155 Horse Shoe Hill Road
House & Site Renovation/Addition

ARCHITECT:
Robert Luchetti Associates, Inc.
5 Clevland St.
Cambridge, MA 02138
Tel 617 877 6611
Email BobL@Luchetti.com

PP SET
05 March 2025
1 - 04.24.25

155 Horse Shoe Hill Road
Bolinas, CA 94924

GENERAL NOTES

1. Verify all existing dimensions & conditions at the site & notify architect of any variations or conflicting or missing dimensions or data prior to bidding or commencing work. Use written dimensions only; do not scale drawings for the purpose of determining a dimension during construction.

2. Conditions not specifically detailed shall be built to conform to similar construction, in accordance with the best common practice and/or manufacturer's specifications for the installation of their materials or items.

3. All materials, workmanship & methods shall conform to currently adopted uniform building code (ubc),uniform plumbing code (upc), uniform mechanical code, and the national electrical code (nec) as adopted and amended by the state of California title 24, California electrical code, California code of regulations & other applicable codes & ordinances of the local jurisdiction.

4. Safety: the contractor shall be solely responsible for safety on the job site and adhere to all federal, state local and O.S.H.A. Safety regulations.

5. Construction bracing & shoring: the contractor shall be solely responsible for all bracing and shoring required during construction until all construction is complete.

6. Do not store construction materials or operate construction equipment in such a manner that design live loads of the structures are exceeded. Do not store construction materials on overhanging framing.

7. Trees located close to the construction site shall be protected from inadvertent damage from construction equipment by wrapping trunks with protective materials, avoiding fill of any type against the base of the trunks and avoiding an increase in soil depth at the feeding zone or drip line of the retained trees.

8. Annular spaces around pipes, electric cables, conduits, or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such openings with cement mortar, concrete masonry or similar method acceptable to the enforcing agency.

9. Use a waste management company to recycle and/or salvage for reuse a minimum of 75 percent of the non-hazardous construction and demolition waste - management company to provide required documentation.

10. An operation and maintenance manual shall be provided to the building occupant or owner.

11. Duct openings and other related air distribution component openings shall be covered during construction.

12. Paints, stains, coating, adhesives, sealants and caulks shall be compliant with voc and other toxic compound limits. General contractor to provide compliance documentation.

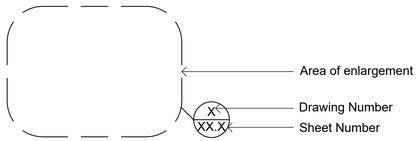
13. Aerosol paints and other coatings shall be compliant with product weighted mir limits for roc and other toxic compounds. General contractor to provide compliance documentation.

14. Particleboard, medium density fiberboard (mdf), and hardwood plywood used in interior finish systems shall comply with low formaldehyde emission standards.

15. Moisture content of building materials used in wall and floor framing is checked before enclosure.

SYMBOLS LEGEND

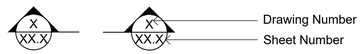
Enlargement/Detail Bubble



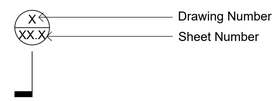
Exterior Elevation Marker



Section Marker



Detail Section Marker



Elevation Marker



Elevation Spot Marker



Door Marker



Window Marker



Room Marker



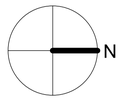
Centerline Marker



Cutline Marker



North Arrow



ABBREVIATIONS

AFF	Above finished floor
Alum.	Aluminum
B.O.R.	Bottom of roof
Conc.	Concrete
Demo	Demolish/Demolition
EL	Elevation height
FCB	Fiber Cement Board
FF	Finished floor
HB	Hose bib
Ptd.	Painted
Requ'd	Required
TBD	To be determined
T.O.C.	Top of column
T.O.P.	Top of parapet
T.O.R.	Top of roof
T.O.W.	Top of wall

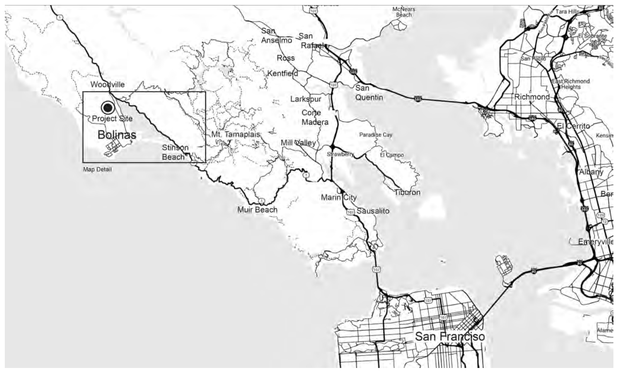
SITE DATA

Project Name: 155 Horse Shoe Hill Road House & Site Renovation/Addition
Project Type: Renovation - Single Family Residence, New Construction - Site work & Accessory Buildings/Studio
Address: 155 Horse Shoe Hill Road, Bolinas, CA 94924
Assessors Parcel: 188-150-67
Description of Work: Exterior and Site renovation of existing house & ADU, New construction of Studio & Water System Shed, see scope of work for further description
Jurisdiction: County of Marin
Wildland Urban Interface: Yes
Zoning Designation: C-ARP
Average Slope: 9.3%
Lot Area: 86,888 gross sq. ft

MARIN COUNTY BUILDING CODES

- 2022 California Building Code
- 2022 California Residential Code
- 2022 California Electrical Code
- 2022 California Mechanical Code
- 2022 California Plumbing Code
- 2022 California Fire Code
- 2022 California Energy Code
- 2022 California Green Building Standards Code





BUILDING DATA & PLANNING CALCULATIONS

	Area (SF)	
Building Floor Area	Existing	New
Main House		
First Floor	2,626.8	2,641.5
Mezzanine	248.0	248.0
Casitia		
First Floor	325.5	659.0
Mezzanine	56.4	-
Studio	508.3	544.0
Hut	214.5	
Total Habital Area	**3,979.5**	**4,092.5**
Non- Habital		
Shed 1	112.0	408.0
Shed 2	75.0	
Shed 3	27.7	
Shed 4	213.6	
Total	428.3	408.0
Total Non-habital minus 250SF	**178.3**	**158.0**
Total Building Floor Area	4,157.8	4,250.5
Lot Area	86,607.9	
FAR	**4.8%**	**4.9%**
Total Change	0.1%	
Lot Area	86,607.9	
Building Area	4,103.4	4,252.5
Lot Coverage	**4.7%**	**4.9%**
Total Change	0.2%	
Impervious Area	6,332.0	9,717.0
Previous Area	80,275.9	76,890.9

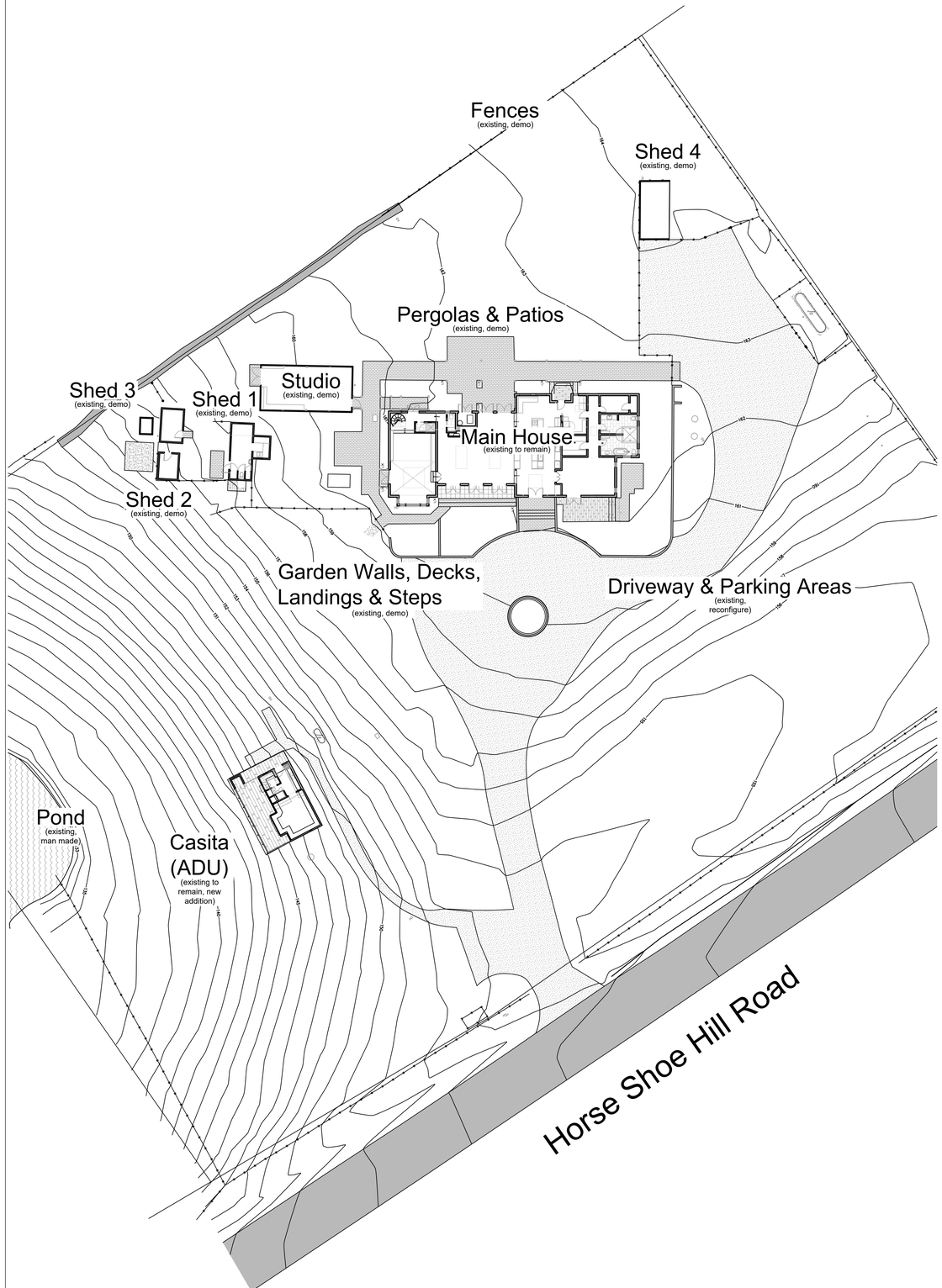
LIST OF DRAWINGS

0.0 Cover Sheet
0.1 Existing Site & Proposed Site Plans
0.2 Existing Site Overview Plan
0.3 Proposed Site Overview Plan
0.4 3D Views
0.5 3D Views
0.6 Construction Management Plan
1of4 Topographical Map
2of4 Topographical Map
3of4 Topographical Map
4of4 Topographical Map
D0.1 Site Demolition Plan - Partial NW
D0.2 Site Demolition Plan - Partial SW
D0.3 Site Demolition Plan - Partial SE
D0.4 Site Demolition Plan - Partial NE
D1.0 Main House & Casita (ADU) Demolition Plans
D1.1 Main House & Casita (ADU) Demolition Roof Plans
D2.0 Main House Demolition Elevations
D2.1 Casita (ADU) Demolition Elevations & Section
A0.1 New Site Plan - Partial NW
A0.2 New Site Plan - Partial SW
A0.3 New Site Plan - Partial SE
A0.4 New Site Plan - Partial NE
A0.5 New Roof Overlay, Column EL Heights, and Story Pole Partial Plan - West
A0.6 New Roof Overlay, Column EL Heights, and Story Pole Partial Plan - East
A0.7 New Exterior Lighting Plan - West
A0.7 New Exterior Lighting Plan - East
A1.0 Main House Floor Plan
A1.1 New Accessory Buildings & Casita (ADU) Addition Plans
A1.2 New Main House, Accessory Buildings & Casita (ADU) Addition Roof Plans
A2.0 New Main House Exterior Elevations
A2.1 New Main House Exterior Elevations - with Pergolas, Canopies and Trellises
A2.2 New Studio & WS Shed Exterior Elevations
A2.3 New Casita (ADU) Exterior Elevations
A3.0 New Main House Sections - with Pergolas, Canopies and Trellises
A3.1 New Casita (ADU), Studio & WS Shed Sections

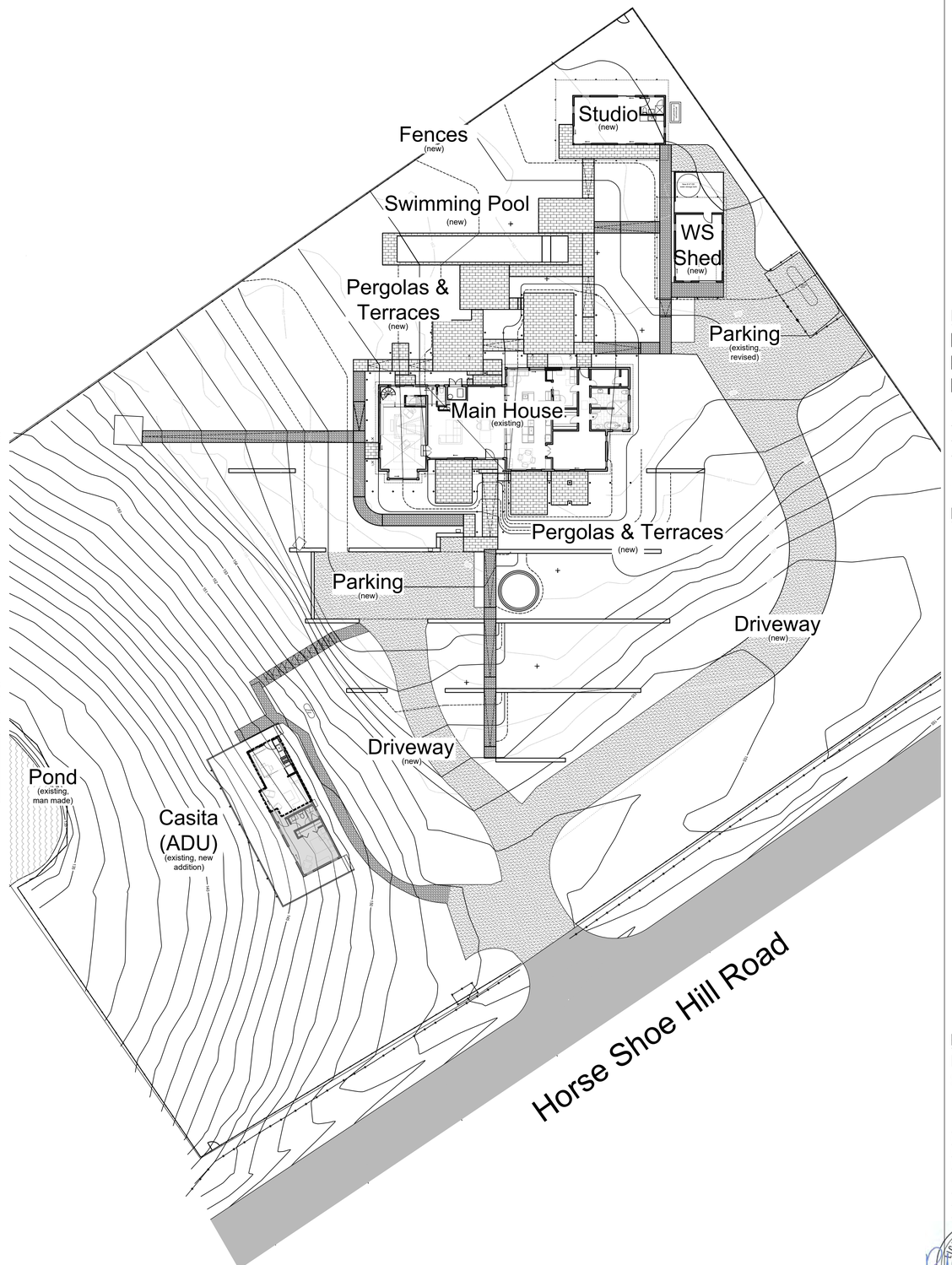
LANDSCAPE
L1.0 Landscape Concept
L1.1 Vegetation Management Plan
L2.0 Irrigation Concept

CIVIL
C-1.0 Site Overview Plan
C-1.1 Project Notes
C-1.2 MCSTOPPP
C-1.3 BMPS
C-2.0 Grading Plan
C-2.1 Drainage & Utility Plan
C2.2 Erosion and Sedimentation Control Plan
C-3.0 BASMAA Compliance

SEPTIC
CW-1 Site Overview Plan
CW-1.0 Tank and Field Layout
CW-2.0 Septic and Recirc Tanks
CW-2.1 Sump Tank and Details
CW-2.2 ADU Sump Tank and Details
CW-2.3 Field Layout and Notes



1 Existing Site Plan
Scale: Not to Scale



2 Proposed Site Plan
Scale: Not to Scale

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH — Overhead Lines
- UG — Underground Utility
- Fence

Notes

PP Set

Existing & Proposed Site Plans

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT
ROBERT LUCHETTI
C 24699
6-20-2025
RENEWAL DATE
STATE OF CALIFORNIA

0.1



1 Existing Site Plan
Scale: Not to Scale

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

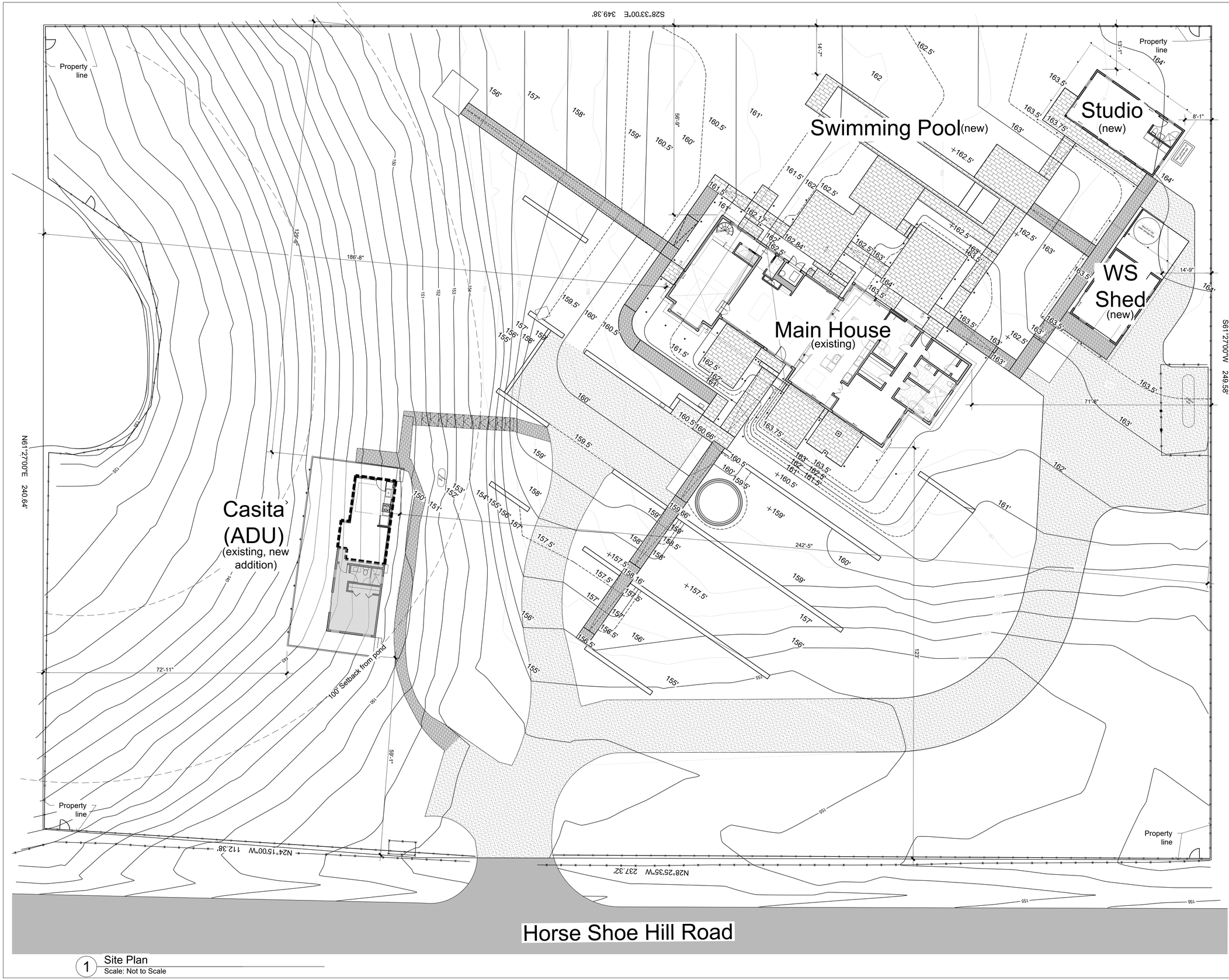
PP Set

Existing Site Overview Plan

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT
ROBERT LUCHETTI
C 24699
6-20-2025
RENEWAL DATE
STATE OF CALIFORNIA

0.2



1 Site Plan
Scale: Not to Scale

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH – Overhead Lines
- UG – Underground Utility
- Fence

Notes

PP Set

Proposed Site Overview Plan

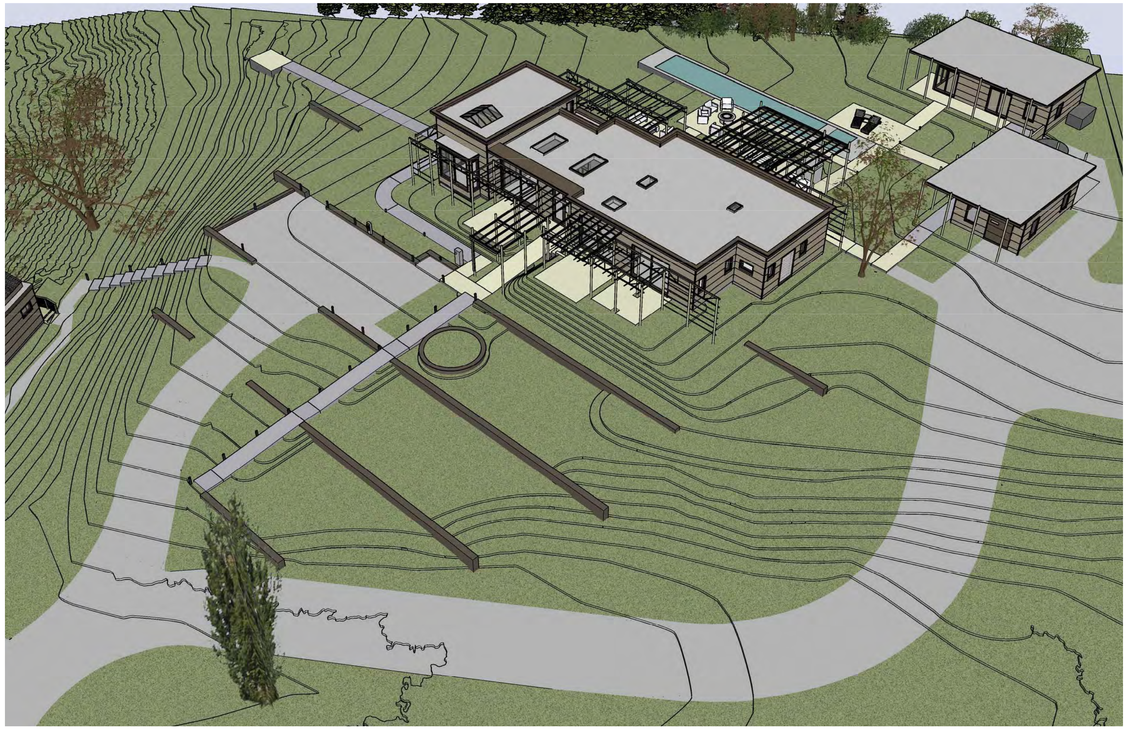
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C-22699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

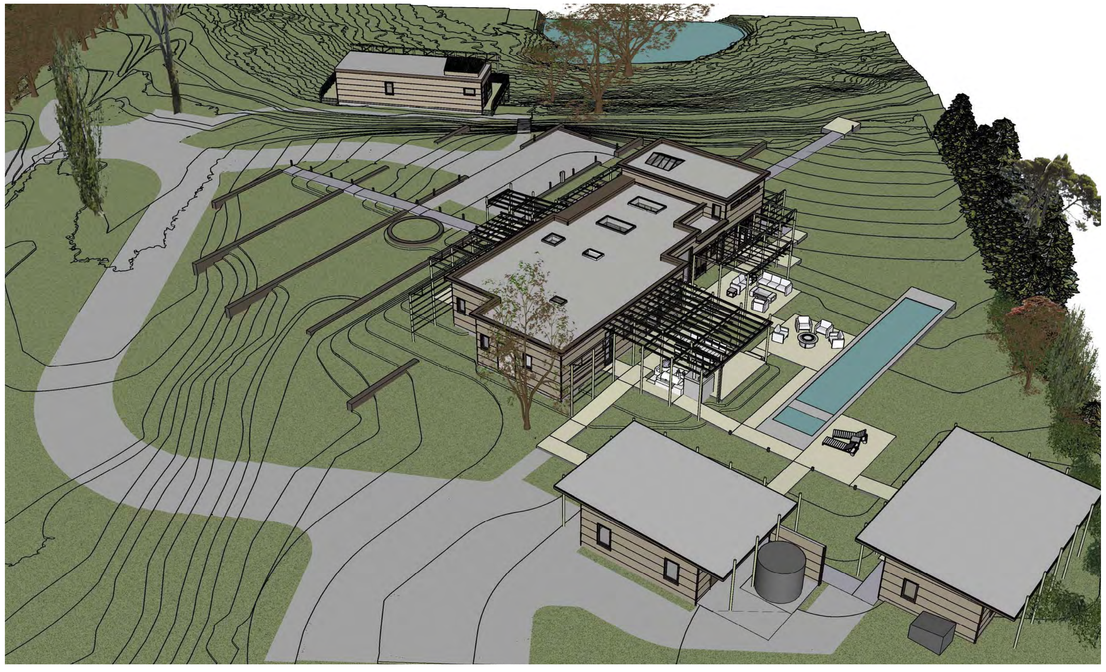
0.3



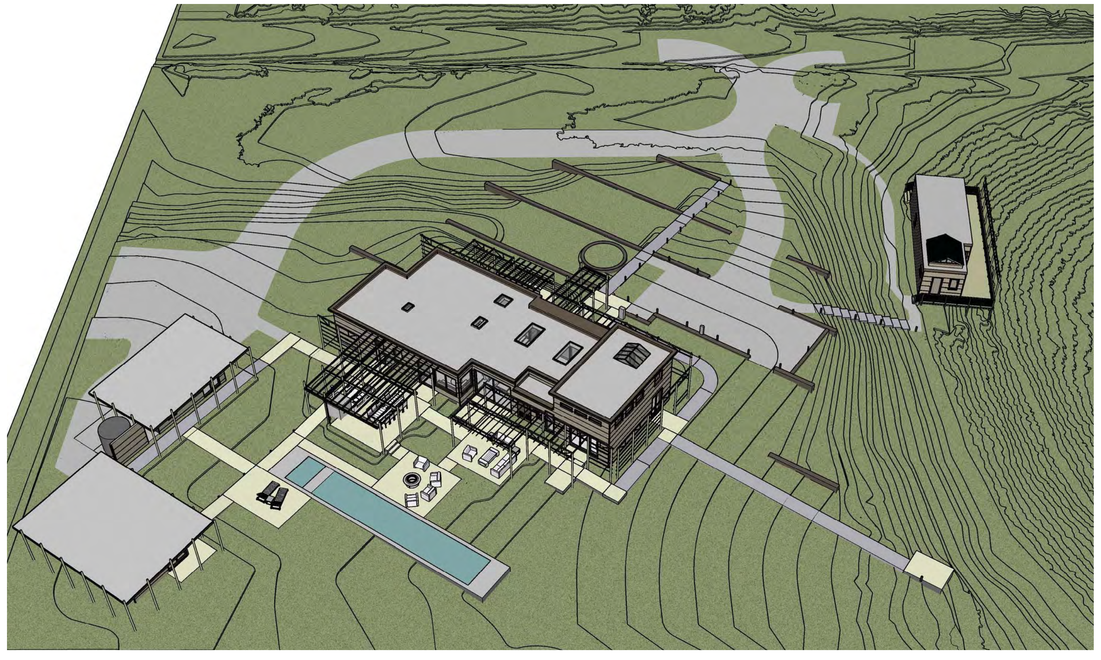
1



2



3



4

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

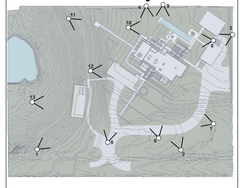
155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

Site View Key Plan



PP Set

3D Views

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

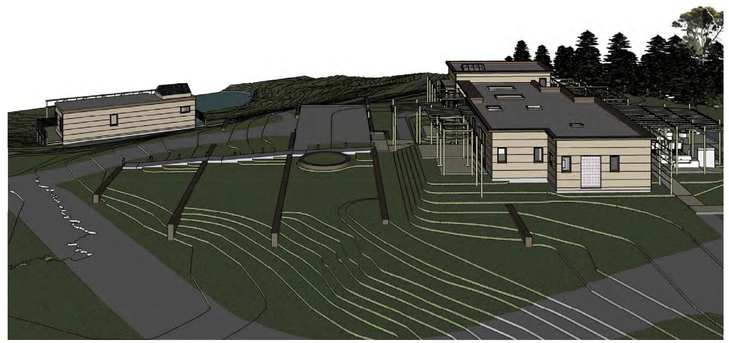
A0.4



5



6



7



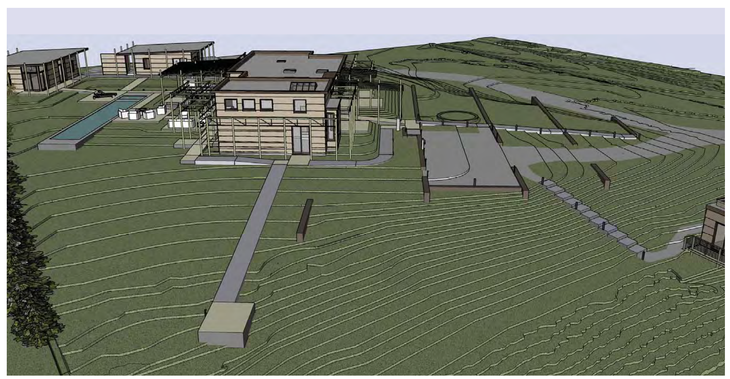
8



9



10



11



12



13

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

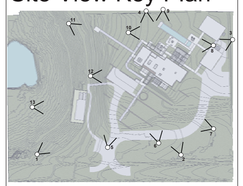
155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

Site View Key Plan

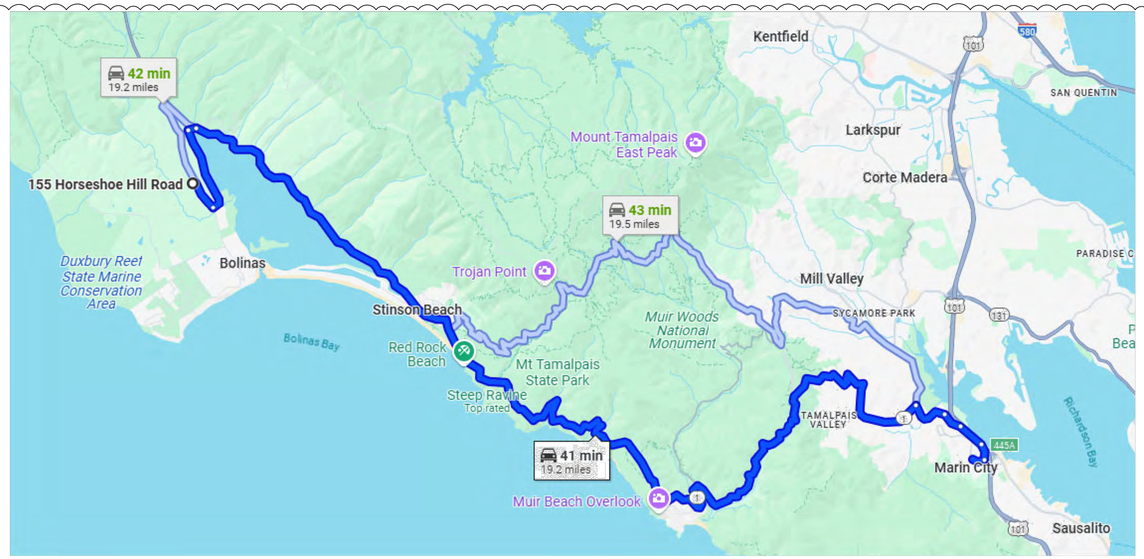


PP Set

3D Views

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

A0.5



Truck Route

Construction Management Plan

Truck Route:

- Turn right onto Horseshoe Hill Rd. Go for .4 mi.
- Turn left onto Olema Bolinas Rd. Go for 1.2 mi.
- Turn right toward CA-1S. Go for .1 mi.
- Continue onto CA=1S. GHO 15.9 mi.
- Turn right to stay on CA-1S. Go for .5 mi.
- Turn right to stay on CA-1S. Go for .3 mi.
- Merge onto CA-1 S/US 101 North or South

Construction Hours (Per Marin County Code Section 6.70.030 (5)):

- Monday - Friday: 7 am to 6 pm
- Saturday: 9 am to 5 pm

Prohibited on Sundays and Holidays (New Year's Day, President's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)

Loud Noise

Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from eight a.m. to five p.m. Monday through Friday only.

Construction Signs

Post a publicly visible sign at the site entry on Horseshoe Hill Road with the construction supervisor's name, telephone number, and address to contact regarding dust control, noise control, and other complaints about the construction activities. Unless otherwise specified by the conditions of approval for a development project, construction signage shall consist of a single yard sign with a maximum area of six feet and a maximum height of six feet and the sign shall remain on site until the outdoor construction activities are completed.

Dust and Emission Control:

1. All unpaved exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to a maximum of 15 miles per hour.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Title 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified emissions evaluator.
8. All construction areas shall be sufficiently dampened to control dust caused by construction and hauling, and at all times provide reasonable dust control of areas subject to windblown erosion.
9. All earthmoving or excavation activities shall be discontinued during periods of high winds to prevent excessive amounts of fugitive dust generation.

Tree Protection

During construction, trees identified on the civil engineering drawing C-2.2 Erosion and Sedimentation Control Plan, revised 4.21.25 that are to be protected with fencing in as follows:

1. Prior to initiating any construction activity in the area, including demolition or grading, temporary protective fencing shall be installed a minimum of two feet beyond the canopy driplines that create the tree protection zone. This fencing is to serve as a barrier to prevent dripline encroachment of any type by construction activities, equipment, materials storage, and personnel.
2. Fencing shall be a minimum of four feet in height at all locations and shall form a contiguous barrier without entry points around the tree. Barrier type fencing such as chain link or Tensar plastic fencing is suggested, but any fencing system that adequately prevents the entry of equipment and activity is acceptable. The fence barrier material is to be supported by a stable and secure wood post and rail frame.

Summary of Construction Activities

Task 1:

Site Preparation will involve developing staging areas to place parking for construction vehicles, and material storage recycling and debris bins, storm drain and runoff protection and truck-wheel gratings/rock beds to keep soil from exiting the site onto Horseshoe Hill Road.

Task 2:

Site Grading includes cut and fill operations for new construction. This task involves the use of bulldozers, compactors, motor graders, scrapers, a water truck, and transportation for workers. The contractor will define the limits of grading, install construction barriers around sensitive trees and vegetation to be avoided, and remove vegetation where construction is planned. Small bulldozers, chain saws, trucks to haul debris and transport workers will be required. Underground Utilities work involves the installation of pumps, pipelines, conduits, and drainage improvements on site. A trenching machine, backhoe, material trucks, a water truck and motor grader will be needed. Approximately 100 trucks will make round trips with an 11cy semi-load each, over a 3-4 week period. Truck traffic will primarily take place between 9:00 a.m. and 3:00 p.m. Monday through Friday. Construction equipment and trucks will at minimum meet Tier 3 interim requirements and all State of California emissions standards. Concrete as well as soldier pile & timber lagging retaining walls, primarily in the auto court and driveway, will be installed due to the change in grades.

Task 3: Building Construction, involves:

a. Structural work: foundations, slab on grade, structural steel erection, wood structure erection. Mobile cranes and all-terrain forklifts will be used to hoist materials. Mobile cranes for steel erection will likely be rough terrain cranes and will be on site for approximately 6-8 weeks. A similar size crane would be used for wood framing, for a total of 4-6 weeks. Concrete boom pumps will be staged next to the building site on concrete pour days, with concrete trucks cycling through the site. Concrete trucks will arrive between 7:00 a.m.-5:00 p.m. with generally no more than 4 trucks/hour during peak traffic times. Large trucks will be making deliveries for steel reinforcement, structural steel, and wood framing materials. These deliveries will primarily occur between the hours of 9:00 a.m. and 3:00 p.m. with generally no more than 1-2 truck deliveries per day outside that window during peak traffic hours. These trucks will mostly be 20' long flatbed trailers, and these deliveries will be limited to no more than 3-4 on any given workday.

b. Exterior skin: includes framing of exterior walls, glazing, roofing, and exterior finishes such as fiber cement siding. Scaffolding may be installed along the building perimeter to facilitate this work. Most staging will be done using all-terrain forklifts and scissor lifts, with occasional use of mobile cranes.

c. Interiors and Equipment: includes mechanical and electrical piping/ductwork, interior stud framing, stairs, drywall, and interior finishes. This work will commence near completion of structure and will continue nearly to project completion. Most material deliveries will be small to moderate in size.

Task 4: Hardscape, Landscape and Cleanup

Includes exterior concrete and paving, some soil will be imported for landscaping and drainage. Planting will be installed last. In this phase, we will reintroduce concrete boom pumps and trucks as

Water Quality / Erosion Control Measures - *see also sheets C-1.2, C02.1, C-2.2 and C-3.0*

a. Revegetate all disturbed areas at the onset (October) of the first winter rainy season following completion of any phase of construction during a year and at a similar time during the next year as required to fully revegetate the site.

b. Install some type of biodegradable surface erosion protection (such as natural mulch, jute netting, erosion control blankets, punched straw) to reduce the erosive energy of incoming raindrops for the first couple of winter months.

c. Install silt fencing along the construction perimeter before the start of construction and retain it in-place until that particular phase of construction is complete and erosion control winterization measures are implemented.

Road/Land Closures:

Permits must be obtained from the Department of Publick Works. Road Closures require posting signs a minimum of 48 hours in advance. Copies of permits mut be maintained and the job site for the duration of the closure.

Deliveries/Off Haul:

Deliveries are limited to weekdays between 10AM and 2PM for trucks exceeding 26' in length.

Parking:

All worker vehicles must park at the job site. Construction vehicle parking in the public right of way will be limited to the hours of work and not exceed posted limits.

Oversize and/or Overweight vehicles:

Per the State of California's Streets & Highways Code (SHC), transportation involving the operation of oversize and/or overweight vehicles on roads maintained by the County of Marin requires a permit from the Department of Public Works — Land Development Division

Construction Management Plan:

Construction will occur on APN 188-150-67 (155 Horseshoe Hill Rd., Bolinas, CA 94924) a built upon parcel

See also Sheet C-1.3.

Project Duration

Task	Activity	Duration	Notes
1	Site Preparation	.5-1 Months	
2	Site Grading & Site Retaining Walls	4-6 Months	Work to Occur outside of winter: October 15th to April 15th
3	Building Construction	10-12 Months	
4	Pool, Hardscape, Landscape & Cleanup	4-6 Months	New soil pavement to occur outside of winter: October 15th to April 15th
Total		18 Months	Some overlap between tasks

1

1 Notes

1. Refer to Sheet C-1.3 for additional Construction Management information.

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

PP Set

Construction Management Plan

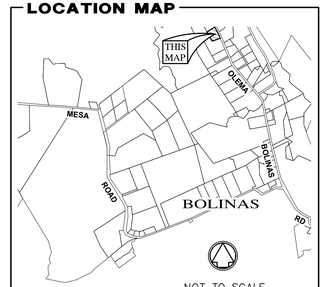
Date: NA Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

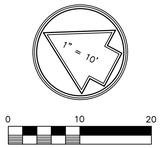
LICENSED ARCHITECT ROBERT LUCHETTI C-24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

0.6



LOCATION MAP





LEGEND

	PROPERTY LINE
	APPROXIMATE TREE DRIP LINE
—x—	FENCE LINE
—OH—	OVERHEAD LINES
— · —	FLOWLINE
△	SURVEY CONTROL POINT
	HOSE BIB (HB)
	JOINT POLE
EB	ELECTRIC BOX
AC	ASPHALTIC CONCRETE
ORN	ORNAMENTAL TREE
AUS LAUREL	AUSTRALIAN LAUREL
JAP MAPL	JAPANESE MAPLE
VEG LB	VEGETABLE LAMB

BENCHMARK

NGS OPUS OBSERVATION AT CP84.
ELEVATION = 154.22' (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 PER RECORD OF SURVEY FILED IN BOOK 2023 MAPS 155.

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.

