2550 Ventura Avenue
Santa Rosa, CA 95403

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

Scott Orr
Director

Michelle Arellano
Administration

Nathan Quarles
Engineering and Construction

Cecily Condon
Planning

Steve Mosiurchak
Fire Marshal

February 19, 2026

To: Interested Agencies

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

File Number:	**CPH26-0002**
Applicant Name:	**Edoardo Croce**
Owner Name:	**Edoardo Croce and Timothy Farrell**
Site Address:	**4920 Hwy 1, Bodega Bay**
APN:	**101-060-035**
Zoning:	**RR CC B7, G SR**

Project Description: Coastal Permit with hearing for new single-family dwelling with attached garage including associated grading and other improvements on a 0.23-acre parcel.

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

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

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

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

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

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

Your comments will be appreciated by March 5, 2026, and should be sent to the attention of:

CPH26-0002, Jennifer Faso (Jennifer.Faso@sonomacounty.gov). The Project Planner can also be reached at (707) 565-1683. **If no response is received by March 5, 2026, it will be assumed that no comments or conditions will be provided.**

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

[X] Sanitation
[X] Building Inspection
[X] Fire Prevention
[X] Grading and Storm Water
[X] Management Group
[X] Natural Resources
[X] Well & Septic
[X] Dist. 5 Director and Commissioners
[X] Regional Parks Dept
[X] Trans Authority/RCPA
[X] Transit/BPAC
[X] Local Fire District – Sonoma County FPD
[X] Recology Sonoma Marin (Disposal)
[X] Caltrans-State Dept of Transportation
[X] State Coastal Commission – Appealable? Yes
[X] Regional Water QCB: North Coast
[X] Sonoma MOAG
[X] Tribal Notification
[X] Russian River Utility
[X] Sonoma Coast MAC

Planning Application

PJR-001

Application Type(s):

File # _____

- ☐ Admin Cert. Compliance
- ☐ Ag. or Timber Preserve/Contract
- ☐ Conditional Cert. of Compliance
- ☐ Cert. of Modification
- ☑ Coastal Permit
- ☐ Zoning Permit for: _____
- ☐ Design Review Admin.
- ☐ Design Review Full
- ☐ General Plan Amendment
- ☐ Lot Line Adjustment
- ☐ Major Subdivision
- ☐ Minor Subdivision
- ☐ Voluntary Merger
- ☐ Ordinance Interpretation
- ☐ Second Unit Permit
- ☐ Specific/Area Plan Amendment
- ☐ Use Permit
- ☐ Variance
- ☐ Zone Change
- ☐ Other: _____

By placing my contact information (name, address, phone number, email address, etc.) on this application form and submitting it to Sonoma County PRMD, I understand and authorize PRMD to post this application to the internet for public information purposes, including my contact information.

PRINT CLEARLY

APPLICANT			OWNER (IF OTHER THAN APPLICANT)		
Name Edoardo Croce			Name		
Mailing Address 14801 Old Cazadero Road			Mailing Address		
City Guerneville	State CA	Zip 95446	City	State	Zip
Day Ph (415) 8157810	Email edoardo.croce@gmail.com		Day Ph ( )	Email	
Signature *Edoardo Croce*	Date 1/31/2026		Signature		Date

Billing Responsible Party (At-Cost Only) ☑ **Applicant** ☐ **Owner** ☐ **Other:** _____

OTHER PERSONS TO RECEIVE CORRESPONDENCE

Name/Title			Name/Title		
Mailing Address			Mailing Address		
City	State	Zip	City	State	Zip
Day Ph ( )	Email		Day Ph ( )	Email	

PROJECT INFORMATION

Address(es) 4920 Highway 1 — City Bodega Bay

Assessor's Parcel Number(s) 101-060-035

Project Description The project proposes construction of a new single-family residence and associated site improvements on an undeveloped parcel within the Sonoma County Coastal Zone. The residence will be a low-profile, coastal-appropriate design with limited grading, driveway access from Highway 1, public water and on site wastewater disposal.

Acreage 0.22	Number of new lots proposed none
Site Served by Public Water? ☑ Yes ☐ No	Site Served by Public Sewer? ☐ Yes ☑ No

TO BE COMPLETED BY PRMD STAFF

Planning Area	Supervisorial District	☐ Critical Habitat	☐ Urban Service	Groundwater Availability	☐ 1 / 2 ☐ 3 / 4
Current Zoning		☐ NPDES	☐ Williamson Act		
		Specific/Area Plan		Subject to CEQA	☐ EX ☐ YES
General Plan Land Use		Parcel Specific Policy			
Application resolve planning violation? ☐ Yes ☐ No		Violation? ☐ Yes ☐ No		File No.	
Previous Files		Penalty application? ☐ Yes ☐ No			
Application accepted by		Date			
Approved by		Date			

Coastal Permit Application
Proposal Statement

Project Address: 4920 Highway 1, Bodega Bay, CA
APN: 101-060-035

The proposed project involves the construction of a new single-family residence and associated site improvements on an undeveloped parcel located within the Sonoma County Coastal Zone. The property is currently vacant and has not been previously developed. The proposed use is residential in nature and is consistent with surrounding land uses and zoning in the area.

The project consists of a detached single-family home designed with a low-profile form and coastal-appropriate architectural character. The residence is designed with restrained massing and modest height to be compatible with the surrounding coastal setting and nearby residences. No subdivision, lot adjustment, or change in land use is proposed.

Site improvements will include driveway access, on-site parking, utilities, and other infrastructure customarily associated with a single-family residence. The property will be served by public water, with on-site wastewater disposal. Exterior materials and colors will be muted and coastal-appropriate, and exterior lighting will be downcast and shielded. Landscaping and site design will support residential use while maintaining compatibility with the surrounding environment, with plantings anticipated to rely primarily on existing or native vegetation appropriate to the coastal setting.

Limited grading is proposed in association with the building footprint, driveway improvements, and minor site contouring intended to improve site integration. Grading will be confined to the minimum necessary to accommodate the residence and access, with drainage designed to follow existing site patterns and comply with County requirements. Stormwater management and erosion control will be addressed through project design and supporting technical materials submitted with the application.

The project site is adjacent to Highway 1 and may be visible from public viewpoints. The proposed residence is intended to maintain a low visual profile and to be visually compatible with the scenic character of the coastal area, with careful attention to scale, siting, and materials so that it fits comfortably within the existing neighborhood context. Landscaping and site design measures will further assist in integrating the development into its surroundings.

The project does not propose any commercial, industrial, or institutional uses. Noise and traffic associated with the project will be typical of a single-family residence.

The project will introduce a modest residential structure on a currently vacant parcel, resulting in a limited and localized change in site appearance consistent with other nearby residential development. The scale, intensity, and frequency of use will be typical of a single-family residence and consistent with surrounding development and applicable coastal zoning

standards. No future expansion or change in use beyond the residential development proposed is anticipated.

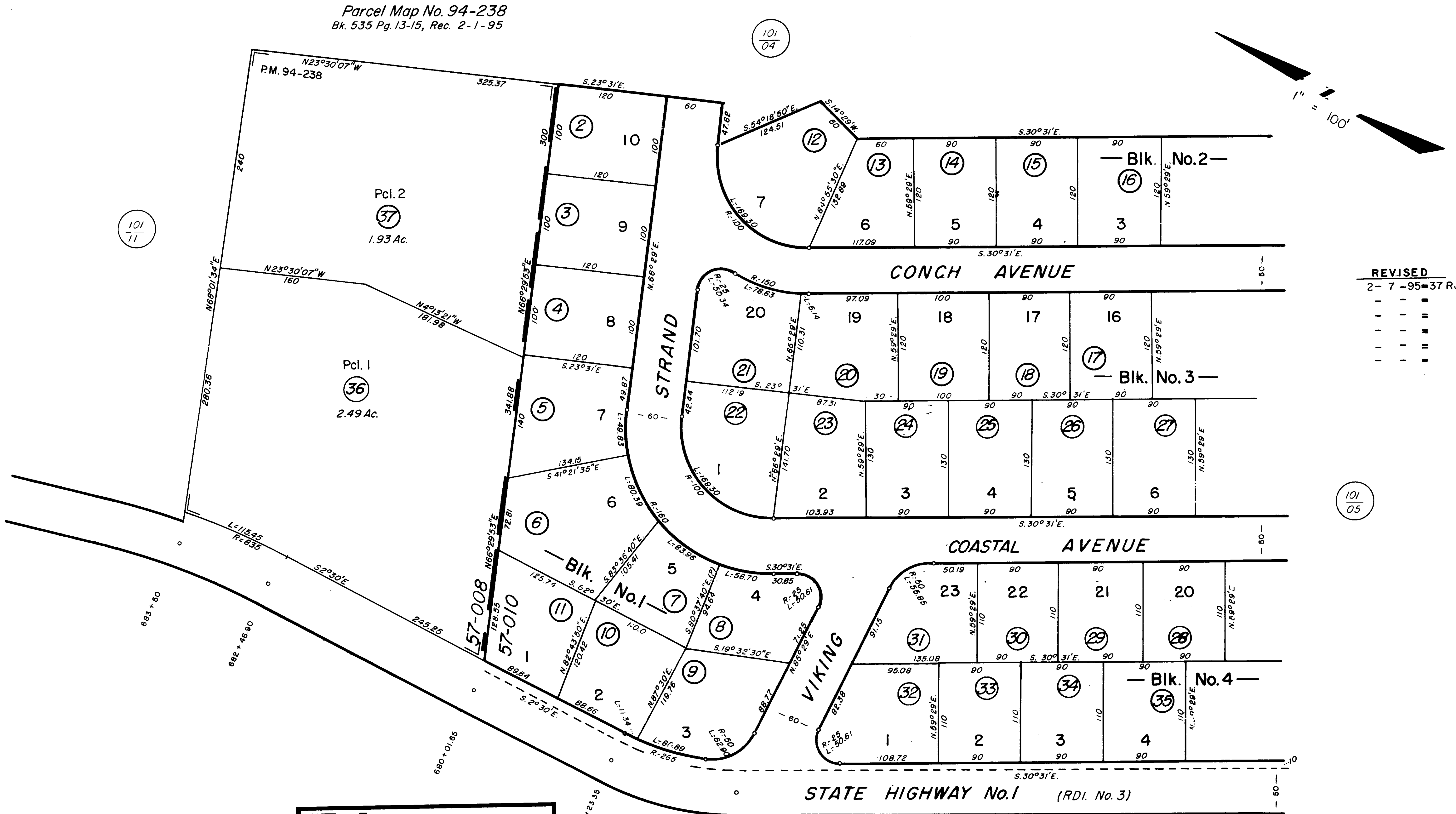
Potential environmental considerations, including biological resources, cultural resources, geology, drainage, and other site constraints, are evaluated through technical studies prepared by qualified professionals and submitted in support of this application. These materials describe existing site conditions and provide information necessary to ensure the project is reviewed in accordance with the California Coastal Act and the Sonoma County Local Coastal Program.

The applicant respectfully requests review and approval of this Coastal Development Permit application and looks forward to working collaboratively with County staff and reviewing agencies throughout the review process.

Prepared by the Applicant

COUNTY ASSESSOR'S PARCEL MAP

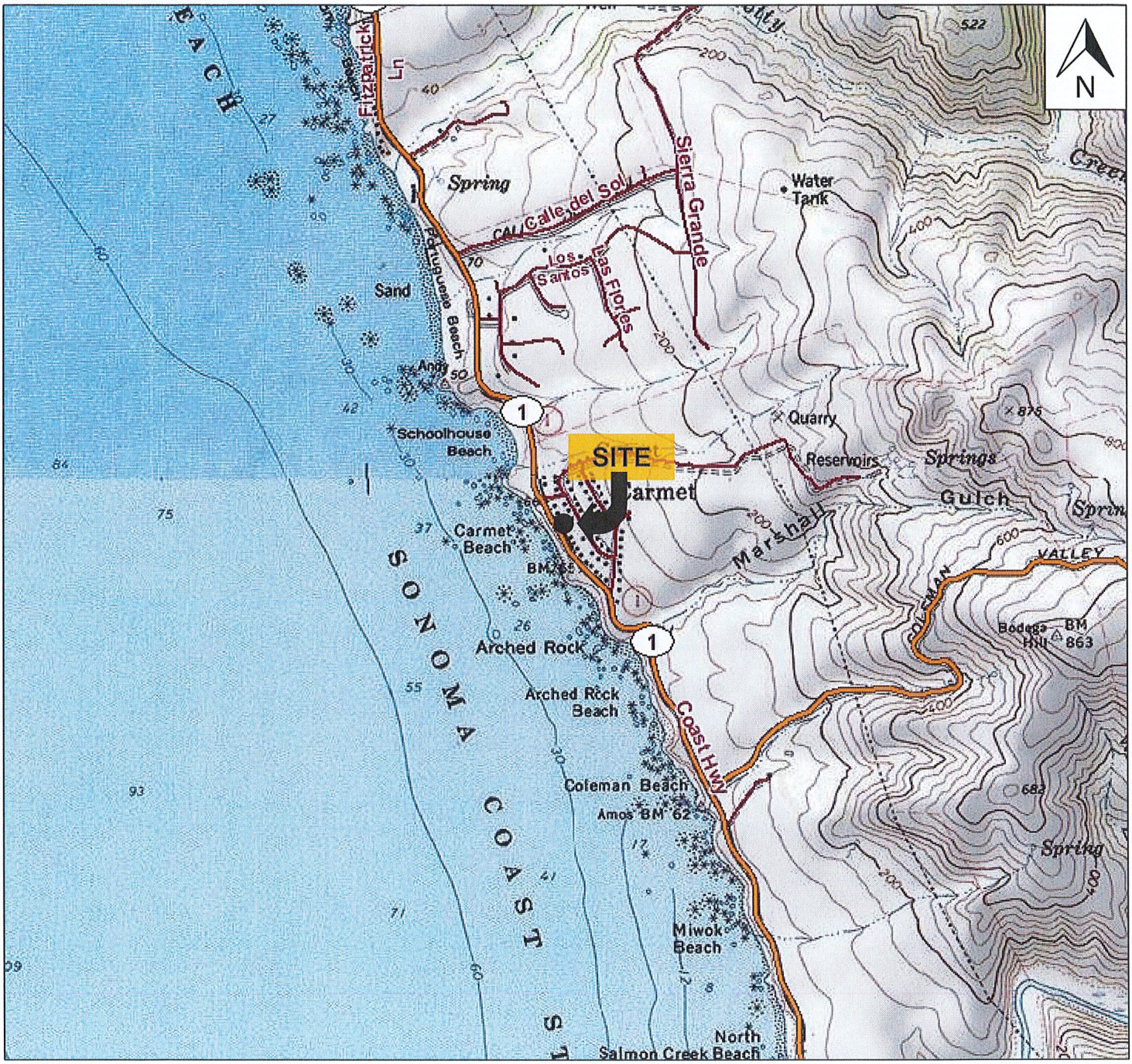
TAX RATE AREA 57-008, 57-010 — **101-06**



101/04

Part of CARMET-BY-THE-SEA No.1

Assessor's Map Bk101 Pg06
Sonoma County, Calif.



SCALE: 1:24,000

REFERENCE: USGS BODEGA HEAD, CALIFORNIA 7.5 MINUTE QUADRANGLE, DATED 1972.

PJC & Associates, Inc. *Consulting Engineers & Geologists*	**SITE LOCATION MAP** PROPOSED NEW RESIDENCE & GEOLOGIC STABILITY OF BLUFF TOP DEVELOPMENT 4920 HIGHWAY 1 BODEGA BAY, CALIFORNIA	PLATE **1**
	Proj. No: P1231.01 Date: 8/2025 App'd by: PJC	

GENERAL NOTES

1. THESE NOTES APPLY TO ALL DRAWINGS AND GOVERN UNLESS NOTED OR OTHERWISE INDICATED FOR MORE SPECIFIC REQUIREMENTS APPLICABLE TO PARTICULAR DIVISIONS OF THE WORK. SEE SPECIFICATIONS AND SHEET NOTES CONTAINED IN SUBSECTIONS OF THESE DRAWINGS.
2. ALL WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE SONOMA COUNTY AND CALIFORNIA BUILDING CODES, ZONING ORDINANCES, AND CONDITIONS OF APPROVAL, INCLUDING COASTAL PERMIT REQUIREMENTS.
3. CONTRACTOR SHALL VISIT THE SITE AND BE FULLY COGNIZANT OF ALL FIELD CONDITIONS PRIOR TO COMMENCING CONSTRUCTION. ANY CONFLICTS OR DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND OWNER.
4. CONTRACTOR TO VERIFY ALL EXISTING DIMENSIONS IN FIELD. ON DRAWINGS, ONLY WRITTEN DIMENSIONS SHALL BE USED. DO NOT SCALE DRAWINGS.
5. DRAWINGS INDICATE NEW CONSTRUCTION UNLESS NOTED AS (E) FOR EXISTING. DUE TO THE NATURE OF THE WORK, ADJUSTMENTS MAY BE REQUIRED IN THE FIELD TO MEET DESIGN INTENT.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED BUILDING PERMITS, INSPECTIONS, AND APPROVALS NECESSARY TO COMPLETE THE WORK.
7. CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND SUBCONTRACTORS AND SHALL BE RESPONSIBLE FOR ANY ACTS, OMISSIONS, OR ERRORS OF SUBCONTRACTORS OR PERSONS DIRECTLY OR INDIRECTLY EMPLOYED BY THEM.
8. ALL CONSTRUCTION MATERIALS AND SUPPLIES SHALL BE STORED, HANDLED, AND INSTALLED IN ACCORDANCE WITH MANUFACTURER 'S RECOMMENDATIONS AND APPLICABLE CODES.
9. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER GRAPHIC REPRESENTATIONS.
10. ALL FRAMING SHALL BE WOOD CONSTRUCTION UNLESS NOTED OTHERWISE, AND SHALL COMPLY WITH CURRENT CALIFORNIA BUILDING CODE AND LOCAL AMENDMENTS.
11. CONTRACTOR SHALL COORDINATE GRADING, DRAINAGE, DRIVEWAY, AND UTILITY CONNECTIONS AS SHOWN ON CIVIL AND SITE DRAWINGS.
12. GARAGE FLOOR SHALL BE SLOPED AS INDICATED ON DRAWINGS. ANY REQUIRED INTERIOR STEPS OR TRANSITIONS SHALL BE CONSTRUCTED PER DIMENSIONS SHOWN.
13. PROTECT ADJACENT PROPERTIES AND EXISTING SITE CONDITIONS DURING CONSTRUCTION. ANY DAMAGE SHALL BE REPAIRED BY CONTRACTOR.
14. ALL MEASUREMENTS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
15. CONTRACTOR SHALL MAINTAIN SAFE ACCESS TO ADJACENT PROPERTIES AND PUBLIC RIGHT-OF-WAY DURING CONSTRUCTION.
16. ANY FIELD CHANGES SHALL REQUIRE WRITTEN APPROVAL OF ARCHITECT PRIOR TO EXECUTION.

PROJECT DESCRIPTION

NEW CONSTRUCTION OF A TWO - STORY SINGLE - FAMILY RESIDENCE WITH AN ENCLOSED ATTACHED GARAGE ON A RESIDENTIAL LOT. THE RESIDENCE INCLUDES TWO BEDROOMS, TWO AND A HALF BATHROOMS, OFFICE, OPEN LIVING AND KITCHEN AREAS, AND STORAGE SPACES.

THE PROJECT INCLUDES SITE IMPROVEMENTS SUCH AS GRADING, DRIVEWAY CONSTRUCTION, DRAINAGE MODIFICATIONS, LANDSCAPING, AND UTILITY CONNECTIONS. AN ENCLOSED GARAGE PROVIDES REQUIRED COVERED PARKING AND ADDITIONAL STORAGE / WORKSPACE.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE SONOMA COUNTY AND CALIFORNIA BUILDING CODES AND COASTAL PERMIT REQUIREMENTS.

