

**PROJECT DATA AND DESCRIPTION**

Site Area: 33,543 SF  
 Zoning: C-RA-B4 (CSF-3)

Existing Residence 2604 SF main unit and JADU + 400 SF garage.  
 Proposed Detached ADU Floor Area: 1190 SF.= 3794 SF Total.

Existing FAR: 7.8%  
 Proposed FAR: 11.3%

Allowable and Proposed Height: 15'-0"

Site Setbacks: as shown A0.1.

This project involves the construction of a stand-alone ADU of 1190 SF on two levels and two on-site vehicular parking spots. The structure is to be a combination of concrete and light wood framing with exterior finishes of board formed concrete, recycled redwood siding and zinc. The project will involve the removal of 215 CY of soil from the site.

**GENERAL NOTES:**

Fire Sprinklers are required on this project and plans of which will be submitted as a deferred submittal. NFPA 13D and RVFD 401D standards shall be used.

Contractor shall be responsible for construction in conformance with the approved plans, specifications and all code requirements under which the plans and specifications were approved by the County of Marin, CA.

Applicable codes, regardless of details contained in this document:

- 2016 CA Residential Code (non-structural)
- 2016 CA Building Code
- 2016 CA Electrical Code
- 2016 CA Energy Code
- 2016 CA Green Building Code
- 2016 CA Fire Code
- Marin County Fire Code

The Contractor shall be responsible for construction in conformance with the approved plans, specifications, and all code requirements under which the plans and specifications were approved.

The registered design professional (Barry Peterson) in responsible charge shall be responsible for reviewing and coordinating submittal documents prepared by others, including phased and deferred submittal items, for compatibility with the design of the building.

Special inspections or structural observation is not a substitute for inspection by the Building Official. Specially inspected work that is installed or covered without the approval of the Building Official AND the special inspector AND design engineer is subject to removal or exposure.

Structural observation shall be required for structural compliance to the approved plans.

Place and secure all anchor bolts and other items to be cast in concrete for foundation inspection. Wet setting anchor bolts or reinforcing after placement of concrete is not allowed.

Special inspection is required for epoxy set anchor bolts.

Address numbers shall be posted in a conspicuous place, clearly visible from the street. Numbers should be minimum 4" in height, contrasting in color to their background, and either internally or externally illuminated, controlled by a photocell and illumined all night. See E1.2 for locations.

The dishwashing machine shall NOT be directly connected to the drainage system or food waste disposer without the use of an approved dishwasher air gap fitting on the discharge side of the dishwashing machine.

Any revision(s) to the approved plan set shall be submitted to the San Anselmo Community Development Department for review. Inspections for revised work shall not be requested until the revision is approved by the Community Development Department. Allow a minimum of two weeks for Community Development Department review.

Fire access to this and surrounding properties shall be maintained at all times during construction.

Installation, modification or rearrangement of any walls or partitions is subject to field verification and may require additional structural analysis.

Adhesives, sealants and caulks shall be compliant with VOC and other toxic compound limits.

Paints, stains and other coatings shall be compliant with VOC limits.

Aerosol paints and other coatings shall be compliant with product weighted MIR Limits for ROC and other toxic compounds.

Documentation shall be provided to verify that compliant VOC limit finish materials have been used.

Carpet and carpet systems shall be compliant with VOC limits.

80% of floor area receiving resilient flooring shall comply with specified VOC criteria.

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

This project is located in a Wildlife-Urban Interface zone and all exposed eaves and roof rafters shall be fire retardant treated to comply with ASTM D2898.

**PROJECT TEAM:**

Owner  
 Hard Yaka Inc  
 Greg Kidd  
 66 Starbuck Drive  
 Muir Beach, CA 94965

Architect  
 Barry Peterson AIA  
 Studio 300A Architecture  
 495 Miller Avenue  
 Mill Valley, CA 94941  
 415 332 1300

Structural Engineer  
 Darius Abolhasani  
 DAC Consulting Engineers  
 7 Mount Lassen Drive #A129  
 San Rafael, CA 94903  
 415 499 1919

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- C2.1 Civil Details
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- C4.0 Drainage Map

REVISION	BY

**HARD YAKA ADU**  
**69 STARBUCK DRIVE**  
**MUIR BEACH, CA 94965**  
 APN: 199-201-03

**Title Sheet**

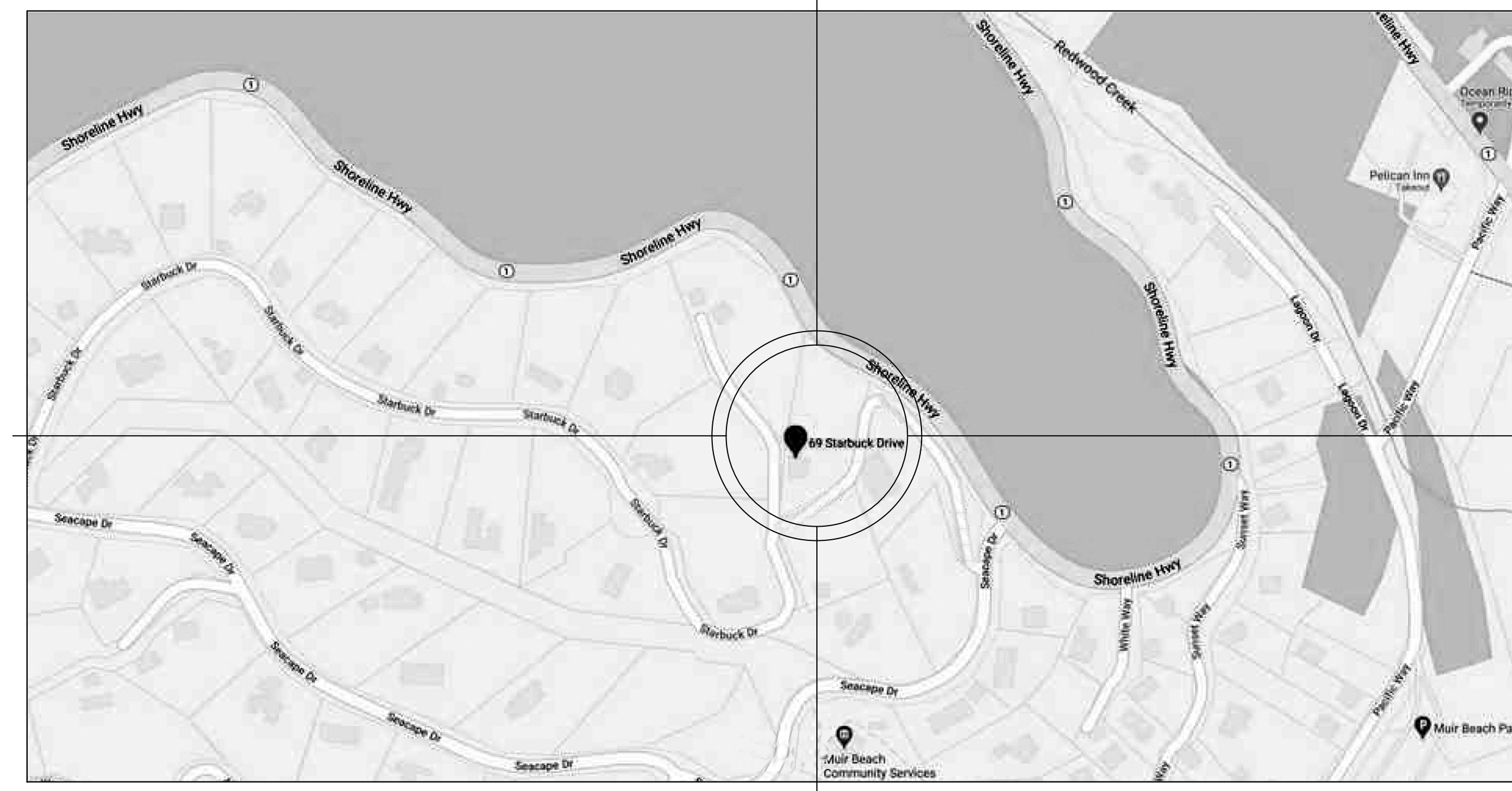
**Studio 300A**  
**Architecture**  
 495 Miller Avenue Mill Valley, CA 94941  
 415 332 1300  
 www.studio300a.com

**300A**

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JOB	2005
BY	BP

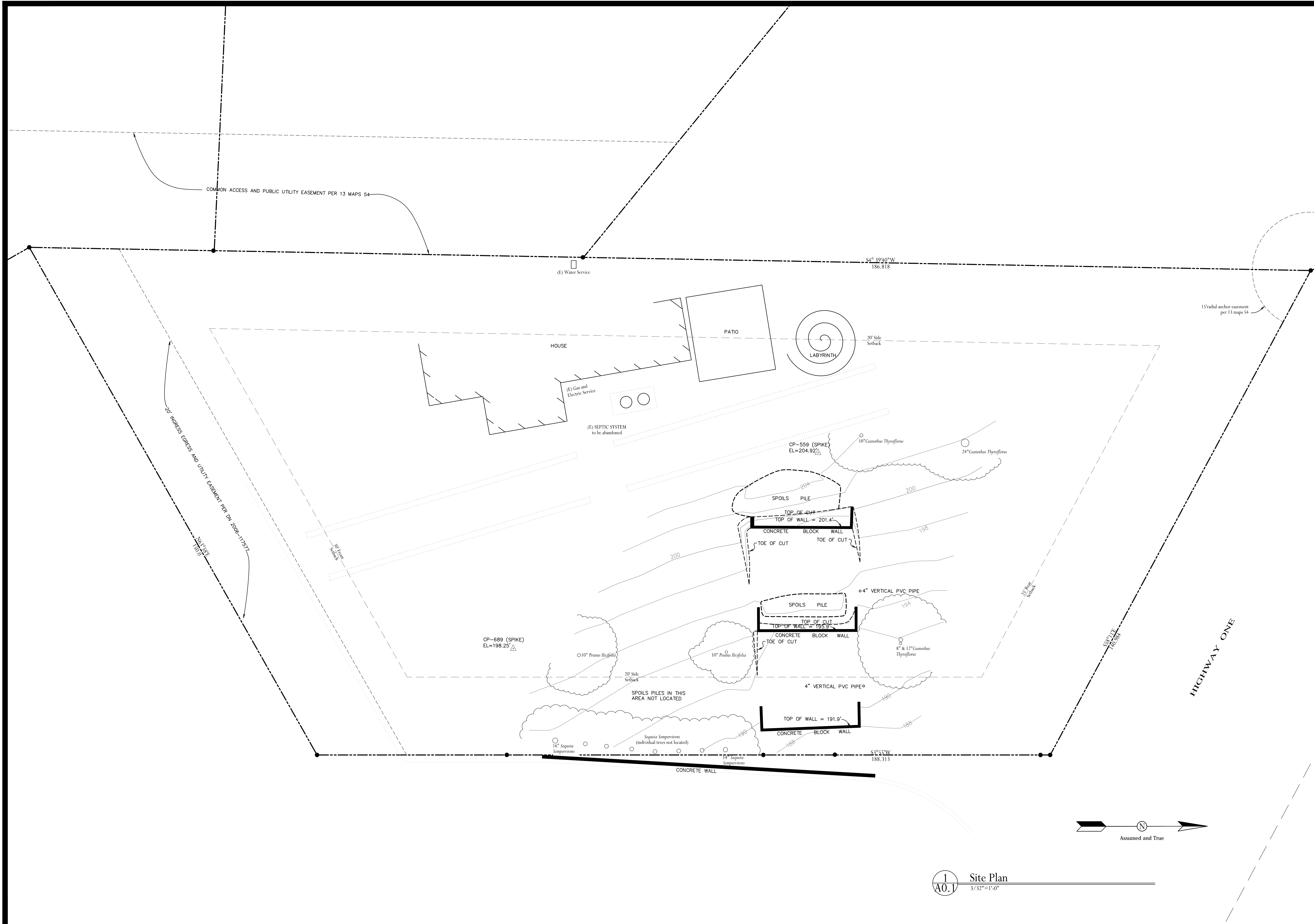
**A0.0**

SHEET



**1**  
 A0.0 Project Data / Description / Notes  
 No Scale

**2**  
 A0.0 Vicinity Map  
 No Scale



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Site Plan

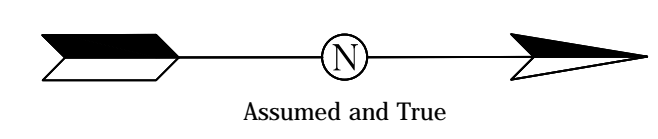
Studio 300A  
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 JOB 2005  
 BY BP

A0.1

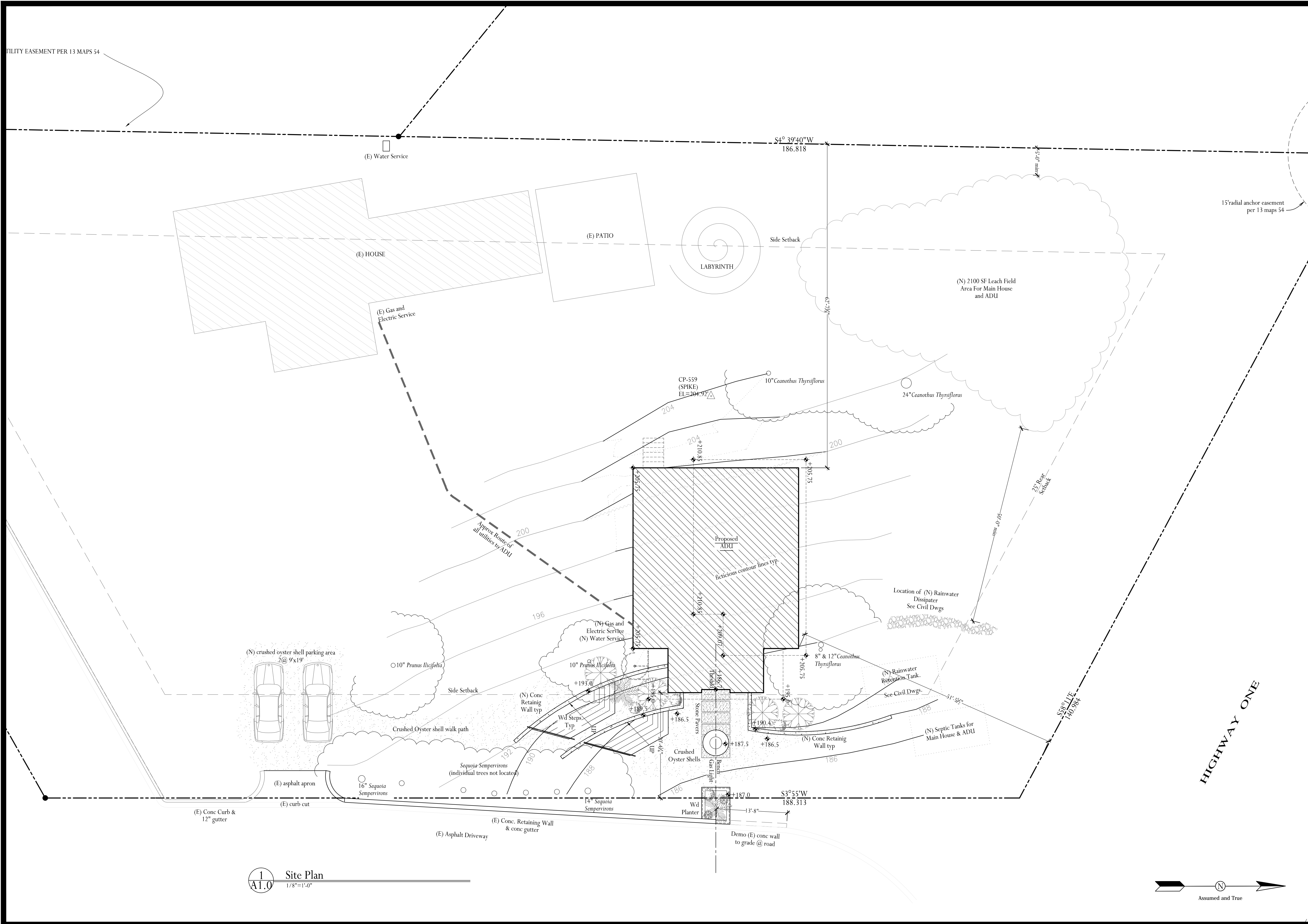
1 Site Plan  
 A0.1 3/32"=1'-0"



HIGHWAY ONE



UTILITY EASEMENT PER 13 MAPS 54



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**Proposed Site Plan**

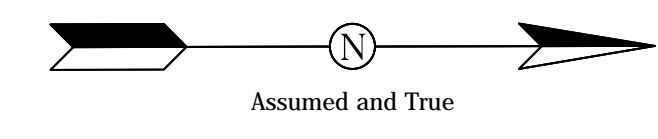
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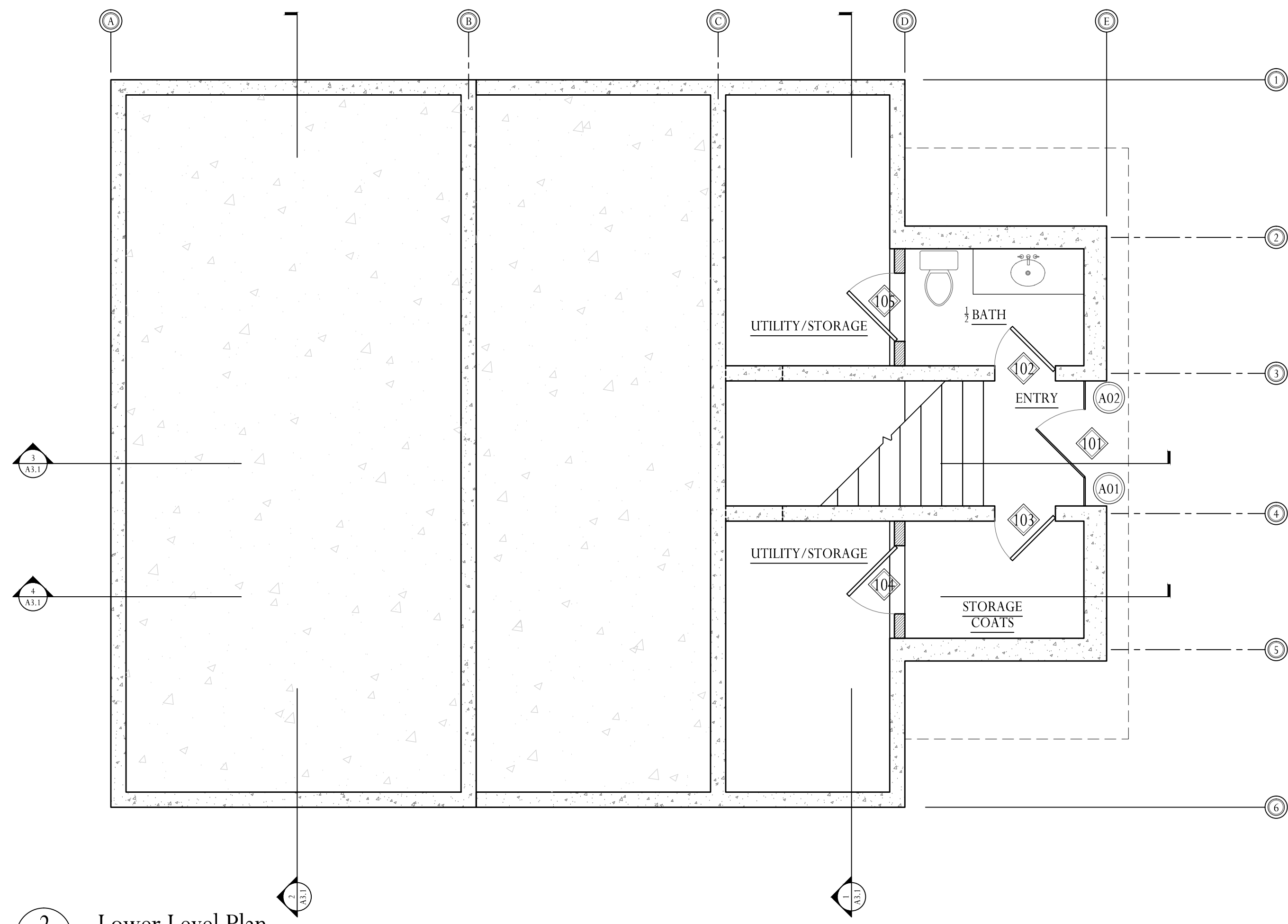
**A1.0**

**1**  
**A1.0** Site Plan  
 1/8"=1'-0"

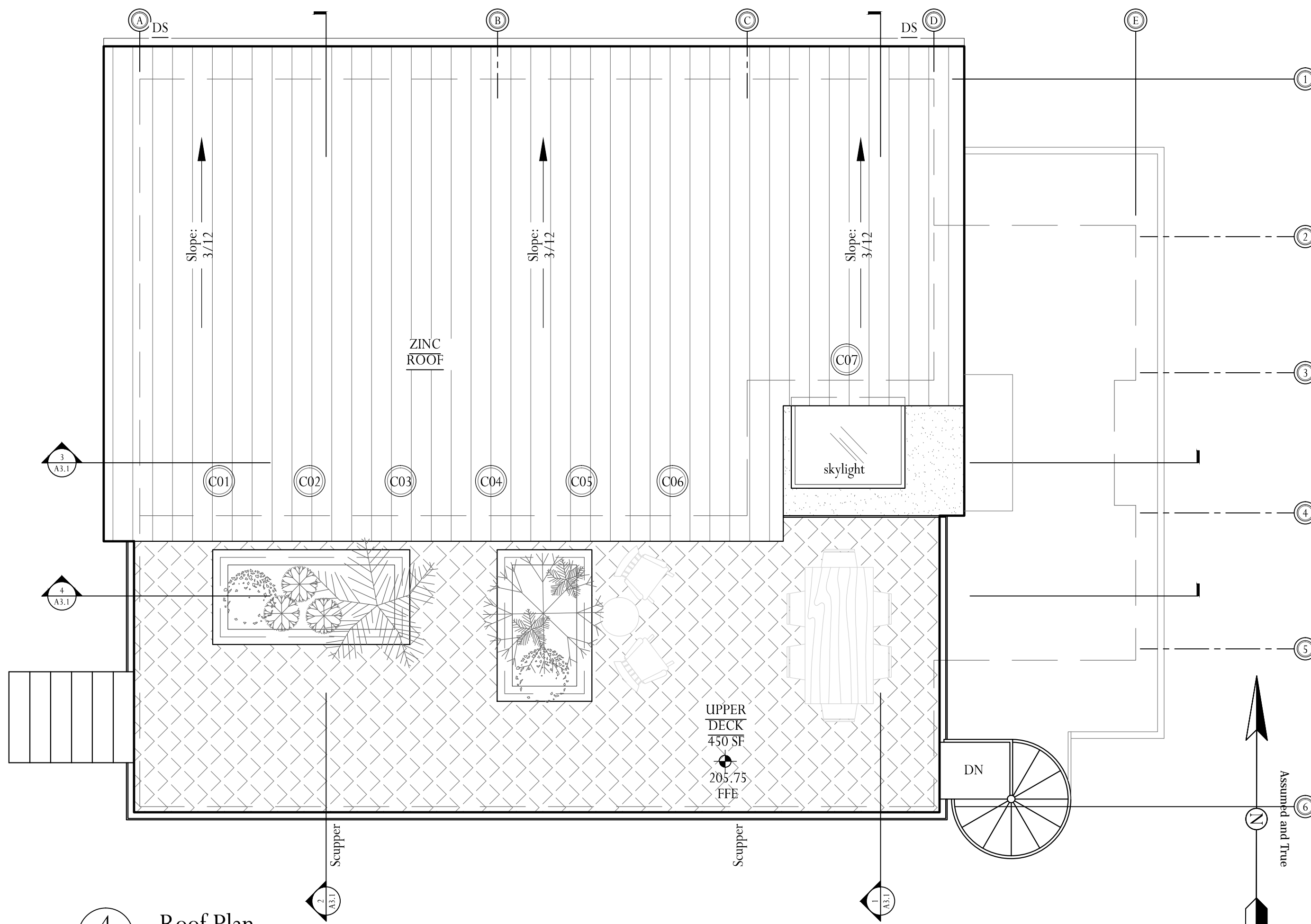


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1/4"=1'-0"

