGROUND EASEMENT FOR CONDUITS, PIPES, MANHOLES, SERVICE BOXES, ETC. IN FAVOR OF PACIFIC GAS AND ELECTRIC COMPANY, A CALIFORNIA CORPORATION, RECORDED MARCH 14, 1980 IN BOOK 3690, AT PAGE 165, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(9) INGRESS AND EGRESS EASEMENT IN FAVOR OF MARTIN E. BARRETT, TRUSTEE, CHASE INTERNATIONAL TRUST, RECORDED JULY 13, 1984 AS DOCUMENT NUMBER 84-033843, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

(10) INGRESS AND EGRESS EASEMENT IN FAVOR OF DONALD F. WALTERS, AN UNMARRIED MAN AND CHARLES S. YONAN, AN UNMARRIED MAN AS JOINT TENANTS, RECORDED JULY 13, 1984 AS DOCUMENT NUMBER 84-33844, OFFICIAL RECORDS OF MARIN COUNTY, STATE OF CALIFORNIA.

TABLE A NOTES

1. MONUMENTS ARE SHOWN ON SHEET 2 OF THE SURVEY.
2. THE STREET ADDRESS OF THE PROPERTY IS 523, 535 AND 545 4TH STREET, 930 IRWIN STREET AND 910-914 IRWIN STREET, SAN RAFAEL, CA
3. FLOOD ZONE DESIGNATION: THE PREMISES ARE LOCATED IN ZONE "AE" DEFINED AS "AREAS WITH BASE FLOOD ELEVATIONS DETERMINED" (ELEVATION = 10 FEET), PER FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO. 06041C0457E, EFFECTIVE DATE: MARCH 16, 2016.
4. THE TOTAL GROSS LAND AREA IS: 40,204 SQUARE FEET +/- OR 0.923 ACRES MORE OR LESS.
6. (A/B) ZONING REQUIREMENTS: PER THE CITY OF SAN RAFAEL PLANNING DEPARTMENT, THE PROPERTY IS ZONED T4N 40/50 AND T5N 50/70.

   PER THE DOWNTOWN SAN RAFAEL PRECISE PLAN, CHAPTER 9, THE SETBACK, HEIGHT AND PARKING REQUIREMENTS ARE AS FOLLOWS:

   T4N 40/50:
   SETBACKS
   MINIMUM FRONT: 7 FEET
   MINIMUM SIDE: 5 FEET
   MINIMUM STREET SIDE: 7 FEET
   MINIMUM REAR: 15 FEET

   MAXIMUM HEIGHT: 40 FEET, 50 FEET WITH BONUS

   PARKING REQUIREMENT: 3 SPACES PER 1,000 S.F.

   T5N 50/70:
   SETBACKS
   MINIMUM FRONT: 5 FEET
   MINIMUM SIDE: 0 FEET
   MINIMUM STREET SIDE: 0 FEET
   MINIMUM REAR: 0 FEET

   MAXIMUM HEIGHT: 50 FEET

   PARKING REQUIREMENT: 2.75 SPACES PER 1,000 S.F
7. (A/B1/C) EXTERIOR DIMENSIONS AND SQUARE FOOTAGE OF ALL BUILDINGS AT GROUND LEVEL, AND NUMBER OF STORIES ARE SHOWN ON SHEET 3 OF THE SURVEY.
8. SUBSTANTIAL FEATURES OBSERVED IN THE PROCESS OF CONDUCTING THE SURVEY ARE SHOWN ON SHEET 3 OF THE SURVEY.
9. THERE ARE 59 PARKING SPACES ON THE SUBJECT PROPERTY, INCLUDING 2 ACCESSIBLE SPACES.
10. THERE ARE NO DIVISION OR PARTY WALLS.
11. (A) LOCATION OF UTILITIES EXISTING ON OR SERVING THE SURVEYED PROPERTY AS DETERMINED BY OBSERVED EVIDENCE TOGETHER WITH EVIDENCE FROM PLAN OBTAINED FROM UTILITY COMPANIES OR PROVIDED BY CLIENT ARE SHOWN ON SHEET 3.
13. NAMES OF ADJOINING OWNERS OF PLATTED LANDS ARE SHOWN ON SHEET 2.
14. DISTANCE TO THE NEAREST INTERSECTING STREET IS SHOWN ON SHEET 2.
16. THERE IS NO OBSERVABLE EVIDENCE OF EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS WITHIN RECENT MONTHS.
17. THERE HAVE NOT BEEN ANY CHANGES IN STREET RIGHT OF WAY LINES EITHER COMPLETED OR PROPOSED, AND AVAILABLE FROM THE CONTROLLING JURISDICTION. THERE IS NO OBSERVABLE EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.
18. OFFSITE EASEMENTS, IF ANY, ARE SHOWN ON SHEET 2.
19. PROFESSIONAL LIABILITY INSURANCE IN THE AMOUNT OF $2,000,000 IS HELD BY THE SURVEYOR.

SURVEYOR'S CERTIFICATE

TO SEAGULL PRIME REAL ESTATE FUND, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY; 910 IRWIN STREET, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY; SAN RAFAEL APARTMENTS LLC, A DELAWARE LIMITED LIABILITY COMPANY; PR III SAN RAFAEL INVESTOR LLC, A DELAWARE LIMITED LIABILITY COMPANY; PGIM, INC., A NEW JERSEY CORPORATION; THE PRUDENTIAL INSURANCE COMPANY OF AMERICA, A NEW JERSEY CORPORATION; AND CHICAGO TITLE COMPANY:

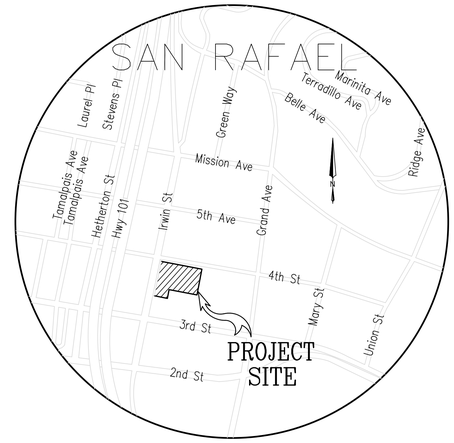
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA / NSPS LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6(A), 6(B), 7(A), 7(B)(1), 7(C), 8, 9, 10(A), 11, 13, 14, 16, 17, 18 AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON MAY 6, 15, 24, JUNE 21, AND JULY 11, 19 AND 22, 2024.

DATE OF PLAT OR MAP: AUGUST 27, 2024

JACQUELINE LUK P.L.S. 8934
FOR LUK & ASSOCIATES, INC.

PROFESSIONAL LAND SURVEYOR
JACQUELINE LINGNET LUK
LS 8934
STATE OF CALIFORNIA

SHEET INDEX



VICINITY MAP

NO SCALE

ALTA / NSPS LAND TITLE SURVEY

OF

523, 535 AND 545 4TH STREET, 930 IRWIN STREET AND 910-914 IRWIN STREET

CITY OF SAN RAFAEL, MARIN COUNTY, STATE OF CALIFORNIA

AUGUST 2024

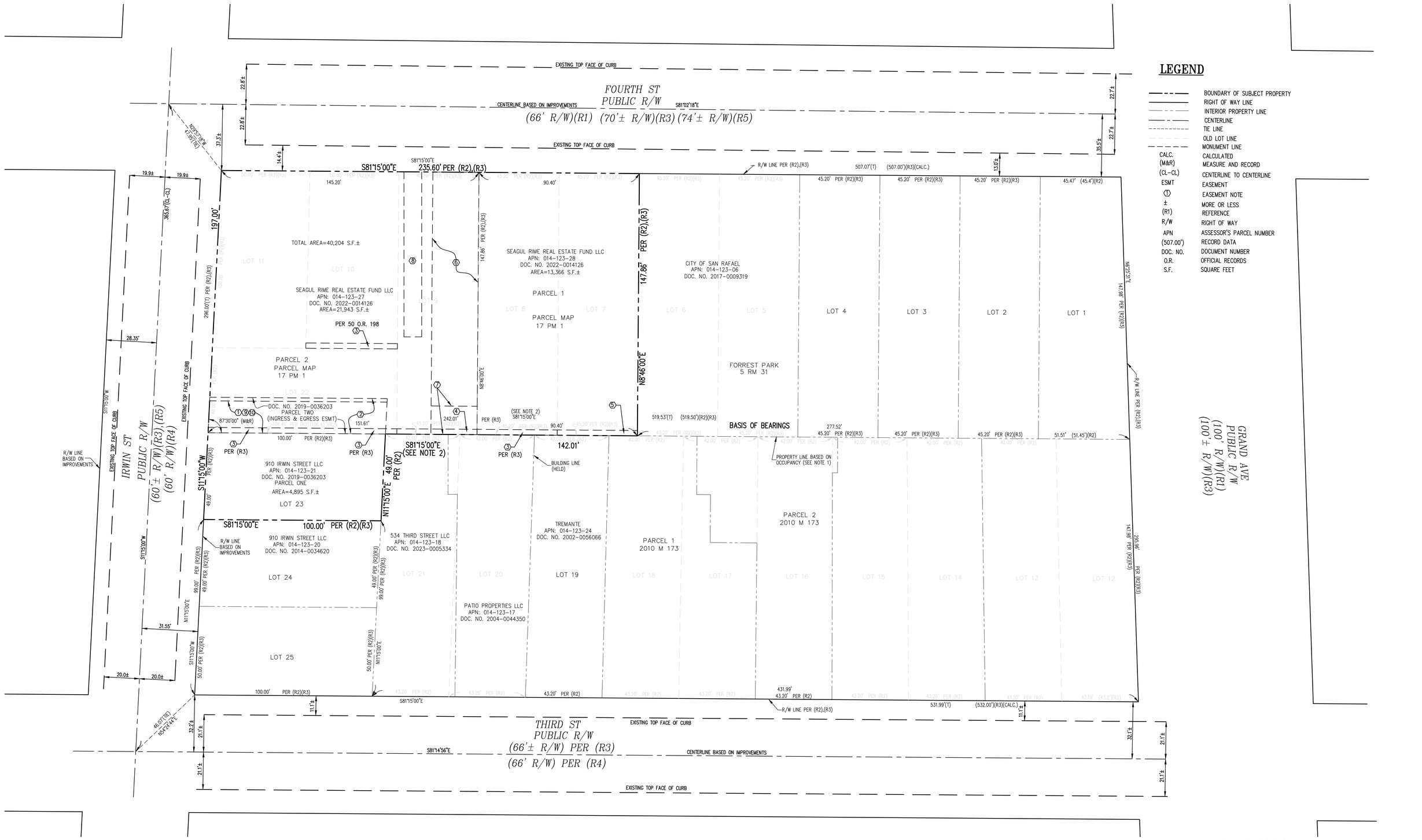
PREPARED BY

LUK AND ASSOCIATES

CIVIL ENGINEER - LAND PLANNERS - LAND SURVEYORS
738 ALFRED NOBEL DRIVE
HERCULES, CALIFORNIA 94547
(510) 724-3388

F:\Jobs\FILE2024\24105A10\ALTA\ALTA-24105A10.dwg

JOB NO.: 24105A10 PLOT DATE: AUGUST 27, 2024



LEGEND

———	BOUNDARY OF SUBJECT PROPERTY
———	RIGHT OF WAY LINE
———	INTERIOR PROPERTY LINE
———	CENTERLINE
———	TIE LINE
———	OLD LOT LINE
———	MONUMENT LINE
CALC.	CALCULATED
(M&R)	MEASURE AND RECORD
(CL-CL)	CENTERLINE TO CENTERLINE
ESMT	EASEMENT
①	EASEMENT NOTE
±	MORE OR LESS
(R1)	REFERENCE
R/W	RIGHT OF WAY
APN	ASSESSOR'S PARCEL NUMBER
(507.00')	RECORD DATA
DOC. NO.	DOCUMENT NUMBER
O.R.	OFFICIAL RECORDS
S.F.	SQUARE FEET

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

NOTE

1) OCCUPANCY LINE IS ESTABLISHED BASED ON FENCE LINES AND BUILDING LINES.
2) BEARING IS BASED ON OCCUPANCY LINE.

ALTA / NSPS
LAND TITLE SURVEY

OF

523, 535 AND 545 4TH STREET, 930 IRWIN STREET AND 910-914 IRWIN STREET

CITY OF SAN RAFAEL, MARIN COUNTY, STATE OF CALIFORNIA

AUGUST 2024

PREPARED BY

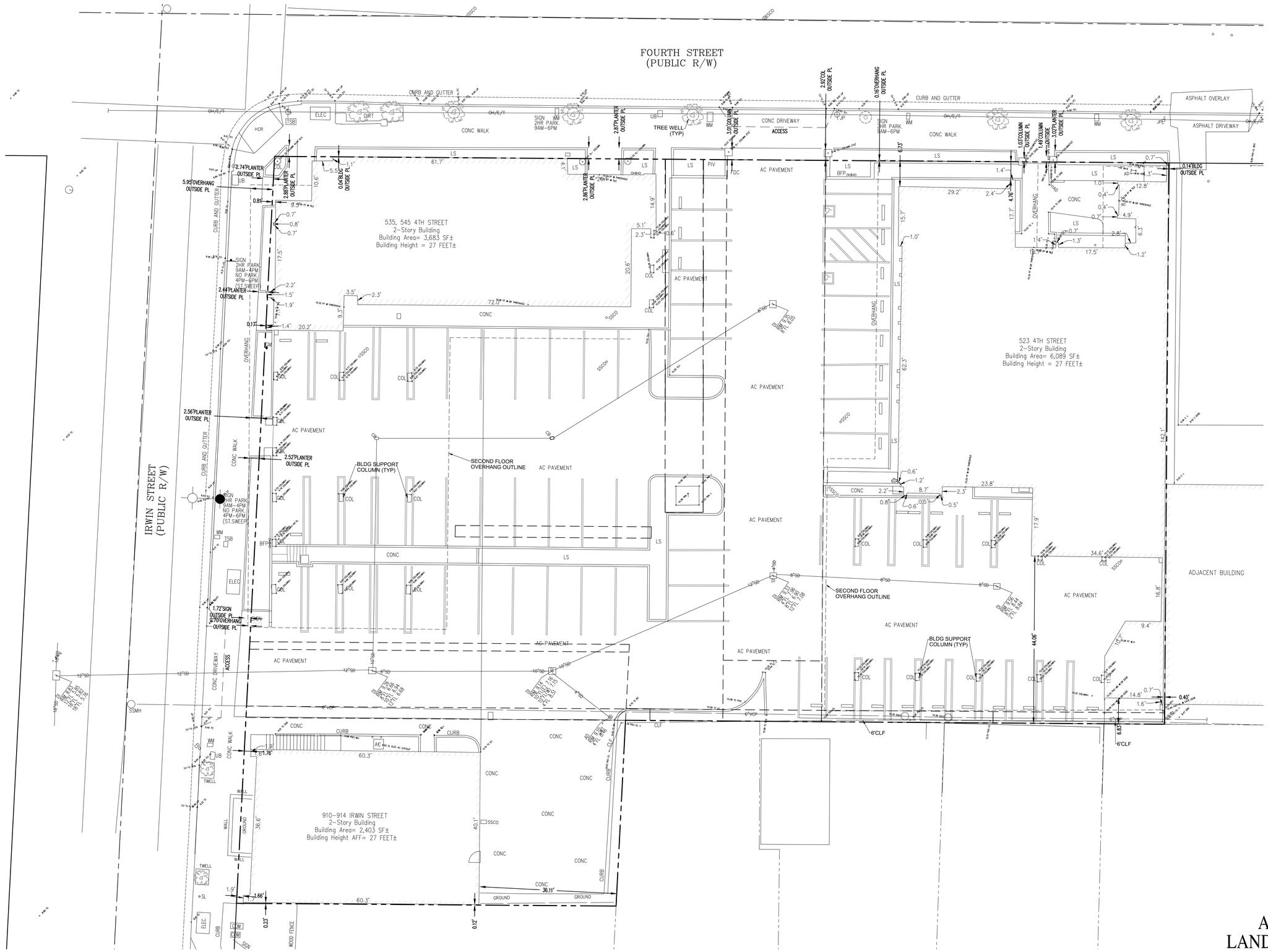
LUK AND ASSOCIATES

CIVIL ENGINEER – LAND PLANNERS – LAND SURVEYORS

738 ALFRED NOBEL DRIVE

HERCULES, CALIFORNIA 94547

(510) 724-3388



LEGEND

SYMBOLS	DESCRIPTION
	BOUNDARY – SUBJECT PROPERTY
	RIGHT OF WAY LINE
	ADJOINER LOT LINE
	EASEMENT LINE
COL	COLUMN
UB	UTILITY BOX
BFP	BACKFLOW PREVENTER
CLF	CHAINLINK FENCE
ELEC	ELECTRIC BOX
CONC	CONCRETE
LS	LANDSCAPING
TSB	TRAFFIC SIGNAL BOX
SL	STREET LIGHT
DI	TELECOMMUNICATION BOX
SSCO	GAS VALVE
COM	COMMUNICATIONS BOX
JP	JOINT POLE
OH	OVERHEAD WIRE
WM	WATER METER
FDC	FIRE DEPARTMENT CONNECTION
PIV	POST INDICATOR VALVE
CD	CURB DRAIN
T	TRANSFORMER
	TREE

ALTA / NSPS
LAND TITLE SURVEY

OF

523, 535 AND 545 4TH STREET, 930 IRWIN STREET AND 910-914 IRWIN STREET

CITY OF SAN RAFAEL, MARIN COUNTY, STATE OF CALIFORNIA

AUGUST 2024

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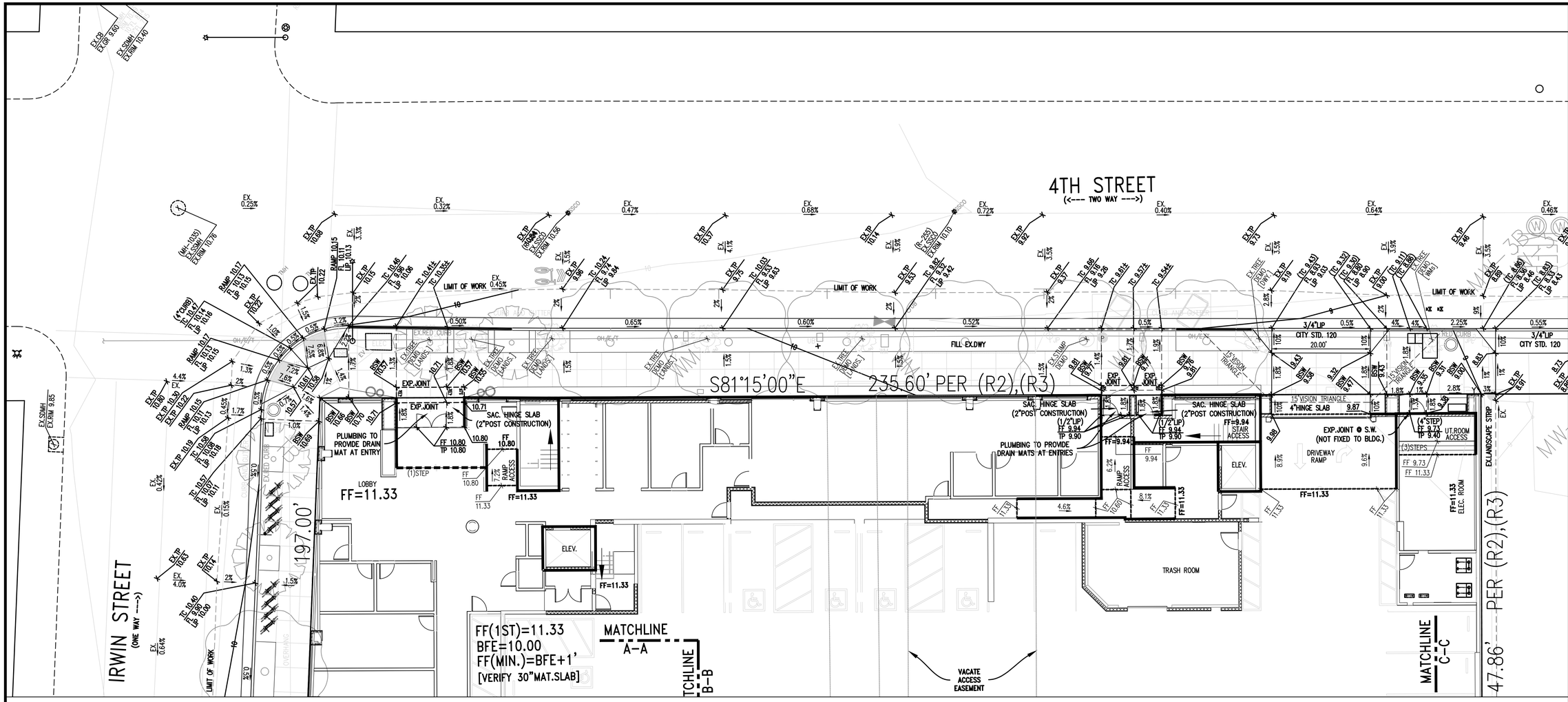

EARTHWORK NOTES:

1. SEE SHEET C-4.2.0 FOR PRELIMINARY CUT-FULL ANALYSIS

BENCHMARK

NGS PID HT1752, DESIGNATION Y 107 RESET, BEING A NGS VERTICAL CONTROL DISK SET IN BRIDGE RAIL, LOCATED 0.1 MILE SOUTHEAST OF THE OLD NORTHWESTERN PACIFIC RAILROAD STATION, AT THE NORTHWEST CORNER OF SECOND STREET BRIDGE NO. 27-33, SET IN THE TOP OF THE NORTH CONCRETE GUARD RAIL OVER THE WEST CONCRETE ABUTMENT, 79.2 FEET EAST OF THE CENTER LINE OF HETHERTON STREET, 33.7 FEET NORTH OF THE CENTER LINE OF SECOND STREET, 4.4 FEET EAST OF THE NORTHWEST CORNER OF THE BRIDGE, AND ABOUT 2 FEET HIGHER THAN THE STREET. ELEVATION = 12.00 FEET, NAVD88

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)

1 inch = 10 ft.

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JOB: 2306

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Fax (510) 724-3383

Seal:

REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER JAMES WOO No. C72184 CIVIL STATE OF CALIFORNIA

MODERA - SAN RAFAEL

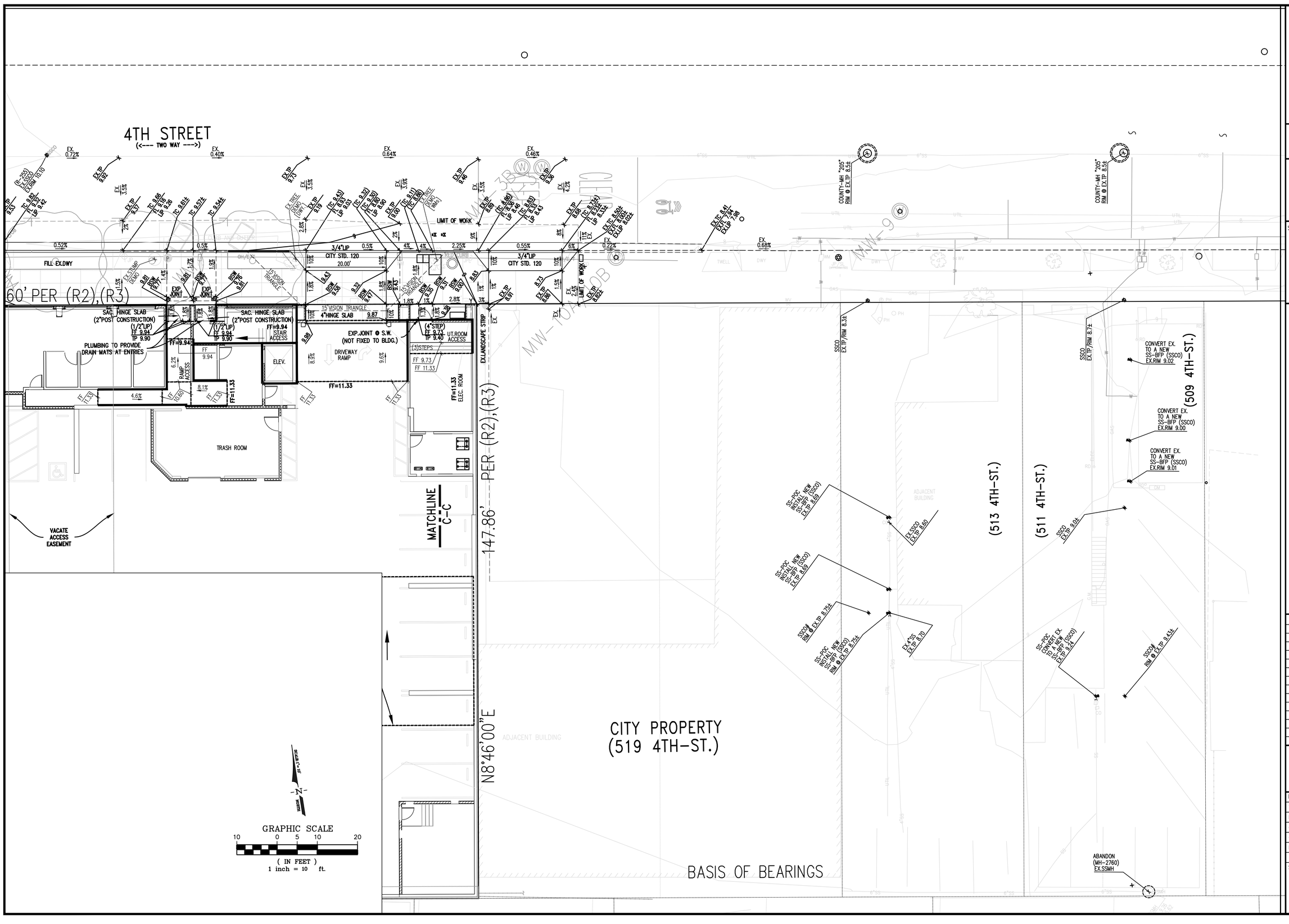
930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:

	SB-330 PRE-APP PLANS	12/20/2023
	PLANNING SUBMITTAL	06/13/2024
	PROGRESS DRAWINGS	08/12/2024
	25%DD	10/01/2024
	100%DD	12/20/2024

Title:
GRADING PLAN:
ELEVATIONS

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-12-17
Sheet No.:	C-4.1.1



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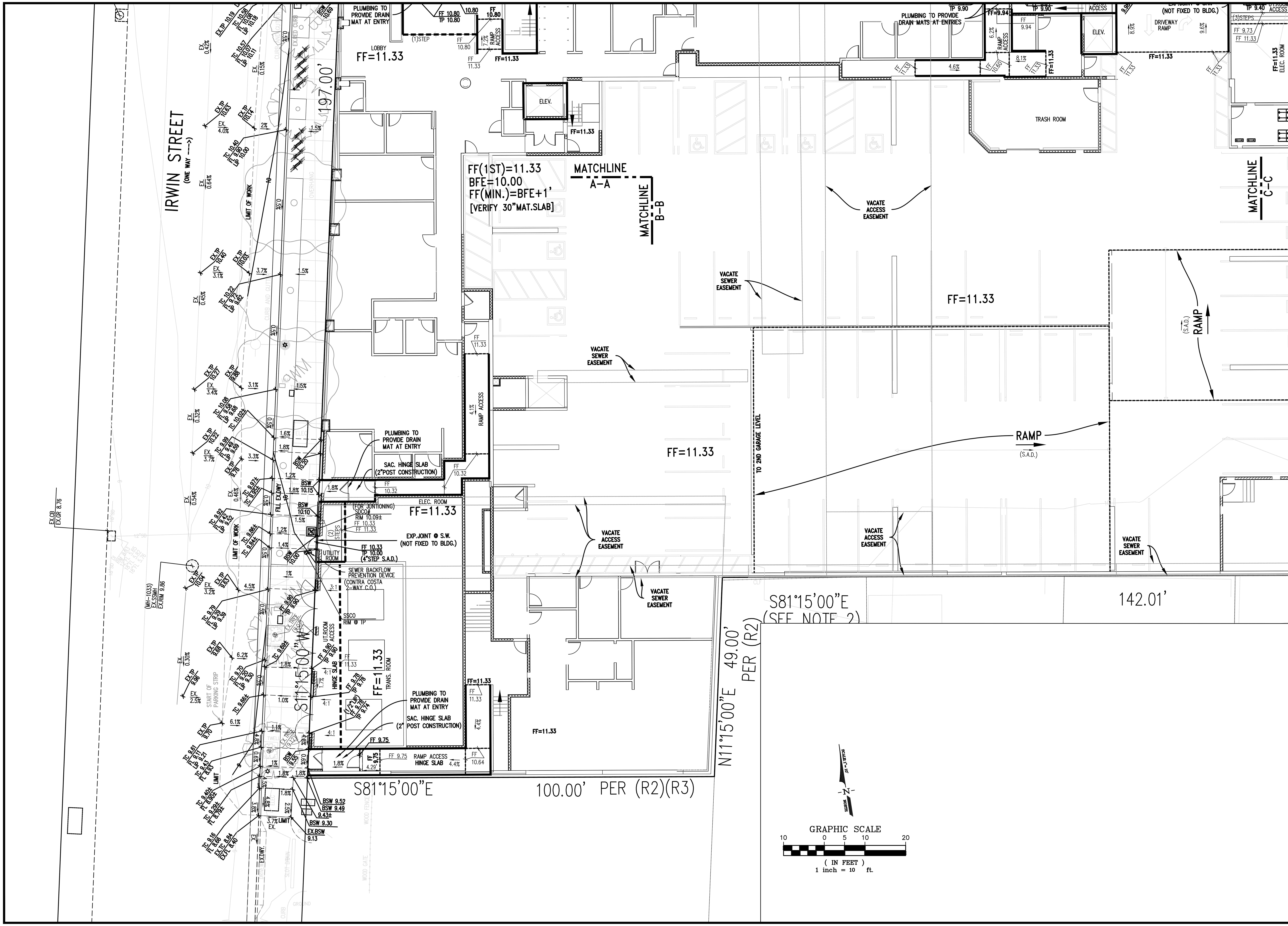
	PLANNING SUBMITTAL	06/13/2024
	PROGRESS DRAWINGS	08/12/2024
	25%DD	10/01/2024
	100%DD	12/20/2024

Title:
GRADING PLAN:
ELEVATIONS

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-12-17
Sheet No.:	C-4.1.2



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MODERA - SAN RAFAEL

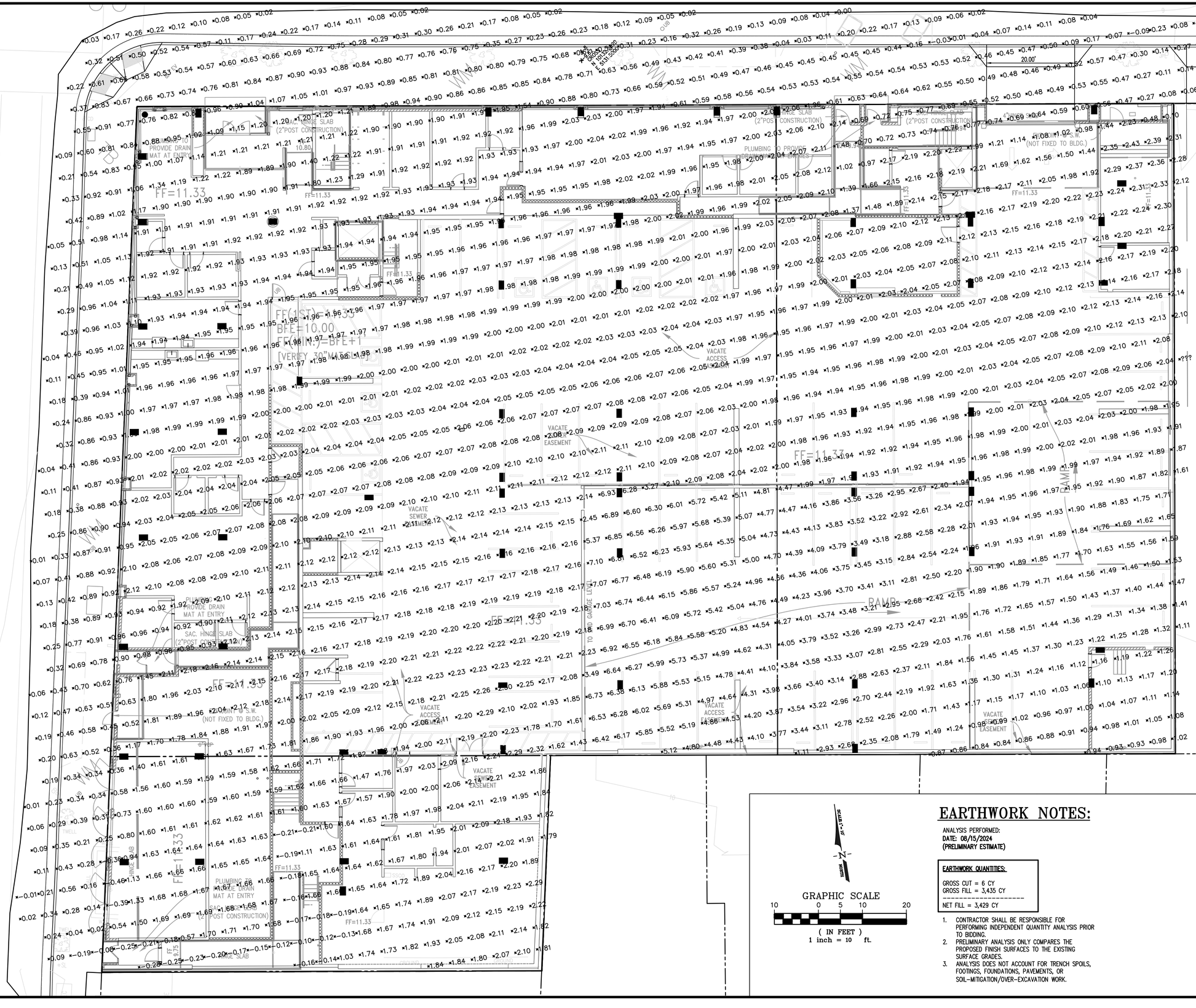
930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:

SB-330 PRE-APP PLANS	12/20/2023
PLANNING SUBMITTAL	06/13/2024
PROGRESS DRAWINGS	08/12/2024
25%DD	10/01/2024
100%DD	12/20/2024

Title:
GRADING PLAN:
ELEVATIONS

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-12-17
Sheet No.:	C-4.1.3



EARTHWORK NOTES:

ANALYSIS PERFORMED:
DATE: 08/15/2024
(PRELIMINARY ESTIMATE)

EARTHWORK QUANTITIES:

GROSS CUT = 6 CY
GROSS FILL = 3,435 CY

NET FILL = 3,429 CY

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING INDEPENDENT QUANTITY ANALYSIS PRIOR TO BIDDING.
2. PRELIMINARY ANALYSIS ONLY COMPARES THE PROPOSED FINISH SURFACES TO THE EXISTING SURFACE GRADES.
3. ANALYSIS DOES NOT ACCOUNT FOR TRENCH SPOILS, FOOTINGS, FOUNDATIONS, PAVEMENTS, OR SOIL-MITIGATION/OVER-EXCAVATION WORK.