PROJECT TEAM

CONTRACTOR

TBD

OWNER

EDOARDO CROCE
(415) 815-7810
edoardo.croce@gmail.com

DESIGNER

YCD STUDIO
1323 61ST STREET
EMERYVILLE, CA. 94608
(415) 300-0057
CONTACT: EGE YENER
info@ycd.studio

SHEET INDEX

ZONING SUMMARY

LOT COVERAGE	EXISTING	PROPOSED
RESIDENCE	N/A	2690 SF
LOT AREA	9900 SF	9900 SF
% LOT COVERAGE	N/A	%28

ZONING PARAMETER	REQUIREMENT	PROPOSED
HEIGHT		
AVERAGE SITE GRADE TO HIGHEST POINT OF ROOF	24' - 0" MAX.	22' - 6"
SETBACKS		
FRONT SETBACK	30' - 0" MIN. 55'-0" FROM ROAD CENTERLINE	40' - 0" 75' - 8"
SIDE SETBACK	10' - 0" MIN.	12' - 0" NW 10' - 0" SE
REAR SETBACK	20' - 0" MIN.	20' - 0"

PROJECT INFORMATION

ADDRESS
4920 HIGHWAY 1, BOGEDA BAY, CA 94923

API
101-060-035

ZONING
RR CC B7, G SR

LAND USE
RR 2

LOT AREA (SF)
9900 SF

PROPOSED FLOOR AREA (SF)
2690 SF

AVERAGE SITE GRADE (ELEVATION)

SITE GRADE MAX: 71' - 0"
SITE GRADE MIN: 69' - 0"

AVERAGE GRADE: 70' - 0"

AVERAGE GRADE CALCULATED AS
ARITHMETIC MEAN OF MIN. AND MAX. SITE GRADES.

DRAWING SYMBOLS

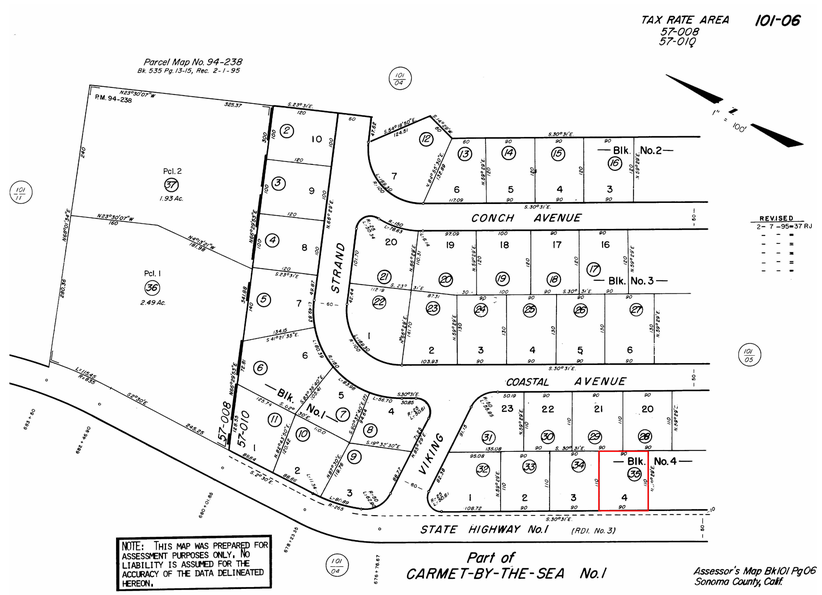
- FACE OF FRAMING
- 1 / A-1.01 — VIEW NAME, 1/4" = 1'-0" — SHEET TITLE SCALE
- A — GRIDLINE
- 12 / 1.5 — SLOPE TAG ELEVATION
- N — NORTH SIGN
- 1 1/2" / 1'-0" — SLOPE TAG PLAN
- ROOM NAME / 000 — ROOM NAME TAG
- Name / Elevation — ELEVATION MARKER
- 0 / 00 — SECTION / ELEVATION REFERENCE

ABBREVIATIONS

FFE	FINISH FLOOR ELEVATION	SE	SOUTHEAST
F.O.S.	FACE OF STUD	SF	SQUARE FOOT
MAX	MAXIMUM	T.O.	TOP OF
MIN	MINIMUM	TBD	TO BE DETERMINED
NW	NORTHWEST	TYP	TYPICAL
OH	OVERHEAD		

VICINITY MAP

COUNTY ASSESSORS'S PARCEL MAP



NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

4920 HIGHWAY 1
BOGEDA BAY, CA

DESIGNER

YCD STUDIO
1323 61ST STREET
EMERYVILLE, CA 94608
(415) 300-0057
info@ycd.studio

OWNER

EDOARDO CROCE
(415) 815-7810
edoardo.croce@gmail.com

CONSULTANT

STAMP

ISSUE DATE/ REVISION

NO.	DATE	DESCRIPTION
	2/1/2026	COASTAL PERMIT APPLICATION

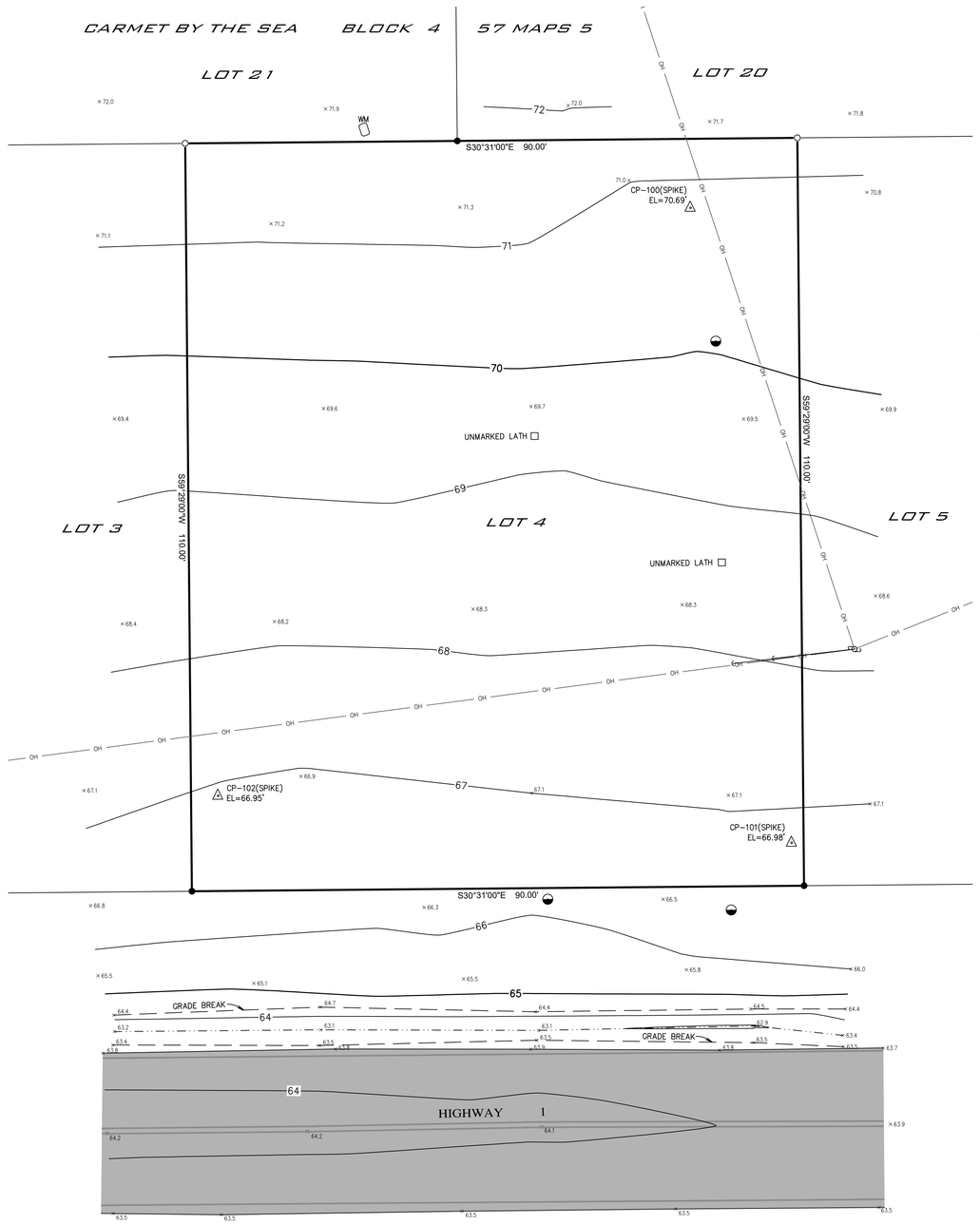
REF # --

DRAWING TITLE

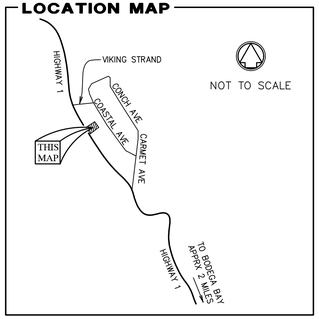
COVER SHEET

DRAWING NO.

G-0.00



LOCATION MAP



LEGEND

- PROPERTY LINE
- OH — OVERHEAD LINES
- FLOW LINE
- SURVEY CONTROL POINT
- JOINT POLE
- GUY ANCHOR
- PERCOLATION TEST HOLE
- 3/4" IRON PIPE, FOUND (NOT TAGGED)
- 1/2" IRON PIPE, SET (TAGGED PLS 8992)
- WM — WATER METER
- EL — ELEVATION

BENCHMARK

NGS OPUS OBSERVATION AT CP-100.
ELEVATION = 70.69' (NAVD88).

MAPPING NOTES

THE ELEVATIONS AND RELATIVE POSITIONS OF FEATURES SHOWN HEREON ARE IN CONFORMANCE WITH THE NATIONAL STANDARDS OF THE AMERICAN CONGRESS ON SURVEYING AND MAPPING.

A TITLE REPORT WAS NOT SUPPLIED, THEREFORE EASEMENTS OF RECORD (IF ANY) WERE NOT PLOTTED.

PROPERTY LINES SHOWN HEREON DERIVED FROM SURVEY TIES TO MONUMENTS AS SHOWN ON TRACT NO 34, 57 MAPS 4–5.

MONUMENTS SHOWN AS SET HEREON ARE SUBJECT TO AN IN PROGRESS CORNER RECORD.

JOSEPH L. HUGHES ★ No. 8992 ★ PLS 8992

PROFESSIONAL LAND SURVEYOR — JOSEPH L. HUGHES — No. 8992 — STATE OF CALIFORNIA

ATTENTION

THIS MAP IS BEING PROVIDED IN AN ELECTRONIC CAD FILE AT THE REQUEST OF THE CLIENT. SINCE THE CAD FILE IS ALTERABLE, IT CANNOT CONSTITUTE OUR FINISHED WORK PRODUCT. ACCORDINGLY, WE DELIVERED A SIGNED PDF ALONG WITH THE CAD FILE. THE SIGNED PDF CONSTITUTES OUR PROFESSIONAL WORK PRODUCT, AND IT MUST BE REFERRED TO FOR THE ORIGINAL DRAWING INFORMATION. PHELPS & ASSOCIATES, INC., SHALL NOT BE RESPONSIBLE FOR ANY MODIFICATIONS MADE TO THE ELECTRONIC CAD FILE, NOR FOR ANY PRODUCTS DERIVED THEREFROM.

APN 101–060–035

TOPOGRAPHIC MAP

EDOARDO CROCE

4920 HIGHWAY 1, BODEGA BAY

COUNTY OF SONOMA —— STATE OF CALIFORNIA

DATE: 2025–08–01

SCALE: 1" = 10'

SHEET: 1 OF 1

JOB No. 146–B3–2025

PHELPS & ASSOCIATES
LAND SURVEYORS
632 PETALUMA AVE, SEBASTOPOL, CALIFORNIA 95472 / (707) 829-0400

LEGEND

- 300 PROPOSED 1' CONTOUR
- 300 EXISTING 1' CONTOUR
- .032 DIRECTION OF FLOW
- 107.13 FG FINISHED GRADE ELEVATION
- 107.13 FS FINISHED SURFACE ELEVATION
- 107.13 DI DRAIN INLET ELEVATION
- 107.13 IE INVERT ELEVATION
- EXISTING PROPERTY LINES
- SS EXISTING SEWER LINE
- SS 4" PVC SEWER LINE @ 2% MIN SLOPE
- W EXISTING WATER LINE
- W 1" PVC WATER SERVICE LINE
- EXISTING ROADSIDE SWALE
- PROPOSED YARD SWALE @ 1% MIN SLOPE
- ST EXISTING STORM DRAIN LINE
- ST 4" SDR-35 STORM DRAIN @ 1% MIN SLOPE
- 4" AREA DRAIN NDS OR EQUAL
- PROPOSED FENCE
- PROPOSED CONCRETE
- EXISTING PAVEMENT
- CURTAIN DRAIN

QUANTITIES

CUT: 80 CY
FILL: 80 CY

GRADING QUANTITIES NOTED ABOVE ARE APPROXIMATE AND ARE PROVIDED HERON FOR PERMIT PURPOSES ONLY. QUANTITIES ARE BASED ON THE DIFFERENCE BETWEEN THE EXISTING SURFACES AND PROPOSED PAD/SUBGRADE SURFACES. VARIATIONS DUE TO LOSS FROM CLEARING AND GRUBBING, STRIPPING, UNUSABLE MATERIAL AND REMEDIAL GRADING ARE NOT CONSIDERED NOR FACTORED INTO THESE QUANTITIES. CONTRACTOR SHALL VERIFY QUANTITIES WITH THEIR OWN VOLUME TAKEOFFS. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN INDEPENDENT QUANTITY AND MATERIAL TAKEOFFS AND CONSTRUCT THE DESIGN INDICATED ON THESE DRAWINGS. PROJECT TO BE BID BASED ON THE CONTRACTOR'S OWN ESTIMATES.

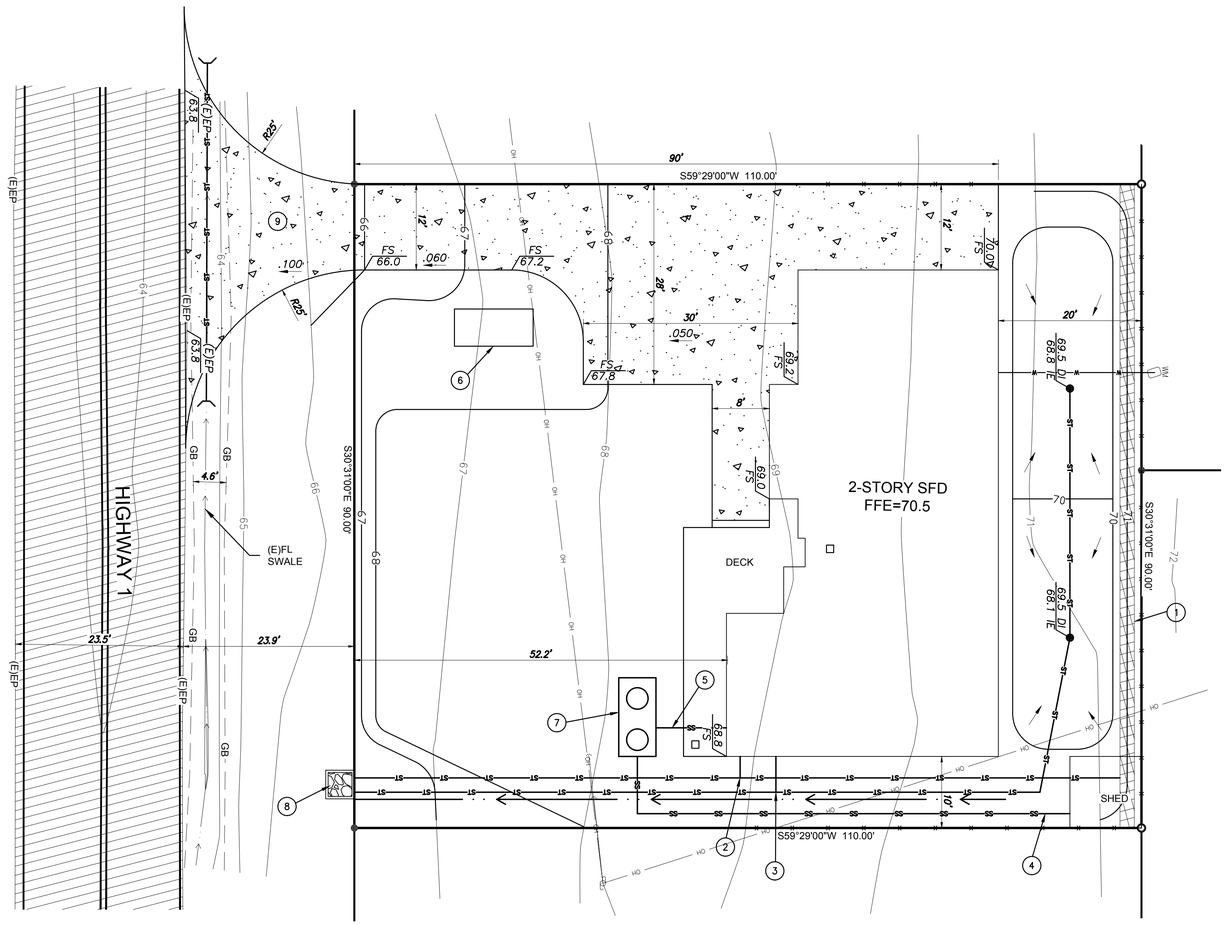
REQUIRED SETBACKS

RESIDENTIAL SINGLE FAMILY:	
FRONT YARD	30'
SIDE YARD	10'
REAR YARD	20'

KEY NOTES

1. CURTAIN DRAIN
2. 4" SDR-35 CONNECTED TO CURTAIN DRAIN & PERIMETER SUBDRAIN
3. 4" SDR-35 CONNECTED TO YARD DRAINS AND DOWNSPOUTS
4. 4" PVC SEWER LINE TO THE INCINERATOR
5. 4" PVC SEWER LINE TO THE WASTE TANK
6. PROPANE TANK
7. WASTE TANK
8. RIP RAP AT DRAIN OUTLET
9. DRIVEWAY ENTRANCE PER COUNTY OF SONOMA DWG 815

GRADING NOTE:
LANDSCAPE SURFACES TO SLOPE AWAY FROM STRUCTURE AT 5% MINIMUM FOR 10' AND HARDSCAPES 2% MINIMUM FOR 10'.



CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

4920 HIGHWAY 1
BOGEDA BAY, CA

DESIGNER

YCD STUDIO
1323 61ST STREET
EMERYVILLE, CA 94608
(415) 300-0057
info@ycd.studio

OWNER

EDOARDO CROCE
(415) 815-7810
edoardo.croce@gmail.com

CONSULTANT

MLP CONSULTING LLC
2331 DANA CT
CARLSBAD, CA 92008
(209) 609-1564
MARKPEKAREK7@GMAIL.COM

STAMP

ISSUE DATE / REVISION

NO.	DATE	DESCRIPTION

REF # --

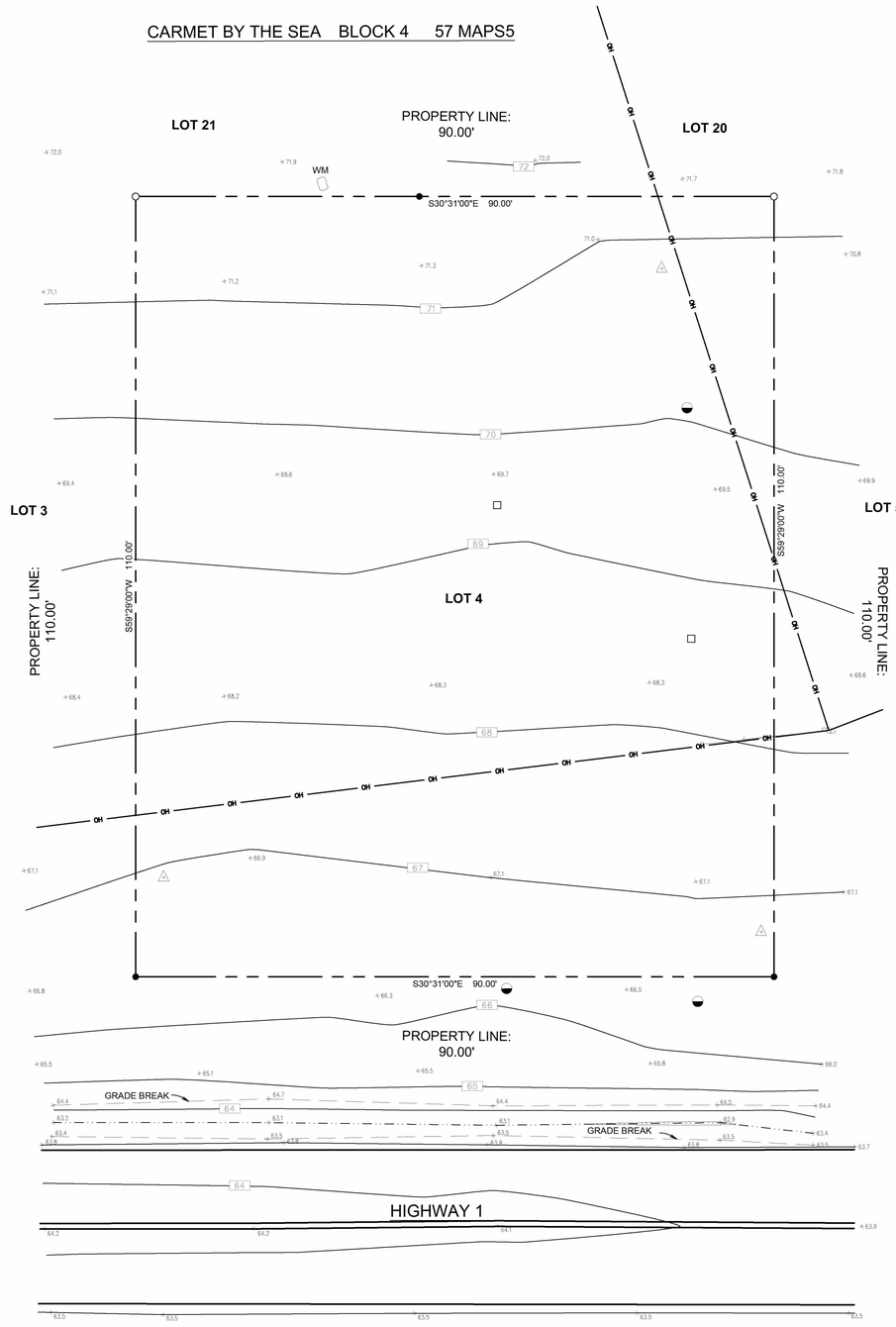
DRAWING TITLE

Grading & Drainage Plan

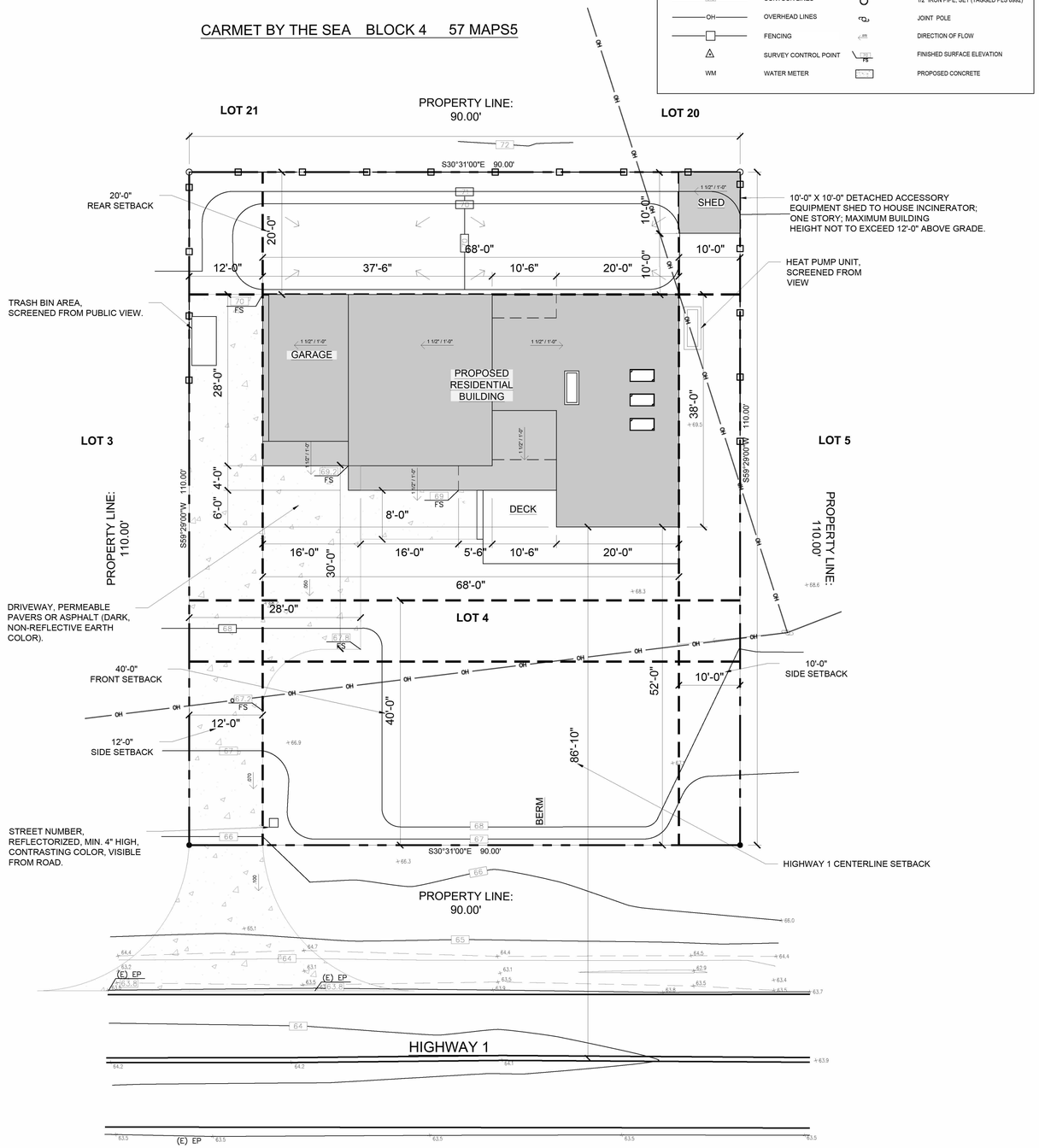
DRAWING NO.

C-1.00

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"



1 EXISTING SITE PLAN
A-1.00 1" = 10'-0"



2 PROPOSED SITE PLAN
A-1.00 1" = 10'-0"

0' 8' 16' 32'

N

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

4920 HIGHWAY 1
BOGEDA BAY, CA

DESIGNER

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ISSUE DATE/ REVISION

NO.	DATE	DESCRIPTION
	2/1/2026	COASTAL PERMIT APPLICATION

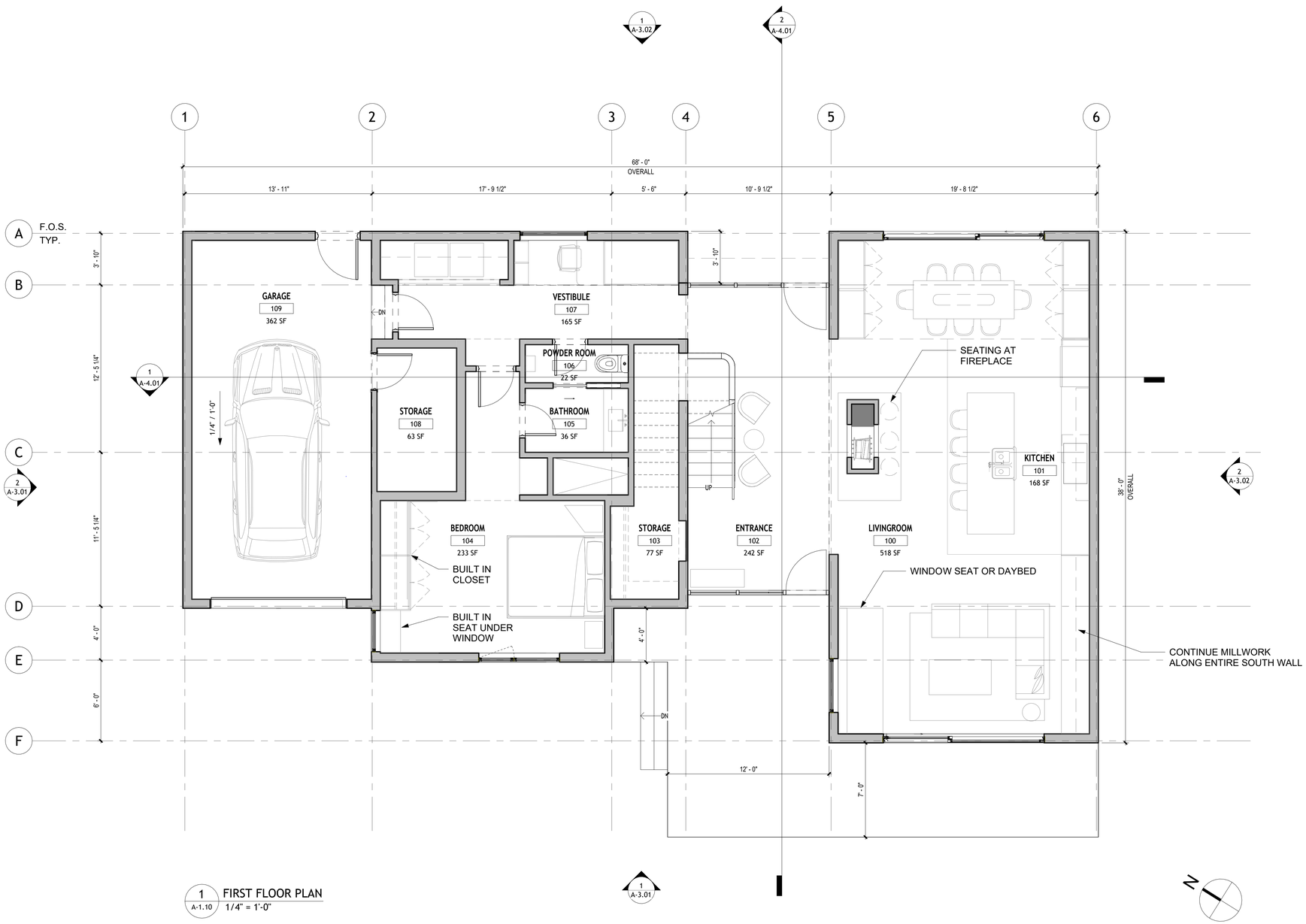
REF # --

DRAWING TITLE

SITE PLANS

DRAWING NO.

A-1.00



1 FIRST FLOOR PLAN (A-1.10)
1/4" = 1'-0"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

4920 HIGHWAY 1
BOGEDA BAY, CA

DESIGNER

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CONSULTANT

STAMP

ISSUE DATE/ REVISION

NO.	DATE	DESCRIPTION
	2/1/2026	COASTAL PERMIT APPLICATION

REF # --

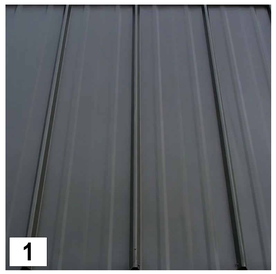
DRAWING TITLE

FIRST FLOOR PLAN

DRAWING NO.

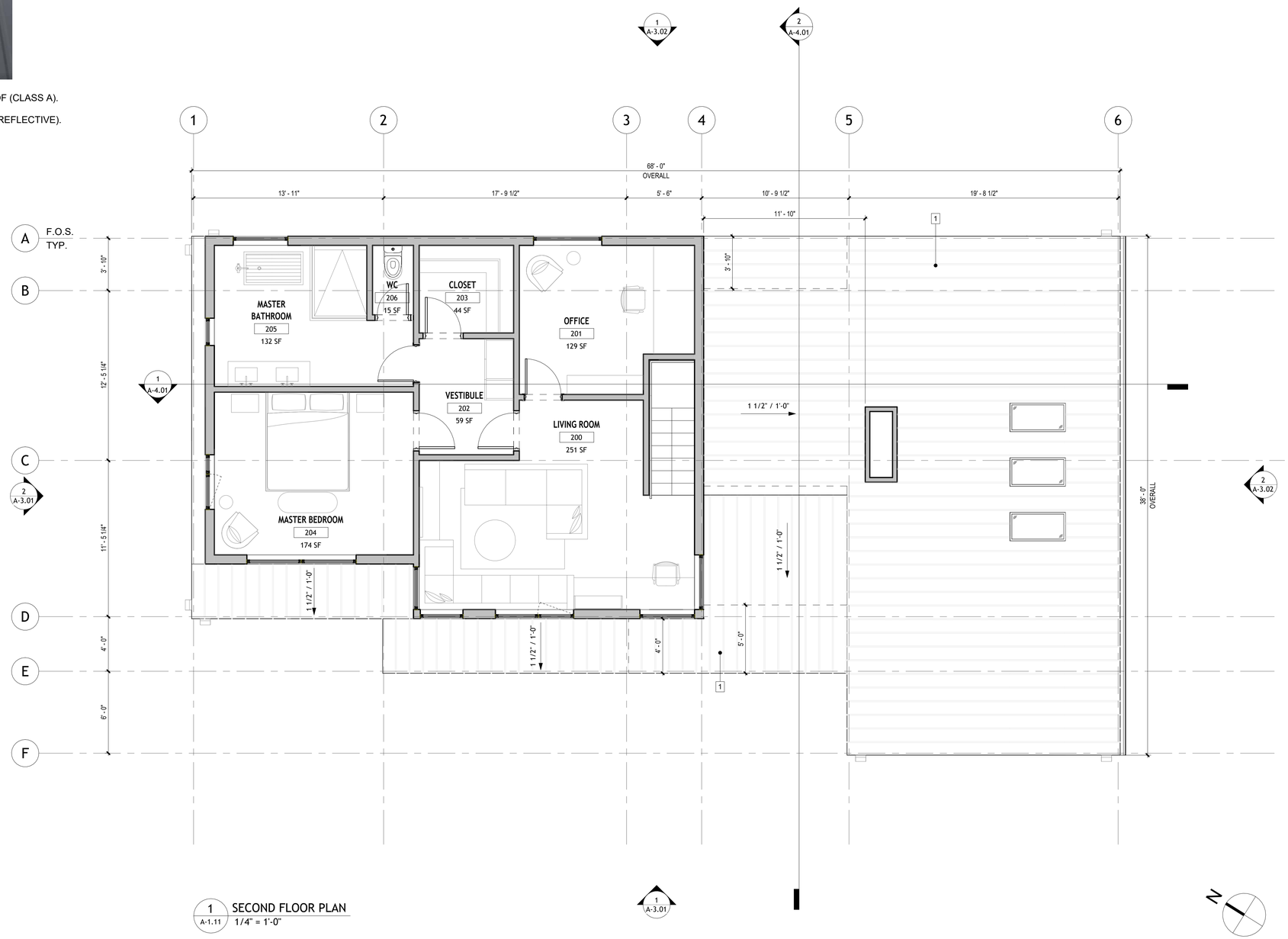
A-1.10

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"



ROOFING: STANDING SEAM METAL ROOF (CLASS A).

FINISH: MATTE DARK BRONZE (NON-REFLECTIVE).



1 A-1.11 SECOND FLOOR PLAN
1/4" = 1'-0"

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

4920 HIGHWAY 1
BOGEDA BAY, CA

DESIGNER

YCD STUDIO
1323 61ST STREET
EMERYVILLE, CA 94608
(415) 300-0057
info@ycd.studio

OWNER

EDOARDO CROCE
(415) 815-7810
edoardo.croce@gmail.com

CONSULTANT

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NO.	DATE	DESCRIPTION
	2/1/2026	COASTAL PERMIT APPLICATION

REF # --

DRAWING TITLE

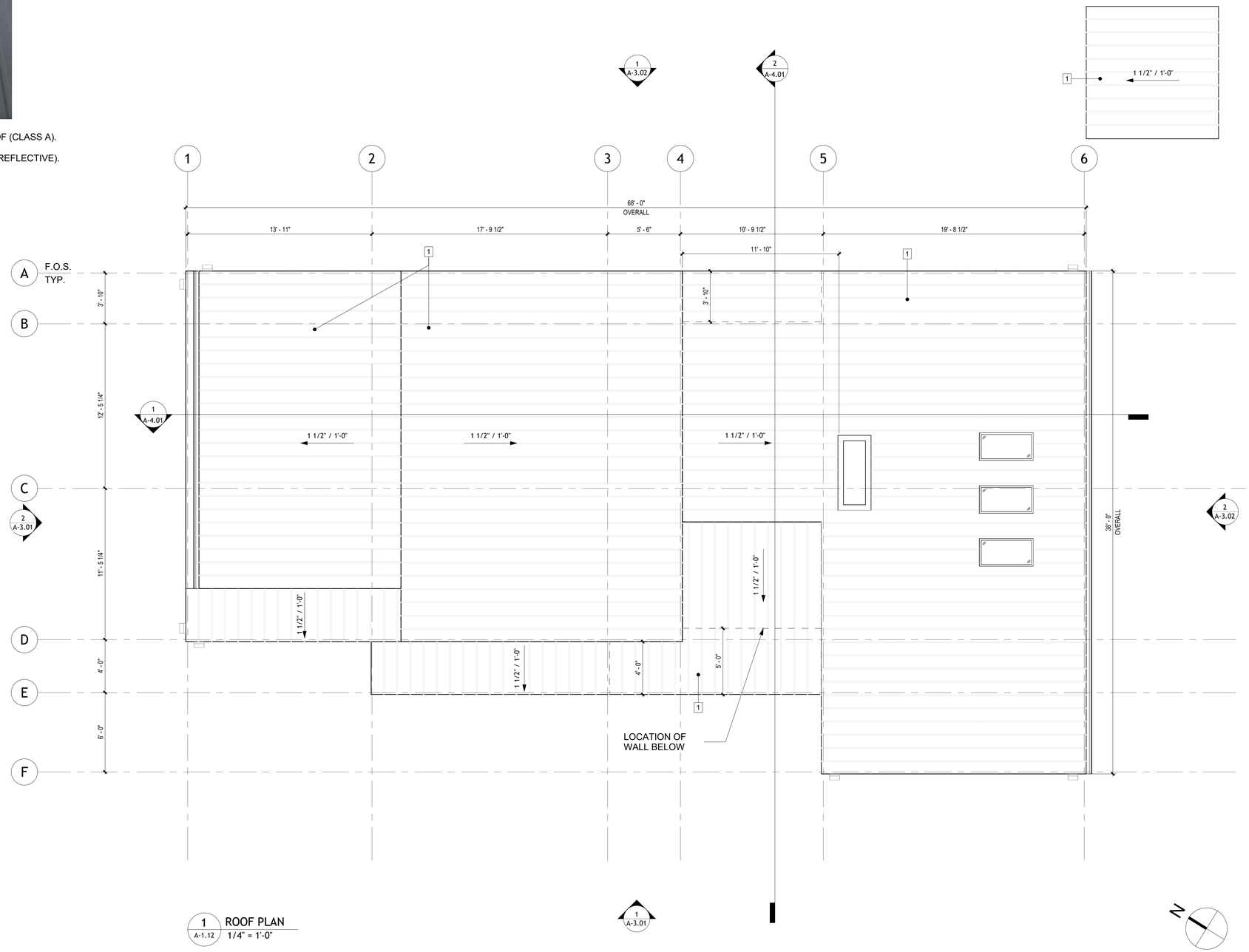
SECOND FLOOR PLAN

DRAWING NO.

A-1.11

ROOFING: STANDING SEAM METAL ROOF (CLASS A).

FINISH: MATTE DARK BRONZE (NON-REFLECTIVE).