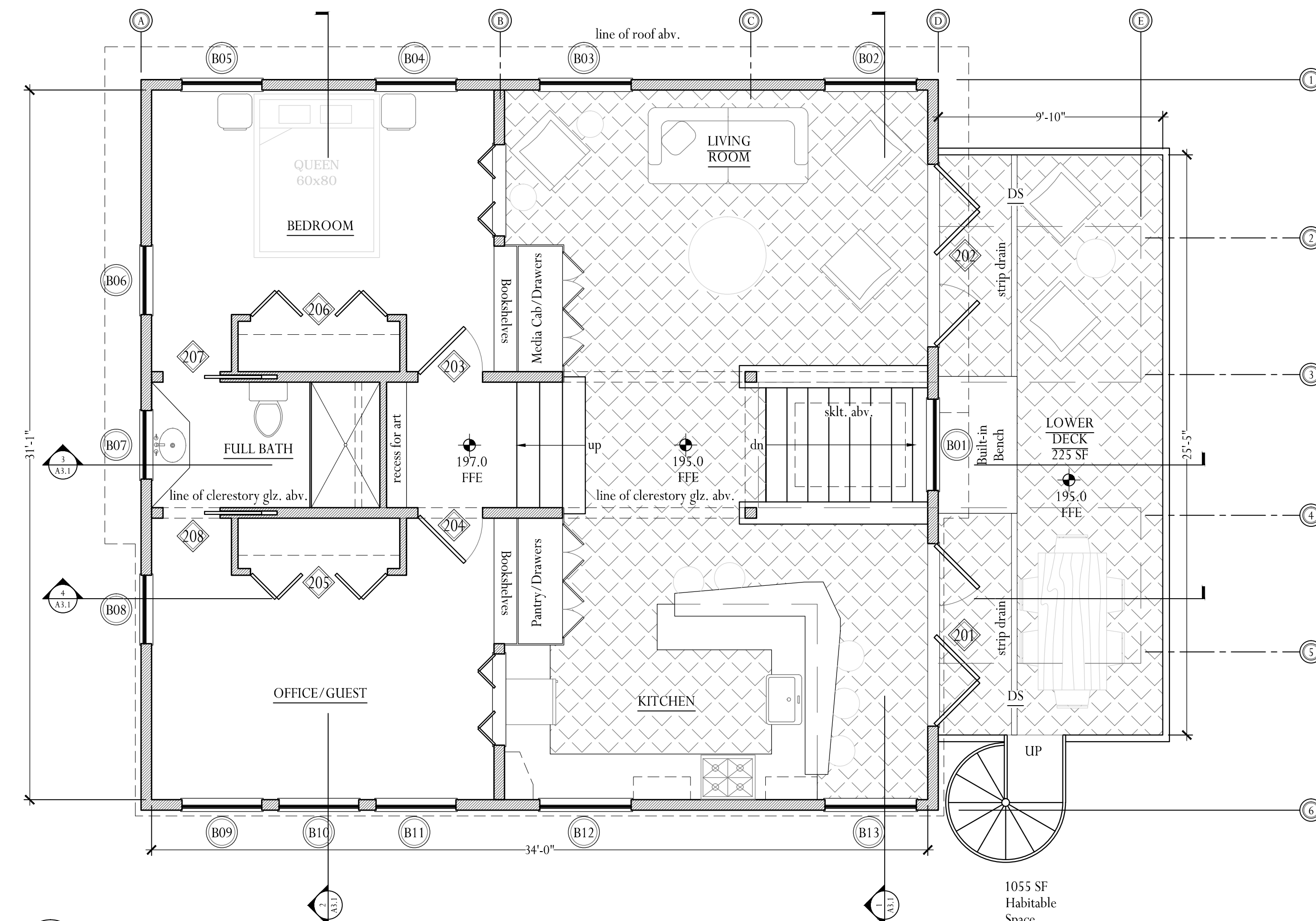
3 Main Floor Plan  
1/4"=1'-0"



2 Lower Level Plan  
1/4"=1'-0"



4 Roof Plan  
1/4"=1'-0"



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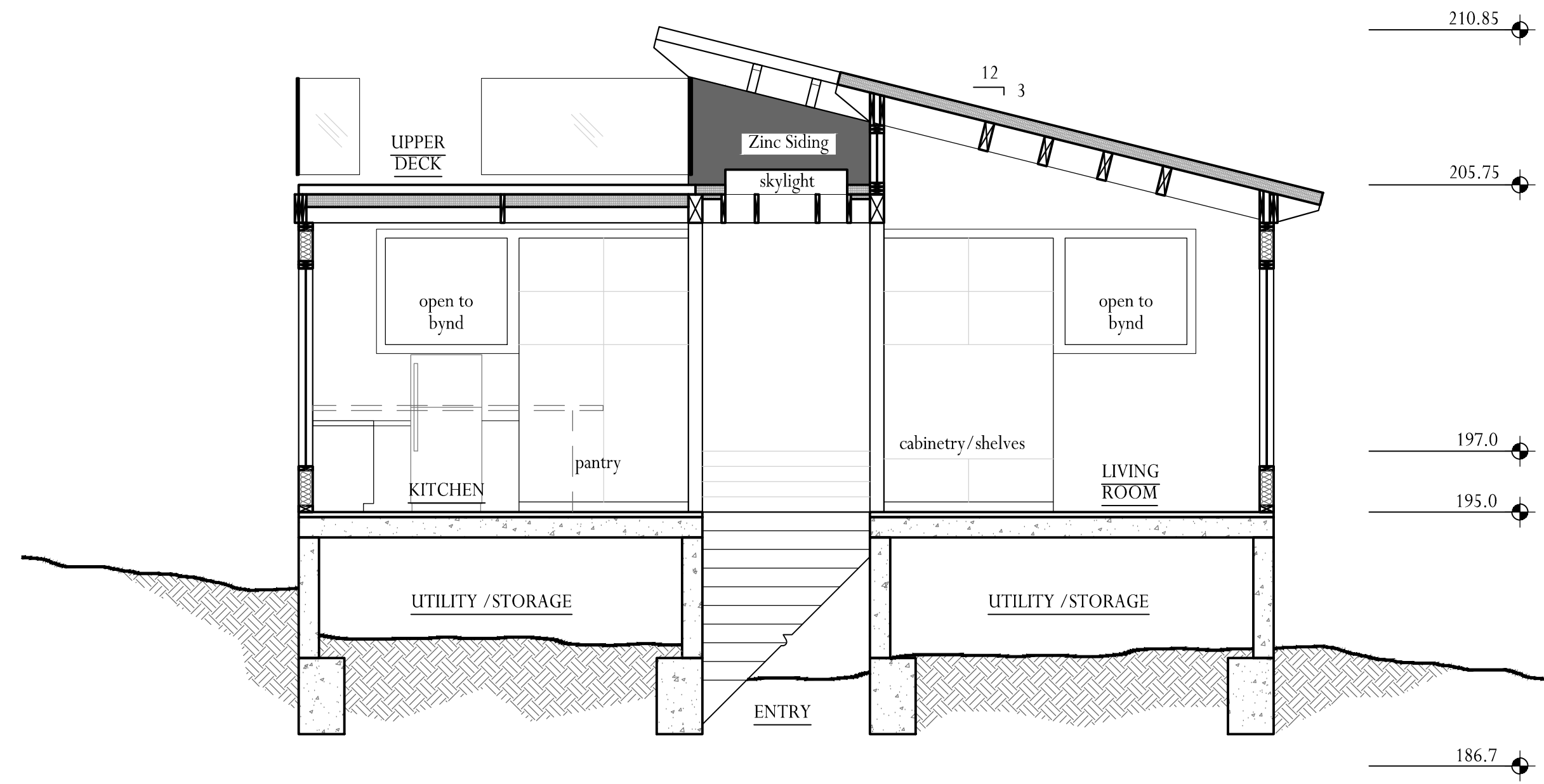
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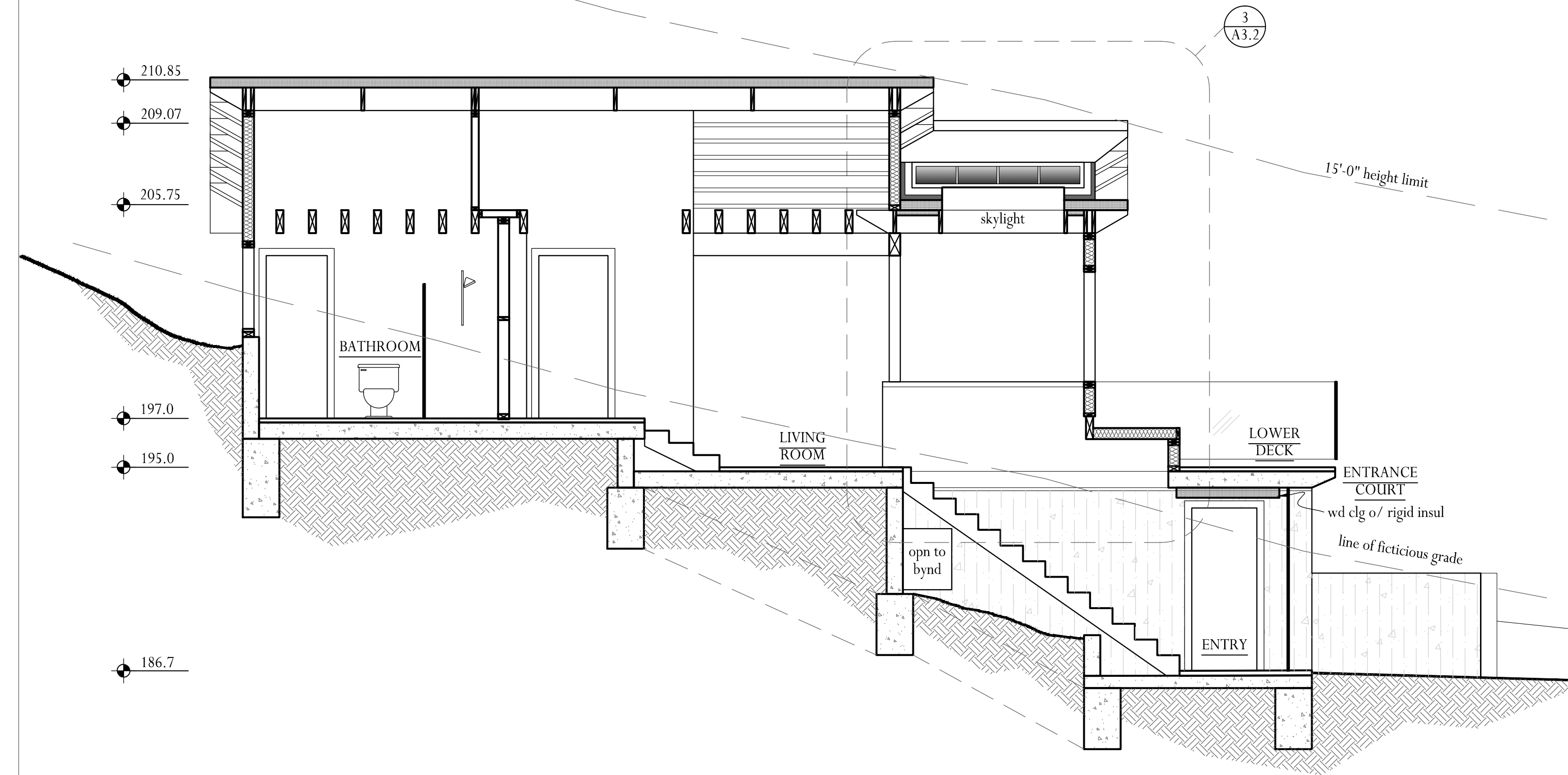
Floor Plans

REVISION	BY

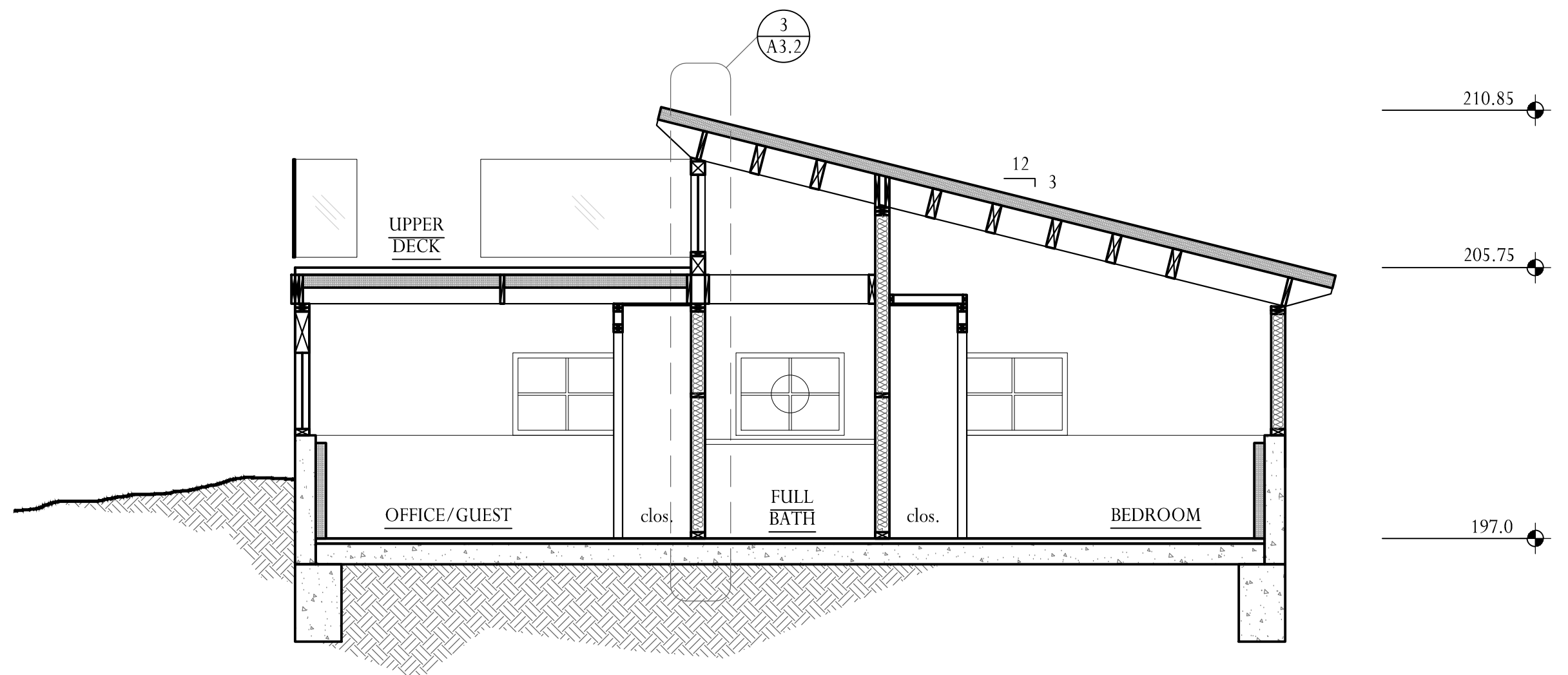
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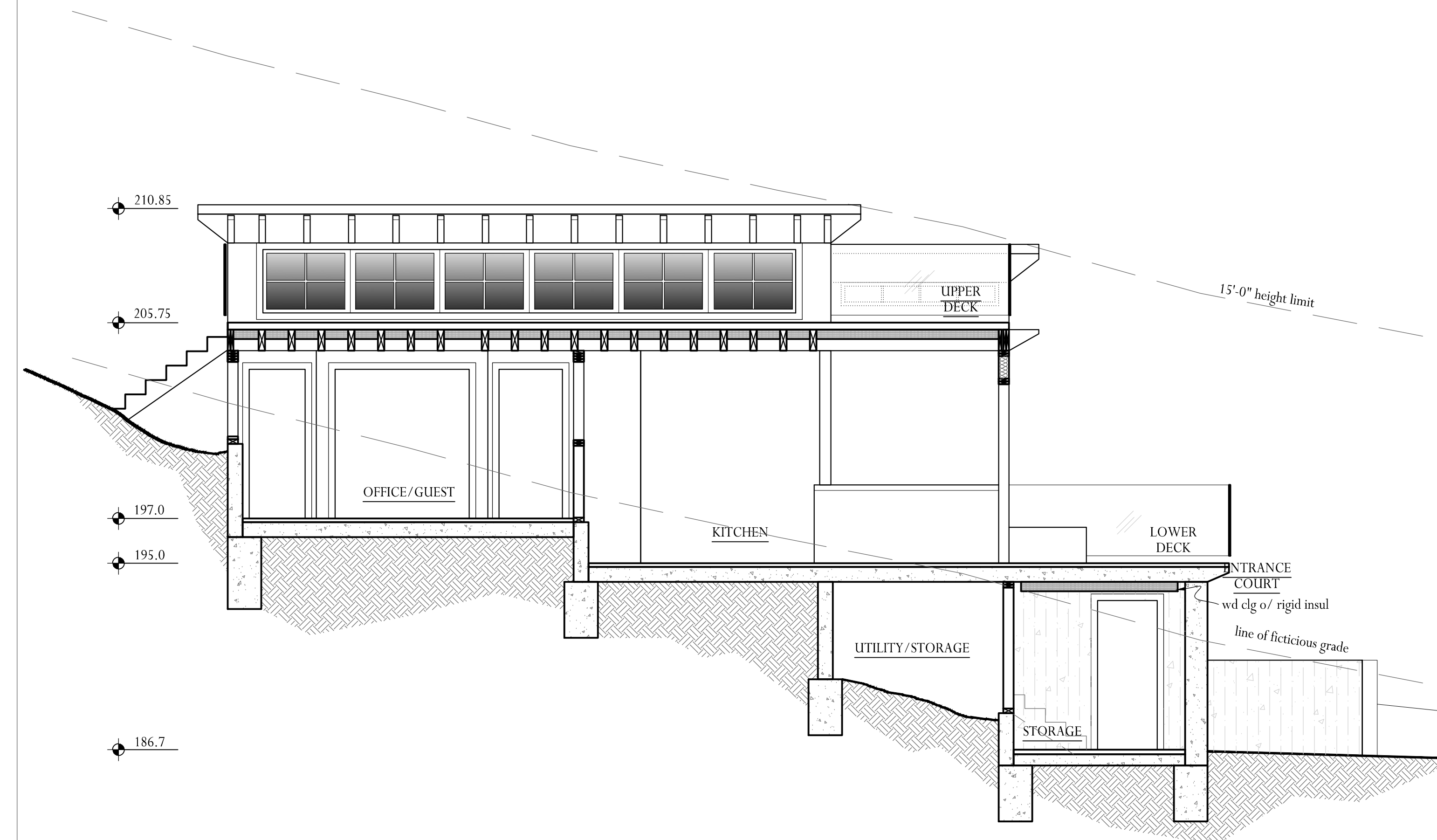
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A3.1  
Traverse Section  
1/4"=1'-0"