COPYRIGHT 2020 -- PHELPS & ASSOCIATES, INC. -- LAND SURVEYORS

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

188-150-67

TOPOGRAPHIC MAP

PETER & EMILY LUCHETTI

155 HORSESHOE HILL ROAD, BOLINAS

COUNTY OF MARIN — STATE OF CALIFORNIA

DATE: 6/19/2024	PHELPS & ASSOCIATES LAND SURVEYORS 632 PETALUMA AVE, SEBASTOPOL, CALIFORNIA 95472 / (707) 829-0400	SHEET: 1 OF 4
SCALE: 1" = 10'		JOB No. MARIN-2022-18

1" = 10'

0 10 20

LEGEND

———	PROPERTY LINE
~~	APPROXIMATE TREE DRIP LINE
—x—	FENCE LINE
—OH—	OVERHEAD LINES
— · · —	FLOWLINE
△	SURVEY CONTROL POINT
⚲	HOSE BIB (HB)
⚲	JOINT POLE
EB	ELECTRIC BOX
AC	ASPHALTIC CONCRETE
ORN	ORNAMENTAL TREE
AUS LAUREL	AUSTRALIAN LAUREL
JAP MAPL	JAPANESE MAPLE
VEG LB	VEGETABLE LAMB

HORSESHOE HILL ROAD

AC

AC

CP77 (SPIKE)
EL=152.60'

N28°25'35"W 237.32'

N24°15'00"W 112.38'

CP84 (SPIKE)
EL=154.22'

CP85 (SPIKE)
EL=149.83'

CP86 (SPIKE)
EL=160.24'

CP89 (SPIKE)
EL=162.62'

CP75 (SPIKE)
EL=159.43'

GRAVEL

HOUSE

ADU HOME

2.9' DOOR THRESHOLD= 148.80'

DECK

STEPS

LANDING

BLOCK WALL

PLANTER

CONC. WALL

CONC FOOTING

TRASH ENCLOSURE

PROPANE TANK ON CONC PAD

LP RISER

TEL BOX

WELL BOX

SEPTIC TANK LIDS

SEPTIC TANK LID

ELECTRIC METER

GATE

CONC

HB

UG

OH

6"MAN FERN

8"8"AUS LAUREL

12"AUS LAUREL

10"10"JAP MAPL

10"JAP MAPL

6"JAP MAPL

5' DOOR THRESHOLD EL=164.04'

5' DOOR THRESHOLD EL=164.27'

5' DOOR THRESHOLD EL=162.87'

5' DOOR THRESHOLD EL=162.88'

5' DOOR THRESHOLD EL=162.91'

2.5' DOOR THRESHOLD EL=164.10'

5' DOOR THRESHOLD EL=162.92'

5' DBL DOOR THRESHOLD EL=162.92'

6"x6" POST

8"8"VEG LB

10"VEG LB

18"PALM

12"YUKA

16"PALM

10"POPLAR

14"POPLAR

12"OAK

16"OAK

22"OAK

26"OAK

18"OAK

14"OAK

10"OAK

20"OAK

8"OAK

4"OAK

10"18"OAK

16"16"OAK

20"BUCKEYE CL

8"FRUIT

12"WILLOW

8"10"WILLOW

188-150-67

TOPOGRAPHIC MAP

PETER & EMILY LUCHETTI

155 HORSESHOE HILL ROAD, BOLINAS

COUNTY OF MARIN —— STATE OF CALIFORNIA

DATE: 6/19/2024

SCALE: 1" = 10'

SHEET: 2 OF 4

JOB No. MARIN-2022-18

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



1" = 10'

0 10 20

LEGEND

———	PROPERTY LINE
~~	APPROXIMATE TREE DRIP LINE
—x—	FENCE LINE
—OH—	OVERHEAD LINES
— · · —	FLOWLINE
△	SURVEY CONTROL POINT
Ø	HOSE BIB (HB)
	JOINT POLE
EB	ELECTRIC BOX
AC	ASPHALTIC CONCRETE
ORN	ORNAMENTAL TREE
AUS LAUREL	AUSTRALIAN LAUREL
JAP MAPL	JAPANESE MAPLE
VEG LB	VEGETABLE LAMB

188-150-67

TOPOGRAPHIC MAP

PETER & EMILY LUCHETTI

155 HORSESHOE HILL ROAD, BOLINAS

COUNTY OF MARIN ——— STATE OF CALIFORNIA

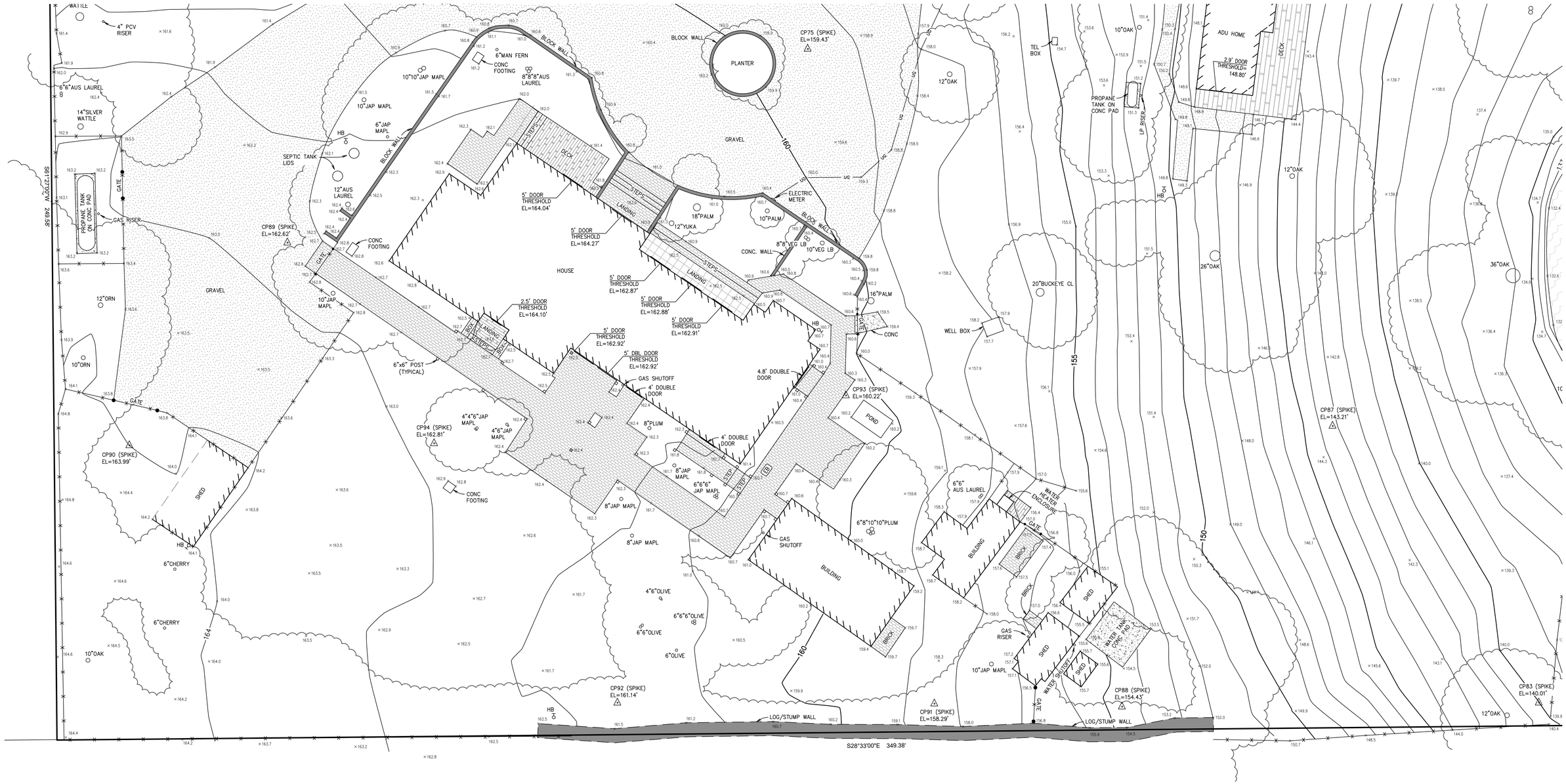
DATE: 6/19/2024

SCALE: 1" = 10'

SHEET: 3 OF 4

JOB No. MARIN-2022-18

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



LEGEND

———	PROPERTY LINE
~~	APPROXIMATE TREE DRIP LINE
——x——	FENCE LINE
——OH——	OVERHEAD LINES
— · · —	FLOWLINE
△	SURVEY CONTROL POINT
♁	HOSE BIB (HB)
	JOINT POLE
EB	ELECTRIC BOX
AC	ASPHALTIC CONCRETE
ORN	ORNAMENTAL TREE
AUS LAUREL	AUSTRALIAN LAUREL
JAP MAPL	JAPANESE MAPLE
VEG LB	VEGETABLE LAMB

1" = 10'

0 10 20

188-150-67

TOPOGRAPHIC MAP

PETER & EMILY LUCHETTI

155 HORSESHOE HILL ROAD, BOLINAS

COUNTY OF MARIN ——— STATE OF CALIFORNIA

DATE: 6/19/2024

SCALE: 1" = 20'

SHEET: 4 OF 4

JOB No. MARIN-2022-18

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

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

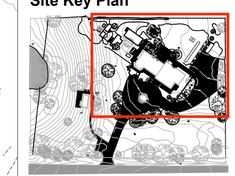
Legend

- Demo
- Demo Fence
- Existing to remain
- OH Overhead lines
- UG Underground utility
- Fence

Notes

1. Salvage all 6x6 wood pergola posts & beams, turnover to owner
2. Salvage brick pavers, stack on pallets and turnover to owner
3. Existing trees to remain unless noted to be removed

Site Key Plan



PP Set

Site Demolition Plan - Partial NW

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

D0.1

1 Partial Site Demolition Plan - North West Corner
scale 1/8" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

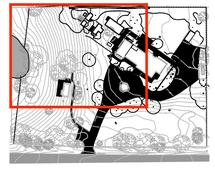
155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Demo
- Demo Fence
- Existing to remain
- Overhead lines
- Underground utility
- Fence

Notes

Site Key Plan



PP Set

Site Demolition Plan - Partial SW

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:



D0.2

1 Partial Site Demolition Plan - South West Corner
scale: 1/8" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Demo
- Demo Fence
- Existing to remain
- Overhead lines
- Underground utility
- Fence

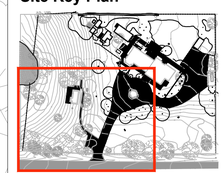
Notes

Pond
36"Oak
26"Oak
Remove 20" Buckeye cl
Remove 16"Palm
5' Door threshold EL=162.88'
2.5' Door threshold EL=164.10'
5' Door threshold EL=162.87'
Demo landing
Demo steps
Remove 10"veg lb
Demo concrete wall
Demo stucco & CMU block wall
Remove 8"8"veg lb
Remove 10"Palm
Remove 12"Yuka
Remove 18"Palm
Demo landing
Demo steps
Relocate electric meter
Demo deck
Gravel
Existing driveway to be relocated
Planter to remain
Demo block wall
Block wall to remain
CP75 (SPIKE) EL=159.43'
Remove 12"Oak
Relocate telephone box
HB
12"Oak
Remove trees shrubs & groundcover
Propane tank on conc pad
LP riser
Existing propane tank to remain
2.9' door threshold= 148.80'
Demo deck
Casita (ADU) - to remain
10"Oak
10"Oak
N61°27'00"E 240.64'
8" & 10"Willow
84'-4"
12"Willow
(2) 10"Oak
80'-5"
50' Setback from pond
Demo existing deck for new addition and replacement deck
Trees shrubs & groundcover to remain
Septic tank lid
Demo existing fence after new deer fence has been installed
8"Fruit to remain
Remove 8"Oak
Remove 8"Oak
Remove 8"Oak
Existing driveway to be relocated
Gravel
183'-4"
154'-1"
142'-8"
Remove 8"Oak
Remove 12"Oak
Remove 8"Oak
Remove 8"Oak
Remove 4"Oak
Remove 10"Oak
Remove 10"Oak
Remove 8"Oak
Remove 8"Oak
Remove 10"Oak
123'-2"
CP85 (SPIKE) EL=149.83'
Trees shrubs & groundcover to remain
100' Setback from pond
87'-9"
88'-9"
Trees shrubs & groundcover to remain
HB
12"Oak
16"Oak
Existing driveway to be relocated
CP84 (SPIKE) EL=154.22'
Demo concrete footing
Trees shrubs & groundcover to remain
Trees shrubs & groundcover to remain
20"Oak
Property line
10"Oak
14"Oak
10"Oak
10"Oak
14"Oak
10"Oak
10" & 18"Oak
18"Oak
Existing wood fence to remain
Trash enclosure
18"Oak
14"Poplar
Gravel
10"Poplar
26"Oak
22"Oak
(2) 16"Oak
N24°15'00"W 112.38'
10"Oak
N28°25'35"W 237.32'
16"Oak
Trees shrubs & groundcover to remain
Horse Shoe Hill Road
Ac

1 Partial Site Demolition Plan - South East Corner
scale 1/8" = 1'-0"

N

Site Key Plan



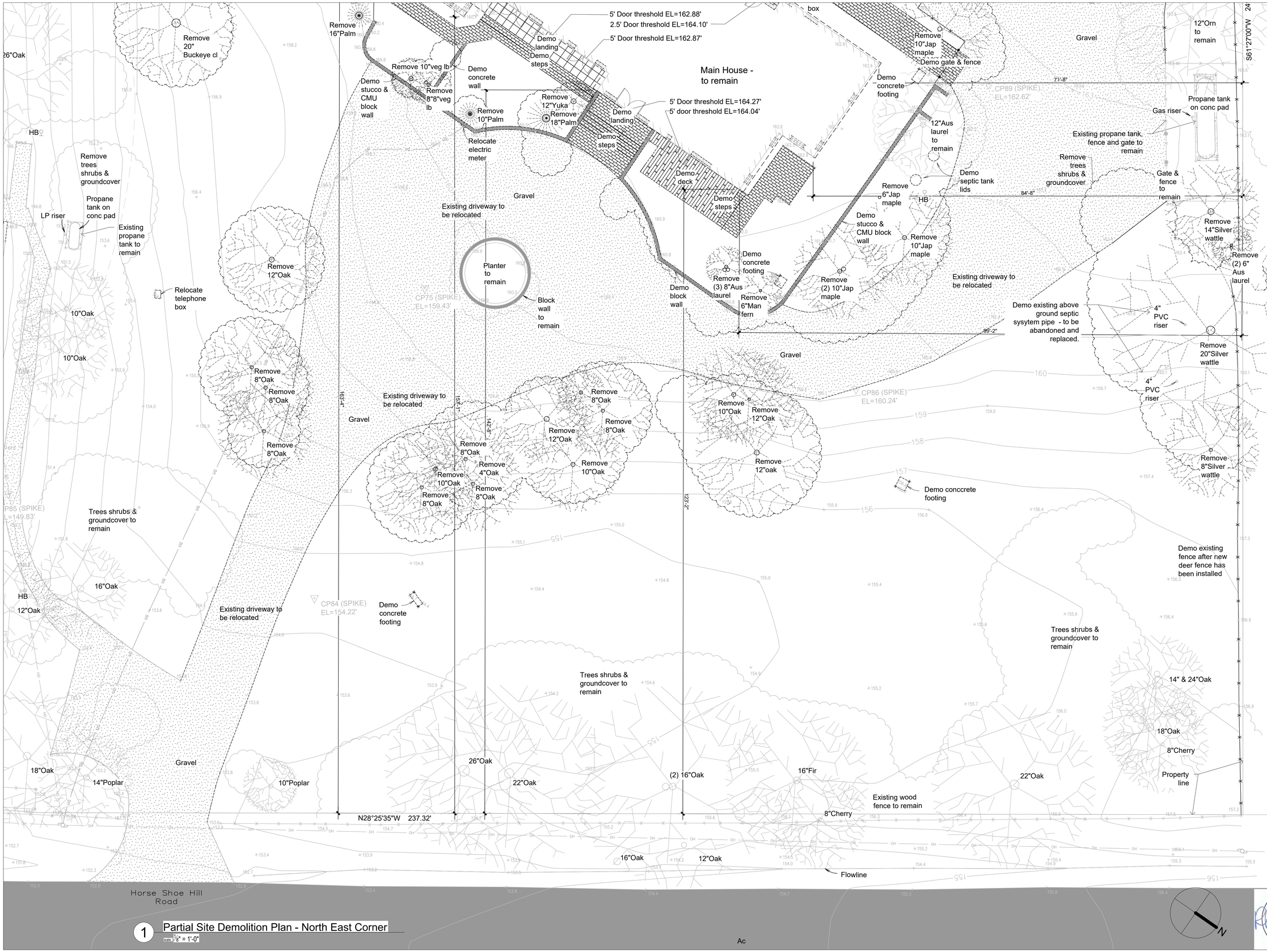
PP Set

Site Demolition Plan - Partial SE

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI STATE OF CALIFORNIA
24699
6-20-2025
RENEWAL DATE

D0.3



1 Partial Site Demolition Plan - North East Corner
scale 1/8" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

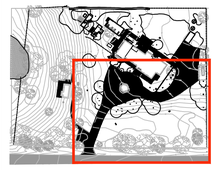
155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Demo
- Demo Fence
- Existing to remain
- Overhead lines
- Underground utility
- Fence

Notes

Site Key Plan



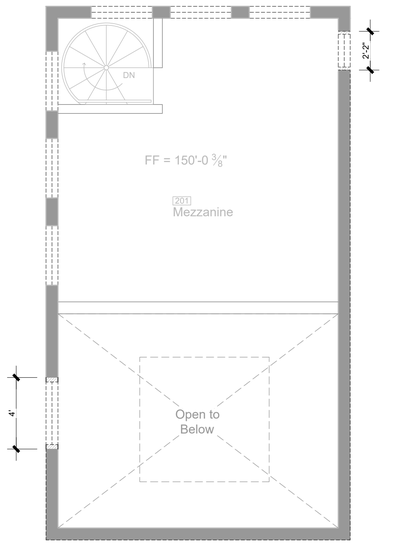
PP Set

Site Demolition Plan - Partial NE

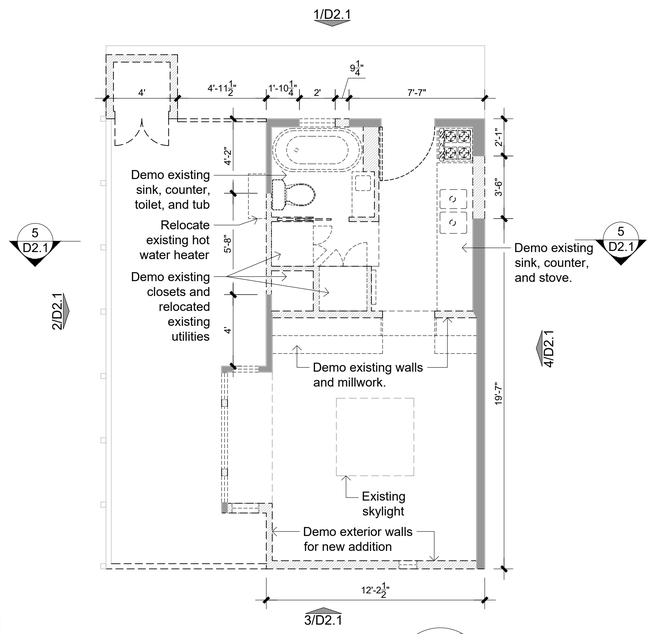
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

D0.4



1 Mezzanine Demolition Plan
scale: 1/4" = 1'-0"

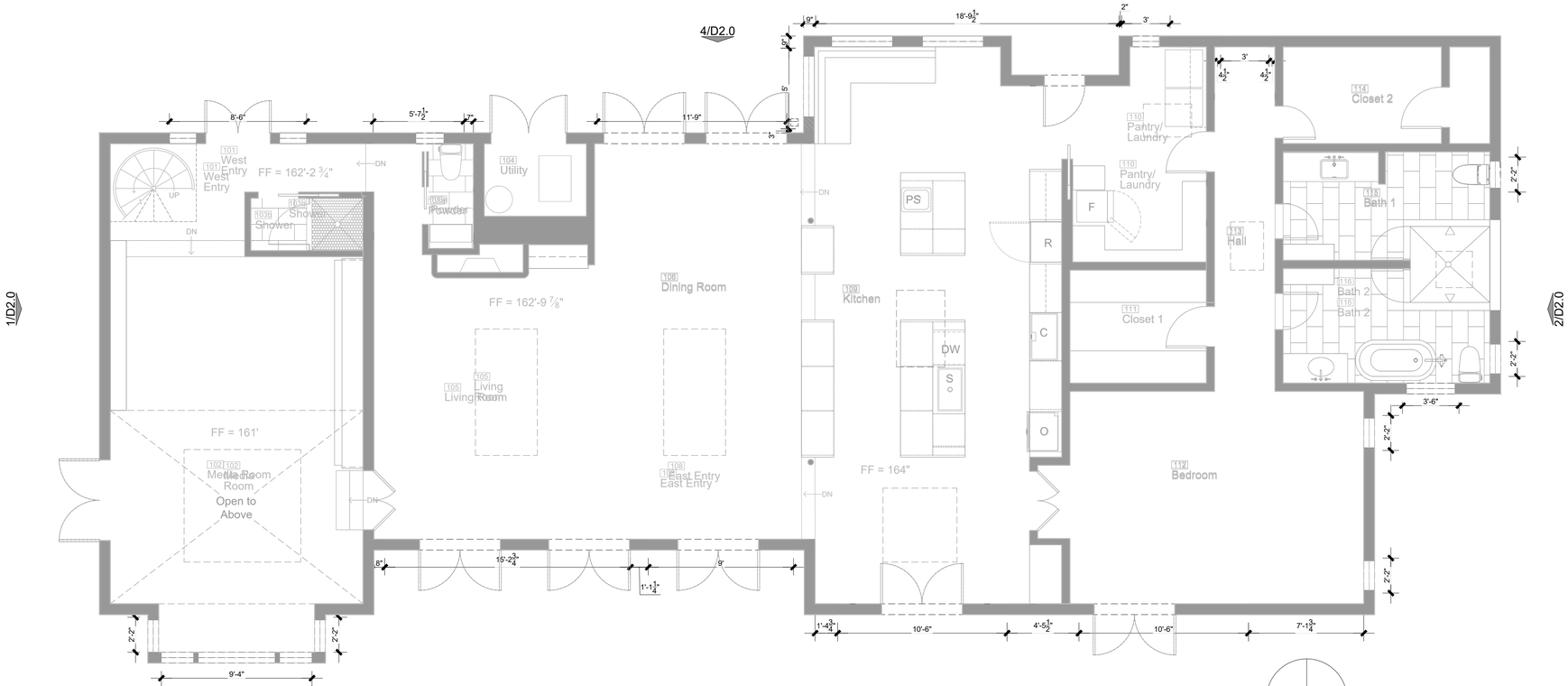


2 Casita (ADU) Demolition Plan
scale: 1/4" = 1'-0"

1

155 HSHR Wall Modification Calculations

		Total Existing Linear Feet	Total Exising Linear Feet of Exterior Wall to Remain	Total Exising Linear Feet of Exterior Wall to be Removed	Total Exising Linear Feet of Exterior Wall to be Modified
Main House	1st Floor	264' - 2"	126'-9"	4'-10"	132'-7"
	2nd Floor	93'-8"	87'-6"	0'-0"	6'-2"
	Totals	**357'-10"**	**214'-3"**	**4'-10"**	**138'-9"**
Casita	1st Floor	**79'-9"**	**39'-3"**	**17'-10"**	**22'-8"**



3 First Floor Demolition Plan
scale: 1/4" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Demo
- Demo Wall
- Existing Wall
- Existing to remain

Notes

1. Refer to Demolition Elevations for new window and door opening heights.

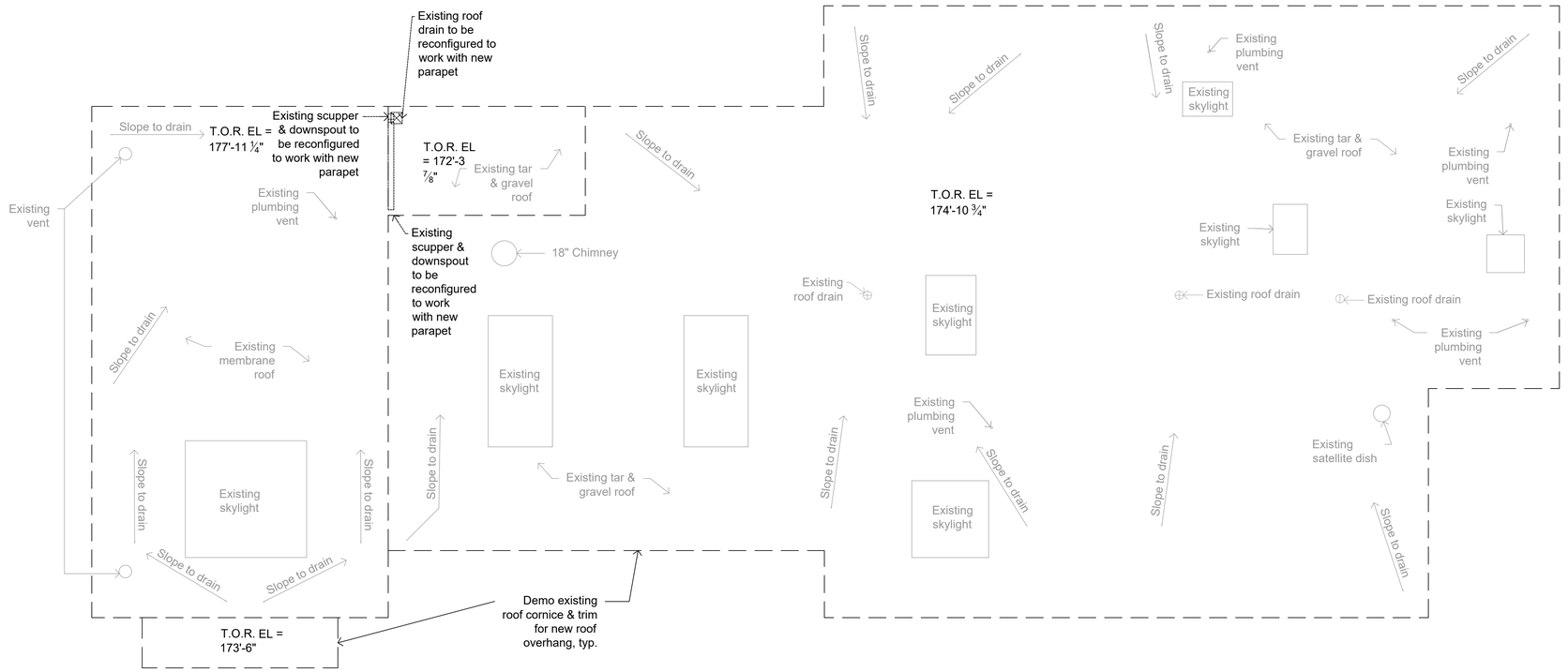
PP Set

Main House & Casita (ADU) Demolition Plans

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

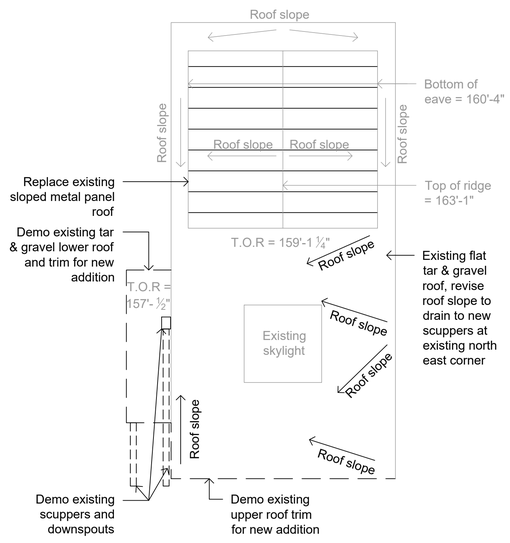
LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

D1.0



1 Main House Roof Demolition Plan

scale: ¼" = 1'-0"



2 Casita (ADU) Roof Demolition Plan

scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Demo
- Existing to Remain

Notes

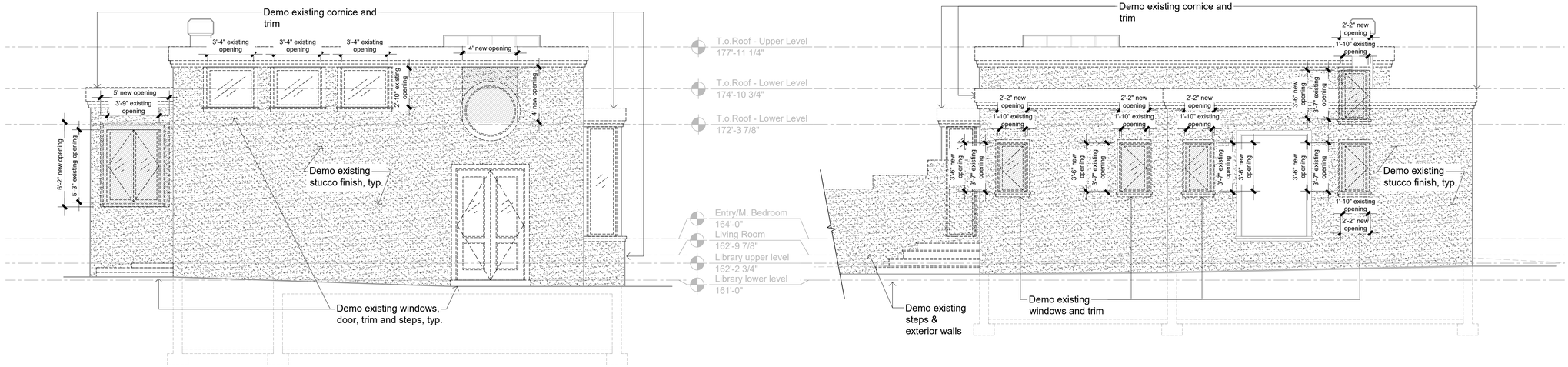
PP Set

Main House & Casita (ADU) Demolition Roof Plans

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI STATE OF CALIFORNIA
24699
6-20-2025
RENEWAL DATE

D1.1

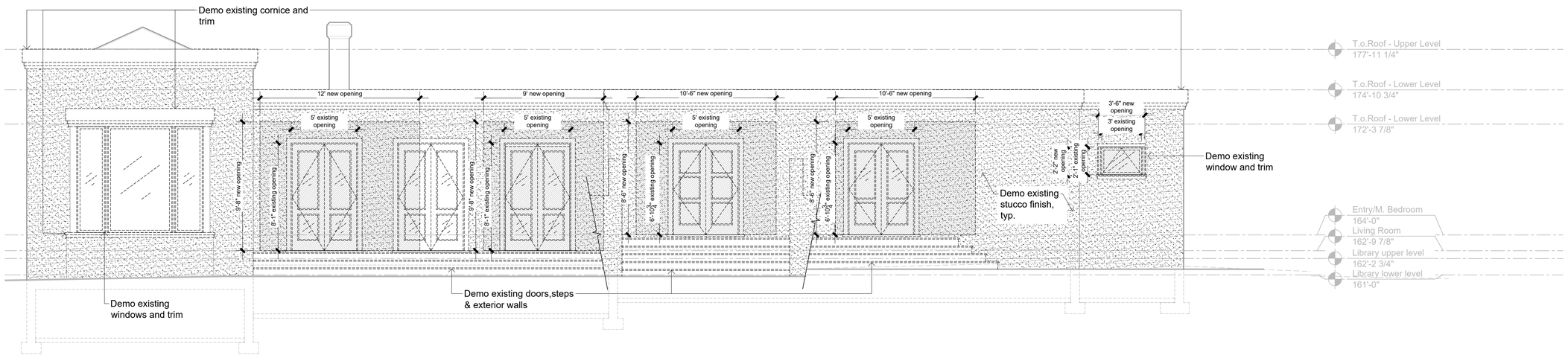


1 Main House South Exterior Demolition Elevation

scale: 1/4" = 1'-0"

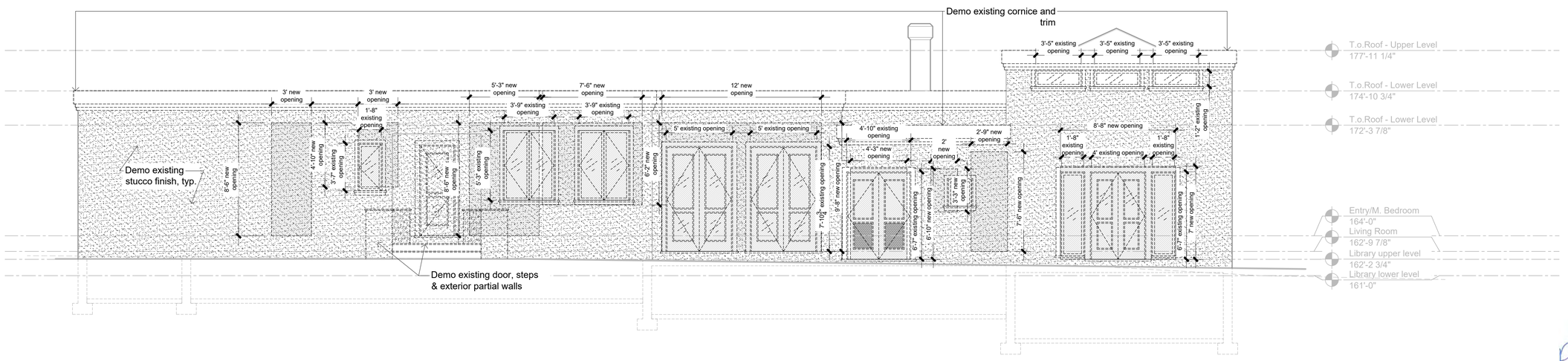
2 Main House North Exterior Demolition Elevation

scale: 1/4" = 1'-0"



3 Main House East Exterior Demolition Elevation

scale: 1/4" = 1'-0"



4 MainHouse West Exterior Demolition Elevation

scale: 1/4" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

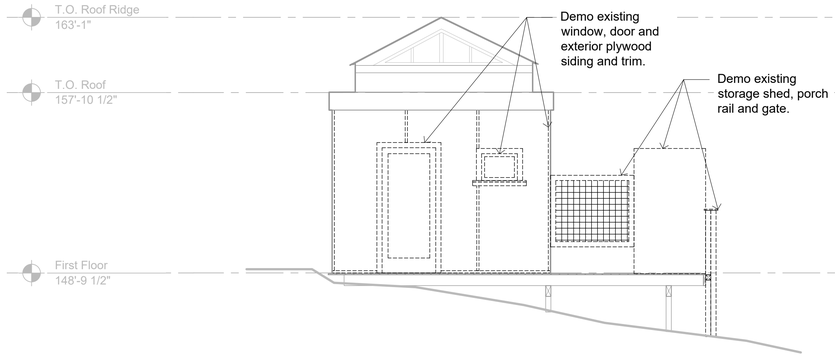
PP Set

Main House Demolition Elevations

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

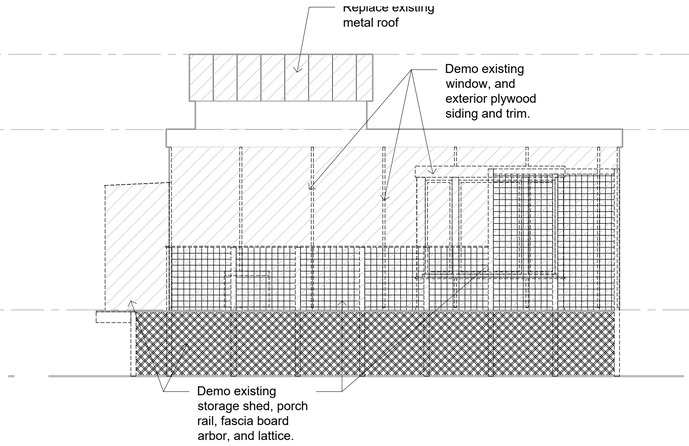
LICENSED ARCHITECT ROBERT LUCHETTI 24695 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

D2.0



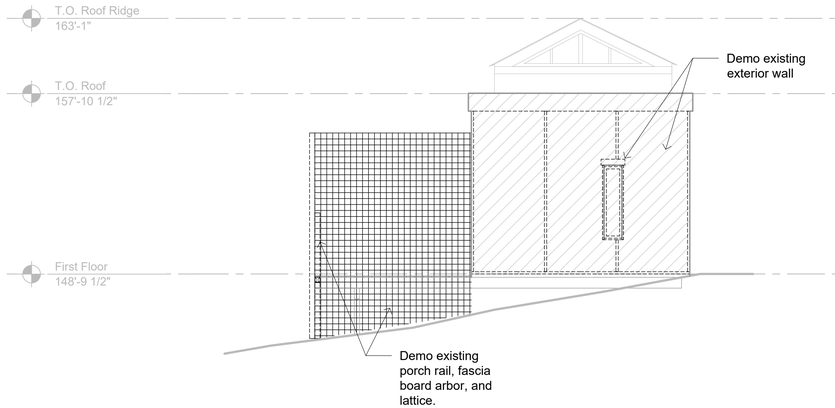
1 Castia (ADU) West Exterior Demolition Elevation

scale: 1/4" = 1'-0"



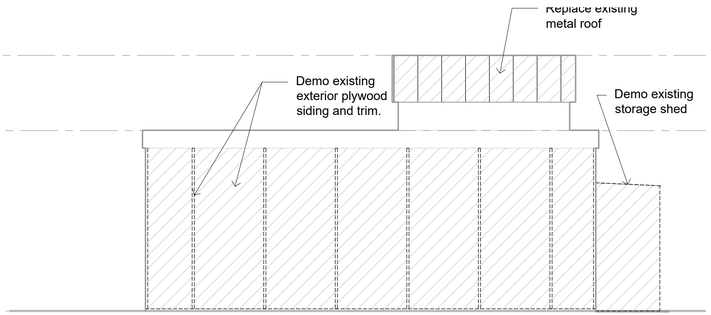
2 Castia (ADU) South Exterior Demolition Elevation

scale: 1/4" = 1'-0"



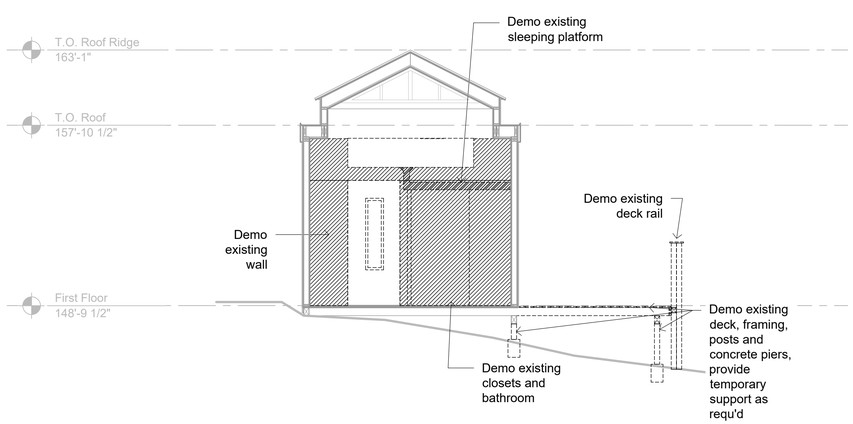
3 Castia (ADU) East Exterior Demolition Elevation

scale: 1/4" = 1'-0"



4 Castia (ADU) North Exterior Demolition Elevation

scale: 1/4" = 1'-0"



5 Castia (ADU) North/South Demolition Cross Section

scale: 1/4" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

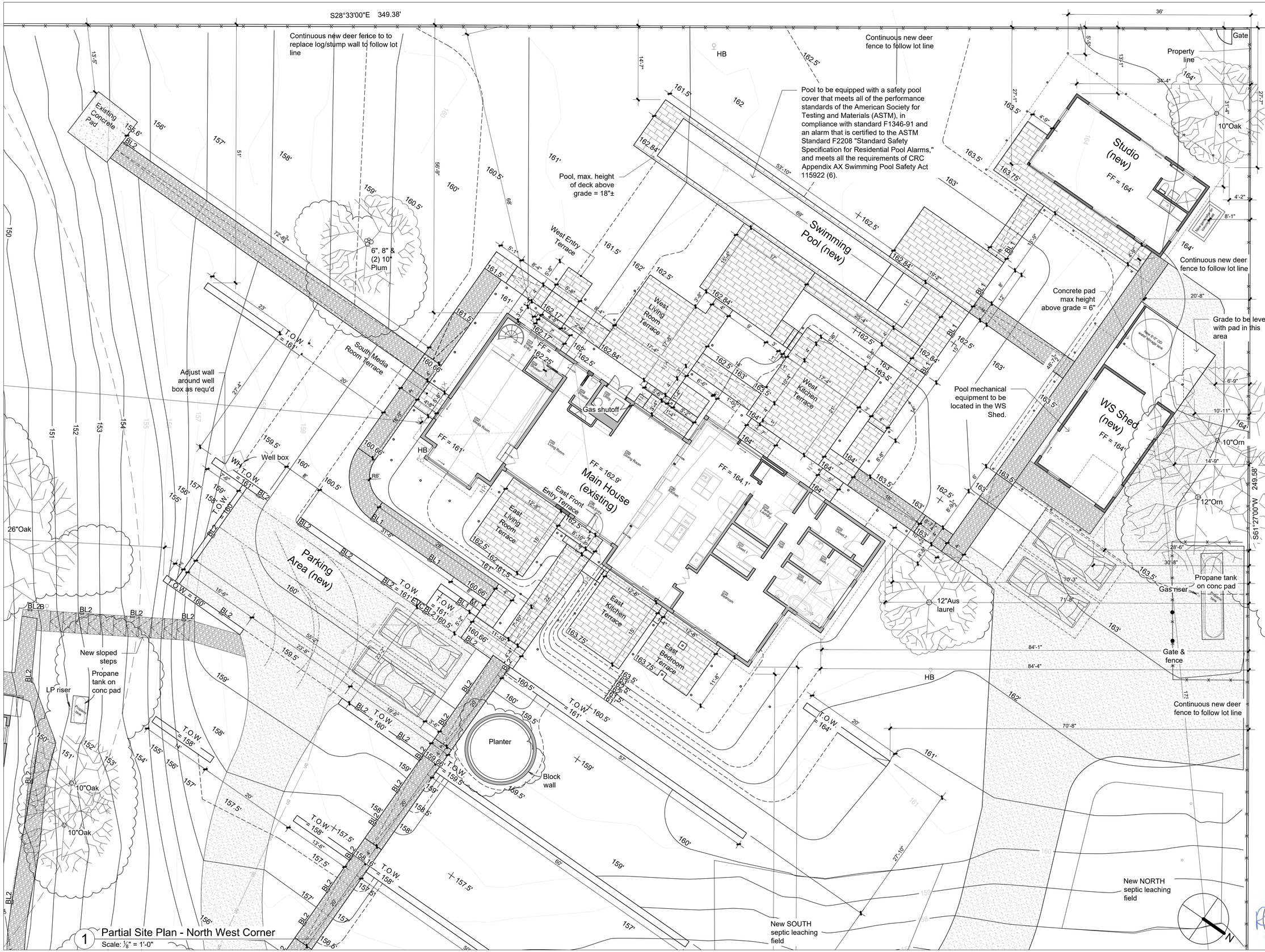
PP Set

Casita (ADU) Demolition Elevations & Section

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

D2.1



1 Partial Site Plan - North West Corner
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

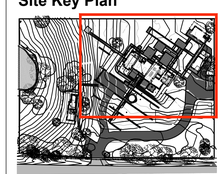
Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH – Overhead Lines
- UG – Underground Utility
- Fence
- BL1 Exterior Bollard Light - short
- BL2 Exterior Bollard Light - tall
- EVC Electric Vehicle Charger
- M Electrical Meter Pedestal

Notes

1. New generator to be Kohler 24RCLA, 74"L x 32.9"W x 46.0"H. Average sound levels are 53 dB(A) during weekly engine exercise and 61 dB(A) during full-speed generator diagnostics and normal operation.