1 A-1.12 ROOF PLAN
1/4" = 1'-0"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

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BOGEDA BAY, CA

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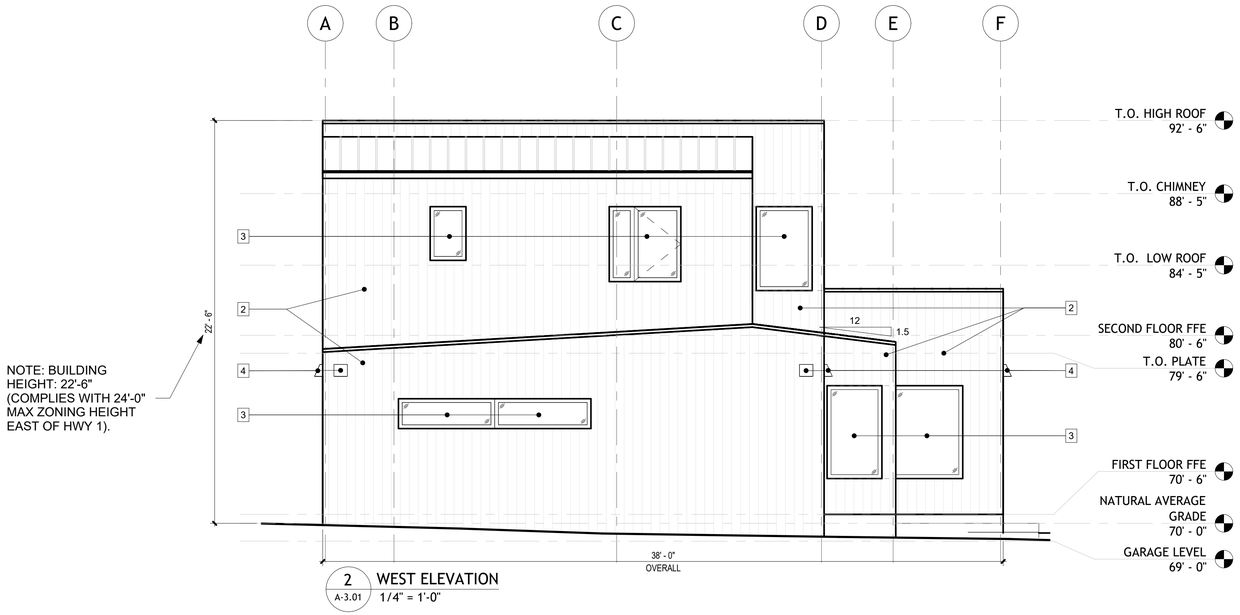
DRAWING TITLE

ROOF PLAN

DRAWING NO.

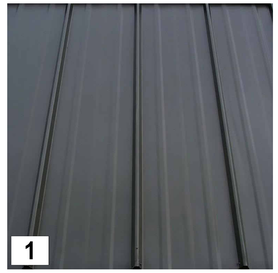
A-1.12

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"



2 A-3.01 WEST ELEVATION
1/4" = 1'-0"

EXTERIOR MATERIALS LEGEND



ROOFING: STANDING SEAM METAL ROOF (CLASS A).

FINISH: MATTE DARK BRONZE (NON-REFLECTIVE).

WOOD SIDING: IGNITION RESISTANT ASSEMBLY, (OVER 5/8" TYPE X GYPSUM).

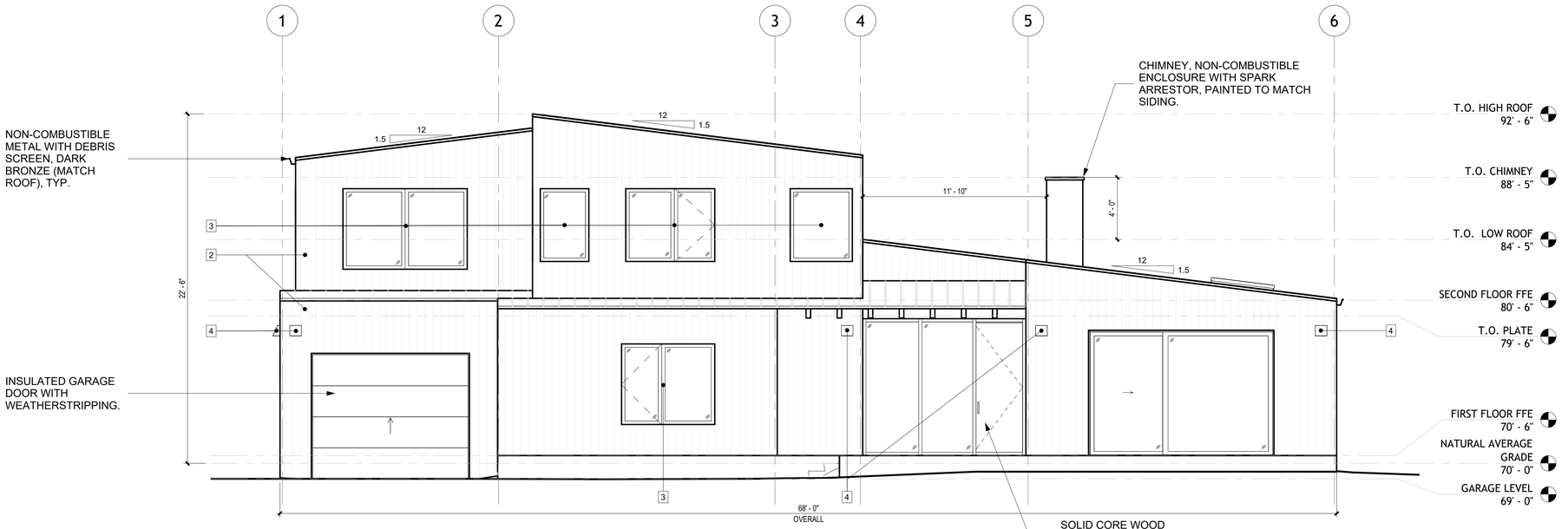
WINDOWS: ALUMINUM CLAD WOOD FRAMES.

FINISH: DARK BRONZE ANODIZED (NON-REFLECTIVE).

GLAZING: TEMPERED DUAL PANEL

EXTERIOR LIGHTING: DARK SKY COMPLIANT, (DOWNWARD SHIELDED).

COLOR: DARK BRONZE (MATCH WINDOW FRAMES) OF MATTE BLACK.



1 A-3.01 SOUTH ELEVATION
1/4" = 1'-0"

GENERAL NOTE: ALL EXTERIOR LIGHTING SHALL BE "DARK SKY" COMPLIANT, FULLY SHIELDED, AND DIRECTED DOWNWARD. LIGHT SOURCES SHALL NOT EXCEED 700 LUMENS AND 3000 KELVIN COLOR TEMPERATURE. NO LIGHT TRESPASS SHALL EXCEED 1 LUX AT THE PROPERTY LINE.

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

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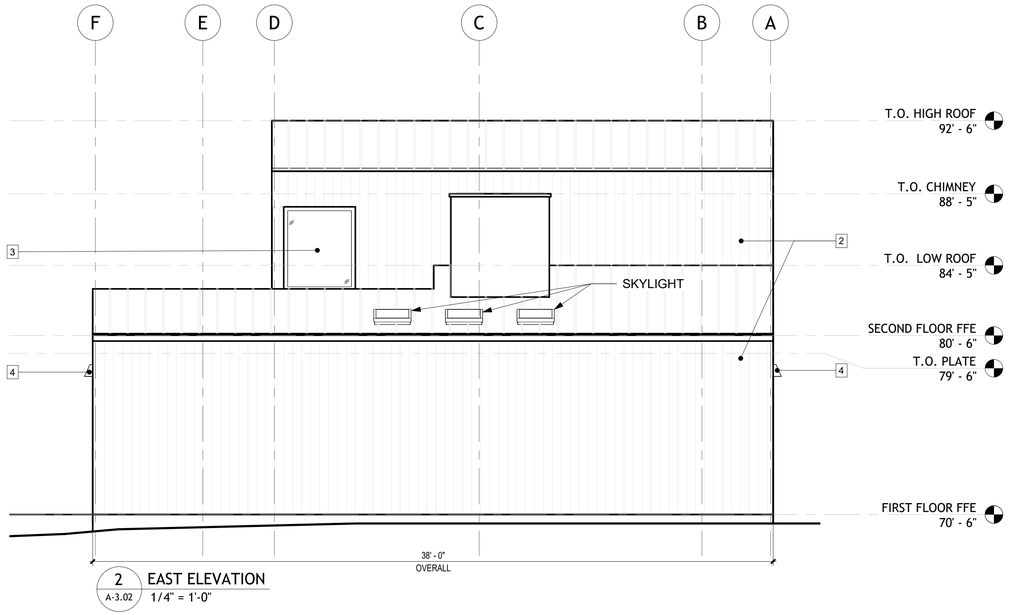
DRAWING TITLE

ELEVATIONS

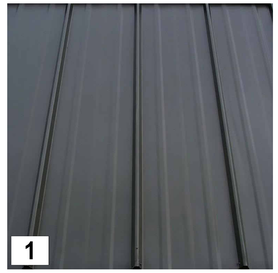
DRAWING NO.

A-3.01



2 EAST ELEVATION
A-3.02 1/4" = 1'-0"

EXTERIOR MATERIALS LEGEND



ROOFING: STANDING SEAM METAL ROOF (CLASS A).

FINISH: MATTE DARK BRONZE (NON-REFLECTIVE).

WOOD SIDING: IGNITION RESISTANT ASSEMBLY, (OVER 5/8" TYPE X GYPSUM).

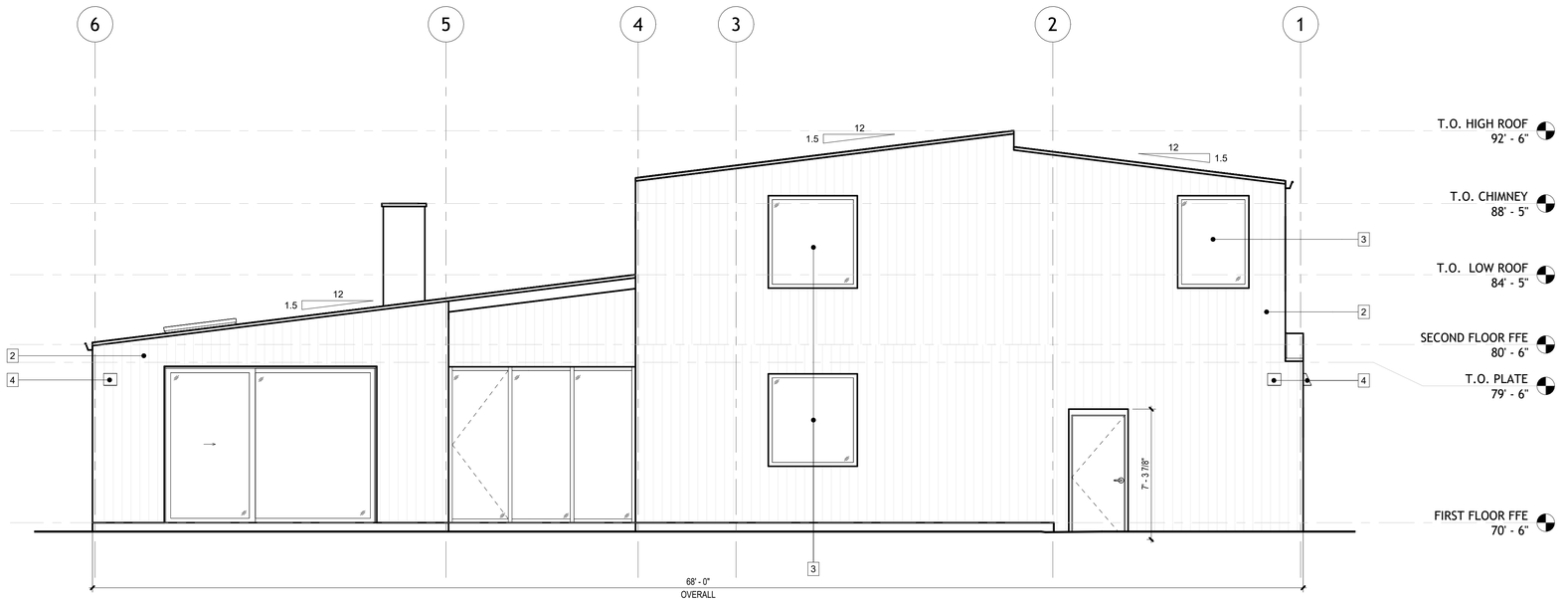
WINDOWS: ALUMINUM CLAD WOOD FRAMES.

FINISH: DARK BRONZE ANODIZED (NON-REFLECTIVE).

GLAZING: TEMPERED DUAL PANEL

EXTERIOR LIGHTING: DARK SKY COMPLIANT, (DOWNWARD SHIELDED).

COLOR: DARK BRONZE (MATCH WINDOW FRAMES) OF MATTE BLACK.



1 NORTH ELEVATION
A-3.02 1/4" = 1'-0"

GENERAL NOTE: ALL EXTERIOR LIGHTING SHALL BE "DARK SKY" COMPLIANT, FULLY SHIELDED, AND DIRECTED DOWNWARD. LIGHT SOURCES SHALL NOT EXCEED 700 LUMENS AND 3000 KELVIN COLOR TEMPERATURE. NO LIGHT TRESPASS SHALL EXCEED 1 LUX AT THE PROPERTY LINE.

CROCE & FARRELL RESIDENCE

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EMERYVILLE, CA 94608
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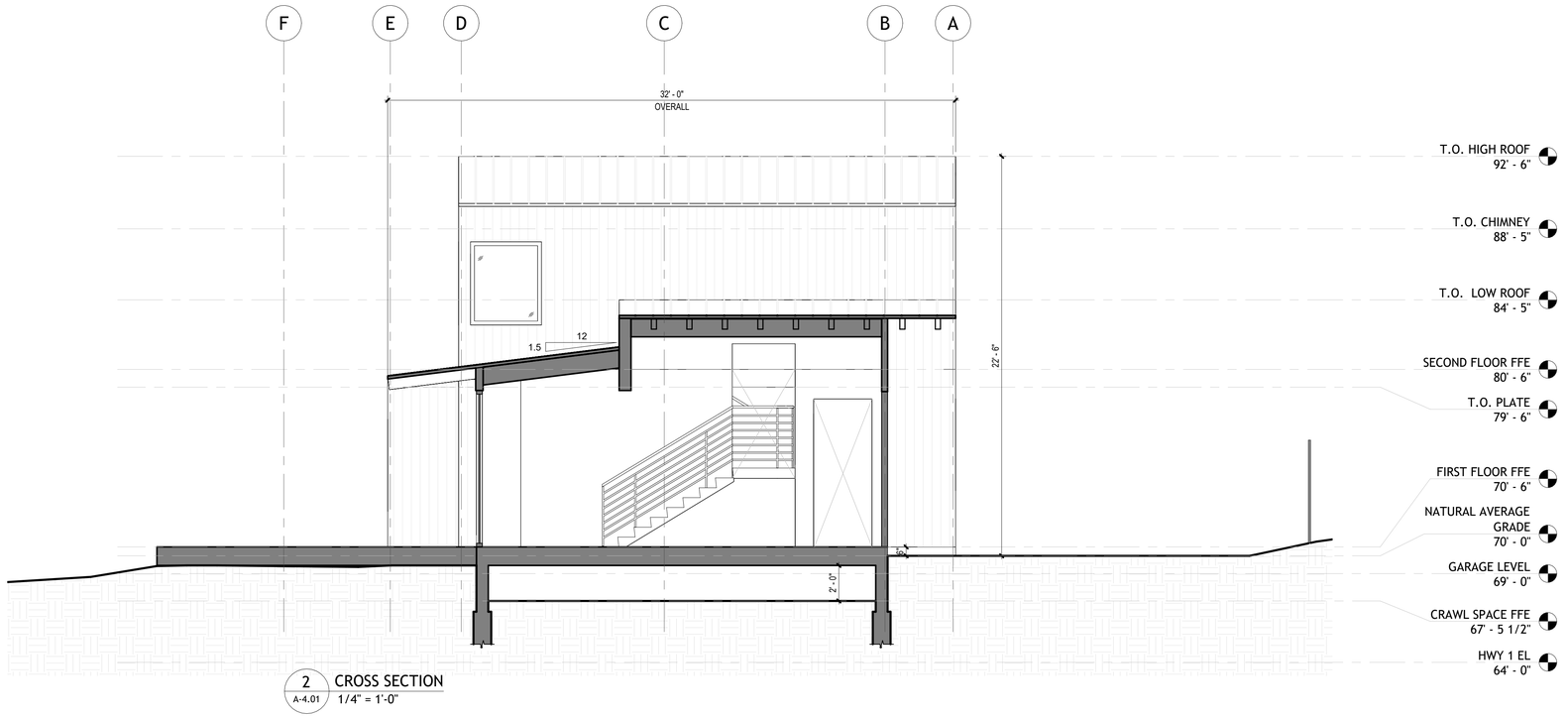
DRAWING TITLE

ELEVATIONS

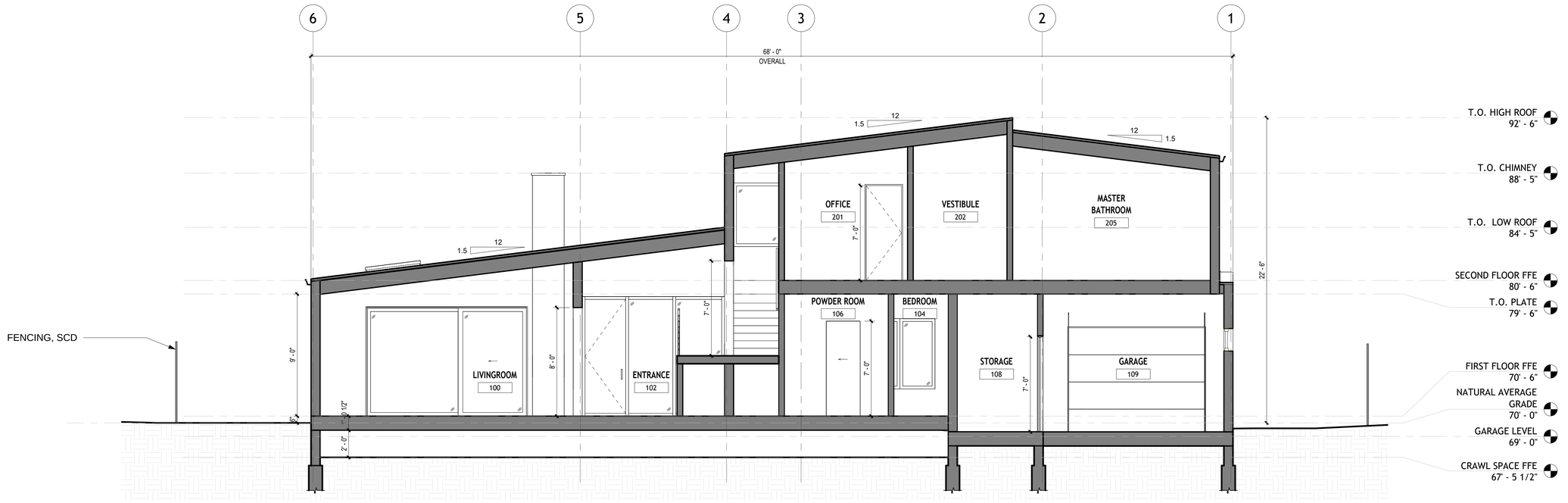
DRAWING NO.

A-3.02

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"



2 A-4.01 CROSS SECTION
1/4" = 1'-0"



1 A-4.01 LONGITUDINAL SECTION
1/4" = 1'-0"

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

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BOGEDA BAY, CA

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	2/1/2026	COASTAL PERMIT APPLICATION

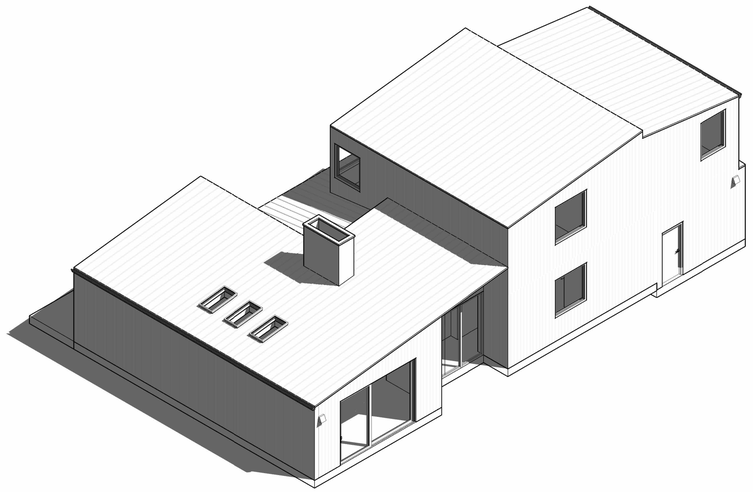
REF # --

DRAWING TITLE

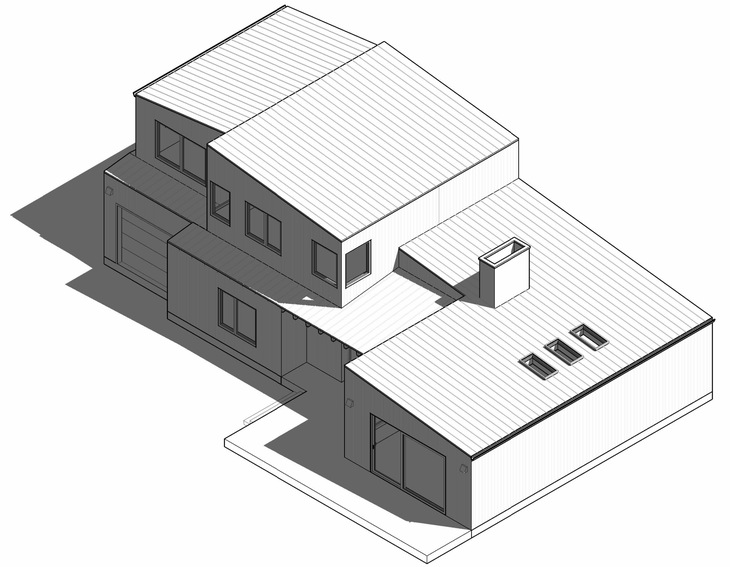
SECTIONS

DRAWING NO.