3  
A3.1  
Longitudinal Section  
1/4"=1'-0"



2  
A3.1  
Traverse Section  
1/4"=1'-0"



4  
A3.1  
Longitudinal Section  
1/4"=1'-0"

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Building Sections

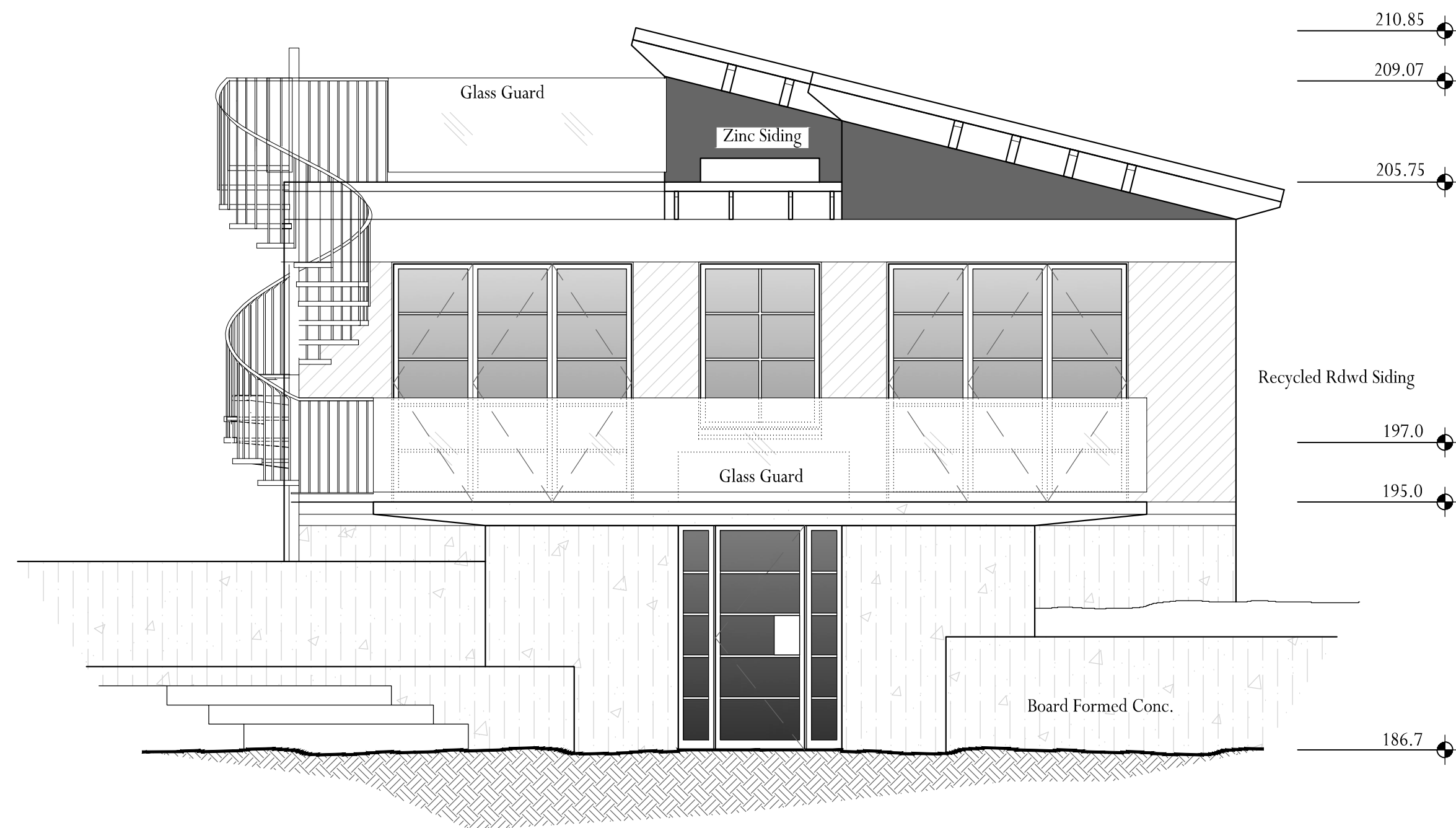
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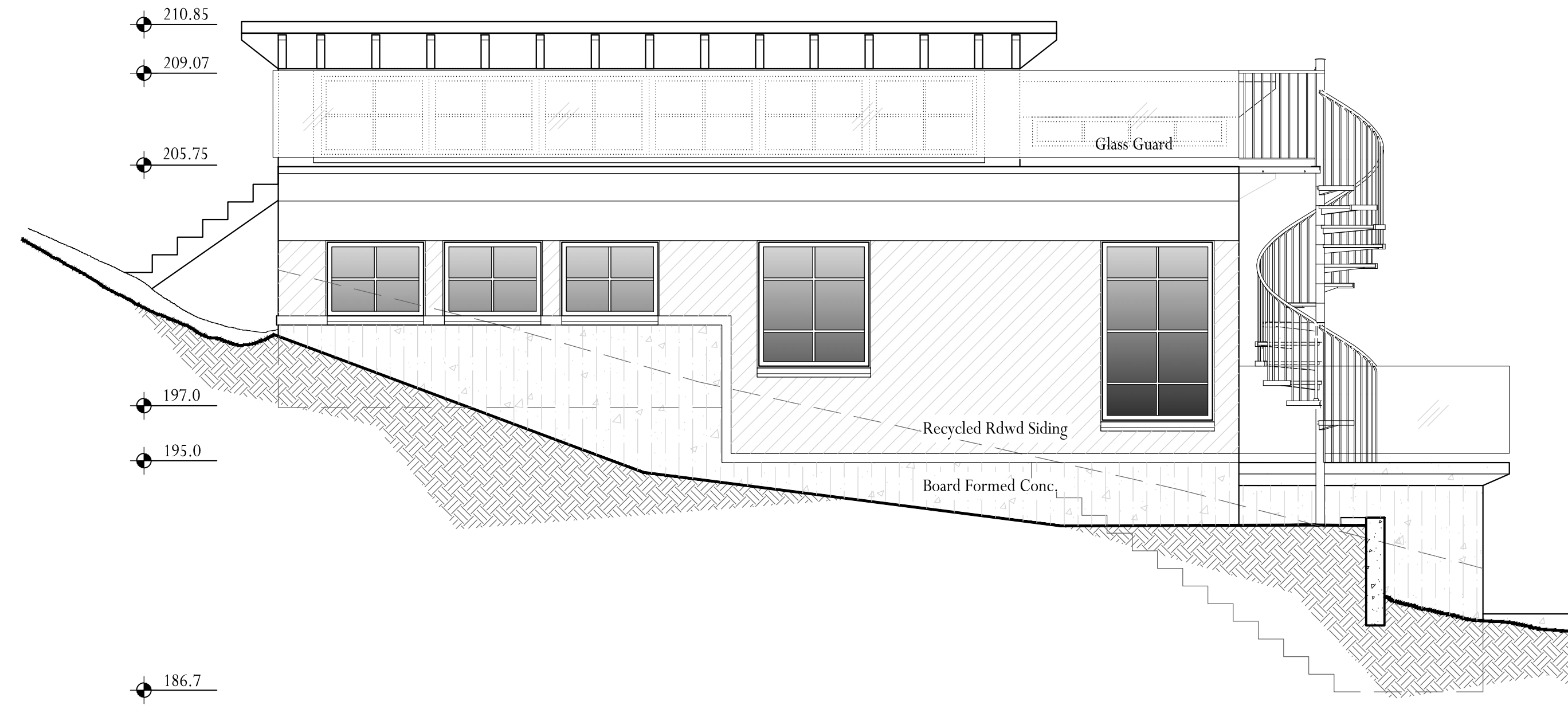
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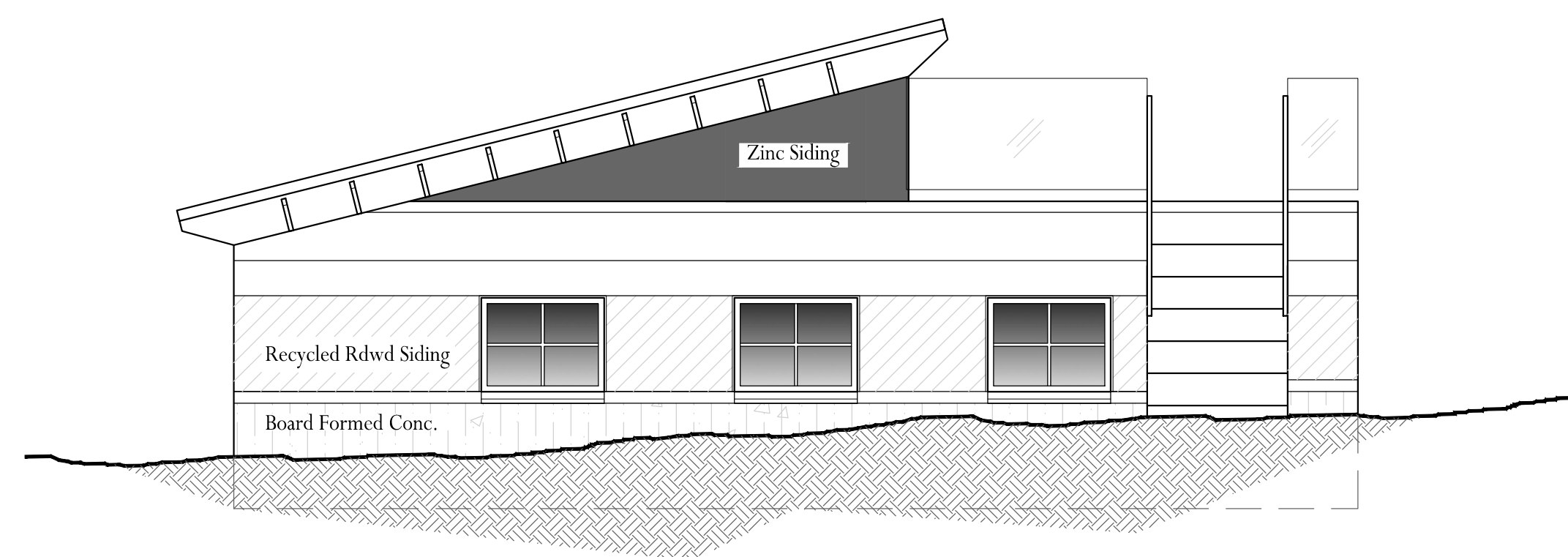
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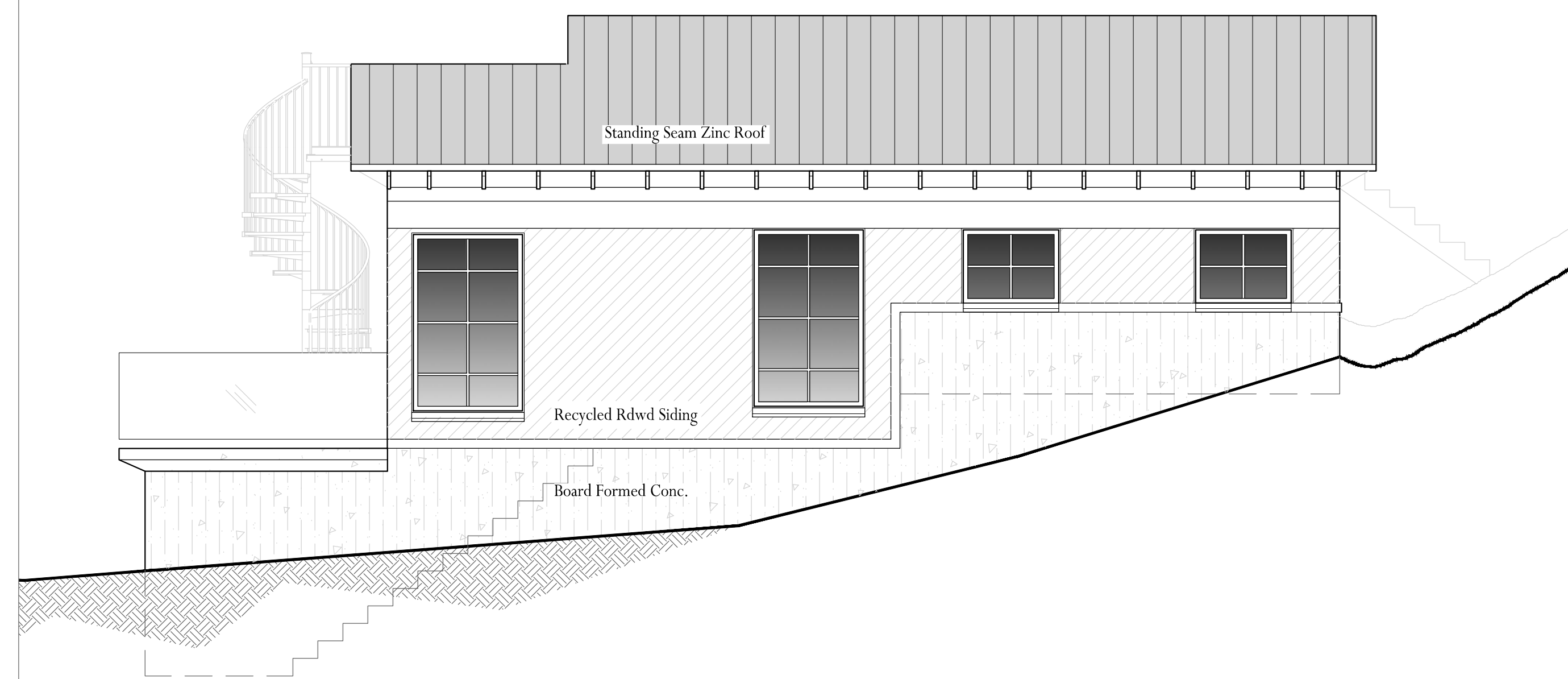
1 East Elevation  
A4.1 1/4"=1'-0"



3 South Elevation  
A4.1 1/4"=1'-0"



2 West Elevation  
A4.1 1/4"=1'-0"



4 North Elevation  
A4.1 1/4"=1'-0"

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**Exterior Elevations**

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**A4.1**  
SHEET

**Lighting Symbols**

- 1] Balanced Single LED LV Path Light WAC BK 2700K
- 2] Area Light LED LV Spike Mount down light BK 2700K
- Step Light Louvered Square Hunza LV SS 2700K
- 60 Exhaust fan 60 cfm min. in-duct exhaust fan Energy Star rated and vented directly outside. Exhaust fans shall run continuously as a part of the whole house ventilation system.
- 50 Exhaust fan 50 cfm min. exhaust fan energy star rated with humidistat.
- Hardwired smoke detector w/ battery back-up and having a UL 217 rating. Smoke detectors shall be interconnected.
- Combination UL 217 smoke detector (as abv.) and carbon monoxide detector compliant with UL 2075.
- 3-way switch.
- all switches dimmable per CEC Sec 119 except those designated as "N".
- Occupancy Sensor (in switch) per CEC Sec 119.

**Electrical Symbols**

- Duplex Arc Fault Circuit Interrupt (x= quantity)
- Duplex Ground Fault Circuit Interrupt (x= quantity)
- GFCI Receptacle w/ waterproof casing, lid.
- Split Wired Duplex Receptacle (see switching)
- Receptacle w/ power surge protection device
- 220V Circuit Receptacle
- Flush Floor Mounted Duplex Receptacle
- Receptacle Junction Box. See accompanying note for purpose.
- Thermostat-- Setback type.
- Natural Gas service terminal. [cap] : Install and cap for future use.
- Hose Bib for domestic cold water.
- CAT 3 (telephone-4 lines)
- CAT 3 / 5 (Telephone / Data)
- CAT RG-6 (TV / Data)
- Circuit Sub Panel

All shower and bath valves must be temperature balancing or termostatic mixing. Valves shall be adjusted per the manufacturer's instructions to deliver a mix of 120 degrees F for tubs and showers. Hand showers (if utilized) shall be equipped with an approved backflow prevention device or assembly and all showerheads and faucets shall not exceed flow maximums as stated on CAL Green Checklist.

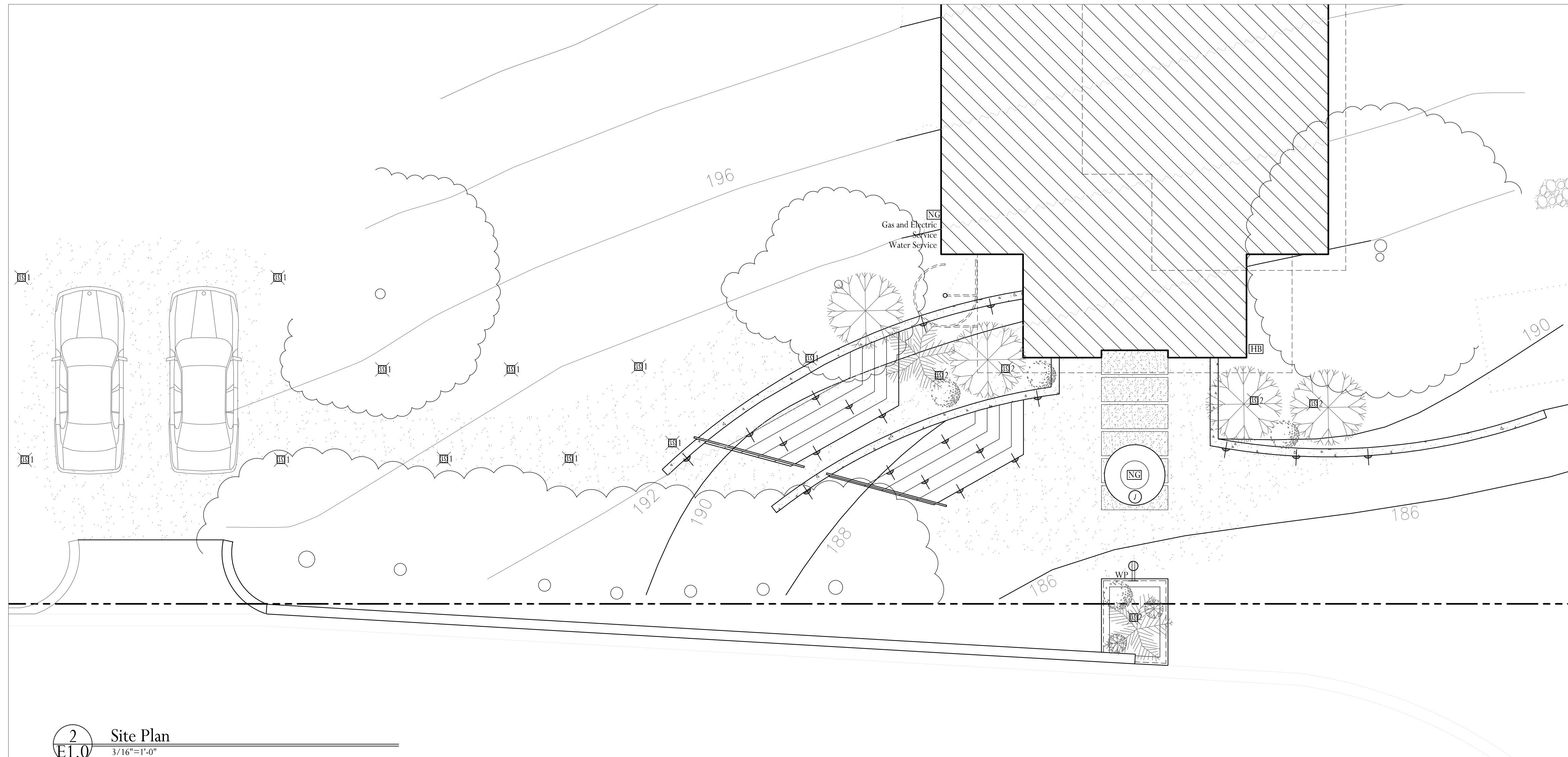
Mortar or caulk seal all conc wall penetrations

**GENERAL LIGHTING NOTES**

- 1] The first or nearest switch upon entering all bathrooms shall be a high-efficiency lighting circuit--unless an occupancy sensor is used.
- 2] All light switching located 48" above finished floor u.n.o.
- 3] All exterior lighting indicated shall have an occupancy sensor on the circuit with a temporary override which will reactivate the motion sensor within 6 hrs. Also on such circuits shall be a photocontrol which has no override.
- 4] All lighting circuits dimmable UNO by the designation "N".
- 5] All exterior lighting, receptacles and switching shall be suitable for wet locations and lighting shall be shielded and downward facing.

**GENERAL ELECTRICAL NOTES**

1. A dedicated 20 amp circuit is required to serve the required bathroom receptacles. This circuit cannot supply any other outlets, lights, fans, etc.
2. Kitchen must be provided with at least two 20-amp small appliance circuits. Also, no outlet shall be more than 24" from any point on counter.
3. (n) duplex wall receptacles to be installed at +12" aff u.n.o. All receptacles shall be either AFCI unless noted as GFCI.
4. Metal water piping and other interior metal piping shall be bonded to the service equipment enclosure pursuant to CEC250-80(a) & (b). the points of attachment to the bonding jumper shall be accessible.
5. Provide a watertight pan of corrosion-resitant materials beneath on-demand water heaters if utilized.
6. Listed combination type arc fault circuit interrupters shall protect all branch circuits serving any electrical outlets in bedrooms.
7. All shower and bath valves must be temperature balancing or termostatic mixing. Valves shall be adjusted per the manufacturer's instructions to deliver a mix of 120 degrees F for tubs and showers. Hand showers (if utilized) shall be equipped with an approved backflow prevention device or assembly and all showerheads shall not exceed 2.5 GPM.



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**Utility/Lighting Plan**

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**CIVIL NOTES**

**GENERAL**

- THESE NOTES APPLY TO ALL DRAWINGS AND GOVERN UNLESS OTHERWISE NOTED OR SPECIFIED. ALL WORK SHALL CONFORM TO ALL APPLICABLE CODES AND ALL APPLICABLE LOCAL CODES AND ORDINANCES. APPLICABLE CODES INCLUDE THE 2016 EDITION OF: CALIFORNIA BUILDING CODE (CBC) CALIFORNIA RESIDENTIAL CODE (CRC) CALIFORNIA PLUMBING CODE (CPC) CALIFORNIA ELECTRICAL CODE CALIFORNIA MECHANICAL CODE (CMC) CALIFORNIA GREEN BUILDING STANDARDS CODE CALIFORNIA ENERGY CODE CALIFORNIA FIRE CODE (CFC)
- VERIFY ALL EXISTING CONDITIONS AND PROPOSED DIMENSIONS AT THE SUBJECT SITE. COMPARE CIVIL DRAWINGS WITH ARCHITECTURAL, AND SURVEY, DRAWINGS BEFORE COMMENCING WORK. NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK. DO NOT PROCEED WITH CONSTRUCTION IF DISCREPANCIES ARE DETECTED UNTIL THEY ARE RESOLVED. DO NOT SCALE DRAWINGS.
- UNLESS OTHERWISE SHOWN OR NOTED ALL TYPICAL DETAILS SHALL BE USED WHERE APPLICABLE. ALL DETAILS SHALL BE CONSIDERED TYPICAL AT SIMILAR CONDITIONS.
- THE CONTRACTOR AND SPECIAL INSPECTOR ARE ENCOURAGED TO CONTACT THE ENGINEER REGARDING ANY QUESTIONS OF INTERPRETATION OF THESE SPECIFICATIONS AND DRAWINGS.
- SAFETY MEASURES: AT ALL TIMES, THE CONTRACTOR SHALL WORK IN COMPLIANCE WITH CAL/OSHA-TITLE 8 SAFETY REGULATIONS AND SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF PEOPLE AND PROPERTY, AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS. SHORING AND BRACING OF THE SOIL, AND THE EXISTING AND NEW STRUCTURES SHALL BE INSTALLED WHERE NECESSARY TO ADEQUATELY SUPPORT THE IMPOSED VERTICAL AND LATERAL LOADS, AND SHALL BE MAINTAINED UNTIL THE NEW STRUCTURE CAN SUPPORT THE ANTICIPATED LOADS. THE ENGINEER'S JOB SITE VISITS ARE NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
- UNDERGROUND SERVICE ALERT (USA) TO CHECK THE CONSTRUCTION AREA FOR ANY UNDERGROUND UTILITIES. DO NOT PROCEED WITH CONSTRUCTION UNTIL USA CLEARANCE HAS BEEN GRANTED.
- APPROPRIATE GRADING PERMITS AND CONSTRUCTION PERMITS SHALL BE OBTAINED FROM THE COUNTY OF MARIN AND ALL GOVERNING AGENCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
- PRIOR TO COMMENCEMENT OF ANY WORK, THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT FOR ALL WORK AND/OR USE OF THE PUBLIC RIGHT-OF-WAY, SUCH AS: CONSTRUCTION STAGING, TEMPORARY POWER, PORTA POTTY, DEBRIS BOX, TERMINATION OF THE SITE DRAINAGE SYSTEM, ETC.
- THE CONTRACTOR SHALL SUBMIT A CONSTRUCTION STAGING PLAN AND CONSTRUCTION SCHEDULE TO THE COUNTY OF MARIN FOR THEIR REVIEW AND APPROVAL.
- THE CONTRACTOR SHALL MAINTAIN A CLEAN SITE AT ALL TIMES WHICH IS FREE OF ALL DEBRIS, HAZARDOUS MATERIALS, OR STOCKPILED MATERIALS UNLESS APPROVED BY THE COUNTY OF MARIN: ALL APPROVED STOCKPILES SHALL BE COVERED AND PROTECTED TO PREVENT STORMWATER POLLUTION.
- THESE PLANS AND RELATED DOCUMENTS MUST BE AVAILABLE AT THE JOB SITE DURING ANY INSPECTION ACTIVITY.
- WHEN NEEDED, PROVIDE REGULAR (BUT CONTROLLED) WATER SPRAYING OF THE GRADING OPERATION TO MINIMIZE DUST PRODUCTION.
- SAFETY OF WORKERS, PERSONNEL, AND RESIDENCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN THE LOCAL AND REGIONAL SAFETY STANDARDS AT ALL TIMES. WORKERS SHALL BE PROVIDED WITH SAFETY ATTIRE APPROPRIATE TO THE JOB CONDITIONS.
- THE WORKERS SHALL BE EQUIPPED WITH HARD HATS, SAFETY WORK BOOTS, AND SAFETY GLOVES, AT ALL TIMES DURING THE PROJECT. DIRECTIONS AND TELEPHONE NUMBERS OF THE NEAREST EMERGENCY MEDICAL FACILITY SHOULD BE PROVIDED AND EASILY ACCESSIBLE AT THE SITE.
- ANY HEAVY EQUIPMENT USED SHALL BE CLEAN AND FREE OF HYDRAULIC OR OIL LEAKS. THE EQUIPMENT SHALL BE PARKED, FUELED, AND MAINTAINED IN PERMITTED LOCATIONS.
- FILL SHOULD BE PLACED IN 9 INCH LIFTS WITH MOISTURE ADDED TO THE LIFTS TO BRING THEM CLOSE TO OPTIMUM MOISTURE CONTENT. COMPACTION FOR FILLS IS TO BE 95% OF ASTM REQUIREMENTS OR 85% RELATIVE COMPACTION. WHERE SOIL FILLS ARE PLACED ON STEEP SLOPE, BENCHING SHALL BE REQUIRED AS DIRECTED BY THE GEOTECHNICAL ENGINEER AT THE SITE.
- ALL SLOPES SHOULD BE PLANTED WITH FAST-GROWING, DEEP ROOTED GROUND COVER TO REDUCE EROSION DURING HEAVY RAINS. JUTE MATTING AND NETTING ARE RECOMMENDED TO SUPPORT GRASS SEEDING AND YOUNG PLANTS FOR GROUND COVER.
- SURFACE WATER SHOULD BE DIVERTED AWAY FROM FOUNDATIONS, SURFACE DRAINAGE FROM GARDENS AND PATIOS SHOULD BE CHANNLED DOWNSLOPE INTO AN ENERGY DISSIPATER. SURFACE WATER SHOULD NOT BE INTRODUCED TO THE FOUNDATION DRAINS. ROOFS SHALL BE SLOPED TOWARD THE GUTTERS AND GUTTERS SHALL BE DIRECTED INTO THE DOWNSPOUTS.
- TEMPORARY CUT SLOPES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED PER THE GUIDELINES OF CAL OSHA
- EXCAVATED SOIL FREE FROM ORGANICS AND DELETERIOUS MATERIAL MAY BE USED AS FILL IN ACCORDANCE WITH OUR RECOMMENDATIONS.
- CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE 318-89.
- AGGREGATE SHALL CONFORM TO ASTM C33 AND C88. MAXIMUM SIZE IN ALL CONCRETE SHALL BE ¾".
- DRAINAGE REQUIREMENTS OF THE COUNTY OF MARIN SHOULD BE REFERENCED AS STANDARD.
- THE FOLLOWING APPLIES TO CONSTRUCTION DURING WET SEASON. STARTING OCTOBER 15 AND APRIL 15. AN EROSION CONTROL PLAN SHALL BE SUBMITTED FOR THE APPROVAL OF THE COUNTY OF MARIN. THESE MEASURES SHALL BE BASED UPON THE ANTICIPATED STATUS OF THE GRADING OPERATION DURING THE WET SEASON. THE PLANS SHALL INCLUDE THE INSPECTION, MONITORING, AND MAINTENANCE SCHEDULES. THE CITY ENGINEER WILL RESPOND WITH REQUIRED REVISIONS TO THE PLAN.
- THE CONTRACTOR SHALL PREVENT STORMWATER POLLUTION FOR THE DURATION OF THE PROJECT. THE CONTRACTOR SHALL CONFORM TO THE "BEST MANAGEMENT PRACTICES" TO PREVENT STORMWATER POLLUTION FROM CONSTRUCTION RELATED ACTIVITIES AS APPROVES BY "BASMAA" (BAY AREA STORMWATER MANAGEMENT AGENCIES ASSOCIATION).
- DIRECTION FOR PLANTING, IRRIGATION, LANDSCAPING, AND FENCES, ARE NOT PART OF THIS PLAN.
- STORE, HANDLE, AND DISPOSE OF, CONSTRUCTION MATERIALS AND WASTES SO AS TO AVOID THEIR ENTRY TO THE STORM SYSTEM. CONTRACTOR MUST NOT ALLOW CONCRETE, WASH WATERS, SLURRIES, PAINT, OR OTHER MATERIALS TO ENTER CATCH BASINS, OR TO ENTER SITE RUNOFF.
- USE FILTRATION OR OTHER MEASURES TO REMOVE SEDIMENT FROM DEWATERING EFFLUENT.
- INSTALL FILTER FABRIC BAGS INSIDE ALL CATCH BASINS TO FILTER OUT SILT FROM STORMWATER RUNOFF, AND MAINTAIN DURING WINTERS.
- COUNTY OF MARIN BUILDING DEPARTMENT MAY ORDER THAT ANY WORK STOP IMMEDIATELY IF ANY WORK IS PERFORMED CONTRARY TO CBC APPENDIX J, COUNTY OF MARIN CODE OR REGULATIONS, THE APPROVED PLANS AND SPECIFICATIONS, PERMIT CONDITIONS, OR ANY WORK HAS BECOME HAZARDOUS TO PROPERTY OR THE PUBLIC.