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STATE OF CALIFORNIA

MODERA – SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:

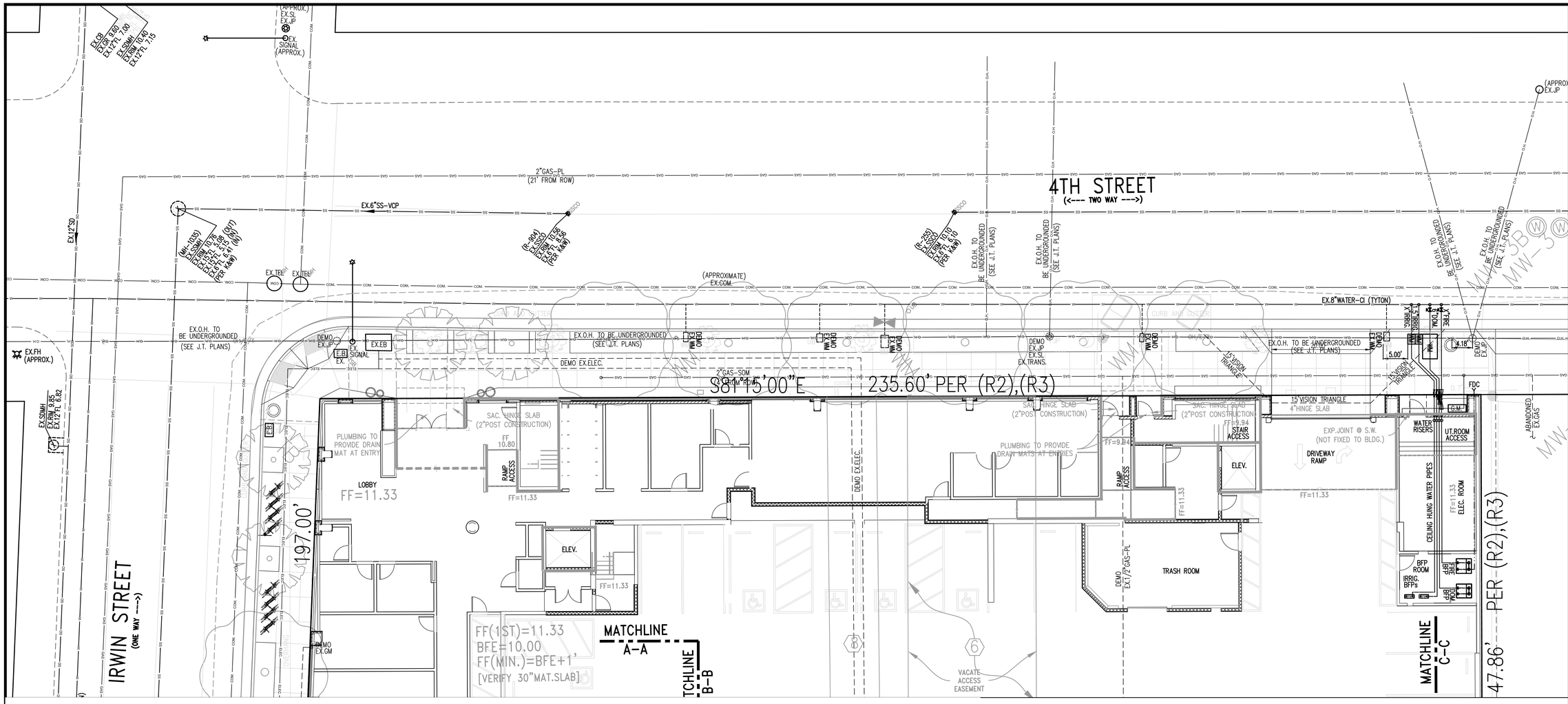
	SB-330 PRE-APP PLANS	12/20/2023
	PLANNING SUBMITTAL	06/13/2024
	PROGRESS DRAWINGS	08/12/2024
	25%DD	10/01/2024

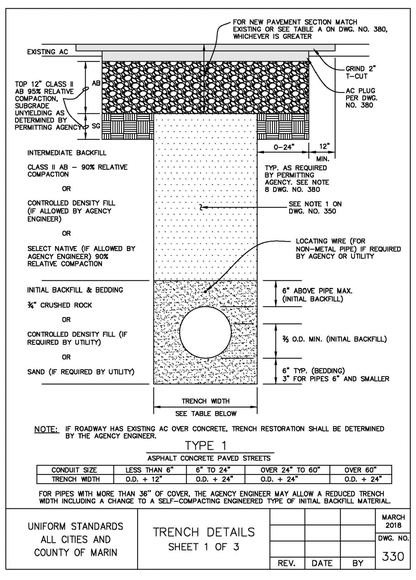
REVISIONS

NO.	DATE	DESCRIPTION
△		
△		
△		
△		
△		

Title:
GRADING PLAN:
CUT-FILL ANALYSIS

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-08-15
Sheet No.:	C-4.2.0





NOTE: IF ROADWAY HAS EXISTING AC OVER CONCRETE, TRENCH RESTORATION SHALL BE DETERMINED BY THE AGENCY ENGINEER.

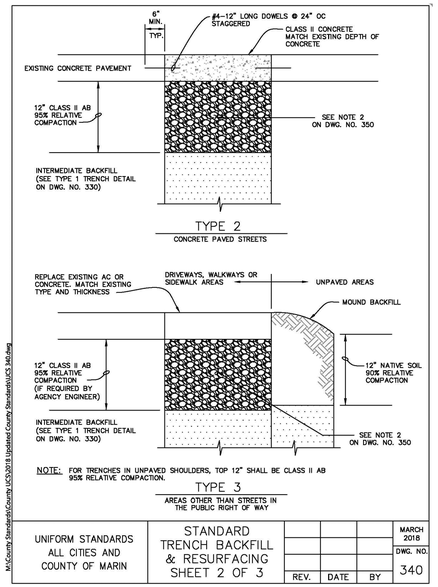
TYPE 1
ASPHALT CONCRETE PAVED STREETS

CONDUIT SIZE	LESS THAN 6"	6" TO 24"	OVER 24" TO 60"	OVER 60"
TRENCH WIDTH	O.D. + 12"	O.D. + 24"	O.D. + 24"	O.D. + 24"

FOR PIPES WITH MORE THAN 36" OF COVER, THE AGENCY ENGINEER MAY ALLOW A REDUCED TRENCH WIDTH INCLUDING A CHANGE TO A SELF-COMPACTING ENGINEERED TYPE OF INITIAL BACKFILL MATERIAL.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TRENCH DETAILS SHEET 1 OF 3	REV.	DATE	BY	MARCH 2018 DWG. NO. 330

M:\County Standards\County UCS\2018 Updated County Standards\UCS 330.dwg



NOTE: FOR TRENCHES IN UNPAVED SHOULDERS, TOP 12" SHALL BE CLASS II AB 95% RELATIVE COMPACTION.

TYPE 2
CONCRETE PAVED STREETS

TYPE 3
AREAS OTHER THAN STREETS IN THE PUBLIC RIGHT OF WAY

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	STANDARD TRENCH BACKFILL & RESURFACING SHEET 2 OF 3	REV.	DATE	BY	MARCH 2018 DWG. NO. 340

M:\County Standards\County UCS\2018 Updated County Standards\UCS 340.dwg

MATERIAL AND COMPACTION REQUIREMENT FOR TRENCH BACKFILL

1. INTERMEDIATE BACKFILL SHALL BE CLASS II AGGREGATE BASE. SUITABLE NATIVE OR IMPORTED GRANULAR MATERIAL MAY BE USED IF ALLOWED BY AGENCY ENGINEER. RELATIVE COMPACTION SHALL BE AT LEAST 90%.
2. CLASS II AGGREGATE BASE SHALL CONFORM TO THE STATE STANDARD SPECIFICATIONS. MINIMUM RELATIVE COMPACTION SHALL BE 95%. IF PAVEMENT HAVING A STRUCTURAL SECTION GREATER THAN 15" IS CUT, ADDITIONAL BASE MATERIAL MAY BE REQUIRED BY THE AGENCY ENGINEER. BASE SHALL BE PLACED AND COMPACTED PRIOR TO PLACING OF TEMPORARY PAVING.
3. TESTING OF MATERIALS AND PERFORMANCE SHALL BE IN CONFORMANCE WITH THE METHODS STATED IN THE LATEST EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, EXCEPT THAT RELATIVE COMPACTION MAY BE TESTED BY AASHTO METHOD T180, ASTM D-1557, OR TEST METHOD CALIF. 231 (NUCLEAR DENSITOMETER).
4. PLACE AC IN 3" MAX. LIFTS, EXCEPT FINAL LIFT SHALL BE 2 1/2" MAX. ADDITIONAL THICKNESS AND LIFTS OF ASPHALT CONCRETE MAY BE REQUIRED TO MATCH EXISTING STRUCTURAL SECTION ON MAJOR ROADS, OR PER LOCAL JURISDICTION REQUIREMENTS.
5. "JETTING" OF BACKFILL MATERIAL IS NOT PERMITTED.
6. THE USE OF PEA GRAVEL (OR SIMILAR ROUNDED AGGREGATE), IS NOT PERMITTED.
7. THE USE OF CONTROLLED DENSITY FILL (CDF) SHALL BE APPROVED BY THE AGENCY ENGINEER PRIOR TO PLACEMENT.
8. TRENCH EDGES SHALL BE TRIMMED TO A NEAT LINE AS REQUIRED BY THE AGENCY ENGINEER. TRIMMING SHALL BE BY ROTARY GRINDER. TRENCH LINES SHALL HAVE THE LEAST AMOUNT OF JOGS AND REMAIN LINEAR AS MUCH AS POSSIBLE. REFERENCE DRAWING NO. 360, 370 & 380.
9. THE SURFACE COURSE OF TRENCH RESTORATION SHALL EXTEND TO THE LIP OF GUTTER IF THE EDGE OF TRENCH IS WITHIN 4' OF THE LIP OF GUTTER, AND TO THE EDGE OF PAVEMENT IF THE EDGE OF TRENCH IS WITHIN 4' OF AN UNPAVED SHOULDER.
10. CONTRACTOR MUST SHORE ALL TRENCHES IN CONFORMANCE WITH OSHA AND STATE SAFETY STANDARDS.
11. ALL HOT MIX ASPHALT (HMA) MATERIAL, METHODS AND TOLERANCES SHALL BE IN COMPLIANCE WITH THE CURRENT EDITION OF THE CALTRANS STANDARD SPECIFICATIONS.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TRENCH NOTES SHEET 3 OF 3	REV.	DATE	BY	MARCH 2018 DWG. NO. 350

M:\County Standards\County UCS\350.dwg

EX WATER NOTES:

EX. FIRE LINE:
- THERE IS AN EXISTING 4" FIRE LINE
- SERVICE PRESSURE AT THE METER IS 110PSI
- 8" MAIN (DISTANCE FROM METER TO MAIN IS 3'-10')

EX. WATER SERVICE:
- EXISTING 1" METER
- SERVICE PRESSURE 110PSI
- 8" MAIN (DISTANCE FROM METER TO MAIN IS 4'-0')

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Seal:

REGISTERED PROFESSIONAL ENGINEER CHRISTOPHER JAMES WOOD No. C72184 CIVIL STATE OF CALIFORNIA

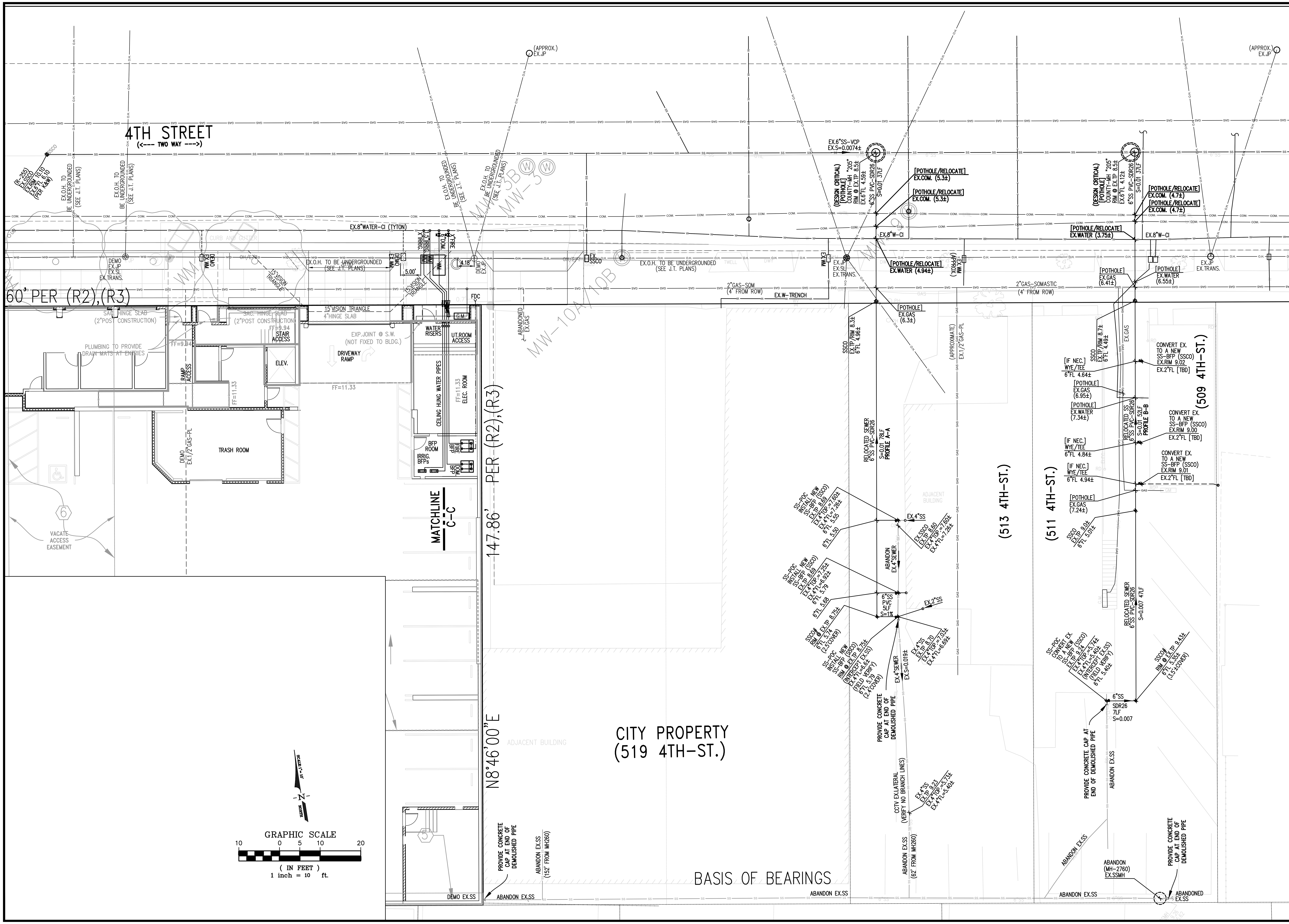
MODERA – SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:		
	SB-330 PRE-APP PLANS	12/20/2023
	PLANNING SUBMITTAL	06/13/2024
	PROGRESS DRAWINGS	08/12/2024
	25%DD	10/01/2024
	100%DD	12/20/2024

Title: UTILITY PLAN

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-12-17
Sheet No.:	C-5.1


4TH STREET
(<--- TWO WAY --->)
60' PER (R2),(R3)
EX.8"WATER-CI (TYTON)
EX.O.H. TO BE UNDERGROUNDED (SEE J.T. PLANS)
2"GAS-SOM (4' FROM ROW)
2"GAS-SOMASTIC (4' FROM ROW)
EX.W-TRENCH
EX.6"SS-VCP
EX.S=0.0074±
EX.8"W-CI
15' VISION TRIANGLE
4" HINGE SLAB
SAC. HINGE SLAB (2" POST CONSTRUCTION)
PLUMBING TO PROVIDE DRAIN MATS AT ENTRIES
STAIR ACCESS
ELEV.
RAMP ACCESS
TRASH ROOM
DRIVEWAY RAMP
EXP. JOINT @ S.W. (NOT FIXED TO BLDG.)
FF=11.33
FF=9.94
WATER RISERS
UT. ROOM ACCESS
CEILING HUNG WATER PIPES
ELEC. ROOM
BFP ROOM
IRRIG. BFPs
FDC
MATCHLINE C-C
147.86' PER (R2),(R3)
N8°46'00"E
VACATE ACCESS EASEMENT
[POTHOLE/RELOCATE] EX.COM. (5.3±)
[POTHOLE/RELOCATE] EX.WATER (4.94±)
[POTHOLE/RELOCATE] EX.COM. (4.7±)
[POTHOLE/RELOCATE] EX.WATER (3.75±)
[POTHOLE] EX.GAS (6.3±)
[POTHOLE] EX.GAS (6.41±)
[POTHOLE] EX.WATER (6.55±)
RELOCATED SEWER 6"SS PVC-SDR26 S=0.01 78LF PROFILE A-A
RELOCATED SS 6"SS PVC-SDR26 S=0.01 52LF PROFILE B-B
RELOCATED SEWER 6"SS PVC-SDR26 S=0.007 47LF
CONVERT EX. TO A NEW SS-BFP (SSCO) EX.RIM 9.02 EX.2"FL [TBD]
CONVERT EX. TO A NEW SS-BFP (SSCO) EX.RIM 9.00 EX.2"FL [TBD]
CONVERT EX. TO A NEW SS-BFP (SSCO) EX.RIM 9.01 EX.2"FL [TBD]
[IF NEC.] WYE/TEE 6"FL 4.64±
[IF NEC.] WYE/TEE 6"FL 4.84±
[IF NEC.] WYE/TEE 6"FL 4.94±
[POTHOLE] EX.GAS (6.95±)
[POTHOLE] EX.WATER (7.34±)
[POTHOLE] EX.GAS (7.24±)
(513 4TH-ST.)
(511 4TH-ST.)
(509 4TH-ST.)
CITY PROPERTY
(519 4TH-ST.)
ADJACENT BUILDING
ABANDON EX.4"SEWER
6"SS PVC 5LF S=1%
EX.2"SS
EX.4"SS
PROVIDE CONCRETE CAP AT END OF DEMOLISHED PIPE
CCTV EX.LATERAL (VERIFY NO BRANCH LINES)
ABANDON EX.SS (62' FROM MH260)
ABANDON EX.SS (152' FROM MH260)
ABANDON EX.SS
DEMO EX.SS
ABANDON (MH-2760) EX.SSMH
ABANDONED EX.SS
6"SS SDR26 7LF S=0.007
BASIS OF BEARINGS
GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 inch = 10 ft.

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MODERA – SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:

	SB-330 PRE-APP PLANS	12/20/2023
	PLANNING SUBMITTAL	06/13/2024
	PROGRESS DRAWINGS	08/12/2024
	25%DD	10/01/2024
	100%DD	12/20/2024

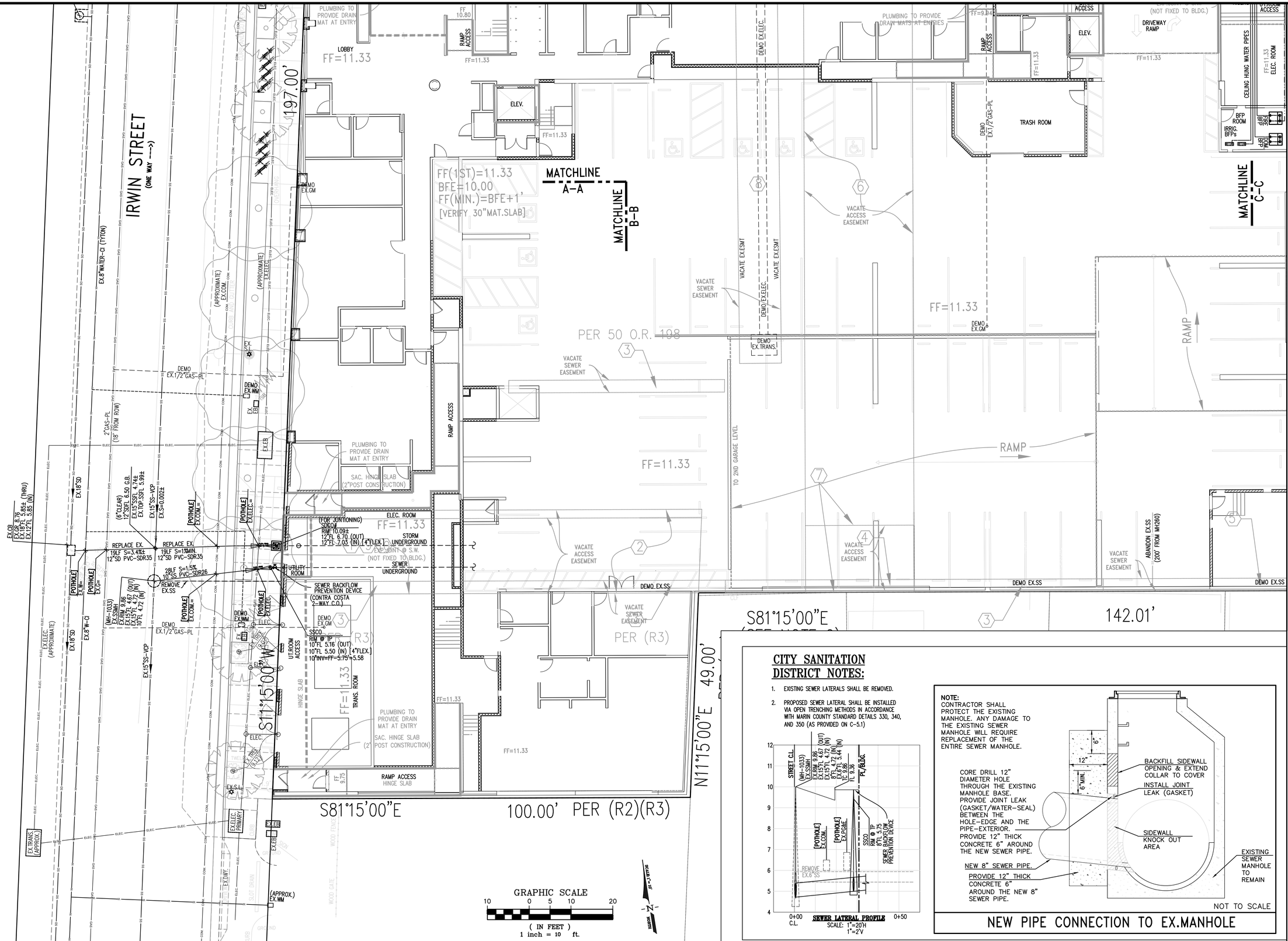
Title:

UTILITY PLAN

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER–24105A10
Plot Date:	2024–12–17

Sheet No.:

C–5.2



CITY SANITATION DISTRICT NOTES:

1. EXISTING SEWER LATERALS SHALL BE REMOVED.
2. PROPOSED SEWER LATERAL SHALL BE INSTALLED VIA OPEN TRENCHING METHODS IN ACCORDANCE WITH MARIN COUNTY STANDARD DETAILS 330, 340, AND 350 (AS PROVIDED ON C-5.1)

NOTE:
CONTRACTOR SHALL PROTECT THE EXISTING MANHOLE. ANY DAMAGE TO THE EXISTING SEWER MANHOLE WILL REQUIRE REPLACEMENT OF THE ENTIRE SEWER MANHOLE.

CORE DRILL 12" DIAMETER HOLE THROUGH THE EXISTING MANHOLE BASE. PROVIDE JOINT LEAK (GASKET/WATER-SEAL) BETWEEN THE HOLE-EDGE AND THE PIPE-EXTERIOR. PROVIDE 12" THICK CONCRETE 6" AROUND THE NEW SEWER PIPE.

NOT TO SCALE

NEW PIPE CONNECTION TO EX.MANHOLE

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MODERA - SAN RAFAEL

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SAN RAFAEL, CA

ISSUES:

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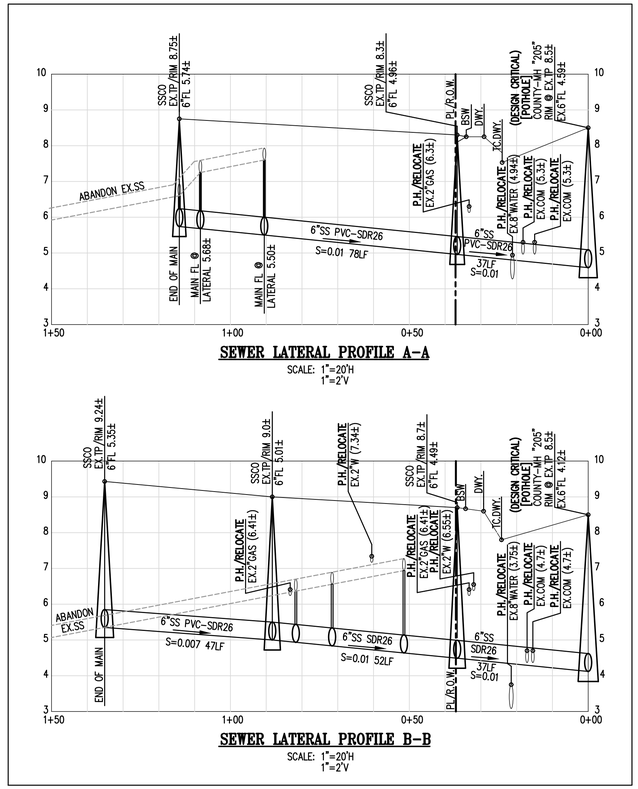
Title: UTILITY PLAN

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2024-12-17
Sheet No.:	C-5.3

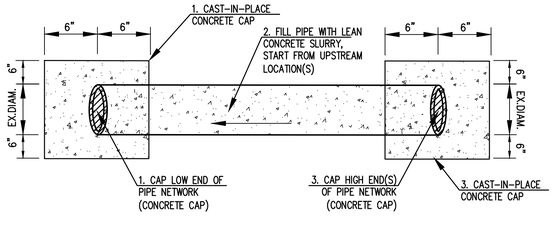


SEWER LATERAL PROFILE A-A

SCALE: 1"=20'H
1"=2'V

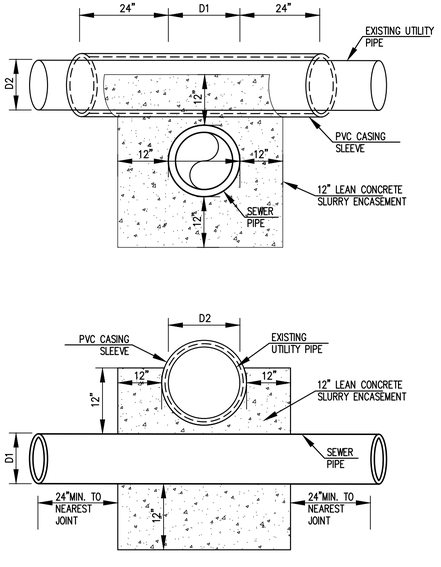
SEWER LATERAL PROFILE B-B

SCALE: 1"=20'H
1"=2'V



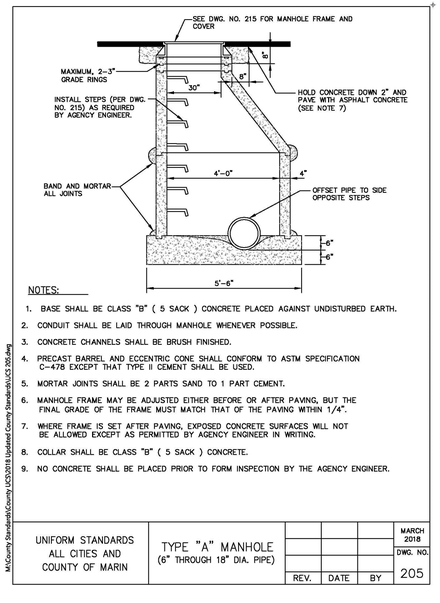
PIPE ABANDONMENT DETAIL

NOT TO SCALE

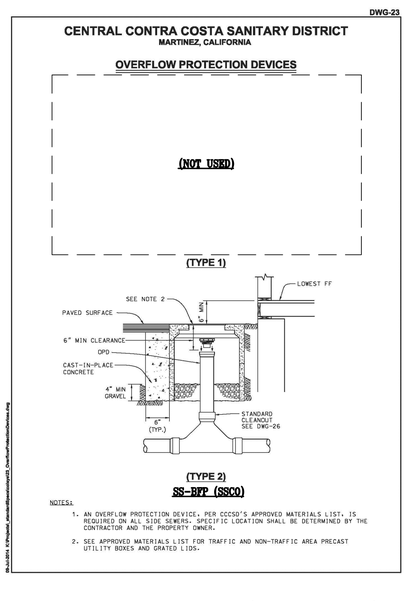


PIPE PROTECTION DETAIL (<6" CLEARANCE)

NOT TO SCALE



MARIN COUNTY STANDARD DETAIL 205



SEWER BACKFLOW DEVICE (C.C. TYPE-2)

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100%DD	12/20/2024

Title:
UTILITY PLAN
SEWER DETAILS

Date:	JUNE 2024
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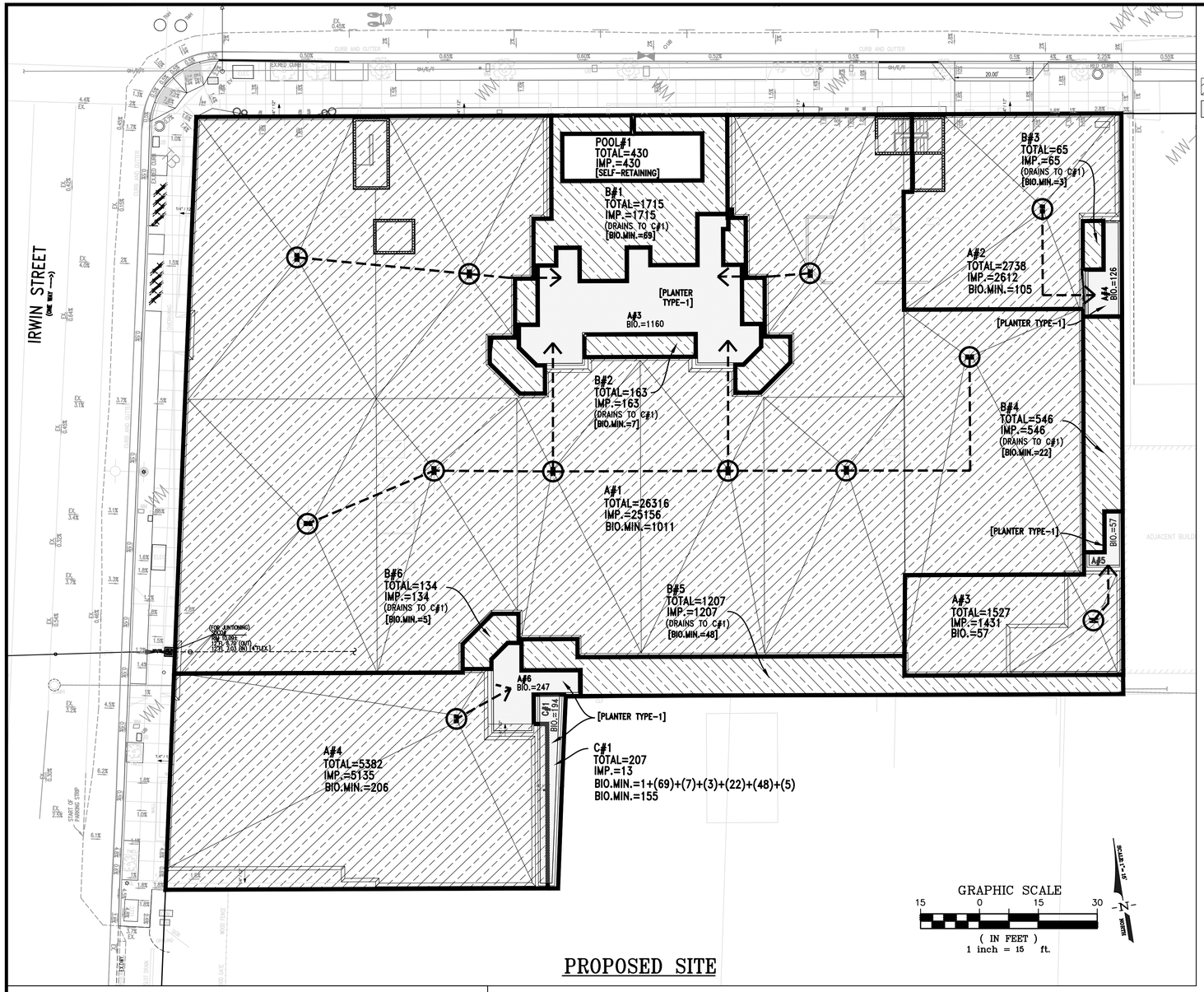


PROPOSED SITE

LEGEND

- IMPERVIOUS SURFACE
- BIO.=100 — BIO.RETENTION AREA
- DRAINAGE MANAGEMENT AREA LIMIT
- AREA# — DRAINAGE MANAGEMENT AREA
- TOTAL = — TOTAL DRAINAGE AREA
- IMP. = — IMPERVIOUS AREA
- BIO.MIN.= — MINIMUM REQUIRED TREATMENT AREA
- BIO.= — PROVIDED TREATMENT AREA

STORMWATER NOTES:

1. "NO DUMPING" MEDALLIONS ARE AVAILABLE THROUGH CITY OF MCSTOPP.
2. DEVELOPER SHALL SUBMIT STORMWATER FACILITIES MAINTENANCE AGREEMENT.
3. PRIVATE STORM DRAIN SYSTEM (PRIVATE LOT) SHALL BE MAINTAINED BY OWNER. PUBLIC STORM DRAIN SYSTEM (CITY RIGHT OF WAY) SHALL BE MAINTAINED BY CITY.

EXISTING SURFACE-AREA TABLE

EXISTING SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO REMOVE] (SF)	PERVIOUS AREA (SF)	TOTAL
0	39,159	1,046	40,205

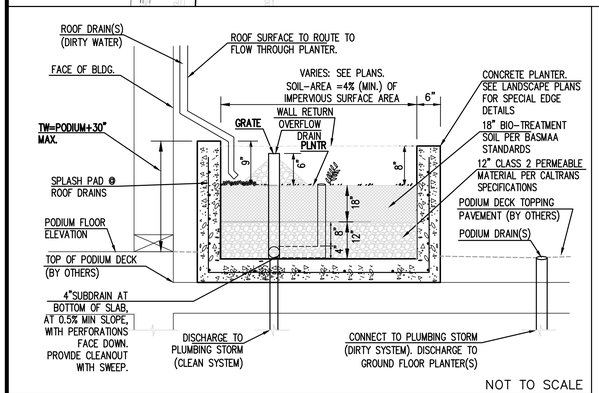
PROPOSED SURFACE-AREA TABLE

PROPOSED SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO INSTALL] (SF)	PERVIOUS AREA (SF)	TOTAL
0	38,607	1,598	40,205

* TREATMENT ONLY (LESS THAN 1-ACRE OF IMPERVIOUS SURFACE)

STORM TREATMENT DESIGN

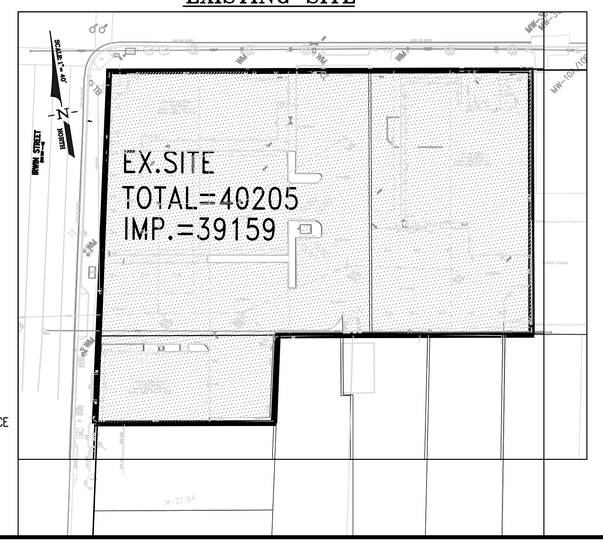
DMA & IMP NAME	TYPE	A SIZING FACTOR	D.M. AREA (S.F.)	RUNOFF SURFACE TYPE	C-FACTOR VALUE*	MIN. SIZE (S.F.)	PLANNED SIZE (S.F.)
A1	BIO-RETENTION AREA	4%	25156	IMPERVIOUS	1.0	1011	1160
			1160	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A2	BIO-RETENTION AREA	4%	2612	IMPERVIOUS	1.0	105	126
			126	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A3	BIO-RETENTION AREA	4%	1431	IMPERVIOUS	1.0	57	57
			96	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A4	BIO-RETENTION AREA	4%	5135	IMPERVIOUS	1.0	206	247
			247	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
B1	DRAINS TO C1	4%	1715	IMPERVIOUS	1.0	69	(TO C1)
B2	DRAINS TO C1	4%	163	IMPERVIOUS	1.0	7	(TO C1)
B3	DRAINS TO C1	4%	65	IMPERVIOUS	1.0	3	(TO C1)
B4	DRAINS TO C1	4%	546	IMPERVIOUS	1.0	22	(TO C1)
B5	DRAINS TO C1	4%	1207	IMPERVIOUS	1.0	48	(TO C1)
B6	DRAINS TO C1	4%	134	IMPERVIOUS	1.0	5	(TO C1)
C1	BIO-RETENTION AREA (COLLECTS B# AREAS)	4%	13	IMPERVIOUS	1.0	1 (+69 +7 +3 +22 +48 +5) =155	194
			194	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
POOL#1	SELF-RETAINING AREA	1"CAP. 2:1 IMP. MAX.	0	IMPERVIOUS	1.0	1"CAPTURE =36-CF	3" MIN. POOL LIP =107-CF
			0	PERVIOUS	0.1		
			430	POOL SURFACE	1.0	2:1 MAX.	1:1



NOT TO SCALE

1 FLOW-THROUGH (BIO-RET.) PLANTER: TYPE-1

EXISTING SITE



LEGEND

- EXISTING IMPERVIOUS SURFACE
- PROPERTY BOUNDARY LIMIT
- TOTAL = — TOTAL DRAINAGE AREA
- IMP. = — IMPERVIOUS AREA

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Checked By:	J.L.
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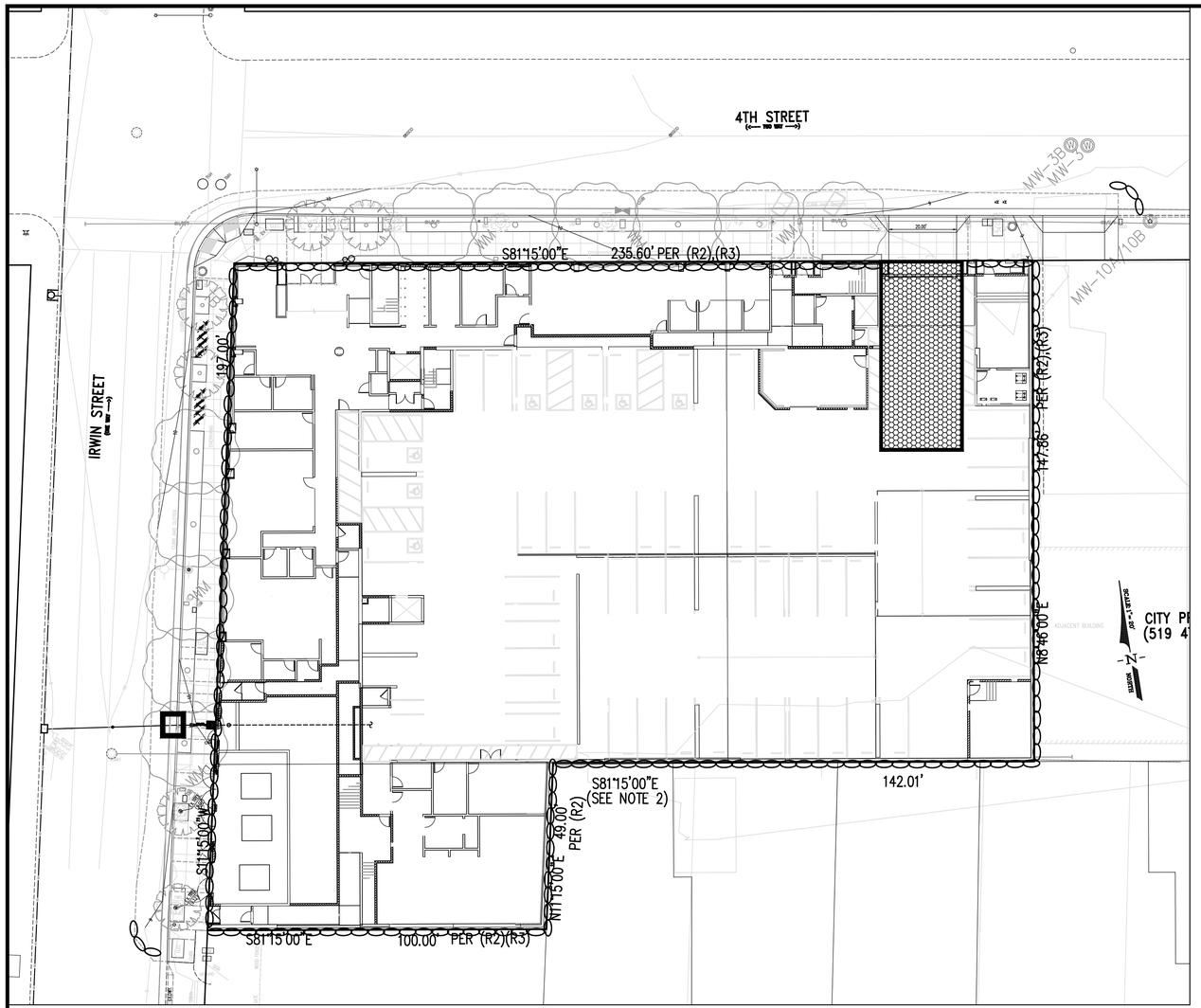
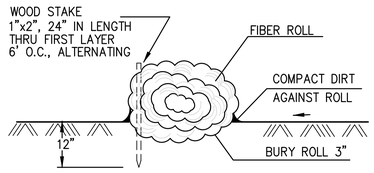


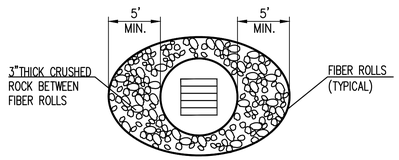
LEGEND

- FIBER ROLL
- INLET PROTECTION
- CONSTRUCTION ENTRANCE AND WASH AREA



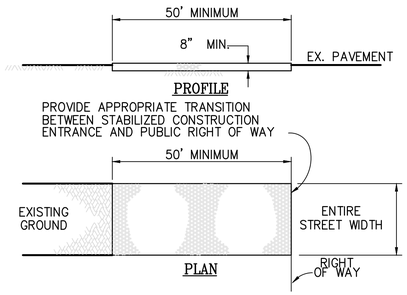
FIBER ROLL DETAIL

NOT TO SCALE



INLET PROTECTION DETAIL (UNPAVED AREAS)

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. THE MATERIAL FOR CONSTRUCTION SHALL BE 2 TO 3 INCH ROCK
2. LENGTH – AS EFFECTIVE, BUT NOT LESS THAN 50 FEET.
3. THICKNESS – NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH – NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING – WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATERCOURSE THROUGH USE OF SAND BAGS, GRAVEL BOARDS OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.

CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE

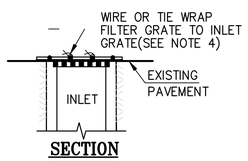
EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR ALL ASPECTS OF "EROSION CONTROL" AND SHALL INSTALL AND MAINTAIN ANY DEVICES AND MEASURES NECESSARY TO THE SATISFACTION OF THE COUNTY ENGINEER DURING THE ENTIRE CONSTRUCTION PERIOD.
2. THE CONTRACTOR SHALL PLACE COARSE DRAIN ROCK AS A GRAVEL ROADWAY (8" MIN. THICK FOR THE FULL WIDTH AND 50' LONG) AT EACH ENTRANCE TO THE SITE. ANY MUD THAT IS TRACKED ONTO PUBLIC STREETS SHALL BE REMOVED THAT SAME DAY AND AS REQUIRED BY THE COUNTY INSPECTOR.
3. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED AND CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF THE COUNTY ENGINEER.
4. DURING THE ENTIRE CONSTRUCTION PERIOD, ALL PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE SHALL BE MAINTAINED TO MINIMIZE SEDIMENT-LADEN RUNOFF TO ANY STORM DRAINAGE SYSTEM.
5. THIS PLAN COVERS ONLY THE FIRST WINTER FOLLOWING GRADING. PLANS ARE TO BE RE-SUBMITTED FOR COUNTY APPROVAL PRIOR TO SEPTEMBER 1 OF EACH SUBSEQUENT YEAR UNTIL THE SITE IMPROVEMENTS ARE ACCEPTED BY THE COUNTY.
6. ALL EROSION CONTROL FACILITIES MUST BE INSPECTED AND REPAIRED AT THE END OF EACH WORKING DAY OR DAILY DURING THE ENTIRE CONSTRUCTION PERIOD.
7. ANY SEDIMENT BASINS SHALL BE CLEARED OUT WHENEVER SEDIMENT REACHES THE SEDIMENT CLEANOUT LEVEL INDICATED ON THE PLANS.
8. BORROW AREAS AND TEMPORARY STOCKPILES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES TO THE SATISFACTION OF THE COUNTY ENGINEER.
9. ALL CUT AND FILL SLOPES ARE TO BE PROTECTED TO PREVENT OVERBACK FLOW.
10. THIS PLAN MAY NOT COVER ALL SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO ANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD, SUBJECT TO THE APPROVAL OF THE COUNTY.
11. HYDROSEED ALL CUT AND FILL SLOPES WHICH ARE STEEPER THAN 5% WITH THE FOLLOWING (VOLUMES SHOWN ARE PER ACRE OF SLOPE):

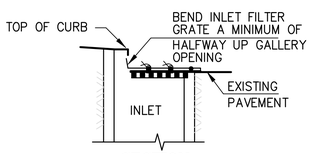
    FERTILIZER: 500 LBS. 16-6-8

    SEED (BAY AREA NATIVE SEED SPECIES):
    16 LBS. CALIFORNIA BROME (BROMUS CARINATUS)
    14 LBS. BLUE WILDRYE (ELYMUS GLAUCUS)
    8 LBS. THREE WEEKS FESCUE (FESTUCA MICROSTACHYS)
    3.5 LBS. MINIATURE LUPINE (LUPINUS BICOLOR)
    2.5 LBS. TREE CLOVER (TRIFOLIUM CILIOLATUM)

    CHEMICAL TACKIFIER: 2000 LBS. WOOD CELLULOSE
    30 LBS. ORGANIC BINDER
12. TO CONTROL EROSION WITHIN THE STREET RIGHT-OF-WAY, FIBER ROLLS, SANDBAGS, EARTH BERMS OR OTHER SUITABLE MATERIALS SHALL BE PLACED WITHIN ALL UNPAVED STREETS DURING THE ENTIRE CONSTRUCTION PERIOD. THESE ROLLS OF FIBER SHALL BE PLACED AS SHOWN ON PLAN OR AS REQUIRED BY THE CITY ENGINEER (SEE FIBER ROLL DETAIL, THIS SHEET). THE ROLLS SHALL BE SECURELY ANCHORED IN PLACED BY STAKES OR REBARS DRIVEN THROUGH THE ROLLS WITH THE FIRST STAKE IN EACH ROLL ANGLED TOWARD THE PREVIOUSLY LAID ROLL TO FORCE THEM TOGETHER. THE ROLLS SHALL BE MAINTAINED IN GOOD CONDITION FOR THE ENTIRE CONSTRUCTION PERIOD UNTIL THE STREET IS PAVED. ROLLS OF FIBER OR OTHER SUITABLE MATERIALS SHALL BE USED TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING ANY PARTIALLY COMPLETED STORM DRAIN SYSTEM.
13. TO MINIMIZE STORM WATER RUNOFF FROM THE SITE, FIBER ROLLS SHALL BE CONSTRUCTED ON EACH PAD AS IT IS GRADED. THE FIBER ROLLS SHALL BE 1-FOOT MINIMUM IN HEIGHT AND PLACED SO THE STORM WATER FALLING ONTO THE PAD AREA AND THE SURROUNDING UPHILL BANKS WILL BE TRAPPED ON THE PAD. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND REPAIRING THE ROLLS ON EACH PAD DURING THE ENTIRE CONSTRUCTION PERIOD AND MAINTAINING THEM IN GOOD CONDITION UNTIL THE BUILDING CONSTRUCTION IS COMPLETED. THE CONTRACTOR SHALL ENSURE COMPLIANCE WITH THE REQUIREMENTS REGARDING PAD MOISTURE CONTENT, COMPACTION, AND ALL OTHER CONDITIONS SET FORTH BY THE GEOTECHNICAL ENGINEER.
14. WHEN TEMPORARY STRUCTURES HAVE SERVED THEIR INTENDED PURPOSE AND THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, THE ENBANKMENT AND RESULTING SEDIMENT DEPOSITS ARE TO BE LEVELED OR OTHERWISE DISPOSED OF AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
15. CONTRACTOR IS RESPONSIBLE FOR ALL AGENCY EROSION CONTROL PLANS AND PAPERWORK AND IS RESPONSIBLE FOR ALL CLOSURES OF THESE FILINGS.
16. ALL GRADED OR DISTURBED AREAS THAT WILL BE IDLE DURING THE RAINY SEASON SHALL BE MULCHED AT THE MINIMUM RATE OF TWO TONS PER ACRE.
17. CONTRACTOR TO REFER TO STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR EROSION CONTROL MEASURES DURING CONSTRUCTION.



SECTION



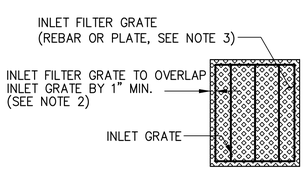
SECTION

INLET PROTECTION DETAIL (PAVED AREAS)

NOT TO SCALE

NOTES:

1. FILTER FABRIC SHALL MEET CAL-TRANS OR A.B.A.G. SPECIFICATIONS.
2. FILTER MATERIAL AND GRATE SHALL OVERLAP INLET ON ALL SIDES BY A MINIMUM OF 1".
3. INLET FILTER GRATE SHALL BE MADE OF #3 RE-BARS, CRISS CROSSED AT 6"(WELDED OR TIED TOGETHER WITH WIRE) OR A PLATE WITH A MINIMUM OF 75% OPEN AREA, BOTH OF SUFFICIENT STRENGTH TO PREVENT BENDING WHEN DRIVEN OVER BY A VEHICLE.
4. INLET FILTER GRATE SHALL BE SECURELY ATTACHED TO DRAIN INLET BY WIRE OR TIE-WRAPS(BEND OVER).
5. FILTERS SHALL BE INSPECTED WEEKLY AND BEFORE AND AFEER EACH RAINFALL. REPAIRS, SEDIMENT/DEBRIS REMOVAL SHALL BE MADE TO ASSURE EFFICIENCT FUNCTIONING OF FILTER SYSTEM.



INLET PROTECTION DETAIL (ALL AREAS)

NOT TO SCALE

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Title: EROSION CONTROL PLAN

Date:	JUNE 2024
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4TH STREET

IRWIN STREET

4 LAG MUS

6 ACE TGN

24' O.C. TYP.

7'

4'

2'

BENCH SEATING, TYP.

PLANTER POT, TYP.

TRASH RECEPTACLE, TYP.

2' WIDE LANDSCAPE STRIP

7' WIDE CLEAR SIDEWALK

4' WIDE LANDSCAPE STRIP

STREET TREE 24' O.C.

4TH STREET CORRIDOR DESIGN INTENT IS FOCUSED ON BICYLE/PEDESTRIAN TRAVEL PER DOWNTOWN SAN RAFAEL SPECIFIC PLAN, CHAPTER 6.

BIKE RACKS

6" CURB

STREET TREE 25' O.C.

4' WIDE LANDSCAPE STRIP

7' WIDE CLEAR SIDEWALK

24' O.C. TYP.

5 PIS KEI

4'

7'

IRWIN STREET CORRIDCR DESIGN INTENT IS FOCUSED ON VEHICU_AR/TRANSIT TRAVEL PER DOWNTOWN SAN RAFAEL SPECIFIC PLAN, CHAPTER 6.

STREET TREES NOTE:
EXISTING STREET TREES WILL BE PRESERVED IN PLACE WHEREVER POSSIBLE. IF UNFORESEEN CONDITIONS ARISE OR AN EXISTING STREET TREE DOES NOT SURVIVE, IT WILL BE REPLACED WITH AN APPROPRIATE TREE SELECTED FROM THE CITY'S STREET TREE LIST AND WITH DIRECTION FROM THE CITY.

2 LAG PLM

(E) TREE TO REMAIN

LANDSCAPE SCHEDULE: STREET LEVEL

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
TREES				
	ACE TGN	6	Acer tataricum ginnala / Amur Maple	24" box
	LAG MUS	4	Lagerstroemia indica x fauriei `Muskogee` / Muskogee Crape Myrtle	24" box
	LAG PLM	2	Lagerstroemia x / Existing Crape Myrtle	Existing Tree
	PIS KEI	5	Pistacia chinensis `Keith Davey` / Keith Davey Chinese Pistache	24" box

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME
PLANTING AREA			
	PLANTER	34 sf	PLANTER POT / Accent planting in raised planter , see Plant Palette, Sheet L5
	STREET	1,369 sf	STREETSCAPE PLANTING / Flush with sidewalk , see Plant Palette, Sheet L5
		1,403 sf	Total Street Level Planting

SITE FURNISHINGS LEGEND: STREET LEVEL

BENCH — QTY: 4
CONCRETE PRECAST BENCH, OR BENCH PER CITY OF SAN RAFAEL STREETSCAPE FURNISHINGS STANDARDS. SEE SHEET L5.

BIKE RACK — QTY: 8
STEEL TUBE HOOP BIKE RACK, SURFACE MOUNT. DERO 'HOOP RACK', OR PER CITY OF SAN RAFAEL STREETSCAPE FURNISHINGS STANDARDS. SEE SHEET L5.

RECEPTACLE — QTY: 2
STEEL TRASH & RECYCLING RECEPTACLE, SURFACE MOUNT, WITH LOCKING SIDE DOOR. VICTOR STANLEY 'IRONSITES SD-42', OR PER CITY OF SAN RAFAEL STREETSCAPE FURNISHINGS STANDARDS. SEE SHEET L5.

NORTH

0' 20' 10' 40'

LANDSCAPE CONCEPT PLAN - STREET LEVEL

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YAMASAKI
LANDSCAPE ARCHITECTURE

1223 HIGH STREET
AUBURN, CALFORNIA 95603
530.885.0040
www.yamasaki-la.com

LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ

Drawn By: EJS

Scale: 1"=10'

Date: 12/20/24

File Name: MSF-LP

No.	Date	Revision

Seal

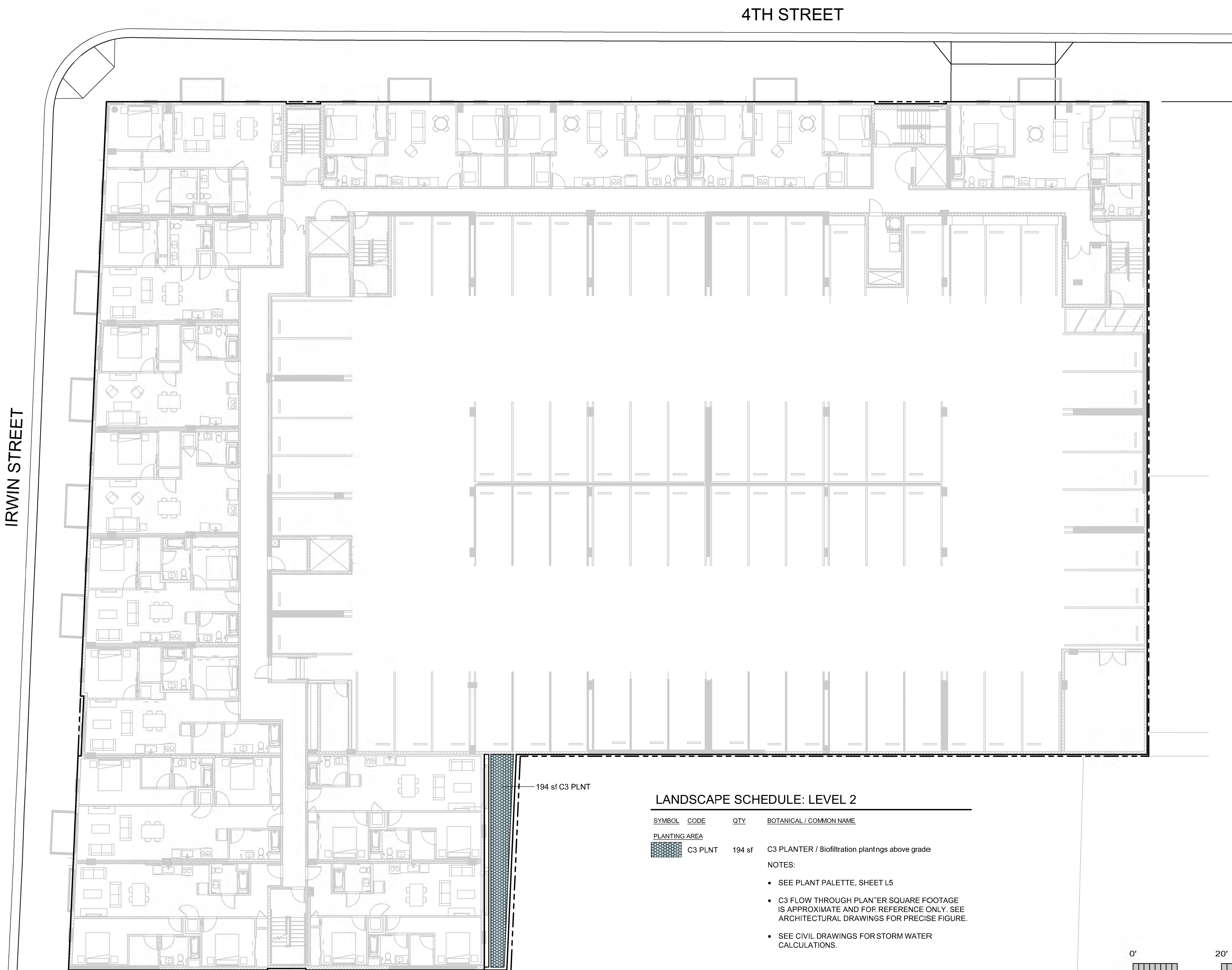
LICENSED LANDSCAPE ARCHITECT
JEFFREY M. AMBROSIA 4057
Expiration Date 12/24 Renewal Date
Date
STATE OF CALIFORNIA

Sheet Title

LANDSCAPE CONCEPT PLAN - STREET LEVEL

Sheet No

L1

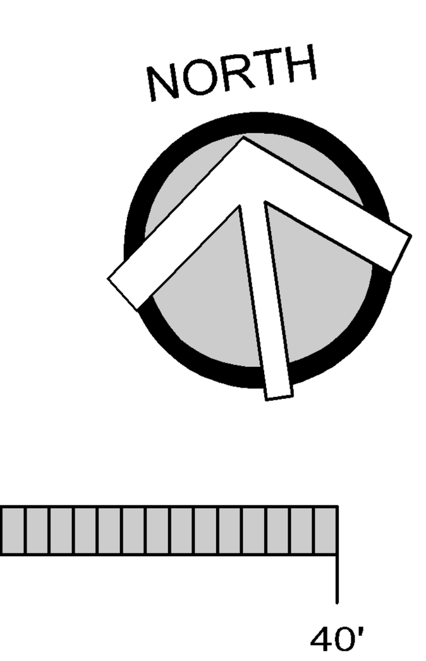


LANDSCAPE SCHEDULE: LEVEL 2

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME
PLANTING AREA			
	C3 PLNT	194 sf	C3 PLANTER / Biofiltration plantngs above grade

NOTES:

- SEE PLANT PALETTE, SHEET L5
- C3 FLOW THROUGH PLAN¯ER SQUARE FOOTAGE IS APPROXIMATE AND FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR PRECISE FIGURE.
- SEE CIVIL DRAWINGS FOR STORM WATER CALCULATIONS.



LANDSCAPE CONCEPT PLAN - LEVEL 2

YAMASAKI
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LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ
Drawn By: EJS
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Seal

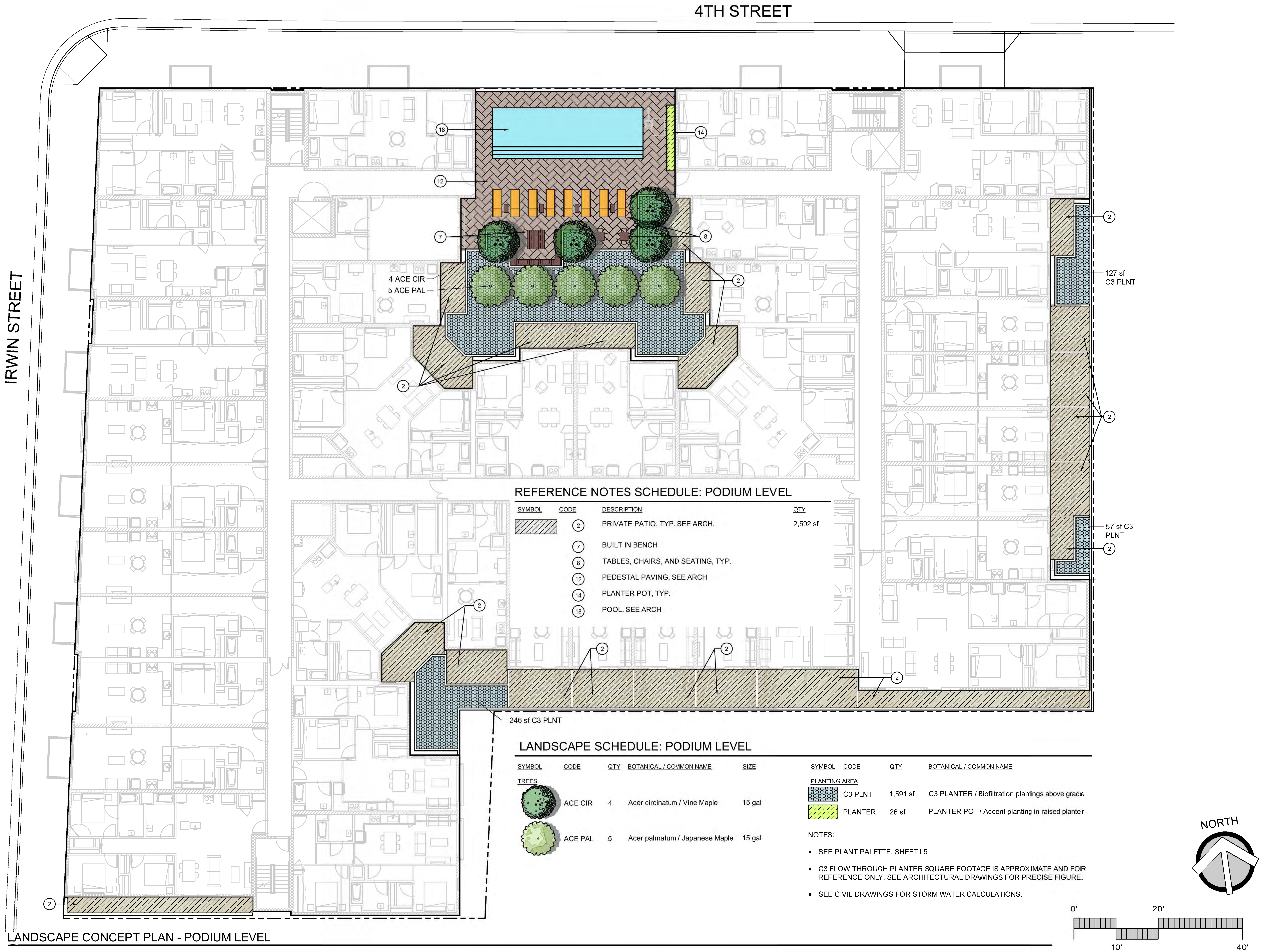
LICENSED LANDSCAPE ARCHITECT
JEFFREY M. AMBROSIA 4057
12/24
Renewal Date
STATE OF CALIFORNIA

Sheet Title

LANDSCAPE CONCEPT PLAN - LEVEL 2

Sheet No

L2



REFERENCE NOTES SCHEDULE: PODIUM LEVEL

SYMBOL	CODE	DESCRIPTION	QTY
[hatched]	2	PRIVATE PATIO, TYP. SEE ARCH.	2,592 sf
	7	BUILT IN BENCH	
	8	TABLES, CHAIRS, AND SEATING, TYP.	
	12	PEDESTAL PAVING, SEE ARCH	
	14	PLANTER POT, TYP.	
	18	POOL, SEE ARCH	

LANDSCAPE SCHEDULE: PODIUM LEVEL

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
TREES				
	ACE CIR	4	Acer circinatum / Vine Maple	15 gal
	ACE PAL	5	Acer palmatum / Japanese Maple	15 gal

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME
PLANTING AREA			
	C3 PLNT	1,591 sf	C3 PLANTER / Biofiltration planings above grade
	PLANTER	26 sf	PLANTER POT / Accent planting in raised planter

NOTES:

- SEE PLANT PALETTE, SHEET L5
- C3 FLOW THROUGH PLANTER SQUARE FOOTAGE IS APPROXIMATE AND FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR PRECISE FIGURE.
- SEE CIVIL DRAWINGS FOR STORM WATER CALCULATIONS.

LANDSCAPE CONCEPT PLAN - PODIUM LEVEL

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LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ
Drawn By: EJS
Scale: 1"=10'
Date: 12/20/24
File Name: MSF-LP

No.	Date	Revision

Seal

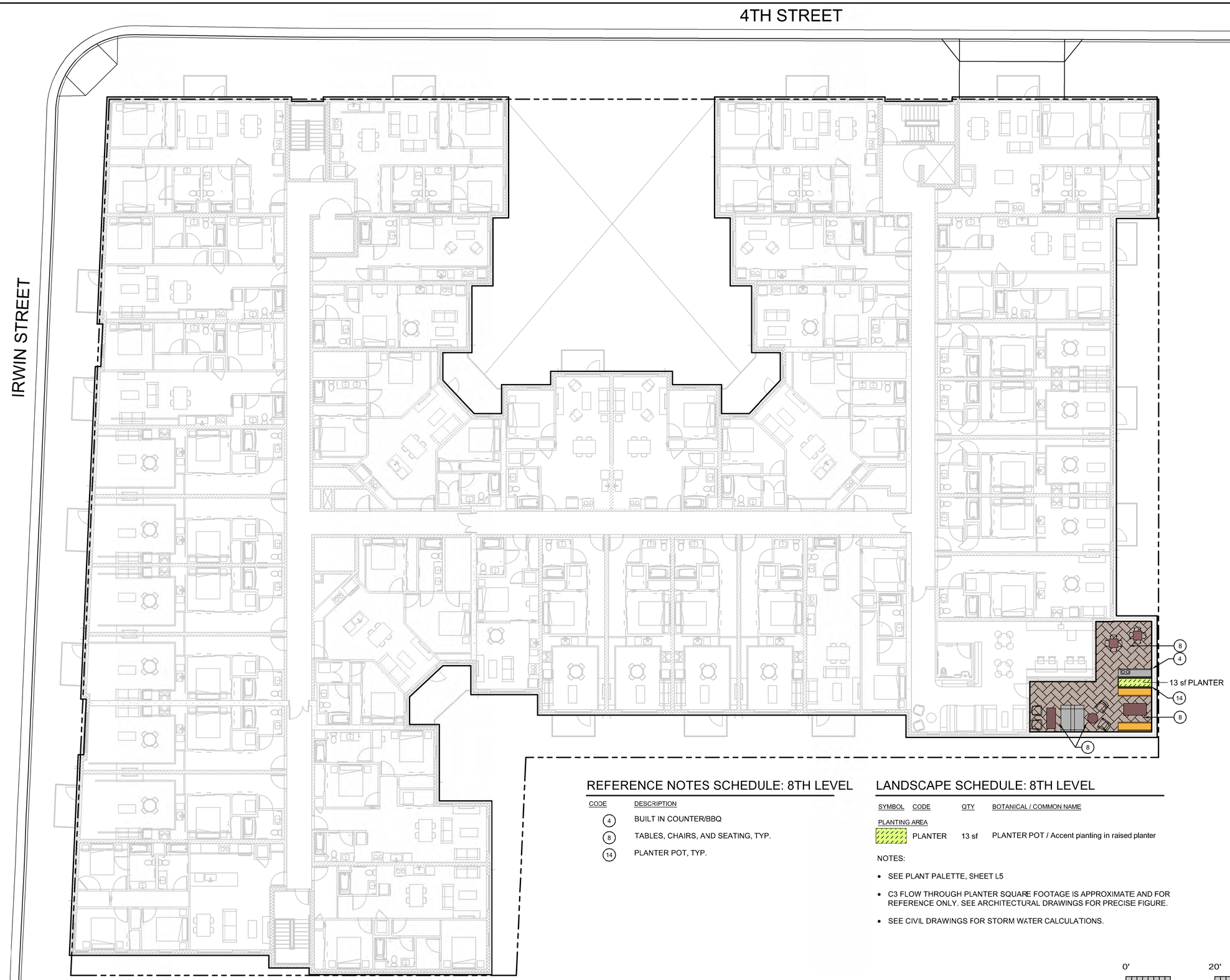
LICENSED LANDSCAPE ARCHITECT
JEFFREY M. AMBROSIA 4057
Signature
12/24
Renewal Date
Date
STATE OF CALIFORNIA

Sheet Title

LANDSCAPE CONCEPT PLAN - PODIUM LEVEL

Sheet No

L3



REFERENCE NOTES SCHEDULE: 8TH LEVEL

CODE	DESCRIPTION
4	BUILT IN COUNTER/BBQ
8	TABLES, CHAIRS, AND SEATING, TYP.
14	PLANTER POT, TYP.

LANDSCAPE SCHEDULE: 8TH LEVEL

SYMBOL	CODE	QTY	BOTANICAL / COMMON NAME
PLANTING AREA			
	PLANTER	13 sf	PLANTER POT / Accent planting in raised planter

NOTES:

- SEE PLANT PALETTE, SHEET L5
- C3 FLOW THROUGH PLANTER SQUARE FOOTAGE IS APPROXIMATE AND FOR REFERENCE ONLY. SEE ARCHITECTURAL DRAWINGS FOR PRECISE FIGURE.
- SEE CIVIL DRAWINGS FOR STORM WATER CALCULATIONS.

NORTH

0' 20' 10' 40'

LANDSCAPE CONCEPT PLAN - 8TH LEVEL

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LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ

Drawn By: EJS

Scale: 1"=10'

Date: 12/20/24

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Seal

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JEFFREY M. AMBROSIA 4057
12/24
Renewal Date
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STATE OF CALIFORNIA

Sheet Title

LANDSCAPE CONCEPT PLAN - 8TH LEVEL

Sheet No

L4

PODIUM LEVEL PLANT PALETTE

Arctostaphylos uva-ursi / Bearberry
Berberis aquifolium var. repens / Creeping Barberry
Calamagrostis acutifolia 'Karl Foerster' / Feather Reed Grass
Clinopodium (Satureja) douglasii / Yerba Buena
Elymus glaucus
Fragaria vesca / Wild Strawberry
Frangula californica / Coffeeberry
Heuchera micrantha / Alum Root
Iris douglasiana / Douglas Iris
Mimulus aurantiacus / Sticky Monkeyflower
Polystichum mumitum / Western Swordfern
Salvia sonomensis / Sonoma Sage
Salvia spathacea / Hummingbird Sage
Symphoricarpos mollis / Creeping Snowberry

STREET LEVEL PLANT PALETTE

Agave 'Blue Glow' / Agave
Aloe vera / Aloe
Aspidistra elatior / Cast Iron Plant
Berberis aquifolium 'repens' / Creeping Oregon Grape
Carex testacea / New Zealand Sedge
Clivia miniata / Clivia
Cyrtonium falcatum / Japanese Hollyfern
Dendromecon harfordii / Island Bush Poppy
Echeveria 'Domingo' / Echeveria
Eriogonum fasciculatum / California Buckwheat
Festuca californica / California Fescue
Festuca idahoensis / Blue Fescue
Lomandra hybrids / Mat Rush
Mahonia 'Soft Caress' / Soft Caress Mahonia
Monardella villosa / Coyote Mint
Penstemon heterophyllus / Foothill Penstemon
Salvia sonomensis / Sonoma Sage

C3 FLOW THROUGH PLANTER PLANT PALETTE

Achillea millefolium californica / Yarrow
Alnus rhombifolia / White Alder
Alnus rubra / Red Alder
Carex barbarae / Santa Barbara Sedge
Carex divulsa / Berkeley Sedge
Chondropetalum tectorum / Small Cape Rush
Cornus sericea / Creek Dogwood
Hordeum branchyantherum / Meadow Barley
Iris douglasiana / Douglas Iris
Juncus effusus / Soft Rush
Leymus condensatus 'Canyon Prince' / Wild Rye
Lobelia cardinalis / Cardinal Flower
Muhlenbergia rigens / Deer Grass
Polystichum munitum / Western Sword Fern
Sisyrinchium bellum / Blue-Eyed Grass

REPRESENTATIVE PLANT IMAGES


Polystichum mumitum / Western Swordfern

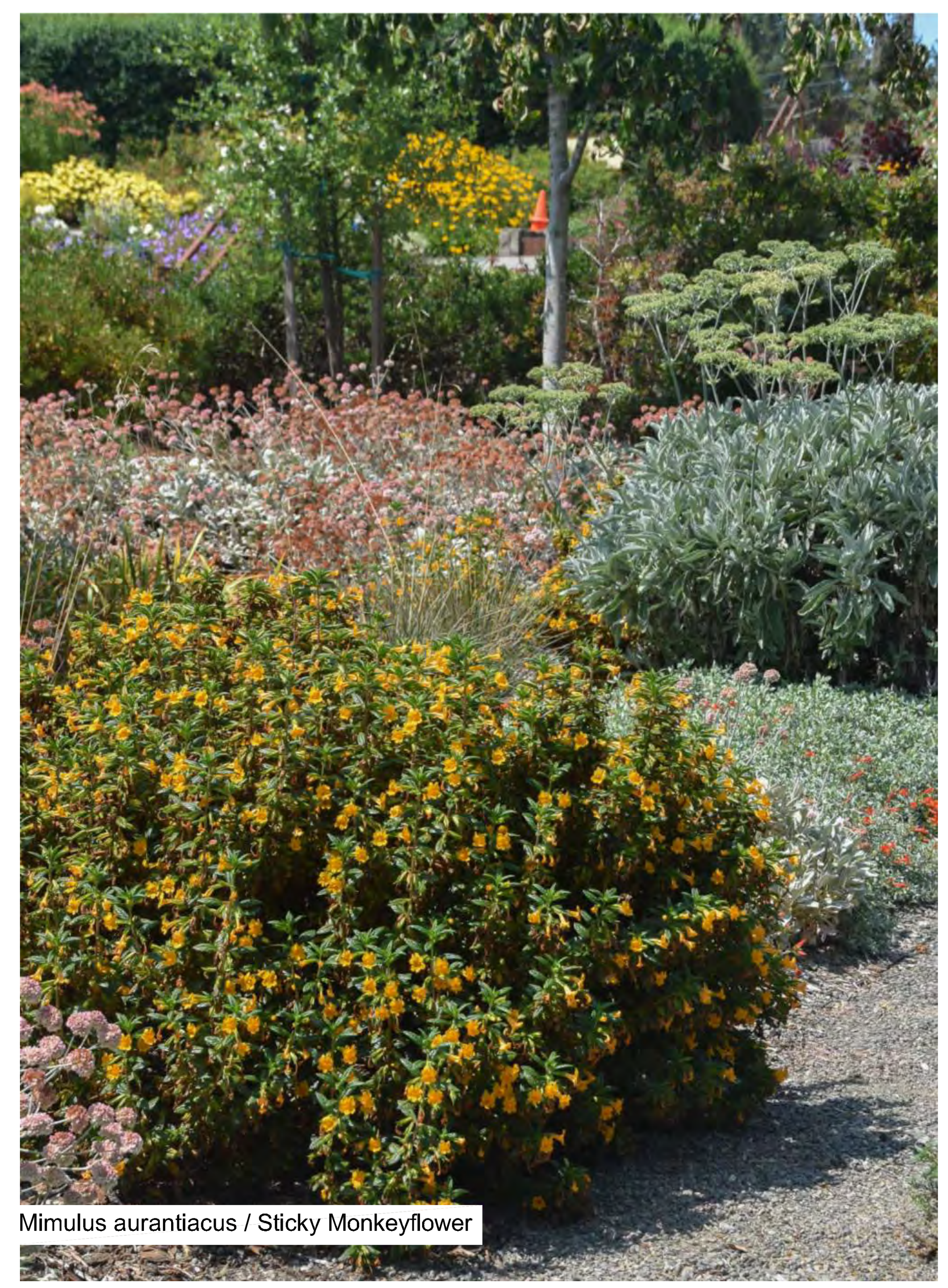

Lobelia cardinalis / Cardinal Flower


Agave 'Blue Glow' / Agave


Mahonia 'Soft Caress' / Soft Caress Mahonia


Monardella villosa / Coyote Mint


Fragaria vesca / Wild Strawberry


Mimulus aurantiacus / Sticky Monkeyflower

IRRIGATION STATEMENT

The irrigation system for street-level landscape will be serviced by a new dedicated irrigation water meter and point of connection. Irrigation at the podium planters will be serviced by the domestic water service line and will incorporate backflow prevention equipment. The irrigation design will consist of low volume point source drip irrigation in planters and in streetscape planter areas; and surface bubblers at trees. The system will include a smart irrigation controller with weather sensing capabilities to automatically adjust duration of application based on current evapotranspiration data. Maximum water allowance will be determined by State MWELO code. Irrigation stations shall be separated by hydrozones - areas with similar watering needs and microclimates.