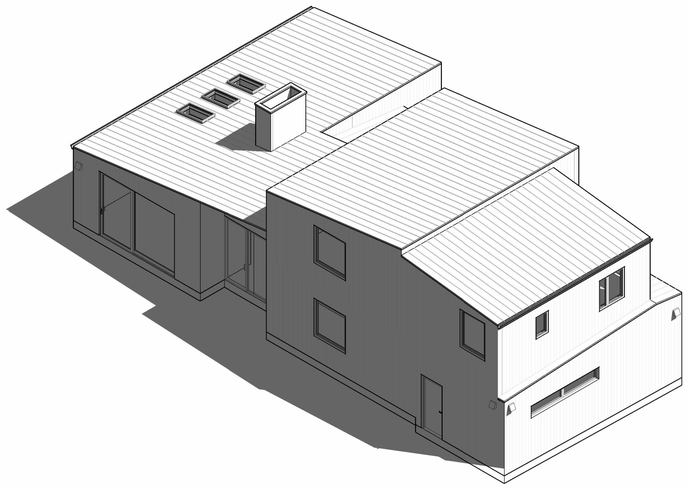
A-4.01



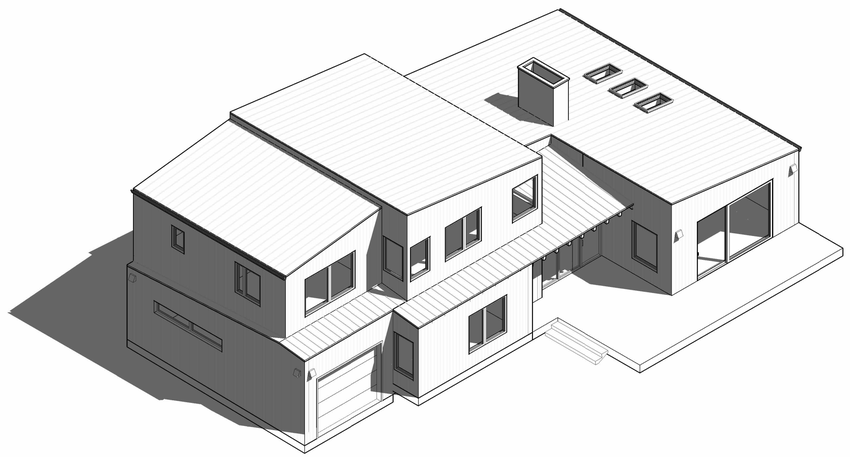
4 A-9.01 ISOMETRIC VIEW - SOUTHEAST



2 A-9.01 ISOMETRIC VIEW - SOUTHWEST



3 A-9.01 ISOMETRIC VIEW - NORTHEAST



1 A-9.01 ISOMETRIC VIEW - NORTHWEST

NOTE: NOT TO SCALE IF SHEET SIZE IS NOT 24" X 36"

CROCE & FARRELL RESIDENCE

PROJECT ADDRESS:

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REF # --

DRAWING TITLE

ISOMETRIC VIEWS

DRAWING NO.

A-9.01

PJC & Associates, Inc.
Consulting Engineers & Geologists

October 13, 2025 Job No. P1231.01

Edoardo Croce
14801 Old Cazadero Road
Guerneville, CA 95446
edoardo.croce@gmail.com

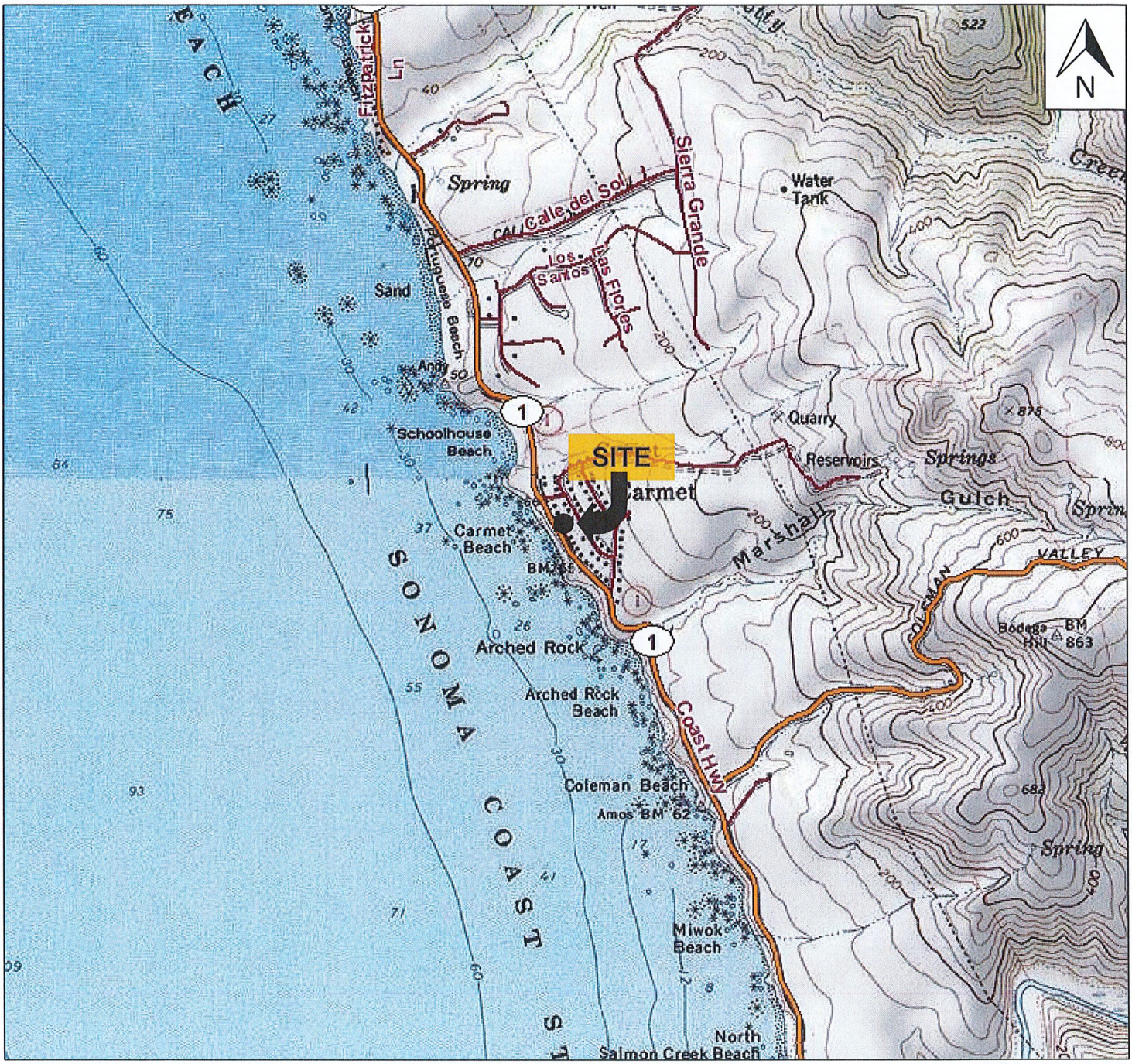
Subject: Geotechnical Investigation
Proposed New Residence & Geologic Bluff Top Stability Evaluation
4920 Highway 1
Bodega Bay, California

Dear Edoardo:

PJC and Associates, Inc. (PJC) is pleased to submit the results of our geotechnical investigation and geologic bluff top stability evaluation for the proposed residence located at 4920 Highway 1 in Bodega Bay, California. The approximate location of the site is shown on the Site Location Map, Plate 1. The site corresponds to latitude and longitudinal coordinates of 38.3734°N and -122.0765°W, according to field GPS measurements. Our services were completed in accordance with our proposal for geotechnical engineering services, dated February 10, 2025, and your authorization to proceed with the work dated May 29, 2025. This report presents our engineering opinions and recommendations regarding the geotechnical aspects of the design and construction of the proposed project. Based on the results of this study, it is our opinion that the project is feasible from an engineering geology and geotechnical engineering standpoint, provided the recommendations presented herein are incorporated in the design and carried out through construction.

1. PROJECT DESCRIPTION

It is our understanding that the project will consist of constructing a new single-family residence with an attached garage on the vacant property. Conceptual plans have not been developed at this time. We anticipate the new residence will consist of a one or two-story, wood-frame structure with either joist-supported raised wood or concrete slab-on-grade floors, and a concrete slab-on-grade floor in the garage. We anticipate that the project will be serviced by underground municipal utilities.



SCALE: 1:24,000

REFERENCE: USGS BODEGA HEAD, CALIFORNIA 7.5 MINUTE QUADRANGLE, DATED 1972.

PJC & Associates, Inc. *Consulting Engineers & Geologists*	**SITE LOCATION MAP** PROPOSED NEW RESIDENCE & GEOLOGIC STABILITY OF BLUFF TOP DEVELOPMENT 4920 HIGHWAY 1 BODEGA BAY, CALIFORNIA	PLATE **1**
	Proj. No: P1231.01 Date: 8/2025 App'd by: PJC	

We understand that Permit Sonoma is concerned with potential geologic hazards at the property and nearby region, due primarily to coastal bluff retreat. The subject property is located across Highway 1 from a steep to very steeply descending bluff directly above the Pacific Ocean. The scope of our work consisted of performing an assessment of historic bluff retreat and to provide an opinion on the stability of the bluff. We also explored the subsurface conditions at the project site to provide geotechnical recommendations and criteria for design and construction of the project.

Structural loading information was not available at the time of this investigation. For our analysis, we anticipate that structural foundation loads will be light with dead plus live continuous wall loads less than two kips per lineal foot (plf) and dead plus live isolated column loads less than 50 kips. If these assumed loads vary significantly from the actual loads, we should be consulted to review the actual loading conditions and, if necessary, revise the recommendations of this report.

The building site is situated on very gently sloping terrain. Based on the site topography and proposed construction, site grading will consist of minimal cuts and fills of approximately two feet and less, in order to achieve the desired finish pad grades, upgrade the existing site soils, and provide adequate gradients for site drainage. We do not anticipate that retaining walls will be required for the project.

2. SCOPE OF SERVICES

The purpose of this study is to provide geotechnical criteria for the design and construction of the proposed project as described above. Specifically, the scope of our services included the following:

a. Excavating four exploratory test pits (TP-1 through TP-4) to depths between 7.0 and 8.75 feet below the existing ground surface to observe the soil, bedrock, and groundwater conditions underlying the site. Our field geologist was on site during the excavating to log the materials encountered in the test pits and to obtain representative samples for visual classification and laboratory testing.

b. Laboratory observation and testing of representative samples obtained during the course of our field investigation to evaluate the engineering properties of the subsurface soils and bedrock at the site.

c. Surface reconnaissance and geologic mapping of the soil and bedrock units exposed on the nearby bluff face. The reconnaissance was performed by our professional geologist to observe site topography, bluff symmetry, erosion,

surface soils and bedrock exposures (bedding attitudes, fracturing, jointing, etc.).

d. Review of published geologic literature to investigate regional and local faulting, seismicity, landslide and block failure potential, distribution of regional and local rock and soil units, and potential geologic hazards at the site associated with sea level rise.

e. Perform engineering analyses to develop geotechnical recommendations for earthwork and grading, foundation type(s) and design criteria, lateral earth pressures, settlement, concrete slabs-on-grade, surface and subsurface drainage control and construction considerations.

f. Preparation of this report summarizing our work on this project.

3. SITE CONDITIONS

a. General. The project site is located north of Salmon Creek Beach in the Carmet residential development. The undeveloped property is located approximately 430 feet southeast of the intersection of Viking Strand and Highway 1. At the time of our field investigation, the site was vacant and covered with perennial grasses and native shrubbery. The property is bounded by undeveloped parcels to the northwest & southeast, residences to the south-southeast and northeast, and Highway 1 to the west and southwest of the site.

b. Topography and Drainage. The property is located on an uplifted marine terrace which is located near a steeply to very steeply descending bluff face. According to the United States Geological Survey (USGS) Bodega Head, California, 7.5 Minute Quadrangle Map (Topographic), the site is located near an elevation of 58 feet above mean sea level (MSL). Topography of the potential building envelope consists of gently sloping terrain to the southwest. Slope gradients in this area are estimated to be 14H:1V (horizontal to vertical). Moderately sloping terrain exists adjacent to Highway 1, with an estimated gradient of approximately 4H:1V.

No creeks or seasonal drainage courses were observed at or near the site. Site drainage consists of sheet flow and surface infiltration. Regional drainage generally extends west towards the Pacific Ocean, located approximately 240 feet southwest of the site.

c. Geology. According to the California Geological Survey (CGS), the site is underlain by Quaternary marine terrace deposits (Qmt). These near-shore

sediments were deposited in a series of terraces that have been uplifted since Pleistocene time (approximately 1.8 million years ago). The terraces were formed from fluctuating sea levels caused by the advances and retreats of glaciers, which were characteristic during that time. The terraces have been slowly uplifted towards the east to form the characteristic bench and slope topography that extends several miles inland in some locations. These terrace deposits consist mainly of unconsolidated silt, sand, clay, and gravels.

Our subsurface exploration confirmed the presence of marine terrace deposits underlying the site. However, our exploration identified the terrace deposits being underlain by sandstone bedrock of the Cretaceous-age Franciscan Complex (Kfs), mapped immediately west of the site. Bedrock units of this portion of the Franciscan Complex are generally comprised of sandstone and shale with lesser greenstone, conglomerate, and chert. Typical Franciscan Complex bedrock units are highly fractured and shattered. No Franciscan Complex bedrock surface exposures were observed at the property. However, we observed Franciscan Complex bedrock exposed approximately 140 feet northwest of the site.

4. FAULTING

Geologic structures in the region are primarily controlled by northwest-trending dextral faults. The site is located within the current Alquist-Priolo Earthquake Fault Zone boundaries. According to the USGS Earthquake Hazards Program National Seismic Hazard Maps, the closest known active faults to the site are the San Andreas, Point Reyes, and Hayward-Rodgers Creek faults. The San Andreas is located 0.3 miles to the southwest, the Point Reyes is located 15.8 miles to the southwest, and the Hayward-Rodgers Creek is located 20.4 miles northeast of the site. Table 1 outlines the nearest known active faults and their associated maximum magnitudes.

TABLE 1
CLOSEST KNOWN ACTIVE FAULTS

Fault Name	Distance from Site (Miles)	Maximum Earthquakes (Moment Magnitude)
San Andreas	0.3	8.1
Point Reyes	15.8	6.9
Hayward-Rodgers Creek	20.4	7.3

*Reference – USGS 2008 National Seismic Hazard Maps

5. SEISMICITY

As mentioned in the previous section, the site is located approximately 0.3 mile from the active San Andreas fault. Measurements of movement along the San Andreas Fault in the vicinity of Hollister using specially designed "creep recorders," indicate an annual movement of perhaps one-half inch. This continuing movement is horizontal, with the western block being displaced to the north relative to the eastern block. The April 1906 earthquake caused an average horizontal movement of five to ten feet in the vicinity of Bodega Bay, with a maximum horizontal displacement of about 21 feet reported near Olema in Marin County. Vertical displacement of as much as two or three feet is believed to have occurred in places, with the western block uplifted relative to the eastern block.

During the lifetime of the proposed project, it is possible that future damaging earthquakes could occur on any one of the previously discussed faults, most notably the San Andreas Fault. In general, the intensity of ground shaking at the site will depend on the distance to the causative earthquake epicenter, the magnitude of the shock, the response characteristics of the underlying earth materials, and the quality of construction.

6. SUBSURFACE CONDITIONS

a. Soils and Bedrock. The subsurface conditions at the project site were investigated by excavating four exploratory test pits (TP-1 through TP-4) to depths between 7.0 and 8.75 feet below the existing ground surface. The approximate test pit locations are shown on the Test Pit Location Plan, Plate 2. The test pits were used to collect samples of the underlying strata for visual examination and laboratory testing. The excavation and sampling procedures and descriptive logs are included in Appendix A. The laboratory procedures are included in Appendix B.

The test pits generally encountered topsoil and terrace deposits overlying bedrock, which extended to the maximum depths explored. The topsoil extended 1.0 to 1.25 feet below grade and consisted of sandy silt. The sandy silt topsoil appeared moist, stiff to very stiff, and exhibited low plasticity characteristics. Underlying the topsoil, the test pits encountered terrace deposits consisting of sandy clay, clayey and silty sands, and sand which extended 6.0 to 8.25 feet below existing grade. The sandy clay appeared moist, very stiff to hard, and exhibited low plasticity characteristics.

The clayey and silty sands appeared slightly moist to moist, medium dense to dense, and fine to medium-grained. The sand appeared moist, medium dense, and fine to medium-grained. Underlying the terrace deposits, sandstone bedrock was encountered which extended to the maximum depths explored. The sandstone appeared soft to slightly hard, friable, and highly weathered. Bedding was not discernible.

b. Groundwater / Seepage. At the time of our field exploration on August 13, 2025, seepage was encountered in TP-1 at 6.25 feet and TP-3 at 8.25 feet. No springs or surface seepage was observed at the site during our subsurface investigation. Subsurface seepage within and between the strata will likely occur at the site during and following prolonged rainfall. We recommend that surface and subsurface drainage measures be implemented during design and construction of the project.

7. GEOLOGIC HAZARDS & SEISMIC CONSIDERATIONS

The site is located within a region subject to a high level of seismic activity. Therefore, the site could experience strong seismic ground shaking during the lifetime of the project. The following discussion reflects the geologic hazards and possible earthquake effects which could result in damage to the proposed project.

a. Fault Rupture. Rupture of the ground surface is expected to occur along known active fault traces. According to the Alquist-Priolo Earthquake Fault Zone Bodega Head Map, an approximately located, active fault trace exists approximately 520 feet northeast of the project site. Furthermore, the San Andreas fault is located approximately 0.3 miles southwest of the site. Due to the close proximity to active faults, it should be considered that the risk of ground rupture at the site is high.

b. Ground Shaking. The site has been subjected in the past to ground shaking by earthquakes on the active fault systems that traverse the region. Based on this data and the anticipated life expectance of the project, it is judged that there is a high potential that the site will be subjected to very strong seismic shaking. The severity of the shaking depends on many complex factors. Among these factors are the moment magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high bedrock accelerations, type of surficial deposits, topography and design, and type and quality of building construction.

c. Liquefaction. Based on our review of the USGS Liquefaction Susceptibility map, the site is considered to have low liquefaction potential. The soils underlying the

site are not at risk of liquefaction. Therefore, we judge that the risk of soil liquefaction at the site is low.

d. Lateral Spreading and Lurching. Lateral spreading is normally induced by vibration of near-horizontal alluvial soil layers adjacent to an exposed face. Lurching is an action, which produces cracks or fissures parallel to streams or banks when the earthquake motion is at right angles to them. There are no exposed faces or creek embankments adjacent to the site. Therefore, we judge that the potential for lateral spreading and lurching at the site is low.

e. Aseismic Creep. The site is located in an active fault zone. It is possible aseismic creep could occur within active fault zones. The owner should be aware of this potential geologic hazard.

f. Expansive Soils and Bedrock. Based on our field observations and laboratory testing (PI= 12, 15), the site terrace deposits exhibit low plasticity characteristics and low expansion potential. The underlying sandstone bedrock is not considered to be expansive.

g. Slope Stability. According to our review of a slope stability map prepared by the California Division of Mines and Geology, Special Report 120, there are no known landslides on the subject property. The project site is located within Category Bf described as locally level areas that may be underlain or bounded by unstable or potentially unstable rock materials. We did not observe the presence of landslide scarps, debris flows, or earth slumps on or adjacent to the site and consider the risk of landsliding to be low at the project site. The site is setback an adequate distance from the existing bluff face, so slope stability/ setback considerations are not necessary at this time. Longer term considerations (related to bluff retreat) are discussed in the next section of this report.

h. Tsunamis. A tsunami is a series of waves propagated by the sudden displacement of a column of water. Based on our review of the SR-120 map, the site appears to be located above and outside the potential tsunami inundation area.

i. Sea Level Rise. The Sonoma County Local Coastal Plan utilizes a 7-foot sea level rise by 2100, in its forecasts and planning. Based on the location of the project site on the bluff, we judge that the proposed residence should not be threatened to be inundated by sea level rise during the design life of the project which is considered to be 100 years.