- IN THE EVENT CULTURAL RESOURCES (I.E., HISTORICAL, ARCHAEOLOGICAL, AND PALEONTOLOGICAL RESOURCES, AND HUMAN REMAINS) ARE DISCOVERED DURING GRADING OR OTHER CONSTRUCTION ACTIVITIES, WORK SHALL IMMEDIATELY BE HALTED WITHIN THE VICINITY OF THE FIND. A QUALIFIED ARCHAEOLOGIST SHALL BE CONSULTED FOR AN ON-SITE EVALUATION. ADDITIONAL MITIGATION MAY BE REQUIRED BY THE COUNTY PER THE ARCHAEOLOGISTS' RECOMMENDATIONS. IF HUMAN BURIALS OR HUMAN REMAINS ARE DISCOVERED, THE CONTRACTOR SHALL ALSO NOTIFY THE COUNTY CORONER.
- SHOULD GRADING OR EXCAVATION OPERATIONS ENCOUNTER HAZARDOUS MATERIALS, OR WHAT APPEAR TO BE HAZARDOUS MATERIALS, STOP WORK IMMEDIATELY AND CONTACT 911 OR THE APPROPRIATE AGENCY FOR FURTHER INSTRUCTION.
- RETAINING WALLS, UNLESS EXEMPTED, ARE NOT APPROVED UNDER A GRADING PERMIT. A SEPARATE BUILDING PERMIT IS REQUIRED.
- THE GEOTECHNICAL ENGINEER SHALL OBSERVE ALL EXCAVATIONS BEFORE INSTALLATION OF LINERS AND/OR FILL. IN ADDITION, FILL COMPACTION SHALL BE EVALUATED AND APPROVED IN WRITING.
- THE GEOTECHNICAL ENGINEER SHALL INSPECT AND CERTIFY IN WRITING THAT THE GRADING WAS PERFORMED IN CONFORMANCE WITH THE GRADING PLAN AND APPROVED GEOTECHNICAL REPORT.

**\* CUT AND FILL CALCULATION\***

HOUSE	CUT (CYD)	FILL (CYD)
	358	116

NET: 242  
\*APPROXIMATE ONLY

**DESIGN BASIS**

- CONSTRUCTION CONFORMANCE WITH THE 2016 EDITION OF THE CALIFORNIA BUILDING CODE AND ALL APPLICABLE LOCAL ORDINANCES.
- THESE DRAWINGS ARE BASED UPON:  
ARCHITECTURAL PLANS ENTITLED "HARD YAKA ADU, 69 STARBUCK DRIVE, MUIR BEACH, CA 94965" PREPARED BY STUDIO 300A ARCHITECTURE AND DATED 2020-10-13.  
  
A GEOTECHNICAL REPORT ENTITLED "PRELIMINARY GEOTECHNICAL INVESTIGATION," PREPARED BY DAC ASSOCIATES, INC., AND DATED NOVEMBER 06, 2020.

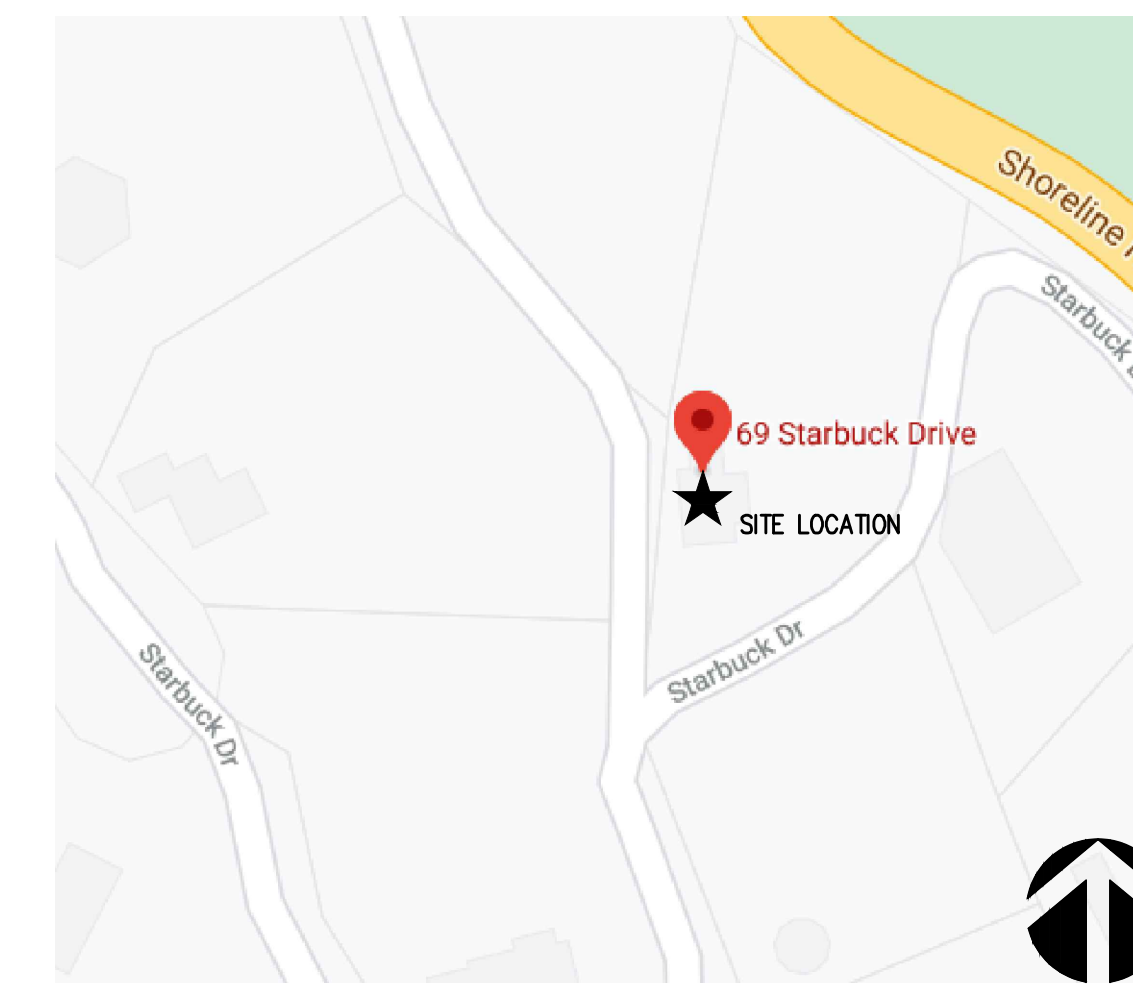
**CONCRETE**

- CONCRETE CEMENT SHALL CONFORM TO 1997 ASTM C-150 & C-595, AND SHALL BE TYPE II. TYPE I CEMENT MAY BE USED IN AREAS NOT IN CONTACT WITH EARTH. AGGREGATE SHALL BE FREE OF ALKALI REACTIVITY. WATER/CEMENT RATIO SHALL NOT EXCEED 0.45% FOR NORMAL WEIGHT CONCRETE, 0.02% FOR "NON-SHRINK CONCRETE" AND 0.055% FOR LIGHTWEIGHT CONCRETE FILL ON METAL DECK. ACID SOLUBLE CHLORIDE-FREE ADMIXTURES AND PLASTICIZERS FOR WORKABILITY MAY BE USED IF APPROVED BY THE TESTING LABORATORY AND ENGINEER. BECAUSE EXCESS WATER REDUCES CONCRETE STRENGTH, ADDING WATER AT THE SITE IS DISCOURAGED AND SHALL NOT EXCEED ONE GALLON PER CUBIC YARD.
- CONCRETE SHALL ATTAIN THE FOLLOWING MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS (UNLESS OTHERWISE NOTED ON THE DRAWINGS).  
  

LOCATION	STRENGTH	AGGREGATE
SLAB-ON-GRADE 3000 PSI AND PAVEMENTS	3000 PSI	HARDROCK, ¾" MIN - 1 ½" MAX.
- CONCRETE SHALL BE PLACED IN A CONTINUOUS OPERATION BETWEEN PREDETERMINED CONSTRUCTION JOINTS.
- CONCRETE SHALL BE CONTINUOUSLY CURED FOR 7 DAYS AFTER PLACEMENT IN ANY APPROVED MANNER. FOOTINGS ARE EXCEPTED FROM THIS REQUIREMENT.
- CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL, DRAWINGS LOCATING AND DETAILING ALL PROPOSED CONSTRUCTION/CONTROL JOINTS IN CONCRETE PRIOR TO COMMENCING WORK. CONSTRUCTION JOINT SHALL BE ROUGHENED, EXPOSING CLEAN AGGREGATE TO ¼" DEPTH SOLIDLY EMBEDDED IN MORTAR MATRIX, AND SHALL INCLUDE SHEAR KEYS AND DOWELS AS REQUIRED BY THE ENGINEER.
- THE LOCATION AND PROTECTION OF EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF UTILITY PIPES RUN THROUGH, OR WITHIN 24" BELOW, ANY NEW CONCRETE CONSTRUCTION. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH DESIGN DETAILS UNDER SUCH CIRCUMSTANCES.
- PATCHING OF CONCRETE: ALL INSERTS HOLES, AND OTHER IMPERFECTIONS ON THE SURFACE OF THE CONCRETE SHALL BE FILLED WITH GROUT, BRUSHED, AND SACKED TO A UNIFORM FINISH. ALL HOLES THROUGH TO THE OUTSIDE OF THE BUILDING MUST BE MADE WATERTIGHT.
- CHAMFER ALL CORNERS ¾", EXCEPT TOP EDGES OF SLABS AND BEAMS, UNLESS OTHERWISE NOTED.
- CONCRETE SLAB-ON-GRADE SHALL HAVE A MINIMUM THICKNESS OF 4" WHERE NOT SPECIFIED IN STRUCTURAL PLANS. CONCRETE FLOOR SLAB-ON-GRADE SHALL BE PLACED ON PREPARED SUBGRADE PER THE REQUIREMENTS OF THE GEOTECHNICAL REPORT UNLESS OTHERWISE SPECIFIED ON PLANS.
- ALL CONCRETE SHALL BE PLACED ON COMPETENT SUBGRADE, AS DETERMINED BY THE GEOTECHNICAL ENGINEER AT THE TIME OF CONSTRUCTION.

**CONSTRUCTION OBSERVATION**

- DAC ASSOCIATES, INC., SHALL OBSERVE GRADING OPERATIONS AND INSTALLATION OF DRAINAGE FEATURES. CONTRACTOR TO NOTIFY ENGINEER OF COMMENCEMENT OF SUCH OPERATIONS AT LEAST 72 HOURS IN ADVANCE.

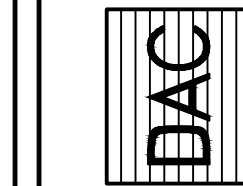


**SHEET INDEX**

- C-1.0 CIVIL COVERSHEET
- C-2.0 GRADING AND DRAINAGE PLAN
- C-2.1 CIVIL DETAILS
- C-3.0 EROSION CONTROL PLAN AND DETAILS
- C-4.0 DRAINAGE MAP

REVISIONS	BY

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Consulting Engineering & Construction Support  
7 Mt. Lassen Drive, Suite A-129, San Rafael, CA 94903  
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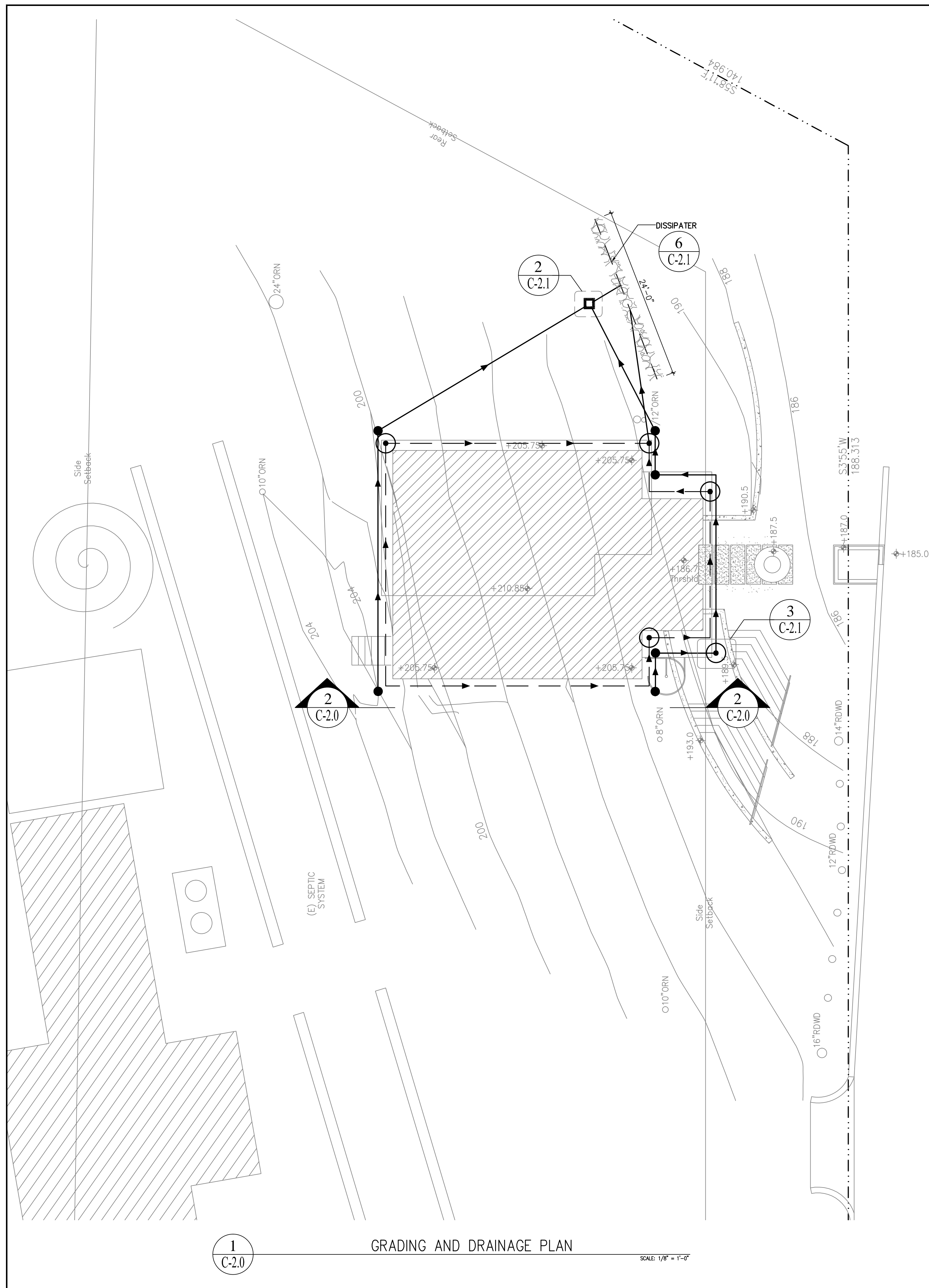
**FOR REVIEW ONLY,  
NOT FOR  
CONSTRUCTION**

**ADU ADDITION**  
69 STARBUCK DRIVE  
MUIR BEACH, CA 94965  
PROJECT APN: 199-201-03

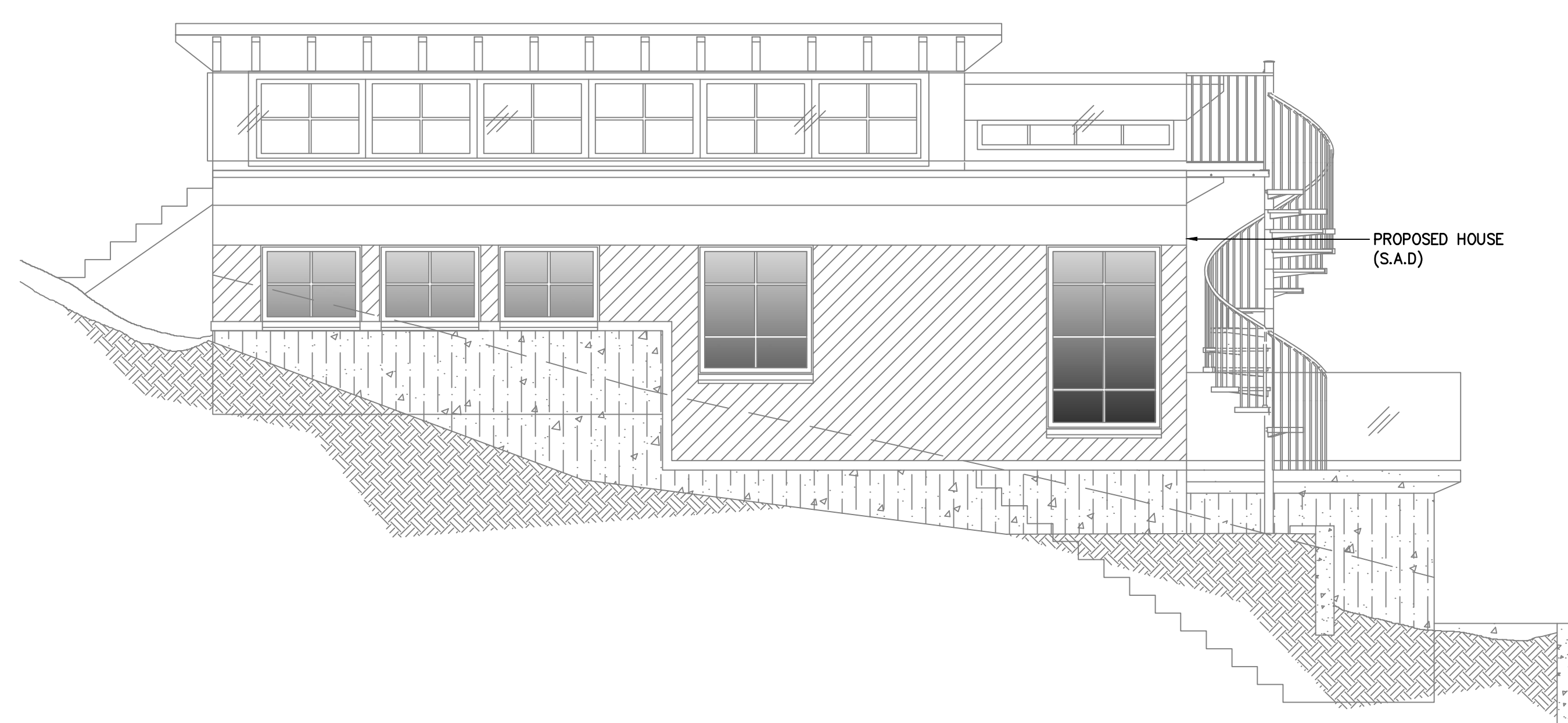
**GENERAL NOTES**

DATE:	2020-11-09
SCALE:	AS SHOWN
DRAWN BY:	WT
JOB NUMBER:	1365-2420 M

SHEET 1  
**C-1.0**  
OF 5 SHEET



1  
C-2.0 GRADING AND DRAINAGE PLAN SCALE: 1/8" = 1'-0"



2  
C-2.0 SECTION (S.A.) SCALE: 1/4" = 1'-0"

- LEGEND**
- 12"x12" CATCH BASIN. SEE DETAIL 2 ON SHEET C-2.1
  - CLEAN OUT. SEE DETAIL 3 ON SHEET C-2.1
  - DOWNSPOUT FROM ROOF GUTTER
  - 6" DIAMETER PERFORATED DRAIN PIPE
  - 4" DIAMETER SOLID DRAIN PIPE
  - - - - - PROPERTY LINE (S.A.D)