REVIEW NOTES

1. Proposed plantings and improvements located in the public right of way shall be reviewed by Public Works prior to issuance of any entitlement for the project.
2. Landscape plan shall receive written approval from MMWD prior to issuance of a building permit.

PLANTING STATEMENT

The landscape plant palette consists of low water use shrubs, perennials, trees, and ornamental grasses that are considered low maintenance, long lived, and hardy. Choice of plants is guided by considerations of solar exposure and climate conditions of the site.

Plant design varies in form, texture and color. Informal plant forms and textures balance the straight lines of the planters. Planting design takes ease of maintenance into consideration by minimizing the following: plant material that may attract pests/disease, that drop extreme amounts of litter, or with a mature size larger than the space provided for growth. Perennial plants that die back in winter months are limited to podium level planters.

All planted areas shall be properly amended, compacted and finish graded prior to planting. A pre-emergent herbicide will be installed in all shrub and groundcover planting areas to control weeds. All landscape areas will be top dressed with a 3-inch depth of shredded bark mulch (no shredded Redwood).

Shrubs and ground covers will be no less than 1-gallon size. Trees will be no less than 15 gallon size. Plant materials shall be spaced to provide substantial cover, but also to allow adequate room to mature into their natural form and ultimate size without required pruning.

SOILS STATEMENT

The site's Soil Classification from USDA's Natural Resources Conservation Service Web Soil Survey is Map Unit 202: Urban land-Xerorthents complex, 0 to 9 percent slopes. The soil materials in this complex have been altered and rearranged by cutting and filling for urban development. As a result, the site's soil will have variable soil characteristics. Its landform is generally valley floors and tidal flats, and its parent material is earth spread deposits derived from igneous, metamorphic, and sedimentary rock. Soil depth to restrictive feature or water table is generally more than 80 inches.

Soil for streetscape plantings will be native soil amended with organic compost. Prior to performing soil preparation for streetscape plantings, soil samples will be collected and analyzed by a lab for horticultural classifications and amendment recommendations. Typically an organic compost blend such as 'Nicasio Blend' available from West Marin Compost is recommended to be incorporated into existing soil. If mineral deficiencies are found, further amendments will additionally be required.

Soil for street-level raised planters and podium-level planters will be an imported pre-mixed blend of loamy soil and organic compost such as 'North Bay Blend' available from A&S Landscape Materials.

Soil for flow-through planters will be an engineered biotreatment soil mix with a blend of approximately 70% sand and 30% compost to allow for a minimum infiltration rate of 5 inches per hour, such as 'Bioretention Soil' available from Nocal Ag Service.

YAMASAKI
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LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ
Drawn By: EJS
Scale: NTS
Date: 12/20/24
File Name: MSF-LP

No.	Date	Revision

Seal

LICENSED LANDSCAPE ARCHITECT
JEFFREY M. AMBROSIA 4057
Signature
12/24
Renewal Date
Date
STATE OF CALIFORNIA

Sheet Title

PLANTING NOTES
AND IMAGES

Sheet No

L5

S:\dwg\Modera San Rafael\DWG's\DD\MSF-LP.dwg\L5\19 Dec 2024 8:05 PM by: Theresa Zaro

PODIUM FURNISHINGS IMAGES

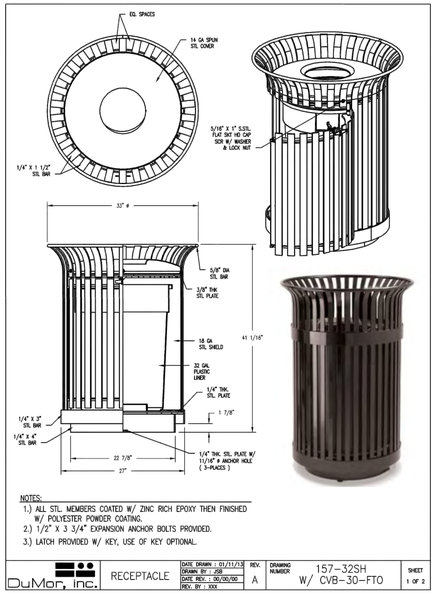
Tournesol

Kitsap Modular Planter Walls

Kitsap is a modular metal planter wall that bolts together to allow virtually unlimited flexibility to sculpt spaces. This system, built in our Port Orchard, Washington plant, can be fabricated in powder-coated aluminum, powder-coated mild steel, or weathering steel. The customizable solution can fit any application. Connect with a Tournesol Advisor to review your plans.

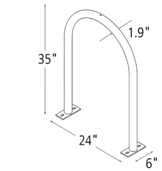
Tournesol.com | 800.542.2282

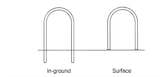
STREETSCAPE FURNISHING IMAGES



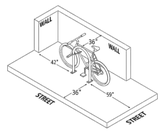
HOOP RACK

Submittal Sheet





CAPACITY	2 Bikes
MATERIALS	1.5" schedule 40 pipe (1.9" OD)
FINISHES	☐ **Galvanized** An after fabrication hot dipped galvanized finish is our standard option. ☐ **Powder Coat** Our powder coat finish assures a high level of adhesion and durability by following these steps: 1. Sandblast 2. Epoxy primer electrostatically applied 3. Final thick TGIC polyester powder coat ☐ **Thermoplastic** In addition to an increased thickness (8-10mils), the thermoplastic finish covers a galvanized layer and offers superior impact resistance over powder coating. ☐ **PVC Dip** (plastisol) Other colors available by special order (minimum orders apply) ☐ **Stainless** Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.
MOUNT OPTIONS	☐ **In-ground** In ground mount is embedded into concrete base. Specify in ground mount for this option. ☐ **Surface** Foot Mount has two 2.5"x6"x.25" feet with two anchors per foot. Specify foot mount for this option. ☐ **Rail** Rail Mounted Racks are bolted to two parallel rails which can be left freestanding or anchored to the ground. Rails are heavy-duty 3"x1.4"x3/16" thick galvanized mounting rails. Specify rail mount for this option.



landscapeforms

MILENIO

Product Data Sheet

This reinforced stone bench, named after Millenium Square in the City of Valladolid where it was first used, is a flexible modular system of geometric elements that can be used in diverse ways. One can sit on it, or on the ground beside it, where it serves as a space-definer and backrest. Straight, left-angled and right-angled modules can be used singly or in multiples to form creative combinations.

Bench

- Milenio is a Reinforced Cast Stone bench.
- This backless bench is available in Grey, Black White and Beige, with an acid-etched/waterproofed finish.
- Milenio is offered in a straight, angled right, or angled left modules, and is freestanding.
- Visit landscapeforms.com and review drawings to determine right and left configurations of bench.

Material

- Reinforced Cast Stone is cast stone that is poured and cast over an iron re-bar cage built to fit within the walls of the mold.
- Reinforced Cast Stone makes it possible to cast thinner, irregularly shaped forms while retaining appropriate strength.
- The colors of Escofet cast stone products are neutral, muted and earth-toned and are derived from the aggregates used in casting.
- No color is added in manufacture and no color is applied to finished products.
- The color range of every Escofet cast stone product is pre-determined by the formulation used in its manufacture.
- Cast stone products do not require any specific maintenance during their estimated lifespan of more than 30 years.
- Water absorption and freeze-thaw cycles can cause weathering, a reproduction of the process that takes place in natural rock.
- Escofet applies a waterproof finish to its products to protect against this process.
- Escofet cast stone products are large and heavy.
- Shipping, receiving, staging and installing these pieces is more akin to handling large statuary or pre-fabricated architectural elements.
- See installation guide for important information.

	STYLE	DEPTH	LENGTH	HEIGHT	PRODUCT WEIGHT
	Straight	18"	99"	18"	1,496 lb
	Angled Right	67"	105"	18"	2,242 lb
	Angled Left	67"	105"	18"	2,242 lb

Landscape Forms, Inc. | 800.521.2546 | F 269.381.3455 | 7800 E. Michigan Ave., Kalamazoo, MI 49048

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LANDSCAPE DEVELOPMENT PLANS

MODERA SAN RAFAEL

930 IRWIN STREET
SAN RAFAEL, CA

Client/Subconsultant

Project Mgr: TVZ

Drawn By: EJS

Scale: NTS

Date: 12/20/24

File Name: MSF-LP

No.	Date	Revision

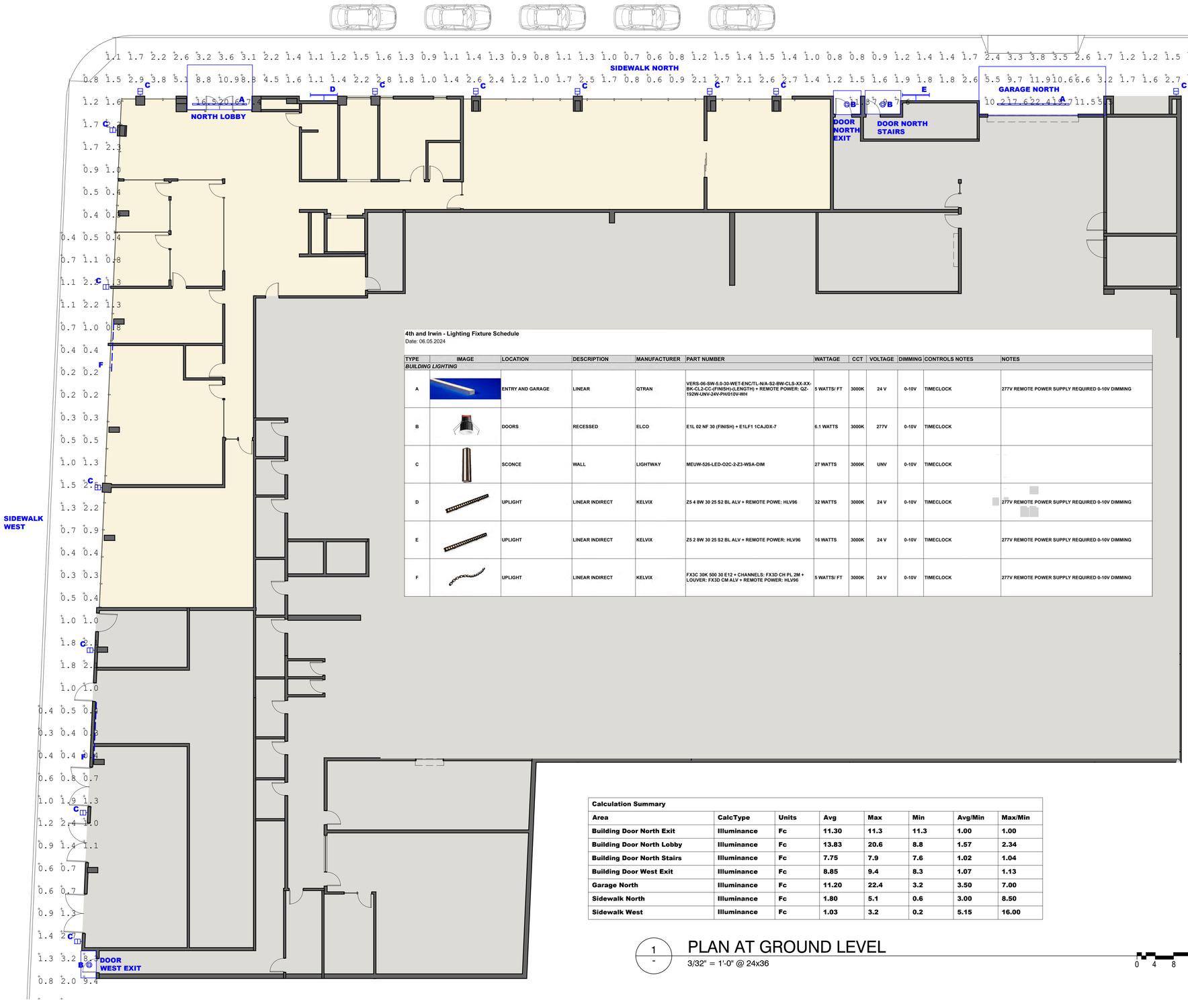
Seal

Sheet Title

SITE FURNISHINGS
CUT SHEETS & IMAGES

Sheet No

L6



4th and Irwin - Lighting Fixture Schedule
Date: 06.05.2024

TYPE	IMAGE	LOCATION	DESCRIPTION	MANUFACTURER	PART NUMBER	WATTAGE	CCT	VOLTAGE	DIMMING	CONTROLS NOTES	NOTES
BUILDING LIGHTING											
A		ENTRY AND GARAGE	LINEAR	QTRAN	VERS-06-SW-5.0-30-WET-ENC/TL-N/A-S2-BW-CLS-XX-XX-BK-CL2-CC-(FINISH)-(LENGTH) + REMOTE POWER: QZ-192W-UNV-24V-PH/010V-WH	5 WATTS/ FT	3000K	24 V	0-10V	TIMECLOCK	277V REMOTE POWER SUPPLY REQUIRED 0-10V DIMMING
B		DOORS	RECESSED	ELCO	E1L 02 NF 30 (FINISH) + E1LF1 1CAJDX-7	6.1 WATTS	3000K	277V	0-10V	TIMECLOCK	
C		SCONCE	WALL	LIGHTWAY	MEUW-526-LED-O2C-2-Z3-WSA-DIM	27 WATTS	3000K	UNV	0-10V	TIMECLOCK	
D		UPLIGHT	LINEAR INDIRECT	KELVIX	Z5 4 8W 30 2S S2 BL ALV + REMOTE POWE: HLV96	32 WATTS	3000K	24 V	0-10V	TIMECLOCK	277V REMOTE POWER SUPPLY REQUIRED 0-10V DIMMING
E		UPLIGHT	LINEAR INDIRECT	KELVIX	Z5 2 8W 30 2S S2 BL ALV + REMOTE POWER: HLV96	16 WATTS	3000K	24 V	0-10V	TIMECLOCK	277V REMOTE POWER SUPPLY REQUIRED 0-10V DIMMING
F		UPLIGHT	LINEAR INDIRECT	KELVIX	FX3C 30K 500 30 E12 + CHANNELS: FX3D CH PL 2M + LOUVER: FX3D CM ALV + REMOTE POWER: HLV96	5 WATTS/ FT	3000K	24 V	0-10V	TIMECLOCK	277V REMOTE POWER SUPPLY REQUIRED 0-10V DIMMING

Calculation Summary							
Area	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
Building Door North Exit	Illuminance	Fc	11.30	11.3	11.3	1.00	1.00
Building Door North Lobby	Illuminance	Fc	13.83	20.6	8.8	1.57	2.34
Building Door North Stairs	Illuminance	Fc	7.75	7.9	7.6	1.02	1.04
Building Door West Exit	Illuminance	Fc	8.85	9.4	8.3	1.07	1.13
Garage North	Illuminance	Fc	11.20	22.4	3.2	3.50	7.00
Sidewalk North	Illuminance	Fc	1.80	5.1	0.6	3.00	8.50
Sidewalk West	Illuminance	Fc	1.03	3.2	0.2	5.15	16.00

1 - PLAN AT GROUND LEVEL
3/32" = 1'-0" @ 24x36

0 4 8 16

TRACHTENBERG ARCHITECTS

2421 Fourth Street
Berkeley, California 94710
510.649.1414
www.TrachtenbergArch.com

LITE RITE DESIGN

MODERA SAN RAFAEL

930 Irwin Street,
San Rafael, CA

12.20.2023 SB-330 PRE-APP PLANS
06.13.2024 PLANNING SUBMITTAL
08.16.2024 PLANNING RESUBMITTAL

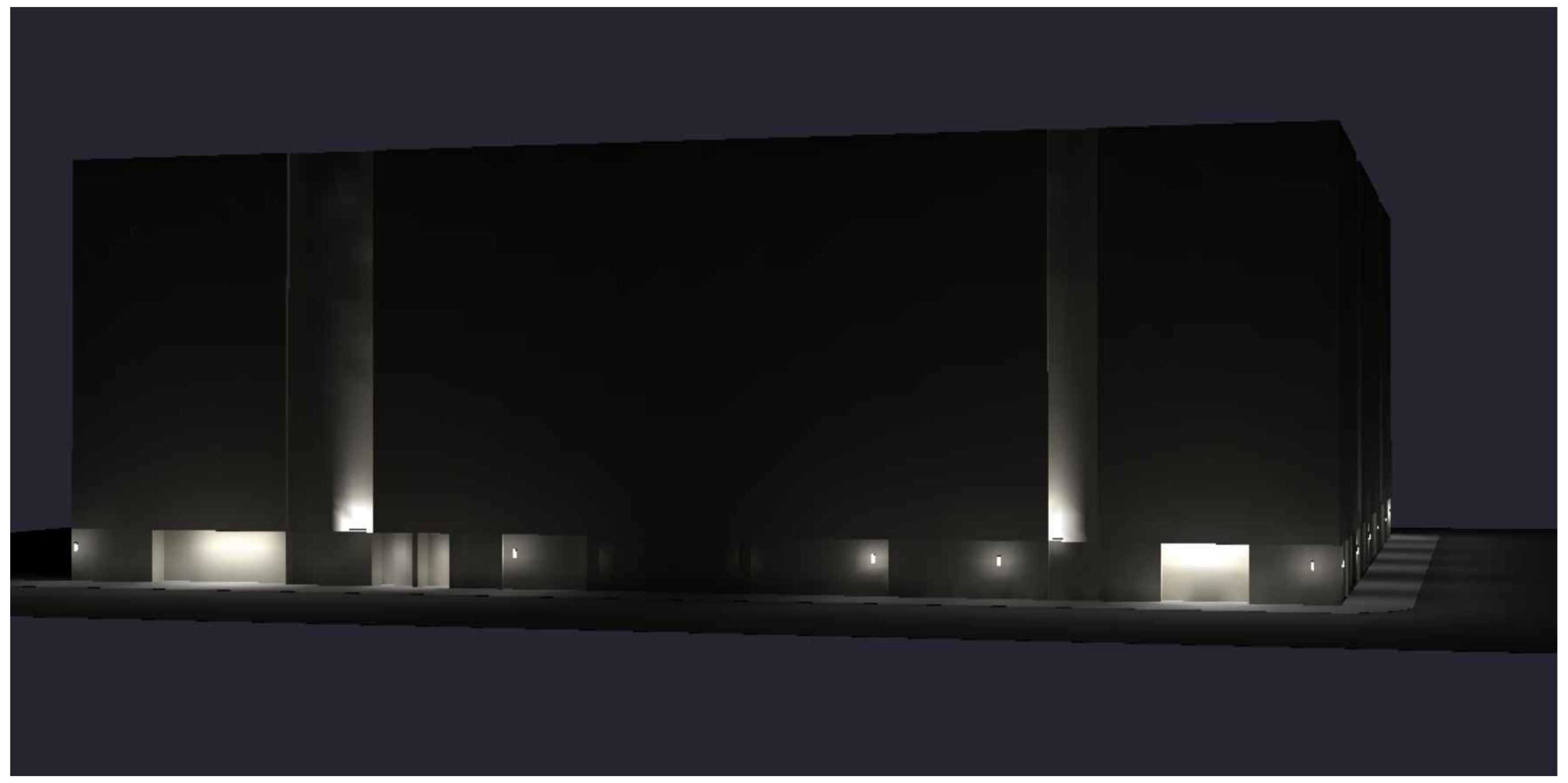
JOB: 2306

SHEET:

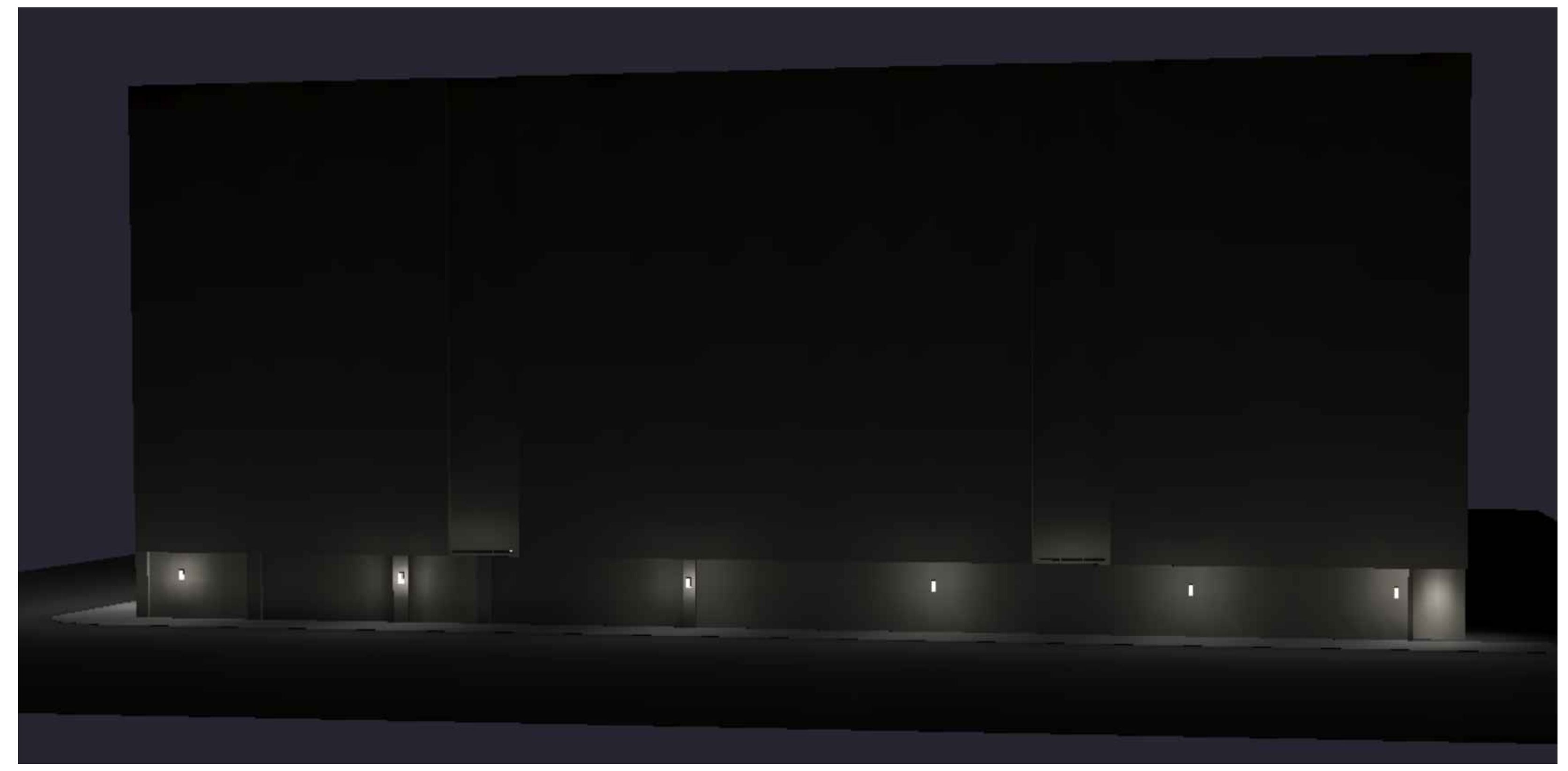
LIGHTING
GROUND LEVEL

LT1.1

NORTH ELEVATION



WEST ELEVATION



TYPE A

VERS-ENCAPSULATED (06) STATIC WHITE
Linear Fixtures - Surface

- Wet-rated VERSatile fixture encapsulated in polyurethane
- The polyurethane encapsulation provides optimal delivered lumens
- Features integrated metal endcaps
- Mounting options include a concealed or magnetic clip
- With an internal White Optics coating, the fixture achieves greater lumen output
- Durable anodized aluminum housings
- Consult factory for field assembly options

1 PRODUCT	2 WATTS/FT	3 CCT	4 RATED	5 LENS	6 EXTERNAL LOUVER	7 WIRE IN/OUT	8 CONN/WIRE IN	9 CONN/WIRE OUT	10 END CAP IN	11 END CAP OUT	12 WIRE COLOR	13 WIRE TYPE	14 MOUNTING	15 FINISH	16 LENGTH (IN)	17 EXACT/OPTIMAL
VERS-06-SW																

Sample Part Number: VERS-06-SW-5.0-30-DRY-ENC/TL-L1-BK-P1-BW-BW-BK-CL2-CC-BK-48"-E

1 PRODUCT: VERS-06-SW — See following pages for compatible power supplies.

2 WATTS/FT: 1.5 1.5W/ft; 3.0 3.0W/ft; 4.0 4.0W/ft; 5.0 5.0W/ft; 1.5HE 1.5W/ft HE; 3.0HE 3.0W/ft HE; 6.0HE 6.0W/ft HE

3 CCT: 24 2400K; 27 2700K; 30 3000K; 35 3500K; 40 4000K

4 RATED: DRY IP20; WET IP67

5 LENS: ENC/CL Encapsulated in Clear; ENC/TL Encapsulated in Translucent. For representation of LED visibility, see Diode Visibility section on following pages. For beam angles, see Photometric Performance section on following pages

6 EXTERNAL LOUVER: L1-WH White Plastic; L1-BK Black Plastic; L2-ST Satin Anodized Aluminum; L2-BK Black Anodized Aluminum; L2-WH White Powder Coated Aluminum; N/A No Louver. Plastic Louvers come in 12" lengths, multiple pieces will be used to match fixture length. Aluminum louvers come in maximum 96" lengths and will be cut to match fixture length.

7 WIRE IN/OUT: S1 Single 1 - End Feed; S2 Single 2 - Bottom Feed; S3 Single 3 - Left Side Feed; S4 Single 4 - Right Side Feed; P1 Pass Through 1 - End Feed; P2 Pass Through 2 - Bottom Feed; P3 Pass Through 3 - Left Side Feed; P4 Pass Through 4 - Right Side Feed. P2, P3, P4 options not compatible with external louver

8 CONN/WIRE IN: BW Bare Wire (Standard 36"); CON6 Connector 6"; CON24 Connector 24". Connector/Wire In not needed to specify product. Typical selection is BW. BW: Standard length is 36", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

9 CONN/WIRE OUT: CLS Closed End (No feed); BW Bare Wire (Standard 36"); CON6 Connector 6"; CON24 Connector 24". Connector/Wire Out not needed to specify product. Typical selection is CLS or BW. BW: Standard length is 36", Max length is 120". Request custom length by writing in part number next to BW (example: BW48)

10 END CAP IN: STD Standard; CL Clear. STD - End cap matches fixture finish chosen. Select CL for continuous runs

11 END CAP OUT: STD Standard; CL Clear. STD - End cap matches fixture finish chosen. Select CL for continuous runs

12 WIRE COLOR: WH White; BK Black

13 WIRE TYPE: CL2 Class 2; CL2P Plenum Rated. CL2P only available with bare wire leads (BW)

14 MOUNTING: CC Concealed Clip; MG Magnet

15 FINISH: ST Satin; BK Black; BZ Bronze; WH White; CU Custom

16 LENGTH (IN): Fixture length min 12", max 98.43" not including end caps. Consult factory for lengths under 12".

17 EXACT/OPTIMAL: O Optimal Illumination; E Exact Specified Length. Exact fixtures are the exact length specified +0 ~ 1/8". Optimal fixtures' length is rounded down with illumination end to end. See Exact/Optimal Fixture Length charts.

5 year warranty | Warranty only valid with QTL power supplies | Field modifications void warranty | Data subject to change, all data has +/- 5% tolerance

 Specification subject to change. Rev-05-23-24

VERS-ENCAPSULATED (06) STATIC WHITE
Linear Fixtures - Surface

1 PRODUCT - DIMENSIONS

Profile | VERS-06 with L1/L2 Louver | Profile with concealed clip | Profile with magnetic clip | Profile with magnet mount clip & magnetic mount accessory

2 DELIVERED LUMENS

[Calculated L70 = 40000 hrs]
Tested with VERS-06-SW-**-30-DRY

	1.5 W/FT		1.5HE W/FT		3.0 W/FT		3.0HE W/FT		4.0 W/FT		5.0 W/FT		6.0HE W/FT	
	LM/FT	CRI	LM/FT	CRI	LM/FT	CRI	LM/FT	CRI	LM/FT	CRI	LM/FT	CRI	LM/FT	CRI
ENC/CL	[illegible]	96	[illegible]	97	[illegible]	96	[illegible]	96	[illegible]	96	[illegible]	96	[illegible]	96
ENC/TL	125	96	154	97	204	96	283	96	273	96	307	96	490	96

5 DIODE VISIBILITY

ENC/CL - Clear encapsulation
ENC/TL - Translucent encapsulation

PHOTOMETRIC PERFORMANCE

Nominal beam spread shown, beam spread varies based on light engine. For more detailed information, see photometric data.

6 EXTERNAL LOUVER

PLASTIC — 12.25" — L1-XX — Lumen Multiplier: WH 0.70, BK 0.54

METAL — 98" — L2-XX — Lumen Multiplier: WH 0.64, BK 0.39, ST 0.59

 Specification subject to change. Rev-05-23-24

TYPE B

ELCO Lighting

Project name:
Fixture type:
Date:

1" Round Recessed Oak™ Downlight

Small aperture 12V AC Downlight delivers over 600 lumens. More than a traditional 50W MR16 Halogen Lamp. Requires 12V AC Transformer (daisy chain up to 6). Dimmable ELV, MLV or 0-10V depending on transformer used.

Features

- Requires 12V AC transformer. Dimmable ELV, MLV or 0-10V depending on transformer used.
- IC Airtight for use with direct contact to insulation
- Height allows for use in ceilings with under 3" depth. Ceiling thickness can be reduced from fixture depth.
- Daisy chain up to 6 fixtures with E1LDRV60
- 38° Standard beam with optional 28° and 50°
- Remodel requires no frame. New construction E1LF1 frame available.
- Wet Location Rated for Indoor and Outdoor Use
- JA8-2016-E & UL listed.
- Life Span 50,000 Hours L70

Specifications

Wattage	6.1W
Lumens	450 lm - 675 lm
Voltage	12V AC
Color Temp.	2700K - SunsetK
Dimmable	Yes
Lamp Type	LED
Beam Angle	28° - 50°
CRI	93+
Wet Location	UL Listed

Options

White, Black, Bronze, Haze, All Black

Technical Details

Optics: PC Lens for even lumen distribution. Standard 38° lens. Optional 28° (EP713C) and 50° (EP715C) available.

Construction: Diecast construction for lasting quality and greater heat dissipation. High quality powder coat finish prevents rust and paint cracking.

Installation: Requires 12V AC transformer. Can be installed on E1LF1 new construction frame. Remodel requires no frame. Hole cutout size: 2" (50 mm). Height allows for use in ceilings with under 3" depth. Ceiling thickness can be reduced from fixture depth.

LED Technology: Extremely accurate color rendering with 93+ CRI. Efficacy of up to 110 lumens per watt. Lumen Maintenance of 50,000 hours L70 based on LM80. Superior Thermal Management by utilizing diecast aluminum body as heat sink.

Sunset: Sunset color temperature is our dim-to-warm LED technology that allows the color temperature to become warmer as the product is dimmed. Our SUNSET items start at 3000K and go as low as 1800K when dimmed. For Sunset dim technology be sure to order an item with "Sunset" in the Color Temperature (CCT) attribute.

Electrical: Requires 12V AC transformer. Can be daisy chained up to 6 fixtures with E1LDRV60 or can be wired 1 fixture per transformer.

Delivered Lumens:

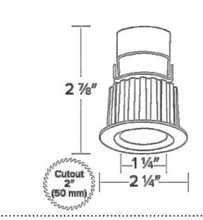
E1L02F27 600 lm/2700K **E1L02F30** 625 lm/3000K **E1L02F35** 650 lm/3500K **E1L02F40** 675 lm/4000K **E1L02FSD** 450 lm/Sunset

Dimming: Dims with MLV dimmers when powered by dimmable magnetic 12V AC transformer. Works with ELV dimmers when powered by dimmable electronic 12V AC transformer. Dims with 0-10V systems with 0-10V dimmable 12V AC transformer. Check transformer and dimmer compatibility before installation .

Listings: cUL Listed. UL Listed for WET Location. UL Listed for direct contact with insulation. Airtight per ASTM E-283. California Title 24 (JA8-2016-E).

Warranty: ELCO Products are built to last with a 5-year Limited warranty.

Dimensions



Product Number Builder Example: E1L02F27B

1" Oak™ Downlight	Style	Beam Angle	Color Temperature	Finish
E1L	02 Round	F 38°	27 2700K	W All White
		NF 28°	30 3000K	B Black with White Trim
		WF 50°	35 3500K	BZ All Bronze
			40 4000K	H Haze with White Trim
			SD Sunset [1]	BB All Black

[1] Sunset, Dim to Warm technology, automatically transitions from 3000K to 1800K when dimmed

Distance from Transformer to 1st Fixture	#12 Gauge						#14 Gauge						#18 Gauge					
	Number of Fixtures						Number of Fixtures						Number of Fixtures					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
1'	12.0	11.9	11.6	11.5	11.1	10.8	12.0	11.9	11.6	11.5	10.9	10.7	11.9	11.8	11.3	11.1	9.9	9.6
2'	11.9	11.9	11.6	11.4	10.8	10.7	11.9	11.8	11.5	11.3	10.7	10.5	11.9	11.6	11.1	10.9	9.7	9.1
4'	11.9	11.8	11.5	11.3	10.6	10.4	11.9	11.8	11.4	11.2	10.2	10.2	11.8	11.5	11.0	10.8	9.5	8.7
6'	11.9	11.8	11.4	11.3	10.5	10.3	11.9	11.7	11.3	11.2	10.3	10.0	11.7	11.3	10.8	10.5	9.3	8.2
8'	11.8	11.7	11.3	11.1	10.3	9.9	11.7	11.6	11.5	10.9	9.8	9.5	11.5	11.2	10.4	9.8	8.6	7.4
10'	11.7	11.6	11.2	10.9	10.1	9.4	11.7	11.6	11.1	10.9	9.7	9.2	11.4	11.0	10.4	9.3	8.1	6.9
16'	11.7	11.7	11.3	10.7	9.9	8.9	11.5	11.4	10.9	10.2	9.0	8.2	11.3	10.9	10.1	8.8	7.6	6.6
20'	11.4	11.3	10.9	10.1	9.2	8.2	11.5	11.3	10.8	9.9	8.6	7.6	10.8	10.0	8.5	7.1	5.9	4.4

Notes:
1. Max 6 fixtures.
2. For this analysis, 3' of wire was used between fixtures.
3. There will be an additional drop of ~1V if a dimmer is used.
4. Recommended maximum voltage drop is to 10.5V.