Site Key Plan



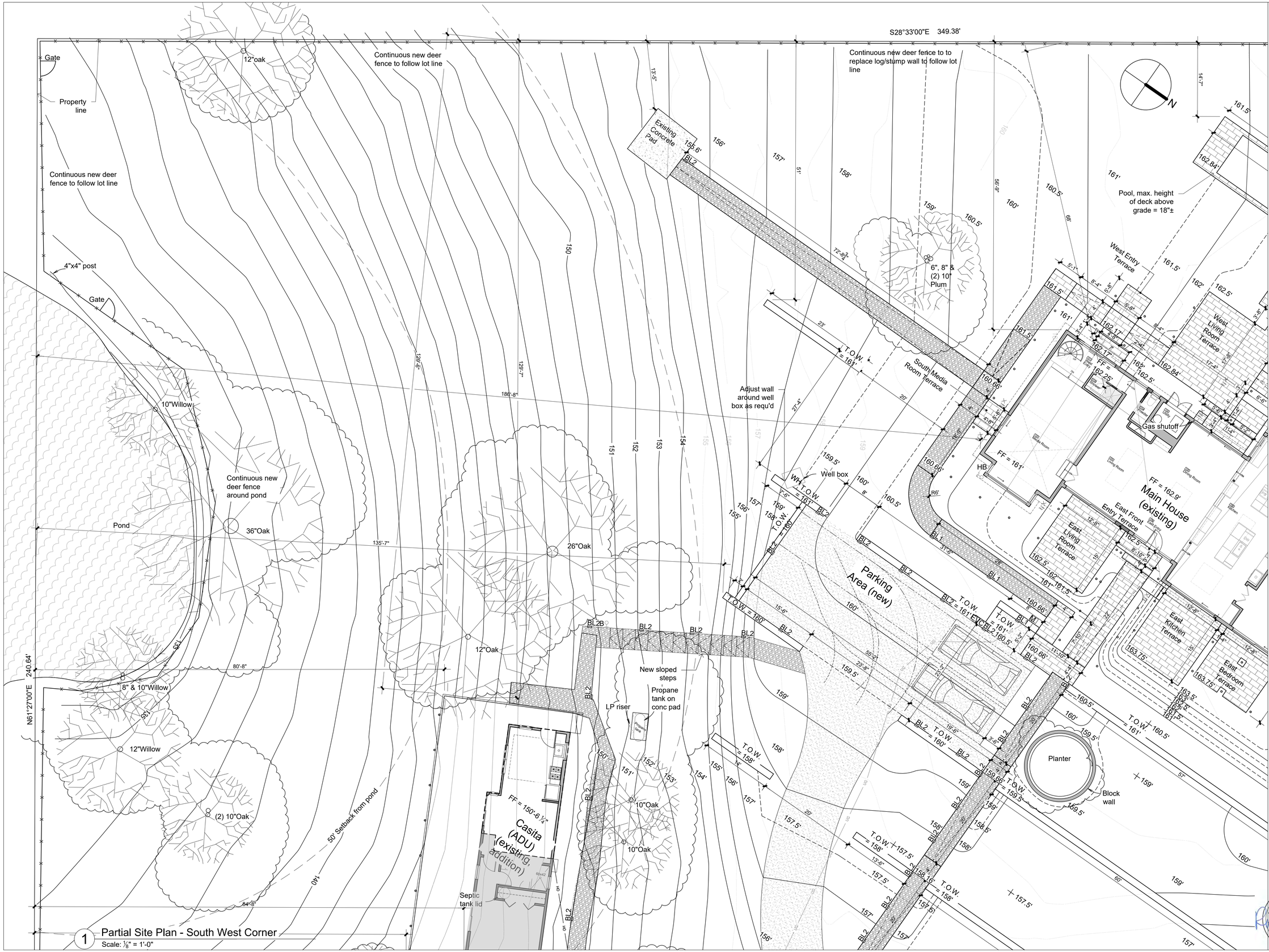
PP Set

New Site Plan - Partial NW

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.1



1 Partial Site Plan - South West Corner
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

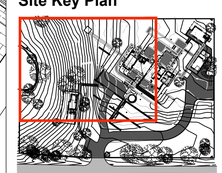
155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH – Overhead Lines
- UG – Underground Utility
- Fence
- BL1 Exterior Bollard Light - short
- BL2 Exterior Bollard Light - tall
- EVC Electric Vehicle Charger
- M Electrical Meter Pedestal

Notes

Site Key Plan



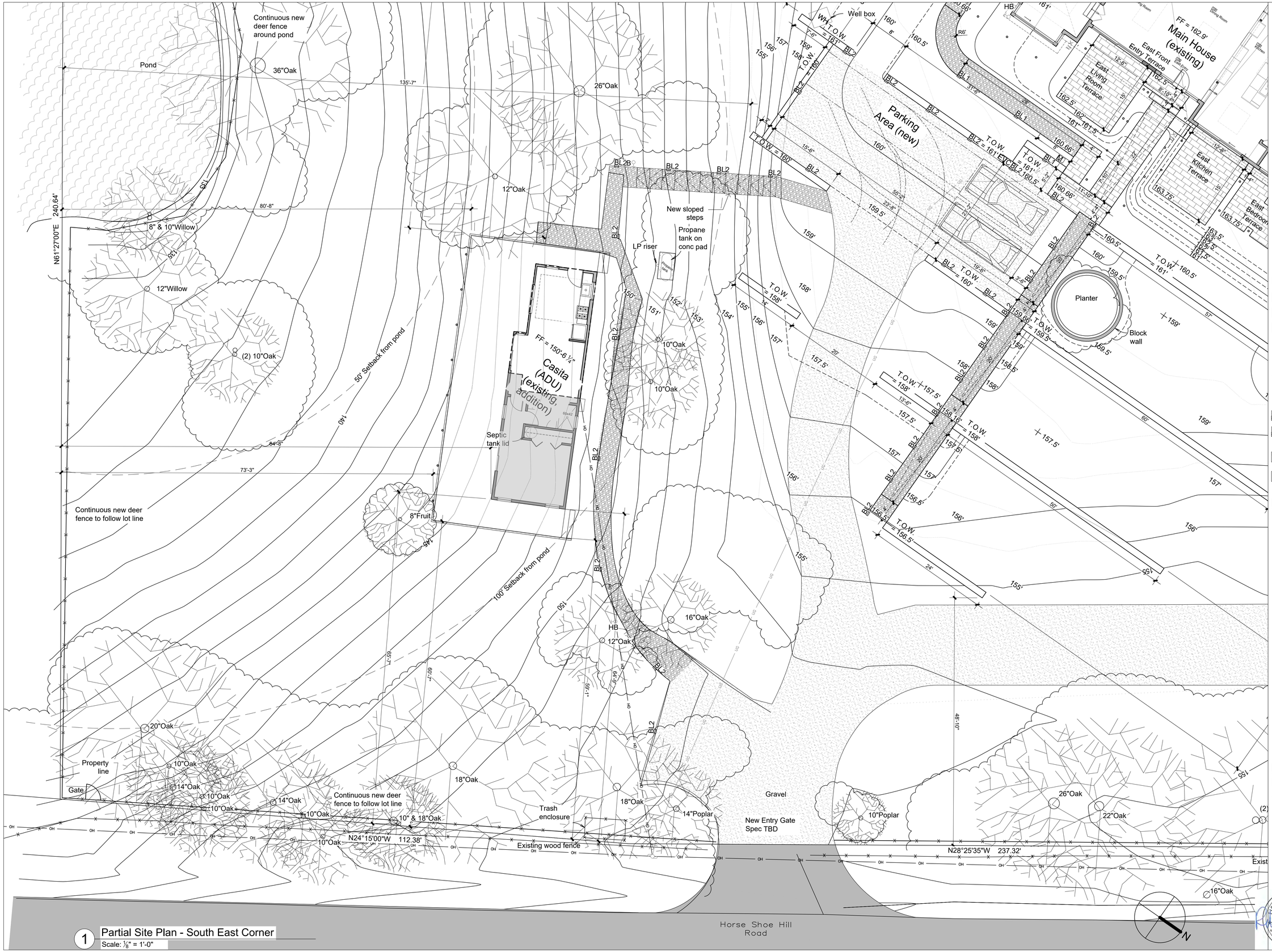
PP Set

New Site Plan - Partial SW

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.2



1 Partial Site Plan - South East Corner
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

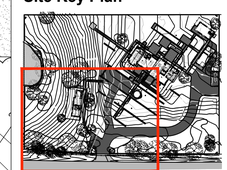
155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH – Overhead Lines
- UG – Underground Utility
- Fence
- BL1 Exterior Bollard Light - short
- BL2 Exterior Bollard Light - tall
- EVC Electric Vehicle Charger
- M Electrical Meter Pedestal

Notes

Site Key Plan



PP Set

New Site Plan - Partial SE

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.3



1 Partial Site Plan - North East Corner
Scale: 1/8" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

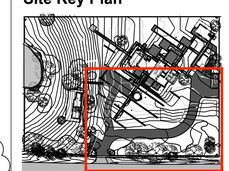
155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- Overhead Lines
- Underground Utility
- Fence
- BL1 Exterior Bollard Light - short
- BL2 Exterior Bollard Light - tall
- EVC Electric Vehicle Charger
- M Electrical Meter Pedestal

Notes

Site Key Plan



PP Set

New Site Plan - Partial NE

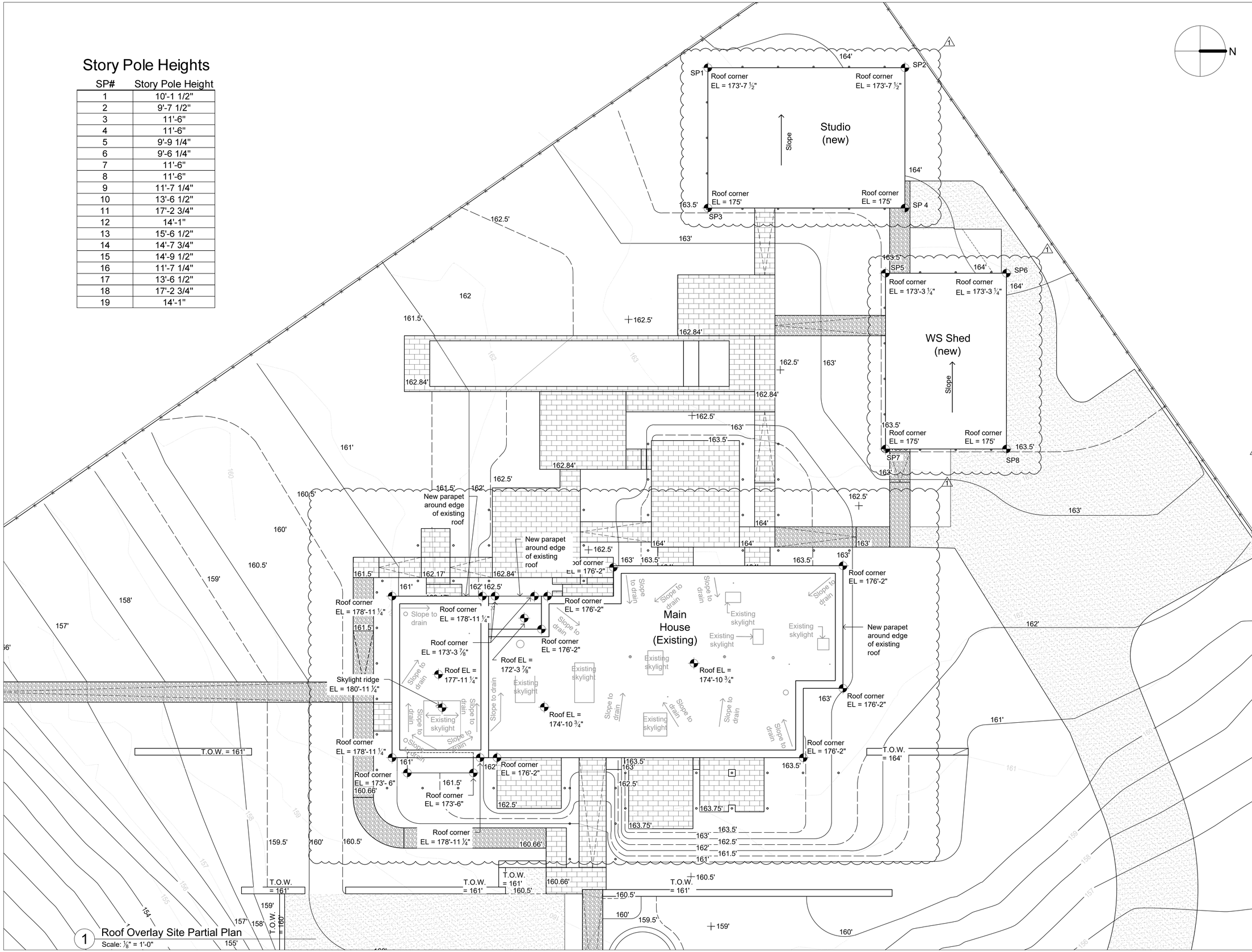
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.4

Story Pole Heights

SP#	Story Pole Height
1	10'-1 1/2"
2	9'-7 1/2"
3	11'-6"
4	11'-6"
5	9'-9 1/4"
6	9'-6 1/4"
7	11'-6"
8	11'-6"
9	11'-7 1/4"
10	13'-6 1/2"
11	17'-2 3/4"
12	14'-1"
13	15'-6 1/2"
14	14'-7 3/4"
15	14'-9 1/2"
16	11'-7 1/4"
17	13'-6 1/2"
18	17'-2 3/4"
19	14'-1"



1 Roof Overlay Site Partial Plan
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH Overhead Lines
- UG Underground Utility
- Fence
- Elevation Marker
- SPX Story Pole Elevation ID

Notes

1. Refer to Sheet A1.2 for detailed roof plans.

PP Set

New Roof Overlay, Column EL Heights, and Story Pole Partial Plan - West

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

LICENSED ARCHITECT ROBERT LUCHETTI C-24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.5



Story Pole Heights

SP#	Story Pole Height
1	10'-1 1/2"
2	9'-7 1/2"
3	11'-6"
4	11'-6"
5	9'-9 1/4"
6	9'-6 1/4"
7	11'-6"
8	11'-6"
9	11'-7 1/4"
10	13'-6 1/2"
11	17'-2 3/4"
12	14'-1"
13	15'-6 1/2"
14	14'-7 3/4"
15	14'-9 1/2"
16	11'-7 1/4"
17	13'-6 1/2"
18	17'-2 3/4"
19	14'-1"

1 Roof Overlay Site Partial Plan
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- Gravel Driveway
- Gravel Path
- Terrace/Stair Tread with Pavers
- Demo Contour Line
- 12" Contour Line
- 6" Contour Line
- OH – Overhead Lines
- UG – Underground Utility
- Fence
- Story Pole Height

Notes

1. Refer to Sheet A1.2 for detailed roof plans.

PP Set

New Roof Overlay, Column EL Heights, and Story Pole Partial Plan - East

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

LICENSED ARCHITECT ROBERT LUCHETTI C 44699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.6

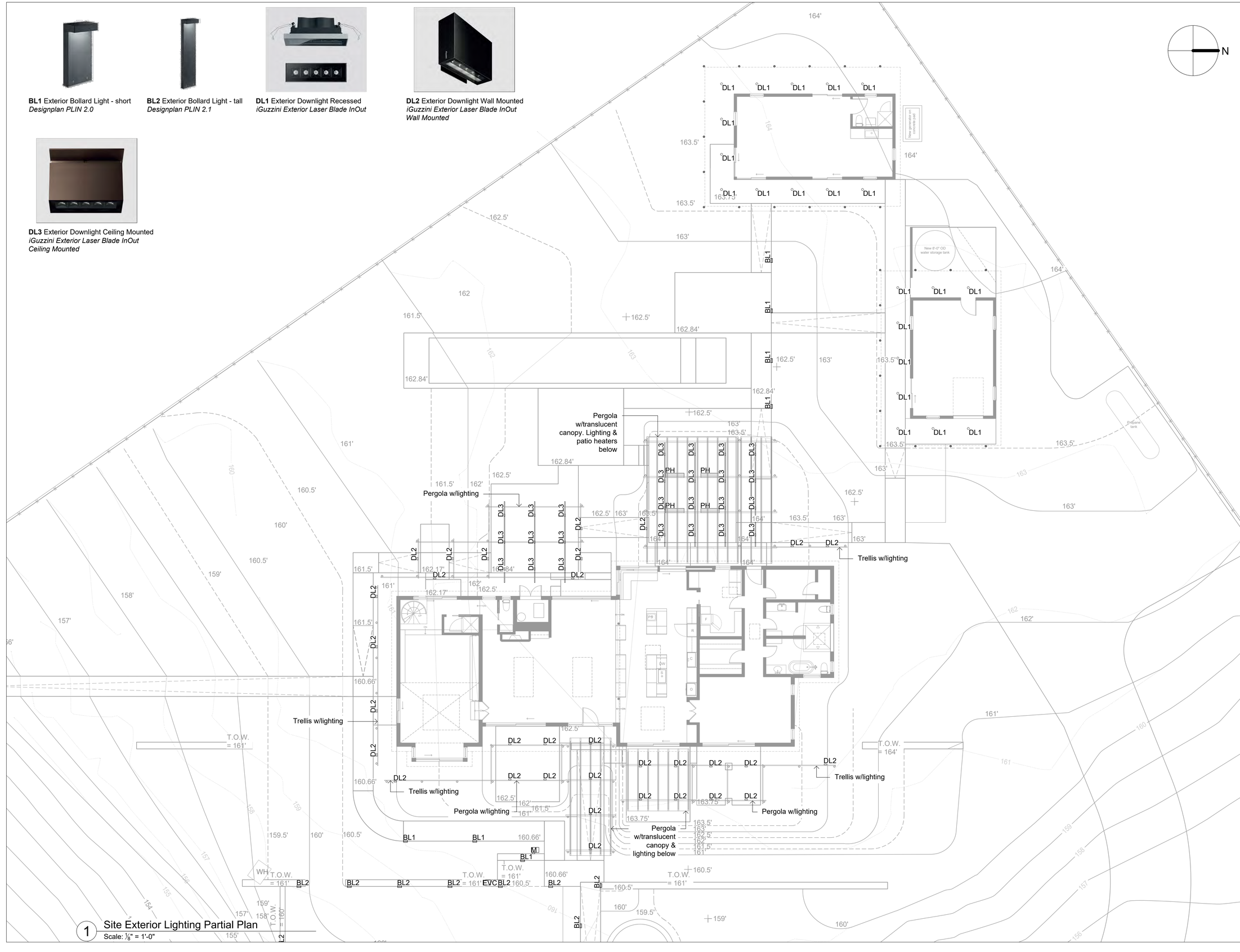
BL1 Exterior Bollard Light - short
Designplan PLIN 2.0

BL2 Exterior Bollard Light - tall
Designplan PLIN 2.1

DL1 Exterior Downlight Recessed
iGuzzini Exterior Laser Blade InOut

DL2 Exterior Downlight Wall Mounted
iGuzzini Exterior Laser Blade InOut Wall Mounted

DL3 Exterior Downlight Ceiling Mounted
iGuzzini Exterior Laser Blade InOut Ceiling Mounted



1 Site Exterior Lighting Partial Plan
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- BL1 — Exterior Bollard Light - short
- BL2 — Exterior Bollard Light - tall
- EVC — Electric Vehicle Charger
- M — Electrical Meter Pedestal
- DL1 — Exterior LED Recessed Downlight, Dark Sky Approved.
- DL2 — Exterior Rectangular LED Downlight wall mtd. to Pergola/Canopy/ Trellis metal frame. Dark Sky Approved.
- DL3 — Exterior Rectangular LED Downlight mtd. to or suspended from Pergola/Canopy/ Trellis metal frame. Dark Sky Approved.
- PH — Patio Heater, Propane Fired Infrared, suspended from Pergola/ Canopy/Trellis metal frame.

Notes

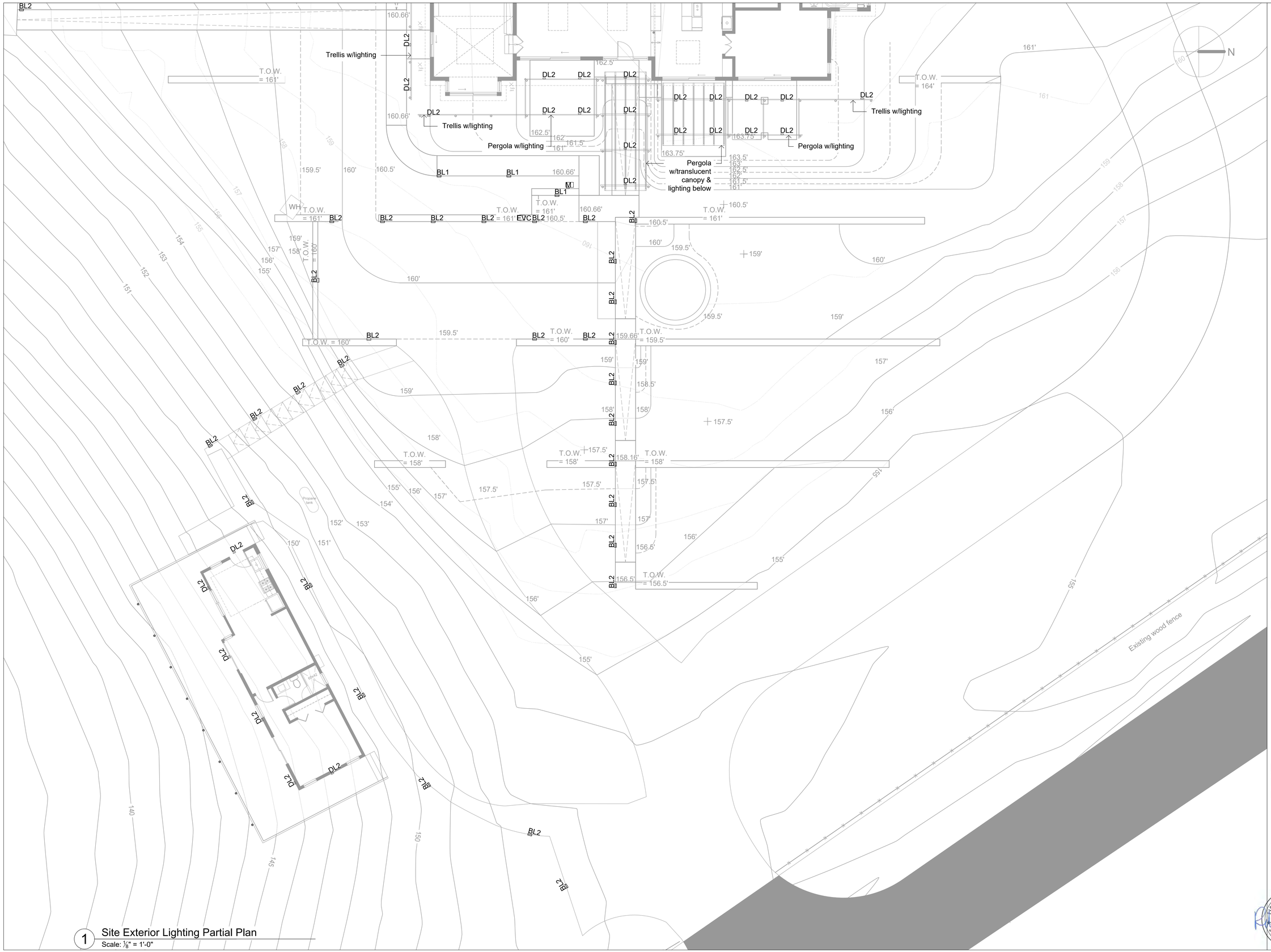
PP Set

New Exterior Lighting Partial Plan - West

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A0.7



1 Site Exterior Lighting Partial Plan
Scale: ⅛" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

BL1	Exterior Bollard Light - short
BL2	Exterior Bollard Light - tall
EVC	Electric Vehicle Charger
M	Electrical Meter Pedestal
DL1	Exterior LED Recessed Downlight, Dark Sky Approved.
DL2	Exterior Rectangular LED Downlight wall mtd. to Pergola/Canopy/ Trellis metal frame. Dark Sky Approved.
DL3	Exterior Rectangular LED Downlight mtd. to or suspended from Pergola/Canopy/ Trellis metal frame. Dark Sky Approved.
PH	Patio Heater, Propane Fired Infrared, suspended from Pergola/ Canopy/Trellis metal frame.

Notes

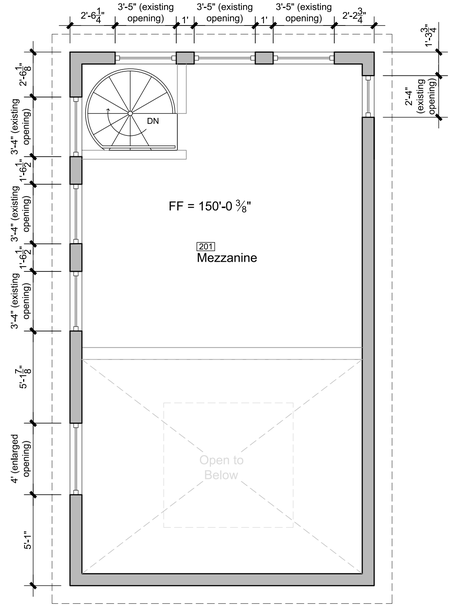
PP Set

New Exterior Lighting Partial Plan - East

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C-26695 6-20-2025 RENEWAL Date STATE OF CALIFORNIA

A0.8



1 Mezzanine Plan
Scale: 1/4" = 1'-0"



Exterior Siding Color - RGB:164, 155, 137 James Hardi Architectural Panel Siding, fine sand texture, field painted



Exterior Trim, Window, & Door Frame - RGB: 99, 87, 75 Medium Bronze Anodized Aluminum



Pergola Finish - RGB: 182, 185, 150 Painted Steel, satin finish



Deer Fence - metal mesh & posts



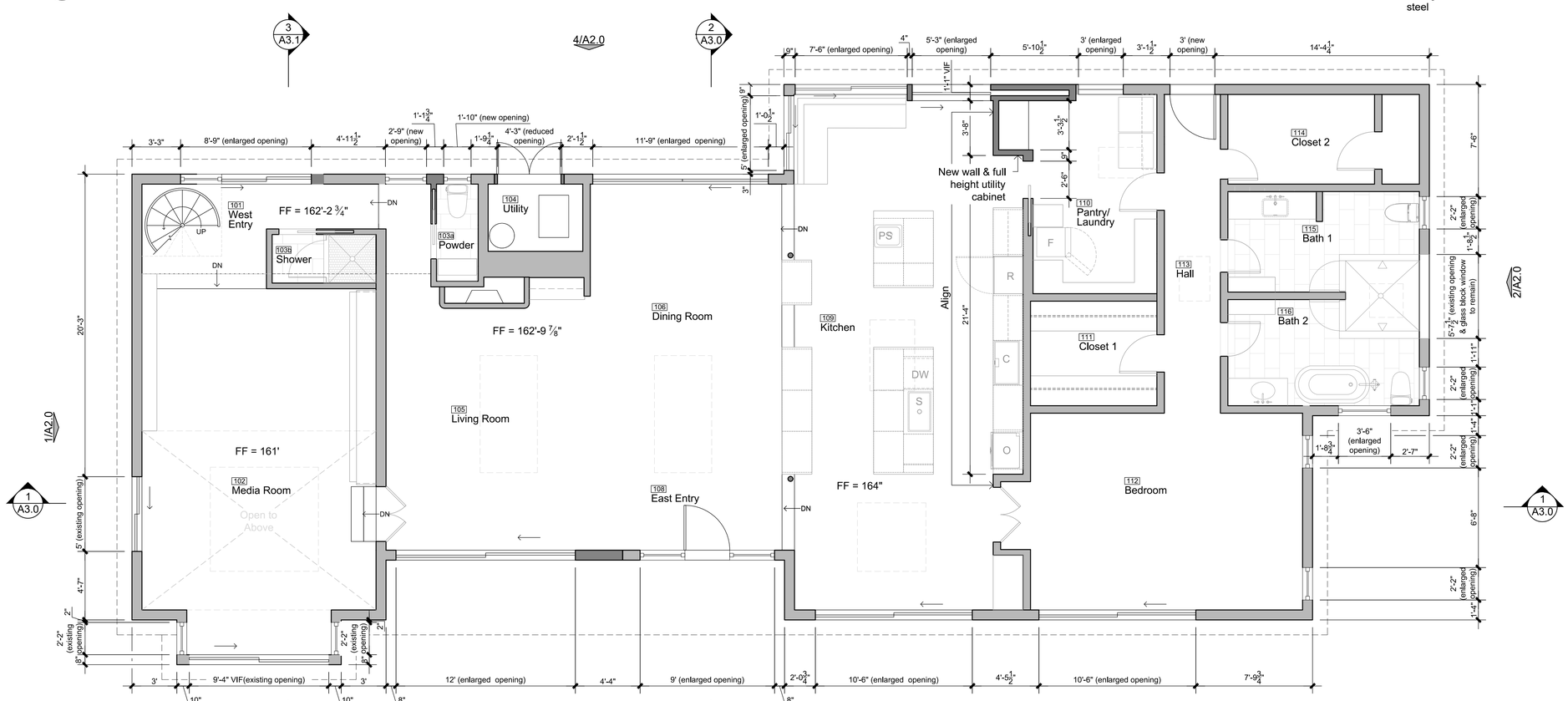
Retaining Walls - loose stack stone



Terraces/Pavers - exposed aggregate concrete



Casita Sloped Roof - 1.25" corrugated metal roof, galvanized stainless steel



2 Floor Plan
Scale: 1/4" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

New Wall

Existing Wall

Notes

1. All doors and windows to be replaced with new aluminum windows and doors.

PP Set

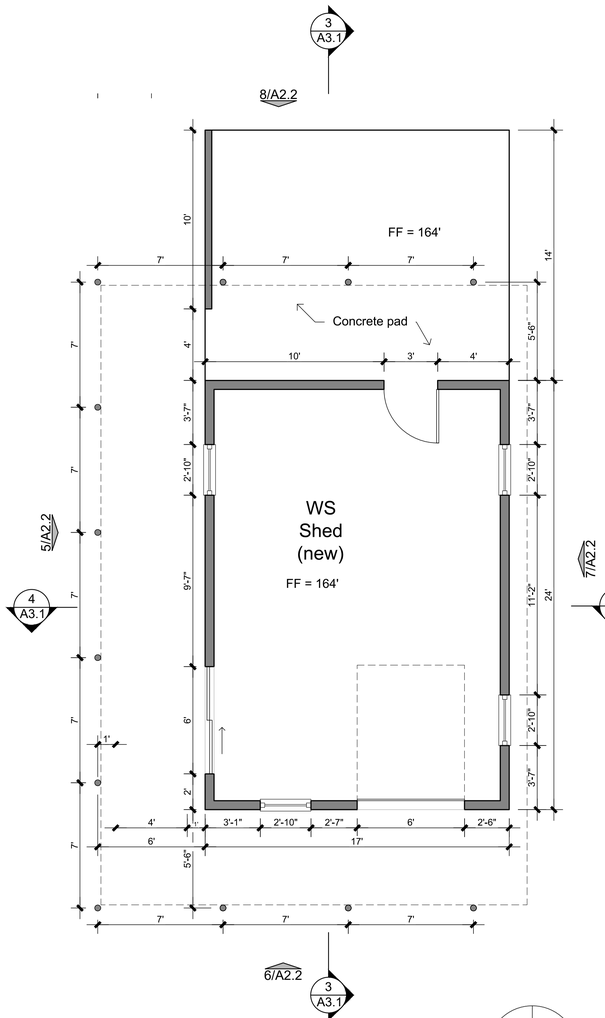
Main House Floor Plan

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

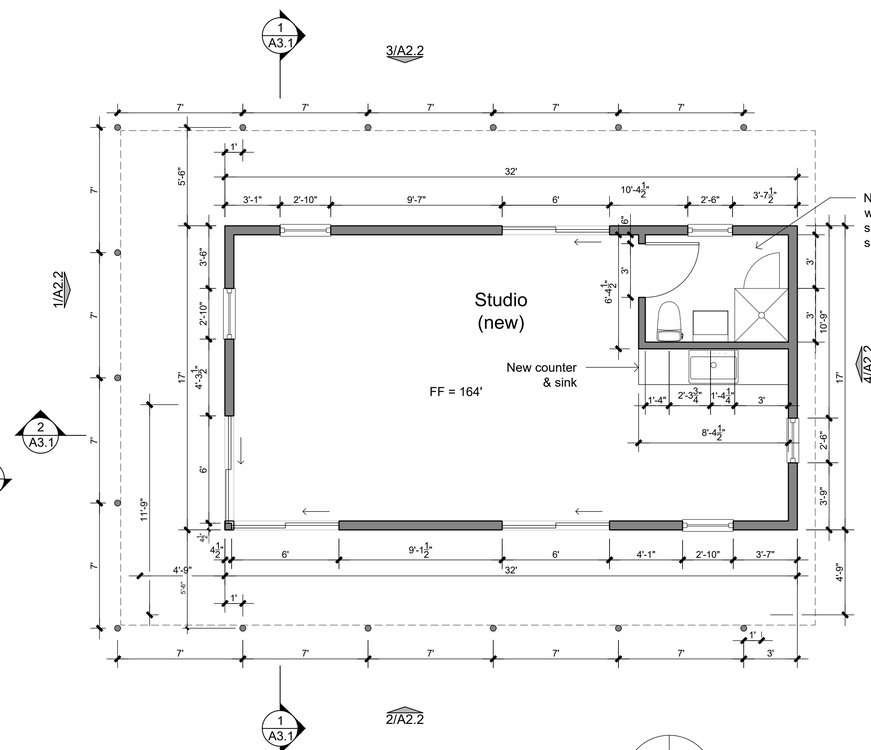
N

LICENSED ARCHITECT ROBERT LUCHETTI 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

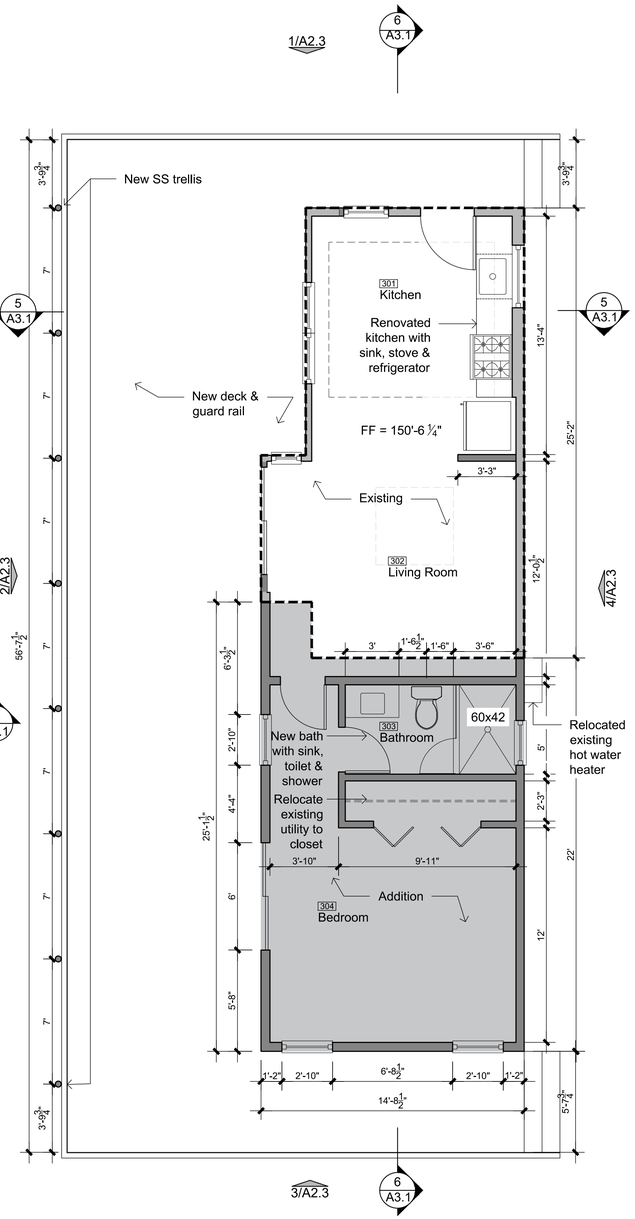
A1.0



1 WS Shed Floor Plan
Scale: ½" = 1'-0"



2 Studio Floor Plan
Scale: ½" = 1'-0"



3 Casita (ADU) Addition Floor Plan
Scale: ½" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

- New Wall
- Existing Wall

Notes

1. All existing doors and windows to be replaced with new aluminum frame windows and doors.

2. All new doors and windows to be aluminum frame.

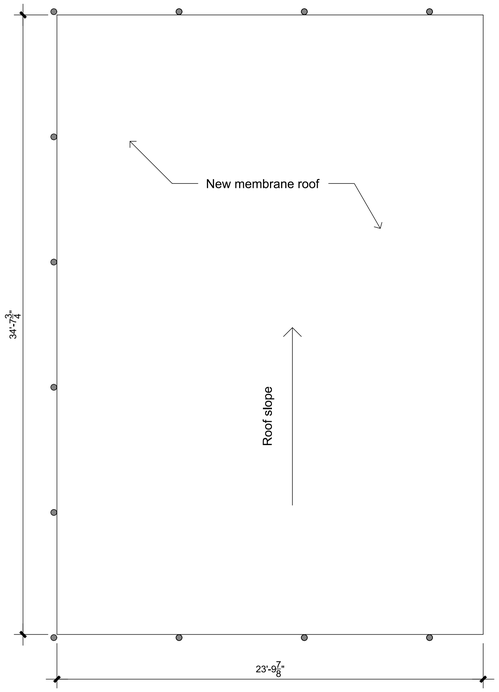
PP Set

New Accessory Buildings & Casita (ADU) Addition Plans

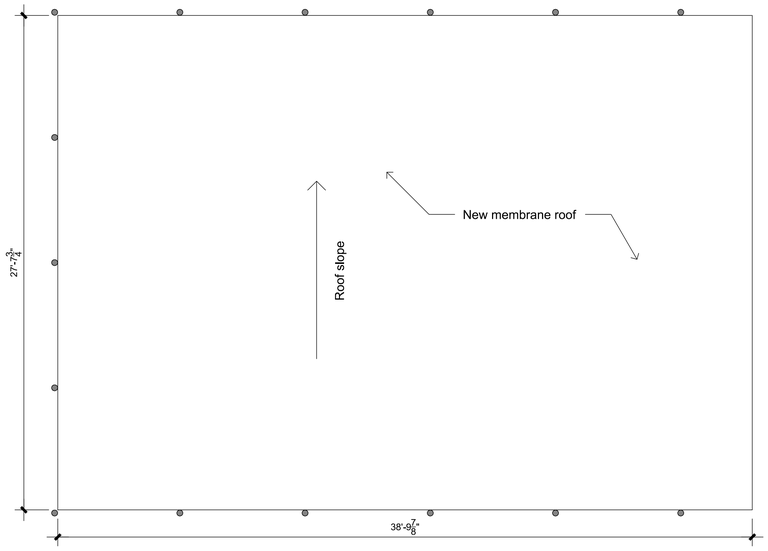
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI No. C26695 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

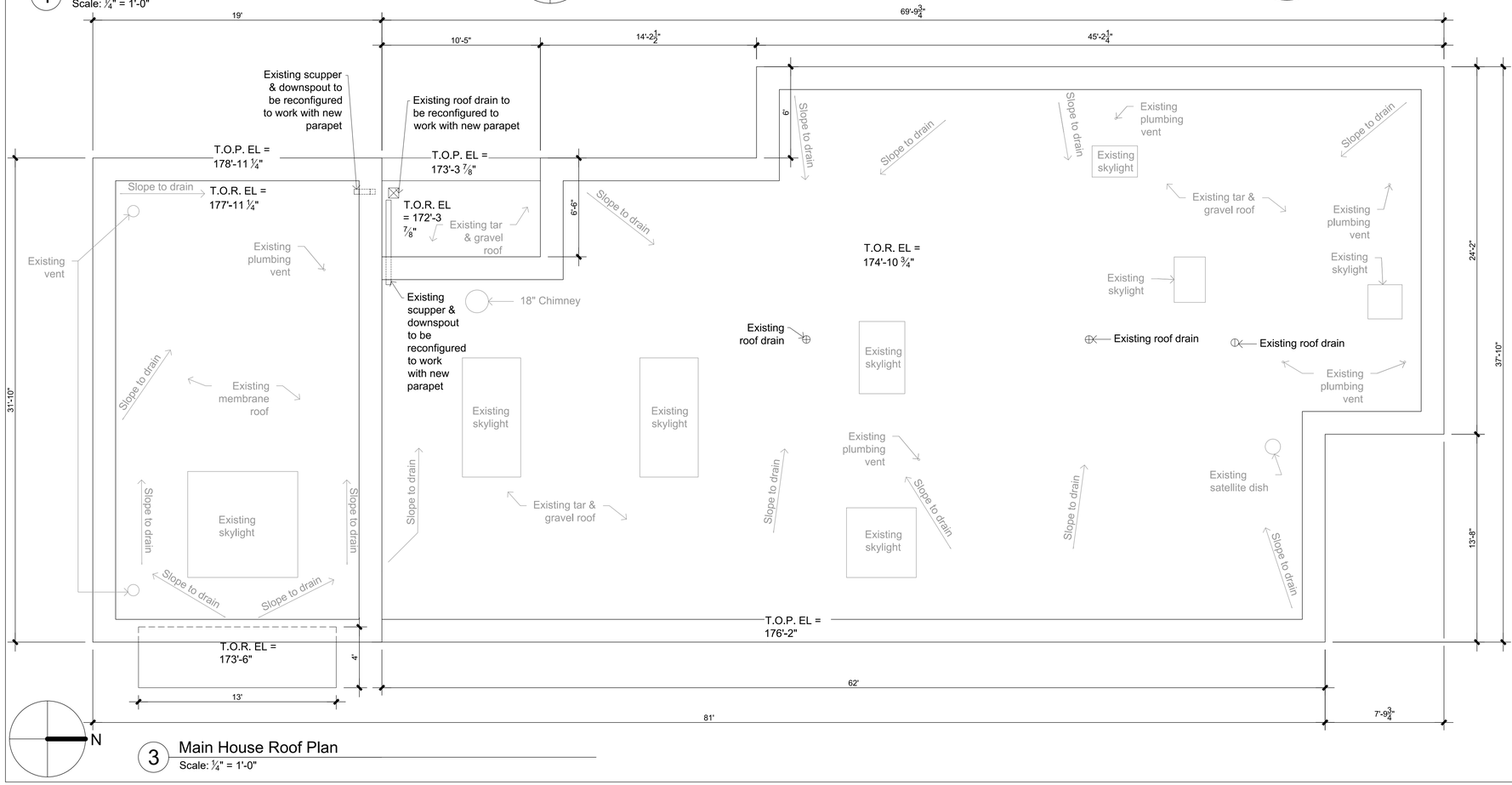
A1.1



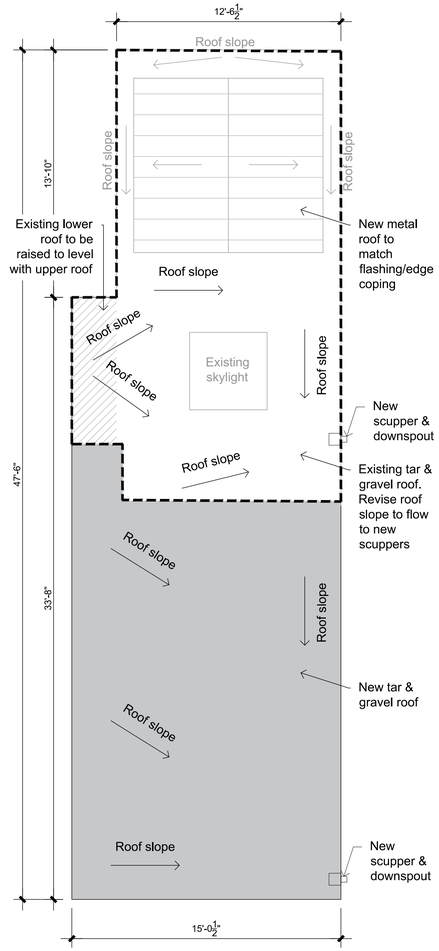
1 WS Shed Roof Plan
Scale: 1/4" = 1'-0"



2 Studio Roof Plan
Scale: 1/4" = 1'-0"



3 Main House Roof Plan
Scale: 1/4" = 1'-0"



2 Casita (ADU) Roof Plan
Scale: 1/4" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

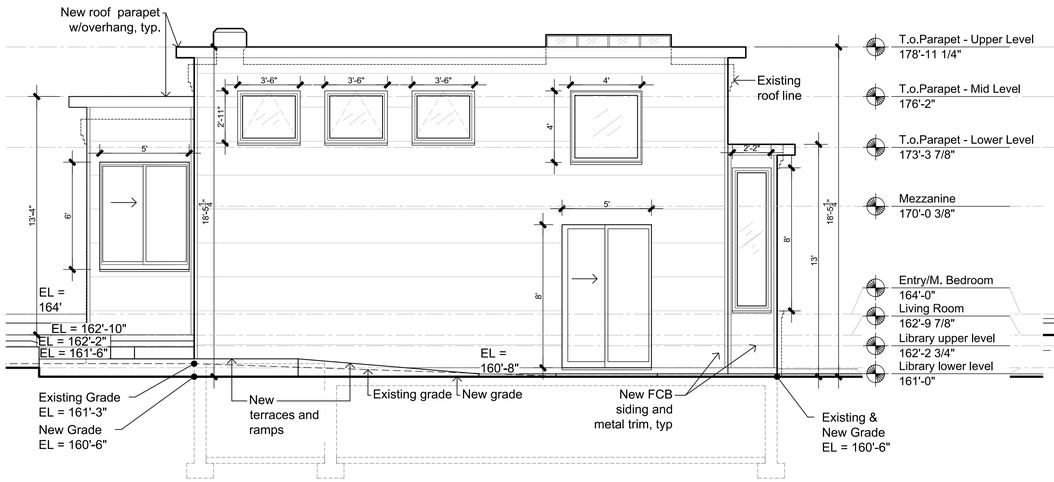
PP Set

New Main House, Accessory Buildings & Casita (ADU) Addition Roof Plans

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

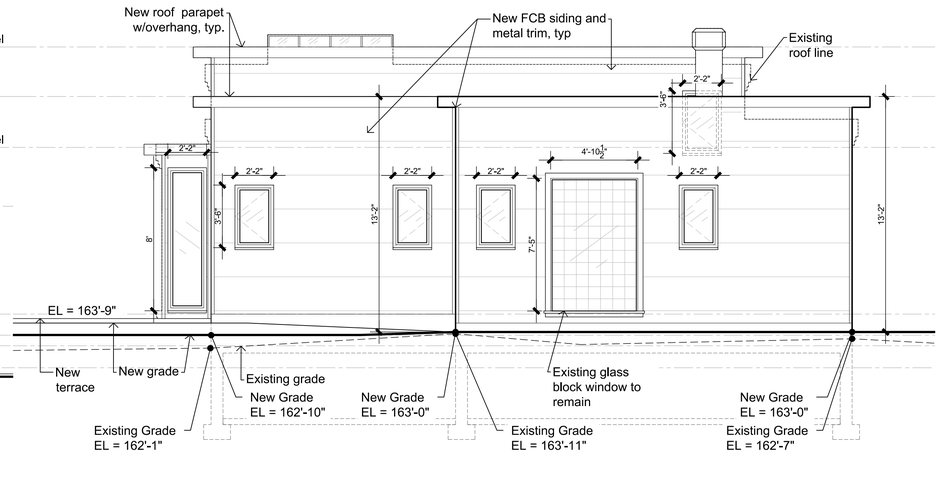
LICENSED ARCHITECT ROBERT LUCHETTI C-24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A1.2



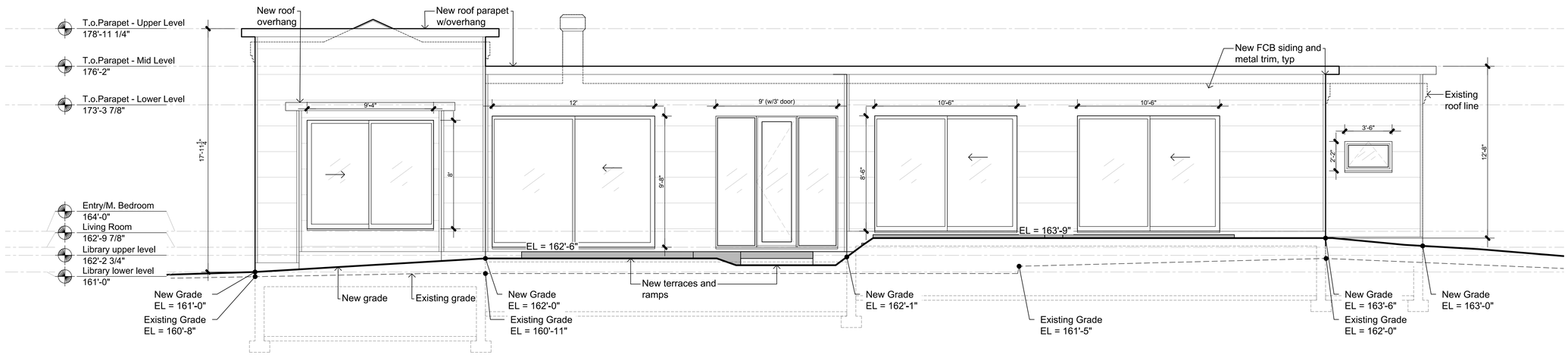
1 South Exterior Elevation

Scale: ¼" = 1'-0"



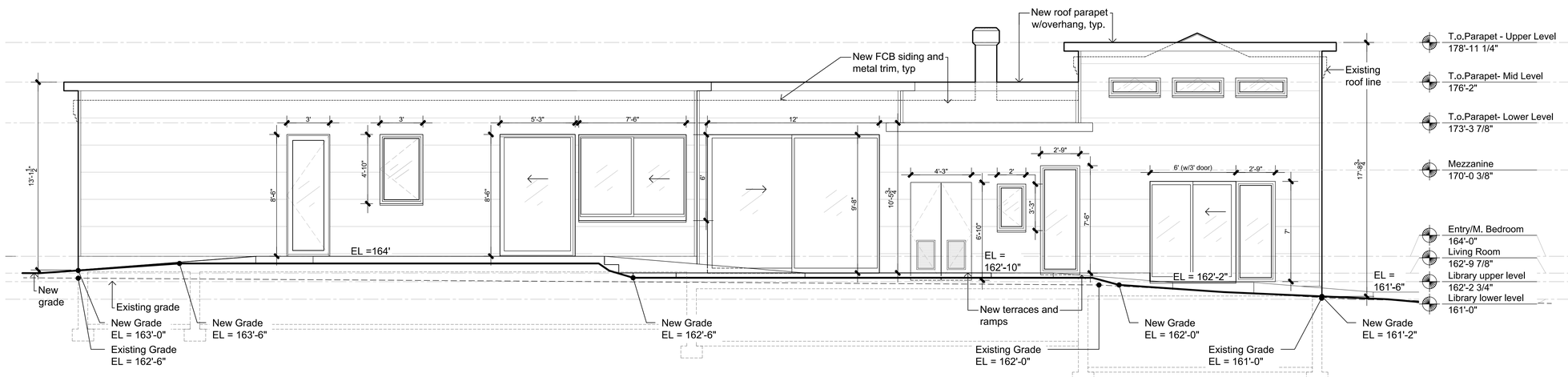
2 North Exterior Elevation

Scale: ¼" = 1'-0"