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GRADING AND  
 DRAINAGE PLAN

DATE: 2020-11-09

SCALE: AS SHOWN

DRAWN BY: WT

JOB NUMBER: 1365-2420 M

SHEET 2  
**C-2.0**  
 OF 5 SHEET

REVISIONS	BY

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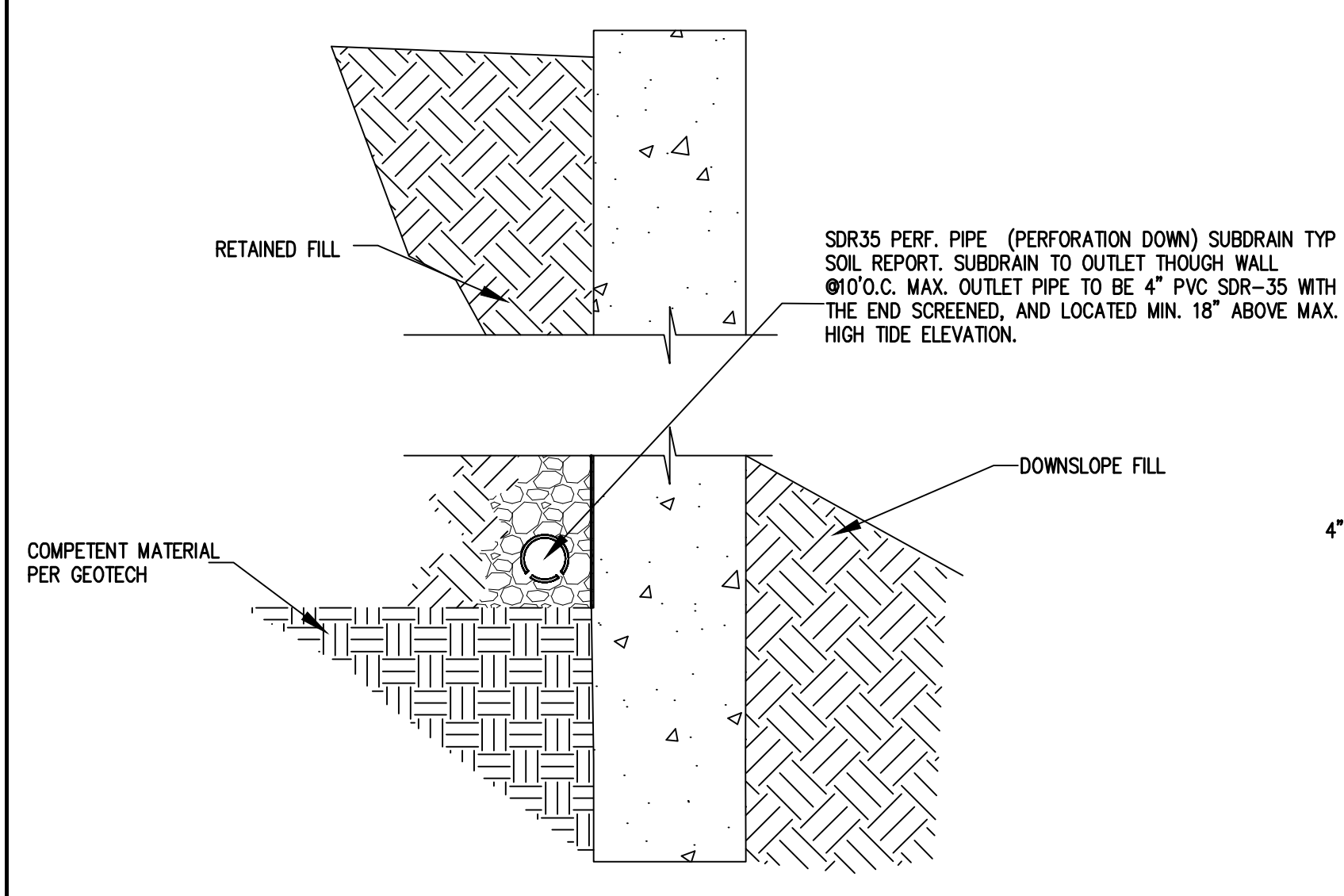
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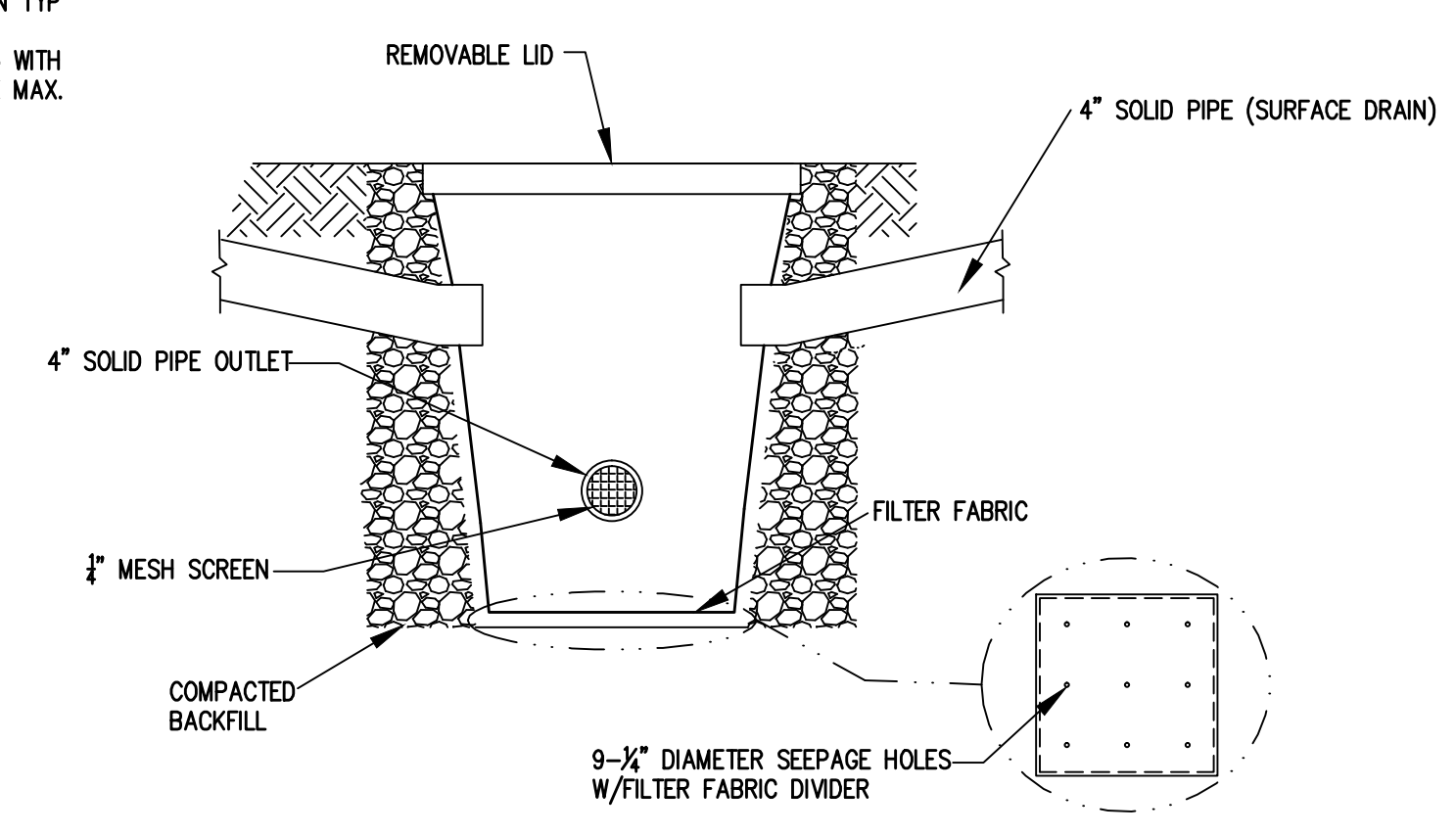
CIVIL DETAILS

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 SCALE: AS SHOWN  
 DRAWN BY: WT  
 JOB NUMBER: 1365-2420 M

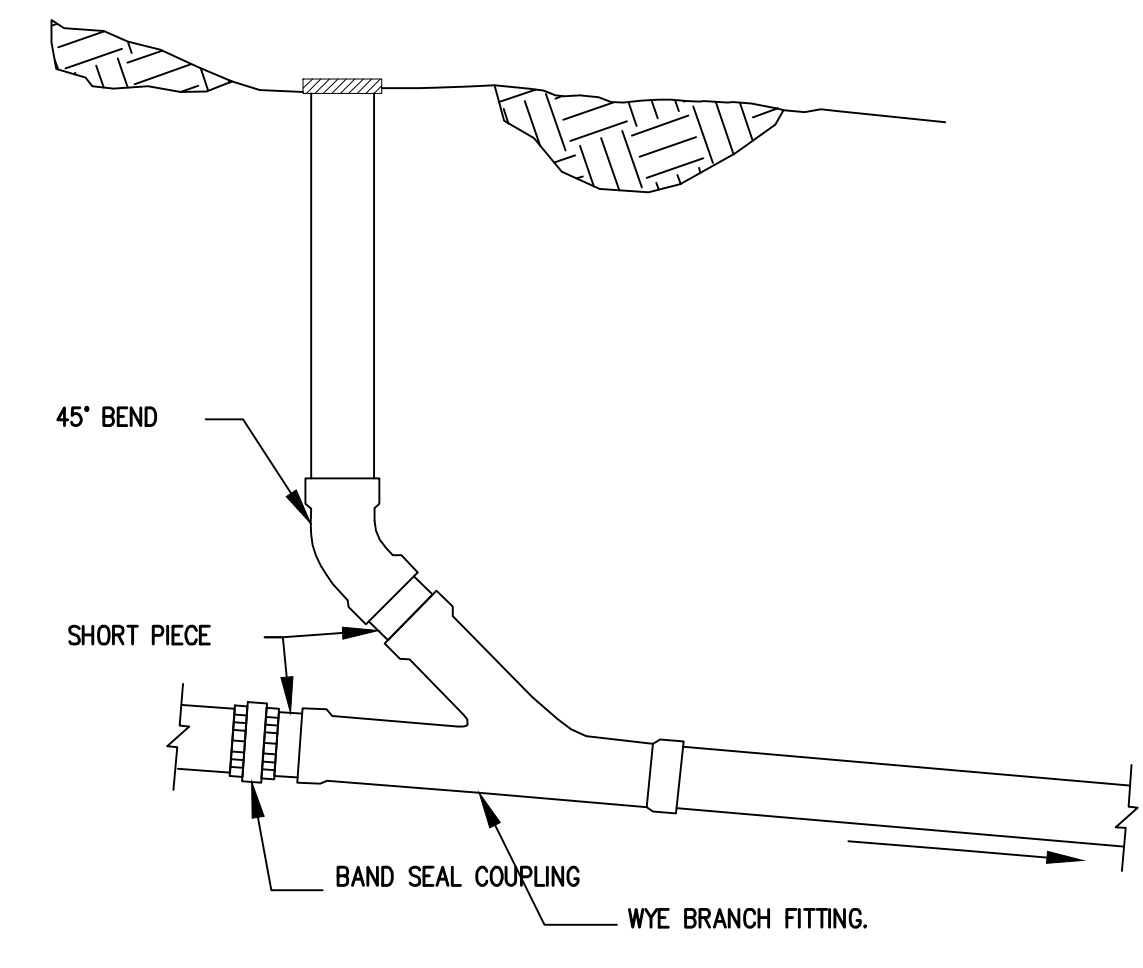
SHEET 3  
**C-2.1**  
 OF 5 SHEET



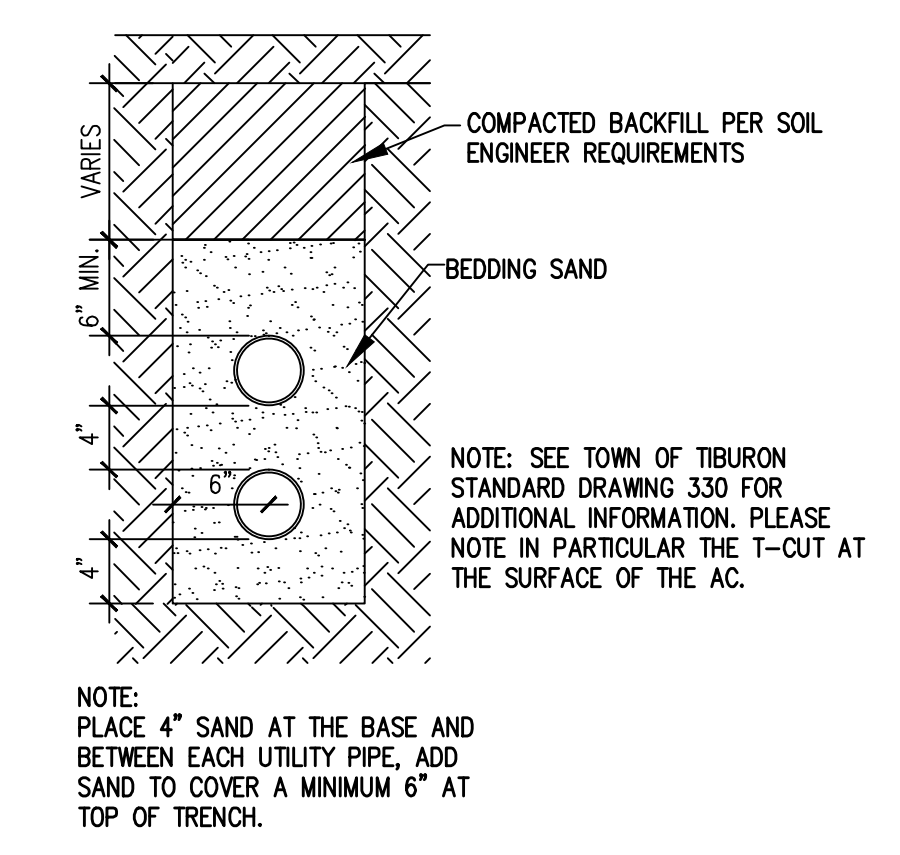
1 TYPICAL RETAINING WALL DRAINAGE  
 C-2.1 NTS



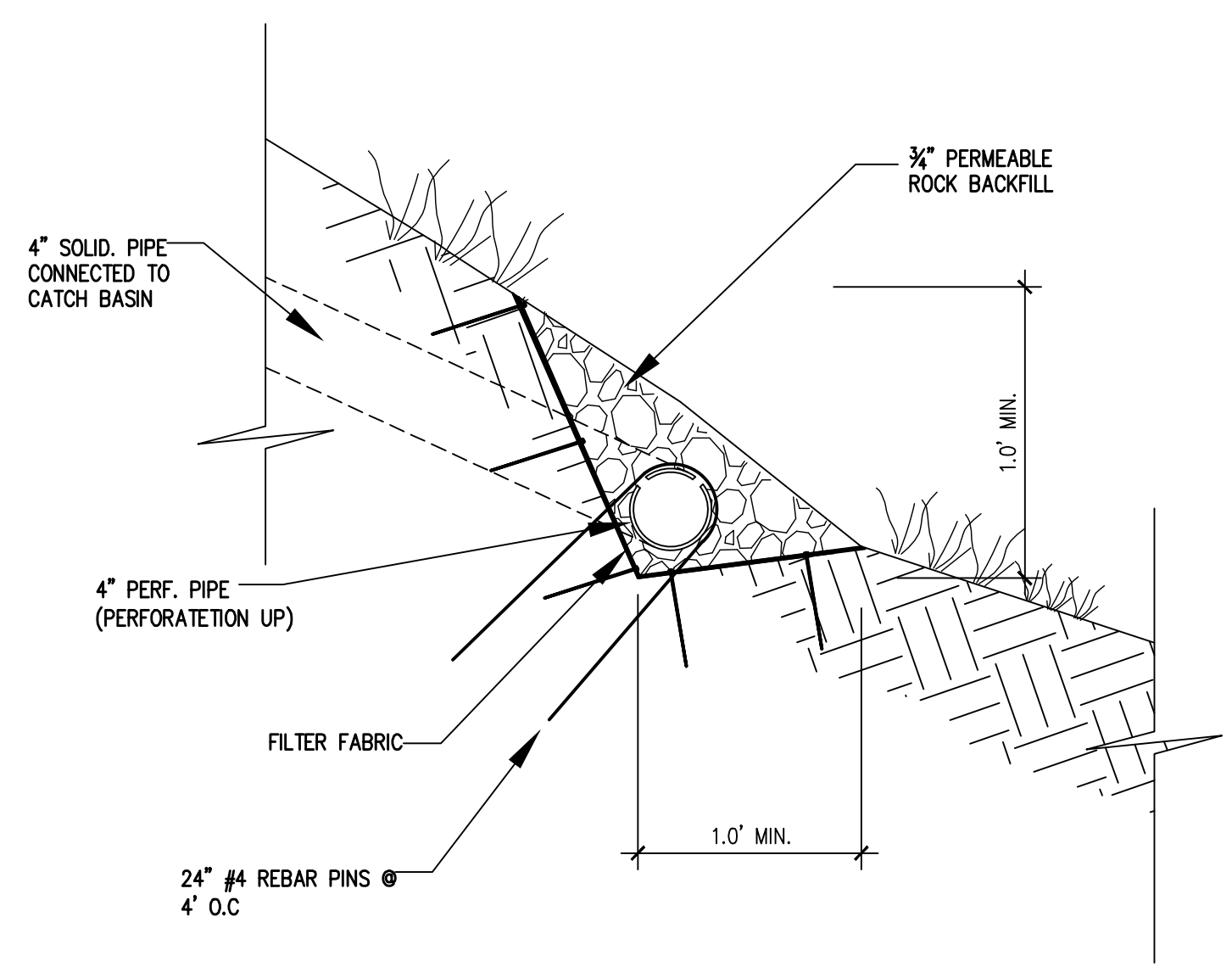
2 12" CATCH BASIN  
 C-2.1 NTS



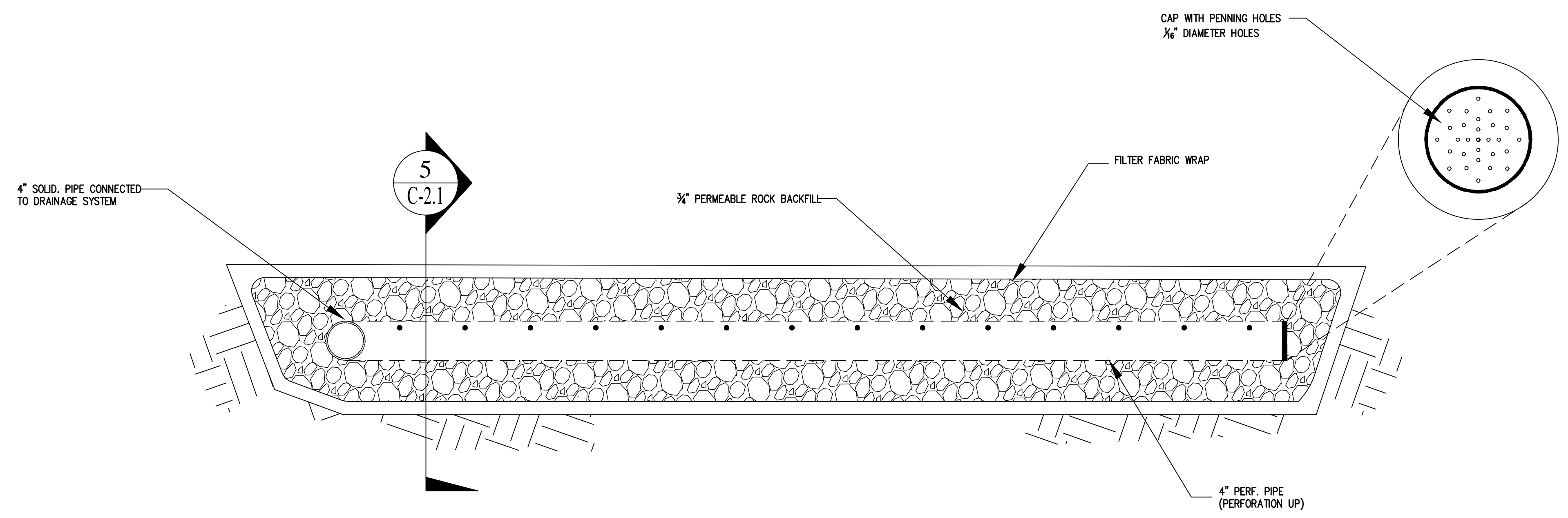
3 TYPICAL CLEAN OUT  
 C-2.1 NTS



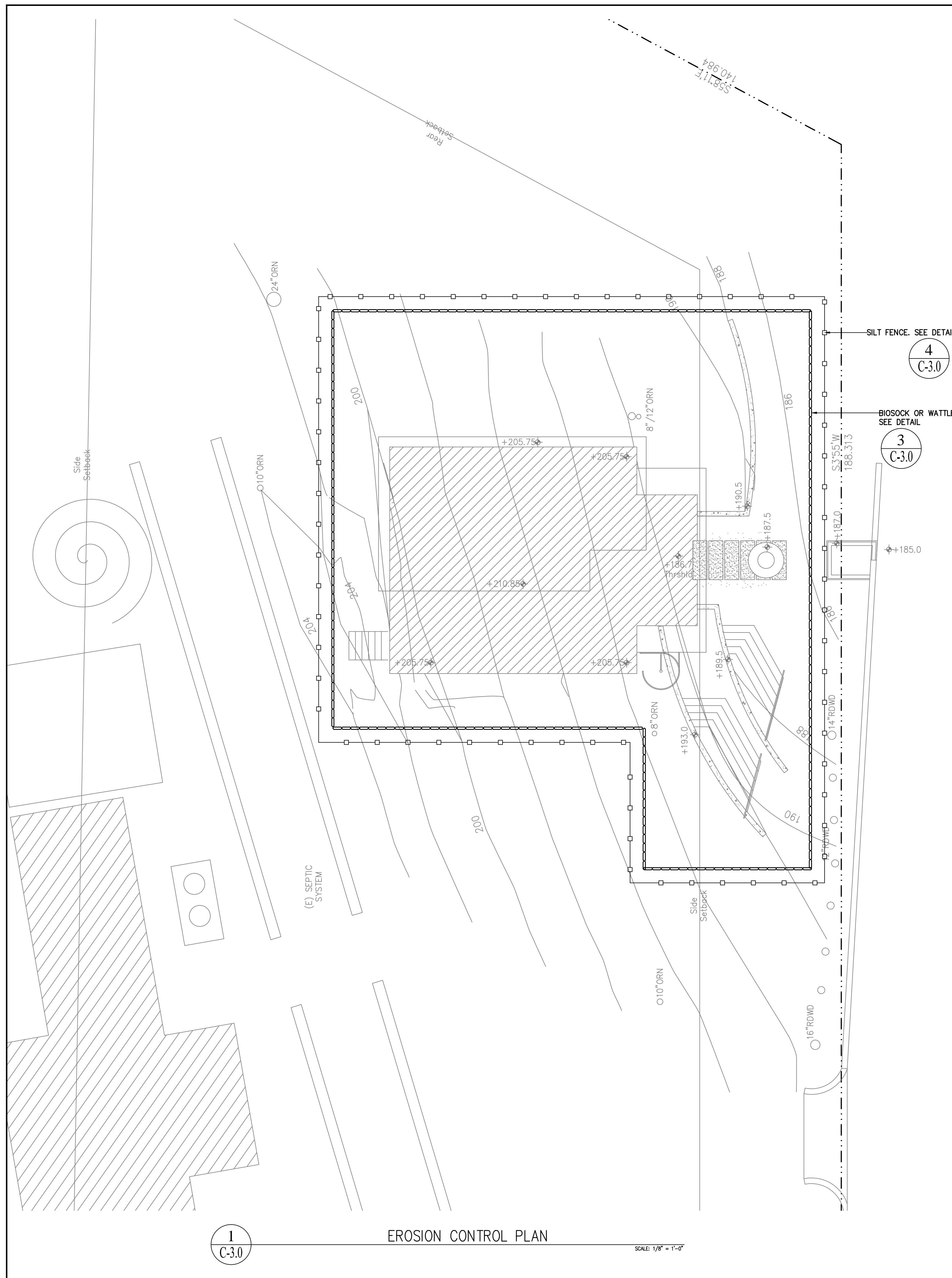
4 UTILITY TRENCH  
 C-2.1 SCALE: 1"=1'-0"