TYPE C

MEUW-LED

Type:	
Job Name:	

Construction:
- Steel Housing and chassis
- Diffuser UV-stabilized, high impact resistant, DR acrylic

Light Source:
- LED
- Dimming to 10% **Included**

Notes:
- Integral mounting plate; Hardware include
- Mounts on a Standard J-Box
- Lens on all five sides
- Optional battery backup available on fixtures 526 & larger
- Optional photocell (21) increases fixture depth ½"
- UL and CUL listed **WET** location
  - Replaceable Module
  - CRI > 90
  - Universal 120/277 volt standard
  - 5-Year Warranty on LED Components

	DIM 'A'	Mount-Center
MEUW-513	13"	6.5"
MEUW-518	18"	9"
MEUW-526	26"	13"
MEUW-538	38"	19"
MEUW-550	50"	25"

"A" 4" 5½"

ORDERING INFORMATION

Example: MEUW-526-LED-O2C-3-Z3-WSA

Size	LED	Watts	Source Lumens	Dimming	Energy Star
513-LED	O1C	9	1210	0-10v	NO
518-LED	O2A	12	1600	0-10v	NO
526-LED	O2C	18	2420	0-10v	NO
538-LED	O3C	27	3630	0-10v	NO
550-LED	O4C	36	4840	0-10v	NO

Kelvin: 2 3000K; 3 3500K; 4 4000K

Cage

Finish: B1 Satin Black; Z1 Satin Bronze; Z3 Text Bronze; W1 Yolk; W2 Gloss White; W3 Text White; B2 Text Black; T4 Shimmer Gray; M13 Anod Silver; T6 Pewter; W13 Pearl Beige. Optional (See Price List): P2 Brushed Alum

Diffuser: WSA White Smooth Acrylic

Options: DIM LED dimming driver (0 - 10v) Dimming to 10% (**Included**); 21 Photocell - Specify voltage: 01 - 120 volt, 02 - 277 volt; 42 All Aluminum Construction. Battery Backup Options (MEUW-526 and Larger only): BB10 10 Watts (1170lm) for 90-Minutes

28435 Industry Drive., Valencia, California 91355
800-325-4448 /661-257-0286 • fax 800-323-2346 /661-257-0201
www.lightwayind.com • sales@lightwayind.com

Lightway

Revision: 06/05/2024

TYPE D + E

FIXTURE TYPE
PROJECT NAME
LOCATION

Description

Zolo 5 is our most popular indoor/outdoor washer/grazer. With it's small form factor, great light output, and high customizability, it's sure to fit your project perfectly.

Features

- High Purity Tempered Glass
- Extruded Aluminum Alloy Housing
- Available in Titanium Gray, Black, or White Finish
- Multi-Volt 24VDC Remote Driver (Sold Separately)
- Daisy Chain Multiple Fixtures
- IP66 Outdoor Rated
- Louver Options Available

Specifications

Input Voltage	24V DC/Constant Voltage
Watts per Foot	8W/ft*
Lumen per Watt	100 lm/W
Lumen per Foot	800 lm/ft
Beam Spread	25°, 30°, 50°, 25°×40°, 30°×55°
Max Run Length	12 ft
CRI	85*
Operating Temp.	-40°F (-40°C) to 140°F (60°C)
Storage Temp.	-22°F (-30°C) to 140°F (60°C)

Product Code Builder

Item: Z5 — Zolo 5
Length: 1 — 11.81" (300mm); 2 — 23.62" (600mm); 3 — 35.43" (900mm); 4 — 47.24" (1200mm)
Power*: 8W — 8W/ft
Temp/Color*: 27 — 2700K; 30 — 3000K; 35 — 3500K; 40 — 4000K; 50 — 5000K
Beam Angle: 25 — 25°; 30 — 30°; 50 — 50°; 2540 — 25°×40°; 3055 — 30°×55°
Mounting: S1 — 1" Stand Off; S2 — 2" Stand Off; CP — Mounting Clip; GS — Ground Stake
Finish*: TG — Titanium Gray; BK — Black; WH — White
Option: NA — None; LV — Louver; ALV — Asymmetric Louver

Example: Z5-1-8W-27-25-S1-TG-NA

* Customizable—Consult Factory

TYPE F

FIXTURE TYPE
PROJECT NAME
LOCATION

Description

FX3D is a dual bending linear light fixture with a variety of functional components and mounting options so you can use it in any situation.

Features

- Omnidirectional Bend
- Multiple Beam Options
- Field Modifiable Channel and Louvers
- IP67

Series Spec

Series	FX3D
Temp/Colors	2700K–4000K, Red, Green, Blue
Dimming Protocol	Triac, ELV, 0–10V, DMX
Input Voltage	24V DC
Indoor/Outdoor	Indoor & Outdoor
Beam Spread	30°, 60°, 15°×50°, 25°×45°, 30°×50°
CRI	Ra 90+, R9 50+
Diode	2835
Diode Pitch	8 LED/ft
Bend Radius	4.70" (120.0mm)
Cut Intervals	12.00" (304.8mm)
Dimensions	0.87" (22.0mm) × 0.47" (12.0mm)
Operating Temp.	-22°F (-30°C) to 122°F (50°C)
Storage Temp.	Temperature-Controlled Environment

Product Code Builder

Series: FX3D — FX3D
Temp/Colors*: 27K — 2700K; 30K — 3000K; 35K — 3500K; 40K — 4000K; RD — Red; GRN — Green; BL — Blue
Output: 500 — 500 lm/ft
Beam Angle*: 30 — 30°; 60 — 60°; 1550 — 15°×50°; 2545 — 25°×45°; 3050 — 30°×50°
Feed Style Length: E12 — End Feed 12'
Fixture Length: XXX — Custom Length (in feet, 12' max)
Modification: NA — None; WH — White Jacket

Example: FX3D-27K-500-30-E12-LL-NA

* Customizable—Consult Factory

Conforms to ANSI/UL Standard 2108
Certified to CAN/CSA Standard C22.2 NO. 250.0

TRACHTENBERG ARCHITECTS

2421 Fourth Street
Berkeley, California 94710
510.649.1414
www.TrachtenbergArch.com

LITE RITE DESIGN

MODERA SAN RAFAEL

930 Irwin Street,
San Rafael, CA

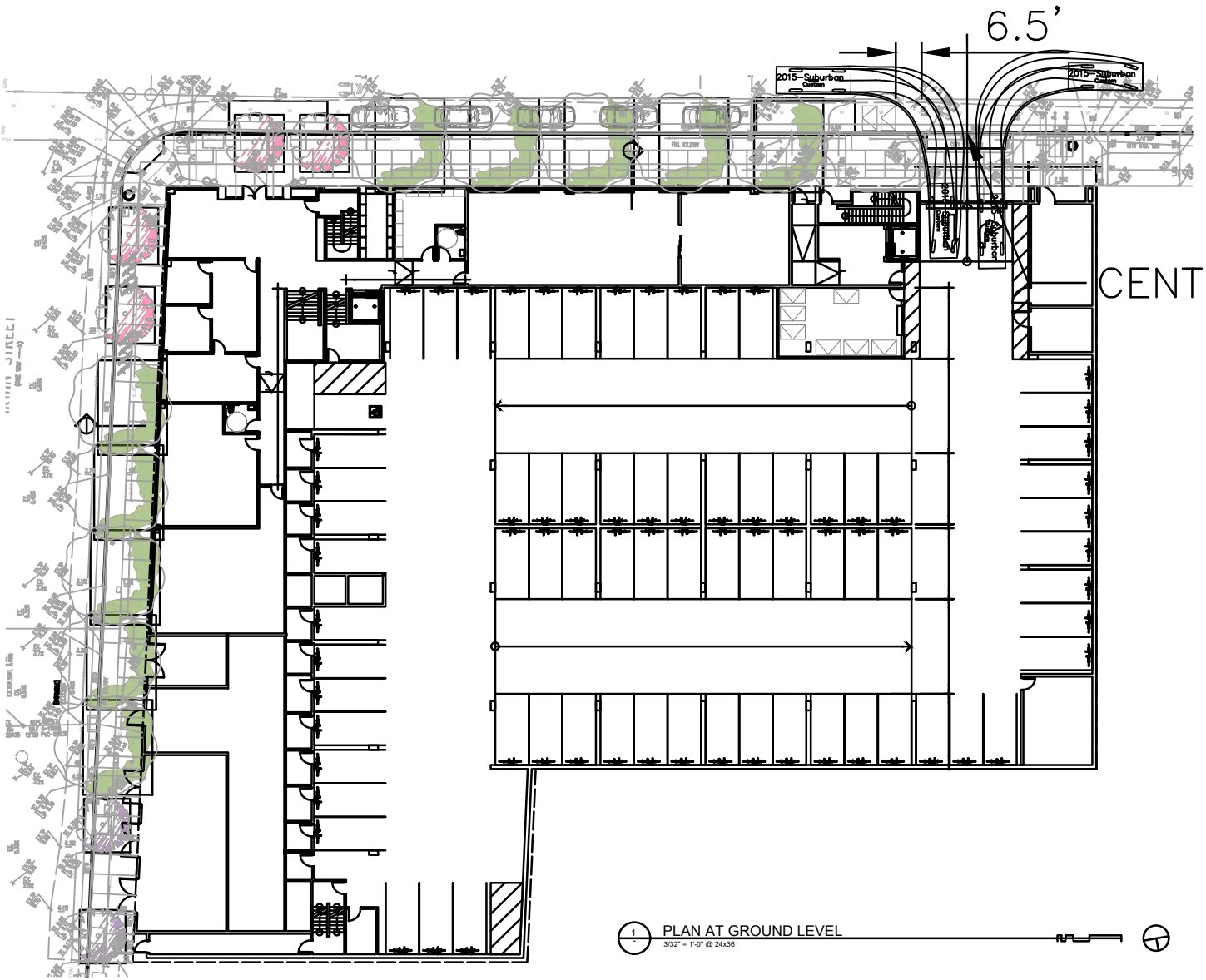
12.20.2023 SB-330 PRE-APP PLANS
06.13.2024 PLANNING SUBMITTAL
08.16.2024 PLANNING RESUBMITTAL

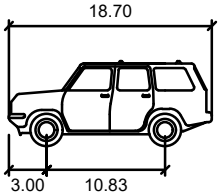
JOB: 2306

SHEET:

LIGHTING SPECS
GROUND LEVEL

LT1.1A





2015-Suburban

	feet
Width	: 6.71
Track	: 5.72
Lock to Lock Time	: 3.4
Steering Angle	: 34.6

W-Trans

0 50' 100'

SCALE: 1"=50'

SRA156-1: TURNING TEMPLATE FOR MODERA SAN RAFAEL – SUBURBAN VEHICLE

FEBRUARY 2025

CORNERSTONE EARTH GROUP

TYPE OF SERVICES	Design Level Geotechnical Investigation
PROJECT NAME	Modera San Rafael
LOCATION	523-535 4th Street and 912 Irwin Street San Rafael, California
CLIENT	Mill Creek Residential Trust
PROJECT NUMBER	1395-4-4
DATE	August 23, 2024 (updated February 7, 2025)

CORNERSTONE EARTH GROUP

Type of Services	**Design Level Geotechnical Investigation**
Project Name	**Modera San Rafael**
Location	**523-535 4th Street & 912 Irwin Street San Rafael, California**
Client	**Mill Creek Residential Trust**
Client Address	**3697 Mt. Diablo Boulevard, Suite 350 Lafayette, CA**
Project Number	**1395-4-4**
Date	**August 23, 2024 (updated February 7, 2024)**

Prepared by **Bryan Cervantes Guzman, P.E.**
Project Engineer

John R. Dye, P.E., G.E.
Senior Principal Engineer
Geotechnical Project Manager

REGISTERED PROFESSIONAL ENGINEER
JOHN R. DYE
GE2582
GEOTECHNICAL
STATE OF CALIFORNIA

CORNERSTONE EARTH GROUP

TABLE OF CONTENTS

Type of Services	**Design Level Geotechnical Investigation**
Project Name	**Modera San Rafael**
Location	**523-535 4th Street & 912 Irwin Street** **San Rafael, California**

SECTION 1: INTRODUCTION

This design level geotechnical report was prepared for the sole use of Mill Creek Residential Trust for the Modera San Rafael in San Rafael, California. The location of the site is shown on the Vicinity Map, Figure 1. As you know, we performed a preliminary geotechnical investigation for the site and presented our findings in our report dated July 22, 2024. For our use, we were provided with the following documents:

- A preliminary conceptual plan titled "Fourth & Irwin, San Rafael, Draft Plan Revisions," prepared by Trachtenberg Architects dated April 24, 2024.
- A topographic survey titled, "Boundary and Topographic Survey of 523 & 543 Fourth Street" prepared by Muir Consulting, Inc dated August 3, 2021.
- Structural loading diagrams provided by VCA Structural, December 13, 2024 and January 16, 2025.

1.1 PROJECT DESCRIPTION

The project site encompasses three parcels in downtown San Rafael, California (APN's 014-123-21, 014-123-28 and 014-123-27). The approximately 0.92-acre site (three conjoining parcels) is currently occupied by three 2-story commercial office buildings. Based on our review of the conceptual plans provided by Trachtenberg Architects, the planned development will consist of an 8-story residential building with three levels of podium garage parking encompassing a majority of the site. The five residential levels will consist of 213 units of 3-bedroom, 2-bedroom, 1-bedroom, and studio apartments. A common area consisting of a podium garden and patio will be located on the fourth floor. The building will be supported at-grade. Three levels of podium parking will be of concrete construction and the five levels of residential units will likely be of wood-frame construction. Appurtenant utilities, landscaping, and other improvements necessary for site development are also planned.

Structural loads provided by the structural engineer indicate dead plus live (unfactored) foundation pressures will range from approximately 1,100 to 1,400 pounds per square foot for most of the interior portions of the foundation to an average of 2,000 psf around the perimeter of the foundation. Grading plans are not available at this time; however, we understand grading will consist of minimal fills and cuts on the order 2 to 5 feet to accommodate the mat foundation and localized elevator pit areas.

1.2 SCOPE OF SERVICES

Our scope of services was presented in our proposal dated May 14, 2024, and consisted of field and laboratory programs to evaluate physical and engineering properties of the subsurface soils, engineering analysis to prepare recommendations for site work and grading, building foundations, flatwork, retaining walls, and pavements, and preparation of this report. Brief descriptions of our exploration and laboratory programs are presented below.

1.3 EXPLORATION PROGRAM

Field exploration consisted of three borings drilled on July 17, 2024, with truck-mounted, hollow-stem auger drilling equipment. The borings were drilled to depths ranging from 30 to 60 feet. The borings were backfilled with cement grout in accordance with local requirements; exploration permits were obtained as required by local jurisdictions.

The approximate locations of our exploratory borings are shown on the Site Plan, Figure 2. Details regarding our field program are included in Appendix A.

1.4 PREVIOUS FIELD EXPLORATION

We previously performed field explorations as part of preliminary investigation in December 2023, which consisted of three Cone Penetration Test (CPT) soundings using truck-mounted CPT exploration equipment. The CPTs, CPT-1 to CPT-3, were advanced to depths ranging from 53 to 67 feet below existing site grades. Each CPT encountered CPT refusal at their respective depths.

As part of the preliminary geotechnical investigation, we collected soil samples from our concurrent Phase 2 environmental investigation to observe general soil conditions within the upper approximately 1¼ to 5 feet of the soil profile. Six soil vapor boreholes were hydraulically pushed using a track mounted push probe drilling rig to depths of approximately 1¼ to 5 feet below site grades. Additional field exploration was performed in February 2024 that consisted of eight push probe soil borings to a depth of 10 feet each. Copies of the environmental exploration logs are presented in Appendix B.

The CPTs and push probe boreholes were backfilled in accordance with local requirements. The approximate locations of our CPTs and concurrent soil vapor boreholes are shown on the Site Plan, Figure 2. Details regarding our field program are also included in Appendix A.

1.5 LABORATORY TESTING PROGRAM

In addition to visual classification of samples, the laboratory program focused on obtaining data for foundation design and seismic ground deformation estimates. Testing included moisture contents, dry densities, washed sieve analyses, Plasticity Index tests, consolidation, and triaxial compression tests. Details regarding our laboratory program are included in Appendix C.

1.6 ENVIRONMENTAL SERVICES

Cornerstone Earth Group also provided environmental services for this project, including Phase 1 and 2 site assessments; environmental findings and conclusions are provided under separate covers.

SECTION 2: REGIONAL SETTING

2.2 REGIONAL SEISMICITY

While seismologists cannot predict earthquake events, geologists from the U.S. Geological Survey have recently updated (in 2015) earlier estimates from their 2014 Uniform California Earthquake Rupture Forecast (Version 3; UCERF3) publication. The estimated probability of one or more magnitude 6.7 earthquakes (the size of the destructive 1994 Northridge earthquake) expected to occur somewhere in the San Francisco Bay Area has been revised (increased) to 72 percent for the period 2014 to 2043 (Aagaard et al., 2016). The faults in the region with the highest estimated probability of generating damaging earthquakes between 2014 and 2043 are the Hayward (33%), Calaveras (26%), and San Andreas Faults (22%). In this 30-year period, the probability of an earthquake of magnitude 6.7 or larger occurring is 22 percent along the San Andreas Fault and 33 percent for the Hayward Fault.

The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The table below presents the State-considered active faults within 25 kilometers of the site.

Table 1: Approximate Fault Distances

Fault Name	Distance	
	(miles)	(kilometers)
Hayward (Total Length)	8.7	14.0
San Andreas	9.6	15.4
San Gregorio	10.3	16.6
Rodger's Creek	14.6	23.5

A regional fault map is presented as Figure 3, illustrating the relative distances of the site to significant fault zones.

SECTION 3: SITE CONDITIONS

3.1 SITE BACKGROUND

We reviewed historical aerial imagery provided online by Historical Aerials (http://www.historicaerials.com), Environmental Data Resources, and Google Earth Pro (2023). A summary of pertinent surface changes at and in the near vicinity of the site is as follows:

- Prior to 1946: Aerial images were not available prior to 1946; however, prior to 1940 the parcel was shown to be vacant on Sanborn maps from 1927 and 1907. A USGS topographic map from 1895 indicates an unnamed creek channel may have meandered across a portion of the site.
- 1946: The aerial image appears to show the site divided into four smaller parcels with smaller buildings and structures in place. The area in the vicinity appears developed and street layouts match existing layouts. Highway 101 appears to have been built but is narrower than the current widths.
- 1950s-1960s: The parcel at the corner of 4th and Irwin is developed as a gas station. The 912 Irwin Street parcel is occupied by at least one building.
- 1982: The previous buildings and structures were removed, and the site was redeveloped into the two current commercial office buildings and paved parking lot. The building at 912 Irwin Street was also constructed. Highway 101 appears to have been widened to its current width.
- 2020: No major surfaces changes appear to have been made to the site since 1982. The site appears to be in the same condition as during this geotechnical investigation.

From the concurrent Phase 1 and Phase 2 environmental investigation, we understand a fuel station was once present on the corner of 4th Street and Irwin Street prior to redeveloping the site to existing conditions. Typical infrastructure associated with fuel stations include underground storage tanks, canopy footings or piers, piping, and typical service station building, utilities, flatwork, and pavements.

3.2 SURFACE DESCRIPTION

The project site is situated within the highly developed downtown district of the City of San Rafael. The site is situated east of Hwy 101 and is bounded by 4th Street to the north, Irwin Street to the west, and commercial development to the south and east. The site is currently occupied by three 2-story office buildings with a conjoined asphalt parking lot. The parking lot extends beneath portions of the two northern buildings resulting in a “soft story” condition for portions of the two existing buildings. The southern office building has an adjacent concrete parking lot. Existing flatwork envelopes portions of the buildings, landscaping strips and islands were observed, and other site features such as utility equipment and site walls were observed. The site is relatively level but graded to drain to storm drain inlets.

Based on the topographic survey provided by Muir Consulting, Inc., the site grades vary between Elevation 9 and 10 feet (NAVD88 Datum). From our recent exploration, the asphalt pavement ranged from 3 to 4 inches thick and aggregate base sections were observed to be

approximately 5 to 6 inches thick. Site pavements appear to be in fair condition with some areas of observed distress consisting of alligator cracking and block cracking. Pavement rehabilitation consisting of slurry seals and asphalt overlays appears to have been previously performed on the pavement.

3.2 SUBSURFACE CONDITIONS

In general, the site subsurface soil profile is anticipated to consist of undocumented fills underlain by Holocene-aged alluvial soils underlain by Franciscan bedrock. Below the surface pavements and based on our recent exploratory borings as well as previously performed environmental exploration, the upper 1¼ to 5 feet of the soil profile primarily consisted of undocumented fills. The undocumented fills are highly variable in consistency and vary between medium stiff to stiff clayey soils such as fat clay, sandy fat clay, fat clay with sand, lean clay with sand and lean clay, as well as loose to medium dense coarse-grained fills consisting of crushed rock/concrete, clayey sand, and silty sand. From the soil samples collected and observed, we estimate that the onsite clayey fill soils with be moderately to highly expansive. Additional undocumented fills may be present from previous development and redevelopment of the site, especially at the former gas station parcel, where underground storage tanks were removed and backfilled. Additional explorations should be performed after the buildings are demolished to confirm the depth of undocumented and consistency of fill present onsite.

Below the fills, our exploratory borings encountered Holocene-aged alluvial soils to depths of 30 to 60 feet, the maximum depth explored during our exploratory borings. The alluvial soils directly beneath the fills consisted of medium stiff to stiff lean to fat clay with sand to depths of 7½ to 9 feet. From our review of the geology in the vicinity, we understand that portions of Downtown San Rafael were once tidal marshes along San Rafael Creek. From the lab test data and our observations and experience in the area, the upper 2 to 3 feet of the alluvial clayey material consists of moderately compressible clayey material known as Bay Mud. Below the Bay Mud layer, older, stiffer alluvial soils consisting of stiff to hard clayey soils and medium dense to dense granular soils were encountered to depths of 60 feet.

Below the bottom of our exploratory borings, based on CPT shear strength estimates, the stiffness of the soil profile appears to reach hard to very hard consistency near the terminal depths of each CPT. Because each CPT encountered tip pressure refusal, we anticipate that Franciscan bedrock was encountered at each CPT terminal depth.

Laboratory testing indicated that the in-situ moisture contents within the upper 10 feet range from approximately 9 to 49 percent moisture. In our opinion, we estimated this corresponds to about 2 to 29 percent above the estimated laboratory optimum moisture content.

3.3 GROUNDWATER

Groundwater was encountered in our Borings EB-1 to EB-3, at depths of 6 to 10 feet depth. Groundwater was interpreted from pore pressure measurements taken at CPT-1 and CPT-2, with inferred groundwater at elevated depths near or above the ground surface. However, we note the pore pressure dissipation tests were performed in water bearing zones at depths

ranging 20 to 63 feet that are likely under confined conditions and not representative of the static groundwater level of the upper water bearing soils. CPT-3 pore pressure measurement indicated a groundwater depth of approximately 4½ feet and was conducted at a depth of 15 feet below surface grades. Groundwater depths measured by hand by dropping a measuring tape into the CPT holes indicated groundwater depths ranging from 7 to 9 feet depth but are not considered stabilized water levels. All measurements were taken at the time of drilling and may not represent the stabilized levels that can be higher than the initial levels encountered.

Based on our review of monitoring well data from the California GeoTracker website for the 520 4th Street cleanup program site, multiple monitoring wells were installed along 4th Street or in adjacent parcels. Groundwater was recorded in these monitoring wells between 2015 to 2021. From our review, groundwater depths at these wells varied between approximately 1 to 4½ feet.

In general, fluctuations in groundwater levels occur due to many factors including seasonal fluctuation, underground drainage patterns, regional fluctuations, and other factors.
Based on the above information, we recommend a design groundwater depth of 3 feet below current grades.

SECTION 4: GEOLOGIC HAZARDS

4.1 FAULT RUPTURE

As discussed above several significant faults are located within 25 kilometers of the site. The site is not located within a State-designated Alquist-Priolo Earthquake Fault Zone. As shown in Figure 3, no known surface expression of fault traces is thought to cross the site; therefore, fault rupture hazard is not a significant geologic hazard at the site.

4.2 ESTIMATED GROUND SHAKING

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A site modified peak ground acceleration (PGA_m) was determined in accordance with Section 21.5 of ASCE 7-16. Therefore, we recommend a site-specific MCE_G peak ground acceleration, PGA_m, of 0.56g for this project.

4.3 LIQUEFACTION POTENTIAL

Currently, the California Geologic Survey has not issued a quadrangle map designating seismicity hazards for San Rafael. From our review of the Association of Bay Area Government's liquefaction susceptibility map, the site is designated as an area with high to very high susceptibility to liquefaction. Our field programs addressed this issue by testing potentially liquefiable layers to depths of at least 50 feet and evaluating CPT data.

4.3.1 Background

During strong seismic shaking, cyclically induced stresses can cause increased pore pressures within the soil matrix that can result in liquefaction triggering, soil softening due to shear stress

loss, potentially significant ground deformation due to settlement within sandy liquefiable layers as pore pressures dissipate, and/or flow failures in sloping ground or where open faces are present (lateral spreading) (NCEER 1998). Limited field and laboratory data are available regarding ground deformation due to settlement; however, in clean sand layers settlement on the order of 2 to 4 percent of the liquefied layer thickness can occur. Soils most susceptible to liquefaction are loose, non-cohesive soils that are saturated and are bedded with poor drainage, such as sand and silt layers bedded with a cohesive cap.

4.3.2 Analysis

As discussed in the "Subsurface" section above, several sand layers were encountered below the design ground water depth of 3 feet. Following the liquefaction analysis framework in the 2008 monograph, *Soil Liquefaction During Earthquakes* (Idriss and Boulanger, 2008), incorporating updates in *CPT and SPT Based Liquefaction Triggering Procedures* (Boulanger and Idriss, 2014), and in accordance with CDMG Special Publication 117A guidelines (CDMG, 2008) for quantitative analysis, these layers were analyzed for liquefaction triggering and potential post-liquefaction settlement. These methods compare the ratio of the estimated cyclic shaking (Cyclic Stress Ratio - CSR) to the soil's estimated resistance to cyclic shaking (Cyclic Resistance Ratio - CRR), providing a factor of safety against liquefaction triggering. Factors of safety less than or equal to 1.3 are considered to be potentially liquefiable and capable of post-liquefaction re-consolidation (i.e. settlement).

The CSR for each layer quantifies the stresses anticipated to be generated due to a design-level seismic event, is based on the peak horizontal acceleration generated at the ground surface discussed in the "Estimated Ground Shaking" section above, and is corrected for overburden and stress reduction factors as discussed in the procedure developed by Seed and Idriss (1971) and updated in the 2008 Idriss and Boulanger monograph.

The soil's CRR is estimated from the in-situ measurements from CPTs. The tip pressures are corrected for effective overburden stresses, taking into consideration both the ground water level at the time of exploration and the design ground water level, and stress reduction versus depth factors. The CPT method utilizes the soil behavior type index (I_C) to estimate the plasticity of the layers.

The results of our preliminary CPT analyses (CPT-1 to CPT-3) are presented in Appendix B of this report.

4.3.3 Summary

Our analyses indicate that several layers could potentially experience liquefaction triggering that could result in post-liquefaction total settlement at the ground surface ranging from ½ to 1 inch based on the Yoshimine (2006) method. As discussed in SP 117A, differential movement for level ground sites over deep soil sites will be up to about two-thirds of the total settlement between independent foundation elements. In our opinion, differential seismic settlements are anticipated to be on the order of ¾ inch or less across the future mat foundation.

4.3.4 Ground Deformation Potential

The methods used to estimate liquefaction settlements assume that there is a sufficient cap of non-liquefiable material to prevent ground rupture or sand boils. For ground deformation to occur, the pore water pressure within the liquefiable soil layer will need to be great enough to break through the overlying non-liquefiable layer, which could cause significant ground deformation and settlement. The work of Youd and Garris (1995) indicates that the current approximately 4- to 17-feet thick layer of non-liquefiable cap is sufficient to prevent ground rupture; therefore, the above total settlement estimates are reasonable.

4.4 LATERAL SPREADING

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water. Typically, lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form.

The San Rafael Creek is located approximately 640 feet from the southern edge of the site to the top of the bank. The bottom of the creek is not currently known. For our preliminary analysis, we have assumed a 7-foot free-face of San Rafael Creek that is susceptible to lateral spreading. We calculated the Lateral Displacement Index (LDI) for potentially liquefiable layers based on methods presented in the 2008 monograph, Soil Liquefaction During Earthquakes (Idriss and Boulanger, 2008). LDI is a summation of the maximum shear strains versus depth, which is a measurement of the potential maximum displacement at that exploration location. Summations of the LDI values to a depth equal to twice the open face height were included. Estimated displacements for areas near CPT-1 through CPT-3 based on the LDI calculations are on the order of 1 inch or less. In our opinion, the potential for lateral spreading to impact the project is relatively low.

4.5 SEISMIC SETTLEMENT/UNSATURATED SAND SHAKING

Loose unsaturated sandy soils can settle during strong seismic shaking. We evaluated the potential for seismic compaction of sands encountered above the preliminary design groundwater table based on the work by Robertson and Shao (2010). Based on our analyses, the potential for significant seismic settlement affecting the proposed improvements is low.

4.6 FLOODING

Based on our internet search of the Federal Emergency Management Agency (FEMA) flood map public database, the site is located within Zone AE, an area with a base flood elevation of 10 feet. We recommend the project civil engineer be retained to confirm this information and verify the base flood elevation, if appropriate.

4.7 TSUNAMI/SEICHE

The terms tsunami or seiche are described as ocean waves or similar waves usually created by undersea fault movement or by a coastal or submerged landslide. Tsunamis may be generated at great distance from shore (far field events) or nearby (near field events). Waves are formed, as the displaced water moves to regain equilibrium, and radiates across the open water, similar to ripples from a rock being thrown into a pond. When the waveform reaches the coastline, it quickly raises the water level, with water velocities as high as 15 to 20 knots. The water mass, as well as vessels, vehicles, or other objects in its path create tremendous forces as they impact coastal structures.

Tsunamis have affected the coastline along the Pacific Northwest during historic times. The Fort Point tide gauge in San Francisco recorded approximately 21 tsunamis between 1854 and 1964. The 1964 Alaska earthquake generated a recorded wave height of 7.4 feet and drowned eleven people in Crescent City, California. For the case of a far-field event, the Bay area would have hours of warning; for a near field event, there may be only a few minutes of warning, if any.

A tsunami or seiche originating in the Pacific Ocean would lose much of its energy passing through San Francisco Bay. Based on the mapping of tsunami inundation potential for the San Francisco Bay Area by CGS (conservation.ca.gov/cgs/tsunami/maps), areas most likely to be inundated are marshlands, tidal flats, and former bay margin lands that are now artificially filled, but are still at or below sea level, and are generally within 1½ miles of the shoreline. The site is approximately 1½ miles inland from the San Rafael Bay shoreline and is approximately 9 to 10 feet above mean sea level. According to the available tsunami hazard map provided by the CGS, the site is located within a tsunami hazard zone (CGS, Tsunami Hazard Area Map, County of Marin, 2022). The potential for inundation due to tsunami at the site is considered high.

SECTION 5: CONCLUSIONS

5.1 SUMMARY

From a geotechnical viewpoint, the project is feasible provided the concerns listed below are addressed in the project design. Descriptions of each geotechnical concern with brief outlines of our recommendations follow the listed concerns.

- Potential for significant static settlements of compressible clays
- Potential for liquefaction-induced settlements
- Presence of undocumented fill and redevelopment considerations
- Shallow groundwater, hydro-static uplift, and Waterproofing
- Presence of expansive soils
- Temporary shoring and underpinning

5.1.1 Potential for Significant Static Settlement of Compressible Clays

As discussed, the site is underlain by up to 20 feet of moderately compressible clay that will settle under the weight of new fill and from heavy building loads. At this time, we understand that new fill would not be required for the new building; therefore, total settlement is anticipated to occur solely due to the weight of the new building. Because of the compressible nature of the clays near the surface, lower allowable bearing pressures are required in these soils that would make typical spread and strip footings unfeasible. From the provided structural loading diagrams, we evaluated the use of a rigid mat foundation to distribute building loads. We evaluated consolidation settlement due to static building loads assuming preliminary average aerial mat foundation pressures of approximately 1,300 pounds per square foot (psf). The settlement analysis was updated based on revised loading ranging from an average of 1,00 to 1,400 psf near the central portion of the mat to approximately 2,000 psf near the perimeter of the mat.

Based on the soil profile encountered in our explorations and the provided foundation contact pressures, we anticipate that approximately 2 to 4½ inches of settlement could occur across a mat foundation due to consolidation of the underlying clay layers. A significant portion of the consolidation settlement occurs in the underlying compressible clay layers between depths of approximately 5 to 15 feet below existing surface grades. Based on our discussions with the design team, we understand that a rigid mat foundation can be designed to tolerate the anticipated total and differential settlement without the need for ground improvement. Settlement at building entrances will be mitigated using suitable hinged slabs or walkways that can be leveled as needed. In addition, flexible utility connections will be required that are capable of accommodating up to 4 inches of differential settlement between the adjacent sidewalk and the edge of the mat. Recommendations are presented in the “Foundations” section of this report.

5.1.2 Potential for Liquefaction-Induced Settlements and Ground Deformation

As discussed, our liquefaction analysis indicates that there is a potential for liquefaction of localized sand layers during a significant seismic event on the order of ½ to 1 inch, resulting in differential settlement up to ¾ inch. Foundations should also be designed to tolerate the anticipated total and differential settlements in addition to the static settlements referenced above.

5.1.3 Presence of Undocumented Fills and Redevelopment Considerations

As discussed, the site is blanketed by up to 5 feet of undocumented fill. The fill is immediately underlain by soft to medium stiff, moderately compressible clay. Locally, deeper fills on the order of 8 to 10 feet deep are present where the prior gas station fuel tanks were removed. Localized zones of deeper fill may be present where grading and development occurred for the three existing office buildings.

For the planned mat foundation, some of the existing undocumented fill will be excavated and removed from the site during foundation preparation. Fills encountered outside the footprint of a

mat foundation will need to be scarified, moisture conditioned and re-compacted beneath any new at-grade improvements or prior to placing any new fill. We recommend the mat foundation cut area be stabilized and re-compacted prior to foundation construction. Recommendations for mitigating undocumented fill are presented in the "Earthwork" section.

As discussed, the site is currently occupied by three two-story commercial office buildings, asphalt parking lot, and appurtenant flatwork, site fixtures, and landscaping. Older buildings typically were constructed with widely varying foundation systems. On sites near creeks and the Bay, it is common to find deeper foundation systems that may consist of deepened footings, drilled piers, belled piers, or deep foundations. If as-built drawings are available for the existing buildings, please forward them to our office for review.

We assume that all the existing improvements will be demolished for the construction of the new building. Potential issues that are often associated with redeveloping sites include demolition of existing improvements, disturbance to surficial soils due to foundation removal, abandonment of existing utilities, and discovery of localized deeper undocumented fill. The former fuel station is expected to have had deeper underground storage tanks that were removed when the current development was built and filled in with undocumented fill.

5.1.4 Shallow Groundwater, Hydro-Static Uplift and Water Proofing

As previously discussed, groundwater has been measured on-site at depths of approximately 4 ½ to 7 feet and at nearby monitoring wells along 4th Street at depths ranging from approximately 1 to 4½ feet below the existing ground surface. As discussed above, we recommend a design groundwater depth of 3 feet below existing ground surface. Our experience with similar sites in the vicinity indicates that shallow ground water could significantly impact grading and underground construction. These impacts typically consist of potentially wet and unstable foundation or excavation subgrade, difficulty achieving compaction, and difficult underground utility installation. Due to the high moisture content of the fill and native soils, we recommend chemically treating the upper 18 inches of exposed fill or native soils with lime to reduce moisture content, improve soil strength, and to create a stiff building pad to support construction equipment. Recommendations addressing this concern are included in the "Earthwork" section.

Temporary dewatering and shoring of utility trenches may be required in some isolated areas of the site. Where portions of the mat foundation and related deepened structures extend below the design groundwater level, including bottoms of mat foundations or elevator pits, they should be water-proofed and designed to resist potential hydrostatic uplift pressures.

5.1.5 Presence of Expansive Soils

The site surficial soils are moderately to highly expansive. Expansive soils can undergo significant volume change with changes in moisture content. They shrink and harden when dried and expand and soften when wetted. To reduce the potential for damage to the planned improvements, slabs-on-grade outside of the mat footprint should have sufficient reinforcement and be supported on a layer of non-expansive fill; shallow footings should extend below the zone of seasonal moisture fluctuation. In addition, it is important to limit moisture changes in the

surficial soils by using positive drainage away from buildings as well as limiting landscaping watering. Recommendations addressing this concern are presented in the following sections of this report.

5.1.6 Temporary Shoring and Underpinning

If site grading or foundation excavations deeper than 2 to 3 feet are performed adjacent to existing property boundaries, the excavations could impact adjacent properties and potentially undermine shallow foundations or slabs. Temporary shoring or underpinning may be necessary to support adjacent structures or slabs to prevent detrimental movement. We estimate ¼ to ½ inch of settlement could occur within about 5 to 10 feet beyond the perimeter of the new mat foundation. The contractor should plan to provide underpinning or shoring support, as needed. We should review temporary shoring or underpinning plans to provide input and additional recommendations.

5.2 PLANS AND SPECIFICATIONS REVIEW

We recommend that we be retained to review the geotechnical aspects of the project structural, civil, and landscape plans and specifications, allowing sufficient time to provide the design team with any comments prior to issuing the plans for construction.

5.3 CONSTRUCTION OBSERVATION AND TESTING

As site conditions may vary significantly between the small-diameter borings performed during this investigation, we also recommend that a Cornerstone representative be present to provide geotechnical observation and testing during earthwork and foundation construction. This will allow us to form an opinion and prepare a letter at the end of construction regarding contractor compliance with project plans and specifications, and with the recommendations in our report. We will also be allowed to evaluate any conditions differing from those encountered during our investigation and provide supplemental recommendations as necessary. For these reasons, the recommendations in this report are contingent of Cornerstone providing observation and testing during construction. Contractors should provide at least 48-hour notice when scheduling our field personnel.

SECTION 6: EARTHWORK

6.1 SITE DEMOLITION

All existing improvements not to be reused for the current development, including all foundations, flatwork, pavements, utilities, and other improvements should be demolished and removed from the site. Recommendations in this section apply to the removal of these improvements, which are currently present on the site, prior to the start of mass grading or the construction of new improvements for the project.