3 East Exterior Elevation

Scale: ¼" = 1'-0"



4 West Exterior Elevation

Scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

1. Install new fiber cement board siding and metal trim.

2. All windows and doors to be replaced with new aluminum frame windows and doors unless otherwise noted.

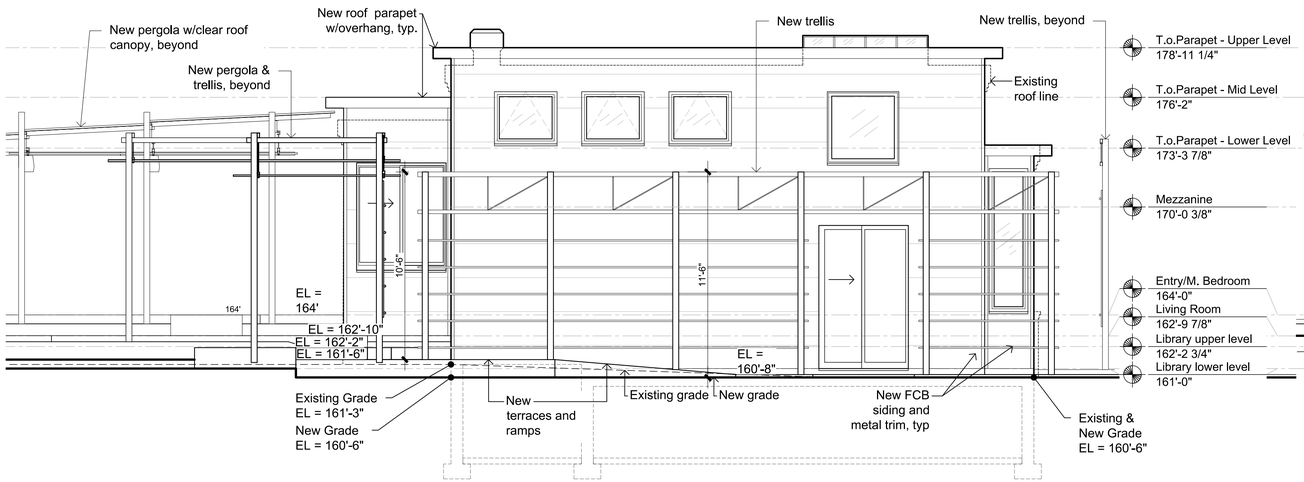
PP Set

New Main House Exterior Elevations

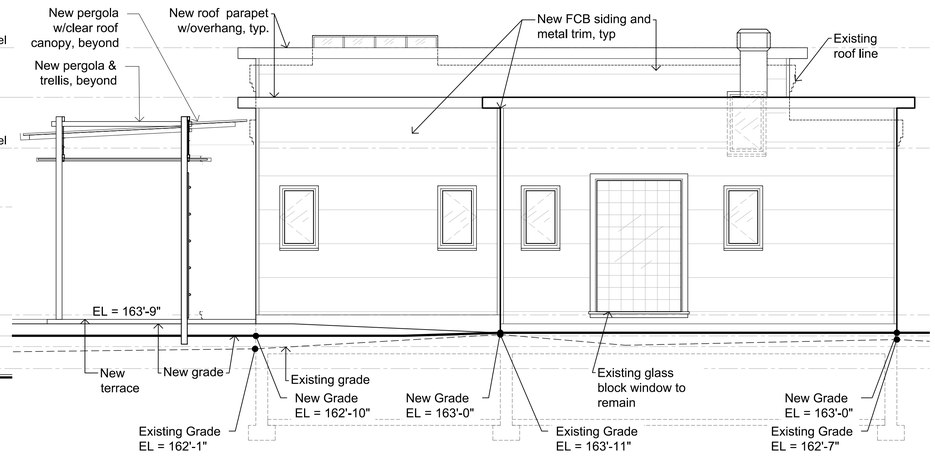
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

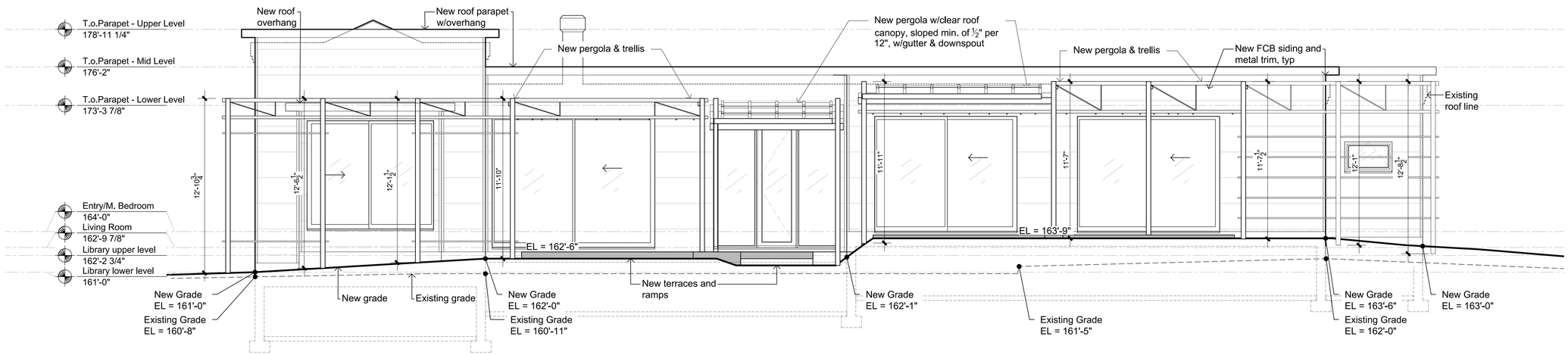
A2.0



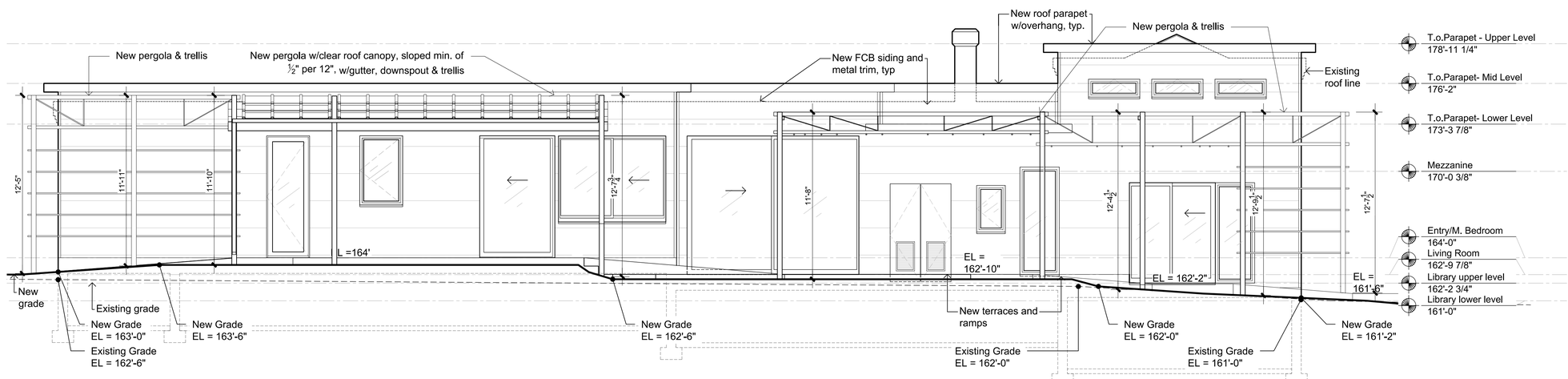
1 South Exterior Elevation
Scale: ¼" = 1'-0"



2 North Exterior Elevation
Scale: ¼" = 1'-0"



3 East Exterior Elevation
Scale: ¼" = 1'-0"



4 West Exterior Elevation
Scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

1. New pergola & trellis to be galvanized steel, ptd. Roof canopy to be Palram SUNSCAPE roof covering system with clear polycarbonate glazing panels with clear anodized aluminum framing.

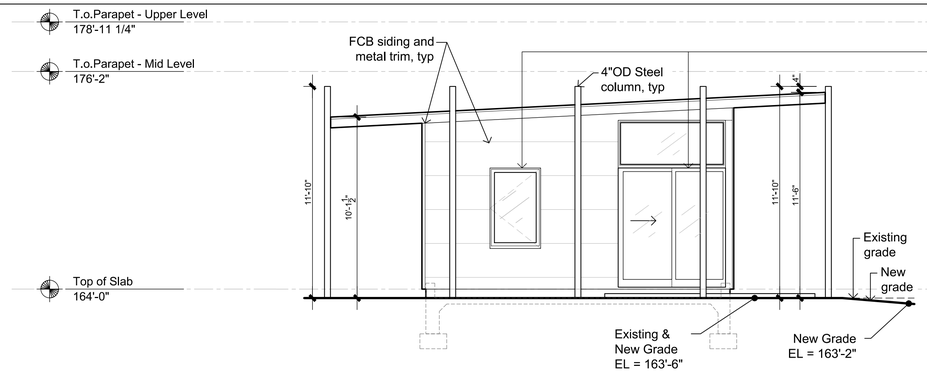
PP Set

New Main House Exterior Elevations - with Pergolas, Canopies and Trellises

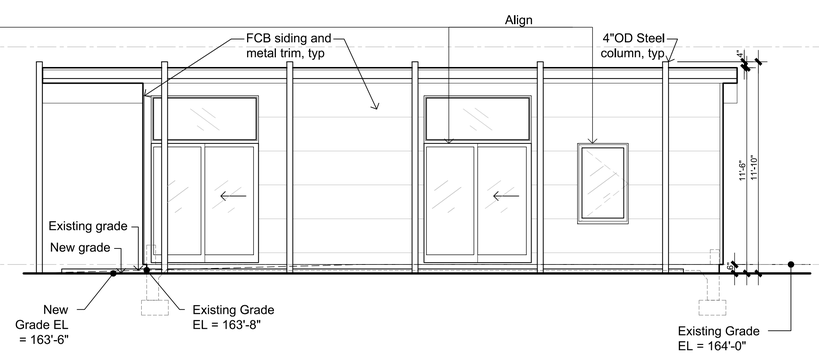
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A2.1



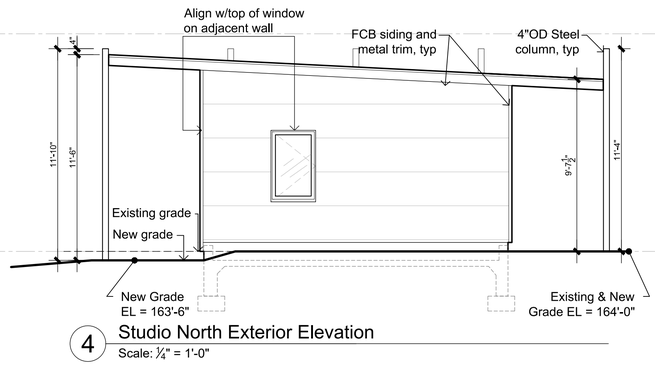
1 Studio South Exterior Elevation
Scale: ¼" = 1'-0"



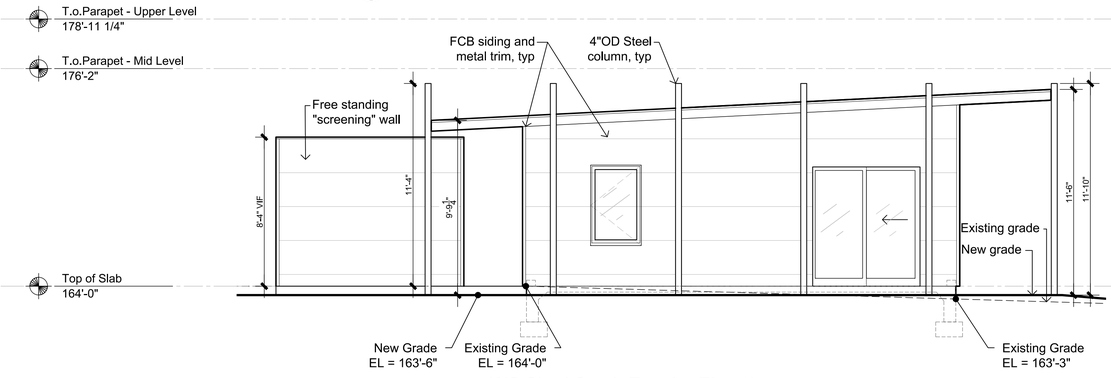
2 Studio East Exterior Elevation
Scale: ¼" = 1'-0"



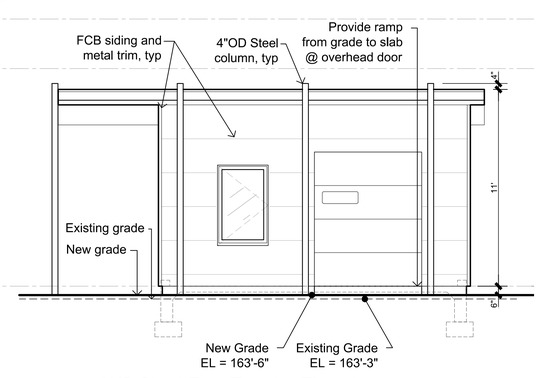
3 Studio West Exterior Elevation
Scale: ¼" = 1'-0"



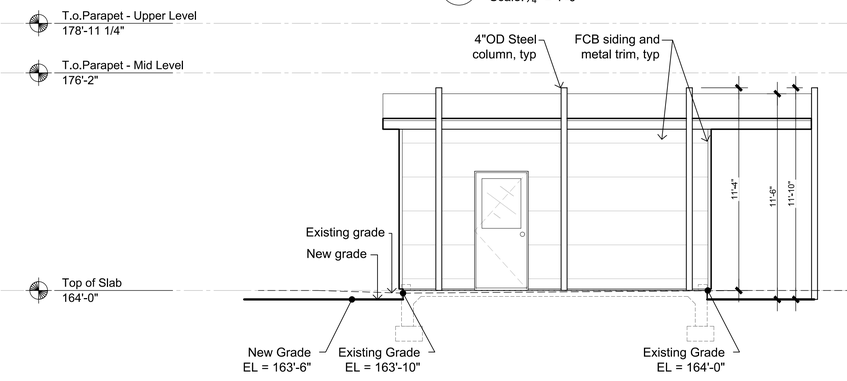
4 Studio North Exterior Elevation
Scale: ¼" = 1'-0"



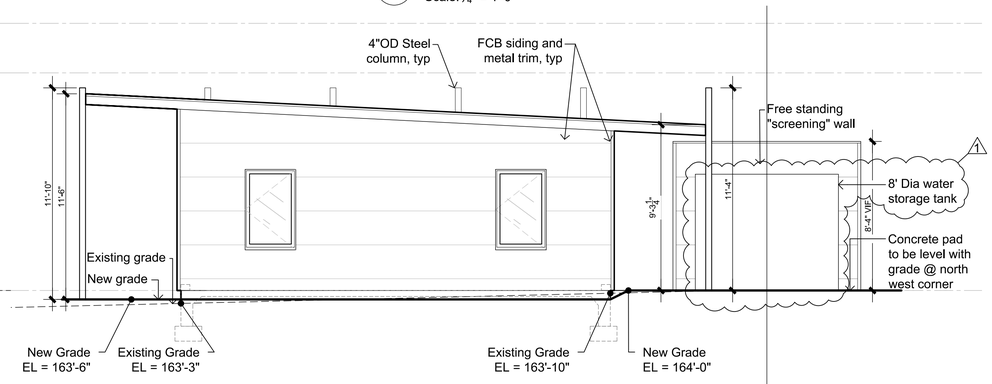
5 WS Shed South Exterior Elevation
Scale: ¼" = 1'-0"



6 WS Shed East Exterior Elevation
Scale: ¼" = 1'-0"



7 WS Shed West Exterior Elevation
Scale: ¼" = 1'-0"



8 WS Shed North Exterior Elevation
Scale: ¼" = 1'-0"

Legend

Notes

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

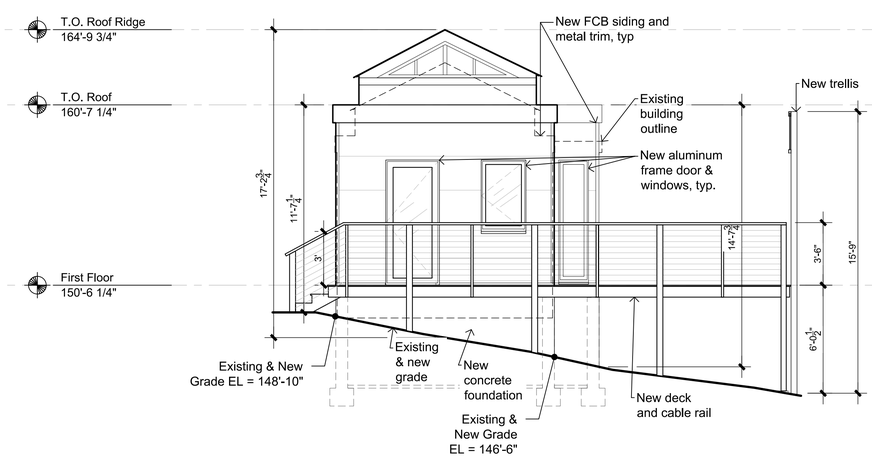
PP Set

New Studio & WS Shed Exterior Elevations

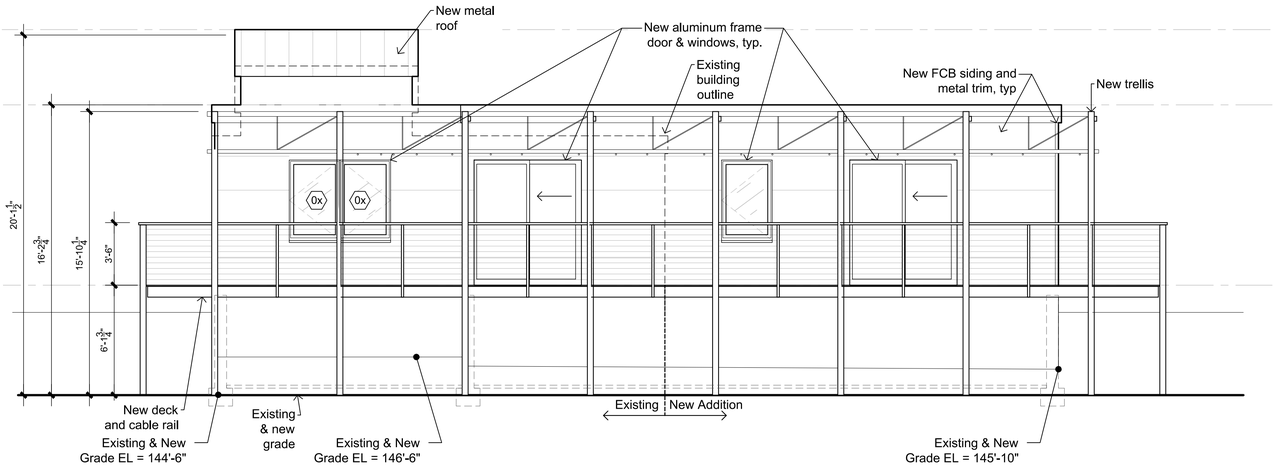
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

LICENSED ARCHITECT ROBERT LUCHETTI C 44699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

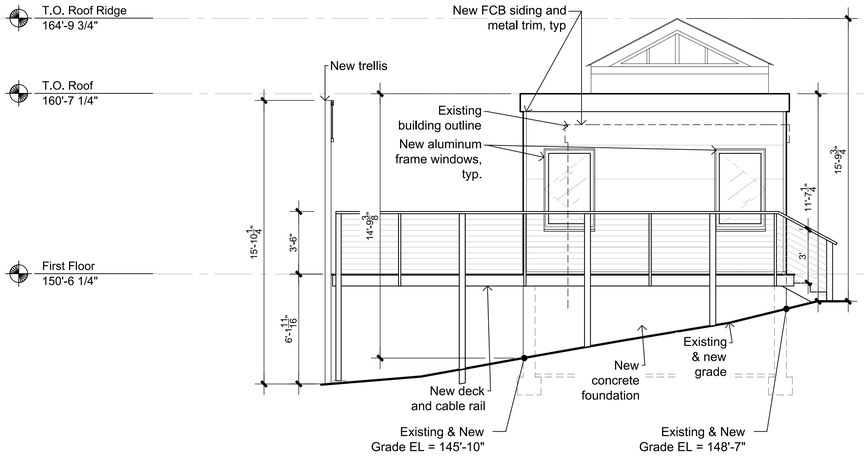
A2.2



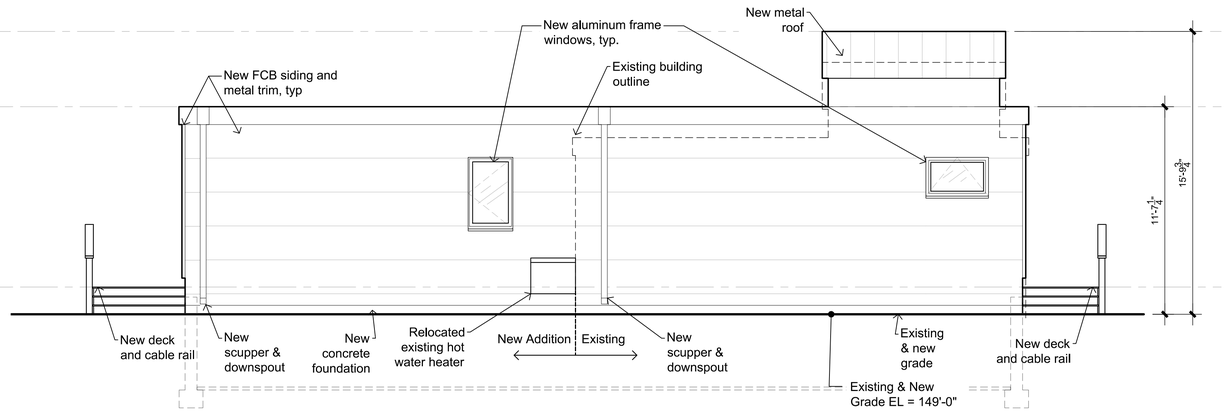
1 Casita (ADU) West Exterior Elevation
Scale: ¼" = 1'-0"



2 Casita (ADU) South Exterior Elevation
Scale: ¼" = 1'-0"



3 Casita (ADU) East Exterior Elevation
Scale: ¼" = 1'-0"



4 Casita (ADU) North Exterior Elevation
Scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

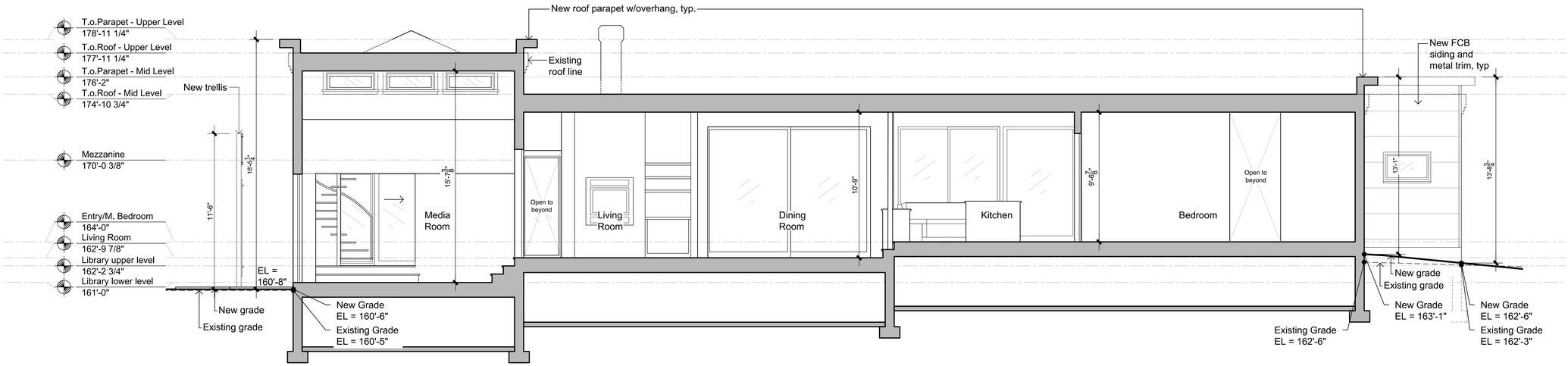
PP Set

New Casita (ADU) Exterior Elevations

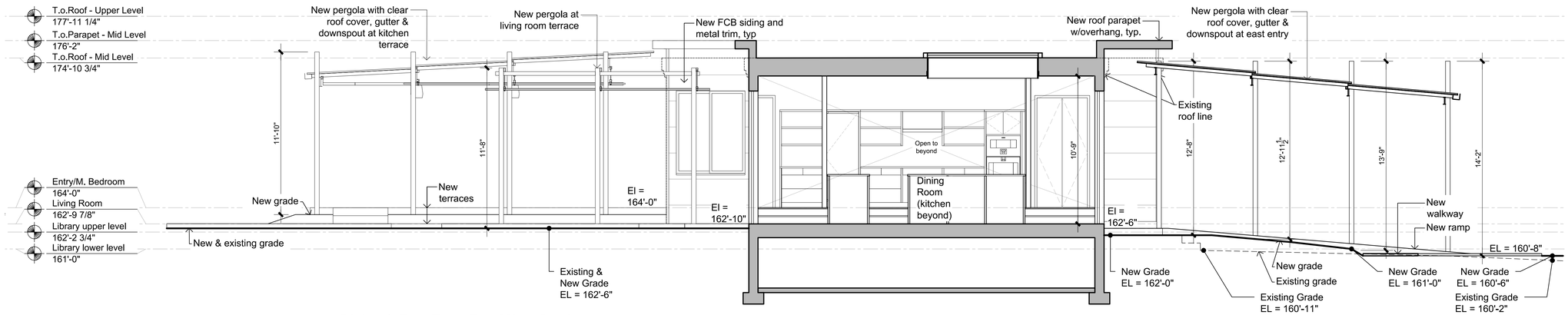
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

LICENSED ARCHITECT ROBERT LUCHETTI C 44699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

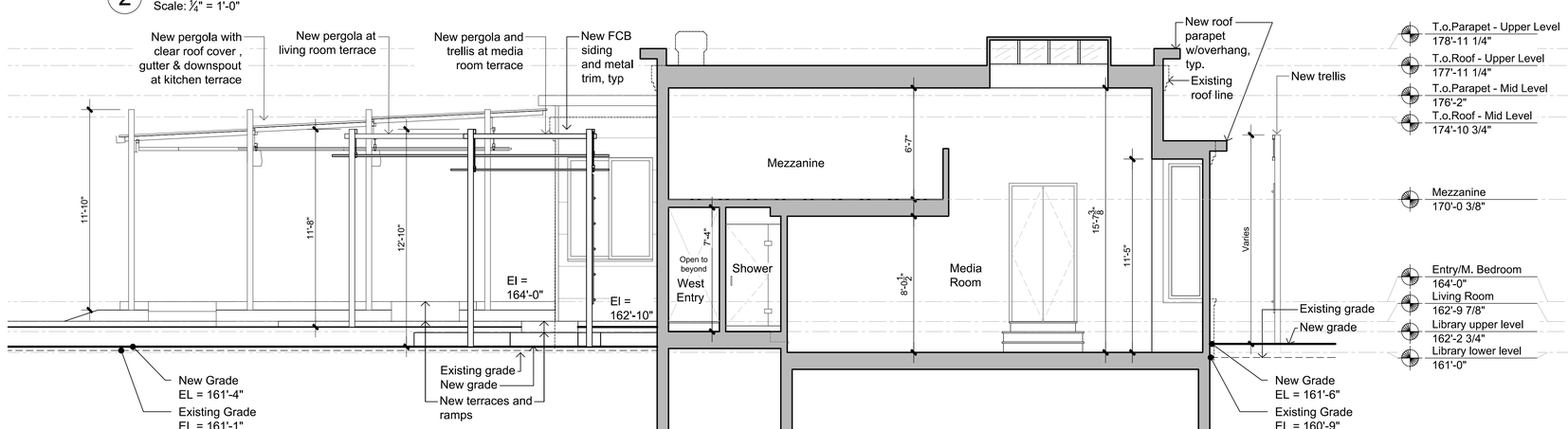
A2.3



1 Living, Dining & Kitchen North/South Section
Scale: ¼" = 1'-0"



2 Dining & East Entry East/West Section
Scale: ¼" = 1'-0"



3 West Entry, Shower & Media Room East/West Section
Scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

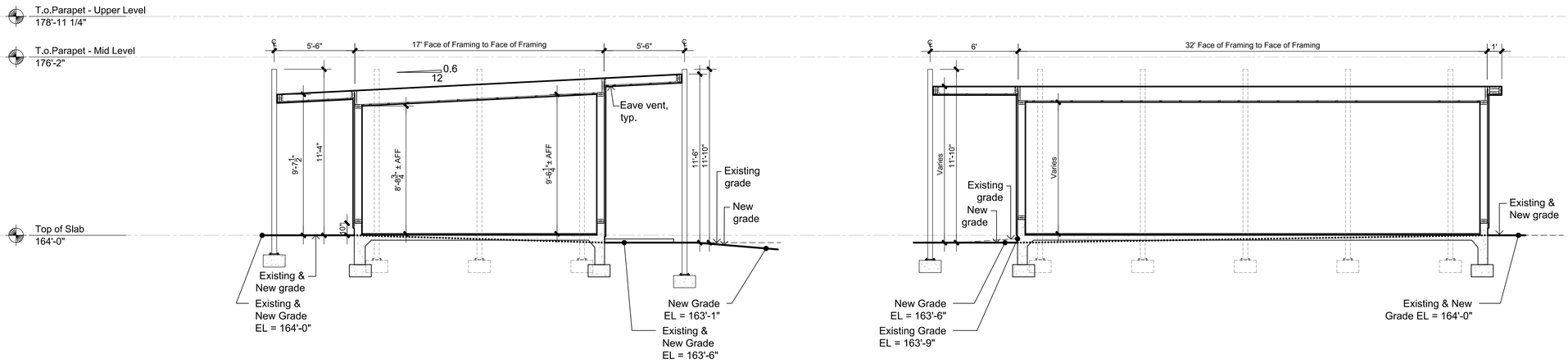
PP Set

New Main House Sections - with Pergolas, Canopies and Trellises

Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions:

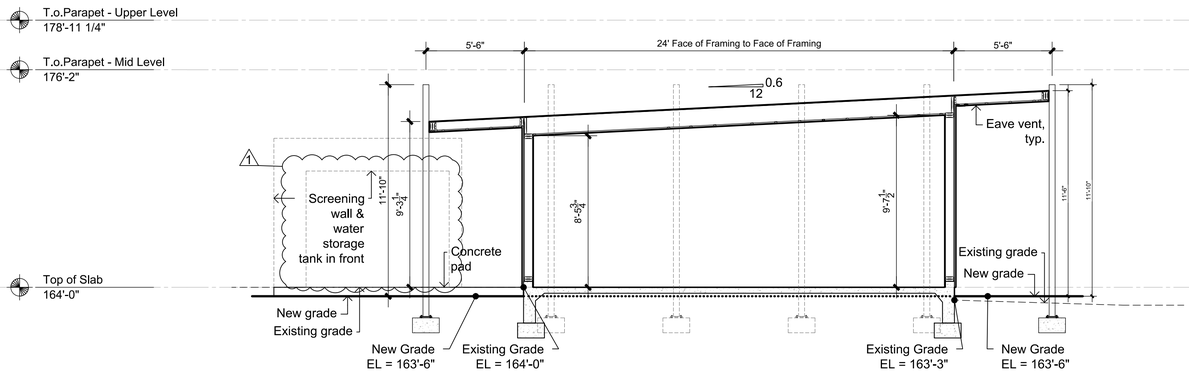
LICENSED ARCHITECT ROBERT LUCHETTI C-24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A3.0

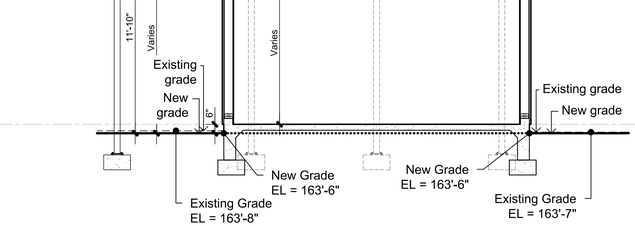


1 Studio West/East Section
Scale: ¼" = 1'-0"

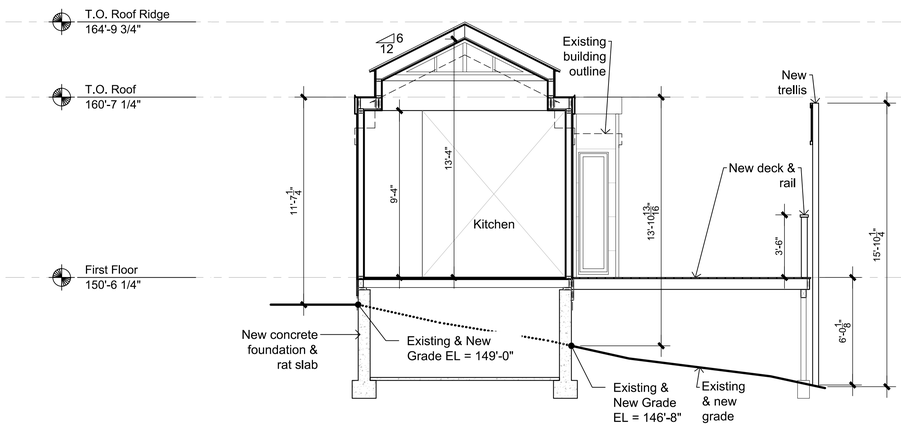
2 Studio South/North Section
Scale: ¼" = 1'-0"



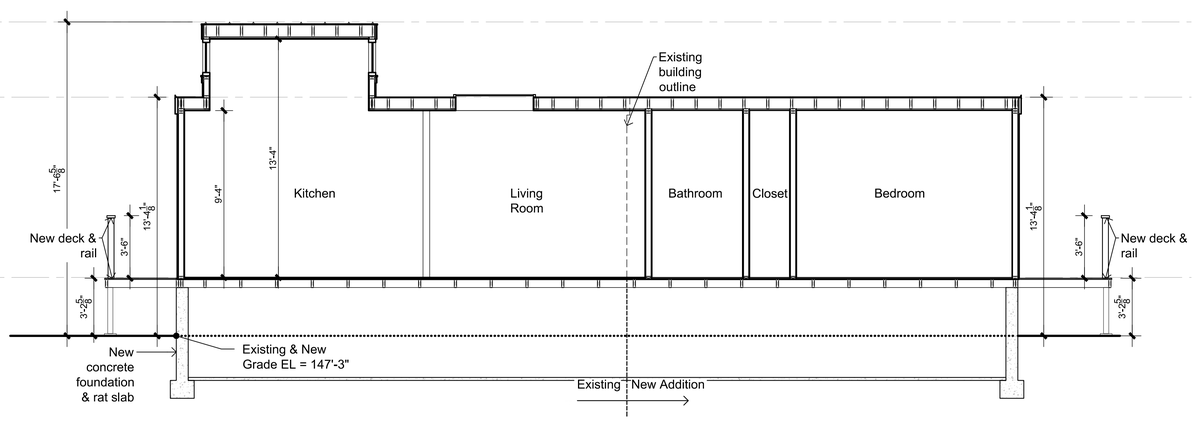
3 WS Shed West/East Section
Scale: ¼" = 1'-0"



4 WS Shed South/North Section
Scale: ¼" = 1'-0"



5 Casita (ADU) North/South Section
Scale: ¼" = 1'-0"



6 Casita (ADU) West/East Section
Scale: ¼" = 1'-0"

Robert Luchetti Associates, Inc.
5 Cleveland St
Cambridge, MA 02138
617 623 7611
617 623 8441 FAX

155 Horse Shoe Hill Road House Renovation

155 Horse Shoe Hill Road
Bolinas, CA 94924

Legend

Notes

PP Set

New Casita (ADU), Studio & WS Shed Sections

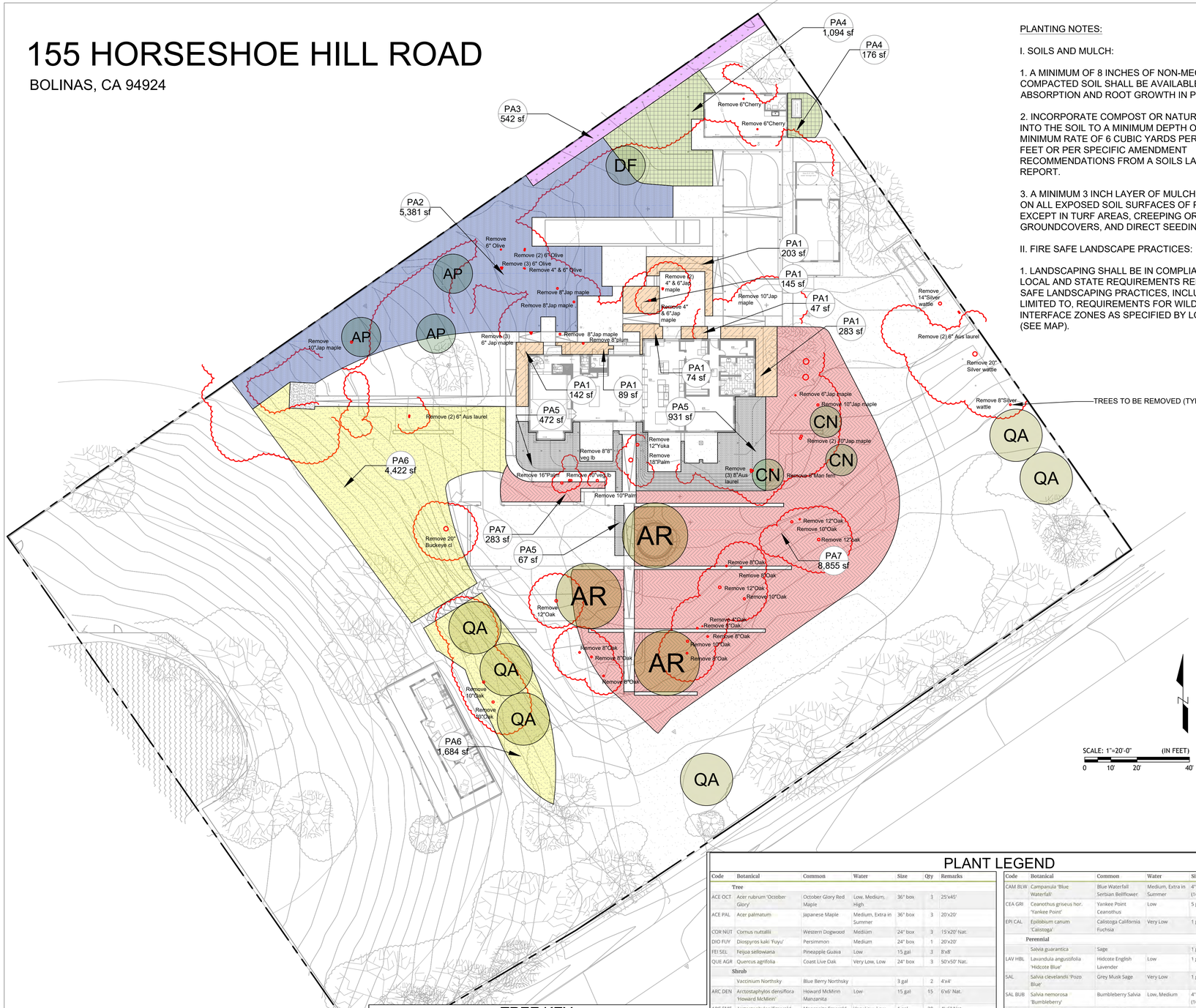
Date: 03.05.25 Scale: As Noted
Drawn By: RB
Revisions: 1 - 04.24.25

LICENSED ARCHITECT ROBERT LUCHETTI C-24699 6-20-2025 RENEWAL DATE STATE OF CALIFORNIA

A3.1

155 HORSESHOE HILL ROAD

BOLINAS, CA 94924



PLANTING NOTES:

I. SOILS AND MULCH:

1. A MINIMUM OF 8 INCHES OF NON-MECHANICALLY COMPACTED SOIL SHALL BE AVAILABLE FOR WATER ABSORPTION AND ROOT GROWTH IN PLANTED AREAS.

2. INCORPORATE COMPOST OR NATURAL FERTILIZER INTO THE SOIL TO A MINIMUM DEPTH OF 8 INCHES AT A MINIMUM RATE OF 6 CUBIC YARDS PER 1000 SQUARE FEET OR PER SPECIFIC AMENDMENT RECOMMENDATIONS FROM A SOILS LABORATORY REPORT.

3. A MINIMUM 3 INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT IN TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, AND DIRECT SEEDING APPLICATIONS.

II. FIRE SAFE LANDSCAPE PRACTICES:

1. LANDSCAPING SHALL BE IN COMPLIANCE WITH ALL LOCAL AND STATE REQUIREMENTS RELATED TO FIRE SAFE LANDSCAPING PRACTICES, INCLUDING, BUT NOT LIMITED TO, REQUIREMENTS FOR WILDLIFE URBAN INTERFACE ZONES AS SPECIFIED BY LOCAL AUTHORITY (SEE MAP).

TREE KEY

SYMBOL	CODE	COMMON / BOTANICAL NAME
TREES		
QA	QA	COAST LIVE OAK / QUERCUS AGRIFOLIA
AP	AP	JAPANESE MAPLE / ACER PALMATUM
AR	AR	OCTOBER GLORY RED MAPLE / ACER RUBRUM 'OCTOBER GLORY'
DF	DF	PERSIMMON / DIOSPYROS KAKI 'FUYU'
CN	CN	WESTERN DOGWOOD / CORNUS NUTTALLII

PLANT LEGEND

Code	Botanical	Common	Water	Size	Qty	Remarks
Tree						
ACE OCT	Acer rubrum 'October Glory'	October Glory Red Maple	Low, Medium, High	36" box	3	25'x45'
ACE PAL	Acer palmatum	Japanese Maple	Medium, Extra in Summer	36" box	3	20'x20'
COR NUT	Cornus nuttallii	Western Dogwood	Medium	24" box	3	15'x20' Nat.
DIO FUY	Diospyros kaki 'Fuyu'	Persimmon	Medium	24" box	1	20'x20'
FEI SEL	Feijoa sellowiana	Pineapple Guava	Low	15 gal	3	8'x8'
QUE AGR	Quercus agrifolia	Coast Live Oak	Very Low, Low	24" box	3	50'x50' Nat.
Shrub						
	Vaccinium Northsky	Blue Berry Northsky		3 gal	2	4'x4'
ARC DEN	Arctostaphylos densiflora 'Howard McMinn'	Howard McMinn Manzanita	Low	15 gal	15	6'x6' Nat.
ARC EME	Arctostaphylos 'Emerald Carpet'	Manzanita Emerald Carpet	Very Low, Low, Extra in Summer	1 gal	20	4'x6" Nat.
CEA RAY	Ceanothus 'Ray Hartman'	Ray Hartman California Lilac	Low, Extra in Summer	15 gal	6	8'x10' Nat.
ERI GIG	Eriogonum giganteum	St. Catherine's Lace	Very Low, Low	5 gal	7	4.5'x4.5' Nat.
FRA LEA	Frangula californica 'Leatherleaf'	Leatherleaf Coffeeberry	Very Low, Extra in Summer	15 gal	7	6'x8' Nat.
PHL FRU	Phlomis fruticosa	Jerusalem Sage	Low	5 gal	5	4'x3'
RHA CAL	Rhamnus cal. 'Eve Case'	Eve Case Compact Coffeeberry	Very Low, Extra in Summer	15 gal	7	5'x5' Nat.
RIB IND	Ribes sanguineum glutinosum 'Claremont'	Claremont Flowering Current	Very Low, Low	5 gal	5	5'x5' Nat.
SAL MAR	Salvia chamaedryoides 'Marine Blue'	Marine Blue Germander Sage	Very Low	1 gal	20	2.5'x2.5'
SAL MAZ	Salvia mic. 'Mesa Azure'	Mesa Azure Sage	Medium, Extra in Summer	1 gal	10	2.5'x2.5'
VAC BLC	Vaccinium corymbosum 'Bluecrop'	Bluecrop Highbush Blueberry	Medium	3 gal	2	4'x4'
VAC OVA	Vaccinium ovatum	Evergreen or Wild Huckleberry	Medium	5 gal	8	3'x5' Nat.
VAC SUB	Vaccinium x 'Sunshine Blue'	Sunshine Blueberry	Medium	3 gal	3	3'x3'
WIS RPU	Wisteria floribunda 'Royal Purple'	Royal Purple Japanese Wisteria	Medium	5 gal	10	2.5'x15'
Ground cover						
ARC GRE	Arctostaphylos uva ursi 'Green Supreme'	Green Supreme Manzanita	Low, Extra in Summer	1 gal	50	10'x6" Nat.
CAM BLW	Campanula 'Blue Waterfall'	Blue Waterfall Serbian Bellflower	Medium, Extra in Summer	4" pots (16/flat)	2	2'x6"
CEA GRI	Ceanothus griseus hor. 'Yankee Point'	Yankee Point Ceanothus	Low	5 gal	21	10'x2' Nat.
EPI CAL	Epilobium canum 'Calistoga'	Calistoga California Fuchsia	Very Low	1 gal	45	1'x4' Nat.
Perennial						
	Salvia guarantica	Sage		1 gal	12	2.5'x3.5'
LAV HBL	Lavandula angustifolia 'Hidcote Blue'	Hidcote English Lavender	Low	1 gal	22	3.5'x3.5'
SAL	Salvia clevelandii 'Pozo Blue'	Grey Musk Sage	Very Low	1 gal	18	3'x4'
SAL BUB	Salvia nemorosa 'Bumbleberry'	Bumbleberry Salvia	Low, Medium	4" pots (16/flat)	3	2'x2'
SIS BEL	Sisyrinchium bellum	Blue-Eyed Grass	Very Low		1	6"x6" Nat.
SIS CAL	Sisyrinchium californicum	Yellow Eyed Grass	Medium		1	6"x6" Nat.
THY CLE	Thymus x citirodorus 'Lemon Creeping'	Lemon Creeping Thyme	Low, Medium	4" pots (16/flat)	6	2.5'x2'
Grass						
CAR PAN	Carex pansa	California Meadow Sedge	Medium, Extra in Summer	4" pots (16/flat)	15	1'x1' Nat.
CAR TUM	Carex tumulicola	Foothill Sedge	Medium	1 gal	50	2.5'x2.5' Nat.
CHO TEC	Chondropetalum tectorum 'El Campo'	El Campo Cape Rush	Low	5 gal	20	3'x3'
FES MOL	Festuca rubra 'Molate'	Native Creeping Red Fescue	Medium, Extra in Summer	4" pots (16/flat)	10	6"x6" Nat.
MUH LIN	Muhlenbergia lindheimeri Autumn Glow®	Autumn Glow® Muhly	Very Low, Extra in Summer	5 gal	7	4'x4'
MUH RIG	Muhlenbergia rigens	Deer Grass	Low	5 gal	35	3.5'x3.5' Nat.