8. BLUFF RETREAT DISCUSSION

The property is located across Highway 1 from a steeply descending bluff towards the Pacific Ocean, northwest of Carmet Beach. Our review of historical coastline images of the subject area (from 1972 to 2024) indicates that the bluff position has not significantly changed during this period. The bluff cliff face consists of slopes ranging from approximately 35 to 75 degrees. The subject bluff edge area is approximately 87 feet long and 50 feet high. A barrier has recently been installed along the existing soft shoulder in the area, to discourage foot traffic and guard against excessive erosion along the bluff edge.

No coastal armoring was observed along the bluff face or shoreline area. However, the shoreline and backshore geology appears to be relatively well armored in nature. This setting is blanketed by cobbles and boulders, in-situ bedrock, and relatively more resistant igneous and metamorphic bedrock along the base of the bluff.

Upper portions of the bluff face appeared to be more prone to erosion due to the presence of highly sheared and weathered sandstone and shale bedrock. Small erosional gullies were observed along the top of the seaward bluff, to the west and southwest of the property. These features appeared less active on the north end (more vegetated) and more active on the south end, with more erosive scarring (less vegetation on some areas of the slope). Some bioturbation was observed between the highway and the seaward bluff area.

Bluff retreat data from the immediate vicinity was unavailable in the literature. The perceived rate of retreat for this report was based on historical aerial imagery, rock types / apparent degree of weathering, storm and groundwater effects, and by the Gleason Beach Study (Caltrans/ WRECO, 2020). The Gleason Beach area is located north of the site and consists of bluff areas mapped with similar geology and slope aspects. For this site we utilized a rate of 0.3 foot / yr (medium-high risk aversion). This rate looks to correspond with the Sonoma County Local Coast Plan (2023) requirements, which indicate 100-year (minimum) design life and 100-foot (minimum) setback parameters for any new development.

Approximate distances from the bluff edge to the property (seaward property line) are indicated in Table 2. The minimum setback indicated is per the Sonoma County Local Coastal Plan.

TABLE 2
APPROX. DISTANCES FROM BLUFF EDGE TO PROPERTY

Area	Distance to Site (feet)	Minimum setback (feet)
southwest corner	82	100
middle	85	100
northwest corner	65	100

9. CONCLUSIONS

Based on the results of our investigation, we judge that the project is feasible from a geotechnical engineering and engineering geology standpoint. The site appears to be generally stable at this time. Due to the relatively low slope inclination of the site, we judge that slope stability is not a serious geotechnical concern at this time. The distance between the site and the existing bluff edge meets a sufficient distance where stability of the bluff face does not pose a hazard to the development.

The current shoreline and base of the cliff face appear to be relatively more resistant (to erosion and retreat) than the upper portions of the cliff face, where sloughing of slope elements and minor gullying were observed. The indicated bluff retreat rate is deemed to be conservative, which factors in the effects of groundwater erosion and the likelihood of higher intensity storms in the future.

Provided a relatively smaller residence is situated towards the northeast end of the parcel, we judge that bluff retreat would not be a serious concern when factoring in the required 100-year design life for the structure. The structure should be set back at least 100 feet from the bluff face.

The site vicinity is located relatively near to an approximately located fault trace of the San Andreas fault system. The site will likely experience severe seismic ground shaking during the life of the proposed structure. The test pits were excavated near an orientation of which would have the greatest potential of intersecting the north-northwest trend of the nearest approximate located fault trace. However, no surface or near-surface offset beds were observed in our exploratory test pits. Additionally, observation of neighboring structures in the site vicinity displayed no signs of structural distress, due to fault creep.

Site grading and construction are not expected to adversely impact the site or adjoining parcels. We do not anticipate any significant impacts to the bluff from grading, site preparation, drainage, and/or construction of new foundations. Care should be exercised in protecting finished slope surfaces from the effects of erosion by appropriate drainage control and landscaping.

10. RECOMMENDATIONS

The primary geotechnical concerns in the design and construction of the project are the following:

1. The presence of weak and compressible topsoil and subsurface strata with variable composition and density.

2. Site proximity to the bluff edge.

3. Control of surface and subsurface drainage across the site.

The exploratory test pits at the project site encountered weak and compressible topsoil and variable subsurface strata at the site. Lightly loaded foundations and concrete slabs-on-grade floors could experience intolerable differential settlement, cracking and structural and architectural distress if constructed on these materials in their existing condition.

Due to the site's proximity to the bluff edge, the structure should be set back a minimum of 100 feet from the edge of the bluff face. Also, minimal site grading and disturbance is recommended during planning and construction. Therefore, we recommend that the residence and garage be supported by a drilled cast-in-place pier and grade beam foundation system. The piers should extend a minimum of ten feet below the existing ground surface and at least seven feet into firm native material, as determined by a soils engineer of PJC in the field during construction.

Interior slabs-on-grade (if utilized) should be structurally designed and be provided with under-slab drains, to prevent hydrostatic uplift and control seepage. Non-structural slabs-on-grade may be used for exterior flatwork, provided they are underlain by 18 inches of low to non-expansive, compacted engineered fill.

It is crucial that all final grades be provided with positive gradients away from all foundations to provide rapid removal of surface water runoff to an adequate discharge point. No ponding of water should be allowed adjacent to building foundations, slabs or slopes. Care must be taken so that discharges from the roof gutter and downspout systems are not allowed to infiltrate the subsurface near the structure or slopes. Drainage must not be discharged on or near slopes greater than 15 percent without proper dissipation measures and approved by the geotechnical engineer in the field during construction.

Optimal surface and subsurface drainage is critical in slowing the rates of erosion in the site vicinity / bluff area. Site drainage should be directed away from the aforementioned gully areas located across the Highway 1 alignment. We recommend that a civil engineer provide recommendations to control the flow surface of drainage.

The following section provides geotechnical recommendations and criteria for design and construction of the project.

11. EARTHWORK AND GRADING

We anticipate that the project will include cuts and fills of two feet and less, to achieve the desired finish pad grades, upgrade the site soils, and provide adequate gradients for site drainage.

a. Stripping. The site should be stripped of surface vegetation, roots, and the upper few inches of soil containing organic matter. These materials should be moved off site; some of the stripped soils, if suitable, could be stockpiled for later use in landscape areas. The lateral extent of the stripping should extend at least five feet beyond the limits of the structures. Final stripping depths should be determined by the Geotechnical Engineer in the field during construction. If underground utilities pass through the site, we recommend that these utilities be removed in their entirety or rerouted where they exist outside an imaginary plane sloped two horizontal to one vertical (2H:1V) from the outside bottom edge of the nearest foundation element. Previously abandoned utilities, if encountered during construction, should be removed and replaced with compacted engineered fill under the observation of the project geotechnical engineer. Voids left from the removal of utilities or other obstructions should be replaced with compacted engineered fill under the observation of the project geotechnical engineer.

b. Excavation and Compaction. Following site stripping, excavation should proceed to achieve finish grades or to prepare areas to receive fill. The exposed surface should be scarified to a depth of eight inches, moisture conditioned to within two

percent of the optimum moisture content and compacted to a minimum of 90 percent of the material's maximum dry density, as determined by ASTM D 1557 laboratory compaction test procedures.

Site soils and bedrock are generally suitable for reuse as low to non-expansive engineered fill. Subexcavated material should be approved by the geotechnical engineer prior to use as fill and additional laboratory testing may be required during grading and earthwork. Imported fill should be evaluated and approved by the geotechnical engineer before importation.

All fill material should be placed and compacted in accordance with the recommendations presented in Table 3. It is recommended that any import fill to be used on site be of a low to non-expansive nature and should meet the following criteria:

Plasticity Index	less than 12
Liquid Limit	less than 38
Percent Soil Passing #200 Sieve	between 15% and 35%
Maximum Aggregate Size	4 inches

TABLE 3
SUMMARY OF COMPACTION RECOMMENDATIONS

Area	Compaction Recommendations*
General Engineered Fill (Import)	In lifts, a maximum of eight inches in loose thickness, compact to at least 90 percent relative compaction at or within two percent of the optimum moisture content.
General Engineered Fill (Native)	In lifts, a maximum of eight inches in loose thickness, compact to at least 90 percent relative compaction at or within two percent of the optimum moisture content for granular soils and at two to four percent over the optimum moisture content for clay soils.

* All compaction requirements stated in this report refer to dry density and moisture content relationships obtained through the laboratory standard described by ASTM D 1557.

** Depths below finished subgrade elevations.

All site preparation and fill placement should be observed by a representative of PJC. It is important that during the stripping, subexcavation and grading/scarifying processes, a representative of our firm be present to observe whether any undesirable material is encountered in the construction area.

Generally, grading is most economically performed during the summer months when on-site soils are usually dry of optimum moisture content. Delays should be anticipated in site grading performed during the rainy season or early spring due to excessive moisture in the on-site soils. Special and relatively expensive construction procedures should be anticipated if grading must be completed during the winter and early spring.

12. FOUNDATIONS: DRILLED CAST-IN-PLACE CONCRETE PIERS

The structure may be supported on drilled cast-in-place concrete piers. However, if a concrete slab floor is desired, it should be constructed as a structural slab. The slab should be designed to span over areas of non-uniform support and between grade beams.

a. Vertical Loads. The structure may be supported on drilled, cast-in-place, reinforced concrete piers a minimum of 12 inches in diameter and spaced at least three pier diameters center to center. The piers will derive their support through peripheral friction. Perimeter and interior piers should extend at least ten feet below the existing ground surface and at least seven feet into firm native soils and bedrock, regardless of structural loads. The piers should be reinforced and designed by the project structural engineer. All perimeter piers and piers supporting continuous loads should be tied together with grade or tie beams. The grade beams should be designed to span between the piers in accordance with structural requirements.

   The portion of the piers extending at least two feet beneath the finished ground surface may be designed using an allowable dead plus live skin friction of 600 pounds per square foot (psf). This value may be increased by one-third for short duration wind and seismic loads. End bearing should be neglected because of the difficulty of cleaning out small diameter pier holes and the uncertainty of mobilizing end bearing and skin friction simultaneously.

b. Settlement. The maximum and differential settlements for the piers is estimated to be small and within tolerable limits.

c. Lateral Loads. Lateral loads resulting from wind or earthquakes can be resisted by the piers through a combination of cantilever action and passive resistance of the soils surrounding the pier. A pressure of 300 pounds per square foot per foot of depth acting on two pier diameters should be used. The upper three feet should be neglected for passive resistance.

We should be retained to review the pier drilling operations, to review the actual soil and bedrock conditions exposed, and provide modifications in the field, if necessary. The drilling subcontractor should be aware that relatively hard drilling conditions could be expected at the project so they may choose suitable drill rigs to accomplish drilling, and determine the need for casing and de-watering.

13. STRUCTURAL CONCRETE SLABS-ON-GRADE

Where interior slabs-on-grades are to be constructed, the slabs should be structurally designed to span from pier to pier. Structural slabs should be at least six inches thick and reinforced as determined by the project structural engineer. The slab subgrade should be firm and unyielding and maintained within two percent of optimum moisture at all times. The slab subgrade should not be allowed to dry.

All slabs should be supported on at least four inches of clean gravel or crushed rock to provide a capillary break and provide uniform support for the slab. The rock should be graded so that 100 percent passes the one-inch sieve and no more than five percent passes the No. 4 sieve.

We recommend that the gravel be placed as soon as possible after preparation of the subgrade to prevent drying of the subgrade soils. If the subgrade is allowed to dry out prior to slab-on-grade construction, the subgrade soil should be moisture conditioned by sprinkling before slab-on-grade construction.

For slabs with moisture sensitive surfacing, we recommend that a vapor retarder membrane at least 15 mils thickness be placed over the rock to prevent migration of moisture vapor through the concrete slab.

Special care should be taken to ensure that reinforcement is placed and maintained at least two inches below the top of the slab. Exterior slabs should be cast and maintained separate of foundations. Control joints should be provided to induce and control cracking.

Special precautions must be taken during the placement and curing of concrete slabs-on-grade. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures and ad mixtures used during either hot or cold weather conditions will lead to excessive shrinkage, cracking or curling of the slabs. High water-cement ratios and/or improper curing also greatly increases water vapor transmission through the concrete. Concrete placement and curing operations should be performed in accordance with the American Concrete Institute (ACI) manual.

14. NON-STRUCTURAL CONCRETE SLABS-ON-GRADE

Non-structural concrete slabs-on-grade may be used for exterior flatwork, provided they are underlain by at least 18 inches of low to non-expansive, engineered fill. The low to non-expansive fill should extend at least three feet beyond exterior slab edges.

All slab subgrade should be moisture conditioned and compacted to produce a firm and unyielding subgrade. The slab subgrade should not be allowed to dry. Conventional slabs should be at least five inches thick and underlain with a capillary moisture break consisting of at least four inches of clean, free-draining crushed rock or gravel. The rock should be graded so that 100 percent passes the one-inch sieve and no more than five percent passes the No. 4 sieve.

Special precautions must be taken during the placement and curing of concrete slabs-on-grade. Excessive slump (high water-cement ratio) of the concrete and/or improper curing procedures and ad mixtures used during either hot or cold weather conditions will lead to excessive shrinkage, cracking or curling of the slabs. High water-cement ratios and/or improper curing also greatly increases water vapor transmission through the concrete. Concrete placement and curing operations should be performed in accordance with the American Concrete Institute (ACI) manual.

15. DRAINAGE

a. Surface Drainage. All final grades should be provided with positive gradients away from all foundations to provide rapid removal of surface water runoff to an adequate discharge point. No ponding of water should be allowed adjacent to the foundations or slopes. The use of continuous roof gutters is recommended to reduce the possibility of soil saturation adjacent to the building. Downspouts from gutters should be discharged into a closed conduit discharging a minimum of eight feet away from the structure and to the street or onto erosion resistant areas.

b. Perimeter Subdrain. If raised wood floors are used for the residence, we recommend that foundation subdrains be constructed along the perimeter of the structure to reduce potential water intrusion into the crawl space. The bottom of the trench should be sloped to drain by gravity. The bottom of the trench should be lined with a few inches of Class II permeable material. A four-inch diameter, SDR-35 perforated pipe, with holes facing down and sloped to drain, should be placed on top of the thin layer of Class II permeable material. We recommend that the pipe should be located a minimum of six inches below the bottom of the crawl space grade. The trench should then be backfilled to within six inches of the finished surface with Class II permeable material. The upper six inches should

consist of compacted soil to reduce surface water inclusion. The outlets should discharge onto erosion resistant areas. Perimeter subdrain detailed is indicated on Plate 1A.

c. Slab Subdrains. If slab-on-grade floors are used in the residence, and constructed lower than adjacent exterior grade, we recommend that they be provided with slab floor subdrains to reduce potential hydrostatic pressures below the structure. Slab subdrain trenches should be constructed at a maximum of 20-foot intervals. The bottom of the trench should be sloped to drain by gravity. The bottom of the trench should be lined with a few inches of Class II permeable material. A four-inch diameter, SDR-35 perforated pipe, with holes down and sloped to drain, should be placed on top of the thin layer of Class II permeable material. The trench should then be backfilled with compacted Class II permeable material. The top 18 inches should consist of compacted onsite soil to exclude surface water. Surface drains must be maintained entirely separate from subdrains. Slab subdrain detail is indicated on Plate 1B.

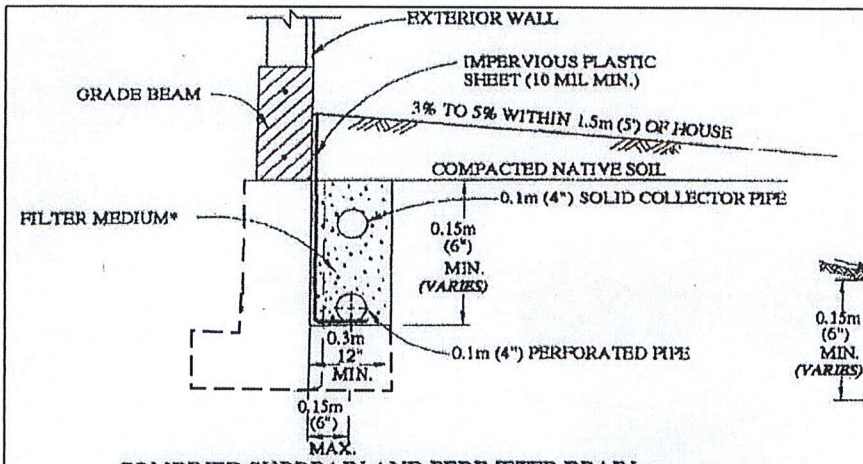
16. SEISMIC DESIGN

Based on criteria presented in the 2022 edition of the California Building Code (CBC) and ASCE (American Society of Civil Engineers) STANDARD ASCE/SEI 7-16, the following minimum criteria should be used in seismic design:

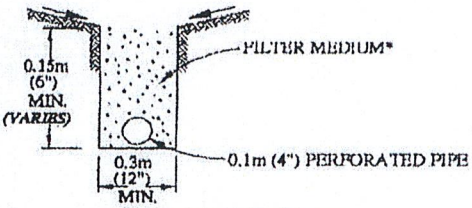
a.	Site Class:	C
b.	Mapped Acceleration Parameters:	S_S = 2.451 g S_1 = 1.027 g
c.	Spectral Response Acceleration Parameters:	S_{MS} = 2.941 g S_{M1} = 1.438 g
d.	Design Spectral Acceleration Parameters:	S_{DS} = 1.96 g S_{D1} = 0.958 g

17. ADDITIONAL SERVICES

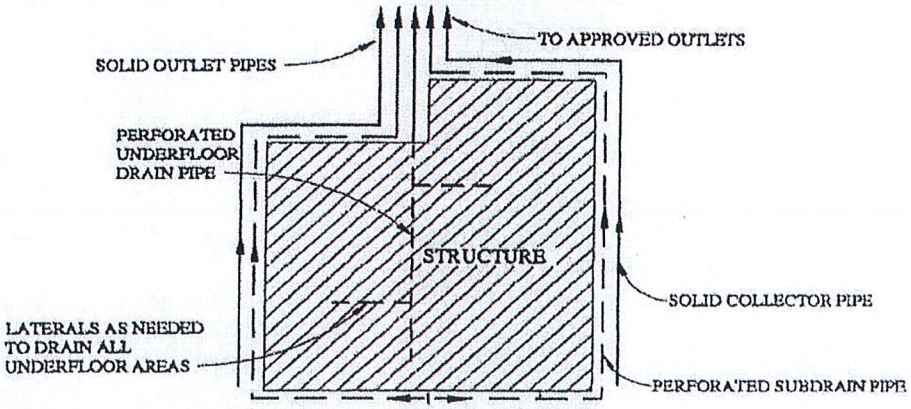
Upon completion of the project plans, they should be reviewed by our firm to determine that the design is consistent with the recommendations of this report. During the course of this investigation, several assumptions were made regarding development concepts. Should our assumptions differ significantly from the final intent of the project designers,



COMBINED SUBDRAIN AND PERIMETER DRAIN



UNDERFLOOR DRAIN



TYPICAL FOUNDATION SUBDRAIN PLAN

NOTES:

1. *ALL PIPE JOINTS SHALL BE GLUED*
2. *ALL PERFORATED PIPE PLACED PERFORATIONS DOWN*
3. *1% FALL (MINIMUM) ON ALL TRENCHES AND DRAIN LINES*
4. *THE CLOSED COLLECTOR AND THE PERIMETER SUBDRAIN CAN BE CONSTRUCTED IN A SINGLE TRENCH, IF DESIRED. HOWEVER, THE CLOSED COLLECTOR PIPE MUST BE PLACED ABOVE THE SUBDRAIN PIPE, AND IN NO CASE SHOULD THE TWO SYSTEMS BE INTERCONNECTED*