Cornerstone should be notified prior to the start of demolition and should be present on at least a part-time basis during all backfill and mass grading as a result of demolition. Occasionally,

other types of buried structures (wells, cisterns, debris pits, etc.) can be found on sites with prior development. If encountered, Cornerstone should be contacted to address these types of structures on a case-by-case basis.

6.1.1 Demolition of Existing Slabs, Foundations and Pavements

All slabs, foundations, and pavements should be completely removed from within planned building areas. A discussion of recycling existing improvements is provided later in this report.

Special care should be taken during the demolition and removal of existing floor slabs, foundations, utilities and pavements to minimize disturbance of the subgrade. Excessive disturbance of the subgrade, which includes either native or previously placed engineered fill, resulting from demolition activities can have serious detrimental effects on planned foundation and paving elements.

Existing foundations are typically mat-slabs, shallow footings, or piers/piles. If slab or shallow footings are encountered, they should be completely removed. If drilled piers are encountered, they should be cut off at an elevation at least 60-inches below proposed footings or the final subgrade elevation, whichever is deeper. The remainder of the drilled pier could remain in place. Foundation elements to remain in place should be surveyed and superimposed on the proposed development plans to determine the potential for conflicts or detrimental impacts to the planned construction. Following review, additional mitigation or planned foundation elements may need to be modified.

6.1.2 Abandonment of Existing Utilities

All utilities should be completely removed from within planned building areas. For any utility line to be considered acceptable to remain within building areas, the utility line must be completely backfilled with grout or sand-cement slurry (sand slurry is not acceptable), the ends outside the building area capped with concrete, and the trench fills either removed and replaced as engineered fill with the trench side slopes flattened to at least 1:1, or the trench fills are determined not to be a risk to the structure. The assessment of the level of risk posed by the particular utility line will determine whether the utility may be abandoned in place or needs to be completely removed. The contractor should assume that all utilities will be removed from within building areas unless written confirmation is provided from both the owner and the geotechnical engineer.

Utilities extending beyond the building area may be abandoned in place provided the ends are plugged with concrete, they do not conflict with planned improvements, and that the trench fills do not pose significant risk to the planned surface improvements.

The risk for owners associated with abandoning utilities in place include the potential for future differential settlement of existing trench fills, and/or partial collapse and potential ground loss into utility lines that are not completely filled with grout.

6.2 SITE CLEARING AND PREPARATION

6.2.1 Site Stripping

The site should be stripped of all surface vegetation, and surface and subsurface improvements to be removed within the proposed development area. Demolition of existing improvements is discussed in the prior paragraphs. A detailed discussion of removal of existing fills is provided later in this report. Surface vegetation and topsoil should be stripped to a sufficient depth to remove all material greater than 3 percent organic content by weight.

6.2.2 Tree and Shrub Removal

Trees and shrubs designated for removal should have the root balls and any roots greater than ½-inch diameter removed completely. Mature trees are estimated to have root balls extending to depths of 2 to 4 feet, depending on the tree size. Significant root zones are anticipated to extend to the diameter of the tree canopy. Grade depressions resulting from root ball removal should be cleaned of loose material and backfilled in accordance with the recommendations in the "Compaction" section of this report.

6.3 MITIGATION OF UNDOCUMENTED FILLS

The site is blanketed by up to 5 feet of undocumented fill. Locally deeper fill in the former underground storage tank removal area may extend to depths of about 8 to 10 feet. The extent and depth of the former UST fill should be further evaluated during site demolition. The mat foundation excavation will likely be on the order of 2 to 3 feet below current site grades; therefore, a majority of the fill will be removed as part of the foundation excavation. The remaining exposed fill should be stabilized and re-compacted as discussed below. In the former UST area, the existing undocumented fill should be over-excavated and re-compacted prior to proceeding with foundation subgrade stabilization.

Based on review of the samples collected from our borings, it appears that the fill in the upper 5 feet may be reused. Re-use of the former UST backfill we need to be determined once building demolition is complete. If materials are encountered that do not meet the requirements, such as debris, wood, trash, those materials should be screened out of the remaining material and be removed from the site. Backfill of excavations should be placed in lifts and compacted in accordance with the "Compaction" section below.

6.4 TEMPORARY CUT AND FILL SLOPES

The contractor is responsible for maintaining all temporary slopes and providing temporary shoring where required. Temporary shoring, bracing, and cuts/fills should be performed in accordance with the strictest government safety standards. On a preliminary basis, the upper 10 feet at the site may be classified as OSHA Soil Type C materials.

Excavations performed during site demolition and fill removal should be sloped at 2:1 (horizontal:vertical) within the upper 5 feet below building subgrade. Actual excavation

inclinations should be reviewed in the field during construction, as needed. Excavations below building subgrade and excavations in pavement and flatwork areas should be sloped in accordance with OSHA soil classification requirements.

6.5 BELOW-GRADE EXCAVATIONS

Below-grade excavations may be constructed with temporary slopes in accordance with the "Temporary Cut and Fill Slopes" section above if space allows. A pre-condition survey including photographs and installation of monitoring points for existing site improvements should be included in the contractor's scope. The project structural engineer and/or grading contractor should be consulted regarding support of adjacent structures.

6.5.1 Underpinning

For the planned mat foundation, where shallow foundations for adjacent buildings are above an imaginary 1:1 line projected up from the bottom of the proposed mat foundation, or where potential settlement due to the proximity of the mat foundation loading will induce ¼ to ½ inch of settlement within 5 to 10 feet of the mat, existing adjacent foundations may need to be underpinned. If underpinning is required, helical anchors, slant piles or offset piers may be acceptable methods to underpin adjacent structures. Underpinning should extend at least 2 to 3 feet into the medium dense to dense sands or 20 feet, whichever is deeper. The underpinning designer should review the subsurface data to estimate ultimate support capacity for the chosen support and should apply an appropriate factor of safety to the ultimate capacity, as required. To reduce movement and provide adequate foundation support during installation of the underpinning piers, adjacent piers should not be drilled or excavated concurrently. We recommend underpinning support should be preloaded prior to dry packing or anchor bolt installation. We should observe the installation of the underpinning anchors/piles/piers to check that adequate embedment has been achieved.

Underpinning support should be designed by the underpinning contractor, and we should review the geotechnical aspects of the underpinning design.

6.5.2 Construction Dewatering

Design groundwater levels are expected to be near or a couple feet above the planned excavation bottom for elevator pits; therefore, temporary dewatering may be necessary during construction. Design, selection of the equipment and dewatering method, and construction of temporary dewatering should be the responsibility of the contractor. Modifications to the dewatering system are often required in layered alluvial soils and should be anticipated by the contractor. The dewatering plan, including planned dewatering well filter pack materials, should be forwarded to our office for review prior to implementation.

The dewatering design should maintain groundwater at least 2 feet below localized excavations such as deepened mat areas, elevator shafts, and utilities. If the dewatering system was to shut down for an extended period of time, destabilization and/or heave of the excavation bottom

requiring over-excavation and stabilization, flooding and softening, and/or shoring failures could occur; therefore, we recommend that a backup power source be considered.

Depending on the groundwater quality and previous environmental impacts to the site and surrounding area, settlement and storage tanks, particulate filtration, and environmental testing may be required prior to discharge, either into storm or sanitary, or trucked to an off-site facility.

6.6 SUBGRADE PREPARATION

After site clearing and demolition is complete, and prior to backfilling any excavations resulting from fill removal or demolition, the excavation subgrade and subgrade within areas to receive additional site fills, slabs-on-grade and/or pavements should be scarified to a depth of 12 inches, moisture conditioned and compacted in accordance with the “Compaction” section below.

The proposed mat foundation will extend into near-saturated, medium stiff clays or loose silty sands and near or into groundwater. These soils will be difficult to compact when moisture contents exceed 5 percent above their optimum moisture content. Therefore, we recommend chemically treating exposed fill or native soils at the exposed mat foundation subgrade with lime and/or cement to reduce moisture content, improve soil strength, and to create a stiff building pad to support construction equipment. The depth of chemical treatment should be at least 18 inches to provide an effective, stiff bearing surface for planned mat foundation. For preliminary planning, we suggest at least 4 to 5 percent high-calcium quicklime (by weight) be considered.

6.7 WET SOIL STABILIZATION GUIDELINES

Native soil and fill materials, especially soils with high fines contents such as clays and silty soils, can become unstable due to high moisture content, whether from high in-situ moisture contents or from winter rains. As the moisture content increases over the laboratory optimum, it becomes more likely the materials will be subject to softening and yielding (pumping) from construction loading or become unworkable during placement and compaction.

As discussed in the “Subsurface” section in this report, the in-situ moisture contents are about 2 to 29 percent over the estimated laboratory optimum in the upper 10 feet of the soil profile. For areas outside of the planned mat stabilization area, the contractor may also need to dry the at-grade soils prior to reusing them as fill. In addition, repetitive rubber-tire loading could de-stabilize shallow soils.

There are several methods to address potential unstable soil conditions and facilitate fill placement and trench backfill. Some of the methods are briefly discussed below. Implementation of the appropriate stabilization measures should be evaluated on a case-by-case basis according to the project construction goals and the site conditions.

6.7.1 Scarification and Drying

For shallow grading with 1 to 2 feet of existing grades, the subgrade may be scarified to a depth of 6 to 12 inches and allowed to dry to near optimum conditions, if sufficient dry weather is anticipated to allow sufficient drying. More than one round of scarification may be needed to break up the soil clods.

6.7.2 Removal and Replacement

As an alternative to scarification, the contractor may choose to over-excavate the unstable soils and replace them with dry import materials. A Cornerstone representative should be present to provide recommendations regarding the appropriate depth of over-excavation, whether a geosynthetic (stabilization fabric or geogrid) is recommended, and what materials are recommended for backfill.

6.7.3 Chemical Treatment

Where the unstable area exceeds about 5,000 to 10,000 square feet and/or site winterization is desired, chemical treatment with quicklime (CaO), kiln-dust, or cement may be more cost-effective than removal and replacement. Recommended chemical treatment depths will typically range from 12 to 18 inches depending on the magnitude of the instability.

6.7.4 Mat Foundation Excavation Stabilization

As the planned mat foundation excavation will extend into soil that is too wet to compact and is near or into the design groundwater level, chemical treatment can be considered at the mat foundation subgrade level. Chemical stabilization will also aid constructability and support of ground improvement equipment if this option is required. Due to the variable type and consistency of the fill ranging from fat clay to silty/clayey sand, a material suitable for these soils should be considered. For planning purposes, a minimum of 5 to 6 percent (by weight) chemical treatment should be considered that includes either a 50/50 blend of quicklime and cement, only high-calcium quicklime, or as recommended by the stabilization contractor at the time of construction. The contractor should plan for a minimum 18 inch treatment depth. We recommend an optional cost to over-excavate and chemically treat soils to a depth of 24 to 30 inches also be considered.

6.8 MATERIAL FOR FILL

6.8.1 Re-Use of On-site Soils

On-site soils with an organic content less than 3 percent by weight may be reused as general fill. General fill should not have lumps, clods or cobble pieces larger than 6 inches in diameter; 85 percent of the fill should be smaller than 2½ inches in diameter. Minor amounts of oversize material (smaller than 12 inches in diameter) may be allowed provided the oversized pieces are not allowed to nest together and the compaction method will allow for loosely placed lifts not exceeding 12 inches.

6.8.2 Re-Use of On-Site Site Improvements

We anticipate that significant quantities of asphalt concrete (AC) grindings and aggregate base (AB) and some Portland Cement Concrete (PCC) could potentially be generated during site demolition; however, we assume site constraints will prevent on-site grinding and crushing during demolition.

If the site area allows for on-site pulverization of PCC and provided the PCC is pulverized to meet the "Material for Fill" requirements of this report, it may be used as select fill within the building footprint, excluding the capillary break layer; as typically pulverized PCC comes close to or meets Class 2 AB specifications, the recycled PCC may likely be used beneath the building.

6.8.3 Potential Import Sources

Non-expansive material should be inorganic with a Plasticity Index (PI) of 15 or less, and not contain recycled asphalt concrete where it will be used within the habitable building areas. To prevent significant caving during trenching or foundation construction, imported material should have sufficient fines. Samples of potential import sources should be delivered to our office at least 10 days prior to the desired import start date. Information regarding the import source should be provided, such as any site geotechnical reports. If the material will be derived from an excavation rather than a stockpile, potholes will likely be required to collect samples from throughout the depth of the planned cut that will be imported. At a minimum, laboratory testing will include PI tests. Material data sheets for select fill materials (Class 2 aggregate base, ¾-inch crushed rock, quarry fines, etc.) listing current laboratory testing data (not older than 6 months from the import date) may be provided for our review without providing a sample. If current data is not available, specification testing will need to be completed prior to approval.

Environmental and soil corrosion characterization should also be considered by the project team prior to acceptance. Suitable environmental laboratory data to the planned import quantity should be provided to the project environmental consultant; additional laboratory testing may be required based on the project environmental consultant's review. The potential import source should also not be more corrosive than the on-site soils, based on pH, saturated resistivity, and soluble sulfate and chloride testing.

6.9 COMPACTION REQUIREMENTS

All fills, and subgrade areas where fill, slabs-on-grade, and pavements are planned, should be placed in loose lifts 8 inches thick or less and compacted in accordance with ASTM D1557 (latest version) requirements as shown in the table below. In general, clayey soils should be compacted with sheepsfoot equipment and sandy/gravelly soils with vibratory equipment; open-graded materials such as crushed rock should be placed in lifts no thicker than 18 inches and consolidated in place with vibratory equipment. Each lift of fill and all subgrade should be firm and unyielding under construction equipment loading in addition to meeting the compaction requirements to be approved. The contractor (with input from a Cornerstone representative)

should evaluate the in-situ moisture conditions, as the use of vibratory equipment on soils with high moistures can cause unstable conditions. General recommendations for soil stabilization are provided in the "Wet Soil Stabilization Guidelines" section of this report. Where the soil's PI is 20 or greater, the expansive soil criteria should be used.

Table 2: Compaction Requirements

Description	Material Description	Minimum Relative[1] Compaction (percent)	Moisture[2] Content (percent)
General Fill (within upper 5 feet)	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1
UST Fill Over-Excavation (below a depth of 5 feet)	On-Site Expansive Soils	92	>3
	Low Expansion Soils	95	>1
Trench Backfill	On-Site Expansive Soils	87 – 92	>3
	Low Expansion Soils	90	>1
Trench Backfill (upper 6 inches of subgrade)	On-Site Low Expansion Soils	95	>1
Crushed Rock Fill	¾-inch Clean Crushed Rock	Consolidate In-Place	NA
Non-Expansive Fill	Imported Non-Expansive Fill	90	Optimum
Flatwork Subgrade	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	90	>1
Flatwork Aggregate Base	Class 2 Aggregate Base[3]	90	Optimum
Pavement Subgrade (Public)	On-Site Expansive Soils	87 - 92	>3
	Low Expansion Soils	95	>1
Pavement Aggregate Base (Public)	Class 2 Aggregate Base[3]	95	Optimum

1 – Relative compaction based on maximum density determined by ASTM D1557 (latest version)
2 – Moisture content based on optimum moisture content determined by ASTM D1557 (latest version)
3 – Class 2 aggregate base shall conform to Caltrans Standard Specifications, latest edition, except that the relative compaction should be determined by ASTM D1557 (latest version)

6.9.1 Construction Moisture Conditioning

Expansive soils can undergo significant volume change when dried then wetted. The contractor should keep all exposed expansive soil subgrade (and also trench excavation side walls) moist until protected by overlying improvements (or trenches are backfilled). If expansive soils are allowed to dry out significantly, re-moisture conditioning may require several days of re-wetting (flooding is not recommended), or deep scarification, moisture conditioning, and re-compaction.

6.10 TRENCH BACKFILL

Utility lines constructed within public right-of-way should be trenched, bedded and shaded, and backfilled in accordance with the local or governing jurisdictional requirements. Utility lines in private improvement areas should be constructed in accordance with the following requirements unless superseded by other governing requirements.

All utility lines should be bedded and shaded to at least 6 inches over the top of the lines with crushed rock (⅜-inch-diameter or greater) or well-graded sand and gravel materials conforming to the pipe manufacturer's requirements. Open-graded shading materials should be consolidated in place with vibratory equipment and well-graded materials should be compacted to at least 90 percent relative compaction with vibratory equipment prior to placing subsequent backfill materials.

General backfill over shading materials may consist of on-site native materials provided they meet the requirements in the "Material for Fill" section, and are moisture conditioned and compacted in accordance with the requirements in the "Compaction" section.

Where utility lines will cross perpendicular to strip footings, the footing should be deepened to encase the utility line, providing sleeves or flexible cushions to protect the pipes from anticipated foundation settlement, or the utility lines should be backfilled to the bottom of footing with sand-cement slurry or lean concrete. Where utility lines will parallel footings and will extend below the "foundation plane of influence," an imaginary 1:1 plane projected down from the bottom edge of the footing, either the footing will need to be deepened so that the pipe is above the foundation plane of influence, or the utility trench will need to be backfilled with sand-cement slurry or lean concrete within the influence zone. Sand-cement slurry used within foundation influence zones should have a minimum compressive strength of 75 psi.

On expansive soils sites it is desirable to reduce the potential for water migration into building and pavement areas through granular shading materials. We recommend that a plug of low-permeability clay soil, sand-cement slurry, or lean concrete be placed within trenches just outside where the trenches pass into building and pavement areas.

6.10.1 Flexible Utility Connections

For a rigid mat foundation that is not supported on ground improvement, we anticipate about 2 to 4 inches of long-term consolidation settlement will occur following construction. Flexible utility connections are recommended for critical utilities such as the water and gas lines and electrical trenches that will be connected to the proposed building. In addition, gravity flow utilities such as storm and sewer should be designed to accommodate the settlement to prevent grade reversal from foundation to public right-of-way areas. Depending on the settlement mitigation measures chosen for the project, we can provide additional recommendations, as needed.

6.11 SITE DRAINAGE

Ponding should not be allowed adjacent to building foundations, slabs-on-grade, or pavements. Hardscape surfaces should slope at least 2 percent towards suitable discharge facilities; landscape areas should slope at least 3 percent towards suitable discharge facilities. Roof runoff should be directed away from building areas in closed conduits, to approved infiltration facilities, or on to hardscaped surfaces that drain to suitable facilities. Retention, detention or infiltration facilities located immediately adjacent to the building should be designed with a liner to prevent water migration into soils immediately adjacent to the foundation.

SECTION 7: 2022 CBC SEISMIC DESIGN CRITERIA

7.1 SEISMIC DESIGN CRITERIA

We understand that the project structural design will be based on the 2022 California Building Code (CBC), which provides criteria for the seismic design of buildings in Chapter 16. The "Seismic Coefficients" used to design buildings are established based on a series of tables and figures addressing different site factors, including the time-weighted average shear wave velocity of the top approximately 100 feet (30 meters) of the soil profile (V_{S30})/soil profile in the upper 100 feet below grade and mapped spectral acceleration parameters based on distance to the controlling seismic source/fault system.

Our boring explorations generally encountered younger and older alluvial deposits to a depths of approximately 30 to 60 feet. Our CPTs encountered refusal at depths ranging from 53 to 67 feet likely indicated the presence of bedrock near the CPT refusal depths. Shear wave velocity (V_S) measurements were performed while advancing CPT-1, resulting in a time-averaged shear wave velocity for the top 30 meters (V_{S30}) of 278 meters per second (910 feet per second). Therefore, we have classified the site as Soil Classification D. Because we used site specific data from our explorations and laboratory testing, the site class should be considered as "determined" for the purposes of estimating the seismic design parameters from the code outlined below. The mapped spectral acceleration parameters S_s and S_1 were calculated using the web-based program ATC Hazards by Locations, located at https://hazards.atcouncil.org/, based on the site coordinates presented below and the site classification. From our discussion with the project structural engineer, the exception can be taken per ASCE 7-16 Section 11.4.8. Recommended values for design are presented in Table 4. The table below lists the various factors used to determine the seismic coefficients and other parameters.

Table 3: CBC Site Categorization and Site Coefficients

Classification/Coefficient	Design Value
Site Class	D
Site Latitude	37.971885°
Site Longitude	-122.520472°
0.2-second Period Mapped Spectral Acceleration[1], S_S	1.5g
1-second Period Mapped Spectral Acceleration[1], S_1	0.6g
Short-Period Site Coefficient – Fa	1.0
Long-Period Site Coefficient – Fv[1]	1.7
0.2-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects - S_{MS}	1.5g
1-second Period, Maximum Considered Earthquake Spectral Response Acceleration Adjusted for Site Effects – S_{M1}[1]	1.02g
0.2-second Period, Design Earthquake Spectral Response Acceleration – S_{DS}	1.0g
1-second Period, Design Earthquake Spectral Response Acceleration – S_{D1}[1]	0.68g
Site Amplification Factor at PGA – F_{PGA}	1.1
Site Modified Peak Ground Acceleration – PGA_M	0.56g

1 – Per project structural engineer, values determined based on 11.4.8 of ASCE 7-16 after the exception is taken

SECTION 8: FOUNDATIONS

8.1 SUMMARY OF RECOMMENDATIONS

In our opinion, the proposed building may be supported on a shallow mat foundation provided the anticipated static and seismic settlements are tolerable, and the recommendations in the "Earthwork" section and the sections below are followed. As discussed in the "Conclusions" section, based on discussions with the design team, a rigid mat foundation can be designed to tolerate anticipated static and seismic settlement. Foundation recommendations are presented in the following sections.

8.2 REINFORCED CONCRETE MAT FOUNDATION

The structure may be supported on a mat foundation bearing on engineered fill prepared in accordance with the "Earthwork" section of this report and designed in accordance with the recommendations below. Reinforced concrete mat foundations should be designed in accordance with the 2022 California Building Code. The following criteria is based on a mat without ground improvement.

For our analysis, based on structural loading provided by VCA Structural, we applied a mat contact pressures ranging from approximately 1,100 to 1,400 psf for dead plus live loads across the central portion of the mat and localized edge mat pressures averaging approximately 2,000 psf. The areal pressure is applied at the bottom of the anticipated mat foundation plus an

additional 1½ foot depth since the building pad will be lime-treated. The maximum allowable localized bearing pressure should be limited to 2,500 psf at wall or column load locations. When evaluating wind and seismic conditions, allowable bearing pressures may be increased by one-third. These pressures are net values; the weight of the mat may be neglected for the portion of the mat extending below grade. Top and bottom mats of reinforcing steel should be included as required to help span irregularities and differential settlement. If the assumed weight (average areal bearing pressure) is higher than assumed maximum, or there are other aspects of design not accounted for in this report, please notify us so that we may revise our recommendations.

8.2.1 Mat Foundation Settlement

We calculated estimated static settlement of the building using the Rocscience Settle3 program. We evaluated the static settlement at different time stages following construction. We estimated settlements for the 1-, 5-, 30-, and 50-year lifespan of the building. The 50-year static settlements for the building range from approximately 2 to 4½ inches with estimated static differential settlements of approximately 2 inches from the center to the edge of the mat. Approximately 50 to 75 percent of the consolidation settlement is estimated to occur within the first 1 to 2 years following building completion. In addition, the mat should also be designed to accommodate the estimated ¾ inch differential seismic settlement across the mat foundation.

8.2.2 Lateral Loading

Lateral loads may be resisted by friction between the bottom of mat foundation and the supporting subgrade, and also by passive pressures generated against deepened mat edges. An ultimate frictional resistance of 0.45 applied to the mat dead load, and an ultimate passive pressure based on an equivalent fluid pressure of 450 pcf may be used in design. The structural engineer should apply an appropriate factor of safety (such as 1.5) to the ultimate values above. The upper 12 inches of soil should be neglected when determining passive pressure capacity when adjacent to landscaping.

8.2.3 Mat Modulus of Soil Subgrade Reaction

The modulus of soil subgrade reaction is a model element that represents the response to a specific loading condition, including the magnitude, rate, and shape of loading, given the subsurface conditions at that location. Design experts recommend using a variable modulus of soil subgrade reaction to provide a more accurate soil response and prediction of shears and moments in the mats. This required two iterations between our soil model and the structural SAFE analysis for the mat. As discussed above, the structural engineer provided areal mat pressures ranging from approximately 1,100 to 1,300 psf within the central portion of the structure, increasing to approximately 2,000 psf near the edges of the mat. Based on these updated pressures, we calculated a variable modulus of subgrade reaction value for the mat foundation.

For the SAFE runs, we recommend final modulus of soil subgrade reaction values ranging from approximately 4 to 12 kips per cubic foot (kcf), as shown on the attached Figure 4.

8.2.4 Mat Foundation Construction Considerations

Prior to mat construction or placement of vapor retarder or waterproofing, the subgrade should be proof-rolled and visually observed by a Cornerstone representative to confirm stable subgrade conditions. The building pad should generally be kept free of water and disturbed materials prior to pouring the foundation. The building pad should also be watered occasionally to avoid desiccation and cracking prior to placing waterproofing.

8.2.5 Hydrostatic Uplift and Waterproofing

Mat foundations that extend below the recommended design groundwater level of 3 feet should be designed to resist potential hydrostatic uplift pressures. Elevator pit walls extending below design groundwater should be designed to resist hydrostatic pressure for the full wall height.

In addition, the portions of the structure extending below design groundwater should be waterproofed to limit moisture infiltration, including mat foundation, all construction joints, and any elevator pit retaining walls. We recommend that a waterproofing specialist design the waterproofing system.

SECTION 9: CONCRETE SLABS AND VEHICULAR PAVEMENTS

9.1 PEDESTRIAN CONCRETE FLATWORK

Exterior concrete flatwork subject to pedestrian and/or occasional light pick up loading should be at least 4 inches thick and supported on at least 6 inches of Class 2 aggregate base overlying subgrade prepared in accordance with the “Earthwork” recommendations of this report. Flatwork that will be subject to heavier or frequent vehicular loading should increase the concrete section 6-inches-thick. Concrete flatwork in public rights-of way should be designed in accordance with City of San Rafael requirements.

If the mat foundation will be constructed without ground improvement, new flatwork at building entrances should be designed as a hinged slab that is connected to the edge of the mat using dowels and adequate construction and control joints to tolerate the anticipated differential settlement. Consideration should be given to limiting the control joint spacing to a maximum of about 2 feet in each direction for each inch of concrete thickness. Flatwork in non-egress areas should be isolated from adjacent foundations to allow for potential future movement.

9.2 VEHICULAR PAVEMENTS

Where future pavements are planned such as the planned driveway entrance into the building or rehabilitating the roadways adjacent to the project site, those pavements should be designed according to City of San Rafael standards and specifications.

SECTION 10: RETAINING WALLS

10.1 STATIC LATERAL EARTH PRESSURES

The structural design of any site retaining wall, such as elevator pit walls, should include resistance to lateral earth pressures that develop from the soil behind the wall, any undrained water pressure, and surcharge loads acting behind the wall. Provided a drainage system is constructed behind the wall to prevent the build-up of hydrostatic pressures as discussed in the section below, we recommend that the walls with level backfill be designed for the following pressures, which includes hydrostatic pressure for an undrained wall:

Table 4: Recommended Lateral Earth Pressures

Wall Condition	Lateral Earth Pressure*	Additional Surcharge Loads
Restrained – Braced Wall	85 pcf + 8H** psf	½ of vertical loads at top of wall

* Lateral earth pressures are based on an equivalent fluid pressure for level backfill conditions as well as added hydrostatic pressure
** H is the distance in feet between the bottom of footing and top of retained soil

As discussed above, the design groundwater level is recommended at a depth of 3 feet below current site grades. The retaining walls should be designed to resist restrained lateral earth pressures combined with hydrostatic pressures. Damp proofing or waterproofing of the walls may be considered where moisture penetration and/or efflorescence are not desired.

10.2 SEISMIC LATERAL EARTH PRESSURES

The 2022 CBC states that lateral pressures from earthquakes should be considered in the design of basements and retaining walls. Currently, we are not aware of any retaining walls for the project greater than 6 feet in height. In our opinion, design of these walls for seismic lateral earth pressures in addition to static earth pressures is not warranted.

10.3 WALL DRAINAGE

As discussed above, since the design groundwater depth is at 3 feet, retaining walls for elevator pits should be designed for the undrained conditioned and be designed to resist added hydrostatic pressure.

10.4 BACKFILL

Where surface improvements will be located over the retaining wall backfill, backfill placed behind the walls should be compacted to at least 95 percent relative compaction using light compaction equipment. Where no surface improvements are planned, backfill should be compacted to at least 90 percent. If heavy compaction equipment is used, the walls should be temporarily braced.

10.5 FOUNDATIONS

The retaining walls for elevator pits are likely to be supported on the planned mat foundation. The mat foundation supporting basement retaining walls should be designed in accordance with the recommendations presented in the “Foundations” and “Earthwork” sections of this report.

SECTION 11: LIMITATIONS

This report, an instrument of professional service, has been prepared for the sole use of Mill Creek Residential Trust specifically to support the design of the Modera San Rafael project in San Rafael, California. The opinions, conclusions, and recommendations presented in this report have been formulated in accordance with accepted geotechnical engineering practices that exist in Northern California at the time this report was prepared. No warranty, expressed or implied, is made or should be inferred.

Recommendations in this report are based upon the soil and groundwater conditions encountered during our subsurface exploration. If variations or unsuitable conditions are encountered during construction, Cornerstone must be contacted to provide supplemental recommendations, as needed.

Mill Creek Residential Trust may have provided Cornerstone with plans, reports and other documents prepared by others. Mill Creek Residential Trust understands that Cornerstone reviewed and relied on the information presented in these documents and cannot be responsible for their accuracy.

Cornerstone prepared this report with the understanding that it is the responsibility of the owner or their representatives to see that the recommendations contained in this report are presented to other members of the design team and incorporated into the project plans and specifications, and that appropriate actions are taken to implement the geotechnical recommendations during construction.

Conclusions and recommendations presented in this report are valid as of the present time for the development as currently planned. Changes in the condition of the property or adjacent properties may occur with the passage of time, whether by natural processes or the acts of other persons. In addition, changes in applicable or appropriate standards may occur through legislation or the broadening of knowledge. Therefore, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes beyond Cornerstone’s control. This report should be reviewed by Cornerstone after a period of three (3) years has elapsed from the date of this report. In addition, if the current project design is changed, then Cornerstone must review the proposed changes and provide supplemental recommendations, as needed.

An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Recommendations provided in this report are based on the assumption that Cornerstone will be retained to provide observation and testing services during construction to confirm that conditions are similar to that assumed for design, and to form an opinion as to whether the work has been performed in accordance with the project plans and specifications. If we are not retained for these services, Cornerstone cannot assume any responsibility for any potential claims that may arise during or after construction as a result of misuse or misinterpretation of Cornerstone's report by others. Furthermore, Cornerstone will cease to be the Geotechnical-Engineer-of-Record if we are not retained for these services.

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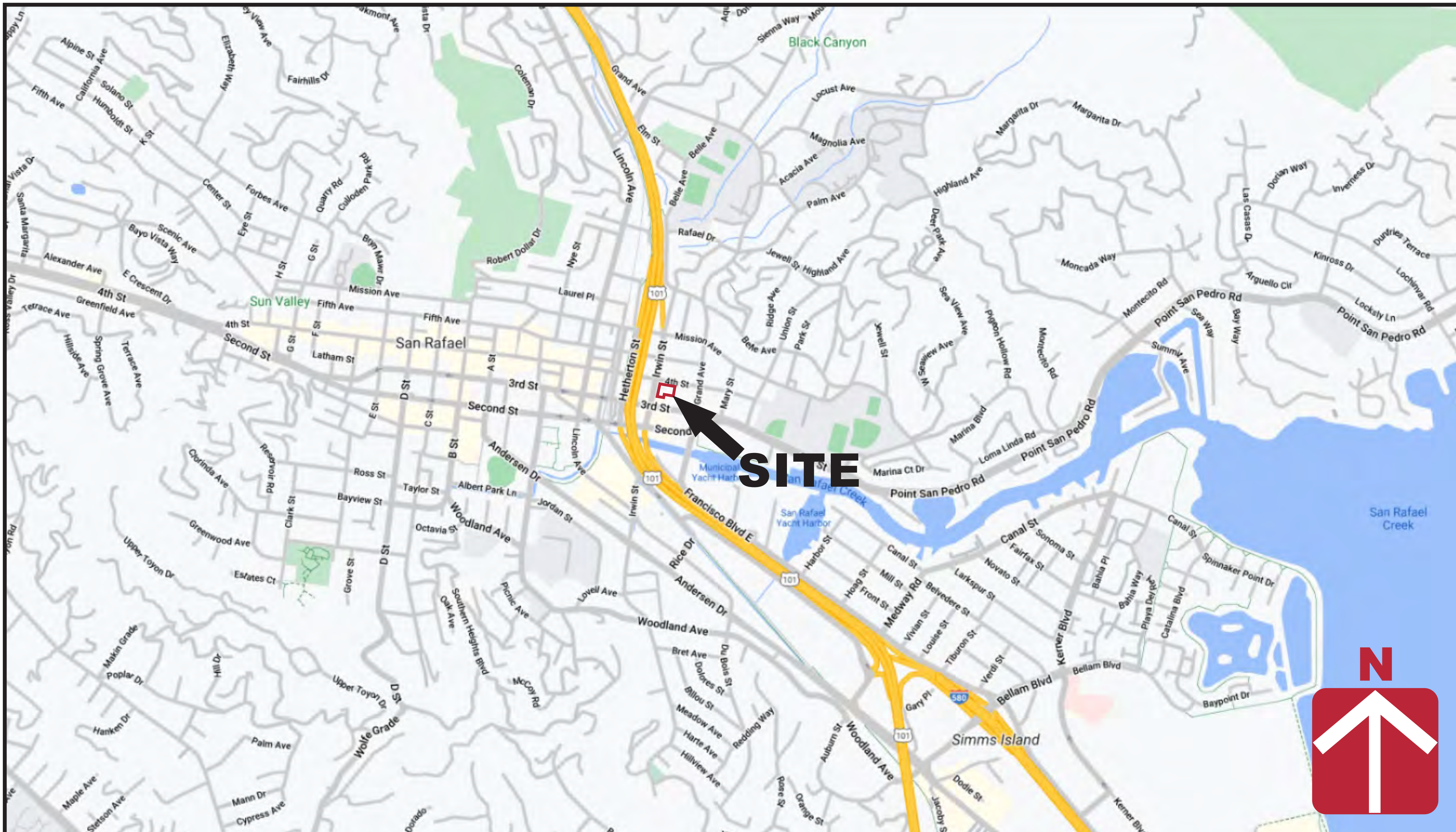

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Vicinity Map

523 & 535 4th Street and 912, 914, and 930 Irwin Street San Rafael, CA

Project Number 1395-4-4

Figure Number Figure 1

Date July 2024

Drawn By RRN

* Soil vapor sample not collected

Legend

- Approximate location of exploratory boring (EB) (Cornerstone, July 2024)
- Approximate location of exploratory boring for soil sample collection (EB) (Cornerstone, February 2024)
- Approximate location of exploratory boring for groundwater and soil sample collection (EB) (Cornerstone, February 2024)
- Approximate location of cone penetration test (CPT) (Cornerstone, 2023)
- Approximate location of soil vapor sample (SV) (Cornerstone, 2023)

Base by Google Earth, dated 05/29/2023.
Overlay by Trachtenberg Architects, Plan at Ground Level - A2, dated 08/16/2024.

N

0 30 60

APPROXIMATE SCALE (FEET)

Project Number 1395-4-4

Figure Number Figure 2

Date August 2024

Drawn By RRN

Site Plan

523 & 535 4th Street and 912, 914, and 930 Irwin Street San Rafael, CA

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SITE

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION	
						ON LAND	OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200		? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene	11,700		? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary		700,000		?	Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Pilo-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000' 4.5 billion (Age of Earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.