PLANT SCHEDULE BY AREA

PA1 Backyard Foundation And Patios

1,966 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Shrubs				
	Vaccinium Northsky	Blue Berry Northsky		
ARC EME	Arctostaphylos 'Emerald Carpet'	Manzanita Emerald Carpet	1 ft.	3-5 ft.
VAC BLC	Vaccinium corymbosum 'Bluecrop'	Bluecrop Highbush Blueberry	8 ft.	6 ft.
VAC OVA	Vaccinium ovatum	Evergreen or Wild Huckleberry	2-4 ft.	2-4 ft.
VAC SUB	Vaccinium x 'Sunshine Blue'	Sunshine Blueberry	3-4 ft.	3-4 ft.
WIS RPU	Wisteria floribunda 'Royal Purple'	Royal Purple Japanese Wisteria	12-20 ft.	10-12 ft.
Ground Covers				
CAM BLW	Campanula 'Blue Waterfall'	Blue Waterfall Serbian Bellflower	0.75 ft.	1.5 ft.
Perennials				
LAV HBL	Lavandula angustifolia 'Hidcote Blue'	Hidcote English Lavender	1-2 ft.	2-3 ft.
THY CLE	Thymus x citirodorus 'Lemon Creeping'	Lemon Creeping Thyme	0.5 ft.	1 ft.
Grasses				

PA2 Backyard Pool

10,762 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
ACE PAL	Acer palmatum	Japanese Maple	10-25 ft.	10-25 ft.
Shrubs				
RIB IND	Ribes sanguineum glutinosum 'Claremont'	Claremont Flowering Current	6-8 ft.	4-5 ft.
SAL MAR	Salvia chamaedryoides 'Marine Blue'	Marine Blue Germander Sage	2 ft.	2 ft.
Grasses				
CAR TUM	Carex tumulicola	Foothill Sedge	1-2 ft.	1-1.5 ft.
CHO TEC	Chondropetalum tectorum 'El Campo'	El Campo Cape Rush	1-3'	1-3'
FES MOL	Festuca rubra 'Molate'	Native Creeping Red Fescue	1-1.5 ft.	1-2 ft.

PA3 Backyard Screening Shrubs

1,084 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
FEI SEL	Feijoa sellowiana	Pineapple Guava	10-15 ft.	10-15 ft.
Shrubs				
CEA RAY	Ceanothus 'Ray Hartman'	Ray Hartman California Lilac	12 ft.	8-10 ft.
FRA LEA	Frangula californica 'Leatherleaf'	Leatherleaf Coffeeberry	5-8 ft.	6-8 ft.

PA4 Backyard Studio

2,540 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
DIO FUY	Diospyros kaki 'Fuyu'	Persimmon	10-15 ft.	15-20 ft.
Shrubs				
ARC EME	Arctostaphylos 'Emerald Carpet'	Manzanita Emerald Carpet	1 ft.	3-5 ft.
PHL FRU	Phlomis fruticosa	Jerusalem Sage	4 ft.	4 ft.
SAL MAZ	Salvia mic. 'Mesa Azure'	Mesa Azure Sage	1.5-2 ft.	1.5-2 ft.
Perennials				
	Salvia guarantica	Sage	3-6'	1-3'

PA5 Front Yard Foundation/ Patios

2,940 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
COR NUT	Cornus nuttallii	Western Dogwood	15-40 ft.	10-25 ft.
Shrubs				
ARC EME	Arctostaphylos 'Emerald Carpet'	Manzanita Emerald Carpet	1 ft.	3-5 ft.
RHA CAL	Rhamnus cal. 'Eve Case'	Eve Case Compact Coffeeberry	3-6'	3-6', 6-12'
WIS RPU	Wisteria floribunda 'Royal Purple'	Royal Purple Japanese Wisteria	12-20 ft.	10-12 ft.
Perennials				
LAV HBL	Lavandula angustifolia 'Hidcote Blue'	Hidcote English Lavender	1-2 ft.	2-3 ft.
SAL BUB	Salvia nemorosa 'Bumbleberry'	Bumbleberry Salvia	0.75-1 ft.	1-1.2 ft.
THY CLE	Thymus x citirodorus 'Lemon Creeping'	Lemon Creeping Thyme	0.5 ft.	1 ft.
Grasses				
CHO TEC	Chondropetalum tectorum 'El Campo'	El Campo Cape Rush	1-3'	1-3'

PA6 Front Yard South Driveway/ South View

12,212 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
QUE AGR	Quercus agrifolia	Coast Live Oak	25-40', 40-60'	40-60', 60-100'
Shrubs				
ARC DEN	Arctostaphylos densiflora 'Howard McMinn'	Howard McMinn Manzanita	5-8 ft.	6-10 ft.
ERI GIG	Eriogonum giganteum	St. Catherine's Lace	1.5-6 ft.	4-10 ft.
SAL MAR	Salvia chamaedryoides 'Marine Blue'	Marine Blue Germander Sage	2 ft.	2 ft.
SAL MAZ	Salvia mic. 'Mesa Azure'	Mesa Azure Sage	1.5-2 ft.	1.5-2 ft.
Ground Covers				
ARC GRE	Arctostaphylos uva ursi 'Green Supreme'	Green Supreme Manzanita	0.5 ft.	4-12 ft.
CEA GRI	Ceanothus griseus hor. 'Yankee Point'	Yankee Point Ceanothus	2-3 ft.	8-10 ft.
EPI CAL	Epilobium canum 'Calistoga'	Calistoga California Fuchsia	1-2 ft.	2-4 ft.
Perennials				
	Salvia guarantica	Sage	3-6'	1-3'
Grasses				
CAR PAN	Carex pansa	California Meadow Sedge	0.75-1 ft.	1 ft.
MUH LIN	Muhlenbergia lindheimeri Autumn Glow®	Autumn Glow® Muhly	5 ft.	5 ft.
MUH RIG	Muhlenbergia rigens	Deer Grass	2-3 ft.	2-3 ft.

PA7 Front Yard Terraces/ Walkway

18,276 SF

CODE	BOTANICAL	COMMON	HEIGHT	WIDTH
Trees				
ACE OCT	Acer rubrum 'October Glory'	October Glory Red Maple	40-50 ft.	30-40 ft.
Shrubs				
ARC DEN	Arctostaphylos densiflora 'Howard McMinn'	Howard McMinn Manzanita	5-8 ft.	6-10 ft.
CEA RAY	Ceanothus 'Ray Hartman'	Ray Hartman California Lilac	12 ft.	8-10 ft.
ERI GIG	Eriogonum giganteum	St. Catherine's Lace	1.5-6 ft.	4-10 ft.
Ground Covers				
ARC GRE	Arctostaphylos uva ursi 'Green Supreme'	Green Supreme Manzanita	0.5 ft.	4-12 ft.
EPI CAL	Epilobium canum 'Calistoga'	Calistoga California Fuchsia	1-2 ft.	2-4 ft.
Perennials				
SAL	Salvia clevelandii 'Pozo Blue'	Grey Musk Sage	3-5 ft.	3-5 ft.
SAL BUB	Salvia nemorosa 'Bumbleberry'	Bumbleberry Salvia	0.75-1 ft.	1-1.2 ft.
SIS BEL	Sisyrinchium bellum	Blue-Eyed Grass	1 ft.	1 ft.
SIS CAL	Sisyrinchium californicum	Yellow Eyed Grass	1 ft.	1 ft.
Grasses				
CAR PAN	Carex pansa	California Meadow Sedge	0.75-1 ft.	1 ft.
MUH LIN	Muhlenbergia lindheimeri Autumn Glow®	Autumn Glow® Muhly	5 ft.	5 ft.
MUH RIG	Muhlenbergia rigens	Deer Grass	2-3 ft.	2-3 ft.

SENTIENT LANDSCAPE INC.
mail@sentientlandscape.com
965 Martin Lane
Sebastopol, CA 95472
Phone: (707) 829-3655
Fax: (707) 829-3655

SHEET NOTES

PROJECT/ADDRESS

155 Horseshoe Hill Road
Bolinas, CA 94924

DRAWING REVISIONS

DATE	DESCRIP.

SCALE
AS SHOWN

STAMP

SUBMITTAL
MARIN COASTAL COMMISSION
ISSUED
03/03/2025

SHEET TITLE
LANDSCAPE CONCEPT

SHEET NUMBER
L1.0

1 LANDSCAPE CONCEPT



1 VEGETATION MANAGEMENT PLAN

HAZARD ZONE KEY

IMMEDIATE HAZARD ZONE (ZONE 0:) 0'-5'

THE IMMEDIATE ZONE EXTENDS 0-5' FROM THE HOUSE. ZONE 0 IS THE AREA CLOSEST TO THE HOUSE, INCLUDING THE STRUCTURE ITSELF, DECKS, OUTDOOR FURNITURE, AND THE OUTSIDE WALLS AND COVERINGS. THIS AREA IS MOST VULNERABLE, AND SHOULD BE MOST AGGRESSIVELY MAINTAINED FOR FIRE RESISTANCE.

- REMOVE ANY COMBUSTIBLE OUTDOOR FURNITURE.
- REPLACE JUTE OR FIBER DOOR MATS WITH FIRE RESISTANT MATERIALS.
- REMOVE OR RELOCATE ALL COMBUSTIBLE MATERIALS, INCLUDING GARBAGE AND RECYCLING CONTAINERS, LUMBER, TRASH, AND PATIO ACCESSORIES.
- CLEAN ALL FALLEN LEAVES AND NEEDLES REGULARLY. REPEAT OFTEN DURING FIRE SEASON.
- NO VEGETATION IS RECOMMENDED WITHIN 5' OF STRUCTURES.
- REMOVE TREE LIMBS THAT EXTEND INTO THIS ZONE. FIRE-PRONE TREE VARIETIES SHOULD BE REMOVED IF THEY EXTEND WITHIN 5' OF STRUCTURES.
- DO NOT STORE FIREWOOD, LUMBER, OR COMBUSTIBLES HERE, EVEN (ESPECIALLY) UNDER DECKS OR OVERHANGS. MOVE STORED COMBUSTIBLES INSIDE, OR AT LEAST 30' AWAY FROM STRUCTURES.
- USE ONLY INORGANIC, NON-COMBUSTIBLE MULCHES SUCH AS STONE OR GRAVEL. COMPOSTED MULCH AND LARGE BARK AND CHIPS (GREATER THAN 1/2" DIAMETER) MAY BE OK.

INTERMEDIATE HAZARD ZONE (ZONE 1:) 5'-30'

THE INTERMEDIATE ZONE FROM 5' TO 30' OUT FROM BUILDINGS, STRUCTURES, DECKS, ETC. KEEP ZONE 1 "LEAN, CLEAN, AND GREEN" AND EMPLOY CAREFUL LANDSCAPING TO CREATE BREAKS THAT CAN HELP INFLUENCE AND DECREASE FIRE BEHAVIOR.

- REMOVE ALL DEAD PLANTS, GRASS, AND WEEDS (VEGETATION).
- REMOVE DEAD OR DRY LEAVES AND PINE NEEDLES FROM YOUR YARD, ROOF AND RAIN GUTTERS.
- TRIM TREES REGULARLY TO KEEP BRANCHES A MINIMUM OF 10 FEET FROM OTHER TREES.
- REMOVE BRANCHES THAT HANG OVER YOUR ROOF AND KEEP DEAD BRANCHES 10 FEET AWAY FROM YOUR CHIMNEY.
- REMOVE VEGETATION AND ITEMS THAT COULD CATCH FIRE FROM AROUND AND UNDER DECKS.
- REMOVE FIRE-PRONE PLANTS, AND CHOOSE ONLY FIRE-RESISTANT VARIETIES. IRRIGATE REGULARLY.
- REMOVE LIMBS TO A HEIGHT OF 10' ABOVE THE GROUND (OR 1/3 THE HEIGHT OF THE TREE) TO PROVIDE CLEARANCE AND TO ELIMINATE A "FIRE LADDER".
- USE ONLY INORGANIC, NON-COMBUSTIBLE MULCHES SUCH AS STONE OR GRAVEL. COMPOSTED MULCH AND LARGE BARK AND CHIPS (GREATER THAN 1/2" DIAMETER) MAY BE OK.

EXTENDED HAZARD ZONE (ZONE 2:) 30'-100'

THE EXTENDED ZONE FROM 30' TO 100' (OR MORE, IF REQUIRED DUE TO STEEP SLOPES, NEARBY VEGETATION CONDITIONS, AND/OR YOUR LOCAL FIRE DEPARTMENT). THE GOAL HERE IS NOT TO ELIMINATE FIRE BUT TO INTERRUPT FIRE'S PATH AND KEEP FLAMES SMALLER AND ON THE GROUND. THIS ZONE SHOULD INCLUDE AT A MINIMUM:

- CUT OR MOW ANNUAL GRASS DOWN TO A MAXIMUM HEIGHT OF 4 INCHES.
- CREATE HORIZONTAL SPACING BETWEEN SHRUBS, TREES AND VERTICAL SPACING BETWEEN GRASS,
- SHRUBS AND TREES.
- REMOVE FALLEN LEAVES, NEEDLES, TWIGS, BARK, CONES, AND SMALL BRANCHES. HOWEVER, THEY MAY
- BE PERMITTED TO A DEPTH OF 3 INCHES IF EROSION CONTROL IS AN ISSUE.

ACCESS ZONE (ZONE 3:) 0'-10' FROM EDGE OF DRIVEWAY

EXTENDS 10 FEET HORIZONTALLY FROM THE EDGE ON EITHER SIDE OF THE ROAD OR DRIVEWAY.

- WITHIN THIS ZONE, PLANTINGS SHALL BE FIRE RESISTANT AND SHALL NOT EXTEND WITHIN THE 14 FOOT VERTICAL
- CLEARANCE ABOVE THE SURFACE OF THE ROADWAY OR DRIVEWAY, AS REQUIRED FOR EMERGENCY ACCESS.
- ALL LANDSCAPE SHALL MEET THE REQUIREMENTS FOR SEPARATION AS STATED IN THE ZONE 2 ABOVE.

VEGETATION MANAGEMENT PLAN NARRATIVE

1. EXISTING CONDITIONS
   A. THERE ARE CURRENTLY MATURE COAST LIVE OAKS, CALIFORNIA BAY TREES, CALIFORNIA BUCKEYE (ASCULUS CALIFORNICA) TREES AND A FEW OTHER MISCELLANEOUS NATIVE SHRUB SPECIES LOCATED THROUGHOUT THE PROPERTY.

2. PROPOSED SCOPE
   A. THE INTENT OF THIS PLAN IS TO PROPERLY MAINTAIN THE MATURE LIVE OAKS, CALIFORNIA BAY TREES, AND CALIFORNIA BUCKEYE TREES WITH SELECTIVE PRUNING AND REMOVAL OF ALL DEAD MATERIAL PER FIREWISE STANDARDS. FIRE PRONE SPECIES INCLUDING SCOTCH BROOM AND JUNIPER WILL BE REMOVED. THE EXISTING SHRUBS WILL BE THINNED OR REMOVED TO PROVIDE A FIRE BREAK FROM 0'-30' FROM THE HOME.

3. FUTURE PLANTING
   A. ANY FUTURE PLANTINGS THROUGHOUT THE SITE WILL INCLUDE FIRE-RESISTANT, IRRIGATED SHRUBS, PERENNIALS, AND GROUND COVERS AS IN THE FIRESAFE MARIN PLANTING LISTS LOCATED AT WWW.FIRESAFEMARIN.ORG/PLANTS

4. LONG TERM MAINTENANCE SCHEDULE AND SAFETY PRACTICES
   A. ALL FIRE PRONE FUELS AND DEAD MATERIAL WILL BE REMOVED WITHIN 100' OF THE HOME.
   B. REMOVE BRANCHES BENEATH LARGE TREES FOR A 6-FOOT MINIMUM CLEARANCE.
   C. NEEDLES AND LEAVES AND OTHER COMBUSTIBLE DEBRIS AND LITTER SHALL BE REMOVED FROM ROOFS AND GUTTER AT MINIMUM TWICE YEARLY.
   D. ALL WEEDS AND GRASSES SHALL BE CUT REGULARLY TO A HEIGHT OF 4" OR LESS.
   E. VEGETATION SHALL BE TRIMMED TO WITHIN 10' HORIZONTALLY OF ROADWAYS, AND TREES SHALL BE TRIMMED AS NOT TO OVERHANG ROADWAYS AND PROVIDE 14' OF CLEARANCE VERTICALLY.
   F. ALL DEAD AND DYING VEGETATION SHALL BE REMOVED SEASONALLY TO REDUCE VEGETATION VOLUME AND LADDER FUELS.
   G. COORDINATE WITH ADJACENT PROPERTY OWNERS TO MAINTAIN TREE CANOPIES, VEGETATION AND LADDER FUELS ON AN ANNUAL BASIS.
   H. NO NATIVE GRASSES SHALL BE PLANTED WITHIN HOME IGNITION ZONES 1 AND 2.
   I. ALL PLANTED AREAS INSIDE HOME IGNITION ZONES 1 AND 2 SHALL BE IRRIGATED.
   J. ALL PLANTINGS SHALL BE SELECTED IN COORDINATION WITH THE FIRESAFE MARIN PLANTING LIST LOCATED AT WWW.FIRESAEMARIN.ORG/PLANTS. OTHER FIRE RESISTANT PLANTS CAN BE UTILIZED WITH PRIOR APPROVAL OF THE FIRE CODE OFFICIAL.
   K. REGARDLESS OF PLANT SELECTION, SHRUBS SHALL BE SPACED SO THAT NO CONTINUITY EXISTS BETWEEN GROUND FUELS AND TREE CROWNS, SUCH THAT A GROUND FIRE WILL NOT EXTEND INTO THE TREE CANOPY.

SENTIENT LANDSCAPE INC.
mail@sentientlandscape.com
965 Martin Lane
Sebastopol, CA 95472
Phone: (707) 829-3655
Fax: (707) 829-3655

SHEET NOTES

PROJECT/ADDRESS

155 Horseshoe Hill Road
Bolinas, CA 94924

DRAWING REVISIONS

DATE	DESCRIP.

SCALE
AS SHOWN

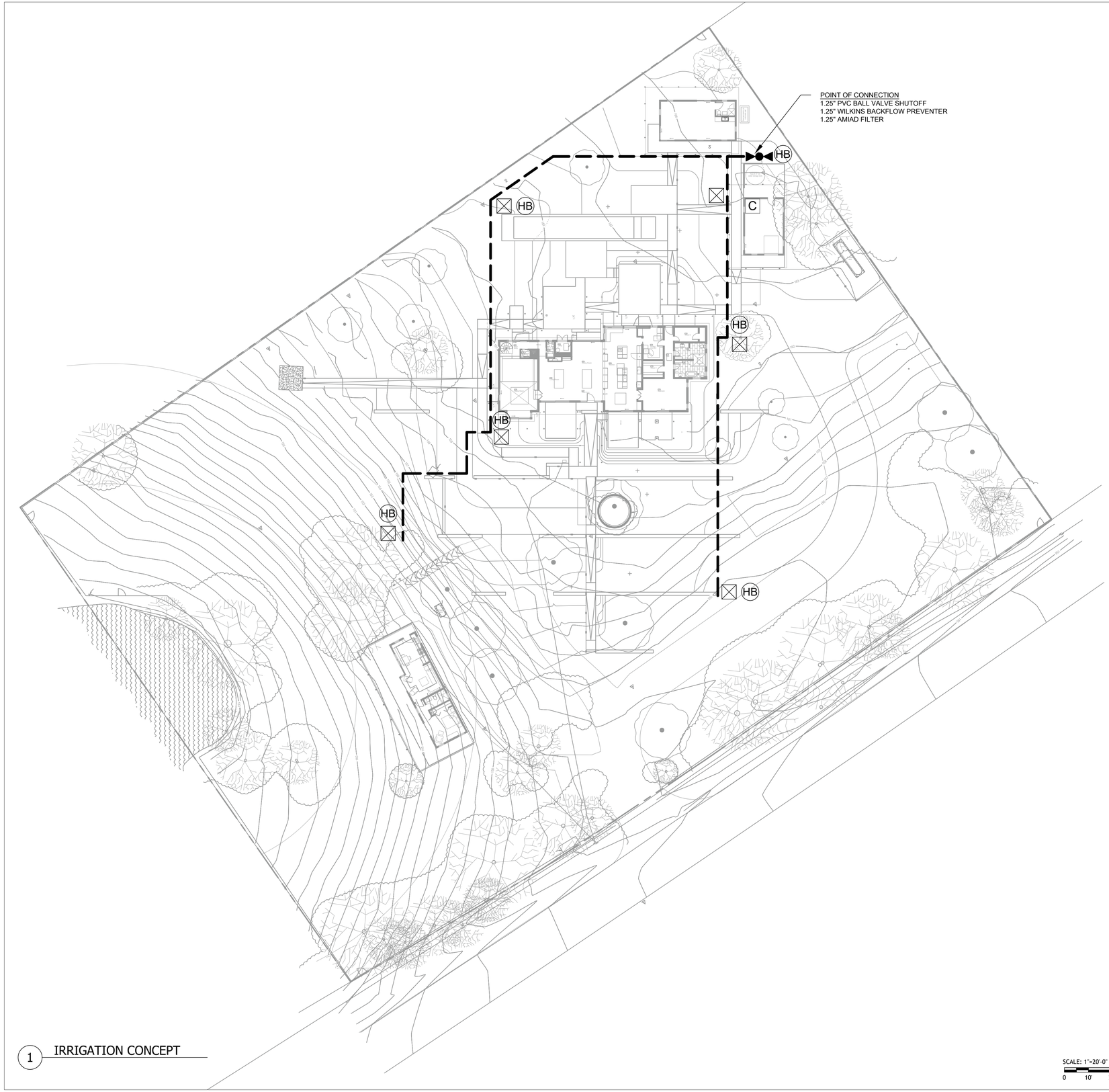
STAMP

SUBMITTAL
MARIN COASTAL COMMISSION

ISSUED
03/03/2025

SHEET TITLE
VEGETATION MANAGEMENT PLAN

SHEET NUMBER
L1.1



1 IRRIGATION CONCEPT

IRRIGATION LEGEND

SYMBOL	DESCRIPTION
▶●◀	IRRIGATION POINT OF CONNECTION 1.25" PVC BALL VALVE SHUTOFF 1.25" WILKINS BACKFLOW PREVENTER 1.25" AMIAD FILTER
HB	HOSEBIB
☒	VALVE MANIFOLD
C	IRRIGATION CONTROLLER
– – –	MAINLINE: 1.25" PVC SCHEDULE 40 PVC.

NOTE:
DRIP IRRIGATION ALL PLANTING AREAS.

IRRIGATION NOTES

1. A MINIMUM OF 8 INCHES OF NON-MECHANICALLY COMPACTED SOIL SHALL BE

2. AVAILABLE FOR WATER ABSORPTION AND ROOT GROWTH IN PLANTED AREAS.

3. INCORPORATE COMPOST OR NATURAL FERTILIZER INTO THE SOIL TO A MINIMUM DEPTH OF 8 INCHES AT A MINIMUM RATE OF 6 CUBIC YARDS PER 1000 SQUARE FEET OR PER SPECIFIC AMENDMENT RECOMMENDATIONS FROM A SOILS LABORATORY REPORT.

4. A MINIMUM 3 INCH LAYER OF MULCH SHALL BE APPLIED ON ALL EXPOSED SOIL SURFACES OF PLANTING AREAS EXCEPT IN TURF AREAS, CREEPING OR ROOTING GROUNDCOVERS, AND DIRECT SEEDING APPLICATIONS.

5. COVER BACKFLOW PREVENTER WITH MANUFACTURED FROST PROTECTION BLANKET.

6. REDUCE PRESSURE FOR ALL DRIP EMISSION VALVES TO 35 PSI.

7. PRECIPITATION RATE ON SITE IS LESS THAN 0.75 INCH/HOUR.

8. ISOLATION VALVES TO BE INSTALLED BEFORE EACH IRRIGATION VALVE.

SENTIENT LANDSCAPE INC.
mail@sentientlandscape.com
965 Martin Lane
Sebastopol, CA 95472
Phone: (707) 829-3655
Fax: (707) 829-3655

SHEET NOTES

PROJECT/ADDRESS

155 Horseshoe Hill Road
Bolinas, CA 94924

DRAWING REVISIONS
DATE DESCRIP.

SCALE
AS SHOWN

STAMP

SUBMITTAL
MARIN COASTAL COMMISSION

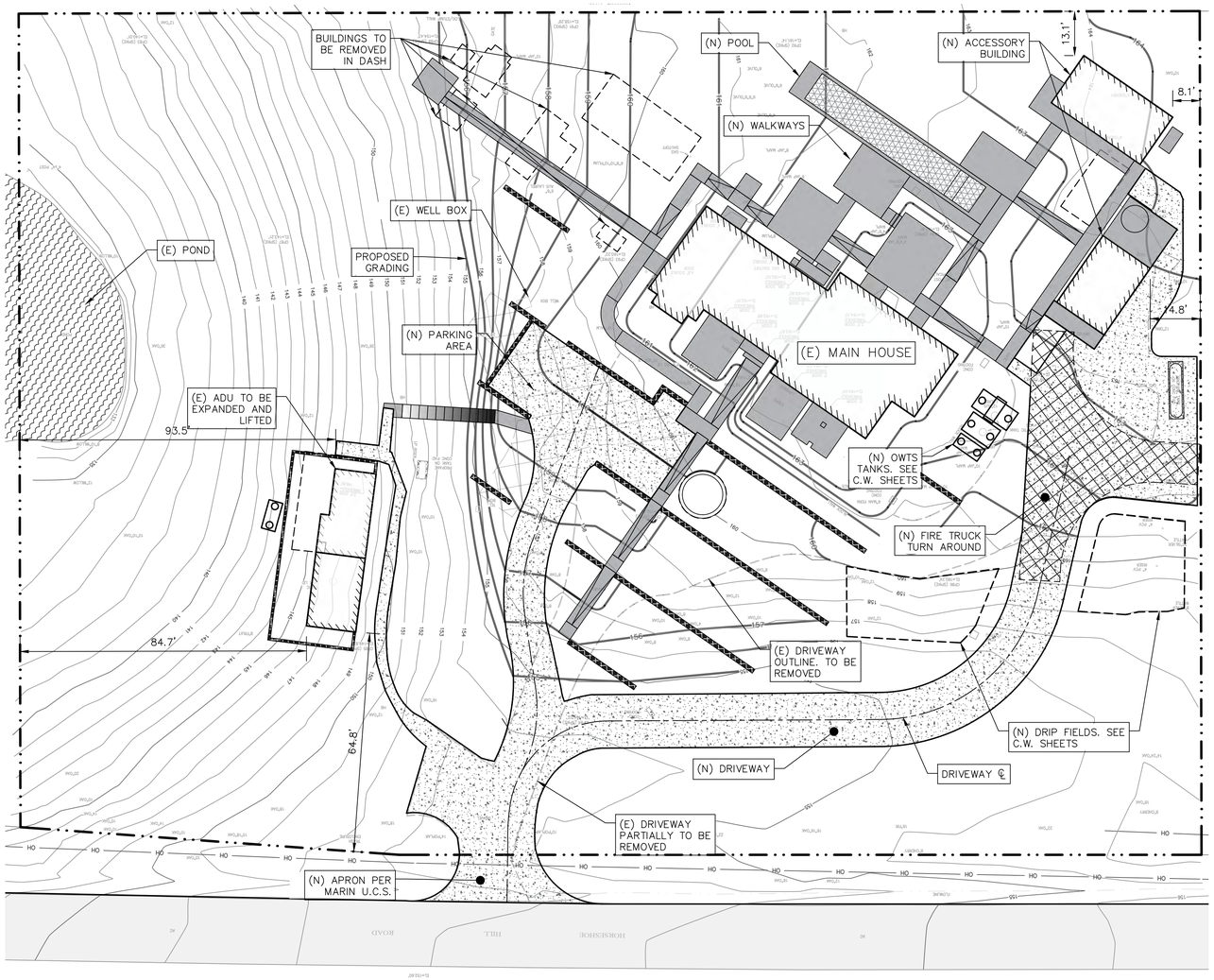
ISSUED
03/03/2025

SHEET TITLE
IRRIGATION CONCEPT

SHEET NUMBER
L2.0

PLANNING CIVIL PLAN

155 HORSESHOE HILL RD. BOLINAS, CA 94924

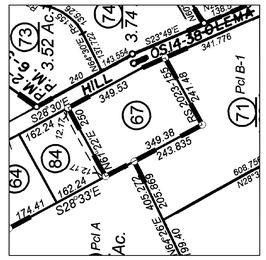


1 PROPOSED SITE PLAN

SCALE 1"=20'



PARCEL LOCATION MAP
N.T.S.



VICINITY MAP
N.T.S.

1 #4D

MarinMap Site Parcel Report

Property ID: 188-150-67

Report generated 1/21/2025 11:01:17 AM

Parcel Information

Property ID:	188-150-67
Address:	155 HORSESHOE HILL RD , BOLINAS
Land Use:	Single-Resid. - Improved
Units:	1
Tax Rate Area:	056-005
Average Slope:	10.60



Parcel highlighted in blue

Census:	132100	**Local Coastal Plan:**	1
District:	4 Dennis Rodoni	**Dam Failure Area:**	
Wildland Interface:	Y	**Alquist Priolo Zone:**	2
Community Plan:	West Marin	**Stream Conserv. Area/Buffer:**	0
Community:	Bolinas	**CWP Area:**	West Marin
ClubList:	BOLINAS	**CWP Corridor:**	COASTAL
Traffic Zone:	96	**Fire Service:**	Bolinas Fire Protection District
Zoning:	C-ARP-5	**Fire Authority:**	Bolinas Fire Protection District

Agriculture Residential Planned

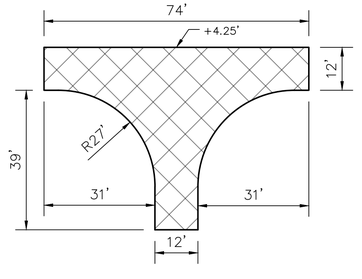
Flood Zone: X **Insurance Required:** N

Zones B, C, and X are the flood insurance rate zones that correspond to areas outside the 1-percent annual chance floodplain, areas of 1-percent annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1-percent annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1-percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

MARIN MAPS PARCEL DETAIL
N.T.S.

HAMMER HEAD TURN AROUND



FIRE COMPLIANCE TABLE		
LIST	VALUE	NOTES
DRIVEWAY ℄ LENGTH	233 FEET	
DRIVEWAY WIDTH	16' MINIMUM	
TURNOUT REQUIRED	YES	18X60
TURN AROUND TYPE	HAMMERHEAD	
CROSS SLOPE OF TURN AROUND	3%	
WUI	YES	
TIGHTEST RADIUS	48 FT.	
STEEPEST CLIMB	15%	LAST ASCENT TO HAMMER HEAD
GATES	YES	
CHIMNEY SPARK ARRESTOR	YES	
PROPANE STORAGE VESSELS	YES	

SHEET INDEX	
C-1.0	SITE OVERVIEW PLAN
C-1.1	PROJECT NOTES
C-1.2	MCSTOPPP DETAILS
C-1.3	CONSTRUCTION BEST MANAGEMENT PRACTICES
C-2.0	GRADING PLAN
C-2.1	DRAINAGE & UTILITY PLAN
C-2.2	EROSION AND SEDIMENTATION CONTROL PLAN
C-3.0	BASMAA COMPLIANCE

DEVELOPER / APPLICANT

PETER LUCHETTI
155 HORSESHOE HILL RD.
BOLINAS, CA 94924

SITE INFO

155 HORSESHOE HILL RD., BOLINAS, CA 94924
APN: 188-150-67
LOT: 86,888 SQ. FT.
37.924234868618825, -122.69814423288321

SCOPE OF WORK

DRIVEWAY IMPROVEMENTS. VARIOUS FLAT WORK
NEW POOL. REMOVAL OF NON COMPLIANT BUILDINGS, ADU ADDITION.

DESIGN

STANDARD GRADING AND DRAINAGE PRACTICES

REFERENCES

ARCH. PLANS:"NEW SITE CONTOUR PLAN"
BY: ROBERT LUCHETTI ASSOCIATES, INC.
DATED: 06/19/24

TOPOGRAPHY & BOUNDARY :"TOPOGRAPHIC MAP,"BY: PHELPS & ASSOCIATES, DATED: 06/19/2024

SOILS REPORT: "GEOTECHNICAL INVESTIGATION"
BY: AC ENGINEERING, INC.
DATED: 07/24/24

BENCHMARK

NGS OPUS OBSERVATION AT CP84. ELEVATION = 154.22' (NAVD88).

BASIS OF BEARINGS

THE ELEVATIONS AND RELATIVE POSITIONS OF FEATURES SHOWN HEREON ARE IN CONFORMANCE WITH THE NATIONAL STANDARDS OF THE AMERICAN CONGRESS ON SURVEYING AND MAPPING. PROPERTY LINES SHOWN HEREON PER RECORD OF SURVEY FILED IN BOOK 2023 MAPS 155.

ESTIMATED EARTHWORK QUANTITIES	
CUT	94
FILL	508
EXPORT	40
IMPORT	468

GRADING QUANTITIES REPRESENT BANK YARDAGE. IT DOES NOT INCLUDE ANY SWELLING OR SHRINKAGE FACTORS AND IS INTENDED TO REPRESENT IN-SITU CONDITIONS. QUANTITIES DO NOT INCLUDE OVER-EXCAVATION, TRENCHING, STRUCTURAL FOUNDATIONS OR PIERS, OR POOL EXCAVATION (IF ANY). NOTE ADDITIONAL EARTHWORKS, SUCH AS KEYWAYS OR BENCHING, MAY BE REQUIRED BY THE GEOTECHNICAL ENGINEER IN THE FIELD AT TIME OF CONSTRUCTION. CONTRACTOR TO VERIFY QUANTITIES.

IMPERVIOUS SURFACE DATA	
EXISTING	6,332
PROPOSED	9,717
POST PROJECT	9,717

AREA OF DISTURBANCE	
PROPOSED	50,594

REVISISON TABLE

DATE	DELTA	COMMENTS

PLANNING SUBMITTAL ONLY
NOT FOR CONSTRUCTION

GRAPHIC SCALE
(IN FEET)
20 0 10 20 40 80
1 INCH = 20 FEET

ISSUES

ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

SITE OVERVIEW PLAN

PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA 94924
APN: 188-150-67

JOB #
349-1

C-1.0

SHEET SIZE: "Arch D" (36"x24")

©2025 – AC ENGINEERING INC.

SHEET SIZE: "Arch D" (36"x24")

GENERAL NOTES

ALL GENERAL NOTES, SHEET NOTES, AND LEGEND NOTES FOUND IN THESE DOCUMENTS SHALL APPLY TYPICALLY THROUGHOUT. IF INCONSISTENCIES ARE FOUND IN THE VARIOUS NOTATIONS, NOTIFY THE ENGINEER IMMEDIATELY IN WRITING REQUESTING CLARIFICATION.

THESE DRAWINGS AND THEIR CONTENT ARE AND SHALL REMAIN THE PROPERTY OF AGNEW CIVIL ENGINEERING WHETHER THE PROJECT FOR WHICH THEY ARE PREPARED IS EXECUTED OR NOT. THEY ARE NOT TO BE USED BY ANY PERSONS ON OTHER PROJECTS OR EXTENSIONS OF THE PROJECT EXCEPT BY AGREEMENT IN WRITING AND WITH APPROPRIATE COMPENSATION TO THE ENGINEER.

ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND TRADE STANDARDS WHICH GOVERN EACH PHASE OF WORK INCLUDING, BUT NOT LIMITED TO, CALIFORNIA MECHANICAL CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA ELECTRICAL CODE, CALIFORNIA FIRE CODE, CALTRANS STANDARDS AND SPECIFICATIONS, AND ALL APPLICABLE STATE AND/OR LOCAL CODES AND/OR LEGISLATION.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND ALL SUBCONTRACTORS TO CHECK AND VERIFY ALL CONDITIONS, DIMENSIONS, LINES AND LEVELS INDICATED. PROPER AT AND ATTACHMENT OF ALL PARTS IS REQUIRED. SHOULD THERE BE ANY DISCREPANCIES, IMMEDIATELY NOTIFY THE ENGINEER FOR CORRECTION OR ADJUSTMENT THE EVENT OF FAILURE TO DO SO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTION OF ANY ERROR.

ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED ON THE JOB BY EACH SUBCONTRACTOR BEFORE HE/SHE BEGINS HIS/HER WORK. ANY ERRORS, OMISSION, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER/CONTRACTOR BEFORE CONSTRUCTION BEGINS. COMMENCEMENT OF WORK BY THE CONTRACTOR AND/OR ANY SUBCONTRACTOR SHALL INDICATE KNOWLEDGE AND ACCEPTANCE OF ALL CONDITIONS DESCRIBED IN THESE CONSTRUCTION DOCUMENTS, OR EXISTING ON SITE, WHICH COULD AFFECT THEIR WORK.

1. WORK SEQUENCE

IN THE EVENT ANY SPECIAL SEQUENCING OF THE WORK IS REQUIRED BY THE OWNER OR THE CONTRACTOR, THE CONTRACTOR SHALL ARRANGE A CONFERENCE BEFORE ANY SUCH WORK IS BEGUN.

SITE EXAMINATION: THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL THOROUGHLY EXAMINE THE SITE AND FAMILIARIZE HIM/HERSELF WITH THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY AT THE SITE ALL MEASUREMENTS AFFECTING HIS/HER WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTIONS OF THE SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS/HER NEGLECT TO EXAMINE, OR FAILURE TO DISCOVER, CONDITIONS WHICH AFFECT HIS/HER WORK.

AGNEW CIVIL ENGINEERING EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT AND OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO A THIRD PARTY WITHOUT FIRST OBTAINING THE WRITTEN PERMISSION AND CONSENT OF AGNEW CIVIL ENGINEERING IN THE EVENT OF UNAUTHORIZED REUSE OF THESE PLANS BY A THIRD PARTY, THE THIRD PARTY SHALL HOLD HARMLESS AGNEW CIVIL ENGINEERING

CONSTRUCTION IS ALWAYS LESS THAN PERFECT SINCE PROJECTS REQUIRE THE COORDINATION AND INSTALLATION OF MANY INDIVIDUAL COMPONENTS BY VARIOUS CONSTRUCTION INDUSTRY TRADES. THESE DOCUMENTS CANNOT PORTRAY ALL COMPONENTS OR ASSEMBLIES EXACTLY. IT IS THE INTENTION OF THESE ENGINEERING DOCUMENTS THAT THEY REPRESENT A REASONABLE STANDARD OF CARE IN THEIR CONTENT. IT IS ALSO PRESUMED BY THESE DOCUMENTS THAT CONSTRUCTION REVIEW SERVICES WILL BE PROVIDED BY THE ENGINEER. SHOULD THE OWNER NOT RETAIN THE ENGINEER TO PROVIDE SUCH SERVICES, OR SHOULD HE/SHE RETAIN THE ENGINEER TO PROVIDE ONLY PARTIAL OR LIMITED SERVICES, THEN IT SHALL BE THE OWNER'S AND CONTRACTOR'S RESPONSIBILITY TO FULLY RECOGNIZE AND PROVIDE THAT STANDARD OF CARE.

IF THE OWNER OR CONTRACTOR OBSERVES OR OTHERWISE BECOMES AWARE OF ANY FAULT OR DEFECT IN THE PROJECT OR NONCONFORMANCE WITH THE CONTRACT DOCUMENTS, PROMPT WRITTEN NOTICE THEREOF SHALL BE GIVEN BY THE OWNER AND/OR CONTRACTOR TO THE ENGINEER.

THE ENGINEER SHALL NOT HAVE CONTROL OF OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

2. SITE PROTECTION

PROTECT ALL LANDSCAPING THAT IS TO REMAIN. ANY DAMAGE OR LOSS RESULTING FROM EXCAVATION, GRADING, OR CONSTRUCTION WORK SHALL BE CORRECTED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL EXISTING SITE UTILITIES AND SHALL COORDINATE THEIR REMOVAL OR MODIFICATIONS (IF ANY) TO AVOID ANY INTERRUPTION OF SERVICE TO ADJACENT AREAS. THE GENERAL CONTRACTOR SHALL INFORM HIM/HERSELF OF MUNICIPAL REGULATIONS AND CARRY OUT HIS/HER WORK IN COMPLIANCE WITH ALL FEDERAL AND STATE REQUIREMENTS TO REDUCE FIRE HAZARDS AND INJURIES TO THE PUBLIC.

GENERAL GRADING NOTES

CONTRACTOR SHALL OBTAIN THE PROPER PERMITS PRIOR TO ANY GRADING.

A SEPARATE PERMIT IS REQUIRED FOR ANY AND ALL WORK WITHIN THE CITY RIGHT-OF-WAY. THE CONTRACTOR(S) SHALL OBTAIN AN APPROVED STREET WORK (ENCROACHMENT PERMIT) PERMIT FROM THE PUBLIC WORKS DEPARTMENT PRIOR TO THE COMMENCEMENT OF THIS WORK WITHIN THE CITY RIGHT-OF-WAY.

CONTRACTOR SHALL PROVIDE AND MAINTAIN APPROVED EROSION AND SEDIMENTATION CONTROL MEASURES DURING RAINY SEASON PER CITY AND CALIFORNIA REGIONAL STANDARDS – REFER TO EROSION AND SEDIMENTATION CONTROL PLAN.

ALL GRADED SLOPES SHALL BE PLANTED WITH FAST GROWING, DEEP ROOTED GROUND COVER TO REDUCE THE EROSION DURING HEAVY RAINS.

SLOPE FINISHED GRADES A MINIMUM OF 5%, FOR AT LEAST THE 5 FEET TO 10 FEET FROM BUILDING PERIMETER WHERE EVER IT IS PHYSICALLY POSSIBLE. DIRECT SURFACE DRAINAGE RUNOFF TO DISPERSE ON-SITE.

PROVIDE 2% SLOPE ACROSS FLATWORK AND/OR PAVING AND SLOPE TO DAYLIGHT. REFER TO ARCHITECTS PLANS FOR PAVEMENT TYPE, LAYOUT, AND FINISH –TYP.

CONSTRUCT EARTHEN SWALES AT 2% – TYP. (1% MIN.) & BERMS AS REQUIRED TO DIRECT FLOWS TO DAYLIGHT. SLOPE FINISHED GRADES TO DAYLIGHT, TO ACCOMMODATE POSITIVE DRAINAGE AND AVOID PONDING. FOR FLOWLINES GREATER THAN 5%, PROVIDE LINED DITCH –TYP.

REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION, INCLUDING BUT NOT LIMITED TO: ADDITIONAL UTILITY SERVICES, DIMENSION CONTROL DEMOLITION, DETAILS, TREE PROTECTION MEASURES, AND LANDSCAPING.

PROVIDE TREE PROTECTION AS REQUIRED FOR TREES TO REMAIN.

THE CONTRACTOR SHALL OBTAIN THE PROPER TREE REMOVAL PERMIT AS REQUIRED.

CONTRACTOR SHALL NOTIFY THE OWNER AND/OR MAINTENANCE STAFF IN WRITING OF THE NEED OF PERIODIC MAINTENANCE OF THE DRAINAGE SYSTEM AND STRUCTURES.

DEMOLISH (E) STRUCTURE(S) AS REQUIRED. NO DEMOLITION SHALL COMMENCE WITHOUT REQUIRED CITY DEMOLITION PERMIT.

FINISHED GRADE ELEVATIONS NOTED AS [FG (MAX.)] ARE THE MAXIMUM ALLOWABLE GRADE AT THE BUILDING PERIMETER PER C.B.C. SECTION 2304.11.2.2 TO PROVIDE 8" MIN. CLEARANCE. THESE GRADES MAY BE LOWER PROVIDED THAT PROPER FLOW AWAY FROM THE FOUNDATION IS ACHIEVED. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPECIAL DETAILS AS REQUIRED.

DIRECT ROOF DOWNSPOUT (DS) LEADERS TO SPLASH BLOCKS, PROVIDE 2' LONG SPLASH BLOCKS TO BE USED BELOW RAIN WATER LEADERS IN PERVIOUS AREAS.