5 ENERGY DISSIPATER  
 C-2.1 SCALE: 1"=1'-0"



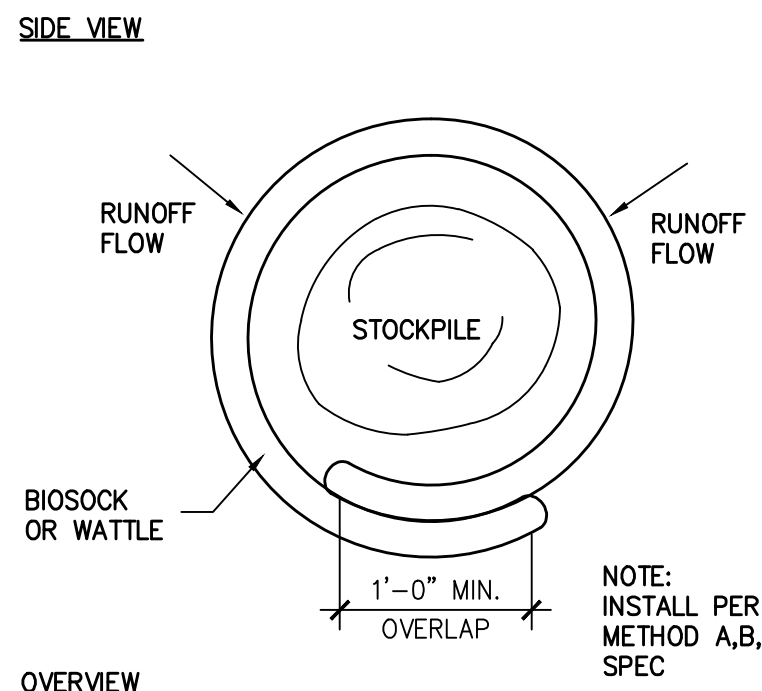
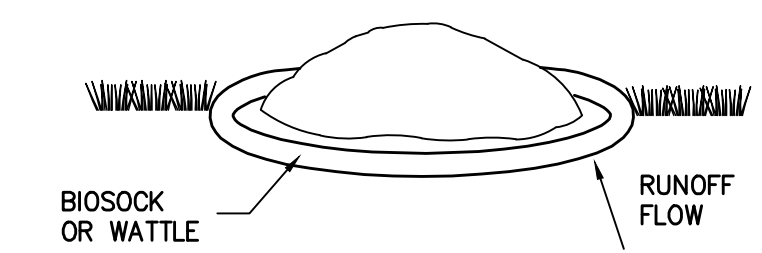
6 ENERGY DISSIPATER LONGITUDINAL  
 C-2.1 SCALE: 1"=1'-0"



**1**  
C-3.0

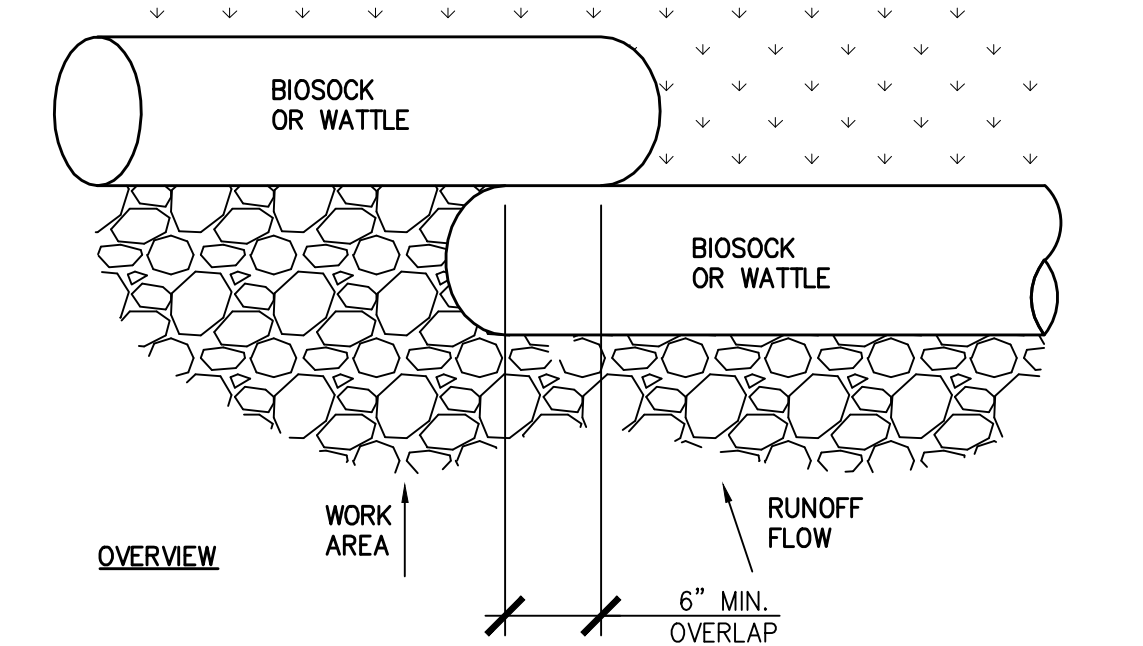
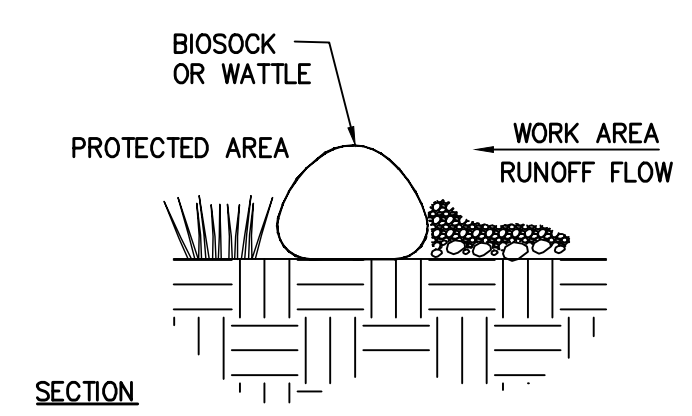
EROSION CONTROL PLAN

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



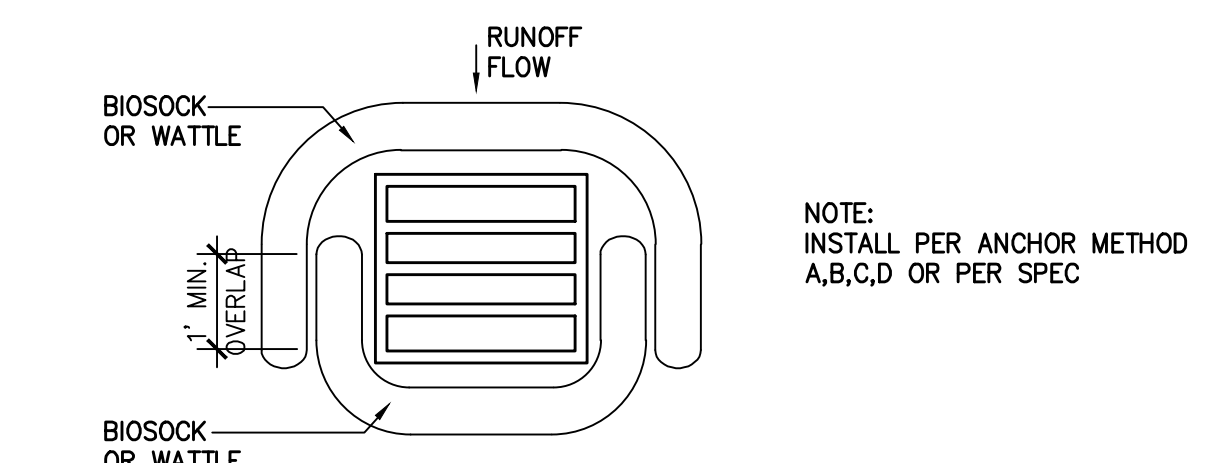
**2**  
C-3.0

MATERIAL STOCKPILE CONTAINMENT



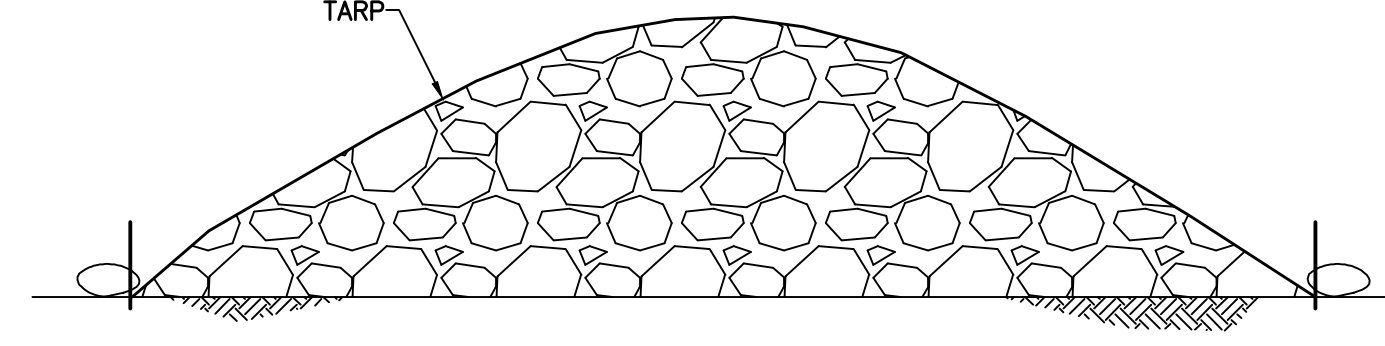
**3**  
C-3.0

BIO SOCK INSTALLATION



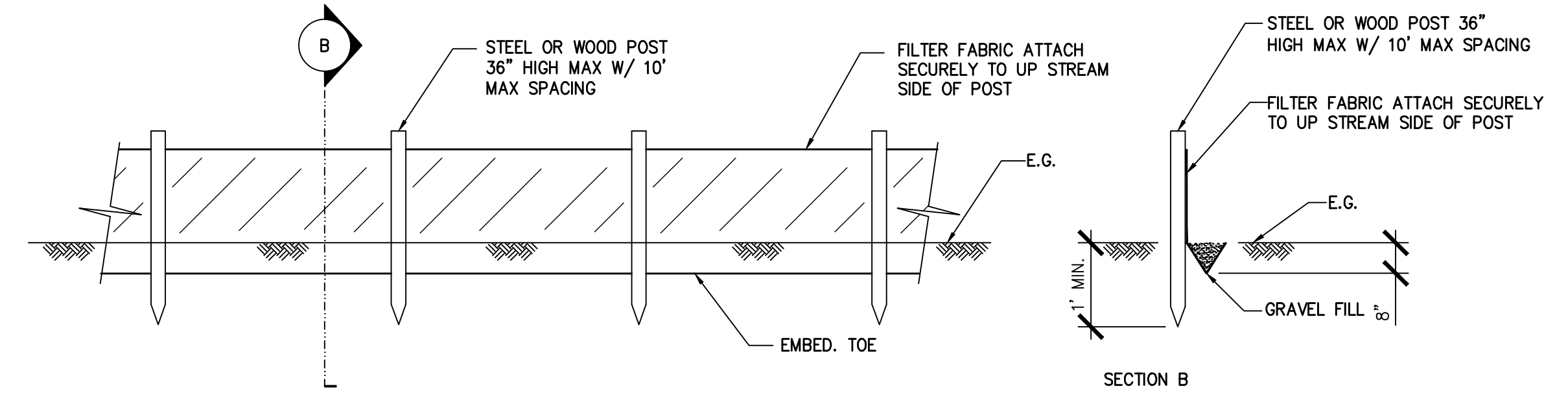
**5**  
C-3.0

BIO SOCK INSTALLATION



**6**  
C-3.0

BIO SOCK INSTALLATION



**4**  
C-3.0

SILT FENCE

**SWPPP NOTES**

1. SITE PLAN IS BASED UPON PLANS PREPARED BY THE PROJECT ARCHITECT.
2. ANY SILT THAT BUILDS UP BEHIND THE SILT FENCE SHALL BE REMOVED. REGULARLY MONITOR THE EROSION CONTROL FACILITIES.
3. MINIMIZE THE AMOUNT OF EARTHWORK EXPOSED AT ANY ONE TIME.
4. ALL MODIFICATIONS AND ALL EROSION CONTROL REPAIRS SHALL BE NOTED ON THIS PLAN AND KEPT UPDATED BY THE CONTRACTOR IN THE FIELD DURING CONSTRUCTION.
5. ALL EROSION CONTROL FEATURES SHALL BE REGULARLY MONITORED AND REPLACED IF NECESSARY.
6. AFTER STORM EVENTS, ALL EROSION CONTROL MEASURES SHALL BE CHECKED AND THEIR OPERATION VERIFIED.
7. ANY EXCAVATED MATERIAL STOCKPILED ON SITE SHALL BE COVERED WITH 15 MIL PLASTIC (TARP) AND THE ENDS HELD DOWN WITH SAND BAGS. ALTERNATIVELY, OTHER CONTROL MEASURES SUCH AS BIOSOCK SHALL BE UTILIZED.
8. ANY MATERIAL OR DEBRIS STOCKPILED ON SITE SHALL BE CONTAINED BY WATTLES (OR EQUIVALENT).
9. MINIMIZE THE AMOUNT OF MATERIAL STOCKPILED ON SITE.
10. ADDITIONAL SANDBAGS, WATTLES, AND OTHER EROSION CONTROL MATERIAL SHALL BE STORED ON SITE TO ALLOW FOR IMMEDIATE REPAIR OF PROPOSED FACILITY.
11. REMOVE SEDIMENT BEFORE ACCUMULATION REACHES 1/4 OF THE BARRIER HEIGHT.
12. THE ACTUAL AMOUNT AND TYPES OF EROSION CONTROL DEVICES WILL VARY BASED ON CONSTRUCTION METHODOLOGIES AND STAGING. THIS PLAN SHOWS A MINIMUM REQUIREMENT AND SHALL BE SUPPLEMENTED AS NEEDED.
13. WATTLE DIKES OR EQUIVALENT SYSTEMS SHALL BE INSTALLED AT LOCATIONS WHERE SLOPE RUNOFF ARE LEADING TO STORMWATER INLET FACILITIES.
14. HYDROSEED ALL EXPOSED AREAS OF EARTH PRIOR TO START OF RAINY SEASON. IF RAIN IS IMMINENT OR GRASS IS NOT MATURE PRIOR TO OCTOBER 15TH, COVER EXPOSED EARTH WITH STRAW AND TACKIFIER.
15. IN DRY WEATHER CONDITION, MINIMIZE DUST PRODUCTION BY FREQUENTLY SPRAYING WATER IN THE AREAS WHERE EXCAVATION/GRADING OPERATIONS ARE BEING PERFORMED.
16. BEFORE A REQUEST FOR A FINAL INSPECTION, ANY AREA WHERE SOIL IS DISTURBED MUST BE REVEGETATED WITH A GROUND COVER ACCEPTABLE TO THE COUNTY OF MARIN, OR A PERMANENT EROSION CONTROL SYSTEM SUCH AS AN EROSION CONTROL BLANKET OR MULCH COVERED WITH A TACKIFIER. THERE ARE NO EXCEPTIONS TO THIS REQUIREMENT AND TEMPORARY PLANTING MAY BE REQUIRED TO COMPLY. FOR INFORMATION AND DETAILS ON PERMANENT EROSION CONTROL METHODS, REFER TO MCSTOPP.ORG. TREATMENT FOR STABILIZING ANY BARE SOIL MUST BE CLEARLY DESCRIBED ON THE DRAWINGS.

REVISIONS	BY

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EROSION CONTROL PLAN

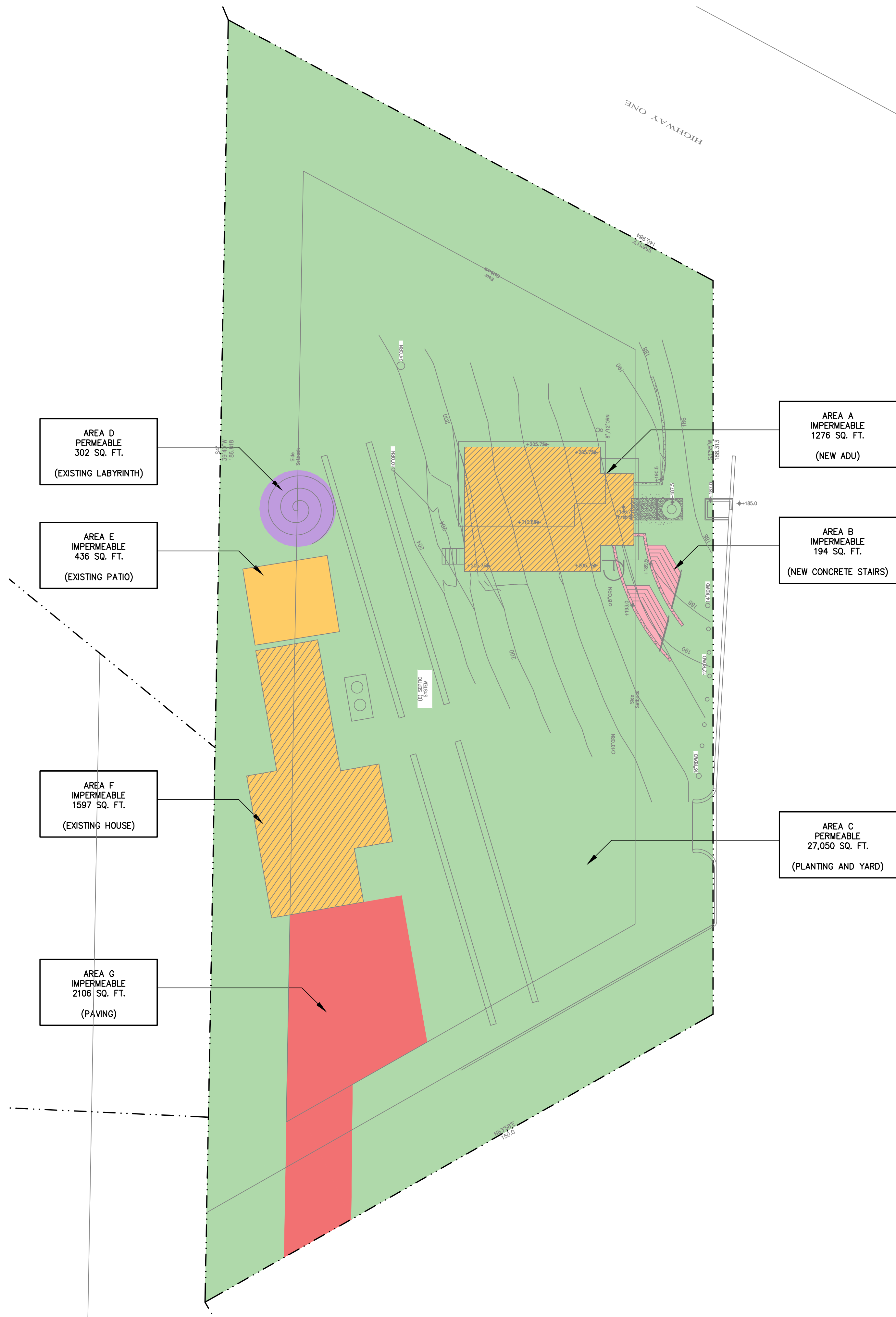
DATE: 2020-11-09

SCALE: AS SHOWN

DRAWN BY: WT

JOB NUMBER: 1365-2420 M

SHEET **4**  
**C-3.0**  
 OF 5 SHEET



TOTAL SITE AREA 32,962 SQ. FT. 100%  
 IMPERMEABLE AREA 5,610 SQ. FT. 17%  
 PERMEABLE AREA 27,352 SQ. FT. 83%

AREA D  
 PERMEABLE  
 302 SQ. FT.  
 (EXISTING LABYRINTH)

AREA E  
 IMPERMEABLE  
 436 SQ. FT.  
 (EXISTING PATIO)

AREA F  
 IMPERMEABLE  
 1597 SQ. FT.  
 (EXISTING HOUSE)

AREA G  
 IMPERMEABLE  
 2106 SQ. FT.  
 (PAVING)

AREA A  
 IMPERMEABLE  
 1276 SQ. FT.  
 (NEW ADU)

AREA B  
 IMPERMEABLE  
 194 SQ. FT.  
 (NEW CONCRETE STAIRS)

AREA C  
 PERMEABLE  
 27,050 SQ. FT.  
 (PLANTING AND YARD)