N

0 5 10

APPROXIMATE SCALE (MILES)

Base by California Geological Survey - 2010 Fault Activity Map of California (Jennings and Bryant, 2010)

Project Number	1395-4-4
Figure Number	Figure 3
Date	July 2024
Drawn By	RRN

Regional Fault Map

523 & 535 4th Street and 912, 914, and 930 Irwin Street San Rafael, CA

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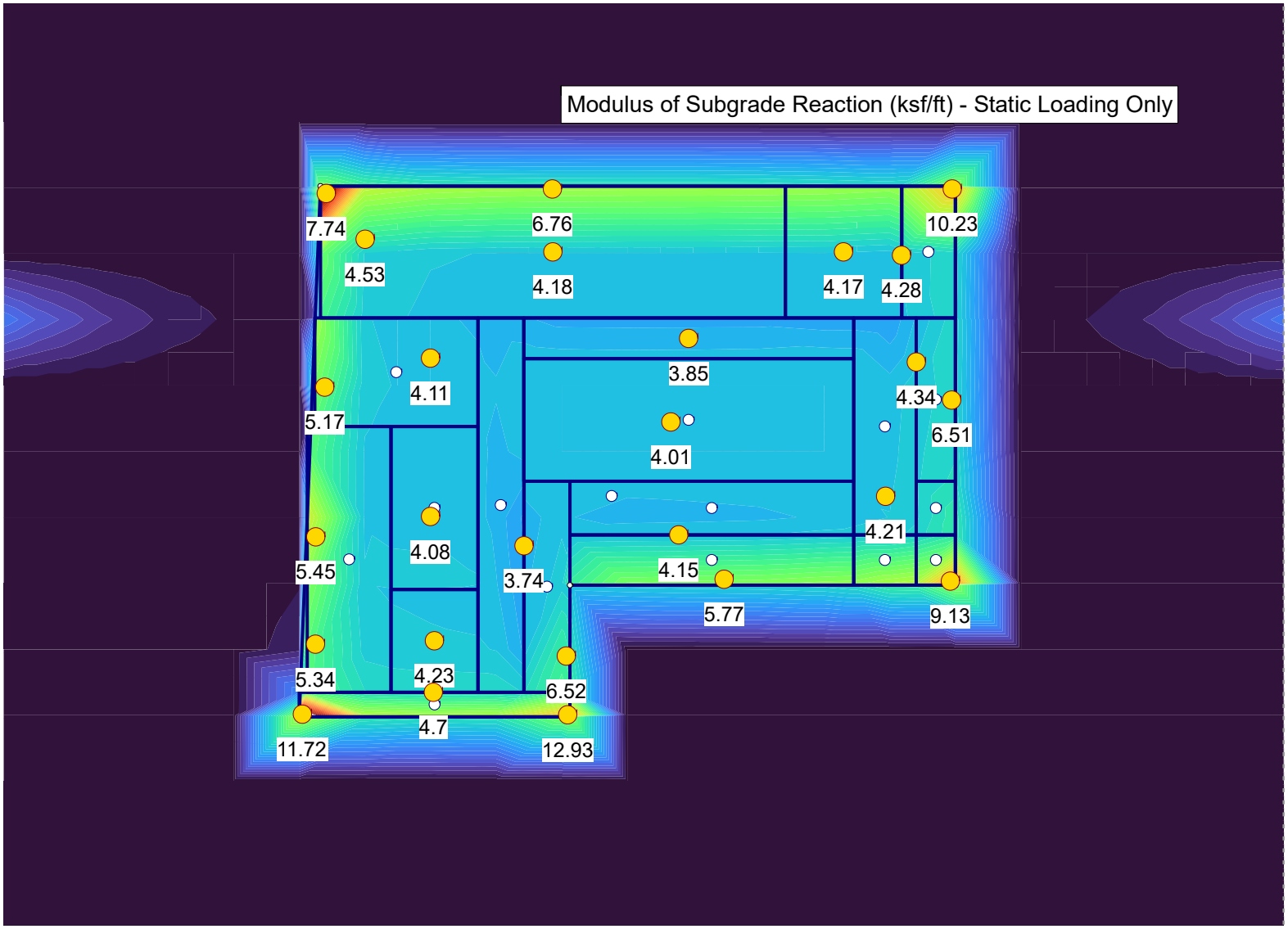

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Variable Modulus of Subgrade Reaction for Mat Foundation

523 & 535 4th Street and 912, 914, and 930 Irwin Street San Rafael, CA

Project Number	1395-4-4
Figure Number	Figure 4
Date	February 2025
Drawn By	RRN

APPENDIX A: FIELD INVESTIGATION

The field investigation consisted of a surface reconnaissance and a subsurface exploration program using truck-mounted, hollow-stem, auger drilling equipment and 30-ton truck-mounted Cone Penetration Test equipment. Three 8-inch-diameter exploratory borings were drilled on July 17, 2024, to depths of 30 to 60 feet. Three CPT soundings were also performed in accordance with ASTM D 5778-95 (revised, 2002) on December 18, 2023, to depths ranging from 53 to 67 feet. Additional environmental push probe borings were also performed during December 2023 and February 2024 using a track mounted push-probe rig. The approximate locations of exploratory borings and CPTs are shown on the Site Plan, Figure 2. The soils encountered were continuously logged in the field by our representative and described in accordance with the Unified Soil Classification System (ASTM D2488). Boring logs, as well as a key to the classification of the soil and bedrock, are included as part of this appendix.

Boring and CPT locations were approximated using existing site boundaries, a hand held GPS unit, and other site features as references. Boring and CPT elevations were based on interpolation of survey plan contours. The locations and elevations of the borings and CPTs should be considered accurate only to the degree implied by the method used.

Representative soil samples were obtained from the borings at selected depths. All samples were returned to our laboratory for evaluation and appropriate testing. The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration (ASTM D1586). 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Relatively undisturbed samples were also obtained with 2.875-inch I.D. Shelby Tube sampler which were hydraulically pushed. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows required to drive the last 12 inches. The various samplers are denoted at the appropriate depth on the boring logs.

The CPT involved advancing an instrumented cone-tipped probe into the ground while simultaneously recording the resistance at the cone tip (q_c) and along the friction sleeve (f_s) at approximately 5-centimeter intervals. Based on the tip resistance and tip to sleeve ratio (R_f), the CPT classified the soil behavior type and estimated engineering properties of the soil, such as equivalent Standard Penetration Test (SPT) blow count, internal friction angle within sand layers, and undrained shear strength in silts and clays. A pressure transducer behind the tip of the CPT cone measured pore water pressure (u_2). Graphical logs of the CPT data is included as part of this appendix.

Field tests included an evaluation of the unconfined compressive strength of the soil samples using a pocket penetrometer device. The results of these tests are presented on the individual boring logs at the appropriate sample depths.

Attached boring and CPT logs and related information depict subsurface conditions at the locations indicated and on the date designated on the logs. Subsurface conditions at other

locations may differ from conditions occurring at these boring and CPT locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between soil types and the transition may be gradual.

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street
PROJECT NUMBER 1395-4-4
PROJECT LOCATION San Rafael, CA

DATE STARTED 7/17/24 **DATE COMPLETED** 7/17/24
GROUND ELEVATION 13 FT +/- **BORING DEPTH** 30 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc. **LATITUDE** 37.971967° **LONGITUDE** -122.520125°
DRILLING METHOD Mobile B-53B, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY RA ▽ **AT TIME OF DRILLING** 7 ft.
NOTES ▼ **AT END OF DRILLING** 7 ft.

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ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
13.0	0	3 inches asphalt concrete over 5 inches aggregate base						
12.8								
12.3		**Clayey Sand (SC) [Fill]** medium dense, moist, gray, fine to medium sand	12	MC-1B	109	9		14
11.0		**Sandy Lean Clay (CL) [Fill]** medium stiff, moist, gray, fine to medium sand, some shell fragments, moderate plasticity	11	MC-2B	104	21		
8.8		**Silty Sand (SM) [Fill]** loose, moist, gray and brown mottled, fine sand						
8.0	5	**Lean Clay with Sand (CL)** stiff, moist, dark gray to gray with brown mottles, fine to medium sand, moderate plasticity	13	3A MC 3B	98 103	24 23		
			13	MC-4B	108	20		
				ST-5	107	20		
	10							
1.0		**Clayey Sand with Gravel (SC)** medium dense, moist, reddish brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	30	MC-6B	110	17		
	15							
-4.0		**Sandy Lean Clay (CL)** very stiff, moist, gray and reddish brown mottled, fine to coarse sand, moderate plasticity	25	MC-7B	108	21		
	20							
-9.0		**Clayey Sand with Gravel (SC)** dense, moist, reddish brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	49	MC-8B	117	15		21
-12.0	25							

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street

PROJECT NUMBER 1395-4-4

PROJECT LOCATION San Rafael, CA

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
-12.0	25									
-14.0			**Sandy Lean Clay (CL)** very stiff, moist, reddish brown with gray mottles, fine to medium sand, moderate plasticity	51	MC-9B	107	20			○ 3.0
-17.0	30		Bottom of Boring at 30.0 feet.							
	35									
	40									
	45									
	50									

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street
PROJECT NUMBER 1395-4-4
PROJECT LOCATION San Rafael, CA

DATE STARTED 7/17/24 **DATE COMPLETED** 7/17/24
GROUND ELEVATION 13 FT +/- **BORING DEPTH** 60 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc. **LATITUDE** 37.971923° **LONGITUDE** -122.520460°
DRILLING METHOD Mobile B-53B, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY RA ▽ **AT TIME OF DRILLING** 10 ft.
NOTES ▼ **AT END OF DRILLING** 7 ft.

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ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
13.0	0	3 inches asphalt concrete over 6 inches aggregate base						
12.8								
12.3		**Lean Clay with Sand (CL) [Fill]** stiff, moist, gray with brown mottles, fine to medium sand, moderate to high plasticity	25	MC-1B	90	35		
10.5		**Silty Sand (SM) [Fill]** loose, moist, gray and brown mottled, fine to medium sand	13	MC-2B	68	67		
9.0	5	**Fat Clay (CH) [Bay Mud/Bay Mud Crust]** medium stiff, moist, dark gray, some fine sand, high plasticity	7	MC-3B	99	26		
7.5		**Sandy Lean Clay (CL)** medium stiff, moist, gray, fine to medium sand, moderate plasticity						
5.5		**Clayey Sand (SC)** medium dense, moist, gray with brown mottles, fine to medium sand		ST-4	97	19		30
2.5	10	**Sandy Lean Clay (CL)** stiff, moist, gray with brown mottles, fine to medium sand, low plasticity	9	NR-5		20		
			32	MC-6B	107	21		
-2.0	15	**Silty Sand (SM)** medium dense, moist, gray with reddish brown mottles, fine to medium sand, some fine to coarse subangular to subrounded gravel	30	MC-7B	110	19		
			21	SPT-8		14		20
	20	decreasing gravel content	26	MC-9B	105	20		33
-9.5		**Clayey Sand (SC)** medium dense, moist, gray with reddish brown mottles, fine to medium sand	38	MC-10B	107	19		48
	25							
-13.0		**Lean Clay with Sand (CL)** hard, moist, reddish brown with gray mottles, fine sand, moderate plasticity						
-15.0								

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street

PROJECT NUMBER 1395-4-4

PROJECT LOCATION San Rafael, CA

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ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf
-15.0	30	**Lean Clay with Sand (CL)** hard, moist, reddish brown with gray mottles, fine sand, moderate plasticity	35	MC-11B	103	24			>4.5
		becomes very stiff	35	MC-12B	114	17			
-21.5	35	**Clayey Sand with Gravel (SC)** medium dense, moist, reddish brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel							
-24.0	40	**Lean Clay with Sand (CL)** hard, moist, gray with brown mottled, fine to medium sand, moderate plasticity	23	MC					
	45	becomes very stiff	35	MC-14B	103	21			
	50	becomes stiff	19	SPT-15		23			
-39.0	55	**Lean Clay (CL)** very stiff, moist, gray, some fine sand, moderate plasticity	20	MC					
-44.0	60	**Clayey Sand with Gravel (SC)** medium dense, moist, reddish brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	38	MC-17B	120	14			
-47.0		Bottom of Boring at 60.0 feet.							

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street
PROJECT NUMBER 1395-4-4
PROJECT LOCATION San Rafael, CA

DATE STARTED 7/17/24 **DATE COMPLETED** 7/17/24
GROUND ELEVATION 12 FT +/- **BORING DEPTH** 30 ft.
DRILLING CONTRACTOR Exploration Geoservices, Inc. **LATITUDE** 37.971658° **LONGITUDE** -122.520469°
DRILLING METHOD Mobile B-53B, 8 inch Hollow-Stem Auger **GROUND WATER LEVELS:**
LOGGED BY RA ▽ **AT TIME OF DRILLING** 6 ft.
NOTES ▼ **AT END OF DRILLING** 6 ft.

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ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE
12.0	0	4 inches asphalt concrete over 6 inches aggregate base						
11.7								
11.1		**Fat Clay with Sand (CH) [Fill]** medium stiff, moist, gray with brown mottles, some fine sand, high plasticity	11	MC-1B	70	49		
9.0		**Silty Sand (SM) [Fill]** loose, moist, gray and brown mottled, fine to medium sand	8	MC-2B	103	22		
7.3	5	**Fat Clay (CH) [Bay Mud/Bay Mud Crust]** medium stiff, moist, dark gray, some fine sand, high plasticity			36	109		
6.0		**Lean Clay with Sand (CL)** medium stiff, moist, dark gray to gray with brown mottles, fine to medium sand, moderate plasticity		ST-3	90	32		
3.0		**Sandy Lean Clay (CL)** stiff, moist, reddish brown and gray mottled, fine to medium sand, low plasticity	8	MC-4B	106	21		
	10		11	MC-5B	106	22		
		becomes very stiff	33	MC-6B	110	19		
	15							
-4.0		**Clayey Sand with Gravel (SC)** dense, moist, reddish brown with gray mottles, fine to coarse sand, fine to coarse subangular gravel	47	MC-7B	108	19		
	20							
			56	MC-8B	118	14		
-13.0	25							

Continued Next Page

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 4th and Irwin Street

PROJECT NUMBER 1395-4-4

PROJECT LOCATION San Rafael, CA

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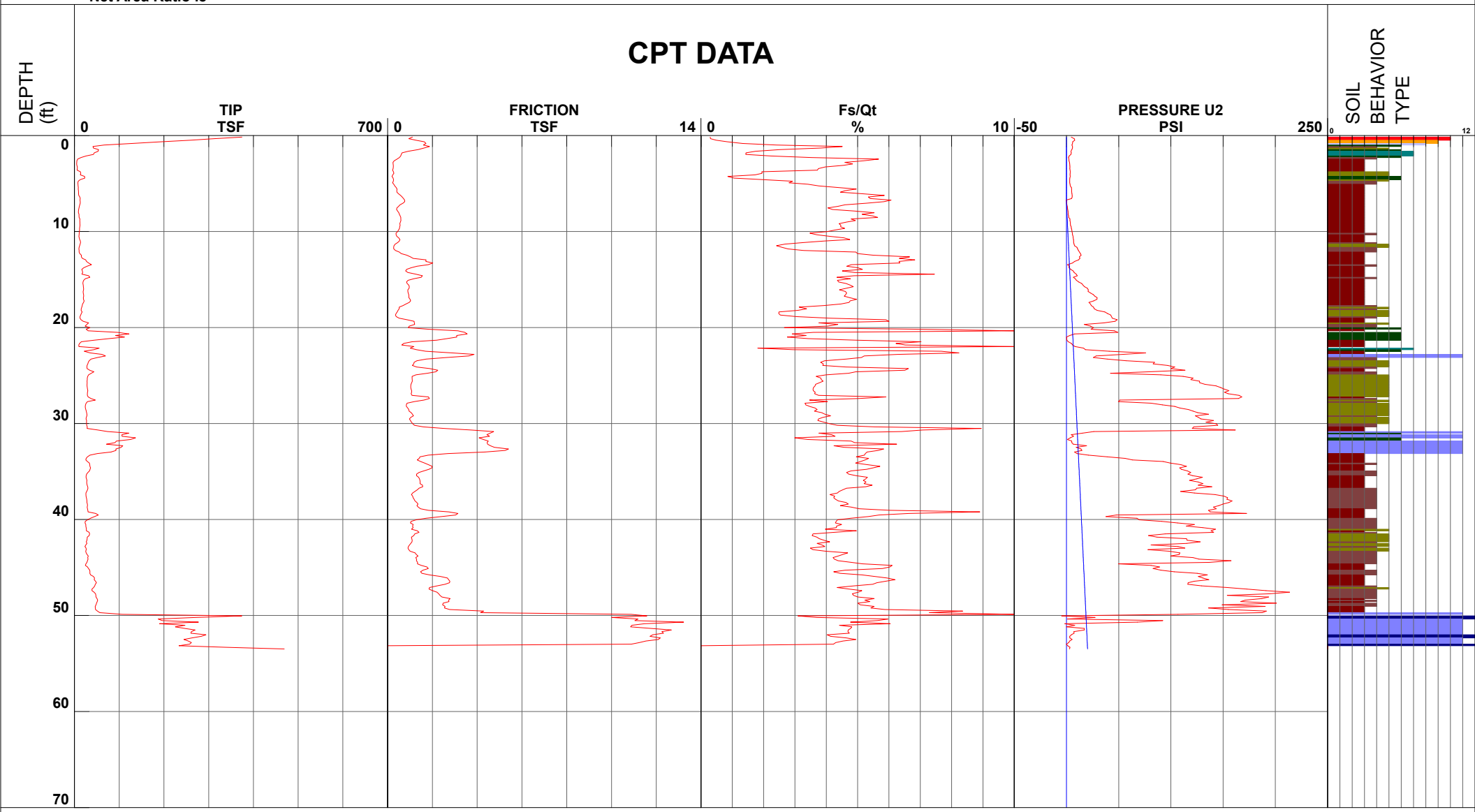
ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
-13.0	25									
-14.0			**Lean Clay with Sand (CL)** hard, moist, reddish brown and gray mottled, fine sand, moderate plasticity							
				45	MC-9B	102	23			○
-18.0	30		Bottom of Boring at 30.0 feet.							
	35									
	40									
	45									
	50									

Cornerstone Earth Group

Project	4th and Irwin Preliminary GI	Operator	JM-FA	Filename	SDF(590).cpt
Job Number	1395-4-2	Cone Number	DDG1596	GPS	
Hole Number	CPT-01	Date and Time	12/18/2023 2:09:23 PM	Maximum Depth	53.48 ft
EST GW Depth During Test		7.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

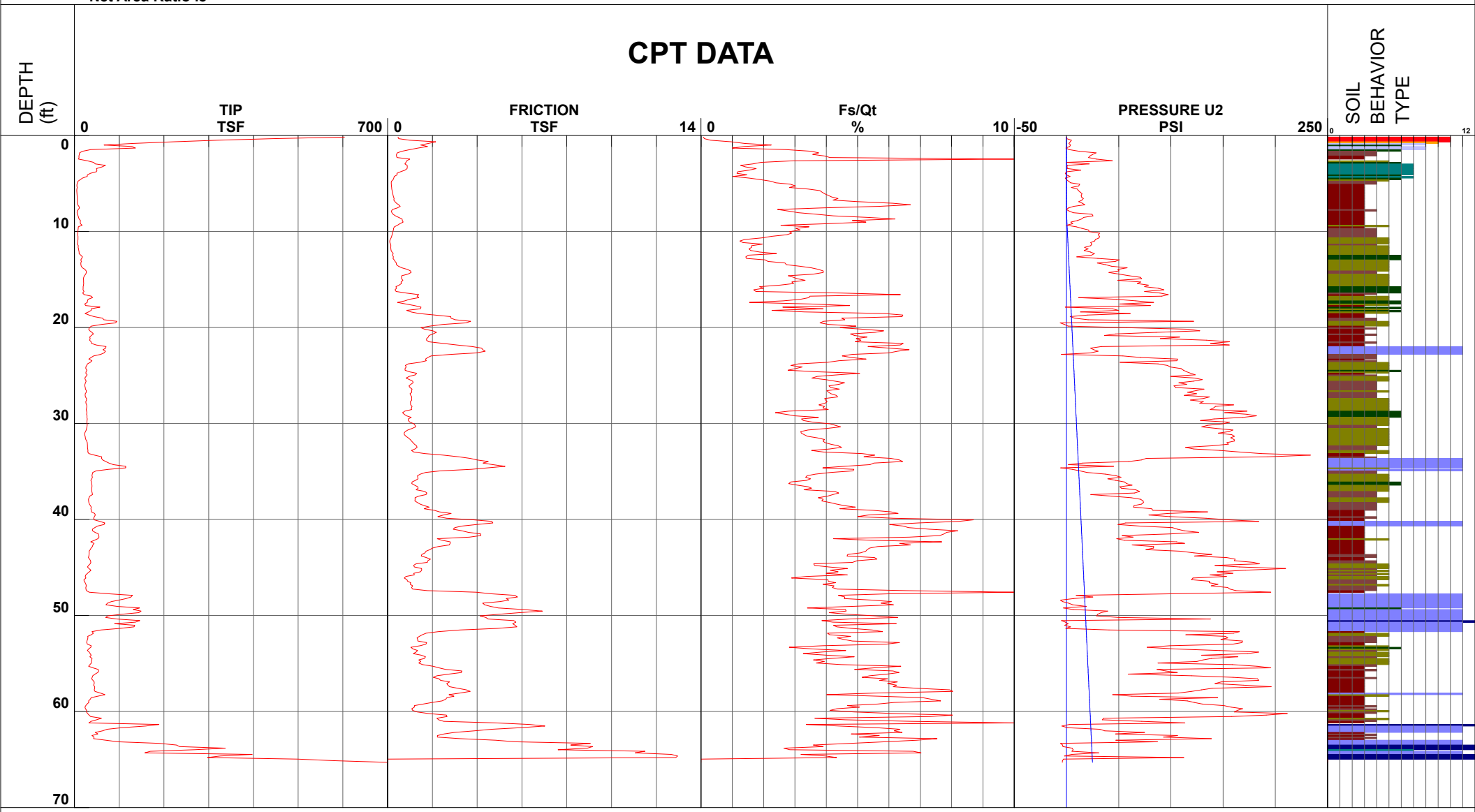
S*Soil behavior type and SPT based on data from UBC-1983

Cornerstone Earth Group

Project	4th and Irwin Preliminary GI	Operator	JM-FA	Filename	SDF(588).cpt
Job Number	1395-4-2	Cone Number	DDG1596	GPS	
Hole Number	CPT-02	Date and Time	12/18/2023 9:58:41 AM	Maximum Depth	65.29 ft
EST GW Depth During Test		8.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

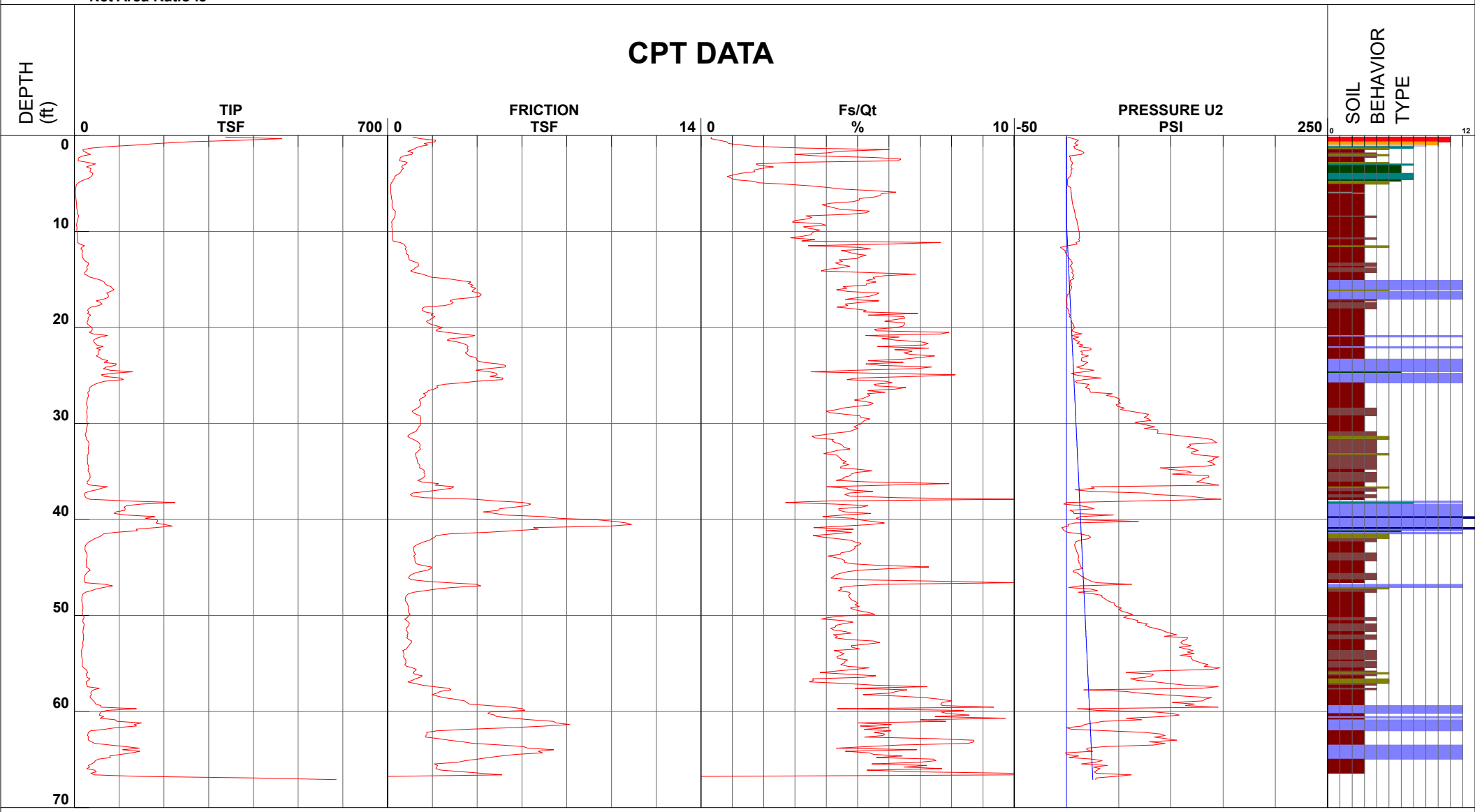
S*Soil behavior type and SPT based on data from UBC-1983

Cornerstone Earth Group

Project	4th and Irwin Preliminary GI	Operator	JM-FA	Filename	SDF(589).cpt
Job Number	1395-4-2	Cone Number	DDG1596	GPS	
Hole Number	CPT-03	Date and Time	12/18/2023 12:05:03 PM	Maximum Depth	67.09 ft
EST GW Depth During Test		9.00 ft			

Net Area Ratio .8

CPT DATA



1 - sensitive fine grained
2 - organic material
3 - clay
4 - silty clay to clay
5 - clayey silt to silty clay
6 - sandy silt to clayey silt
7 - silty sand to sandy silt
8 - sand to silty sand
9 - sand
10 - gravelly sand to sand
11 - very stiff fine grained (*)
12 - sand to clayey sand (*)

Cone Size 15cm²

S*Soil behavior type and SPT based on data from UBC-1983

APPENDIX B: LABORATORY TEST PROGRAM

The laboratory testing program was performed to evaluate the physical and mechanical properties of the soils retrieved from the site to aid in verifying soil classification.

Moisture Content: The natural water content was determined (ASTM D2216) on 35 samples of the materials recovered from the borings. These water contents are recorded on the boring logs at the appropriate sample depths.

Dry Densities: In place dry density determinations (ASTM D2937) were performed on 32 samples to measure the unit weight of the subsurface soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

Washed Sieve Analyses: The percent soil fraction passing the No. 200 sieve (ASTM D1140) was determined on five samples of the subsurface soils to aid in the classification of these soils. Results of these tests are shown on the boring logs at the appropriate sample depths.

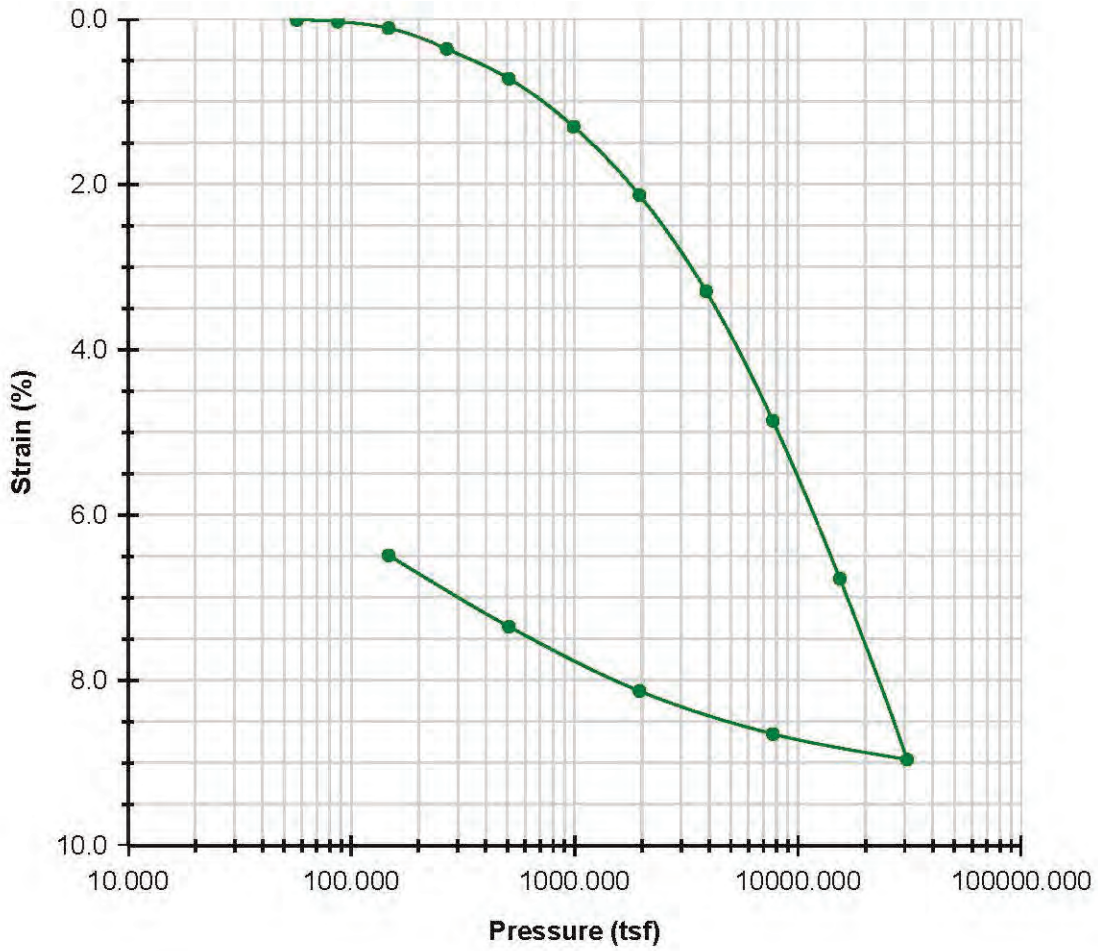
Consolidation: Two consolidation tests (ASTM D2435) were performed on relatively undisturbed samples of the subsurface clayey soils to assist in evaluating the compressibility property of this soil. Results of the consolidation tests are presented graphically in this appendix.

Triaxial Shear Strength: Two unconsolidated, undrained triaxial strength tests (ASTM D2850) were performed on relatively undisturbed samples of the subsurface clayey soils to assist in evaluating the strength of these soils. Results of the triaxial strength tests are presented graphically on the boring logs and in this appendix.

Consolidation Test ASTM D2435

Boring: EB-1 **Sample:** 5 **Depth:** 11.2'

Description: Lean Clay with Sand (CL)



	BEFORE	AFTER
Moisture (%)	20.4	18.1
Dry Density (pcf)	106.5	113.8
Saturation (%)	93.3	100.0
Void Ratio	0.59	0.49

(A) Stress Strain Curve

CORNERSTONE EARTH GROUP

Strain-Log Curve - EB-1 @ 11.2'

523 & 535 4th Street and
912, 914, and 930 Irwin Street
San Rafael, CA

Project Number: 1395-4-4

Figure Number: Figure B1

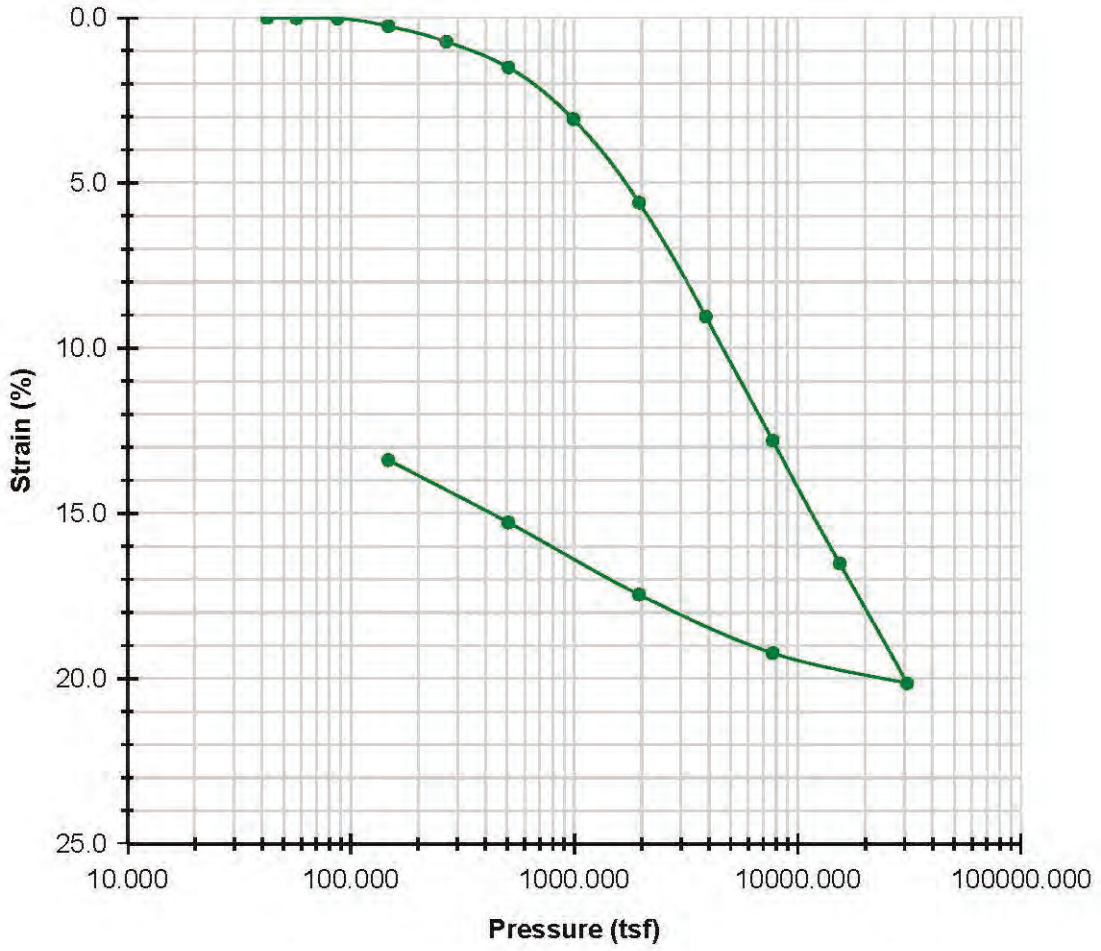
Date: August 2024

Drawn By: FLL

Consolidation Test ASTM D2435

Boring: EB-3 **Sample:** 3 **Depth:** 7.0'

Description: Lean Clay with Sand (CL)



	BEFORE	AFTER
Moisture (%)	31.6	24.3
Dry Density (pcf)	90.0	102.3
Saturation (%)	97.1	100.0
Void Ratio	0.89	0.66

(A) Stress Strain Curve

CORNERSTONE EARTH GROUP

Strain-Log Curve - EB-3 @ 7.0'

523 & 535 4th Street and 912, 914, and 930 Irwin Street San Rafael, CA

Project Number: 1395-4-4

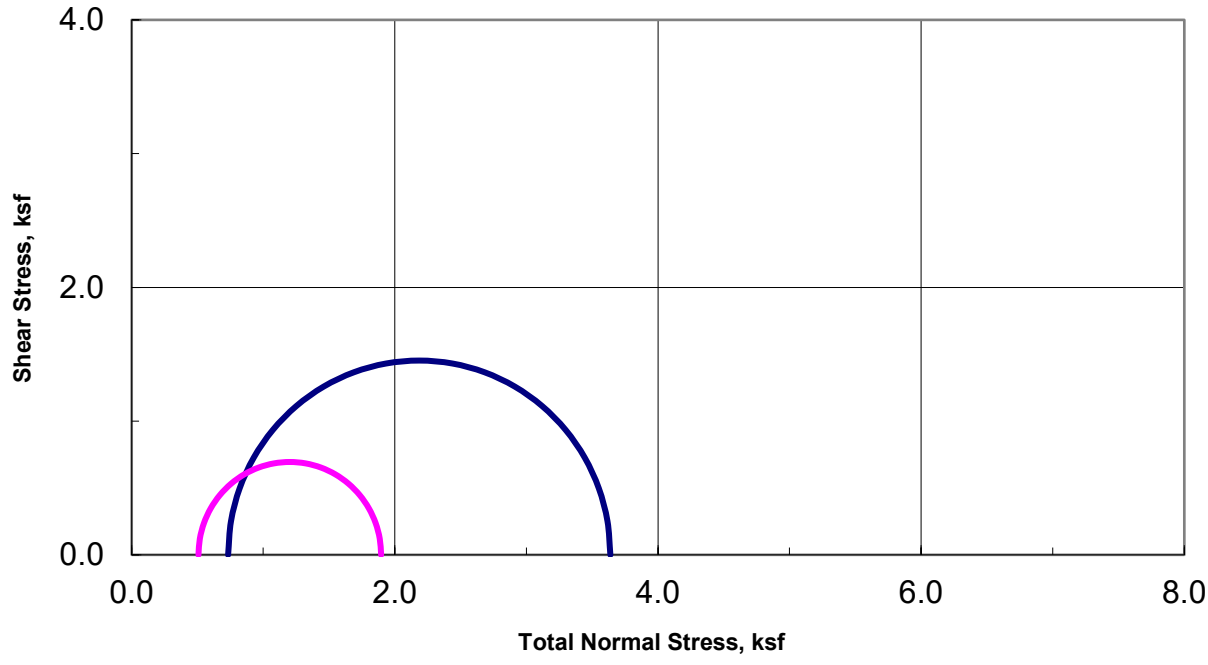
Figure Number: Figure B2

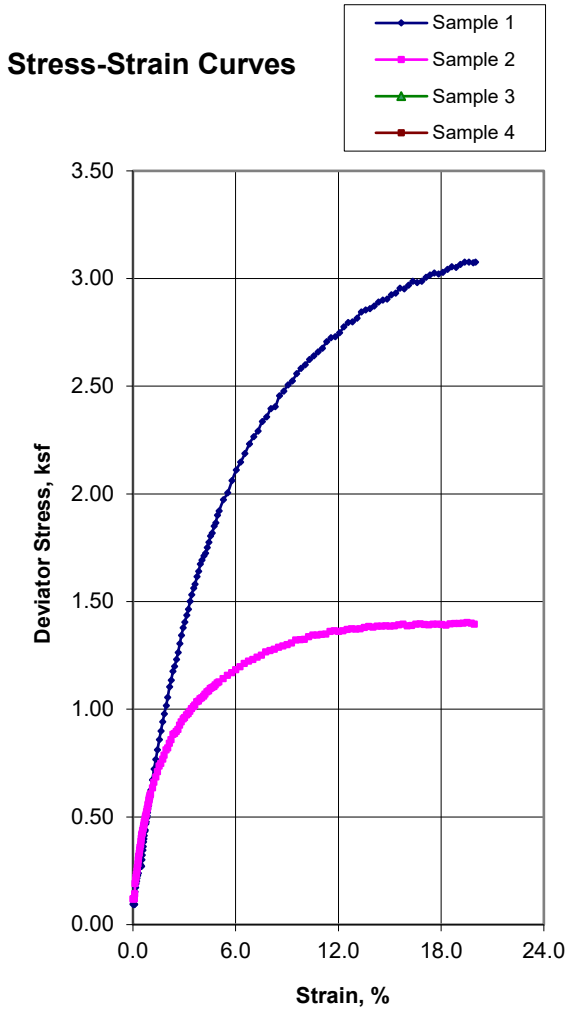
Date: August 2024

Drawn By: FLL

Cooper Testing Labs, Inc.
937 Commercial Street
Palo Alto, CA 94303

Unconsolidated-Undrained Triaxial Test
ASTM D2850





Sample Data	1	2	3	4
Moisture %	20.4	26.1		
Dry Den,pcf	108.1	98.8		
Void Ratio	0.560	0.706		
Saturation %	98.2	99.8		
Height in	4.97	4.98		
Diameter in	2.41	2.42		
Cell psi	5.1	3.5		
Strain %	15.00	15.00		
Deviator, ksf	2.905	1.388		
Rate %/min	1.00	0.99		
in/min	0.050	0.049		
Job No.:	640-1560			
Client:	Cornerstone Earth Group			
Project:	1395-4-4			
Boring:	EB-1	EB-2		
Sample:	4B	3B		
Depth ft:	8.5	6.0		

Visual Soil Description	
Sample #	
1	Gray Sandy CLAY some Gravel
2	Dark Gray Sandy CLAY some Gravel
3	
4	

Remarks:

Note: Strengths are picked at the peak deviator stress or 15% strain which ever occurs first per ASTM D2850.