STORMWATER POLLUTION PREVENTION NOTES

1. STORE, HANDLE, AND DISPOSE OF CONSTRUCTION MATERIALS AND WASTES PROPERLY, SO AS TO PREVENT THEIR CONTACT WITH STORMWATER.

2. CONTROL AND PREVENT THE DISCHARGE OF ALL POTENTIAL POLLUTANTS, INCLUDING SOLID WASTES, PAINTS, CONCRETE, PETROLEUM PRODUCTS, CHEMICALS, WASH WATER OR SEDIMENT, AND NON-STORMWATER DISCHARGES TO STORM DRAINS AND WATER COURSES.

3. USE SEDIMENT CONTROL OR FILTRATION TO REMOVE SEDIMENT FROM DEWATERING EFFLUENT.

4. AVOID CLEANING, FUELING, OR MAINTAINING VEHICLES ON SITE, EXCEPT IN A DESIGNATED AREA IN WHICH RUNOFF IS CONTAINED AND TREATED.

5. DELINEATE CLEARING LIMITS, EASEMENTS, SETBACKS, SENSITIVE OR CRITICAL AREAS, BUFFER ZONES, TREES AND DISCHARGE COURSE WITH FIELD MARKERS.

6. PROTECT ADJACENT PROPERTIES AND UNDISTURBED AREAS FROM CONSTRUCTION IMPACTS USING VEGETATIVE BUFFER STRIPS, SEDIMENT BARRIERS OF FILTERS, DIKES, MULCHING, OR OTHER MEASURES AS APPROPRIATE.

7. PERFORM CLEARING AND EARTH MOVING ACTIVITIES DURING DRY WEATHER TO THE MAXIMUM EXTENT PRACTICAL

8. LIMIT AND TIME APPLICATIONS OF PESTICIDES AND FERTILIZERS TO PREVENT POLLUTED RUNOFF.

9. LIMIT CONSTRUCTION ACCESS ROUTES AND STABILIZE DESIGNATED ACCESS POINTS.

10. AVOID TRACKING DIRT OR MATERIALS OFF-SITE; CLEAN OFF-SITE PAVED AREAS AND SIDEWALKS USING DRY SWEEPING METHODS TO THE MAXIMUM EXTENT PRACTICAL.

SUPPLEMENTAL MEASURES

A. THE PHRASE 'NO DUMPING – DRAINS TO BAY' OR EQUALLY EFFECTIVE PHRASE MUST BE LABELED ON STORM DRAIN INLETS (BY STENCILING, BRANDING, OR PLAQUES) TO ALERT THE PUBLIC TO THE DESTINATION OF STORM WATER AND TO PREVENT DIRECT DISCHARGE OF POLLUTANTS INTO THE STORM DRAIN.

B. USING FILTRATION MATERIALS ON STORM DRAIN COVERS TO REMOVE SEDIMENT FROM DEWATERING EFFLUENT.

C. STABILIZING ALL DEMUDED AREAS AND MAINTAINING EROSION CONTROL MEASURES CONTINUOUSLY FROM OCTOBER 1 TO APRIL 30.

D. REMOVING SPOILS PROMPTLY, AND AVOID STOCKPILING OF ALL MATERIALS, WHEN RAIN IS FORECAST. IF RAIN THREATENS, STOCKPILED SOILS AND OTHER MATERIALS SHALL BE COVERED WITH A TARP OR OTHER WATERPROOF MATERIAL

E. STORING, HANDLING, AND DISPOSING OF CONSTRUCTION MATERIALS AND WASTES SO AS TO AVOID THEIR ENTRY TO THE STORM DRAIN SYSTEMS OR WATER BODY.

GRADING AND DRAINAGE NOTES

1. SCOPE OF WORK

A. THESE SPECIFICATIONS AND APPLICABLE PLANS PERTAIN TO AND INCLUDE ALL SITE GRADING AND EARTHWORK ASSOCIATED WITH THE PROJECT INCLUDING, BUT NOT LIMITED TO THE FURNISHING OF ALL LABOR, TOOLS AND EQUIPMENT NECESSARY FOR SITE CLEARING AND GRUBBING, SITE PREPARATION, DISPOSAL OF EXCESS OR UNSUITABLE MATERIAL STRIPPING, KEYING, EXCAVATION, OVER EXCAVATION, RECOMPACTION PREPARATION FOR SOIL RECEIVING FILL, PAVEMENT, FOUNDATION OF SLABS, EXCAVATION, IMPORTATION OF ANY REQUIRED FILL MATERIAL PROCESSING, PLACEMENT AND COMPACTION OF FILL AND SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING TO CONFORM TO THE LINES, GRADING AND SLOPE SHOWN ON THE PROJECT GRADING PLANS.

2. GENERAL

A. ALL SITE GRADING AND EARTHWORK SHALL CONFORM TO THE RECOMMENDATIONS OF THESE SPECIFICATIONS AND SOILS REPORT AND THE MARIN COUNTY GRADING ORDINANCE.

B. ALL FILL MATERIALS SHALL BE DENSIFIED SO AS TO PRODUCE A DENSITY NOT LESS THAN 90% RELATIVE COMPACTION BASED UPON ASTM)A TEST DESIGNATION D1557. FIELD DENSITY TEST WILL BE PERFORMED IN ACCORDANCE WITH ASTM TEST DESIGNATION 2922 AND 3017. THE LOCATION AND FREQUENCY OF THE FIELD DENSITY TEST WILL BE AS DETERMINED BY THE SOIL ENGINEER. THE RESULTS OF THESE TEST AND COMPLIANCE WITH THE SPECIFICATIONS WILL BE THE BASIS UPON WHICH SATISFACTORY COMPLETION OF THE WORK WILL BE JUDGED BY THE SOIL ENGINEER. ALL CUT AND ALL SLOPES SHALL BE CONSTRUCTED AS SHOWN ON PLANS, BUT NO STEEPER THAN TWO (2) HORIZONTAL TO ONE (1) VERTICAL

C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SATISFACTORY COMPLETION OF ALL THE EARTHWORK IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. NO DEVIATION FROM THESE SPECIFICATIONS SHALL BE MADE EXCEPT UPON WRITTEN APPROVAL BY THE SOILS ENGINEER. BOTH CUT AND ALL AREAS SHALL BE SURFACE COMPLETED TO THE SATISFACTION OF THE SOILS ENGINEER AT THE CONCLUSION OF ALL GRADING OPERATIONS AND PRIOR TO FINAL ACCEPTANCE. THE CONTRACTOR SHALL NOTIFY THE SOILS ENGINEER AT LEAST TWO (2) WORKING DAYS PRIOR TO DOING ANY SITE GRADING AND EARTHWORK INCLUDING CLEARING.

3. CLEARING AND GRUBBING

A. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS PRESENT CONDITION. ALL EXISTING PUBLIC IMPROVEMENTS SHALL BE PROTECTED. ANY IMPROVEMENTS DAMAGED SHALL BE REPLACED BY THE CONTRACTOR AS DIRECTED BY THE COUNTY OF MARIN WITH NO EXTRA COMPENSATION.

B. ALL ABANDONED BUILDINGS AND FOUNDATIONS, TREE (EXCEPT THOSE SPECIFIED TO REMAIN FOR LANDSCAPING PURPOSES), FENCES, VEGETATION AND ANY SURFACE DEBRIS SHALL BE REMOVED AND DISPOSED OF OFF THE SITE BY THE CONTRACTOR.

C. ALL ABANDONED SEPTIC TANKS AND ANY OTHER SUBSURFACE STRUCTURES EXISTING IN PROPOSED DEVELOPMENT AREAS SHALL BE REMOVED PRIOR TO ANY GRADING OR FILL OPERATION. ALL APPURTENANT DRAIN FIELDS AND OTHER CONNECTING LINES MUST ALSO BE TOTALLY REMOVED.

D. ALL ABANDONED UNDERGROUND IRRIGATION OR UTILITY LINES SHALL BE REMOVED OR DEMOLISHED. THE APPROPRIATE FINAL DISPOSITION OF SUCH LINES DEPEND UPON THEIR DEPTH AND LOCATION AND THE METHOD OF REMOVAL OR DEMOLITION SHALL BE DETERMINED BY THE SOILS ENGINEER. ONE OF THE FOLLOWING METHODS WILL BE USED:

(1) EXCAVATE AND TOTALLY REMOVE THE UTILITY LINE FROM THE TRENCH.
(2) EXCAVATE AND CRUSH THE UTILITY LINE IN THE TRENCH.
(3) CAP THE ENDS OF THE UTILITY LINE WITH CONCRETE TO PREVENT THE ENTRANCE OF WATER. THE LOCATIONS AT WHICH THE UTILITY LINE WILL BE CAPPED WILL BE DETERMINED BY THE COUNTY OF MARIN ENGINEER. THE LENGTH OF THE CAP SHALL NOT BE LESS THAN FIVE FEET, AND THE CONCRETED MIX EMPLOYED SHALL HAVE MINIMUM SHRINKAGE.

4. SITE PREPARATION AND STRIPPING

A. ALL SURFACE ORGANICS SHALL BE STRIPPED AND REMOVED FROM BUILDING PADS, AREAS TO RECEIVE COMPACTED FILL AND PAVEMENT AREAS.

B. UPON THE COMPLETION OF THE ORGANIC STRIPPING OPERATION, THE GROUND SURFACE (NATIVE SOIL SUBGRADE) OVER THE ENTIRE AREA OF ALL BUILDING PADS, STREET AND PAVEMENT AREAS AND ALL AREAS TO RECEIVE COMPACTED FILL SHALL BE PLOWED OR SCARIFIED UNTIL THE SURFACE IS FREE OF RUTS, HUMMOCKS OR OTHER UNEVEN FEATURES WHICH MAY INHIBIT UNIFORM SOIL COMPACTION. THE GROUND SURFACE SHALL THEN BE DISCED OR BLADED TO A DEPTH OF AT LEAST 6 INCHES. UPON ENGINEER'S SATISFACTION, THE NEW SURFACE SHALL BE WATER CONDITIONED AND RECOMPACTED PER REQUIREMENTS FOR COMPACTING FILL MATERIAL

5. EXCAVATION

A. UPON COMPLETION OF THE CLEARING AND GRUBBING, SITE PREPARATION AND STRIPPING, THE CONTRACTOR SHALL MAKE EXCAVATIONS TO LINES AND GRADES NOTED ON THE PLANS WHERE REQUIRED BY THE SOILS ENGINEER. UNACCEPTABLE NATIVE SOILS OR UNENGINEERED FILL SHALL BE OVER EXCAVATED BELOW THE DESIGN GRADE. CONTACT CITY ENGINEER FOR DISCUSSION OF OVER EXCAVATION OF THE UNACCEPTABLE MATERIAL RESULTING GROUND LINE SHALL BE SCARIFIED, MOISTURE-CONDITIONED AND RECOMPACTED AS SPECIFIED IN SECTION 4 OF THESE SPECIFICATIONS. COMPACTED FILL MATERIAL SHALL BE PLACED TO BRING GROUND LEVEL BACK TO DESIGN GRADE.

B. EXCAVATED MATERIALS SUITABLE FOR COMPACTED FILL MATERIAL SHALL BE UTILIZED IN MAKING THE REQUIRED COMPACTED FILLS. THOSE NATIVE MATERIALS CONSIDERED UNSUITABLE BY THE SOILS ENGINEER SHALL BE DISPOSED OF OFF THE SITE BY THE CONTRACTOR.

6. PLACING, SPREADING AND COMPACTING FILL MATERIAL

A. FILL MATERIALS
THE MATERIALS PROPOSED FOR USE AS COMPACTED FILL SHALL BE APPROVED BY THE SOILS ENGINEER BEFORE COMMENCEMENT OF GRADING OPERATIONS. THE NATIVE MATERIAL IS CONSIDERED SUITABLE FOR FILL; HOWEVER, ANY NATIVE MATERIAL DESIGNATED UNSUITABLE BY THE SOILS ENGINEER SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR. ANY IMPORTED MATERIAL SHALL BE APPROVED FOR USE BY THE SOILS ENGINEER, IN WRITING, BEFORE BEING IMPORTED TO THE SITE AND SHALL POSSESS SUFFICIENT FINES TO PROVIDE A COMPETENT SOIL MATRIX AND SHALL BE FREE OF VEGETATIVE AND ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS. ALL FILL VOIDS SHALL BE RUED AND PROPERLY COMPACTED. NO ROCKS LARGER THAN THREE INCHES IN DIAMETER SHALL BE PERMITTED.

B. FILL CONSTRUCTION
THE SOILS ENGINEER SHALL APPROVE THE NATIVE SOIL SUBGRADE BEFORE PLACEMENT OF ANY COMPACTED ALL MATERIAL. UNACCEPTABLE NATIVE SOIL SHALL BE REMOVED AS DIRECTED BY THE SOILS ENGINEER. THE RESULTING GROUND LINE SHALL BE SCARIFIED MOISTURE CONDITIONED AND RECOMPACTED AS SPECIFIED IN SECTION 4 OF THESE SPECIFICATIONS. COMPACTED FILL MATERIAL SHALL BE PLACED TO BRING GROUND LEVEL BACK TO DESIGN GRADE. GROUND PREPARATION SHALL BE FOLLOWED CLOSELY BY FILL PLACEMENT TO PREVENT DRYING OUT OF THE SUBSOIL BEFORE PLACEMENT OF THE ALL.

THE APPROVED FILL MATERIALS SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS NO THICKER THAN 8" IN LOOSE THICKNESS. LAYERS SHALL BE SPREAD EVENLY AND SHALL BE THOROUGHLY BLADE MIXED DURING THE SPREADING TO ENSURE UNIFORMITY OF MATERIAL IN EACH LAYER. THE SCARIFIED SUBGRADE AND FILL MATERIAL SHALL BE MOISTURE CONDITIONED TO AT LEAST OPTIMUM MOISTURE. WHEN THE MOISTURE CONTENT OF THE FILL IS BELOW THAT SPECIFIED, WATER SHALL BE ADDED UNTIL THE MOISTURE DURING THE COMPACTION PROCESS. WHEN THE MOISTURE CONTENT OF THE FILL IS ABOVE THAT SPECIFIED, THE ALL MATERIAL SHALL BE AERATED BY BLADING OR OTHER SATISFACTORY METHODS UNTIL THE MOISTURE CONTENT IS AS SPECIFIED.

AFTER EACH LAYER HAS BEEN PLACED, MIXED, SPREAD EVENLY AND MOISTURE CONDITIONED, IT SHALL BE COMPACTED TO AT LEAST THE SPECIFIED DENSITY.

THE FILL OPERATION SHALL BE CONTINUED IN COMPACTED LAYERS AS SPECIFIED ABOVE UNTIL THE FILL HAS BEEN BROUGHT TO THE FINISHED SLOPES AND GRADES AS SHOWN ON THE PLANS. NO LAYER SHALL BE ALLOWED TO DRY OUT BEFORE SUBSEQUENT LAYERS ARE PLACED.

COMPACTION EQUIPMENT SHALL BE OF SUCH DESIGN THAT IT WILL BE ABLE TO COMPACT THE FILL TO THE SPECIFIED MINIMUM COMPACTION WITHIN THE SPECIFIED MOISTURE CONTENT RANGE. COMPACTION OF EACH LAYER SHALL BE CONTINUOUS OVER ITS ENTIRE AREA UNTIL THE REQUIRED MINIMUM DENSITY HAS BEEN OBTAINED.

7. CUT OR FILL SLOPES
ALL CONSTRUCTED SLOPES, BOTH CUT AND FILL, SHALL BE NO STEEPER THAN 2 TO 1 (HORIZONTAL TO VERTICAL). DURING THE GRADING OPERATION, COMPACTED ALL SLOPES SHALL BE OVERFILLED BY AT LEAST ONE FOOT HORIZONTALLY AT THE COMPLETION OF THE GRADING OPERATIONS, THE EXCESS ALL DOMING ON THE SLOPES SHALL BE BLADED OFF TO CREATE THE FINISHED SLOPE EMBANKMENT. ALL CUT AND FILL SLOPES SHALL BE TRACK WALKED AFTER BEING BROUGHT TO FINISH GRADE AND THEN BE PLANTED WITH EROSION CONTROL SLOPE PLANTING. THE SOILS ENGINEER SHALL REVIEW ALL CUT SLOPES TO DETERMINE IF ANY ADVERSE GEOLOGIC CONDITIONS ARE EXPOSED. IF SUCH CONDITIONS DO OCCUR, THE SOILS ENGINEER SHALL RECOMMEND THE APPROPRIATE MITIGATION MEASURES AT THE TIME OF THEIR DETECTION.

8. SEASONAL LIMITS AND DRAINAGE CONTROL
FILL MATERIALS SHALL NOT BE PLACED, SPREAD OR COMPACTED WHILE IT IS AT AN UNSUITABLY HIGH MOISTURE CONTENT OR DURING OTHERWISE UNFAVORABLE CONDITIONS. WHEN THE WORK IS INTERRUPTED FOR ANY REASON THE ALL OPERATIONS SHALL NOT BE RESUMED UNTIL FIELD TEST PERFORMED BY THE SOILS ENGINEER INDICATE THAT THE MOISTURE CONDITIONS IN AREAS TO BE FILLED ARE AS PREVIOUSLY SPECIFIED. ALL EARTH MOVING AND WORKING OPERATIONS SHALL BE CONTROLLED TO PREVENT WATER FROM RUNNING INTO EXCAVATED AREAS. ALL EXCESS WATER SHALL BE PROMPTLY REMOVED AND THE SITE KEPT DRY.

9. DUST CONTROL
THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY FOR THE ALLEVIATION OR PREVENTION OF ANY DUST NUISANCE ON OR ABOUT THE SITE CAUSED BY THE CONTRACTOR'S OPERATION EITHER DURING THE PERFORMANCE OF THE GRADING OR RESULTING FROM THE CONDITION IN WHICH THE CONTRACTOR LEAVES THE SITE. THE CONTRACTOR SHALL ASSUME ALL LIABILITY INCLUDING COURT COST OF CO-DEFENDANTS FOR ALL CLAIMS RELATED TO DUST OR WIND-BLOWN MATERIALS ATTRIBUTABLE TO HIS WORK. COST FOR THIS ITEM OF WORK IS TO BE INCLUDED IN THE EXCAVATION ITEM AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

10. INDEMNITY
THE CONTRACTOR WILL HOLD HARMLESS, INDEMNIFY AND DEFEND THE ENGINEER, THE OWNER AND HIS CONSULTANTS AND EACH OF THEIR OFFICERS AND EMPLOYEES AND AGENTS, FROM ANY AND ALL LIABILITY CLAIMS, LOSSES OR DAMAGE ARISING OR ALLEGED TO HEREIN, BUT NOT INCLUDING THE SOLE NEGLIGENCE OF THE OWNER, THE ARCHITECT, THE ENGINEER AND HIS CONSULTANTS AND EACH OF THEIR OFFICERS AND EMPLOYEES AND AGENTS.

11. SAFETY
IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE. INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE UNITED TO NORMAL WORKING HOURS.
THE DUTY OF THE ENGINEERS TO CONDUCT CONSTRUCTION REVIEW OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE

12. GUARANTEE
NEITHER THE FINAL PAYMENT, NOR THE PROVISIONS IN THE CONTRACT, NOR PARTIAL, NOR ENTIRE USE OR OCCUPANCY OF THE PREMISES BY THE OWNER SHALL CONSTITUTE AN ACCEPTANCE OF THE WORK NOT DONE IN ACCORDANCE WITH THE CONTRACT OR RELIEVES THE CONTRACTOR OF LIABILITY IN RESPECT TO ANY EXPRESS WARRANTIES OR RESPONSIBILITY FOR FAULTY MATERIAL OR WORKMANSHIP.
THE CONTRACTOR SHALL REMEDY ANY DEFECTS IN WORK AND PAY FOR ANY DAMAGE TO OTHER WORK RESULTING THERE FROM WHICH SHALL APPEAR WITHIN A PERIOD OF ONE (1) CALENDAR YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK.

13. TRENCH BACKFILL
EITHER THE ON-SITE INORGANIC SOIL OR APPROVED IMPORTED SOIL MAY BE USED AS TRENCH BACKFILL THE BACKFILL MATERIAL SHALL BE MOISTURE CONDITIONED PER THESE SPECIFICATIONS AND SHALL BE PLACED IN LIFTS OF NOT MORE THAN SIX INCHES IN HORIZONTAL UNCOMPACTED LAYERS AND BE COMPACTED BY MECHANICAL MEANS TO A MINIMUM OF 90% RELATIVE COMPACTION. IMPORTED SAND MAY BE USED FOR TRENCH BACKFILL MATERIAL PROVIDED IT IS COMPACTED TO AT LEAST 90% RELATIVE COMPACTION. WATER JETTING ASSOCIATED WITH COMPACTION USING VIBRATORY EQUIPMENT WILL BE PERMITTED ONLY WITH IMPORTED SAND BACKFILL WITH THE APPROVAL OF THE SOILS ENGINEER. ALL PIPES SHALL BE BEDDED WITH SAND EXTENDING FROM THE TRENCH BOTTOM TO TWELVE INCHES ABOVE THE PIPE. SAND BEDDING IS TO BE COMPACTED AS SPECIFIED ABOVE FOR SAND BACKFILL

14. EROSION CONTROL
A. ALL GRADING, EROSION AND SEDIMENT CONTROL AND RELATED WORK UNDERTAKEN ON THIS SITE IS SUBJECT TO ALL TERMS AND CONDITIONS OF THE COUNTY GRADING ORDINANCE AND MADE A PART HEREOF BY REFERENCE.

B. THE CONTRACTOR WILL BE LIABLE FOR ANY AND ALL DAMAGES TO ANY PUBLICLY OWNED AND MAINTAINED ROAD CAUSED BY THE AFORESAID CONTRACTOR'S GRADING ACTIVITIES, AND SHALL BE RESPONSIBLE FOR THE CLEANUP OF ANY MATERIAL SPILLED ON ANY PUBLIC ROAD ON ME HAUL ROUTE.
C. THE EROSION CONTROL MEASURES ARE TO BE OPERABLE DURING THE RAINY SEASON, OCTOBER FIRST TO APRIL THIRTIETH. EROSION CONTROL PLANTING IS TO BE COMPLETED BY OCTOBER FIRST. NO GRADING OR UTILITY TRENCHING SHALL OCCUR BETWEEN OCTOBER FIRST AND APRIL FIRST UNLESS AUTHORIZED BY THE COUNTY ENGINEER.

D. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED AND CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF THE SOILS ENGINEER.

E. DURING THE RAINY SEASON, ALL PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIAL AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT-LADEN RUNOFF TO ANY STORM DRAINAGE SYSTEM.

F. ALL EROSION CONTROL FACILITIES MUST BE INSPECTED AND REPAIRED AT THE END OF EACH WORKING DAY DURING THE RAINY SEASON.

G. WHEN NO LONGER NECESSARY AND PRIOR TO ANY ACCEPTANCE OF DEVELOPMENT, SEDIMENT BASINS SHALL BE REMOVED OR OTHERWISE DEACTIVATED AS REQUIRED BY THE COUNTY.

H. A CONSTRUCTION ENTRANCE SHALL BE PROVIDED AT ANY POINT OF EGRESS FROM THE SITE TO ROADWAY. A CONSTRUCTION ENTRANCE SHOULD BE COMPOSED OF COARSE DRAIN ROCK (2" TO 3") MINIMUM DIAMETER) AT LEAST EIGHT INCHES THICK BY FIFTY (50) FEET LONG BY TWENTY (20) FEET WIDE UNLESS SHOWN OTHERWISE ON PLAN AND SHALL BE MAINTAINED UNTIL THE SITE IS PAVED.

L. ALL AREAS SPECIFIED FOR HYDROSEEDING SHALL BE NOZZLE PLANTED WITH STABILIZATION MATERIAL CONSISTING OF FIBER, SEED, FERTILIZER AND WATER, MIXED AND APPLIED IN THE FOLLOWING PROPORTIONS:
FIBER, 2000 LBS/ACRE SEED, 200 LBS/ACRE (SEE NOTE J, BELOW) FERTILIZER (11-8-4), 500 LBS/ACRE WATER, AS REQUIRED FOR APPLICATION

J. SEED MIX SHALL BE PER CALTRANS STANDARDS.

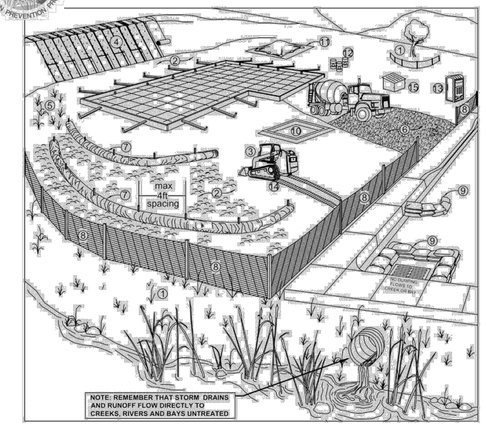
K. WATER UTILIZED IN THE STABILIZATION MATERIAL SHALL BE OF SUCH QUALITY THAT IT WILL PROMOTE GERMINATION AND STIMULATE GROWTH OF PLANTS. IT SHALL BE FREE OF POLLUTANT MATERIALS AND WEED SEED.

L HYDROSEEDING SHALL CONFORM TO THE PROVISIONS OF SECTION 20, EROSION CONTROL AND HIGHWAY PLANTING', OF THE STANDARD SPECIFICATIONS OF THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION, AS LAST REVISED.

M. A DISPERSING AGENT MAY BE ADDED TO THE HYDROSEEDING MATERIAL, PROVIDED THAT THE CONTRACTOR FURNISHES SUITABLE EVI

SHEET SIZE: "Arch D" (36"x24")

Marin County Stormwater Pollution Prevention Program
Minimum Control Measures
For Small Construction Projects



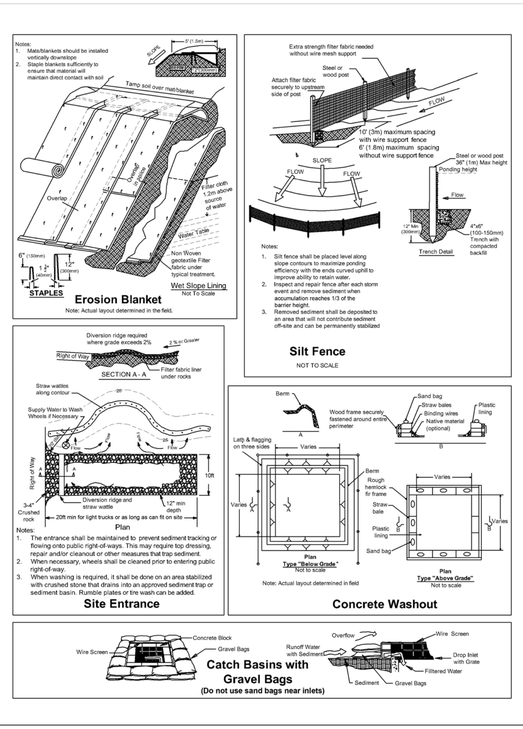
Erosion Controls	Sediment Controls	Good Housekeeping
NS Scheduling	6. Tracking Controls	10. Concrete Washout
1. Preserve Vegetation & Creek Set Backs	7. Fiber Rolls	11. Stockpile Management
2. Soil Cover	8. Silt Fence	12. Hazardous Material Management
3. Soil Preparation/ Roughening	9. Drain Inlet Protection	13. Sanitary Waste Management
4. Erosion Control Blankets	NS Trench Dewatering	14. Equipment and Vehicle Maintenance
5. Revegetation		15. Litter and Waste Management

NS=not shown on graphic

Note: Select an **effective combination of control measures from each category**, Erosion Control, Sediment Control, and Good Housekeeping. Control measures shall be **continually implemented and maintained throughout the project** until activities are complete, disturbed areas are stabilized with permanent erosion controls, and the local agency has signed off on permits that may have been required for the project. **Inspect and maintain the control measures** before and after rain events, and as required by the local agency or state permit.
More detailed information on the BMPs can be found in the related California Stormwater Quality Association (CASQA) and California Department of Transportation (Caltrans) BMP Factsheets. CASQA factsheets are available by subscription in the *California Best Management Practices Handbook Portal: Construction* at http://www.casqa.org. Caltrans factsheets are available in the *Construction Site BMP Manual March 2003* at http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.
Visit www.mcstoppp.org for more information on construction site management and Erosion and Sediment Control Plans.

If you require materials in alternative formats, please contact:
415-473-4381 voice/TTY or disabilityaccess@co.marin.ca.us

Control Measure		General Description
Erosion Control Best Management Practices		
N/A	Scheduling	Plan the project and develop a schedule showing each phase of construction. Schedule construction activities to reduce erosion potential, such as scheduling ground disturbing activities during the summer and phasing projects to minimize the amount of area disturbed. *For more info see the following factsheets: CASQA: EC-1; or Caltrans: SS-1.*
1	Preserve Existing Vegetation and Creek Setbacks	Preserve existing vegetation to the extent possible, especially along creek buffers. Show creek buffers on maps and identify areas to be preserved in the field with temporary fencing. Check with the local Planning and Public Works Departments for specific creek set back requirements. *For more info see the following factsheets: CASQA: EC-2; or Caltrans: SS-2.*
2	Soil Cover	Cover exposed soil with straw mulch and tackifier (or equivalent). *For more info see the following factsheets: CASQA: EC-3, EC-5, EC-6, EC-7, EC-8, EC-14, EC-16; or Caltrans: SS-2, SS-4, SS-5, SS-6, SS-7, SS-8.*
3	Soil Preparation/ Roughening	Soil preparation is essential to vegetation establishment and BMP installation. It includes soil testing and amendments to promote vegetation growth as well as roughening surface soils by mechanical methods (decompacting, scarifying, stair stepping, etc.). *For more info see the following factsheets: CASQA: EC-15.*
4	Erosion Control Blankets	Install erosion control blankets (or equivalent) on disturbed sites with 3:1 slopes or steeper. Use wildlife-friendly blankets made of biodegradable natural materials. Avoid using blankets made with plastic netting or fixed aperture netting. See: http://www.coastal.ca.gov/nps/Wildlife-Friendly_Products.pdf. *For more info see the following factsheets: CASQA: EC-7; or Caltrans: SS-7.*
5	Revegetation	Re-vegetate areas of disturbed soil or vegetation as soon as practical. *For more info see the following factsheets: CASQA: EC-4; or Caltrans: SS-4.*
Sediment Control Best Management Practices		
6	Tracking Controls	Stabilize site entrance to prevent tracking soil offsite. Inspect streets daily and sweep street as needed. Require vehicles and workers to use stabilized entrance. Place crushed rock 12-inches deep over a geotextile, using angular rock between 4 and 6-in. Make the entrance as long as can be accommodated on the site, ideally long enough for 2 revolutions of the maximum tire size (16-20 feet long for most light trucks). Make the entrance wide enough to accommodate the largest vehicle that will access the site, ideally 10 feet wide with sufficient radii for turning in and out of the site. Rumble pads or rumble racks can be used in lieu of or in conjunction with rock entrances. Wheel washes may be needed where space is limited or where the site entrance and sweeping is not effective. *For more info see the following factsheets: CASQA: TC-1; TC-3; or Caltrans: TC-1; TC-3.*
7	Fiber Rolls	Use fiber rolls as a perimeter control measure, along contours of slopes, and around soil stockpiles. On slopes space rolls 10 to 20 feet apart (using closer spacing on steeper slopes). Install parallel to contour. If more than one roll is used in a row overlap roll do not abut. J-hook end of roll upslope. Install rolls per either Type 1 (stake rolls into shallow trenches) or Type 2 (stake in front and behind roll and lash with rope). Use wildlife-friendly fiber rolls made of biodegradable natural materials. Avoid using fiber rolls made with plastic netting or fixed aperture netting. See: http://www.coastal.ca.gov/nps/Wildlife-Friendly_Products.pdf. Manufactured linear sediment control or compost socks can be used in lieu of fiber rolls. *For more info see the following factsheets: CASQA: SE-5 (Type 1); SE-12, SE-13; or Caltrans: SC-5 (Type 1 and Type 2).*
8	Silt Fence	Use silt fence as a perimeter control measure, and around soil stockpiles. Install silt fence along contours. Key silt fence into the soil and stake. Do not use silt fence for concentrated water flows. Install fence at least 3 feet back from the slope to allow for sediment storage. Wire backed fence can be used for extra strength. Avoid installing silt fence on slopes because they are hard to maintain. Manufactured linear sediment control can be used in lieu of silt fences. *For more info see the following factsheets: CASQA: SE-1; SE-12; or Caltrans: SC-1.*
9	Drain Inlet Protection	Use gravel bags, (or similar product) around drain inlets located both onsite and in gutter as a last line of defense. Bags should be made of a woven fabric resistant to photo-degradation filled with 0.5-1-in washed crushed rock. Do not use sand bags or silt fence fabric for drain inlet protection. *For more info see the following factsheets: CASQA: SE-10; or. Caltrans: SC-10.*
N/A	Trench Dewatering	Follow MCSTOPPP BMPs for trench dewatering. http://www.marincounty.org/depts/pw/divisions/mcstoppp/development/~/media/Files/Departments/PW/mcstoppp/development/Trenching/SWReqMCSTOPPPFinal6_09.pdf. *For more info see the following factsheets: CASQA: NS-2; or Caltrans: NS-2.*
Good Housekeeping Best Management Practices		
10	Concrete Washout	Construct a lined concrete washout site away from storm drains, waterbodies, or other drainages. Ideally, place adjacent to stabilized entrance. Clean as needed and remove at end of project. *For more info see the following factsheets: CASQA: WM-8; or .Caltrans: WM-8.*
11	Stockpile Management	Cover all stockpiles and landscape material and berm properly with fiber rolls or sand bags. Keep behind the site perimeter control and away from waterbodies. *For more info see the following factsheets: CASQA: WM-3 or Caltrans: WM-3.*
12	Hazardous Material Management	Hazardous materials must be kept in closed containers that are covered and within secondary containment; do not place containers directly on soil. *For more info see the following factsheets: CASQA: WM-6; or Caltrans: WM-6.*
13	Sanitary Waste Management	Place portable toilets near stabilized site entrance, behind the curb and away from gutters, storm drain inlets, and waterbodies. Tie or stake portable toilets to prevent tipping and equip units with overflow pan/tray (most vendors provide these). *For more info see the following factsheets: CASQA: WM-9; or Caltrans: WM-9.*
14	Equipment and Vehicle Maintenance	Prevent equipment fluid leaks onto ground by placing drip pans or plastic tarps under equipment. Immediately clean up any spills or drips. *For more info see the following factsheets: CASQA: NS-8, NS-9, and NS-10; or Caltrans: NS-8, NS-9, and NS-10.*
15	Litter and Waste Management	Designate waste collection areas on site. Use watertight dumpsters and trash cans; inspect for leaks. Cover at the end of each work day and when it is raining or windy. Arrange for regular waste collection. Pick up site litter daily. *For more info see the following factsheets: CASQA: WM-5; or Caltrans: WM-5.*



Protect Creeks and the Bay: Keep Sediments and Contaminated Water out of the Storm Drain System

MARIN COUNTY STORMWATER POLLUTION PREVENTION PROGRAM
Best Management Practices for TRENCH DEWATERING

Requirements for Dewatering Discharges from Minor Street Excavations

- The Federal Clean Water Act, the California Water Code, and local ordinances **prohibit** non-stormwater discharges to the storm drain system.
- Non-stormwater discharges include water that is actually or potentially contaminated with any pollutant, including, but not limited to, sewage, grease, drilling mud and oil.
- Uncontaminated pumped groundwater or accumulated rainwater may be discharged to the storm drain system but must be managed to minimize sediment reaching storm drains and ensure downstream creeks, wetlands, and the Bay are not polluted.
- The storm drain system includes streets, gutters, storm drain inlets, ditches, creeks, and wetlands.

IF YOUR SITE OR PROJECT REQUIRES DEWATERING, CONTACT YOUR LOCAL STORMWATER COORDINATOR BEFORE DISCHARGING WATER TO THE STORM DRAIN SYSTEM. *CONTACT INFORMATION ON THE REVERSE PAGE.*

As necessary, local municipal staff will determine whether flows from dewatering a particular excavation may be discharged to the storm drain system and what measures must be taken to reduce sediment in the discharge.

Depending on circumstances, holders of encroachment or building permits may be directed to use one or more of the following measures:

- Avoid the discharge. Disperse pumped water to a level dirt or landscaped area to allow infiltration or use for dust control. Be sure to prevent damage to landscaping.
- Build a sediment trap (temporary basin formed by excavation or earthen embankment across a low drainage area to detain sediment-laden runoff and allow sediment to settle out before discharging).
- Use a mobile weir tank, dewatering tank, or sand filter (follow vendor instructions).
- At minimum, use a gravity bag filter (dewatering bag) or similar filtration device (follow vendor instructions).

Odors, discoloration, or an oily sheen can indicate contaminants in the water. Dewatering discharges containing contaminants may need to be captured and treated or hauled to a suitable disposal site.

Some dewatering discharges require a National Pollutant Discharge Elimination System (NPDES) permit from the San Francisco Bay Regional Water Quality Control Board (RWQCB). For more information, call the RWQCB or visit their website:
Phone: 510-622-2300
Web: http://www.waterboards.ca.gov/sanfranciscobay/npdes_gen_permit.shtml

1 MCSTOPPP DETAILS

NTS

ISSUES

ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

94924

MCSTOPPP

PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA 94924
APN: 188-150-67

JOB #

349-1

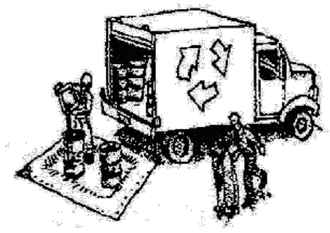
C-1.2

© 2025 – AC ENGINEERING INC.

Construction Best Management Practices (BMPs)

Construction projects are required to implement the stormwater best management practices (BMP) on this page, as they apply to your project, all year long.

Materials & Waste Management



Non-Hazardous Materials

- ❑ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days.
- ❑ Use (but don't overuse) reclaimed water for dust control.

Hazardous Materials

- ❑ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations.
- ❑ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast.
- ❑ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours.
- ❑ Arrange for appropriate disposal of all hazardous wastes.

Waste Management

- ❑ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather.
- ❑ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site.
- ❑ Clean or replace portable toilets, and inspect them frequently for leaks and spills.
- ❑ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.)
- ❑ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.

Construction Entrances and Perimeter

- ❑ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site.
- ❑ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.

Equipment Management & Spill Control



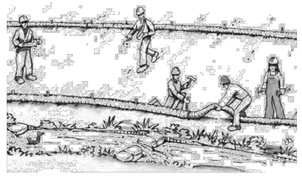
Maintenance and Parking

- ❑ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage.
- ❑ Perform major maintenance, repair jobs, and vehicle and equipment washing off site.
- ❑ If refueling or vehicle maintenance must be done onsite, work in a bermed area away from storm drains and over a drip pan or drop cloths big enough to collect fluids. Recycle or dispose of fluids as hazardous waste.
- ❑ If vehicle or equipment cleaning must be done onsite, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters.
- ❑ Do not clean vehicle or equipment onsite using soaps, solvents, degreasers, or steam cleaning equipment.

Spill Prevention and Control

- ❑ Keep spill cleanup materials (e.g., rags, absorbents and cat litter) available at the construction site at all times.
- ❑ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made.
- ❑ Clean up spills or leaks immediately and dispose of cleanup materials properly.
- ❑ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags).
- ❑ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them.
- ❑ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
- ❑ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).

Earthmoving

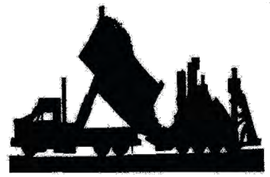


- ❑ Schedule grading and excavation work during dry weather.
- ❑ Stabilize all denuded areas, install and maintain temporary erosion controls (such as erosion control fabric or bonded fiber matrix) until vegetation is established.
- ❑ Remove existing vegetation only when absolutely necessary, and seed or plant vegetation for erosion control on slopes or where construction is not immediately planned.
- ❑ Prevent sediment from migrating offsite and protect storm drain inlets, gutters, ditches, and drainage courses by installing and maintaining appropriate BMPs, such as fiber rolls, silt fences, sediment basins, gravel bags, berms, etc.
- ❑ Keep excavated soil on site and transfer it to dump trucks on site, not in the streets.

Contaminated Soils

- ❑ If any of the following conditions are observed, test for contamination and contact the Regional Water Quality Control Board:
  - Unusual soil conditions, discoloration, or odor.
  - Abandoned underground tanks.
  - Abandoned wells
  - Buried barrels, debris, or trash.

Paving/Asphalt Work



- ❑ Avoid paving and seal coating in wet weather or when rain is forecast, to prevent materials that have not cured from contacting stormwater runoff.
- ❑ Cover storm drain inlets and manholes when applying seal coat, tack coat, slurry seal, fog seal, etc.
- ❑ Collect and recycle or appropriately dispose of excess abrasive gravel or sand. Do NOT sweep or wash it into gutters.
- ❑ Do not use water to wash down fresh asphalt concrete pavement.

Sawcutting & Asphalt/Concrete Removal

- ❑ Protect nearby storm drain inlets when saw cutting. Use filter fabric, catch basin inlet filters, or gravel bags to keep slurry out of the storm drain system.
- ❑ Shovel, abosorb, or vacuum saw-cut slurry and dispose of all waste as soon as you are finished in one location or at the end of each work day (whichever is sooner!).
- ❑ If sawcut slurry enters a catch basin, clean it up immediately.

Concrete, Grout & Mortar Application



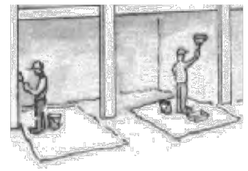
- ❑ Store concrete, grout, and mortar away from storm drains or waterways, and on pallets under cover to protect them from rain, runoff, and wind.
- ❑ Wash out concrete equipment/trucks offsite or in a designated washout area, where the water will flow into a temporary waste pit, and in a manner that will prevent leaching into the underlying soil or onto surrounding areas. Let concrete harden and dispose of as garbage.
- ❑ When washing exposed aggregate, prevent washwater from entering storm drains. Block any inlets and vacuum gutters, hose washwater onto dirt areas, or drain onto a bermed surface to be pumped and disposed of properly.

Landscaping



- ❑ Protect stockpiled landscaping materials from wind and rain by storing them under tarps all year-round.
- ❑ Stack bagged material on pallets and under cover.
- ❑ Discontinue application of any erodible landscape material within 2 days before a forecast rain event or during wet weather.

Painting & Paint Removal



Painting Cleanup and Removal

- ❑ Never clean brushes or rinse paint containers into a street, gutter, storm drain, or stream.
- ❑ For water-based paints, paint out brushes to the extent possible, and rinse into a drain that goes to the sanitary sewer. Never pour paint down a storm drain.
- ❑ For oil-based paints, paint out brushes to the extent possible and clean with thinner or solvent in a proper container. Filter and reuse thinners and solvents. Dispose of excess liquids as hazardous waste.
- ❑ Paint chips and dust from non-hazardous dry stripping and sand blasting may be swept up or collected in plastic drop cloths and disposed of as trash.
- ❑ Chemical paint stripping residue and chips and dust from marine paints or paints containing lead, mercury, or tributyltin must be disposed of as hazardous waste. Lead based paint removal requires a state-certified contractor.

Dewatering



- ❑ Discharges of groundwater or captured runoff from dewatering operations must be properly managed and disposed. When possible send dewatering discharge to landscaped area or sanitary sewer. If discharging to the sanitary sewer call your local wastewater treatment plant.
- ❑ Divert run-on water from offsite away from all disturbed areas.
- ❑ When dewatering, notify and obtain approval from the local municipality before discharging water to a street gutter or storm drain. Filtration or diversion through a basin, tank, or sediment trap may be required.
- ❑ In areas of known or suspected contamination, call your local agency to determine whether the ground water must be tested. Pumped groundwater may need to be collected and hauled off-site for treatment and proper disposal.

Storm drain polluters may be liable for fines of up to $10,000 per day!

©2025 – AC ENGINEERING INC.