*FILTER MEDIUM

ALTERNATIVE A

CLASS 2 PERMEABLE MATERIAL

MATERIAL SHALL CONSIST OF CLEAN, COARSE SAND AND GRAVEL OR CRUSHED STONE, CONFORMING TO THE FOLLOWING GRADING REQUIREMENTS:

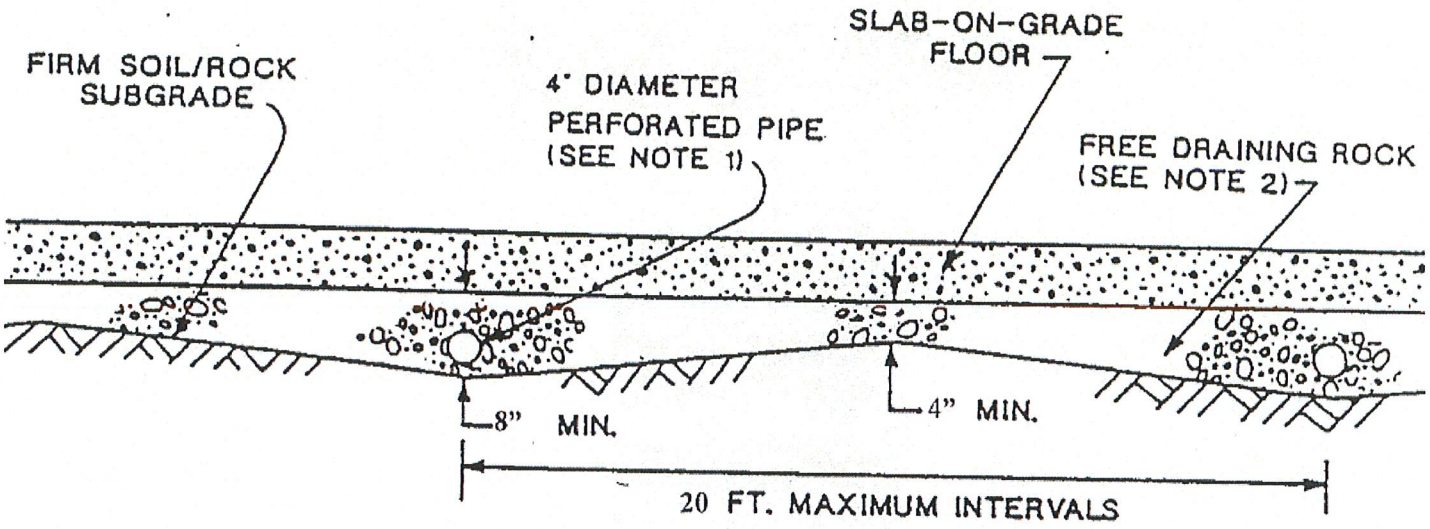
SIEVE SIZE	% PASSING SIEVE
1"	100
3/4"	90–100
3/8"	40–100
#4	25–40
#8	18–33
#30	5–15
#50	0–7
#200	0–3

ALTERNATIVE B

CLEAN CRUSHED ROCK OR GRAVEL WRAPPED IN FILTER FABRIC

ALL FILTER FABRIC SHALL MEET THE FOLLOWING MINIMUM AVERAGE ROLL VALUES UNLESS OTHERWISE SPECIFIED BY PJC

GRAB STRENGTH (ASTM D-4632)	180 lbs
MASS PER UNIT AREA (ASTM D-4751)	6 oz/yd^2
APPARENT OPENING SIZE (ASTM D-4751)	70–100 U.S. STD. SIEVE
FLOW RATE (ASTM D-4491)	80 gal/min/ft
PUNCTURE STRENGTH (ASTM D-4833)	80 lbs



Notes:

1. PERFORATED PIPE (PVC OR EQUIVALENT) SHOULD BE PLACED WITH PERFORATIONS DOWN. THE PIPE SHOULD BE SLOPED FOR GRAVITY FLOW AND OUTLET THROUGH SOLID PIPE TO DAYLIGHT.

2. DRAIN ROCK SHOULD BE AT LEAST 4" THICK AND A MINIMUM OF 8" WHERE PIPES ARE LOCATED. THE DRAIN ROCK SHOULD BE ½ OR ¾ INCH DRAIN ROCK ON FILTER FABRIC OR CONSIST OF CLASS II PERMEABLE MATERIAL.

our office should be notified of the changes to assess any potential need for revised recommendations. Observation and testing services should also be provided by PJC to verify that the intent of the plans and specifications are carried out during construction; these services should include observing grading and earthwork, provide field density testing, observing pier drilling, approving slab subgrades, and approving the construction of drainage facilities.

These services will be performed only if PJC is provided with sufficient notice to perform the work. PJC does not accept responsibility for items we are not notified to observe.

18. LIMITATIONS

The data, information, interpretations and recommendations contained in this report are presented solely as bases and guides to the geotechnical design of the new residence & geologic stability of bluff top development project located at 4920 Highway 1 in Bodega Bay, California. The conclusions and professional opinions presented herein were developed by PJC in accordance with generally accepted geotechnical engineering principles and practices. No warranty, either expressed or implied, is intended.

This report has not been prepared for use by parties other than the designers of the project. It may not contain sufficient information for the purposes of other parties or other uses. If any changes are made in the project as described in this report, the conclusions and recommendations contained herein should not be considered valid, unless the changes are reviewed by PJC and the conclusions and recommendations are modified or approved in writing. This report and the figures contained herein are intended for design purposes only. They are not intended to act by themselves as construction drawings or specifications.

Soil deposits and bedrock formations may vary in type, strength, and many other important properties between points of observation and exploration. Additionally, changes can occur in groundwater and soil moisture conditions due to seasonal variations or for other reasons. Therefore, it must be recognized that we do not and cannot have complete knowledge of the subsurface conditions underlying the subject site. The criteria presented are based on the findings at the points of exploration and on interpretative data, including interpolation and extrapolation of information obtained at points of observation.

It has been a pleasure working with you on this project. Please call if you have any questions regarding this report or if we can be of further assistance.

Sincerely,

PJC & ASSOCIATES, INC.

Patrick J. Conway
Geotechnical Engineer
GE 2303, California
Engineering Geologist
CEG 2452, California

PJC:tc

APPENDIX A
FIELD INVESTIGATION

1. INTRODUCTION

The field program performed for this study consisted of excavating four exploratory test pits (TP-1 through TP-4) at the project site. The exploration was completed on August 13, 2025. The test pit locations are shown on the Test Pit Location Plan, Plate 2. Descriptive logs of the test pits are presented in this appendix as Plates 3 through 6.

2. TEST PITS

The test pits were excavated with a track-mounted mini excavator equipped with a 24-inch bucket. Disturbed samples for logging and laboratory testing were collected. The excavation was performed under the observation of our project geologist, who maintained a continuous log of soil and bedrock conditions and obtained samples suitable for laboratory testing. The soils were classified according to Unified Soil Classification System as presented on Plate 7. Bedrock is described according to Plate 8.

100 ft
(approx.)

EXPLANATION

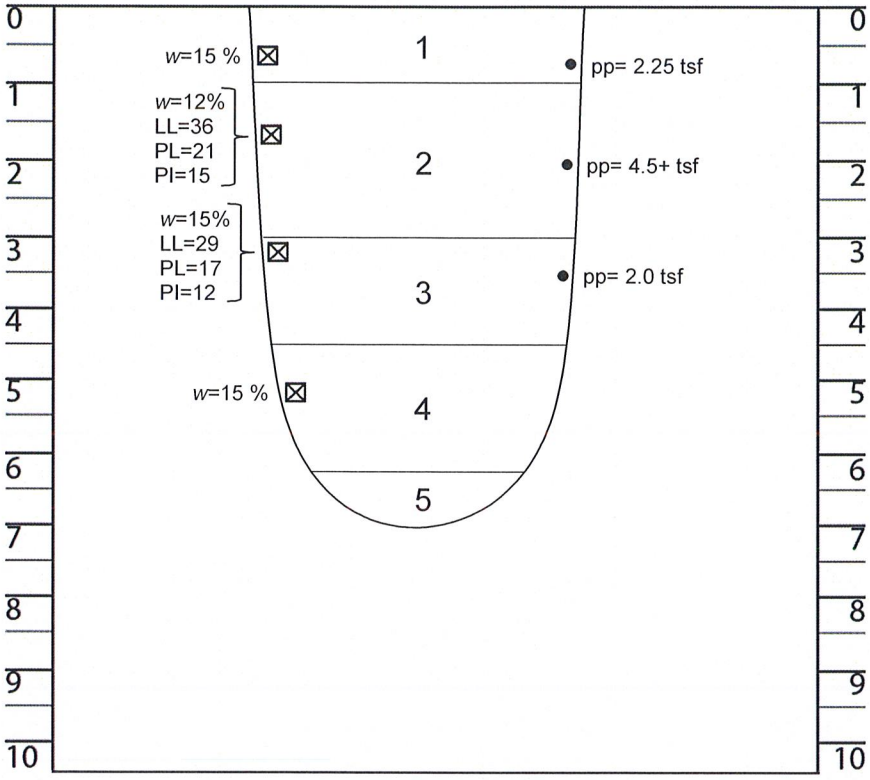
TEST PIT LOCATION AND DESIGNATION

PROPERTY LINE (APPROX.)

100 FOOT MINIMUM SETBACK (FROM TOP OF BLUFF, APPROX.)

REFERENCE: GOOGLE EARTH IMAGERY, DATED AUGUST 18, 2024.

PJC & Associates, Inc. *Consulting Engineers & Geologists*	**TEST PIT LOCATION MAP** PROPOSED NEW RESIDENCE & GEOLOGIC STABILITY OF BLUFF TOP DEVELOPMENT 4920 HIGHWAY 1 BODEGA BAY, CALIFORNIA	PLATE **2**
	Proj. No: P1231.01 Date: 9/2025 App'd by: PJC	



NEAR REFUSAL AT 7.0 FEET

MINOR SEEPAGE ENCOUNTERED AT 6.25 FEET

LITHOLOGY

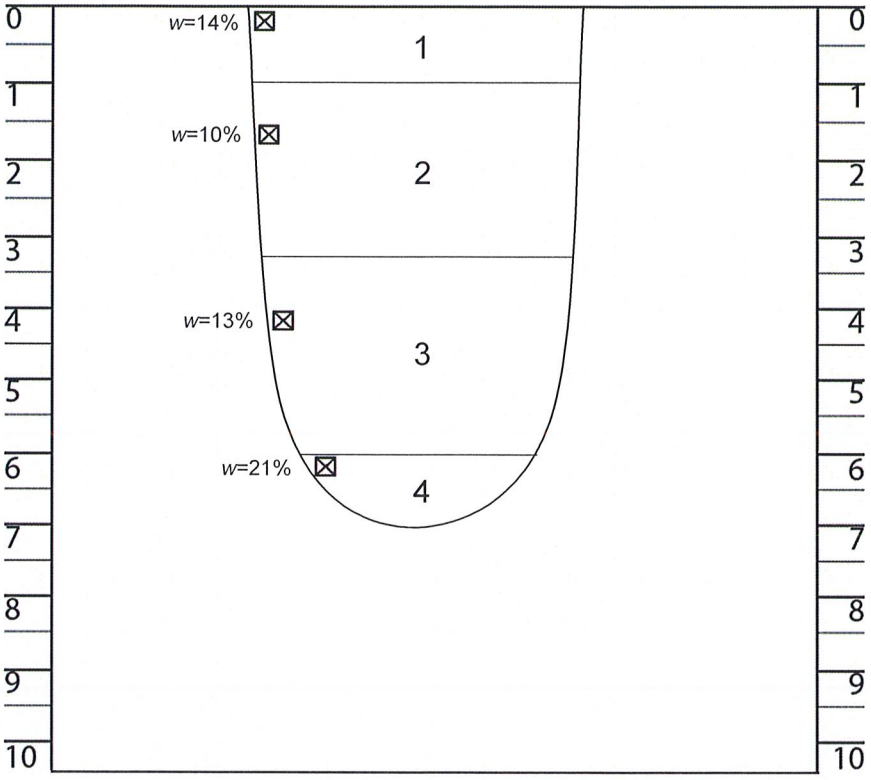
1) 0.0' – 1.0'; SANDY SILT (ML); grayish brown, moist, stiff to very stiff, low plasticity, with clay, with abundant roots (TOPSOIL).

2) 1.0' – 3.0'; SANDY CLAY (CL); dark brown, moist, very stiff to hard, low plasticity (TERRACE DEPOSIT).

3) 3.0' – 4.5'; SANDY CLAY (CL); light gray with orange mottling, moist, very stiff, low plasticity (TERRACE DEPOSIT).

4) 4.5' – 6.25'; CLAYEY SAND (SC); light brown with orange, moist, medium dense, fine-grained, trace subround gravels (TERRACE DEPOSIT)

5) 6.25' – 7.0'; SANDSTONE (Kfs); tan with orange, soft to slightly hard, friable, highly weathered (BEDROCK).



NEAR REFUSAL AT 7.0 FEET

NO GROUNDWATER OR SEEPAGE ENCOUNTERED

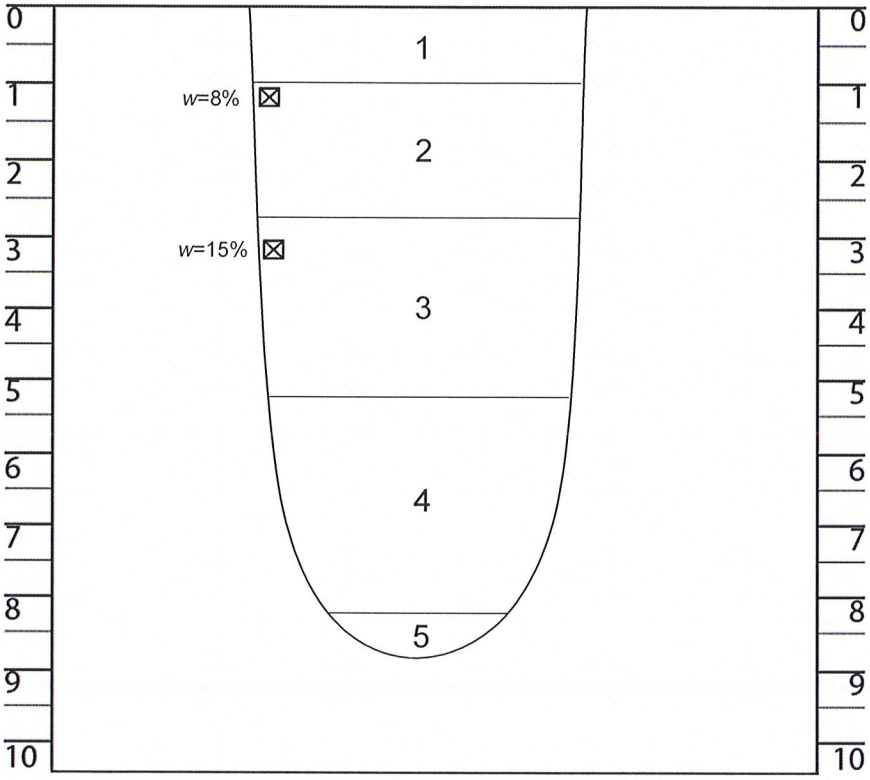
LITHOLOGY

1) 0.0' – 1.0'; SANDY SILT (ML); grayish brown, moist, stiff to very stiff, low plasticity, with abundant roots (TOPSOIL).

2) 1.0' – 3.25'; SILTY SAND (SM); grayish dark brown, slightly moist to moist, medium dense to dense (dense at approx. 2.0'), fine-grained (TERRACE DEPOSIT).

3) 3.25' – 6.0'; CLAYEY SAND (SC); light gray with orange, moist, medium dense to dense (dense at approx. 4.25'), fine to medium-grained, with shale fragments (TERRACE DEPOSIT).

4) 6.0' – 7.0'; SANDSTONE (Kfs); light gray with orange, soft to slightly hard, friable, highly weathered, with shale fragments (BEDROCK).



REFUSAL AT 8.75 FEET

SEEPAGE ENCOUNTERED AT 8.25 FEET

LITHOLOGY

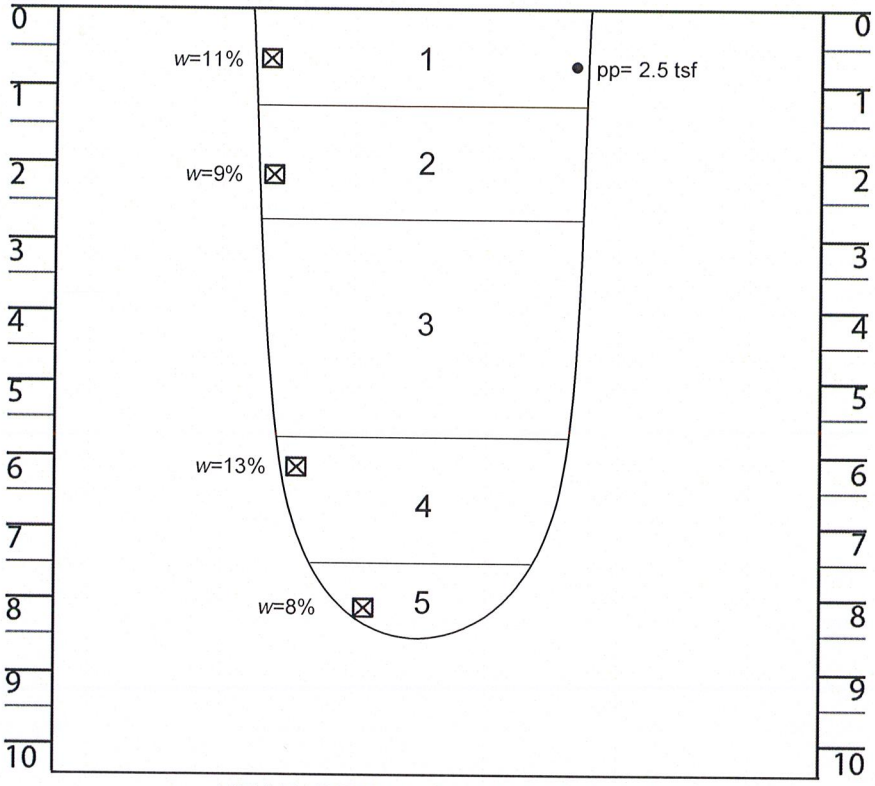
1) 0.0' – 1.0'; SANDY SILT (ML); grayish brown, moist, stiff to very stiff, low plasticity, with rootlets (TOPSOIL).

2) 1.0' – 2.75'; SILTY SAND (SM); grayish brown, slightly moist to moist, medium dense to dense (dense at approx. 2.0'), fine-grained, with few roots (TERRACE DEPOSIT).

3) 2.75' – 5.25'; CLAYEY SAND (SC); light gray with orange, moist, medium dense to dense (dense at approx. 4.25'), fine to medium-grained, with shale fragments (TERRACE DEPOSIT).

4) 5.25' – 8.25'; SAND (SP); light brown with orange, moist, medium dense, fine to medium-grained, with large sandstone fragments (TERRACE DEPOSIT).

5) 8.25' – 8.75'; SANDSTONE (Kfs); light orangish brown, slightly hard, friable, highly weathered (BEDROCK).



NEAR REFUSAL AT 8.5 FEET

NO GROUNDWATER OR SEEPAGE ENCOUNTERED

LITHOLOGY

1) 0.0' – 1.25'; SANDY SILT (ML); grayish dark brown, moist, stiff to very stiff, low plasticity, with abundant roots (TOPSOIL).

2) 1.25' – 2.75'; SILTY SAND (SM); grayish brown, slightly moist, medium dense to dense, fine-grained (TERRACE DEPOSIT).

3) 2.75' – 5.75'; CLAYEY SAND (SC); light gray and orange to light orangish brown, moist, medium dense to dense, fine to medium-grained (TERRACE DEPOSIT).

4) 5.75' – 7.5'; SAND (SP); light orangish brown, moist, medium dense, fine to medium-grained (TERRACE DEPOSIT).

5) 7.5' – 8.5'; SANDSTONE (Kfs); light orangish brown, soft to slightly hard, friable, highly weathered (BEDROCK).