APPENDIX C: ENVIRONMENTAL EXPLORATION LOGS

BORING NUMBER SV-1

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 2 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0, 2.0, 3.0, 4.0)
	0.0		asphalt concrete over aggregate base							
			Well Graded Gravel with Sand (GW) [Fill] moist, gray, possible crushed concrete							
			Lean Clay (CL) moist, bluish gray with brown mottles							
			Bottom of Boring at 2.0 feet.							
	2.5									
	5.0									

BORING NUMBER SV-2

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 1.25 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Portable Power Auger
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0.0		asphalt concrete over aggregate base							
			Well Graded Gravel with Sand (GW) [Fill] moist, gray, possible crushed concrete							
			Lean Clay (CL) moist, dark gray							
			Bottom of Boring at 1.3 feet.							
	2.5									
	5.0									

BORING NUMBER SV-3

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 2.5 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL) 1.0 2.0 3.0 4.0
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, dark gray, some fine subrounded gravel							
			Fat Clay (CH) [Fill] moist, bluish gray							
	2.5		Bottom of Boring at 2.5 feet.							
	5.0									

BORING NUMBER SV-4

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 5 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** 4 ft.
NOTES _____
▼ **AT END OF DRILLING** 2.5 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION
	0.0		asphalt concrete over aggregate base
			Clayey Sand (SC) [Fill] moist, light gray to gray brown, some fine subrounded gravel, some organics
			Fat Clay (CH) [Fill] moist, gray brown with brown mottles
	2.5		
			Clayey Sand (SC) [Fill] wet, light brown, fine sand
	5.0		Bottom of Boring at 5.0 feet.

N-Value (uncorrected) blows per foot | SAMPLES TYPE AND NUMBER | DRY UNIT WEIGHT PCF | NATURAL MOISTURE CONTENT | PLASTICITY INDEX, % | PERCENT PASSING No. 200 SIEVE

UNDRAINED SHEAR STRENGTH, ksf
○ HAND PENETROMETER
△ TORVANE
● UNCONFINED COMPRESSION
▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL
1.0 2.0 3.0 4.0

BORING NUMBER SV-5

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 1.25 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Portable Power Auger
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0.0		asphalt concrete over aggregate base							
			Well Graded Gravel with Sand (GW) [Fill] moist, gray, possible crushed concrete							
			Lean Clay (CL) [Fill] moist, dark gray							
			Bottom of Boring at 1.3 feet.							
	2.5									
	5.0									

BORING NUMBER SV-6

CORNERSTONE EARTH GROUP

PROJECT NAME 4th Street and Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 12/19/23 **DATE COMPLETED** 12/19/23
GROUND ELEVATION _____ **BORING DEPTH** 2 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** 1.2 ft.
NOTES _____
▼ **AT END OF DRILLING** 1.2 ft.

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	SAMPLES TYPE AND NUMBER	DRY UNIT WEIGHT PCF	NATURAL MOISTURE CONTENT	PLASTICITY INDEX, %	PERCENT PASSING No. 200 SIEVE	UNDRAINED SHEAR STRENGTH, ksf (○ HAND PENETROMETER, △ TORVANE, ● UNCONFINED COMPRESSION, ▲ UNCONSOLIDATED-UNDRAINED TRIAXIAL; 1.0 2.0 3.0 4.0)
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, dark gray, some fine subrounded gravel							
			Bottom of Boring at 2.0 feet.							
	2.5									
	5.0									

BORING NUMBER EB-1

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 420M, Dolly Rig
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, light gray, fine sand					347.5		
	2.5		becomes wet				40	356.8	Petroleum Odor	
								52.8		
	5.0		**Fat Clay (CH) [Bay mud]** moist, dark gray					237.9		
								25.5		
	7.5						80		Petroleum Odor	
			Fat Clay (CL-CH) moist, light gray to light brown, some organics					22.1		
								23.9		
	10.0		Bottom of Boring at 10.0 feet.							

BORING NUMBER EB-2

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 420M, Dolly Rig
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Well Graded Sand with Gravel (SW) [Fill] moist, dark gray					3500		
	2.5		**Clayey Sand (SC) [Fill]** moist, dark gray, fine to coarse sand				40	650	Strong Petroleum Odor	
								950		
	5.0		**Fat Clay (CH) [Bay mud]** moist, dark gray to light gray					5700		
								6810		
	7.5						98		Strong Petroleum Odor	
			Fat Clay (CL-CH) moist, light gray to light brown, some organics					7022		
								116.3		
	10.0		Bottom of Boring at 10.0 feet.							

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BORING NUMBER EB-3

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 420M, Dolly Rig
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Lean Clay (CL) [Fill] moist, light gray, some subrounded gravel					12.7		
			Clayey Sand (SC) [Fill] moist, light gray brown to dark gray, fine to coarse sand							
	2.5						50	5.1	Slight Petroleum Odor	
								6.9		
	5.0		**Fat Clay (CH) [Bay mud]** moist, dark gray							
								42.1		
	7.5						80	6.8	Slight Petroleum Odor	
			Fat Clay (CL-CH) moist, light gray to light brown, some fine sand					6.6		
	10.0		Bottom of Boring at 10.0 feet.							

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BORING NUMBER EB-4

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore
LATITUDE _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 420M, Dolly Rig
GROUND WATER LEVELS:
LOGGED BY SQN
▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____
▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, light brown to gray brown, fine to coarse sand, some subrounded gravel					26.2		
	2.5						50	17.0	Slight Petroleum Odor	
								10.4		
	5.0		**Fat Clay (CH) [Bay mud]** moist, dark gray					16.5		
	7.5						60	11.5	Slight Petroleum Odor	
			Fat Clay (CL-CH) moist, light gray to light brown, some subrounded gravel, some organics					118.1		
	10.0		Bottom of Boring at 10.0 feet.							

BORING NUMBER EB-5

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 420M, Dolly Rig **GROUND WATER LEVELS:**
LOGGED BY SQN **AT TIME OF DRILLING** Not Encountered
NOTES _____ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, dark gray					8.0		
	2.5						20		Slight Petroleum Odor	
								12.3		
	5.0		**Fat Clay (CH) [Bay mud]** moist, dark gray to light gray with light brown mottles					37.2		
	7.5						50	33.5	Slight Petroleum Odor	
			Fat Clay (CL-CH) moist, light gray to light brown with reddish brown mottles					21.6		
	10.0		Bottom of Boring at 10.0 feet.							

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BORING NUMBER EB-6

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT **GROUND WATER LEVELS:**
LOGGED BY SQN ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Clayey Sand (SC) [Fill] moist, dark brown, some subrounded gravel, some organics					10.1		
	2.5						65	12.7		
			Fat Clay (CH) [Bay mud] moist, dark gray, some organics					7.1		
	5.0							15.3		
	7.5						40	8.1		
			Fat Clay (CL-CH) moist, light gray to light brown with reddish brown mottles							
	10.0		Bottom of Boring at 10.0 feet.							

CORNERSTONE GE LOG DEC192007 - CORNERSTONE 0812.GDT - 2/23/24 07:59 - P:\DRAFTING\GINT FILES\1395-4-1 4TH AND IRWIN GE SV.GPJ

BORING NUMBER EB-7

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT **GROUND WATER LEVELS:**
LOGGED BY SQN **AT TIME OF DRILLING** Not Encountered
NOTES _____ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Well Graded Sand with Gravel (SW) [Fill] moist, gray, subrounded gravel					15.3		
			Lean Clay (CL) [Fill] moist, bluish gray with brown mottles							
	2.5						50	17.7		
			Fat Clay (CH) [Bay mud] moist, bluish gray to dark gray					7.0		
	5.0									
								17.1		
	7.5						50	19.9		
								25.4		
	10.0		Bottom of Boring at 10.0 feet.							

BORING NUMBER EB-8

CORNERSTONE EARTH GROUP

PROJECT NAME 523 4th Street and 930 Irwin Street Residential
PROJECT NUMBER 1395-4-2
PROJECT LOCATION San Rafael, CA

DATE STARTED 2/14/24 **DATE COMPLETED** 2/14/24
GROUND ELEVATION _____ **BORING DEPTH** 10 ft.
DRILLING CONTRACTOR Penecore **LATITUDE** _____ **LONGITUDE** _____
DRILLING METHOD Geoprobe 7822DT **GROUND WATER LEVELS:**
LOGGED BY SQN ▽ **AT TIME OF DRILLING** Not Encountered
NOTES _____ ▼ **AT END OF DRILLING** Not Encountered

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ELEVATION (ft)	DEPTH (ft)	SYMBOL	DESCRIPTION	N-Value (uncorrected) blows per foot	Sample Type and Interval	Sample Submitted for Laboratory Analysis	Percent Recovery (%)	OVM Reading (ppm)	Odors or Discoloration	Notes
	0.0		asphalt concrete over aggregate base							
			Well Graded Gravel with Sand (GW) [Fill] moist, gray, possible crushed concrete					17.7		
			Lean Clay (CL) [Fill] moist, bluish gray with light gray mottles, some fine subrounded gravel					22.8		
	2.5						65	15.2		
			Fat Clay (CH) [Bay mud] moist, dark gray					20.2		
	5.0							18.9		
	7.5						45	10.3		
			Fat Clay (CL-CH) moist, light gray to light brown and bluish gray							
	10.0		Bottom of Boring at 10.0 feet.							

STORMWATER CONTROL PLAN

930 Irwin Street

San Rafael, California

Prepared By:

Luk and Associates
738 Alfred Nobel Drive
Hercules, CA 94547
(510)724-3388

Updated
Feb. 3, 2025

Table of Contents

I. Project Setting

A. Project Description

The project site is located at 930 Irwin Street at the corner of Irwin Street and 4th Street in City of San Rafael, California. The site is approximately 0.92 acres. The developer is proposing removal of existing commercial structures and construction of a new 8-Story residential development with 213 dwelling units, ground level lobbies, and parking garage with state of California density bonus. The project creates/replaces a total maximum impervious surface value of 38,577 square feet.

B. Existing Site Features and Conditions

The site is L-shape lot at the corner of Irwin St and Fourth St. Topography is in general flat. There are three existing commercial buildings on the site and the remaining areas are occupied with the open parking area and landscaping strips. In addition, the surrounding streets and sidewalk are existing and paved, but will receive new paving as part of the development.

Existing site drainage of the surface parking is overland and captured by the on-site stormwater catch basins that discharge to the city of San Rafel's storm drain main on Irwin Street. Surface runoffs from the existing building's roof are treated by the existing on-site stormwater treatment facilities and are discharged to the gutters in on Irwin St and Fourth St via curb drains. Most of the land on this site is covered by developed impervious surfacing. The highest elevation within the site is 10.1 feet at the northwest corner and lowest at around 9.3 feet in average at the existing drain inlets in the parking area.

C. Opportunities and Constraints for Storm water Control

Due to the nature of the development and existing clay soils, the use of post construction Best Management Practices (BMPs) are being utilized to the maximum extent possible. The site design has some constraints but is maximizing opportunities to utilize landscape pockets, multi-unit housing, and podium level planters to minimize the effect of impervious areas and comply with the current stormwater design standards. The major constraint is the site is almost completely occupied by building footprint, limiting bioretention planter space. Drainage management must be treated within the small available areas at the podium level and private patios. One opportunity is to utilize directional sloping roofs and plumbing piping to direct roof run-off into the available treatment areas.

Treatment of all runoff from the site is to be provided. All storm water runoff will be treated by raised flow-through planters at the podium and private patios prior to discharging to the storm drain catch basin on Irwin St that is connected to the existing city's storm drain system. The storm water control plan is intended to provide the site with runoff treatment to the "maximum extent practicable" per the *BASMAA* requirement criteria.

The most critical constraint in this site design is the efficient use of available treatment areas at the podium and private patios—as the project site is zero lot line project and no available treatment space at the ground level. The building roof run off will be conveyed through roof drains and then into the available treatment planters at the podium level and private patios that are large enough to handle the runoff volumes as determined by the sizing equations. Once all the water is treated, it will be collected and conveyed to the public domain.

II. Measures to Limit Imperviousness

A. Measures to Cluster Development and Protect Natural Resources

One garage driveway (4th St) will be used for site access with minimal offset distance from the street. A single pedestrian access path (Irwin St) is currently planned for the project site. The new development will utilize multi-levels, in order to minimize impervious surfaces and maximize usable living space.

B. Measures Used to Limit Directly Connected Impervious Area

The impervious areas (roofs, podium, patios) are disconnected from the city's drainage system. Additionally, all the storm water from roofs, podium deck and private patios will drain into various infiltration planters located at level-4 and level-2 prior to entering into the storm system.

C. Measures to Make Development More Compact

The following site layout characteristics are incorporated to reduce imperviousness:

- The proposed buildings include a multi-levels and podium-level stormwater treatment areas which minimizes the building's impervious area footprint.

III. Selection and Preliminary Design of Stormwater Treatment BMPs

Treatment facilities are designed to accommodate runoff from the specified design storm intensity of 0.2 inches per hour (as recommended in *BASMAA* guidelines).

The Storm Water Control Plan shows the BMPs and the corresponding areas of the site that drain to each treatment planter. The site has been divided into multiple drainage areas. The sizes and locations of the each impervious area are shown in the storm water control plan. Existing site soils are clay and classified as "Class D".

Storm water runoff from the areas is managed by routing run off to treatment planters located at level-2 and level-4 of the proposed building. Runoff from roofs will drain to various treatment planters located on the level-4 podium deck, and runoff from private patios will drain to treatment planter located on level-2.

Runoff from all areas will be treated per the *BASMAA* design criteria.

A. General Treatment BMP Characteristics

Runoff from roof tops will overland flow to treatment BMPs installed throughout the property.

The BMPs are located to accommodate individual drainage areas, site topography, and ADA accessibility, while allowing for ease of maintenance access. Each area of the BMP has adequate hydraulic head to allow drainage into, through, and away from the BMP without the need for pumps.

B. Specific DMA Characteristics

Each area is unique due to the complexity of the site grading and site layout. The design chart on the area calculation sheet provides the specific design data for each drainage area's impervious area, pervious area, treatment type, and required treatment size.

Drainage Management Area A1 will drain to a treatment planter A#1 located on the level-4 podium deck. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on Irwin St. Access to this facility (for maintenance) is available via the common space (pool deck on level-4).

Drainage Management Area A2 will drain to a treatment planter A#2 located on the level-4 podium. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on Irwin St. Access to this facility (for maintenance) is available via the residential units 434 or 432 (east side of level-4).

Drainage Management Area A3 will drain to a treatment planter A#3 located on the level-4 podium deck. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on Irwin St. Access to this facility (for maintenance) is available via the residential units 428 (east side of level-4).

Drainage Management Area A4 will drain to a treatment planter A#4 located on the level-4 private patio, near north-east corner of the site. Run-off will then discharge to the primary plumbing system (cleaned) and ultimately connect to the underground storm pipe system (cleaned) on Irwin St. Access to this facility (for maintenance) is available via the residential units 410 or 418 (south side of level-4).

Drainage Management Area Pool#1 will collect and retain rainwater falling within the pool area footprint (self-retaining) on level-4.

Drainage Management Areas B1-B6, will drain to the DMA C1 which drains to the treatment planter C#1 located on **level-2** private, where there is some "unused space" located along south property line, and ultimately connect to the underground storm pipe system (cleaned) on Irwin St. Access to this facility (for maintenance) is available via (1) the residential units 213 or 214 (south side of level-2) or (2) through a wall opening at the interior garage (south side of level-2). See architectural plans.

C. Specific BMP Characteristics

Bio-Retention Facility

The bio-retention areas have been designed and will be constructed according to the criteria included in the *BASMAA*. The bio-retention areas have the following characteristics:

- 18" depth "Engineered" soil mix with a minimum long term infiltration rate of 5"/hour.
- Surface area of soils mix meets or exceeds minimum
- Perforated Pipe (PVC SDR 35 or approved equivalent) under drain with outlet located flush or nearly flush with bottom of planter bottom. Connection with sufficient head to storm drain or discharge point.
- No filter fabric.
- Under drain has cleanout port consisting of a vertical, rigid, non-perforated PVC pipe, with a minimum of 4" diameter and water tight cap.
- Location and footprint of facility shown on the site plan and the landscaping plan.
- Bio-retention area is designed as a basin (level edges) or a series of basins and the grading plan is consistent with these elevations. If facility is designed as a swale, check dams are set so the lip of each dam is at least as high as the toe of the next upstream dam.
- Curb inlets are 12" wide and have 4-6" reveal and an apron or other provision to prevent blockage when vegetation grows in, and energy dissipation is needed.
- Overflow outlet connected to a downstream storm drain or approved discharge point.
- Emergency spillage will be safely conveyed overland.
- Plantings are suitable to climate and a well drained soil.
- Irrigation system with a connection to water supply, on a separate zone.

- Vaults, utility boxes, and light standards are located outside the minimum soil mix surface area.
- When excavating avoid smearing of soils on bottom of side slopes. Minimize compaction of native soils and "rip" soils if clayey and/or compacted. Protect the area from construction site run off.

IV. Source Control Measures

The project will create few potential sources of stormwater pollutants. Sources to be controlled include:

- Potential dumping of wash-water or other liquids into storm drain inlets
- Need for future indoor or structural pest control coming from upstream facilities
- Fertilizers and pesticides used in landscaping area.
- Potential for Vehicle washing or Future Refuse areas
- Refuse disposal

All areas where these activities occur will drain to storm water in-ground planters. To further reduce the potential to enter runoff, permanent and operational BMP's will be implemented as described in Table 3.

Table 3: Sources and Source Control BMP

Potential Source	Permanent BMPs	Operational BMPs
On-site drain inlets.	Inlets that could be accessed from sidewalks and driveways will be marked with a "No Dumping – Drains to Creek" or similar message.	• Inlet markings will be inspected annually and replaced or renewed as needed. • Owner shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to the storm drains. • Owner will receive stormwater pollution prevention information per *BASMAA* guidelines • In-ground planter and related structures and features will be inspected and maintained as specified in the BMP Operation and Maintenance Plan.
Need for future indoor and structural pest control.	Standard building design minimizes potential needs for future pest control	Owner will conduct pest management in accordance with *BASMAA* policies.
Landscape/outdoor pesticide use.	• Any native trees, shrubs, and ground cover on the site will be preserved to the maximum extent possible. • Landscaping will be designed to minimize required irrigation and runoff, to promote surface infiltration, and to minimize the	• Owner will conduct pest management in accordance with *BASMAA* policies. • All site landscaping is to be maintained by a professional landscaping contractor. Contractor to state that landscaping is to be maintained

	use of fertilizers and pesticides that can contribute to storm water pollution. • Plantings for planters will be selected to be appropriate to anticipated soil and moisture conditions. • Where possible, pest-resistant plants will be selected, especially for locations adjacent to landscape. • Plants will be selected appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	using *BASMAA* principles, with minimal or no use of pesticides.
Refuse areas	• Refuse areas to be roofed. Any drains must connect to sanitary sewer. • Other refuse areas to be indoors and floors sloped to prevent drainage to exterior. Any floor drains must connect to sanitary sewer. • All dumpsters will be marked with a "Do not Dump Hazardous Materials Here" or similar.	Adequate litter receptacles will be provided throughout the commercial area. Grounds keeping crew or contractor will inspect and clean up daily. Spills will be cleaned up using dry methods.
Vehicle and equipment cleaning	Not applicable to site	Not applicable to site
Vehicle maintenance/repair	• No vehicle repair or maintenance will be done outdoors. • Interior maintenance areas will not have any floor drains. • There will be no tanks, containers, or sinks used for parts cleaning or rinsing.	Not applicable to site
Loading areas	The loading/unloading area drains to a planter rather than directly to storm drain.	Not applicable to site
Plazas, sidewalks, and parking lots.	Plaza areas drain to planters or pervious pavements and not directly to storm drains.	Not applicable to site

V. Summary of Permitting and Code Compliance Issues

There are no known conflicts between the proposed Storm Water Control Plan or *BASMAA* ordinances or policies. Any conflicts that are found will be resolved through the design review process or during subsequent permitting.

VI. BMP Operation and Maintenance

A. Means to Finance and Implement BMP Maintenance

All storm water treatment facilities in this plan will be financed and maintained by the Owner. By signing below, the applicant accepts responsibility for the operation and maintenance of the storm treatment facilities until such time as these facilities are formally transferred to a subsequent owner. Maintenance Responsibilities are detailed below in sections B, C, and D.

_____ _____

Owner's Signature Date

_____

Name

B. Summary of Maintenance Requirements

Bio-retention Facilities remove pollutants primarily by filtering runoff slowly through an active layer of Engineered Soil. Routine maintenance is needed to insure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roofs and are biologically active. Typical routine maintenance consists of the following:

- Inspect inlets, exposure of solids, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. Examine rock of other materials used as splash pad and replenish if necessary.
- Inspect outlets for erosion or plugging.
- Observe soil at planter or filter for uniform percolation throughout. If portions of the filter do not drain within 24 hours after the end of the storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.
- Confirm that energy dissipation provisions are in place and level and that channelization within that swale of filter is effectively prevented.
- Examine the vegetation to insure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. Confirm that irrigation is adequate and not excessive. Replace dead plants and remove invasive vegetation.
- Abate any potential vectors by filling in the ground and around planters and by insuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent, contact the County Vector Control District for information and advice
- Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

C. Inspection/Maintenance Responsibility for Structural Source Control and Treatment Control BMPs

Maintenance mechanism for all structural source control and treatment control BMPs:

1. All inlets to be inspected for debris twice a year, with one inspection yearly on October 1st.
2. Landscaping infiltration planters checked for plant and landscape health. Check for removable amounts of retained silt. Check for aeration of landscaped and swale soils.

D. Operation and Maintenance

1. A draft Storm Water Control Operation and Maintenance Plan should be submitted with the construction plan and a final Storm Water Control Operation and Maintenance Plan will be submitted prior to issuance of a Certificate of Occupancy.
2. A Storm Water Management Facilities Operation and Maintenance Agreement and Right of Entry will be executed prior to the final approval of the Building Department.
3. Maintain vegetation and irrigation system; inspect periodically to ensure structural integrity and confirm that bio retention area has not been clogged.

VII. C.3 Inspection Checklist

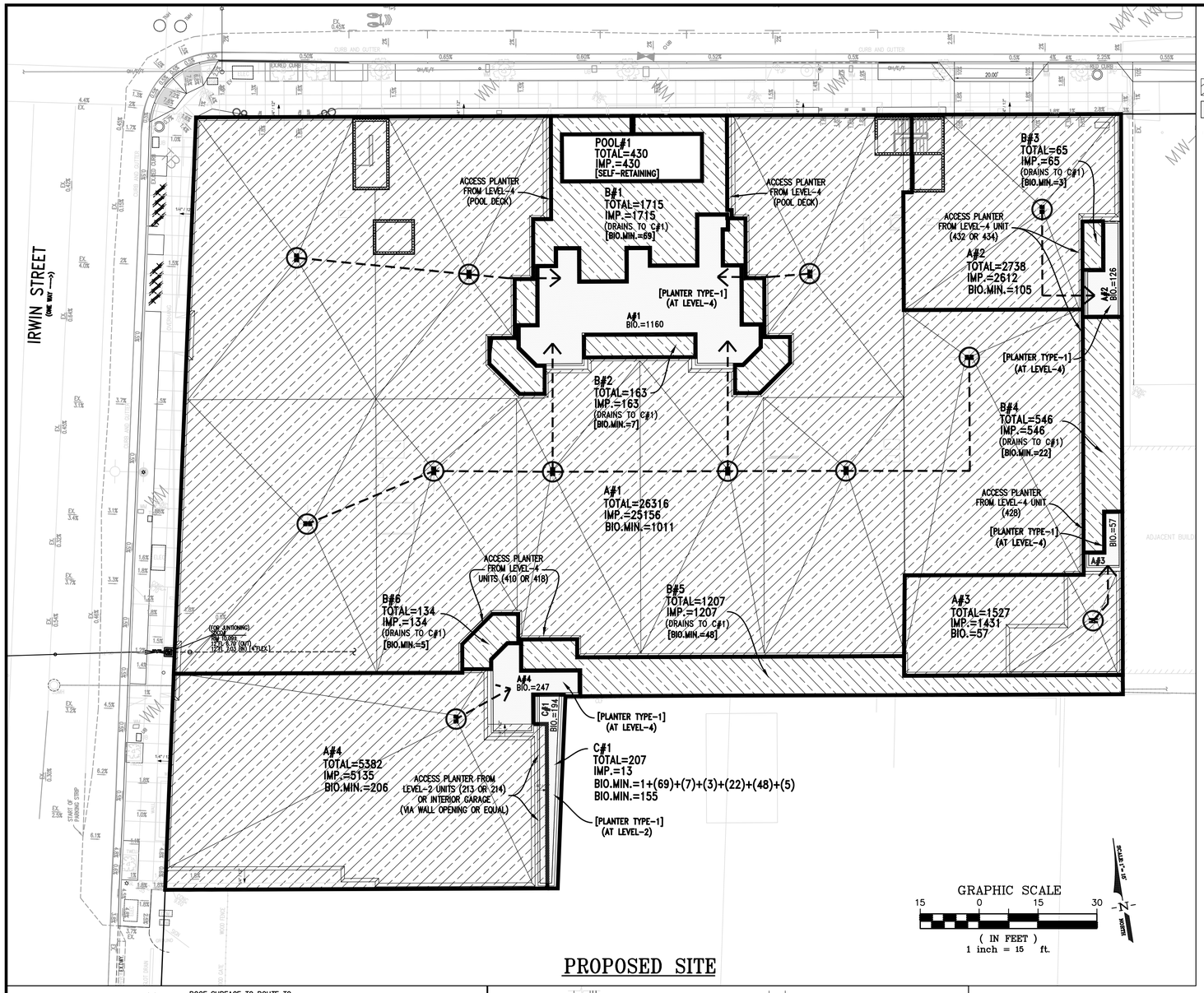
INSPECTION OBSERVATION	INSPECTION FREQUENCY	MAINTENANCE/REPAIR PROGRAM
Bio-Retention		
Inspect Inlets	Annually	■ Remove debris and sediment
Inspect Outlets	Annually	■ Remove debris and sediment
Inspect Storm Pipes	Annually	■ Remove debris and sediment. Cleanout Pipes as necessary.
Inspect Subdrains & Percolation	Annually	■ Check percolation rates. Cleanout pipes as necessary
Inspect Side Slopes	Annually	■ Add additional slope soils where erosion has occurred. Maintain design slopes.
Inspect Surface	Monthly	■ Add additional soils where settlement has occurred. Maintain design elevations. Remove debris.
Inspect Vegetation	Monthly	■ Replace dead vegetation. Verify irrigation system is functioning adequately.
Inspect Flow/Velocity Regulators	Annually	■ Remove debris. Add more rock as necessary

VIII. Certification

The selection, size, and preliminary design of treatment BMPs and other control measures in this plan meet the requirements of Regional Water Quality Control Board Order 2012-006-DWQ.

Design Engineer:_____Chris Wood_____

Signature:_____ _____ Date:__Feb. 3, 2025__



PROPOSED SITE

LEGEND

- IMPERVIOUS SURFACE
- BIO.=100 — BIO.RETENTION AREA
- DRAINAGE MANAGEMENT AREA LIMIT
- AREA# — DRAINAGE MANAGEMENT AREA
- TOTAL = — TOTAL DRAINAGE AREA
- IMP. = — IMPERVIOUS AREA
- BIO.MIN.= — MINIMUM REQUIRED TREATMENT AREA
- BIO.= — PROVIDED TREATMENT AREA

STORMWATER NOTES:

1. "NO DUMPING" MEDALLIONS ARE AVAILABLE THROUGH CITY OF MCSTOPP.
2. DEVELOPER SHALL SUBMIT STORMWATER FACILITIES MAINTENANCE AGREEMENT.
3. PRIVATE STORM DRAIN SYSTEM (PRIVATE LOT) SHALL BE MAINTAINED BY OWNER. PUBLIC STORM DRAIN SYSTEM (CITY RIGHT OF WAY) SHALL BE MAINTAINED BY CITY.

EXISTING SURFACE-AREA TABLE

EXISTING SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO REMOVE] (SF)	PERVIOUS AREA (SF)	TOTAL
0	39,159	1,046	40,205

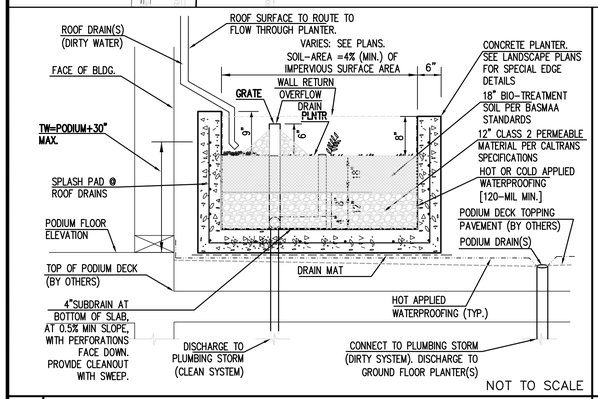
PROPOSED SURFACE-AREA TABLE

PROPOSED SITE			
IMPERVIOUS [TO REMAIN] (SF)	IMPERVIOUS [TO INSTALL] (SF)	PERVIOUS AREA (SF)	TOTAL
0	38,607	1,598	40,205

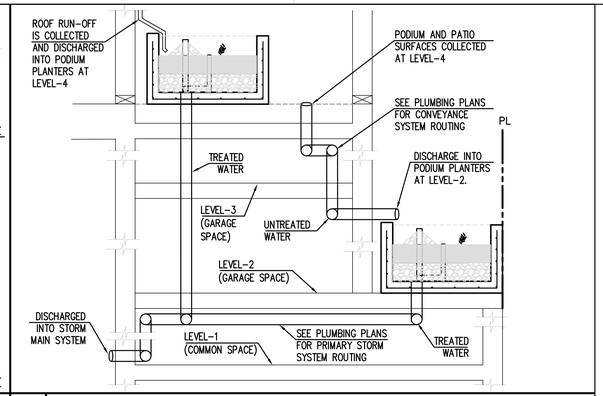
* TREATMENT ONLY (LESS THAN 1-ACRE OF IMPERVIOUS SURFACE)

STORM TREATMENT DESIGN

DMA & IMP NAME	TYPE	A SIZING FACTOR	D.M. AREA (S.F.)	RUNOFF SURFACE TYPE	C-FACTOR VALUE*	MIN. SIZE (S.F.)	PLANNED SIZE (S.F.)
A1	BIO-RETENTION AREA	4%	25156	IMPERVIOUS	1.0	1011	1160
			1160	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A2	BIO-RETENTION AREA	4%	2612	IMPERVIOUS	1.0	105	126
			126	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A3	BIO-RETENTION AREA	4%	1431	IMPERVIOUS	1.0	57	57
			96	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
A4	BIO-RETENTION AREA	4%	5135	IMPERVIOUS	1.0	206	247
			247	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
B1	DRAINS TO C1	4%	1715	IMPERVIOUS	1.0	69	(TO C1)
B2	DRAINS TO C1	4%	163	IMPERVIOUS	1.0	7	(TO C1)
B3	DRAINS TO C1	4%	65	IMPERVIOUS	1.0	3	(TO C1)
B4	DRAINS TO C1	4%	546	IMPERVIOUS	1.0	22	(TO C1)
B5	DRAINS TO C1	4%	1207	IMPERVIOUS	1.0	48	(TO C1)
B6	DRAINS TO C1	4%	134	IMPERVIOUS	1.0	5	(TO C1)
C1	BIO-RETENTION AREA (COLLECTS B# AREAS)	4%	13	IMPERVIOUS	1.0	(+69 +7 +3 +22 +48 +5) =155	194
			194	PERVIOUS	0.1		
			0	PERM.-PAVERS	0.1		
POOL#1	SELF-RETAINING AREA	1"CAP.	0	IMPERVIOUS	1.0	1"CAPTURE =36-CF	3" MIN. POOL LIP =107-CF
		2:1 IMP. MAX.	0	PERVIOUS	0.1		
			430	POOL SURFACE	1.0	2:1 MAX.	1:1

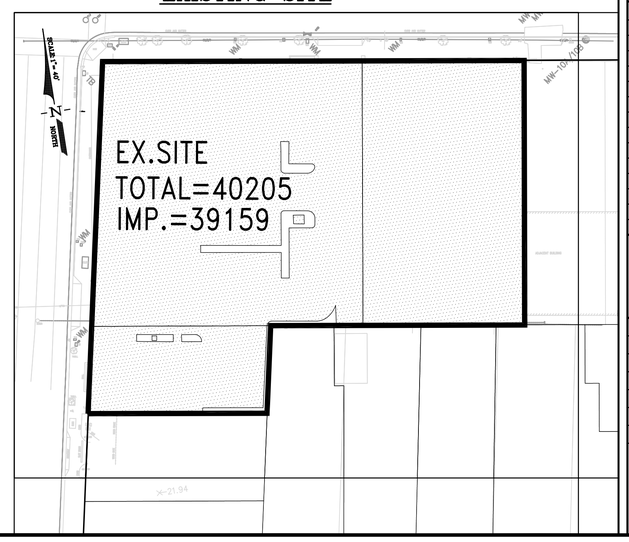


1 FLOW-THROUGH (BIO-RET.) PLANTER: TYPE-1



2 PODIUM DECK CONVEYANCE CONFIGURATION

EXISTING SITE



LEGEND

- EXISTING IMPERVIOUS SURFACE
- PROPERTY BOUNDARY LIMIT
- TOTAL = — TOTAL DRAINAGE AREA
- IMP. = — IMPERVIOUS AREA

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Seal:

REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER JAMES WOOD
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CIVIL
STATE OF CALIFORNIA

MODERA – SAN RAFAEL
930 IRWIN STREET
SAN RAFAEL, CA

ISSUES:

SB-330 PRE-APP PLANS	12/20/2023
PLANNING SUBMITTAL	06/13/2024
PROGRESS DRAWINGS	08/12/2024
25%DD	10/01/2024
100%DD	12/20/2024

Title: STORMWATER TREATMENT PLAN

Date:	JUNE 2024
Scale:	1" = 10'
Drawn By:	C.W.
Checked By:	J.L.
Job No.:	24105A10
Drawing No.:	MASTER-24105A10
Plot Date:	2025-02-03
Sheet No.:	C-6.1