1  
 C-4.0

DRAINAGE MAP

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

REVISIONS	BY

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DRAINAGE MAP

DATE: 2020-11-09

SCALE: AS SHOWN

DRAWN BY: WT

JOB NUMBER: 1365-2420 M

SHEET 5

**C-4.0**

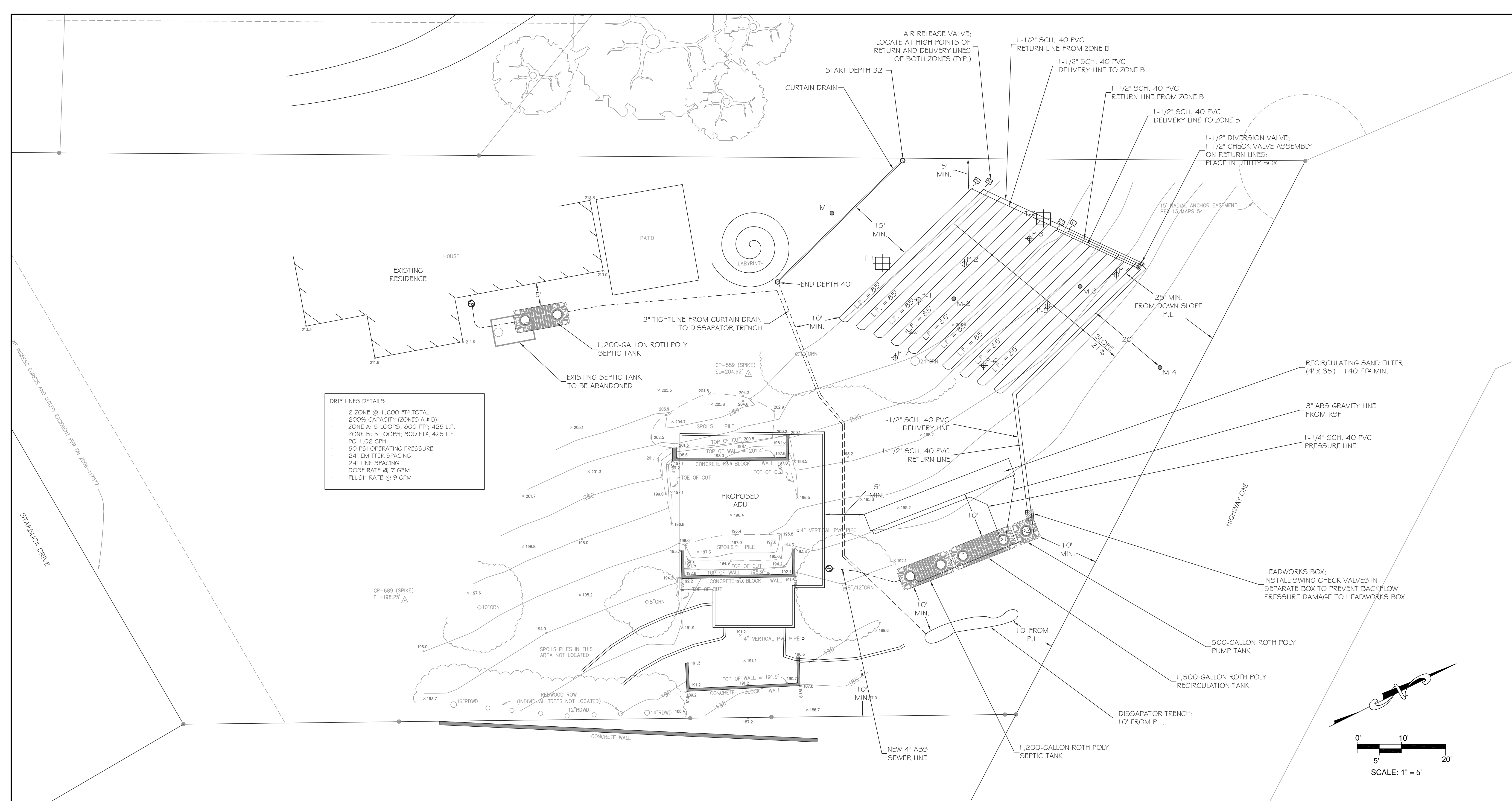
OF 5 SHEET

**CLASS I - SIX BEDROOM  
 ON-SITE WASTEWATER SYSTEM  
 SITE PLAN**

HARDY YAKA, INC  
 69 STARBUCK DRIVE  
 MUIR BEACH, CALIFORNIA



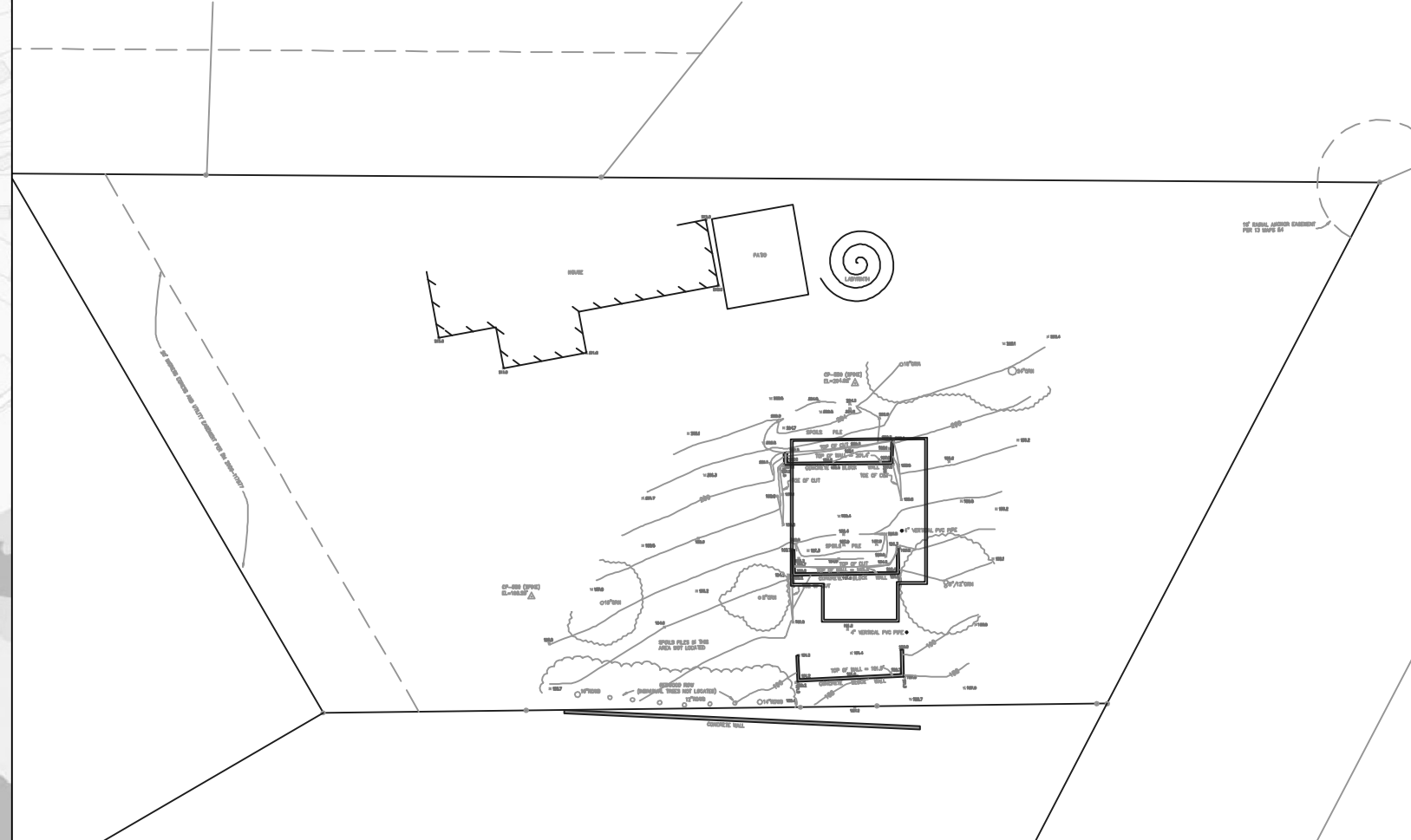
100 Shoreline Highway  
 Bldg 100  
 Mil Valley, CA 94041  
 510.390.3992  
**eckman environmental  
 designs, inc**



**DRIP LINES DETAILS**

- 2 ZONE @ 1,600 FT<sup>2</sup> TOTAL
- 200% CAPACITY (ZONES A & B)
- ZONE A: 5 LOOPS; 800 FT<sup>2</sup>; 425 L.F.
- ZONE B: 5 LOOPS; 800 FT<sup>2</sup>; 425 L.F.
- PC 1.02 GPH
- 50 PSI OPERATING PRESSURE
- 24" EMITTER SPACING
- 24" LINE SPACING
- DOSE RATE @ 7 GPM
- FLUSH RATE @ 9 GPM

**PROPERTY BOUNDARIES (1" = 40')**

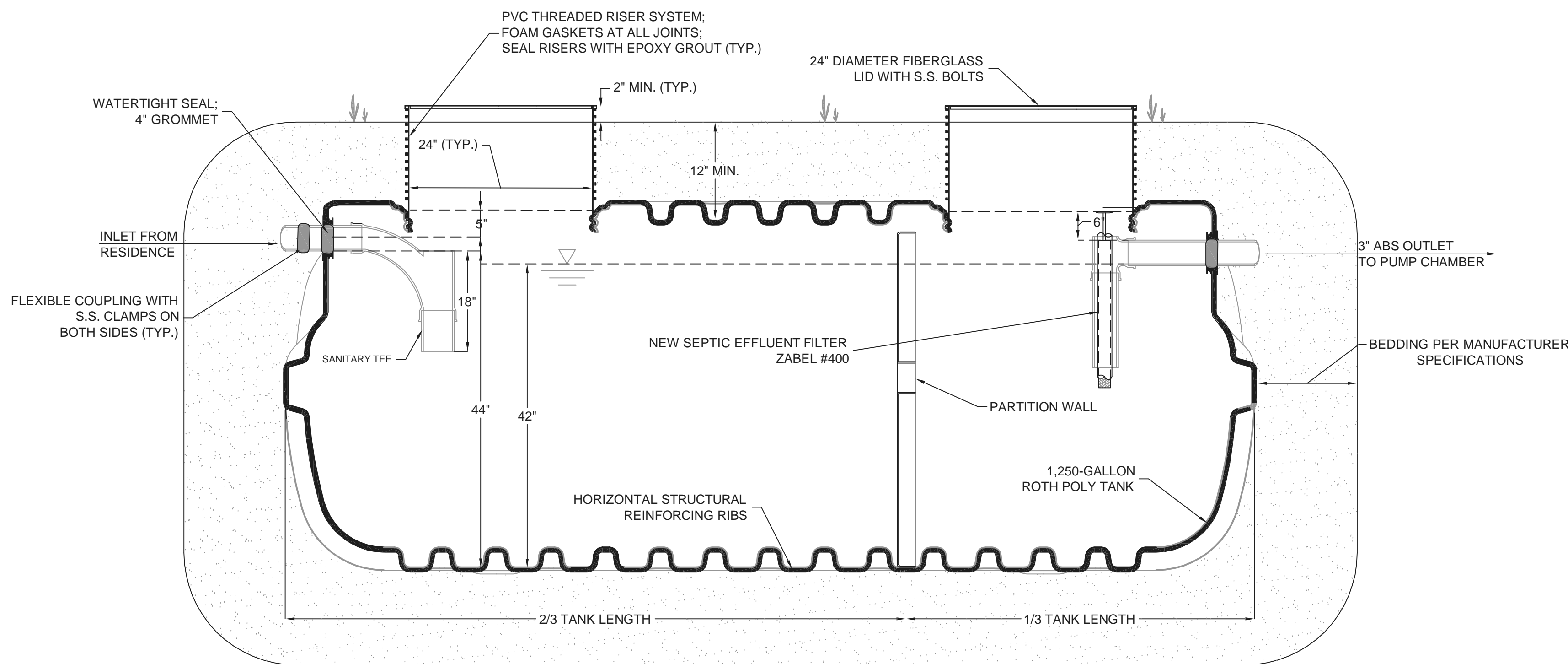


**LEGEND**

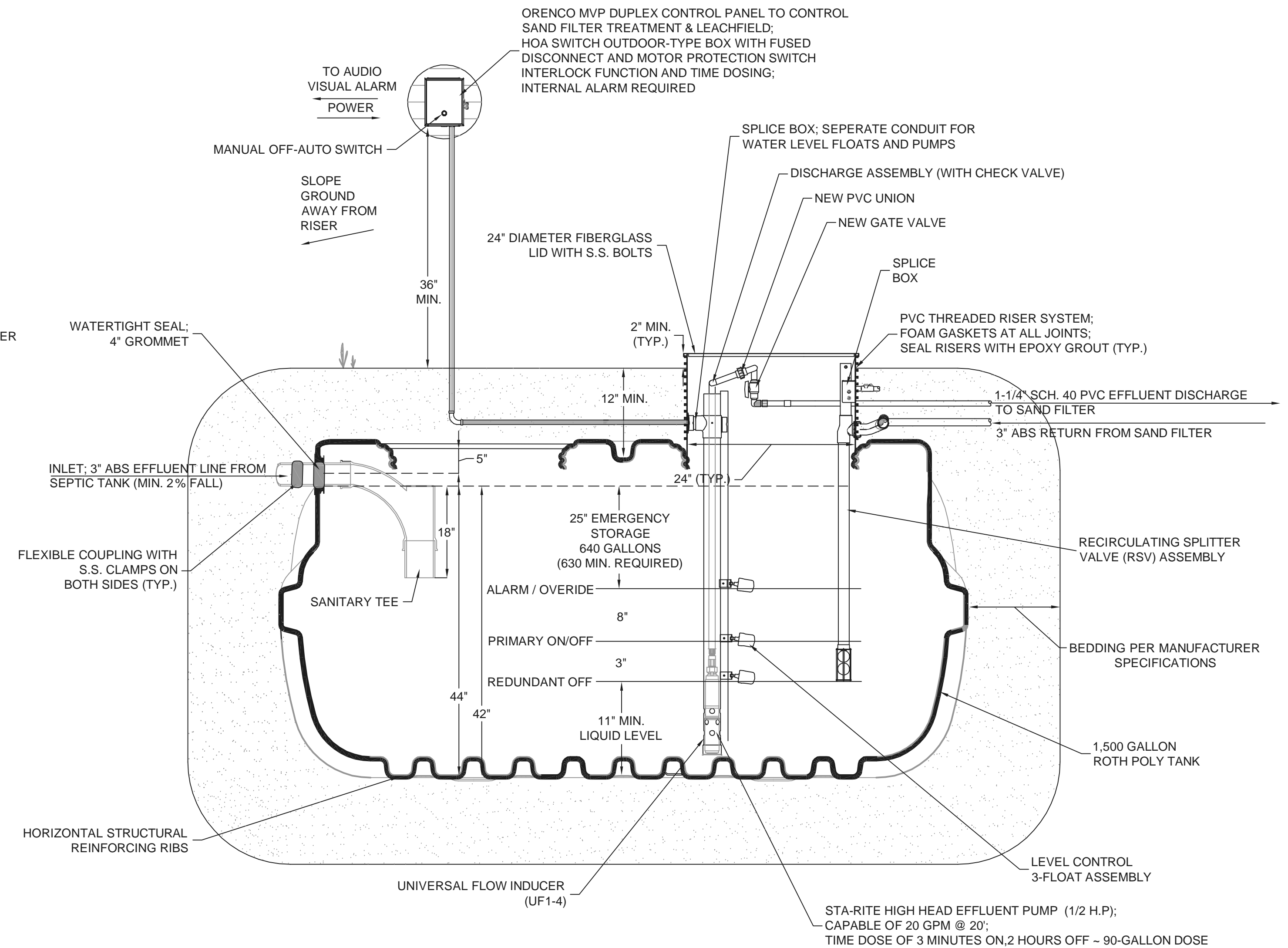
- Soil Profile Trench
- Percolation Test
- Monitoring Well
- Clean Out
- Gravity Line
- Pressure Line

**NOTES**

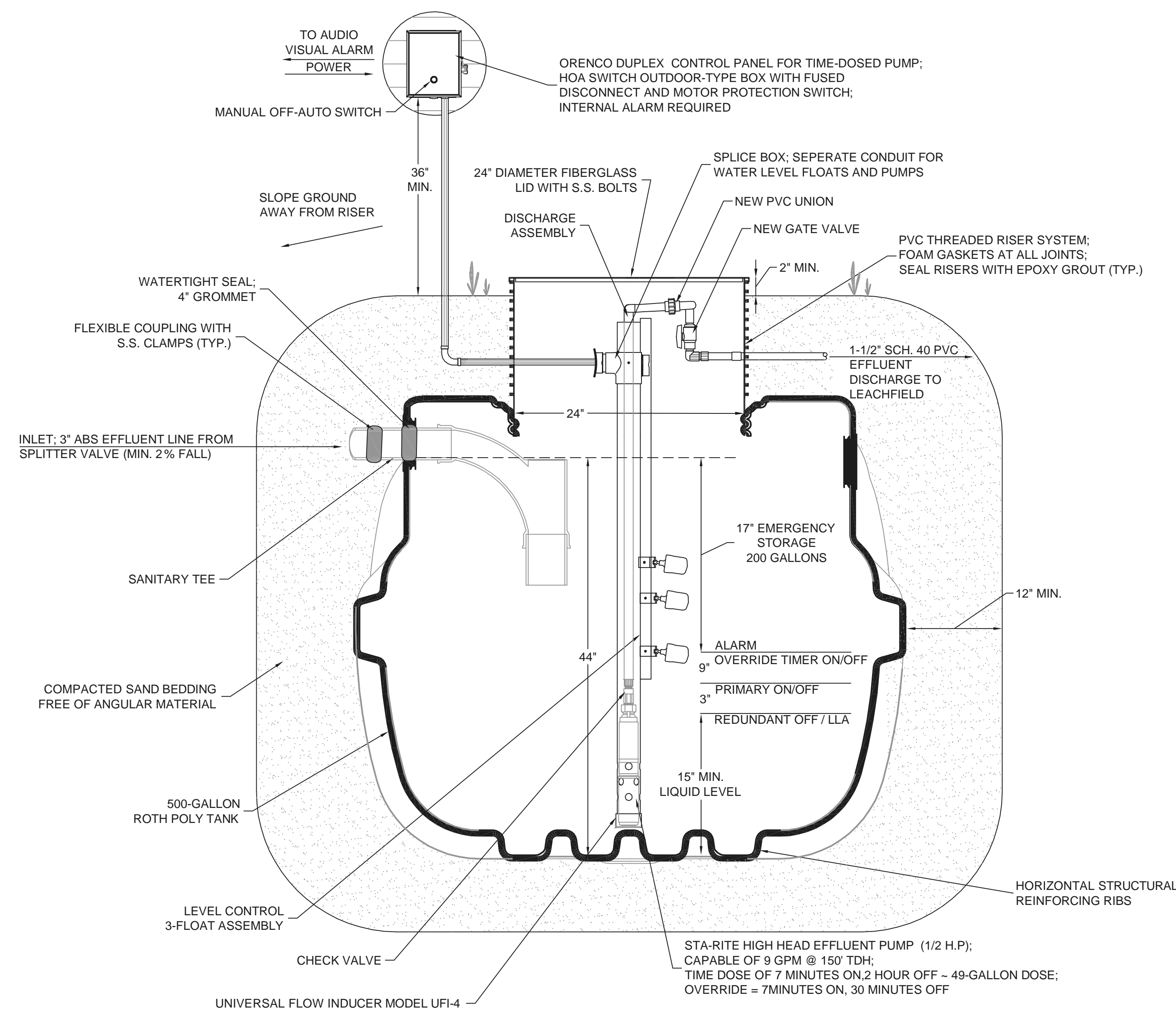
- \* Site survey provided by owner. EED assumes no responsibility.
- \* 630 GPD System
- \* 2' contours shown.



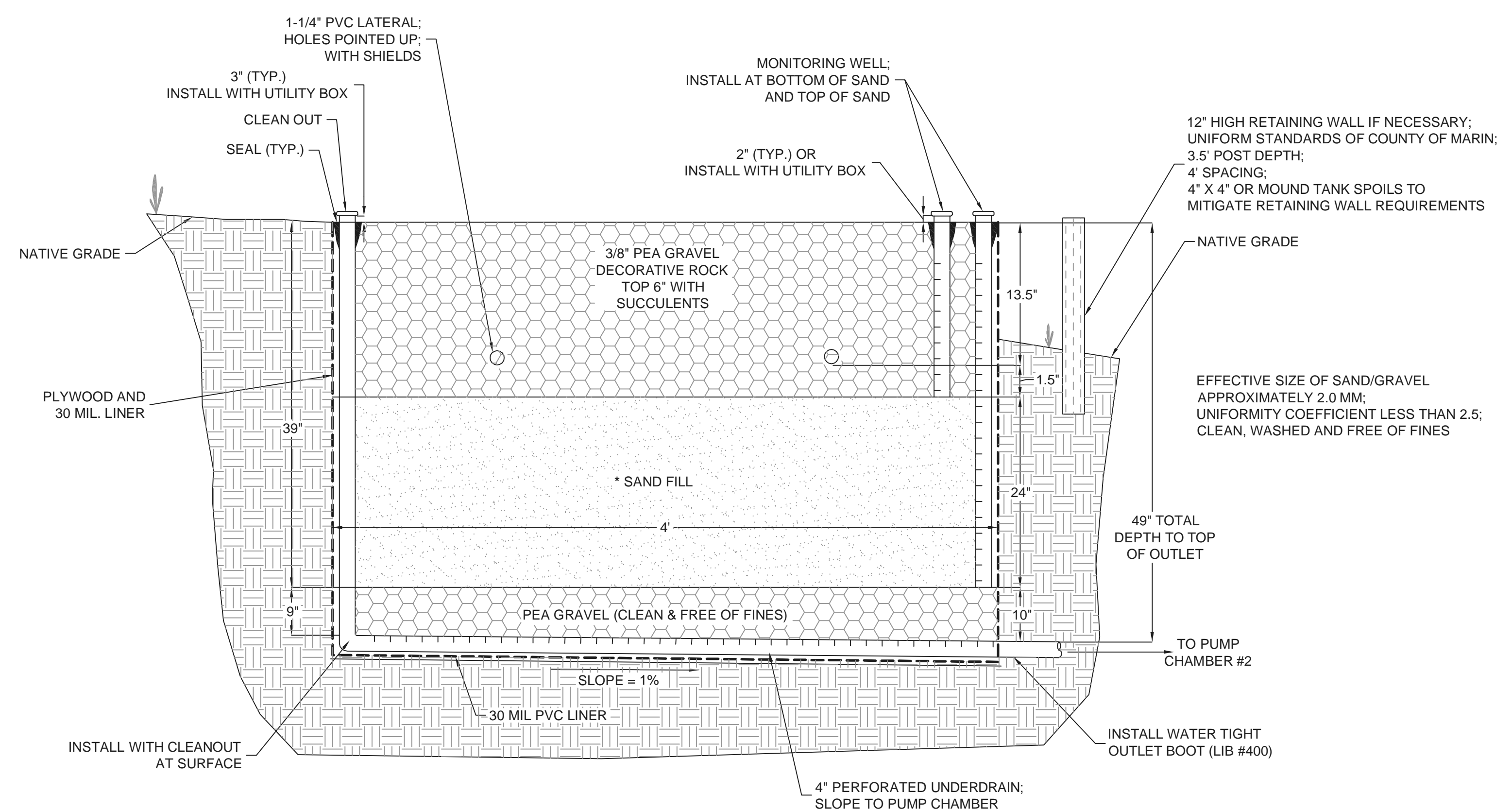
(TWO) ROTH POLY 1,250-GALLON SEPTIC TANK (TYP.) FOR MAIN HOUSE & ADU 1