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (More than half is larger than #200 sieve)	GRAVELS (more than half coarse fraction is larger than no. 4 sieve size)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL-SAND MIXTURES
	SANDS (more than half coarse fraction is smaller than no. 4 sieve size)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVEL-SAND MIXTURES
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE GRAINED SOILS (More than half is smaller than #200 sieve)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILTS, SILTY OR CLAYEY FINE SANDS, VERY FINE SANDS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS OR LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

KEY TO TEST DATA

LL — Liquid Limit (in %)
PL — Plastic Limit (in %)
G — Specific Gravity
SA — Sieve Analysis
Consol — Consolidation
■ "Undisturbed" Sample
☒ Bulk or Disturbed Sample
□ No Sample Recovery

	Shear Strength, psf	Confining Pressure, psf	
*Tx	320	(2600)	Unconsolidated Undrained Triaxial
Tx CU	320	(2600)	Consolidated Undrained Triaxial
DS	2750	(2000)	Consolidated Drained Direct Shear
FVS	470		Field Vane Shear
*UC	2000		Unconfined Compression
LVS	700		Laboratory Vane Shear

Notes: (1) All strength tests on 2.8" or 2.4" diameter sample unless otherwise indicated
(2) * Indicates 1.4" diameter sample

ROCK TYPES

 Conglomerate

 Shale

 Metamorphic Rocks
Hydrothermally Altered Rocks

 Sandstone

 Sheared Shale Melange

 Igneous Rocks

 Meta-Sandstone

 Chert

Bedding Thickness		Joint, Fracture or Shear Spacing	
Massive	Greater than 6 feet	Very Widely Spaced	Greater than 6 feet
Thickly Bedded	2 to 6 feet	Widely Spaced	2 to 6 feet
Medium Bedded	8 to 24 inches	Moderately Widely Spaced	8 to 24 inches
Thinly Bedded	2-1/2 to 8 inches	Closely Spaced	2-1/2 inches
Very Thinly Bedded	3/4 to 2-1/2 inches	Very Closely Spaced	3/4 to 2-1/2 inches
Closely Laminated	1/4 to 3/4 inches	Extremely Closely Spaced	Less than 3/4 Inch
Very Closely Laminated	Less than 1/4 inch		

HARDNESS

Soft - Pliable, can be dug by hand

Slightly Hard - Can be gouged deeply or carved with a pocket knife

Moderately Hard - Can be readily scratched by a knife Blade; Scratch leaves heavy trace of dust and is readily visible after the powder has been blown away

Hard - Can be scratched with difficulty; scratch produced little powder and is faintly visible

Very Hard - cannot be scratched with pocket knife, leaves metallic streak

STRENGTH

Plastic- Capable of being molded by hand

Friable - Crumbles by rubbing with fingers

Weak - an unfractured specimen of such material will crumble under light hammer blows

Moderately Strong - Specimen will withstand a few heavy hammer blows before breaking

Strong - Specimen will withstand a few heaving ringing hammer blows and usually yields large fragments

Very Strong - Rock will resist heavy ringing hammer blows and will yield with difficulty only dust and small flying fragments

DEGREE OF WEATHERING

Highly Weathered - Abundant fractures coated with oxides, carbonates, sulphates, mud, etc., through discoloration, rock disintegration, mineral decomposition

Moderately Weathered - Some fracture coating, moderate or localized discoloration, little to no effect on cementation, slight mineral decomposition

Slightly Weathered - A few stained fractures, slight discoloration, little to no effect on cementation, no mineral decomposition

Fresh - Unaffected by weathering agents, no appreciable charge with depth

APPENDIX B
LABORATORY INVESTIGATION

1. INTRODUCTION

This appendix includes a discussion of test procedures of the laboratory tests performed by PJC for use in the geotechnical study. The testing program was carried out by employing, whenever practical, currently accepted test procedures of the American Society of Testing and Materials (ASTM).

Disturbed samples used in the laboratory investigation were obtained during the course of the field investigation as described in Appendix A of this report. Identification of each sample is by test pit number and depth.

2. INDEX PROPERTY TESTING

In the field of soil mechanics and geotechnical engineering design, it is advantageous to have a standard method of identifying soils and classifying them into categories or groups that have similar distinct engineering properties. The most commonly used method of identifying and classifying soils according to their engineering properties is the Unified Soil Classification System described by ASTM D-2487-83. The USCS is based on recognition of the various types and significant distribution of soil characteristics and plasticity of materials.

The index properties tests discussed in this report include the determination of natural water content and Atterberg limits testing.

a. Natural Water Content. Natural water content was determined on selected disturbed samples. The samples were extruded, visually classified, and accurately weighed to obtain wet weight. The samples were then dried, in accordance with ASTM D-2216-80, for a period of 24 hours in an oven maintained at a temperature of 100 degrees C. After drying, the weight of each sample was determined and the moisture content calculated. Test results are presented on the test pit logs.

b. Atterberg Limits. Liquid and plastic limits were determined on selected samples in accordance with ASTM D4318-83. Test results are presented on the test pit logs.

3. ENGINEERING PROPERTIES TESTING

a. Pocket Penetrometer. Pocket Penetrometer tests were performed on all cohesive soils encountered on the test pit walls. The test estimates the unconfined compressive strength of a cohesive material by measuring the materials resistance to penetration by a calibrated, spring-loaded cylinder. The maximum capacity of the cylinder is 4.5 tons per square foot (tsf).

APPENDIX C
REFERENCES

1. Bowels, J, 1992, Engineering Properties of Soils and Their Measurement, 4th Edition.

2. Brown, R.W. 2001, Practical Foundation Engineering Handbook, 2nd Edition.

3. California Building Code, 2022, California Building Standard Commission.

4. USGS Bodega Head, California Quadrangle 7.5-Minute Topographic Map, dated 1972.

5. "Soil Mechanics" Department of the Navy Design Manual 7.1 (NAVFAC DM-7.1), May 1982.

6. ASCE STANDARD ASCE/SEI 7-16, prepared by the American Society of Civil Engineers.

7. USGS Liquefaction Susceptibility Map, 2024.

8. Preliminary Geologic Map of the Napa and Bodega Bay 30' x 60' Quadrangles, California, by David L. Wagner and Carlos I. Gutierrez, California Geological Survey, 2017.

9. CaliforniaCoastline.org, prepared by Kenneth & Gabrielle Adelman, dated 2002-2013.

10. USGS National Seismic Hazard Maps, 2008.

11. Sonoma County Local Coastal Plan, dated July 17, 2023.

12. Coastal Erosion Analysis at Gleason Beach, Caltrans / WRECO, dated 2020.

13. Geology for Planning in Sonoma County, Special Report 120, California Division of Mines and Geology, 1980.

Coastal Permit Application Requirements

PJR-035

PURPOSE:

The purpose of this form is to identify the information and materials to be submitted with a Coastal Permit application.

Coastal permits are required for development on parcels located within the Coastal Zone (parcels with "Coastal Combining" or "CC" on County zoning maps). Development is defined in the Sonoma County Coastal Zoning Ordinance, Section 26C-12. Some development projects may be exempted or excluded from a coastal permit requirement. Inquire at the Permit and Resource Management Department (PRMD), Zoning Cubicle, for more details.

PROCEDURE:

Coastal permits are processed either administratively without a hearing, or with a public hearing, typically by the Board of Zoning Adjustments. Examples of administrative reviews include residences on the east side of Highway 1 and residences within established communities. Examples of projects requiring public hearings include residences on the west side of Highway 1, subdivisions, use permits, and commercial and industrial proposals. Project referrals are sent to various agencies for review. Based on those responses and staff review, additional reports or information may be required (see p. 3 for examples). All coastal permit applications include public notice to neighbors in the vicinity of the subject property and other parties who have requested notice. Some coastal permits are appealable to the Coastal Commission, so they will not receive final approval until the end of an appeal period with the California Coastal Commission.

Often coastal permit applications that require a public hearing are also subject to environmental review in accordance with the California Environmental Quality Act (CEQA). Project Review staff will determine if environmental review is required for the proposed project. If environmental review is required, staff will prepare an initial study to determine if there are potential environmental impacts. If no significant environmental impacts will result from the proposed project, a Negative Declaration will be prepared by staff. If potential environmental impacts are identified during the preparation of the initial study, mitigations will be established to reduce those impacts to a less than significant level.

REQUIRED APPLICATION MATERIALS:

The following items are required to process coastal permit applications. Your application will not be accepted unless all required materials are provided.

1. **Completed application form PJR-001.** The application must be signed by the applicant and property owner.

2. **Proposal statement.** This should be a one or two page letter fully describing the current use of the property and how you propose to change it. This should include information regarding the kind of use, the structures proposed, magnitude or size of the use, the intensity of the use and the frequency of the use. Discuss changes in noise, traffic and site appearance that will result from the proposal, quantified where possible. Indicate any planned future use beyond the present proposal. In addition, applicants must complete the attached Supplemental Information pages.

3. **Site plan.** Provide three full-sized site plans (either 24 in. X 36 in. or 11 in. X 17 in.).

All plans must be legible, drawn to scale and folded to 8 ½ in. x 11 in. Preparation of the required site plan by a draftsperson, architect, landscape architect or engineer is strongly recommended. If the existing site is to be significantly modified by the proposed project (i.e. removal of existing buildings, extensive grading and removal of vegetation), both an existing site plan and a proposed site plan should be submitted.

Site plans must include the following:

- Name, address and telephone number of applicant and draftsperson.
- Scale, north arrow, and dimensions of all property lines. (An engineer's scale of 1 in. = 10 ft. or 20 ft. is recommended to clearly show the development area). For larger parcels, a vicinity map may be used to depict the entire property.
- Location and identification of all existing and proposed buildings, structures, etc., including their dimensions and distances to property lines. Identify land uses on adjacent properties and depict buildings, structures, etc. within 50 ft. of the subject property.
- Location, width, name and status (public or private) of all existing and proposed roads and easements lying within, adjacent to or serving the site, showing route of access from the road.
- Location of streams, ditches, drainage facilities and other water courses, ponding areas, or areas subject to periodic inundation.
- Lines indicating the direction of slope and approximate percent of grade. Topographic lines are recommended.
- Location of any existing or proposed wells and septic systems including distances to waterways, drainage courses, cut/fill areas, structures and roadways.
- Location and dimensions of all parking areas and driveways from adjacent roadways.
- Locate and Identify all existing trees in the development area. The following trees greater than 9 inches diameter at breast height are protected by the Sonoma County Tree Protection Ordinance: big leaf maple, black oak, blue oak, coast live oak, interior live oak, madrone, oracle oak, Oregon oak, redwood, valley oak and California bay. If the project is of such a large scale that it is not possible to identify all protected trees, the dripline of tree masses with species identified shall be shown on the site plan. More detailed information may be required during processing of the application.

4. **Reduced site plan.** Provide one reduced-size site plan (8 ½ in. X 11 in.). This reduced site plan must clearly depict the information shown on the full-sized site plan.

5. **Preliminary architectural plans.** Provide three full-sized copies of all architectural elevations and floor plans. Structural plans are not required until application is made for building permits. The elevations must identify the type and color of the roof and other exterior materials. All mechanical equipment, exterior lights, trash enclosures and other exterior structures must be shown on these plans. A section is required for each structure showing the location of natural grade underneath the structure; the building's height must be identified on the section (measured from the average of the highest and lowest points of the lot covered by the structure to the topmost point of the roof).

6. **Location/vicinity map**. Provide one 8 ½ in. X 11 in. location/vicinity map (locator map or road map) showing where the project is located in relation to nearby lots, streets, highways and/or major natural features.

7. **Assessor's parcel map.** Provide one 8 ½ in. X 11 in. copy of the current Assessor's Parcel Map with the project site shown. Maps may be obtained from the County Assessor's Office or PRMD.

8. **USGS quad map with the site outlined.** Provide one 8 ½ in. X 11 in. excerpt of a USGS quad map with the project site identified. Maps may be obtained from PRMD. Check current fee schedule for cost.

9. **Architectural Review Committee.** Construction of new homes in subdivisions of Bodega Harbor, Sereno Del Mar, Timber Cove, and The Sea Ranch are subject to **architectural review** by the homeowner's association. Evidence of such approval must accompany this application.

10. **Preliminary grading and drainage plans.** Preliminary grading and drainage plans are often required. The grading plan prepared by a registered civil engineer should show existing and proposed contours, the amount of proposed excavation and fill (in cubic yards) and any necessary deposition sites, on or offsite. Drainage plans should show drainage patterns for all runoff from the site, location of drainage swales, ditches, and culverts, and the size of all drainage structures. The plan should also describe how grading will be conducted so as to minimize erosion during and after construction.

11. **Stormwater Management Submittals**. Provide description of stormwater management including runoff, treatment, drainage, and flood control. If applicable, provide location of existing wetlands and measures to avoid. An alternative analysis should be required demonstrating why the wetlands cannot be avoided.

12. **Filing fee.** See current PRMD Project Review fee schedule.

ADDITIONAL REQUIREMENTS:

The following are examples of additional reports or information that may be required in order for PRMD to complete the processing of your application for a Coastal Permit. Applicants will be notified by their assigned Project Review planner if such reports or information is required.

1. **Archaeological Report.** Required for all projects where the Sonoma State University Northwest Information Center recommends that a survey be performed.

2. **Biotic Report.** Required if an endangered species, Environmentally Sensitive Habitat Area (ESHA), stream, creek, wetland, or sand dune occupies any portion of the site or is within 300 feet of development.

3. **Landscape Plan.** Required where the project is visible from a designated Scenic Resource area, a scenic corridor, or public view area to screen the project.

4. **Story Pole Placement.** Required for projects within designated Scenic Resource areas, scenic corridors, or visible from public areas.

5. **Water/Sewer Service Letter.** Must be included with the application if water or sewer services are proposed to be provided by a service district, public agency, or community system.

6. **Geotechnical Investigation.** For development within 100 feet of a bluff or in an area of high geologic hazard, a comprehensive, site-specific geology and soils report must be submitted in accordance with the Interpretive Guidelines adopted by the Coastal Commission (Geologic Stability of Blufftop Development). Copies of the guidelines are available at PRMD. The report must determine what there will be no significant impact from grading, site preparation, drainage, leachfields and foundation plans.

Coastal Permit Application
Supplemental Information

PURPOSE:

This form is to be completed by applicants in order to provide additional information regarding a Coastal Permit application. The more details that are provided, the easier it will be to promptly process the Coastal Permit application. Please answer all questions. Indicate "Not Applicable" or "N/A" for those questions which do not pertain to the proposed project. It is important that applicants provide complete answers to all questions.

1. Are there existing structures or improvements on the property? ❑ Yes ☒ No
   If yes, describe below and identify the use and size of each structure or improvement.

2. Describe the project and include structure sizes(s) (in square feet), improvements such as wells, septic systems, grading, vegetation removal, roads, driveways, propane tanks, oil tanks, water storage tanks, solar panels, etc.

   The project proposes construction of a new single-family residence with a total floor area of 2,690 square feet, along with associated site improvements customary for residential use. Improvements include driveway access from Highway 1, on-site parking, utilities, public water service, and on-site wastewater disposal. Limited grading is proposed in association with the building footprint and driveway, with drainage designed to follow existing site patterns. Landscaping will consist of limited plantings associated with the residence, with vegetation removal confined to the minimum necessary to accommodate the proposed development.

3. Is any grading or road/driveway construction planned? ☒ Yes ❑ No

   Estimate the amount of grading in cubic yards: 80 CY

   If greater than 50 cubic yards or if greater than 2 feet of cut or 1 foot of fill will result, a grading plan and permit will be required.

   Estimate the length of the proposed road/driveway: 90 feet.

4. Will vegetation be removed on areas other than the building sites and roads?
   ❑ Yes ☒ No

   If yes, explain:

5. Are there any water courses, anadromous fish streams, sand dunes, rookeries, marine mammal haul-out areas, wetlands, riparian areas, rare or endangered plants, animals or habitat which support rare and endangered species located on the project site or within 100 feet of the project site? If yes explain:

No watercourses, anadromous fish streams, sand dunes, rookeries, marine mammal haul-out areas, wetlands, riparian areas, or special-status species or habitat have been identified on the project site. A roadside drainage feature (manmade roadside ditch) is located within the public right-of-way along Highway 1, outside the parcel boundary.

6. How many trees will be removed to implement the project: None. Indicate on the site plan all trees to be removed which are greater than 9 inches in diameter (measured four feet from the ground). If applicable, please indicate on the site plan the size, location and species of all on-site trees that provide screening from public view areas.

7. Will the proposed development be visible from:
   - ❑ A. State Highway 1? ☒ Yes ❑ No
   - ❑ B. Other Scenic Corridor? (see list below) ❑ Yes ❑ No
   - ❑ C. Park, beach, or recreation area? ❑ Yes ❑ No

If you answered yes, explain
The project site is adjacent to State Highway 1 and the proposed residence may be partially visible from the roadway. The residence is designed with a low profile, restrained massing, and coastal-appropriate materials, and will be sited to be visually compatible with the surrounding residential context. Landscaping and site design measures will further assist in integrating the development into its setting.

Scenic Corridors: Stewarts Point-Skaggs Springs Road, Fort Ross Road, Myers Grade/Seaview Road, Highway 116, Willow Creek (paved portion), Coleman Valley Road, Bay Hill Road, Bodega Highway and Petaluma-Valley Ford Road.

8. Height of structure(s) in feet (measured from average grade to the highest point of the structure). Identify height of building(s) on architectural elevations:

Dwelling: 22' 6" ; Accessory shed: max 12'

9. Describe all exterior materials and colors of all proposed structures

Siding material	Wood	Color	Brown
Trim material	Wood	Color	Brown
Chimney material	Non combustible enclosure	Color	Brown
Roofing material	Metal	Color	Matte Dark Bronze
Window frame material	Aluminum clad wood	Color	Matte Dark Bronze
Door material	Wood	Color	Brown

Fencing material Wood Color Brown

Retaining wall material N/A Color _____

Other exterior materials _____ Color _____

10. Will there be any new exterior lighting? ☒ Yes ❑ No
If yes, provide lighting details and specifications for all exterior lighting fixtures. All lighting fixtures must be downcast and shielded to prevent light and glare beyond the parcel boundaries. Identify the location of all exterior lighting on the site plan or building plan.

Exterior lighting is proposed as shown on the plans and will be limited in scope. All exterior lighting will be dark-sky compliant, fully shielded, and directed downward. Fixtures will be low-intensity, not exceeding 700 lumens and 3000 Kelvin color temperature, with no light trespass exceeding 1 lux at the property line. Fixture finishes will be dark bronze or matte black to match window frames and minimize visual impact.

11. If the project is commercial, industrial, or institutional, complete the following:

Total square footage of all structures: _____

Estimated employees per shift: _____

Estimated shifts per day: _____

Type of loading facilities proposed: _____

Will the proposed project be phased? ❑ Yes ❑ No

If Yes, explain your plans for phasing: _____

Parking will be provided as follows:

Number of Spaces:

Existing: _____ Proposed: _____ Total: _____

Number of standard spaces: _____ Size: _____

Number of handicapped spaces: _____ Size: _____

12. What will be the method of sewage disposal?
❑ Community sewage system, specify _____

❑ Septic Tank (indicate primary and replacement leachfields on plot plan)

☒ Other, specify Waste tank with alternative onsite system of wastewater disposal (no septic systems)

13. What will be the domestic water source?

☒ Community water system, specify supplier: Russian River Utility

❑ Well ❑ On-site ❑ Off-site

❑ Spring ❑ On-site ❑ Off-site

❑ Other, specify _____

14. Utilities will be supplied to the site as follows:

Electricity:

☒ Utility Company (service exists to the parcel)
❑ Utility Company requires extension of services to site: _____ feet _____ miles
❑ On Site generation, Specify: _____
❑ None

Gas:

☒ Utility Company/Tank
❑ None

Russian River Utility
P.O. Box 730
Forestville • CA 95436-0730
Phone (707) 887-7735
Fax (707) 887-9445

January 14, 2025

To: Edoardo Croce
Re: Will Serve Letter Request
4920 Highway 1, Carmet Subdivision, Bodega Bay, CA 94923

Dear Edoardo:

The Carmet-by-the-Sea Water Company serves properties within the Carmet subdivision.

There is no moratorium on new connections in the Carmet water system at this time.

Yours very truly,

Stephanie Voet