ISSUES

ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP

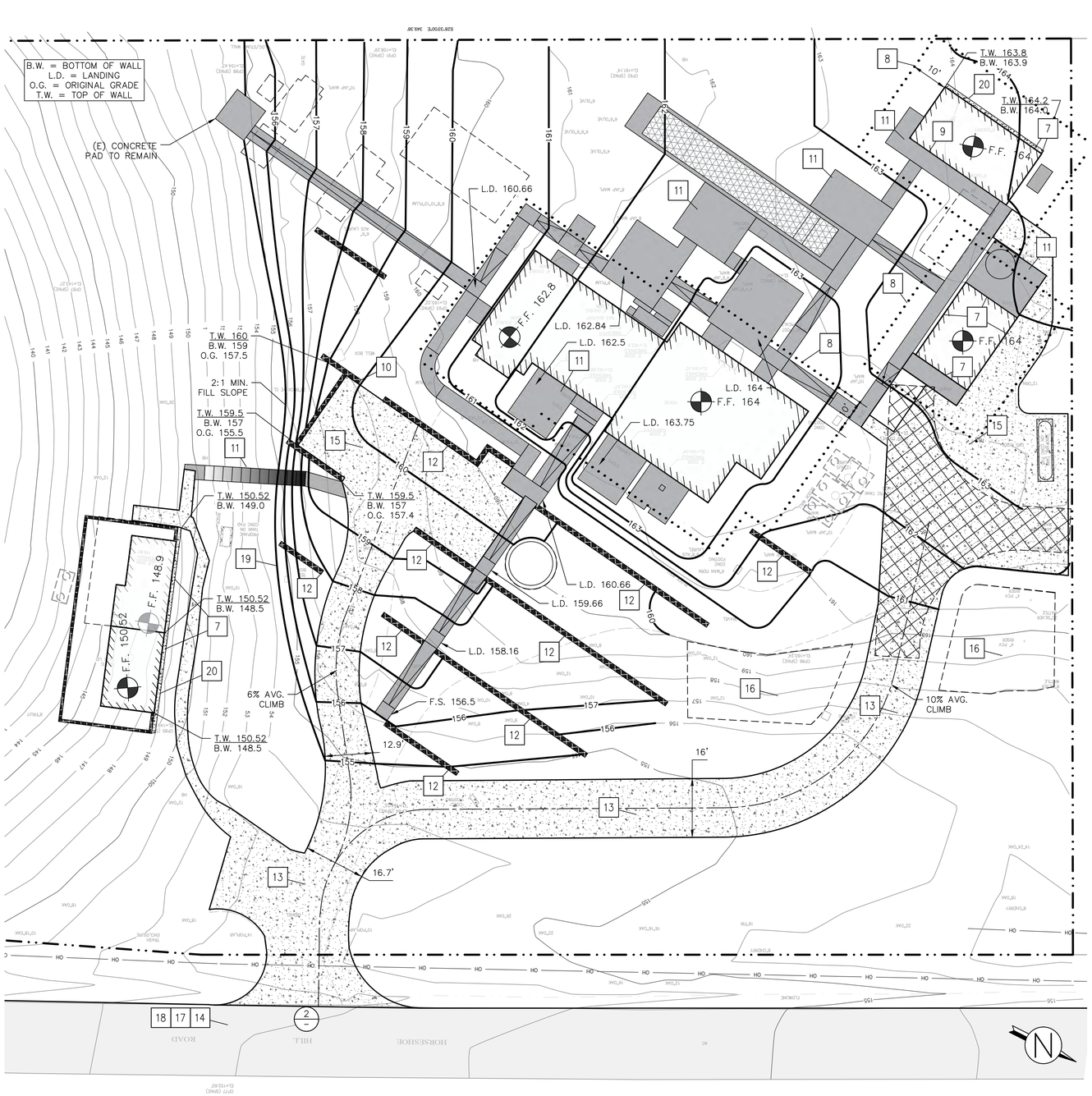
REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

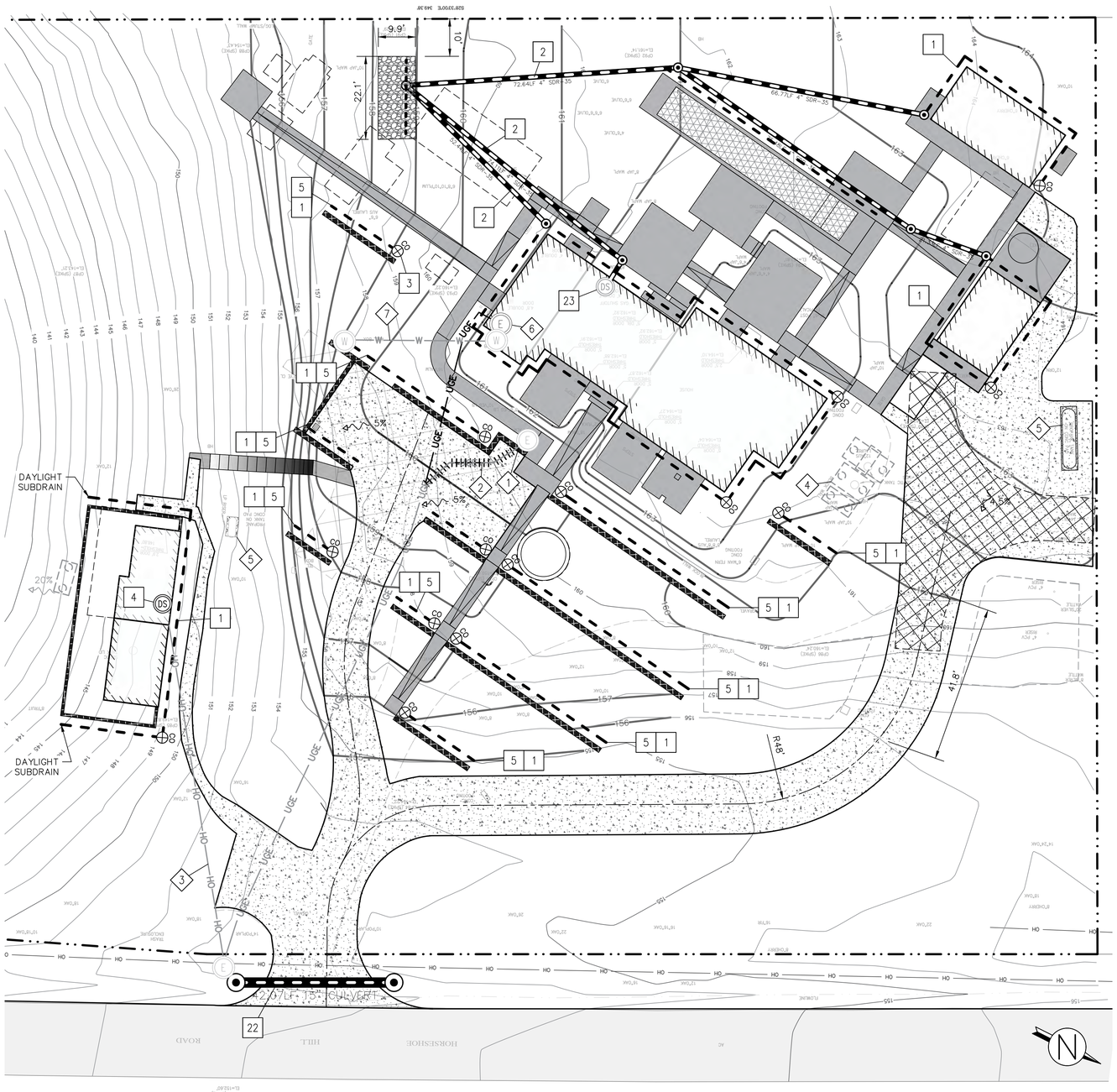
BMPS

PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA 94924
APN: 188-150-67

JOB #
349-1

C-1.3


B.W. = BOTTOM OF WALL
L.D. = LANDING
O.G. = ORIGINAL GRADE
T.W. = TOP OF WALL
(E) CONCRETE PAD TO REMAIN
T.W. 163.8
B.W. 163.9
T.W. 164.2
B.W. 164.1
F.F. 164
L.D. 160.66
F.F. 162.8
L.D. 162.84
L.D. 162.5
L.D. 164
F.F. 164
L.D. 163.75
T.W. 160
B.W. 159
O.G. 157.5
2:1 MIN. FILL SLOPE
T.W. 159.5
B.W. 157
O.G. 155.5
T.W. 150.52
B.W. 149.0
T.W. 159.5
B.W. 157
O.G. 157.4
F.F. 148.9
T.W. 150.52
B.W. 148.5
F.F. 150.62
L.D. 160.66
L.D. 159.66
L.D. 158.16
6% AVG. CLIMB
F.S. 156.5
12.9'
T.W. 150.52
B.W. 148.5
10% AVG. CLIMB
16'
16.7'
HO
HO
HO



1 DRAINAGE AND UTILITY PLAN

SCALE 1" = 16'

UTILITIES				
NAME	EXISTING?	PROPOSED	NOTES	SHOWN IN
DOMESTIC WATER SERVICE	YES	NA	WELL ONSITE	
ELECTRICAL SERVICE	YES	YES	PARTIAL REROUTING FOR GRADING / DRIVEWAY	
PROPANE STORAGE	YES	YES	SEE ARCHITECTURAL DRAWINGS	S.A.D.
ONSITE WASTE WATER	YES	YES	SEE C.W. SHEETS FOR CLARIFICATION	C.W. "CIVIL WASTEWATER"

LEGEND

EXISTING	PROPOSED
	PROPERTY LINE
	SUBDRAIN LINE
	CENTER LINE
	STORM DRAIN LINE 4"
	RETAINING WALL
	DIRECTION OF FLOW
	CHECK VALVE
	CLEANOUT
	CONNECTION POINT
CB	CATCH BASIN
DS	DOWNSPOUTS
2%	SURFACE FLOW & SLOPE
	XX' ELEVATION INDICATOR
	1 / C-2 DETAIL NUMBER / SHEET NUMBER
	1 # DELTA w/COMMENT #
	NAME XXX SPOT ELEVATION
	XX XX XX XX NOTE CALLOUT

UTILITY LEGEND

EXISTING	PROPOSED
OH	OH OVERHEAD LINE
UGE	UGE UNDERGROUND ELECTRIC
GAS	GAS GAS LINE
W	W WATER LINE
SS	SS SANITARY SEWER
JT	JT JOINT TRENCH
TEL	TEL TELEPHONE
COMM	COMM COMMUNICATION
?	? UNKNOWN
	SLEEVE
	REMOVE/ABANDON
CO	CO CLEANOUT
BFP	BFP BACKFLOW PREVENTOR
X	X UTILITY LOCATION

GRADING AND DRAINAGE NOTES

1. INSTALL NEW PERFORATED SUBDRAIN LINE. 3" PVC SDR-35 PERFORATED. HOLES DOWN. GLUE ALL JOINTS. SLOPE=1% (0.5% MIN)
2. INSTALL NEW SOLID DRAIN LINE. "TIGHTLINE" 4" PVC SDR-35 SOLID. GLUE ALL JOINTS SLOPE=1% (0.5% MIN)
3. INSTALL CLEANOUT ON HIGH SIDE, EVERY 75', AND BEFORE 270° OF TURNS ON ALL PIPING. BOTH SOLID AND PERFORATED DRAIN LINES
4. DISSIPATE DOWNSPOUT TO VEGETATION. SPLASH BLOCK REQUIRED
5. DAYLIGHT SUBDRAIN THROUGH RETAINING WALL. INTERMITTENT WEEP HOLES ARE ALSO ACCEPTABLE
22. (N) APRON AND CULVERT PIPE PER MARIN U.C.S. (2 / C2.0)
23. CONNECT DOWNSPOUT TO (N) TIGHTLINE

UTILITY NOTES

1. (E) ELECTRICAL METER TO BE REMOVED AND RELOCATED
2. ABANDON (E) ELECTRICAL UNDERGROUND CONDUIT
3. (E) OVERHEAD SERVICE TO REMAIN
4. SEE C.W. SHEETS FOR SEPTIC INFORMATION
5. (E) PROPANE TANK
6. (N) ELECTRICAL METER LOCATION.
7. (E) WATER LINE FROM WELL BOX TO MAIN HOUSE
8.

PG&E BUILDING AND RENOVATION SERVICES
1-877-743-7782

1 GRAPHIC SCALE
(IN FEET)
16 0 8 16 32 64
1 INCH = 16 FEET

ISSUES

ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP: REGISTERED PROFESSIONAL ENGINEER ORION W. AGNEW C 87262 CIVIL STATE OF CALIFORNIA

DRAINAGE AND UTILITY PLAN

PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA 94924
APN: 188-150-67

349-1

C-2.1

©2025 – AC ENGINEERING INC.



1 EROSION AND SEDIMENATION CONTROL PLAN

SCALE 1" = 16'

LEGEND

PROPOSED

- STRAW ROLL "WATTLE"
- SILT FENCE
- GRAVEL BAG
- INLET PROTECTION
- CONCRETE WASHOUT
- TREE PROTECTION
- TREE TO BE REMOVED
- JUTE CLOTH & SEED
- SS — SANITARY SERVICES W. HAND WASHING STATION
- T&R — TRASH AND RECYCLING
- HM — HAZARDOUS MATERIAL
- BM — BUILDING MATERIAL
- PARKING 8.5'X18' — 8.5X18 PARKING SPOT

ALL DETAILS PER MCSTOPPP. SEE C-1.2

1 #4D

GRAPHIC SCALE (IN FEET)
16 0 8 16 32 64
1 INCH = 16 FEET

ISSUES		
ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

EROSION AND SEDIMENTATION CONTROL PLAN

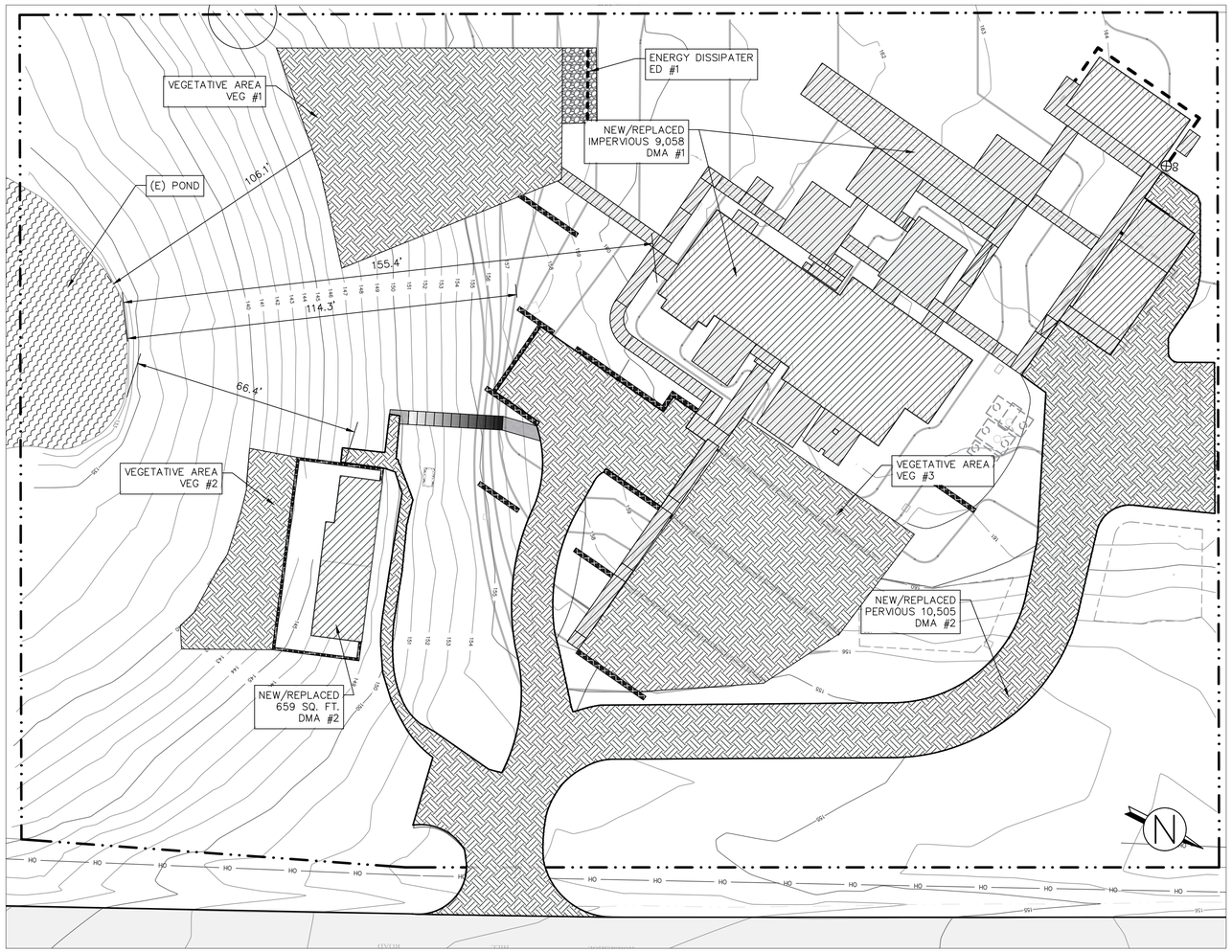
PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA 94924
APN: 188-150-67

JOB # 349-1

SHEET C-2.2

©2025 – AC ENGINEERING INC.

SHEET SIZE: "Arch D" (36"x24")

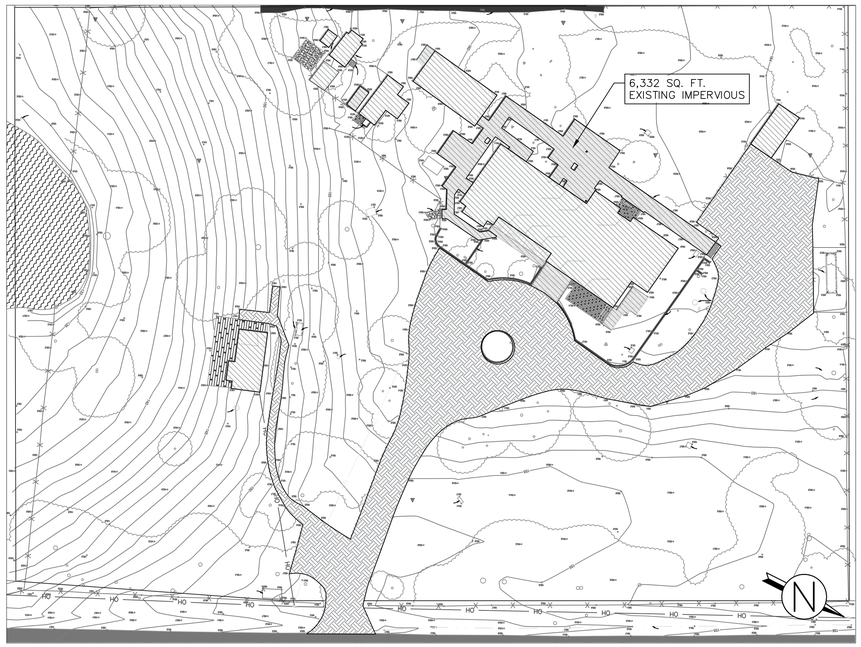


1 PROPOSED IMPERVIOUS

SCALE 1" = 20'

AREA TABLE					
NAME / LOCATION	MATERIAL TYPE	TYPE	SQUARE FT.	IMPERVIOUS / PERVIOUS	NOTES
DMA #1	VARIOUS	NEW/REPLACED	9,058	IMPERVIOUS	MAIN HOUSE & SURROUNDING IMPROVEMENTS
DMA #2	ROOFING	NEW/REPLACED	659	IMPERVIOUS	ADU
VEG #1	VEGETATION	EXISTING	3,867	PERVIOUS	7,734 ALLOWABLE LOADING
VEG #2	VEGETATION	EXISTING	1,067	PERVIOUS	2,134 ALLOWABLE LOADING
VEG #3	VEGETATION	EXISTING	4,313	PERVIOUS	8,626 ALLOWABLE LOADING
PRE-PROJECT IMPERVIOUS			6,332		
NEW / REPLACED IMPERVIOUS			9,717		OPTION 1 BASMAA COMPLIANT
POST-PROJECT IMPERVIOUS			9,717		

STORM WATER CONTROL DEVICES				
NAME	TYPE	SIZE	FEED	NOTES
ED #1	ENERGY DISSIPATER	129.00 SQ. FT.	DMA #1	



2 EXISTING IMPERVIOUS

SCALE 1" = 30'

LEGEND

- NEW IMPERVIOUS
- EXISTING IMPERVIOUS
- NEW PERVIOUS
- EXISTING PERVIOUS

Project Name/Number	***LUCHETTI***
Application Submittal Date [to be verified by municipal staff]	
Project Location [Street Address if available, or intersection and/or APN]	***155 Horseshoe Hill Rd, Bolinas, CA 94924***
Name of Owner or Developer	***LUCHETTI***
Project Type and Description [Examples: "Single Family Residence," "Parking Lot Addition," "Retail and Parking"]	***SINGLE FAMILY RESIDENCE - RENOVATION ADU ADDITION***
Total Project Site Area (acres)	***1.99***
Total New or Replaced Impervious Surface Area (square feet) [Sum of impervious area that will be constructed as part of the project]	***9,717***
Total Pre-Project Impervious Surface Area	***6,332***
Total Post-Project Impervious Surface Area	***9,717***
Runoff Reduction Measures Selected (Check one or more)	☑ 1. Disperse runoff to vegetated area ☐ 2. Pervious pavement ☐ 3. Cisterns or Rain Barrels ☐ 4. Bioretention Facility or Planter Box

GRAPHIC SCALE
(IN FEET)
20 0 10 20 40 80
1 INCH = 20 FEET

ISSUES

ISSUE	DATE	DESCRIPTION
1	4/21/25	COMMENTS
0	3/5/25	PLANNING

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

CA 94924

BASMAA COMPLIANCE

PETER LUCHETTI
155 HORSESHOE HILL RD. BOLINAS, CA
APN: 188-150-67

JOB #

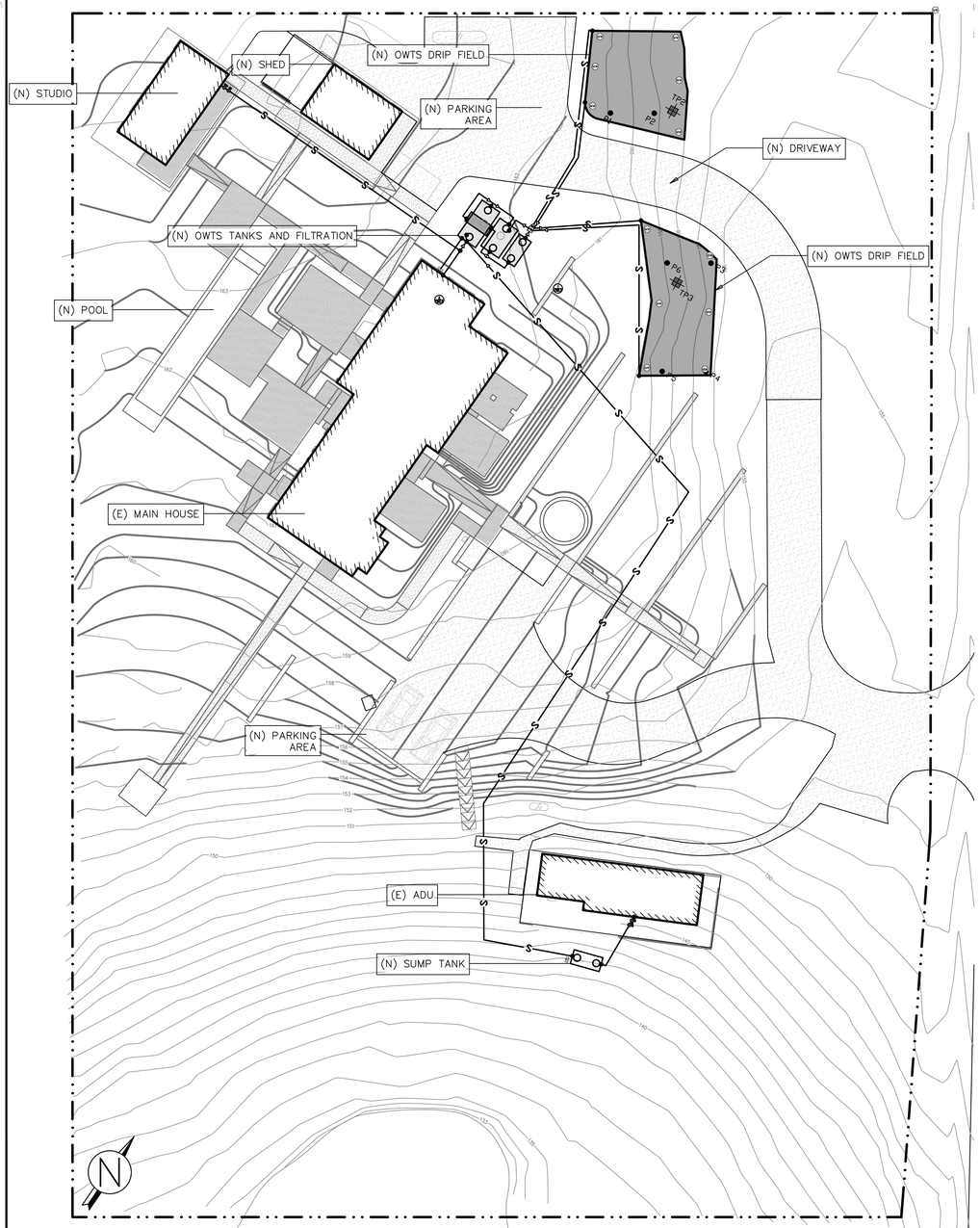
349-1

C-3.0

©2025 – AC ENGINEERING INC.

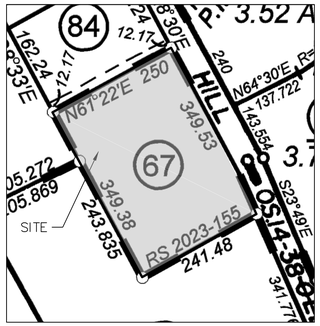
ONSITE WASTEWATER TREATMENT SYSTEM DESIGN

155 HORSESHOE HILL ROAD, BOLINAS, CA 94924



1 SITE LAYOUT

Scale: 1" = 20'



VICINITY MAP
N.T.S.



PARCEL LOCATION MAP
N.T.S.

QUICK REFERENCE TABLE		
LIST	VALUE	NOTES
CONTROLLERS	ORENCO VCOM W. REMOTE MONITORING	2EA
NUMBER OF PUMPS	3	RECIRC, SUMP, SUMP/GRINDER
SEPTIC TANK SIZE	2,000 GALLONS	
RECIRCULATION TANK SIZE	1,500 GALLONS	
SUMP TANK SIZE	810 GALLONS	
GRINDER/SUMP ADU	810 GALLONS	
SEWER LATERAL	4"+3"+3" S=2% MIN.	
TRANSPORT LINE	1.5" SCH. 40 PVC	
LATERAL SIZE	1.5" SCH. 40 PVC	
TRANSPORT LINE ADU	2" SCH. 40 PVC	
NUMBER OF ZONES	2	
DAILY DESIGN VALUE AND BEDROOM	630 GPD / 6BR	105 GPD USED FOR EMERGENCY STORAGE AT ADU

ALL OFF HAUL TO BE TAKEN TO A LEGAL DUMPSITE

SHEET INDEX	
CW-0	SITE OVERVIEW PLAN
CW-1.0	TANK AND FIELD LAYOUT
CW-2.0	SEPTIC AND RECIRC TANKS
CW-2.1	SUMP TANK AND DETAILS
CW-2.2	ADU SUMP TANK AND DETAILS
CW-2.3	FIELD LAYOUT AND NOTES

DEVELOPER / APPLICANT

PETER LUCHETTI
155 HORSESHOE HILL ROAD
BOLINAS, CA 94924

SITE INFORMATION

155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67
LOT AREA: 86,888 SF

SCOPE OF WORK

RENOVATION TO (E) SFR AND ADU. (N) DRIVEWAY

PERC TEST / TEST PIT

8/23/24 – NORTH MARIN SEPTIC

REFERENCES

THIS PLAN IS SUPPLEMENTAL TO:

ARCH. PLANS : "NEW SITE CONTOUR PLAN" BY: ROBERT LUCHETTI ASSOCIATES, INC., DATED: 10/29/24

TOPOGRAPHY & BOUNDARY : "TOPOGRAPHIC MAP", BY: PHELPS & ASSOCIATES, DATED: 6/19/24

SOILS REPORT : "GEOTECHNICAL INVESTIGATION" BY: AC ENGINEERING INC. DATED: 7/24/24

X _____

BENCHMARK

CP77 (SPIKE), EL=152.60

BASIS OF BEARINGS

NOT SHOWN

REVISION TABLE

DELTA	DATE	COMMENTS

GRAPHIC SCALE
(IN FEET)
20 0 10 20 40 80
1 INCH = 20 FEET

CONTRACTOR TO CONTACT AC ENGINEERING INC. AT LEAST 48 HOURS BEFORE THE START OF CONSTRUCTION
415-295-2152 OR ADMIN@AGNEWCIVIL.COM

ALL CONTRACTORS WILL BE RESPONSIBLE FOR THE VERIFICATION OF THE LOCATIONS OF ALL EXISTING UTILITIES IN THE FIELD. ALL CONTRACTORS SHALL CALL U.S.A AT (800-227-2600) 48 HOURS BEFORE DIGGING, AND OBTAIN AN IDENTIFICATION NUMBER (SECTION 4210.1 OF THE GOVERNMENT CODE).

NOTE: THESE NOTES ARE INTENDED TO BE USED AS A GENERAL GUIDELINE. THE REFERENCED SOILS REPORT FOR THE PROJECT AND GOVERNING AGENCY GRADING ORDINANCE SHALL SUPERSEDE THESE NOTES. THE SOILS ENGINEER MAY MAKE ON-SITE RECOMMENDATIONS DURING GRADING OPERATIONS.

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP
REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

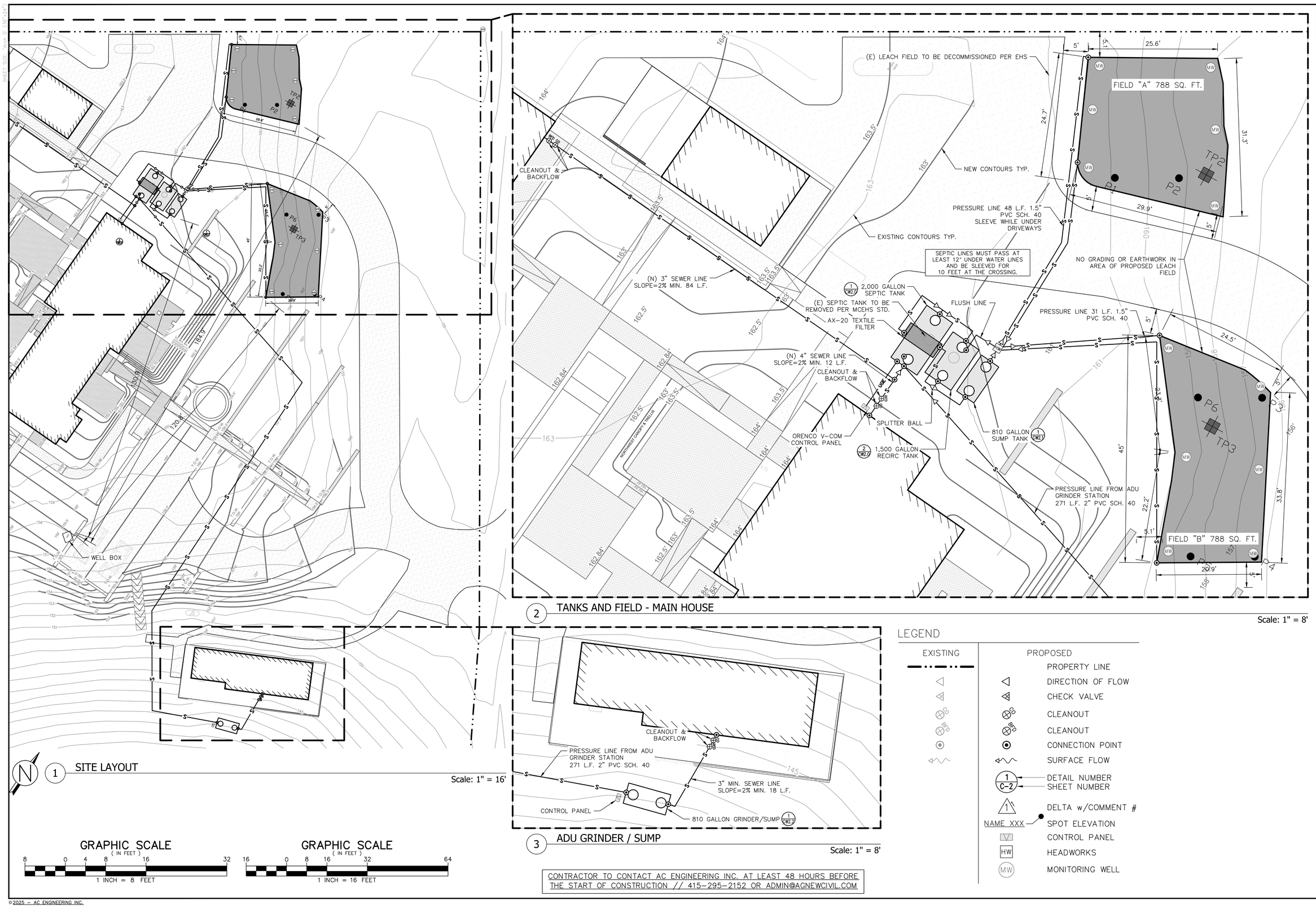
SITE OVERVIEW PLAN

LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

JOB #
349-1

CW-0

SHEET SIZE: Arch D (36"x24")
© 2025 – AC ENGINEERING INC.



1 SITE LAYOUT

Scale: 1" = 16'

2 TANKS AND FIELD - MAIN HOUSE

Scale: 1" = 8'

3 ADU GRINDER / SUMP

Scale: 1" = 8'

LEGEND

EXISTING	PROPOSED
	PROPERTY LINE
	DIRECTION OF FLOW
	CHECK VALVE
	CLEANOUT
	CLEANOUT
	CONNECTION POINT
	SURFACE FLOW
	1 / C-2 DETAIL NUMBER / SHEET NUMBER
	1 DELTA w/COMMENT #
	NAME XXX SPOT ELEVATION
	CONTROL PANEL
	HW HEADWORKS
	MW MONITORING WELL

GRAPHIC SCALE (IN FEET) 8 0 4 8 16 32 — 1 INCH = 8 FEET

GRAPHIC SCALE (IN FEET) 16 0 8 16 32 64 — 1 INCH = 16 FEET

CONTRACTOR TO CONTACT AC ENGINEERING INC. AT LEAST 48 HOURS BEFORE THE START OF CONSTRUCTION // 415-295-2152 OR ADMIN@AGNEWCIVIL.COM

©2025 – AC ENGINEERING INC.

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP

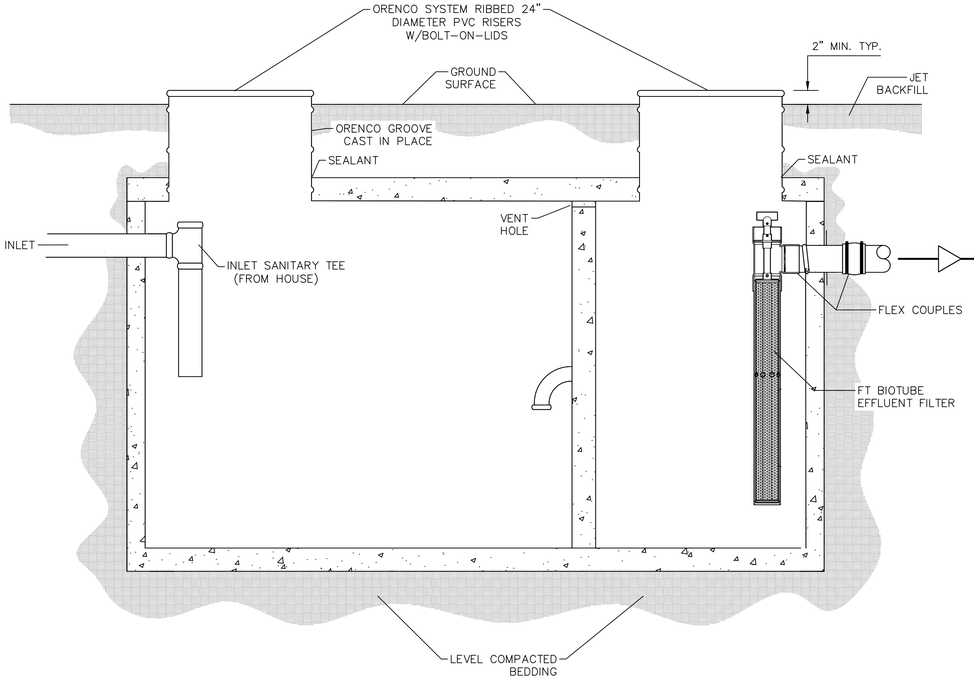
REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

TANK AND FIELD LAYOUT

LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

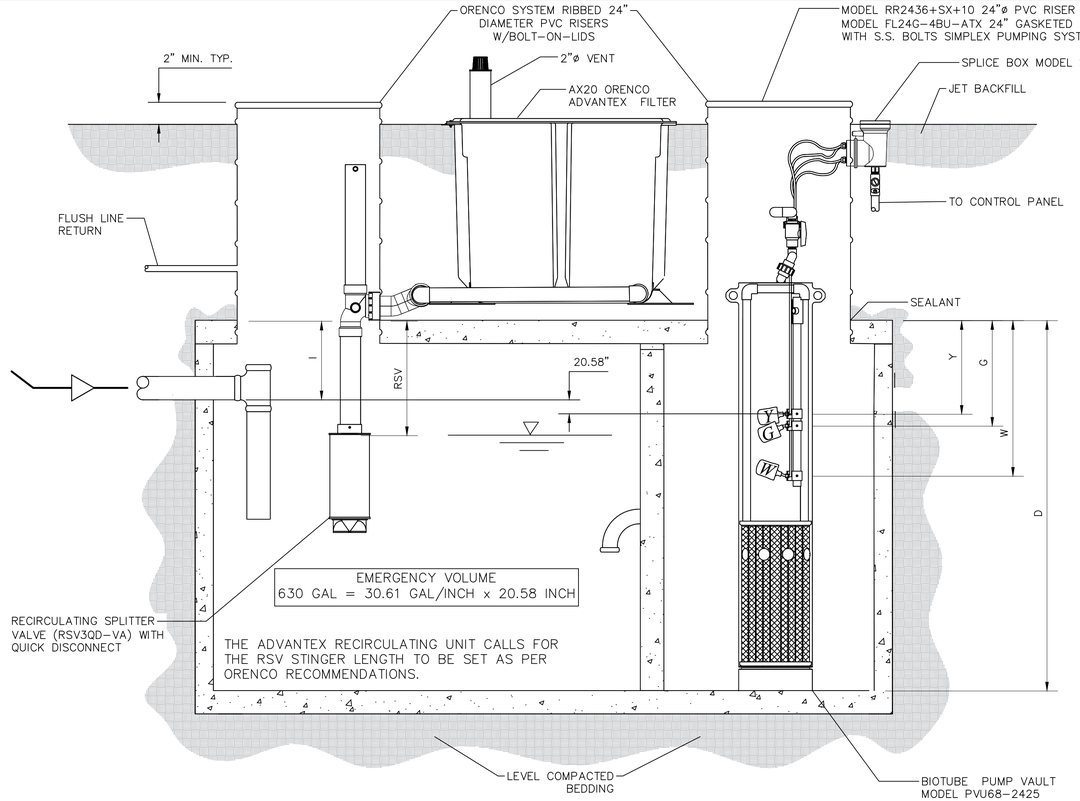
349-1

CW-1.0

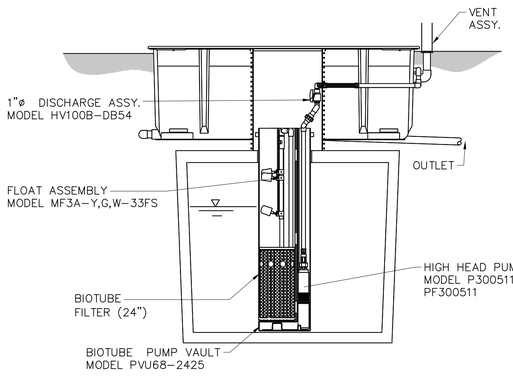


1 2,000 GALLON SEPTIC TANK

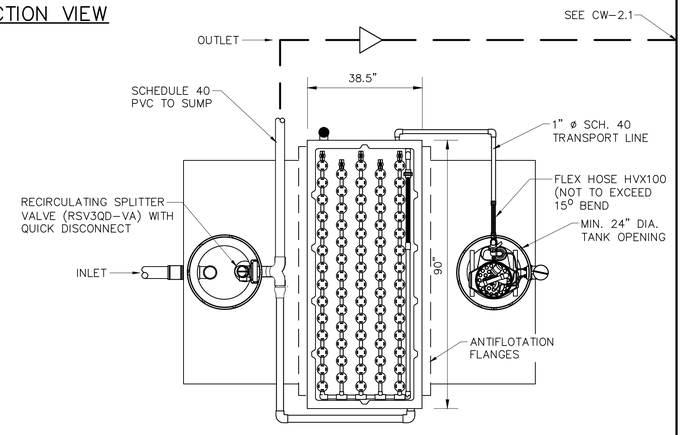
NTS



SECTION VIEW



END VIEW



PLAN VIEW

FLOAT SETTINGS			
LABEL	OPERATION	INCHES FROM TOP OF TANK	NOTES
I	INLET INVERT	13	INLET INVERT FROM TOP OF TANK
Y	HIGH LEVEL	33.58	20.58" FROM HIGH LEVEL TO INVERT
G	OVERRIDE	35.58	2" BELOW HIGH LEVEL
W	LOW LEVEL	42	24" LIQUID LEVEL BELOW FLOAT
RSV	TOP OF RSV BODY	37.58	2" BELOW "G" FLOAT
D	HEIGHT OF TANK	66.00	

2 1,500 GALLON CONCRETE RECIRC TANK W. AX-20 FILTER AND RSV

NTS

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

SEPTIC AND RECIRC TANKS

LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

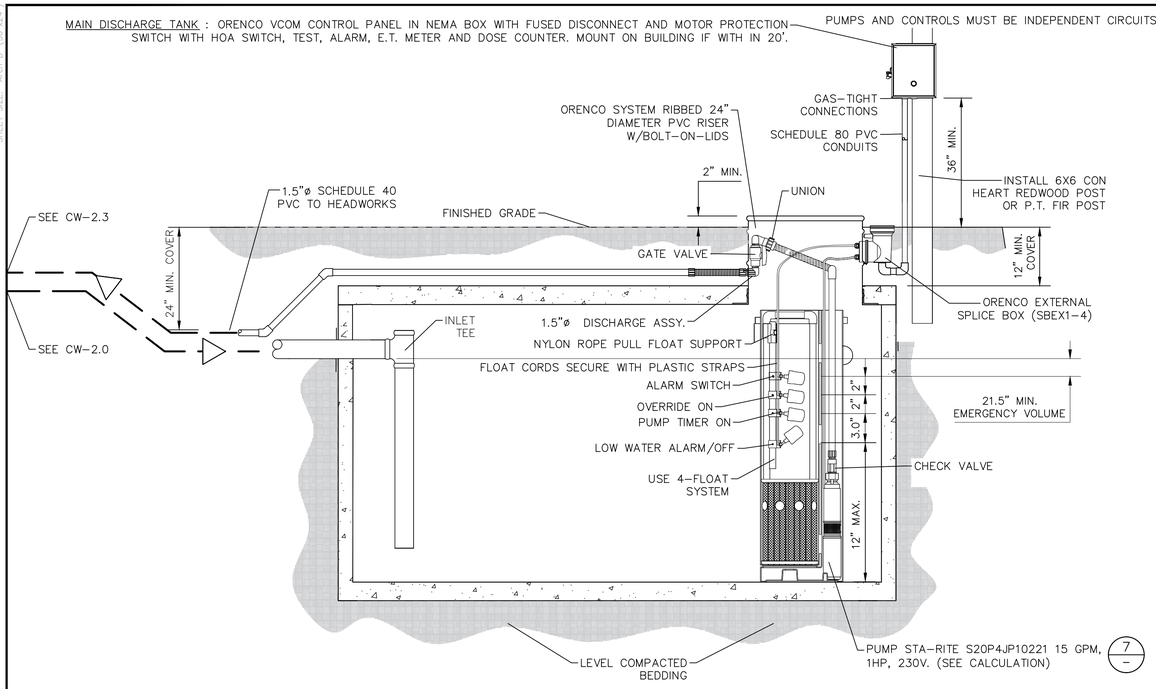
JOB #

349-1

CW-2.0

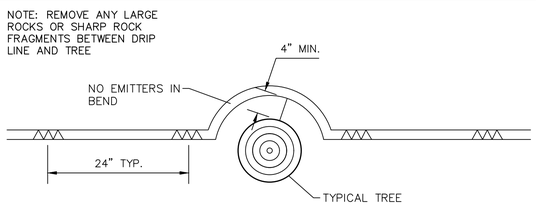
©2025 – AC ENGINEERING INC.

SHEET SIZE: Arch D (36"x24")



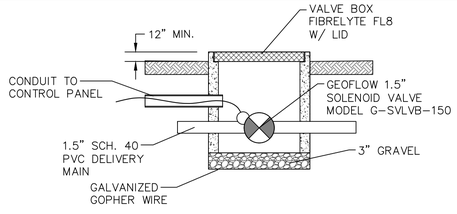
1 810 GALLON SUMP TANK

NTS



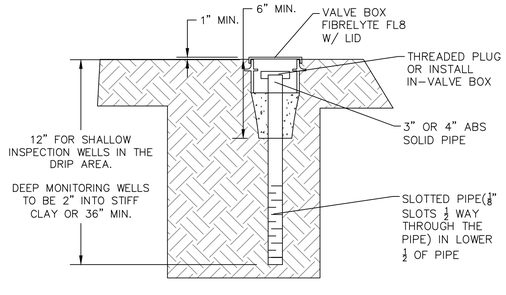
2 TREE PROXIMITY DETAIL

NTS



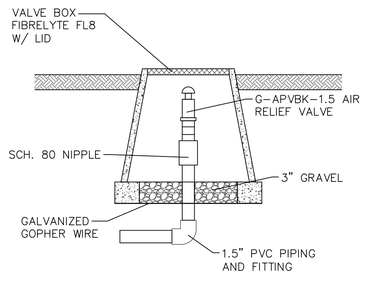
3 SOLENOID VALVE DETAIL

NTS



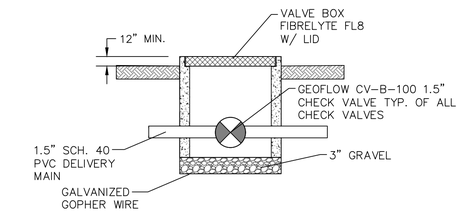
4 MONITORING WELL TYP.

NTS



5 1" AIR RELIEF VALVE

NTS



6 CHECK VALVE

NTS

SUMP TANK TO DRIP FIELDS

TOTAL DYNAMIC HEAD = 158 FT
GALLONS PER MINUTE (GPM) = 15 GPM
DOSE = 52.5 GALLONS
RECOMMENDED PUMP TYPE: STA-RITE JP
S20P4JP10221 (1 HP, 230 VOLTS, SINGLE PHASE, 7 AMPS)

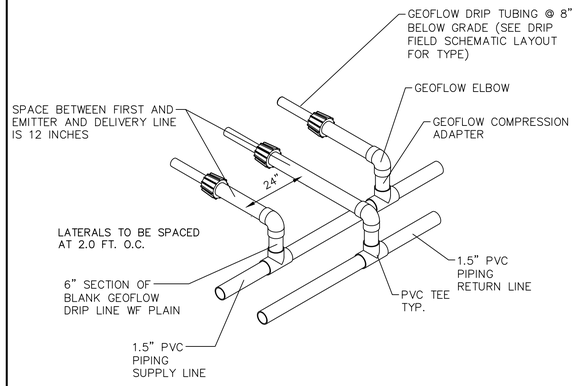
TIMER CONTROLLED:
OFF 1HR 53MIN 24SEC
ON 0HR 6MIN 34 SEC

T OVERRIDE OFF 0HR 56MIN 42SEC
T OVERRIDE ON 0HR 6MIN 34 SEC

RECIRC TIMER:
AX20 = 1,500 GPD
5:1 RECIRC RATIO
ON 0HR 0MIN 15SEC
OFF 0HR 19MIN 45SEC
PUMP CYCLES PER DAY = 72

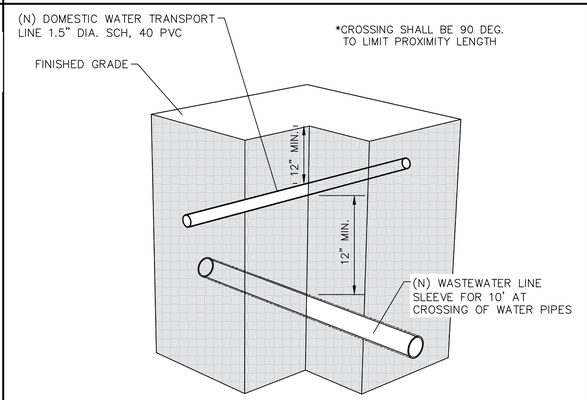
7 TIMER SETTINGS

NTS



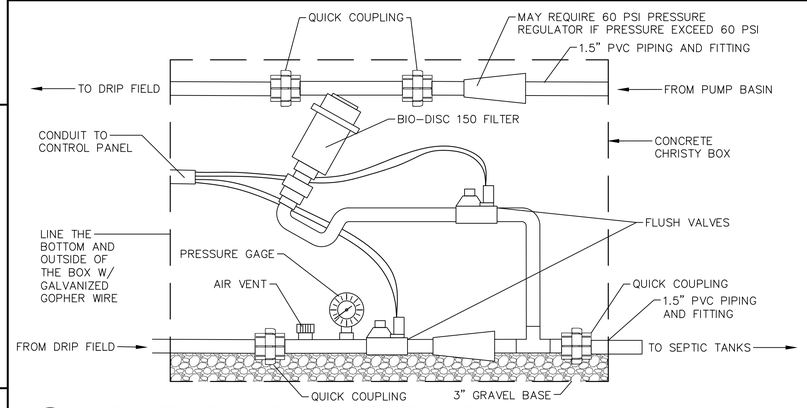
8 TYPICAL HEADER CONNECTION

NTS



9 PIPE CROSSING TYP.

NTS



10 AUTOMATIC HEADWORKS - WHWS-GUT-V-15F-A

NTS

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

SUMP TANK AND DETAILS

LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

JOB #

349-1

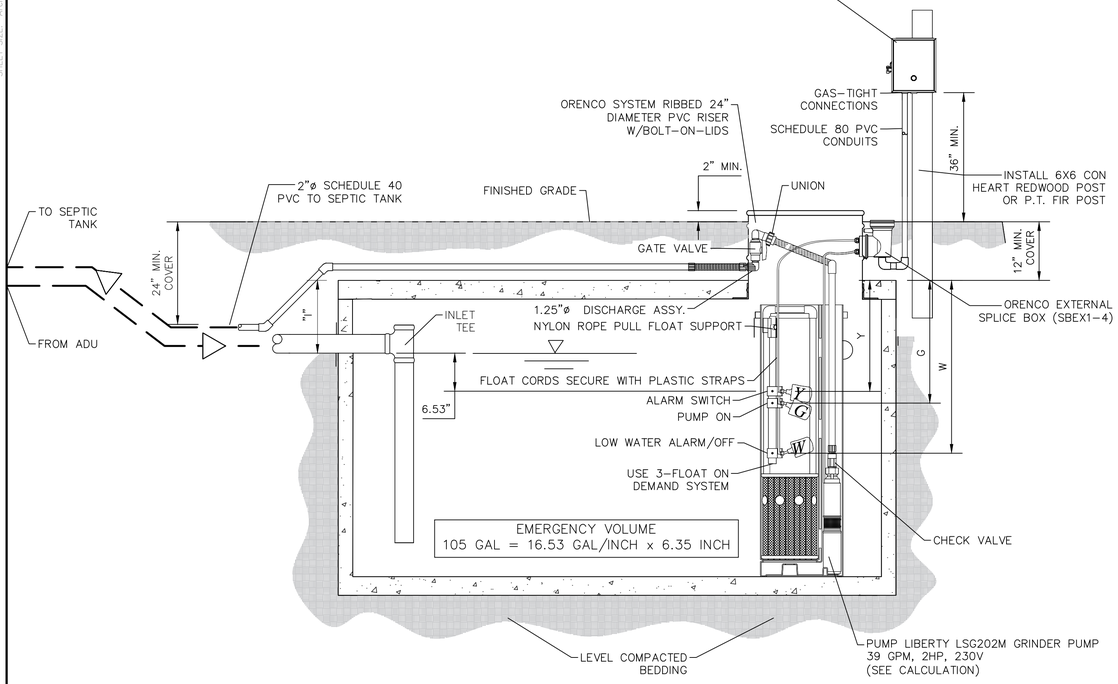
CW-2.1

©2025 – AC ENGINEERING INC.

SHEET SIZE: Arch D (36"x24")

PUMPS AND CONTROLS MUST BE INDEPENDENT CIRCUITS

ADU SUMP TANK : S-1 OSI CONTROL PANEL IN NEMA BOX WITH FUSED DISCONNECT AND MOTOR PROTECTION SWITCH WITH HOA SWITCH, TEST, ALARM, E.T. METER AND DOSE COUNTER. MOUNT ON BUILDING IF WITH IN 20'.



ADU SUMP TO SEPTIC TANK

TOTAL DYNAMIC HEAD = 50 FT
GALLONS PER MINUTE (GPM) = 39 GPM
DOSE = ON DEMAND

FLOAT SETTINGS

LABEL	OPERATION	INCHES FROM TOP OF TANK	NOTES
I	INLET INVERT	13	INLET INVERT FROM TOP OF TANK
Y	HIGH LEVEL	19.35	6.53" FROM INLET TO ALARM
G	PUMP ON	30.00	198 GALLON OPERATING VOLUME
W	LOW LEVEL/RO	42	24" LIQUID LEVEL BELOW FLOAT

1 810 GALLON ADU SUMP TANK

NTS

©2025 – AC ENGINEERING INC.

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
ORION W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

ADU SUMP TANK AND DETAILS

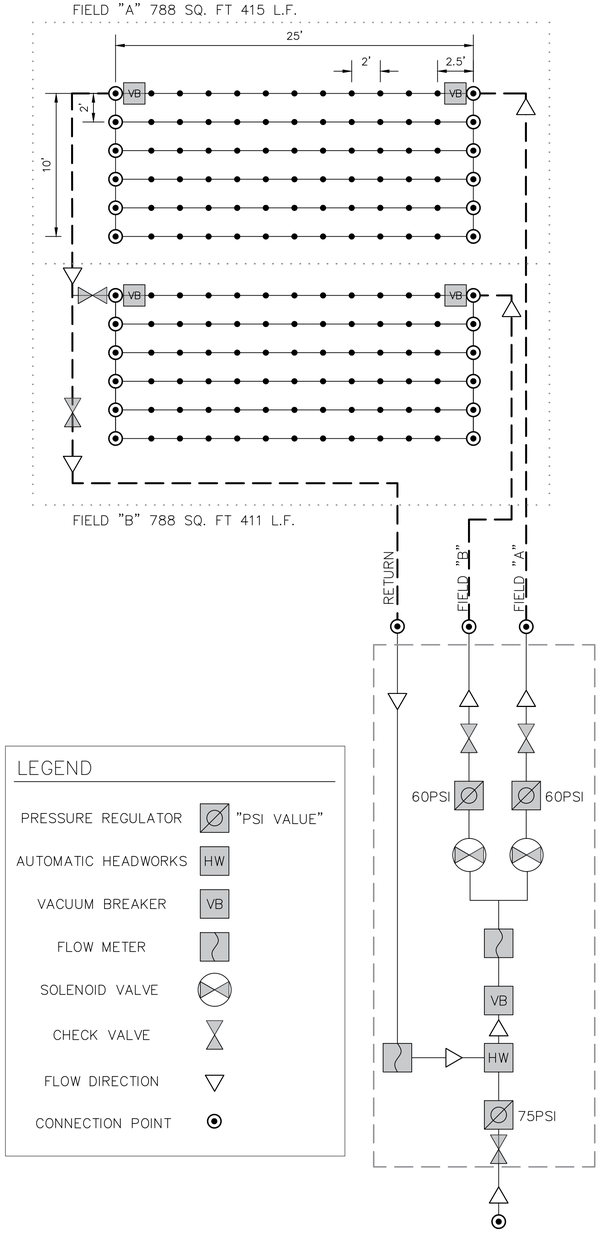
LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

JOB #

349-1

CW-2.2

DRIP TUBING INFORMATION TABLE	
DESCRIPTION	VALUE
TUBING PART NUMBER	G-WFPC-16-4-24-PRO
DRIPLINE SPACING	2 FEET
EMITTER SPACING	2 FEET
DESIGN VALUE	630 G.P.D



1 DRIP FIELD SCHEMATIC LAYOUT

NTS

GENERAL CONSTRUCTION NOTES

1. THE DESIGNING ENGINEER/SANITARIAN SHALL OBSERVE THE SITE AND WEATHER CONDITIONS PRIOR TO CONSTRUCTION OF THE SYSTEM. HE/SHE MUST VERIFY DRY AND ACCEPTABLE SOIL AND WEATHER CONDITIONS FOR CONSTRUCTION, AND DECIDE IF THE CONDITIONS ARE SUITABLE TO BEGIN CONSTRUCTION.
2. THE DESIGNING ENGINEER/SANITARIAN SHALL VERIFY (WITH THE CONTRACTOR) THE PROPER STAKING OF THE SYSTEM PRIOR TO ANY CONSTRUCTION. THE SYSTEM DETAILS, CONFIGURATION, LOCATION, CONTOUR, PERCOLATION AREA, EXPANSION AREA, ETC. SHALL BE VERIFIED.
3. THE CONTRACTOR SHALL NOTIFY THE MARIN COUNTY ENVIRONMENTAL HEALTH SERVICES (EHS) A MINIMUM OF 24 HOURS IN ADVANCE OF WHEN CONSTRUCTION IS TO TAKE PLACE AND VERIFY THAT THE DESIGNING ENGINEER/SANITARIAN HAS STATED THAT SOIL CONDITIONS ARE ACCEPTABLE FOR CONSTRUCTION PURPOSES AND THAT THE STAKING OF THE SYSTEM HAS BEEN ACCOMPLISHED AND VERIFIED.
4. ALL CONSTRUCTION SHALL BE IN ACCORD WITH CURRENT MARIN COUNTY ENVIRONMENTAL HEALTH SERVICES GUIDELINES AND THE CURRENTLY ADOPTED EDITION OF THE UPC. ANY DISCREPANCIES BETWEEN THOSE CODES AND THESE PLANS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO CONSTRUCTION.
5. ONLY THE PRIMARY SYSTEM IS TO BE CONSTRUCTED AT THIS TIME. THE RESERVE AREAS ARE TO BE HELD FOR FUTURE REPAIRS AND POTENTIAL REPLACEMENT OF THE PRIMARY SYSTEM.
6. THE PRIMARY, RESERVE AND AREAS WITHIN 50 FEET SHALL NOT BE ENCUMBERED BY PERMANENT STRUCTURES, OR DISTURBED BY GRADING, DISCING, TILLING OR EXCAVATION PRIOR TO CONSTRUCTION OF THE SYSTEM AND SHALL BE PROTECTED FROM SUCH DISTURBANCE FOLLOWING CONSTRUCTION OF THE SYSTEM, EXCEPT AS INDICATED ON THIS PLAN.
7. 7. CONSTRUCTION OF THE SYSTEM IS TO MINIMIZE GROUNDWATER INTRUSION INTO TANKS, RISERS AND VALVE BOXES. FINISH GRADING SHALL DIRECT SURFACE WATER AWAY FROM THE SYSTEM AND MINIMIZE PONDING WITHIN 50 FEET OF THE SYSTEM.

INSPECTION SCHEDULE

A. PRE-CONSTRUCTION CONFERENCE TO REVIEW THE PLANS AND SYSTEM STAKEOUT PRIOR TO CONSTRUCTION.
B. INTERIM OBSERVATION(S), PERFORMED PRIOR TO COVERING ANY ELEMENTS OF THE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE COUNTY ENVIRONMENTAL HEALTH SPECIALIST A MINIMUM OF 48 HOURS IN ADVANCE.
C. A START-UP INSPECTION SHALL BE CONDUCTED AFTER THE SEPTIC ELECTRICAL INSPECTION HAS BEEN SIGNED OFF. CONTRACTOR, ENGINEER, SYSTEM OPERATOR AND MARIN COUNTY REP.
D. FINAL OBSERVATION OF COMPLETED SYSTEM AND ALL RELATED ITEMS PER THE CONSTRUCTION DOCUMENTS.

(A). AT THE PRE-CONSTRUCTION CONFERENCE, THE FOLLOWING ITEMS SHALL BE REVIEWED. CONSTRUCTION MAY PROCEED IF THE CONTRACTOR NOTIFIES THE COUNTY ENVIRONMENTAL HEALTH SPECIALIST VERBALLY THAT ALL ELEMENTS APPEAR TO CONFORM TO THE FOLLOWING REQUIREMENTS:
1. SOIL MOISTURE AT THE APPROPRIATE DEPTHS ARE NOT SO HIGH AS TO HAVE THE SOIL SMEAR OR COMPACT DUE TO CONSTRUCTION ACTIVITIES.
2. IMMINENT WEATHER CONDITIONS APPEAR THAT THEY WILL NOT CREATE UNSUITABLE SOIL MOISTURE CONDITIONS DURING THE COURSE OF CONSTRUCTION.
3. LAYOUT AND STAKING OF THE PRIMARY SYSTEM AND THE EXPANSION / RESERVE AREAS SUBSTANTIALLY CONFORMS TO THE APPROVED CONSTRUCTION DOCUMENTS.
4. FOR MOUNDS: THE SOURCE OF THE COVER SOIL AND MOUND SAND SHALL BE DESIGNATED AND REPRESENTATIVE SAMPLES PROVIDED FOR THE DESIGN ENGINEER'S APPROVAL

(B) AT THE INTERIM OBSERVATION(S), THE FOLLOWING ELEMENTS SHALL BE VERIFIED BY VISUAL OBSERVATION AND OPERATION OF THE SYSTEM. NO ELEMENTS OF THE SYSTEM SHALL BE BACKFILLED OR COVERED UNTIL THE COUNTY ENVIRONMENTAL HEALTH SPECIALIST AND DESIGN ENGINEER'S APPROVAL IS GIVEN WHEN ALL REQUIRED ITEMS ARE COMPLETED AND APPROVED, THE DISPOSAL FIELD, PRETREATMENT UNITS, PIPELINE TRENCHES AND TANKS MAY BE COVERED OR BACKFILLED.

1. LINE AND GRADE OF ALL EXCAVATIONS AND FILLS AS APPLICABLE.
2. FUNCTION AND SETTING OF ANY CONTROL DEVICES, INCLUDING BUT NOT LIMITED TO VALVES, SWITCHES AND ALARMS.
3. HYDRAULIC TESTING OF ANY PUMP AND DISTRIBUTION SYSTEM TO ASSURE THAT THE PUMP IS ADEQUATE FOR DESIGN FLOWS.
4. THE SEPTIC AND SUMP TANKS SHALL BE TESTED FOR WATER TIGHTNESS. THERE SHALL BE NO DETECTABLE DROP IN WATER LEVEL WITHIN THE RISERS DURING A 30 MINUTE TEST.
5. ALL THE REMAINING ELEMENTS REQUIRED TO COMPLETE THE SYSTEM SHALL BE ON SITE AT THIS TIME FOR VERIFICATION AND APPROVAL BY THE DESIGN ENGINEER FOR CONFORMANCE WITH THE PLANS AND SPECIFICATIONS.

(C) A START-UP INSPECTION SHALL BE CONDUCTED AFTER THE SEPTIC ELECTRICAL INSPECTION HAS BEEN SIGNED OFF. CONTRACTOR, ENGINEER, SYSTEM OPERATOR AND COUNTY REP. SHALL BE PRESENT.

(D) AT THE FINAL OBSERVATION, THE DESIGN ENGINEER SHALL VERIFY THAT ALL CONSTRUCTION IS IN GENERAL CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. A FINAL LETTER FROM THE DESIGNER TO THE MARIN COUNTY ENVIRONMENTAL HEALTH SERVICES SHALL STATE THAT ALL CONSTRUCTION HAS BEEN COMPLETED, APPROVED, AND IS IN CONFORMANCE WITH ALL SPECIFICATIONS.

NOTE: MARIN COUNTY ENVIRONMENTAL HEALTH SERVICES WILL NOT SIGN OFF THE PERMIT OR JOB CARD UNTIL THE DESIGN ENGINEER HAS SUBMITTED A CONSTRUCTION OBSERVATION LETTER AND THE BUILDING IS READY FOR OCCUPANCY.

8. ADVANTEX FILTER CONSTRUCTION – CONSTRUCTION OF THE ADVANTEX AX20-RT TREATMENT SYSTEM SHALL BE BY AN ORENCO SYSTEMS AUTHORIZED INSTALLER PER INSTALLATION MANUAL ADVANTEX AX-RT TREATMENT SYSTEMS – RESIDENTIAL APPLICATIONS REV 3.0 OR MOST CURRENT.

9. DISPOSAL FIELD CONSTRUCTION
INSTALLATION GUIDELINES

A. EXCAVATION, FILLING AND GRADING SHOULD HAVE BEEN FINISHED BEFORE INSTALLATION OF THE SUBSURFACE DRIP SYSTEM.
B. BE SURE YOU HAVE EVERYTHING REQUIRED FOR THE INSTALLATION BEFORE OPENING TRENCHES. PREASSEMBLE AS MANY SETS OF COMPONENTS AS PRACTICAL ABOVE GROUND AND IN A COMFORTABLE PLACE. COMPRESSION ADAPTERS SHOULD BE GLUED TO PVC TEES, RISER UNITS SHOULD BE PREASSEMBLED, THE SUB MAIN MANIFOLD WITH TEES CAN BE PRE ASSEMBLED AND USED TO MARK THE BEGINNING AND END OF WASTEFLOW ETC. DO NOT START OPENING TRENCHES UNTIL YOU ARE SURE YOU HAVE ALL THE MATERIALS REQUIRED.
C .CONDITION SOIL MOISTURE THE DAY BEFORE OPENING TRENCHES OR INSTALLING WASTEFLOW. REMEMBER, IT IS MUCH EASIER TO INSTALL THE SYSTEM IN MOIST SOIL. THE SOIL SHOULD BE MOIST BUT STILL SHOULD ALLOW THE PROPER OPERATION OF THE INSTALLATION EQUIPMENT. THE BEST PREPARATION IS TO MOISTEN THE SOIL SEVERAL DAYS BEFORE THE INSTALLATION OF THE WASTEFLOW, SO THE SOIL HAS TIME TO DRAIN AND WILL NOT SMEAR WHEN EXCAVATED. THE SOIL SURFACE SHOULD BE DRY.
D. INSTALL THE SYSTEM HEAD FIRST: TANKS, RECIRCULATING WOOD FILTER, PUMPS, CONTROL VALVES, DISC FILTERS, CHEMICAL INJECTOR, PRESSURE REGULATORS, PRESSURE GAGES AND WATER METER (AS APPLICABLE). THEN INSTALL THE PRESSURE MAIN AND BACKFLUSH RETURN LINES. THESE SHOULD BE BURIED AT A DEPTH OF 18 INCHES, WELL BELOW THE DEPTH OF THE WASTEFLOW LINES (9 INCHES). AT ALL TIMES, AVOID GETTING DEBRIS INTO THE SYSTEM. FLUSH MAIN LINES, TEST FOR LEAKS (HYDROSTATICALLY FOR 2 HRS @ 150 PSI) AND LEAVE THEM FULL OF WATER.
E. OPEN TRENCHES FOR THE FEEDER AND BACKFLUSH MANIFOLDS. THESE TRENCHES SHOULD BE 18 INCHES INTO NATIVE SOIL.
F. CLEAN FEEDER AND BACKFLUSH MANIFOLD TRENCHES, MOISTEN AND COMPACT THE BOTTOM OF THE TRENCH. (IF THIS IS NOT DONE, THE MANIFOLDS MAY "SETTLE DOWN" AND SLOWLY PULL OUT THE COMPRESSION COUPLINGS). ASSEMBLE THE FEEDER MANIFOLD OUTSIDE THE TRENCH IF PRACTICAL. CONNECT TO PRESSURE MAIN LINES AND TO THE SYSTEM HEAD. FLUSH THESE LINES. A HIGH WATER VELOCITY IS REQUIRED TO CARRY AWAY DEBRIS WHICH MAY HAVE ENTERED THE PIPES BEFORE OR DURING INSTALLATION. PLACE THE FEEDER AND BACKFLUSH MANIFOLDS INTO THE TRENCHES.
G. THE PRIMARY DISPOSAL FIELD AND ALL AREAS OF DISTURBED SOILS SHALL BE SEEDED WITH A BLEND OF ANNUAL & PERENNIAL GRASSES AND ROSE CLOVER. IRRIGATION SHALL BE PROVIDED TO GERMINATE THE SEED AND ESTABLISH A WELL DEVELOPED VEGETATIVE STAND.

INSTALLATION METHOD
A. TRENCHING BY HAND OR WITH A CHAIN TRENCHER MOST SUITABLE FOR THIS INSTALLATION.
B. COVER ALL OPEN ENDS INCLUDING DRIP LINES TO AVOID GETTING DEBRIS INTO THE SYSTEM.
C. LEAVE ENOUGH LENGTH AT THE BEGINNING AND END FOR CONNECTIONS. IT IS CONVENIENT TO FINISH THE LAST FOOT OF THE TREND BY HAND. THIS GIVES MORE ROOM FOR CONNECTIONS. BEWARE OF BENDING THE DRIP TUBING TOO TIGHT DURING INSTALLATION.
D. DO NOT BEND TUBING. USE PVC IPS TUBING AND PVC FITTINGS TO CONFIGURE LOOPS.
E. THE PIPE PULLER TYPE MACHINE SHOULD NOT BE USED IN CLAY SOILS, AS IT FORMS AN UNDERGROUND "PIPE" AND THE WATER APPLIED BY THE SYSTEM TENDS TO RUN IN THE DOWNHILL DIRECTION.

10. CONCRETE SEPTIC TANK, HOLDING TANK, SEEPAGE PIT ABANDONMENT NOTES:
A. THE EXISTING SEPTIC TANK SHALL BE ABANDONED AS FOLLOWS:
* THE TANKS SHALL BE PUMPED BY A LICENSED SEPTIC TANK PUMPER.
* THE TANK LIDS SHALL BE REMOVED, AND DISPOSED OF IN A SANITARY LANDFILL.
* THE FLOOR OF THE TANKS SHALL BE RUPTURED IN BOTH TANK CHAMBERS.
* THE TANKS SHALL BE COLLAPSED, AND THE REMAINING VOID FILLED WITH RIVER RUN MATERIAL TO WITHIN 12 INCHES OF FINISH GRADE.
* THE REMAINING VOID SHALL BE FILLED WITH COMPACTED NATIVE SOIL MATERIAL.
B. ALTERNATELY THE TANK MAY BE RUPTURED AND FILLED COMPLETELY WITH CONTROLLED DENSITY CONCRETE FILL.
C. All at both ends buried sewer pipes and leach lines, to or from the old septic tank shall be cut and plugged.

EROSION CONTROL NOTES:

1. ALL AREAS OF DISTURBED OR BARE SOIL SHALL BE SEEDED WITH A BLEND OF ANNUAL GRASSES AND CLOVERS. ALL SEEDED AREAS SHALL BE MULCHED WITH A GENEROUS LAYER OF WEED FREE STRAW. SEED AND MULCH SHALL BE AVAILABLE ONSITE BY OCTOBER 15 FOR APPLICATION PRIOR TO RAIN EVENT.
2. ANY RAIN CAUSED EROSION OCCURRING OVER THE COURSE OF THE FIRST RAINY SEASON, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.

OPERATING PERMITS: (EXCERPTED FROM MARIN COUNTY EHS)

A. IN ADDITION TO A CONSTRUCTION PERMIT, AN OPERATING PERMIT IS REQUIRED FOR ALL ALTERNATIVE SYSTEMS, WITH THE EXCEPTION OF THOSE INSTALLED SOLELY FOR THE REPAIR OF EXISTING SYSTEMS FOR SINGLE FAMILY RESIDENCES. THE HEALTH OFFICER RESERVES THE RIGHT TO REQUIRE AN OPERATING PERMIT FOR REPAIR SYSTEMS WHERE, IN HIS/HER JUDGMENT, SUCH A PERMIT IS NECESSARY TO ASSURE PROTECTION OF WATER QUALITY AND PUBLIC HEALTH. ALSO, AN OPERATING PERMIT WILL BE REQUIRED FOR ANY REPAIR UTILIZING A NEW ALTERNATIVE SYSTEM WHICH IS NOT CLASSIFIED AS A CATEGORY 2 OR 3 SYSTEM; THESE CASES WILL REQUIRE REGIONAL BOARD REVIEW. THE OPERATING PERMIT PROVISIONS OUTLINED IN THIS SECTION ALSO APPLY TO ANY STANDARD SYSTEMS REQUIRING OPERATING PERMITS, AS DETERMINED BY THE HEALTH OFFICER.
B. OPERATING PERMITS SHALL BE ISSUED BY THE HEALTH OFFICER AT THE TIME OF INITIAL CONSTRUCTION OF THE SYSTEM; AND THEY ARE REQUIRED TO BE RENEWED AT LEAST EVERY TWO YEARS OR AS OTHERWISE SPECIFIED BY THE HEALTH OFFICER ON A CASE-BY-CASE BASIS. THE HEALTH OFFICER MAY REDUCE THE RENEWAL FREQUENCY TO ONCE EVERY THREE OR FOUR YEARS AFTER SUCCESSFUL PERFORMANCE IS DEMONSTRATED; ALSO, ANNUAL RENEWAL MAY BE REQUIRED FOR CERTAIN TYPES OF SYSTEMS OR SITUATIONS AS DEEMED NECESSARY BY THE HEALTH OFFICER. OPERATING PERMITS MUST ALSO BE RENEWED AT THE TIME OF SALE OR, IN THE CASE OF COMMERCIAL PROPERTIES, UPON CHANGE OF OCCUPANTS.
C. OPERATING PERMITS ARE INTENDED TO SERVE AS THE BASIS FOR VERIFYING THE ADEQUACY OF ALTERNATIVE SYSTEM PERFORMANCE AND MAINTENANCE. PERMIT CONDITIONS SHALL INCLUDE MONITORING AND INSPECTION REQUIREMENTS, PERMIT DURATION, AND OTHER PROVISIONS DEEMED APPROPRIATE BY THE HEALTH OFFICER.
D. RENEWAL OF AN OPERATING PERMIT REQUIRES THE SUBMISSION OF AN APPLICATION, A FEE, AND THE RESULTS OF REQUIRED SYSTEM INSPECTION AND MONITORING (PER SECTION 804 BELOW).
E. FAILURE TO SUBMIT A RENEWAL APPLICATION, THE REQUIRED FEE OR SPECIFIED MONITORING AND INSPECTION DATA, OR FAILURE TO UNDERTAKE ANY REQUIRED CORRECTIVE WORK SPECIFIED BY THE HEALTH OFFICER MAY BE CAUSE FOR NON-RENEWAL OR REVOCATION OF THE OPERATING PERMIT BY THE HEALTH OFFICER
F. CERTIFIED COPIES OF OPERATING PERMITS AND NOTICES OF WITHDRAWAL OF OPERATING PERMITS, WHEN ISSUED, WILL BE RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF MARIN COUNTY.

SYSTEM OPERATION AND MAINTENANCE

GENERAL SYSTEM DESCRIPTION:

THIS SEWAGE TREATMENT AND DISPOSAL SYSTEM CONSISTS OF A GRAVITY FLOW SEWER THAT TERMINATES AT A SEPTIC TANK. THE SEWAGE RECEIVES PRIMARY TREATMENT IN THE SEPTIC TANK. SEPTIC TANK EFFLUENT RECEIVES ADDITIONAL TREATMENT AS IT IS RE-CIRCULATED THROUGH THE ADVANTEX FILTER VIA A PUMP IN THE SECOND COMPARTMENT OF THE SEPTIC TANK. THE FILTERED EFFLUENT FLOWS TO AN ADJACENT SUMP TANK WHICH HOUSES A PUMP THAT DELIVERS THE EFFLUENT TO THE DRIP DISPERSAL FIELD. ADDITIONAL TREATMENT (PHYSICAL FILTRATION AND BIOLOGICAL REDUCTION OF THE WASTE LOAD) IS ACCOMPLISHED IN THE SOIL SYSTEM.

THE PUMP AND ALARM FUNCTIONS ARE CONTROLLED BY A CONTROL PANEL LOCATED NEAR THE SUMP TANK. NORMAL OPERATIONS ARE AUTOMATIC. THE OWNER OR OPERATOR NEED ONLY RESPOND TO ROUTINE MAINTENANCE ITEMS AND ALARM EVENTS AS INDICATED BY THE AUDIBLE AND VISUAL INDICATORS IN THE CONTROL PANEL.

SAFETY:
EXPOSURE TO WASTEWATER IS A BIOLOGICAL HAZARD. SYSTEM OPERATORS AND OTHERS EXPOSED TO WASTEWATER SHALL WEAR APPROPRIATE PROTECTIVE GEAR, RUBBER GLOVES, COVERALLS, EYE PROTECTION AND A PARTICULATE MASK. FOLLOWING EXPOSURE TO WASTEWATER, WASH THOROUGHLY AND CLEAN ALL PROTECTIVE GEAR WITH DISINFECTANT.

WORKING IN SEPTIC AND SUMP TANKS CONSTITUTES A CONFINED SPACE HAZARD. PROPER SUPERVISION AND VENTILATION EQUIPMENT SHALL BE PROVIDED TO COMPLY WITH ALL APPLICABLE OCCUPATIONAL SAFETY GUIDELINES.

ALL ELECTRICAL COMPONENTS POSE AN ELECTRICAL HAZARD. EXERCISE CAUTION TO AVOID ELECTRICAL SHOCK.

SYSTEM DESIGN FLOW:
DESIGN FLOW: THE DISPOSAL FIELD IS DESIGNED TO ACCOMMODATE A PEAK DAILY FLOW OF 620 GALLONS PER DAY (GPD). AVERAGE DAILY FLOW AT FULL OCCUPANCY SHOULD BE LESS THAN 65% OF THE PEAK DAILY FLOW. THE HOMEOWNER OR DESIGNATED OPERATOR SHALL MONITOR THE QUANTITY OF WATER PROCESSED THROUGH THE SYSTEM. IF ACTUAL FLOW RATES EXCEED THESE VALUES A FLOW AUDIT SHALL BE CONDUCTED.

ROUTINE OPERATION AND MAINTENANCE TASKS:

QUARTERLY:
GENERALLY OBSERVE CONDITIONS OF SEWAGE DISPERSAL FIELD: LOOK FOR EVIDENCE OF PONDING OR SURFACING EFFLUENT, AREAS OF LUSH VEGETATIVE GROWTH AND OFFENSIVE ODORS.

SEMI ANNUAL:
CHECK AVERAGE DISPOSAL FIELD LOADING RATE USING THE DOSE COUNTER IN THE PUMP CONTROL PANEL. TEST AUDIBLE & VISUAL ALARM USING A TEST SWITCH IN THE CONTROL PANEL.
MEASURE WATER LEVELS IN DISPERSAL FIELD MONITORING WELLS.

ANNUALLY:
OWNER OR DESIGNATED OPERATOR SHALL REVIEW THE PLAN AND OPERATION AND MAINTENANCE REQUIREMENTS. CHECK SLUDGE & SCUM ACCUMULATION IN SEPTIC TANKS, CLEANOUT IF NECESSARY.
RINSE SEPTIC TANK EFFLUENT FILTER INTO THE FIRST CHAMBER OF THE TANK WITH FRESHWATER.

PERFORMANCE MONITORING AND REPORTING: (EXCERPTED FROM MARIN COUNTY EHS)

A. A MONITORING PROGRAM WILL BE ESTABLISHED INDIVIDUALLY FOR EACH ALTERNATIVE SYSTEM AT THE TIME OF ISSUANCE OF THE OPERATING PERMIT; IT MAY BE AMENDED AT THE TIME OF PERMIT RENEWAL. SAID MONITORING SHALL BE PERFORMED TO ENSURE THAT THE ALTERNATIVE SYSTEM IS FUNCTIONING SATISFACTORILY TO PROTECT PUBLIC HEALTH AND SAFETY. THE SPECIFIC REQUIREMENTS WILL INCORPORATE RECOMMENDATIONS OF THE SYSTEM DESIGNER ALONG WITH GENERAL MONITORING CRITERIA DEVELOPED BY THE HEALTH OFFICER.

B. MONITORING REQUIREMENTS WILL VARY DEPENDING UPON THE SPECIFIC TYPE OF ALTERNATIVE SYSTEM; BUT, IN GENERAL, THEY WILL INCLUDE THE FOLLOWING:
1. RECORDING OF WASTEWATER FLOW BASED ON WATER METER READINGS, PUMP EVENT COUNTERS, ELAPSED TIME METERS OR OTHER APPROVED METHODS;
2. INSPECTION AND RECORDING OF WATER LEVELS IN MONITORING WELLS IN THE DISPOSAL FIELD;
3. WATER QUALITY TASTING OF SELECTED WATER SAMPLES TAKEN FROM POINTS IN THE TREATMENT PROCESS, FROM MONITORING WELLS, OR FROM SURFACE STREAMS OR DRAINAGE; APICAL WATER QUALITY PARAMETERS TO BE ANALYZED FOR MAY INCLUDE TOTAL AND FECAL COLIFORM, NITRATE, BIOCHEMICAL OXYGEN DEMAND (BOD), AND SUSPENDED SOLIDS;
4. INSPECTION AND OBSERVATION OF PUMP OPERATION OR OTHER MECHANICAL EQUIPMENT; AND,
5. GENERAL INSPELLION OF TREATMENT AND DISPOSAL AREA FOR EVIDENCE OF SEEPAGE, EFFLUENT SURFACING, EROSION OR OTHER INDICATORS OF SYSTEM MALFUNCTION.

C. THE REQUIRED FREQUENCY OF MONITORING FOR EACH INSTALLATION WILL GENERALLY BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, ASSUMING A RECORD OF SUITABLE PERFORMANCES ESTABLISHED:

–YEARS 1 AND 2 OPERATION – QUARTERLY MONITORING
–YEARS 3 AND 4 OPERATION – SEMIANNUAL MONITORING
–YEARS 5 AND BEYOND – ANNUAL MONITORING

MONITORING FREQUENCY MAY BE INCREASED IF SYSTEM PROBLEMS ARE EXPERIENCED. MONITORING FREQUENCY FOR EACH SYSTEM OR TYPE OF SYSTEM WILL BE ESTABISHED BY THE HEALTH OFFICER

D. MONITORING OF ALTERNATIVE SYSTEMS SHALL BE CONDUCTED BY OR UNDER THE SUPERVISION OF ONE OF THE FOLLOWING: 1) REGISTERED CIVIL ENGINEER OR 2) REGISTERED ENVIRONMENTAL HEALTH SPECIALIST.

THE COUNTY SHALL CONDUCT SPOT-CHECK INSPECTIONS OF ALTERNATIVE SYSTEMS ON THEIR OWN AND MAY ALSO BE PRESENT TO OBSERVE THE PERFORMANCE OF MONITORING ACTIVITIES BY OTHERS. THE COUNTY WILL ORDINARILY INSPECT ABOUT 20 PERCENT OF THE ALTERNATIVE SYSTEMS IN A GIVEN YEAR. COUNTY INSPECTIONS WILL BE MADE AS A QUALITY CONTROL CHECK AND TO ASSURE COUNTY STAFF MAINTAIN PERSONAL FAMILIARITY WITH THE OPERATION OF VARIOUS TYPES OF ALTERNATIVE SYSTEMS APPROVED FOR USE IN THE COUNTY. ADDITIONALLY, THE HEALTH OFFICER RESERVES THE RIGHT TO REQUIRE, ON A CASE-BY-CASE BASIS, "THIRD PARTY" OR COUNTY INSPECTION AND MONITORING OF ANY ALTERNATIVE SYSTEM WHERE DEEMED NECESSARY BECAUSE OF THE COMPLEXITY OF THE SYSTEM OR THE SENSITIVE NATURE OF THE SITE.

CONTINGENCY PLAN:

1. SYSTEM REPAIRS GENERALLY REQUIRE A PERMIT FROM MARIN COUNTY ENVIRONMENTAL HEALTH SERVICES. AN EXPERIENCED SEWAGE DISPOSAL CONTRACTOR WILL BE ABLE TO PROVIDE ASSISTANCE WITH BASIC SYSTEM REPAIRS AND MAINTENANCE. IF SUBSTANTIAL REPAIRS ARE NECESSARY, THE DESIGN ENGINEER SHALL BE CONTACTED.

2. IF THE HOMEOWNER NOTICES ANYTHING UNUSUAL IN HOW THE SYSTEM OPERATES (HIGH LIQUID LEVELS IN THE MONITORING WELLS, SPONGY EARTH AT THE TOE OF THE FIELD, ALARM EVENTS OR UNPLEASANT ODORS) THE OWNER SHOULD KEEP A LOG OF OCCURRENCES AND OBSERVATIONS. THE LOG SHOULD ALSO INCLUDE A RECORD OF FREQUENT DOSE COUNTER READINGS. EVEN IF THE PROBLEM CORRECTS ITSELF, THESE RECORDS SHOULD BE KEPT ON FILE IN THE EVENT THAT THE PROBLEM RETURNS.

3. IF PROBLEMS PERSIST MORE THAN TWO WEEKS, OR IF THE OWNER BELIEVES THE SYSTEM IS IN FAILURE, THE OWNER SHOULD CONTACT THE DESIGNING ENGINEER OR OTHER QUALIFIED CONSULTANT TO ASSIST IN DIAGNOSING THE PROBLEM.

4. IN THE EVENT THAT A REPAIR OR REPLACEMENT OF THE DISPOSAL FIELD IS NECESSARY, WATER USE WITHIN THE STRUCTURES SERVED SHOULD BE REDUCED IMMEDIATELY. LAUNDRY SHOULD BE DONE OFF SITE. PUMPING AND HAULING OF SEWAGE MAY BE NECESSARY TO DRY OUT THE DISPOSAL FIELD FOR REPAIRS.

5. IN THE EVENT OF SYSTEM FAILURE, IT MAY BE NECESSARY TO REPLACE OR EXPAND THE SYSTEM. THE OWNER SHALL INVOLVE A QUALIFIED DESIGN ENGINEER IN THE REPAIR, REPLACEMENT EXPANSION PROCESS. THE OWNER IS RESPONSIBLE FOR NOTIFYING THE COUNTY HEALTH SPECIALIST OF NECESSARY REPAIRS, REPLACEMENT OR EXPANSION, AND FOR OBTAINING ALL NECESSARY PERMITS.

USE AND CARE OF YOUR SEPTIC SYSTEM – A GUIDE FOR USERS:

ONSITE SEWAGE TREATMENT AND DISPERSAL SYSTEMS INVOLVE BIOLOGICAL PROCESSES THAT ARE SUBJECT TO UPSET UNDER CERTAIN CONDITIONS. THIS GUIDE PROVIDED GUIDELINES FOR MAINTAINING PROPER BALANCE IN THE SYSTEM.

PRODUCTS THAT SHALL BE AVOIDED OR USED SPARINGLY INCLUDE: ANTIBACTERIAL SOAPS, LAUNDRY DETERGENTS WITH BLEACH, TOILET TISSUE THAT DISSOLVES READILY, GARBAGE DISPOSAL, AUTO DISPENSING TOILET CLEANERS, CHEMICAL DRAIN CLEANERS, MOISTURIZING SOAPS / CLEANSING CREAMS.

FLUSH ONLY: HUMAN WASTE & TOILET PAPER

DON'T FLUSH THESE ITEMS OR DUMP THEM DOWN THE DRAIN: TAMPONS OR SANITARY NAPKINS, PAPER TOWELS, CONDOMS, FATS, OILS & GREASE.

SUGGESTED ALTERNATIVES:
REDUCE USE OF ANTIBACTERIAL SOAPS OR CLEANERS. THESE PRODUCTS DO LITTLE TO PROTECT YOUR HEALTH. YOUR SEPTIC SYSTEM WILL BE MUCH HAPPIER IF YOU SIMPLY WASH THOROUGHLY WITH A REGULAR SOAP AND THOROUGHLY RINSE WITH AMPLE RUNNING WATER.

AVOID LAUNDRY DETERGENTS WITH BLEACH; USE A NON-BLEACH DETERGENT AND ADD BLEACH ONLY WHEN NECESSARY.

AVOID MOISTURIZING SOAPS. AND CLEANSING CREAMS (E.G.: DOVE) FOR REGULAR USE. THE SOFTENING AGENTS ARE OILS, MOST OF WHICH END UP DOWN THE DRAIN. YOUR SEPTIC SYSTEM WILL BE MUCH HAPPIER IF YOU USE A SEPARATE AFTER SHOWER MOISTURIZER.

DON'T USE TOILET TISSUE THAT DISSOLVES READILY. TO TEST IF YOUR BRAND IS APPROPRIATE FOR SEPTIC SYSTEMS, PLACE A FEW SHEETS IN A JAR OF WATER & SHAKE. AFTER A FEW MINUTES SHAKE AGAIN. IF THE TISSUE BREAKS UP INTO SMALL PIECES, TRY ANOTHER BRAND. A GOOD TISSUE FOR SEPTIC SYSTEMS WILL STAY TOGETHER.

DON'T USE AUTOMATIC DISPENSING TYPE TOILET BOWL CLEANERS (I.E.: TIDY BOWL, 2000 FLUSHES). THESE CONTAIN BLEACH, WHICH INTERRUPTS DIGESTION IN THE INTERCEPTOR TANKS.

DON'T DUMP FATS, OILS & GREASE DOWN THE DRAIN, DISPOSE OF THEM IN THE GARBAGE.

DON'T USE DRANO OR SIMILAR DRAIN CLEANING CHEMICALS. CALL THE PARK MANAGER OR A PLUMBER FOR DRAIN CLEANING SERVICE.

USE GARBAGE DISPOSAL SPARINGLY. MUCH OF WHAT YOU COULD PUT DOWN THE SINK SHALL GO IN THE GARBAGE. RESERVE THE GARBAGE DISPOSAL FOR FOOD SCRAPS THAT CANNOT BE SCRAPED FROM DISHES, POTS AND PANS.

DON'T FLUSH OR DUMP ANY SOVENTS, CHEMICALS OR HIGH STRENGTH WASTES DOWN THE DRAINS. DISPOSE OF THESE PROPERLY AS ADVISED BY YOUR GARBAGE COMPANY.

DON'T LEAVE INSIDE FIXTURES RUNNING DURING FREEZING WEATHER, IF NECESSARY CRACK HOSE BIB OUTSIDE.

FOLLOW-UP ON UNUSUAL OBSERVATIONS OR OCCURRENCES TO FIND OUT THE MUSE AND A PROPER SOLUTION.

ISSUES

ISSUE	DATE	DESCRIPTION
0	1/14/25	PERMIT

AC ENGINEERING, INC.
CIVIL & GEOTECHNICAL CONSULTANTS
454 LAS GALLINAS AVE., SUITE 1047
SAN RAFAEL, CA 94903
P: 415-295-2152
F: 415-472-0603
admin@agnewcivil.com

STAMP

REGISTERED PROFESSIONAL ENGINEER
GRADY W. AGNEW
C 87262
CIVIL
STATE OF CALIFORNIA

FIELD LAYOUT AND NOTES

LUCHETTI LIVING TRUST ET AL
155 HORSESHOE HILL RD, BOLINAS, CA 94924
APN: 188-150-67

JOB #

349-1

CW-2.3

©2025 – AC ENGINEERING INC.