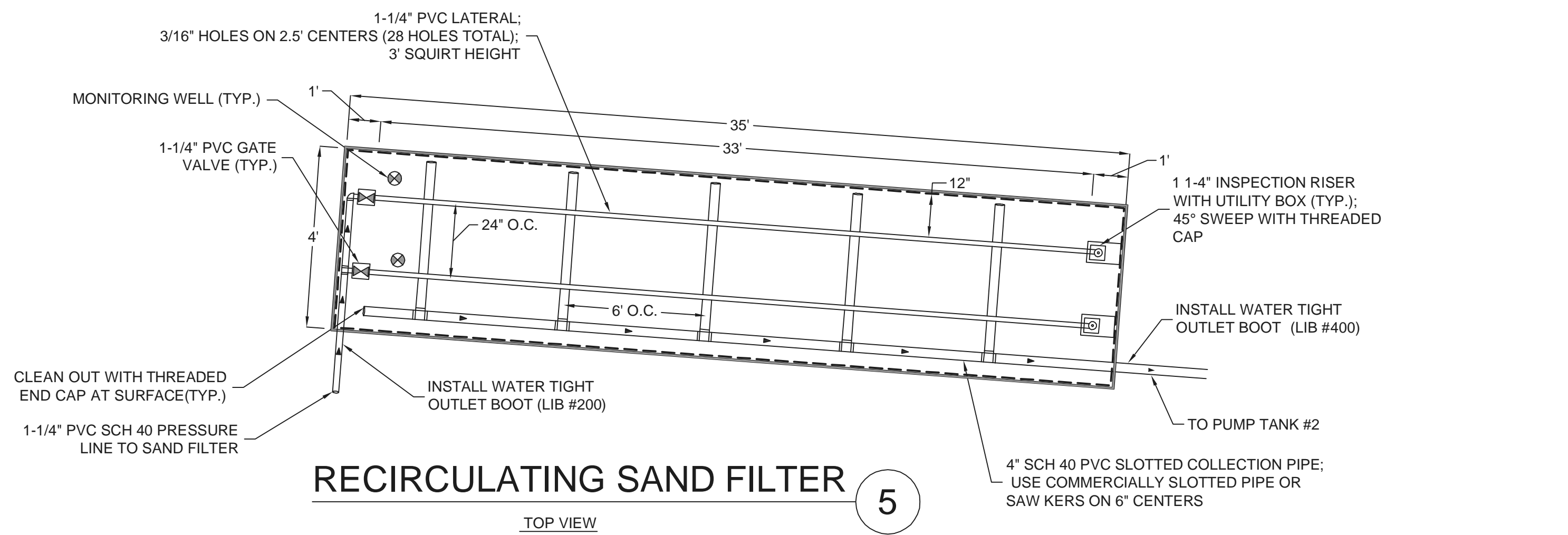
ROTH POLY 1,500-GALLON PUMP CHAMBER # 1 3



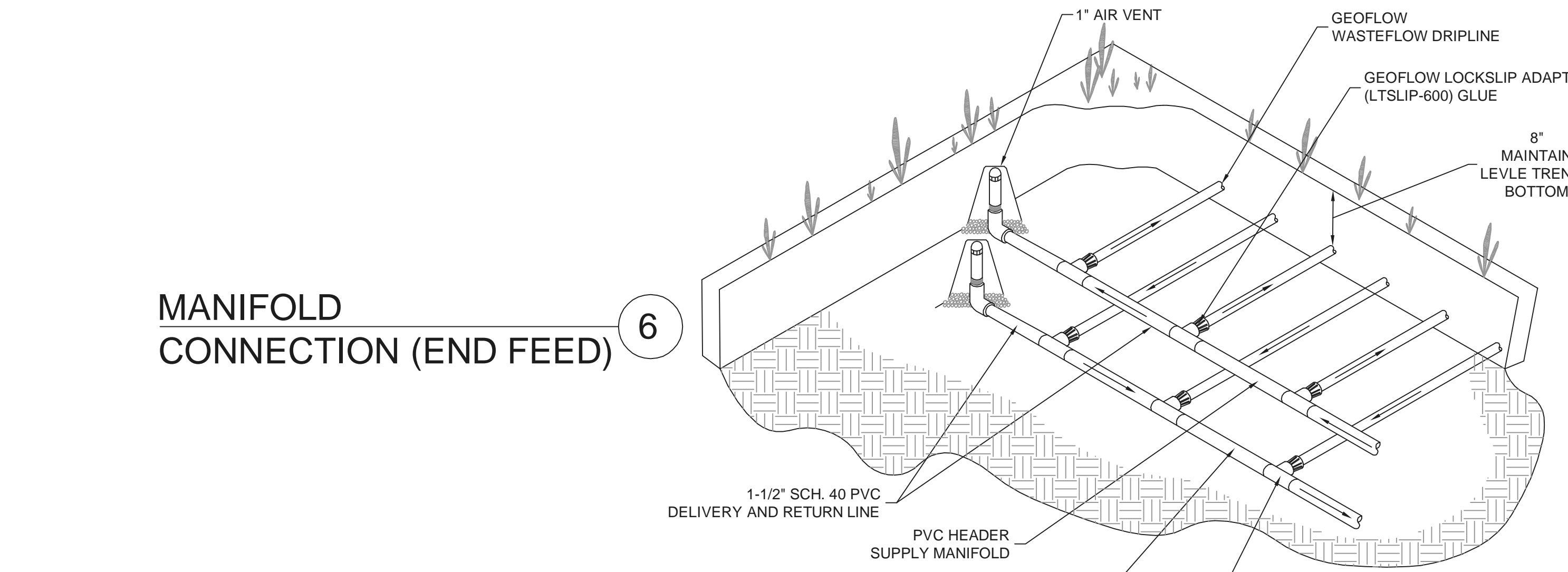
ROTH POLY 500-GALLON TANK WITH EFFLUENT PUMPING SYSTEM 2



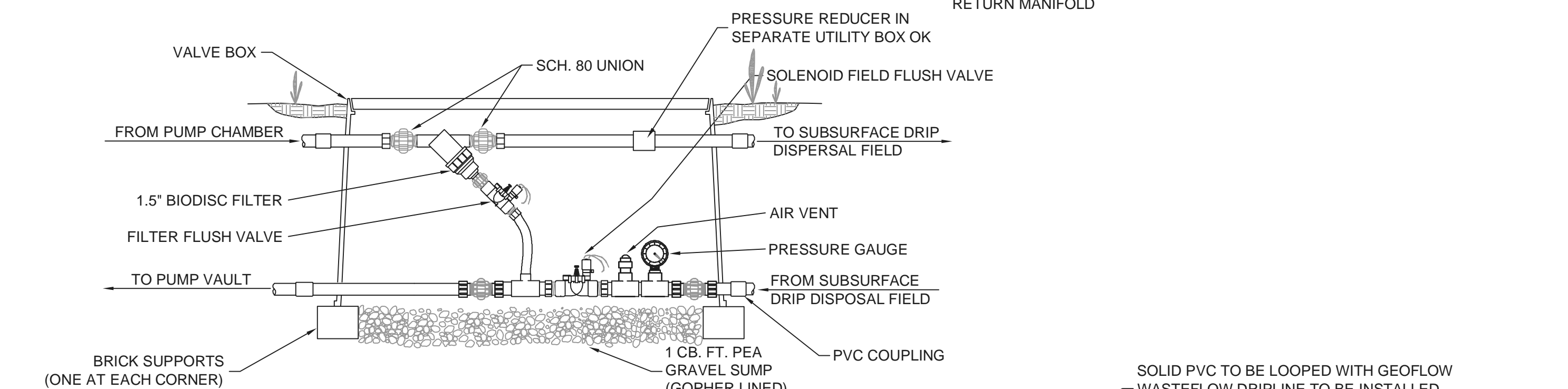
RECIRCULATING SAND FILTER 4



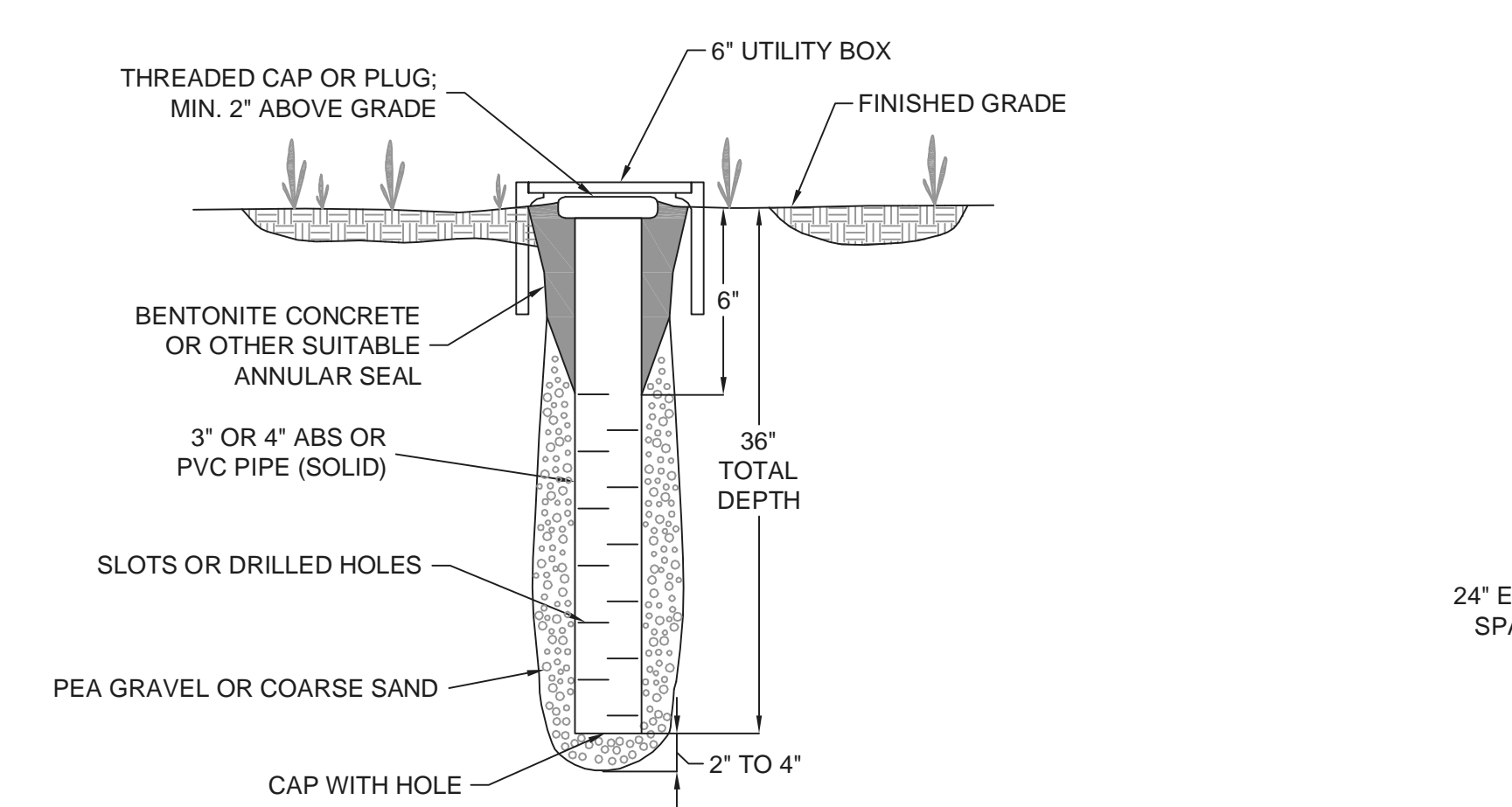
**RECIRCULATING SAND FILTER** 5



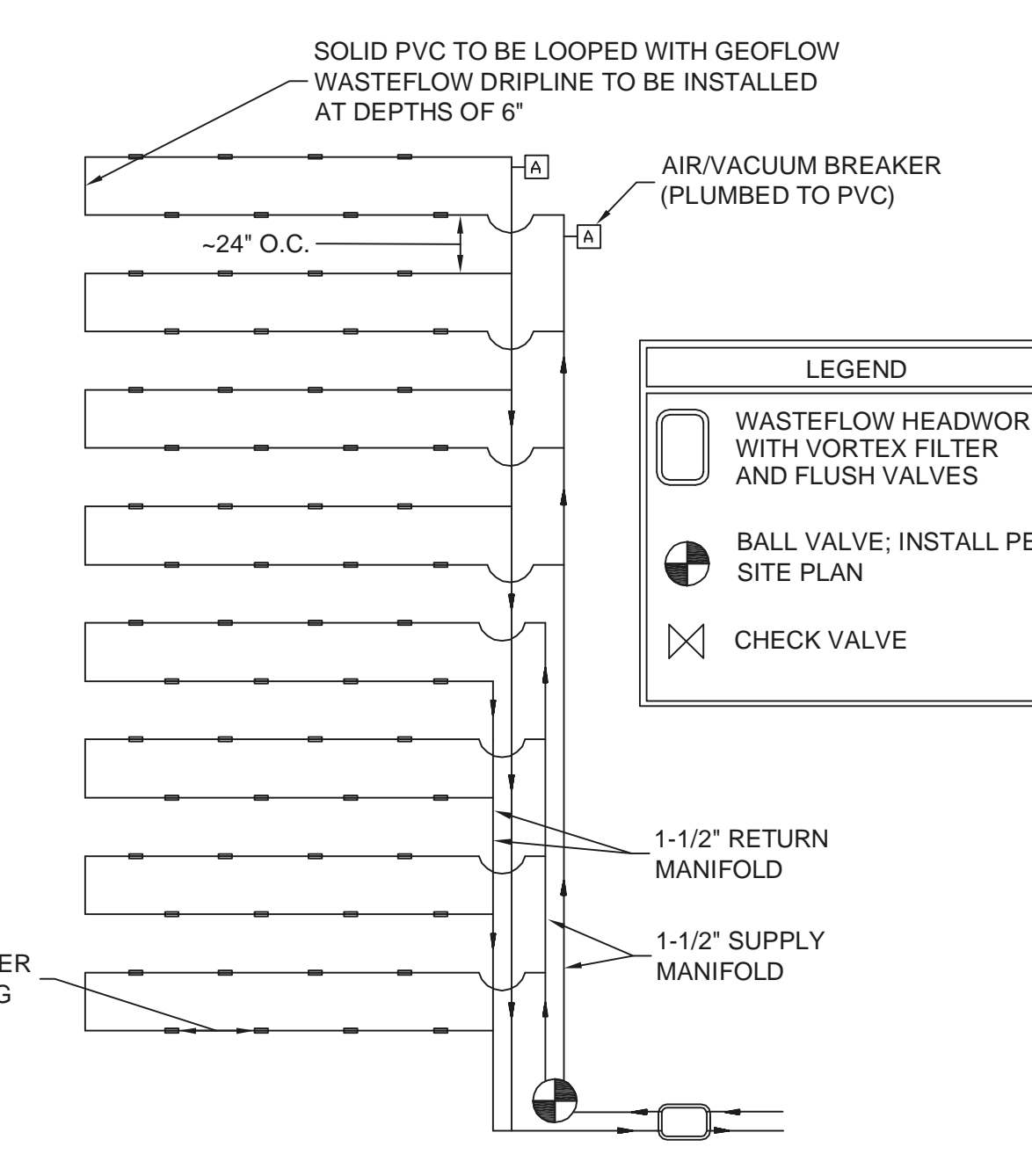
**MANIFOLD CONNECTION (END FEED)** 6



**SIMPLE WASTE FLOW HEADWORKS BOX MODEL # WHW-1.5-AUTO AND 50 PSI PRESSURE REGULATOR** 7



**MONITORING WELL** 8



**SLOPE LAYOUT FOR WASTEFLOW PRESSURE COMPENSATING DRIPLINE (LOOPED)** 9

**CONSTRUCTION SPECIFICATIONS**

**GENERAL**

Changes to plans or specifications shall be made only after consultation with and approval of the Designer.

At all times during the work, keep the premises clean and orderly, and upon completion of the work, repair all damage caused by equipment. Stockpile excavated material in a manner that will cause the least damage to native vegetation and landscaping. Leave the project site free of rubbish or excess materials of any kind.

Construction inspection by the Designer shall be required at points outlined in the attached Construction Inspection Schedule. It shall be the responsibility of the contractor to call for the required inspections, and to provide at least 48-hours advance notification of the Designer and Marin County EHS Department.

All installation shall be in accordance with Marin County Environmental Health Building Codes.

Marin County Building Division Electrical Permit Required.

**MATERIALS**

Eckman Environmental Designs Inc. to approve construction material prior to placement.

- Access Risers.** Shall be made of PVC, watertight, and shall be installed over the inlet and outlet openings of the septic tank and pump basins with fiberglass lids. The riser must be watertight at all points and have a watertight seal at the top of the tank. Manufactured by Orenco Systems Inc. 814 Airway Avenue, Sutherlin, OR, (800) 348-9843, or equal.
- Septic Tank.** 1,500-gallon ROTH tank. See installation instructions.
- Pump Vaults.** Chamber #1 is to be ROTH 1,060-gallon with pump capable of 20 gpm at 40 ft TDH to time dose pretreatment unit. Pump Vault #2 will use the 500-gallon Roth Poly tank. The pump for the dripline is to be Sta-Rite model 10GPM or equal; capable of delivering 11 gpm at 95 ft TDH. Junction boxes #SB4 and #SB1 and high head assembly.
- Distribution Piping.** All piping for the delivery and pressure distribution network shall be Schedule 40 PVC and have a minimum pressure rating of 150 psi unless otherwise specified. All joints shall be solvent-cement socket type conforming to ASTM D-2672.
- Control Panel.** The treatment pumping system and drip irrigation system will be controlled by control panel which meets all specifications for Marin County Codes. The pumping system includes two effluent pumps with time-dosing. The control panel will also operate the Geoflow® automatic Headworks box. Panel must be maximum distance of 20' from pumps AND within direct view.
- Dripline.** Dripline shall be Geoflow® Wasteflow™ PC with line spacing of 24-inches. There shall be pressure-regulating emitters inserted every 24 inches inside the tube. These emitters shall have a nominal flow rate of 1 gallon per hour. The emitters shall be impregnated with Treflan to inhibit root intrusion for a minimum period of 10 years, a period guaranteed by the manufacturer. The dripline shall be identified as being used with non-potable water by means of two purple stripes permanently incorporated into the outside wall of the tube. Operating pressure is 10 to 40 psi. As manufactured by Geoflow, Inc., 1(800) 828-3388.
- Automatic Headworks Box.** The pre-assembled headworks box shall be Geoflow® #WHW-1.5-AUT with an automatic flush configuration and shall include the following: biodisc filter, zone flush valve, filter flush valve, pressure gauge, air vent, schrader valve after biodisc filter, and utility box. As manufactured by Geoflow, Inc.

**Vortex Filter Flush Valve (Solenoid).** Set the control panel so that the filter flush valve will automatically open for 5 seconds at the end of the pump cycle. When the vortex filter flush is complete the filter flush valve will close and the system drain function begins.

**Field Flush Valve.** Will open at the end of the dosing cycle. The pump will continue to run for 5 seconds (field adjustable) to accommodate the opening of this valve. After the pump is deactivated the field flush valve will remain open for five minutes (field adjustable) to allow for drainage of the return line. **It is best to clock the length of time it takes to return flush line to drain and use this to set your drain time.** The field flushing will be directed to the inlet side of the septic tank and is controlled by a solenoid valve located in the automatic headworks box. This setting shall be programmed by Contractor into the control panel.

- Drip Supply Manifold.** The supply manifold shall be 1-1/2-inch Schedule 40 PVC.
- Drip Return Manifold.** The return manifold collects the water flushed from the emitter lines and returns it to the pump chamber #2. The return manifold shall be 1-1/2-inch Schedule 40 PVC.
- Dripline Fittings.** All connections shall be made with barb or compression-type fitting connections. Fitting shall be as manufactured by Geoflow® to ensure the integrity of the subsurface disposal system.
- Geoflow Air/Vacuum Relief Valves.** The air and vacuum relief valves shall be Model No. APVBK-1, or equivalent. The dispersal zone shall utilize a 1-inch MPT air/vacuum relief valve at its high point(s). The purpose of this valve is to evacuate air from the zones at startup and to relieve vacuum at system shut down to prevent back siphoning or back pressure.
- Recirculating Sand Filter.** See sand specs detail #3.

**GENERAL CONSTRUCTION**

- Installation.** All installation work shall be in accordance with applicable Marin County
- Septic Tank and Pump Chamber Leak Test.** All tanks and vaults shall be required to be certified as watertight. Field testing of tanks shall be required and conducted as follows:  
Designer to visually inspect tank prior to conducting leak test. Fill tank and pump chamber so water level is 2 inches ± above tank/access riser joints. Note depth of water and re-measure not less than 1 hour later. A water drop will be considered to be an indicator of a leaking tank; and tank shall be repaired or replaced to the satisfaction of the designer.
- Location of Drip Disposal Area.** Location shown for the drip disposal area is approximate, subject to adjustment in the field by the Contractor according to building constraints and noted setback requirements.
- Septic Tank and Pump Vault Locations.** Location for the septic tank and pump vaults is approximate, subject to adjustment in the field by the contractor according to building constraints and any noted setback requirements.
- Pump Controls.** Pumps controlled on a timed basis. Timer setting and final setting of float switches shall be determined in the field, based on actual pump chamber dimensions.
- Electrical.**  
- High water audio and visual alarm IS required within the house.  
- All electrical work shall conform to procedures and codes of Marin County Building Department.

Effluent Pump: The pump shall be of the size and type to accommodate the intended use and shall include the following:

- A "Hand-off-auto" (HOA) switch.
- An audio and visible alarm and necessary sump water sensing device to indicate a "high water" condition.
- Float switches shall be anchored to a suitable float tree for controlling the starting and stopping of pump operation.
- The pump intake shall be set a minimum of 4 inches above the sump bottom.

Sump:

- Access shall be provided by a minimum 24-inch diameter opening;
- All pipes and/or electrical conduits through the sump shall be either precast into the sump or sealed with gas-tight compression connectors.

Electrical Features: The following electrical features shall be provided:

- An outdoor-type control box containing fused disconnect and motor protection switch.
- The control box may be mounted on the building served if located within 30 feet and within direct view of the sump, otherwise the control box shall be mounted on a pipe stand or wooden post.
- Electrical conduit shall be PVC. Separate conduits shall be provided for control wire and power supply. Separate circuits with individual breakers at the main panel shall be provided for the control panel/alarm and pump.

**19. Pressure Pipe Network.**

- All pressure pipe shall be Schedule 40 PVC or approved equal.
- All joints shall be glued with solvent cement.
- Hydraulic testing shall be conducted in the presence of the Designer to determine any leaks in the system and pump operation.
- A concrete thrust block shall be installed at all pipe bends of 45° or greater in all pressure lines.

**20. Utility Box Lining.** All utility boxes to be lined with wire to prevent Gopher intrusion.

**21. Sand Filter Sand/Gravel.** Effective size of sand/gravel approximately 2.0 mm; uniformity coefficient less than 2.5; clean, washed and free of fines.

**22. Existing Tank Abandonment.** Pump tank, crush, and backfill with clean rock.

**GEOFLOW INSTALLATION**

All Geoflow drip systems require: 100 micron / 150 mesh filter, Filter flush valve, Field flush valve and Air vent in each zone. All Wasteflow PD drip systems require pressure regulation.  
**Handle your dripline and components with care. ROOTGUARD® is temperature sensitive. To assure a long life store the drip line out of direct sunlight in a cool place. Install the system headfirst: pumps, control panel, and automatic headworks box.**

- All dripline construction shall be done in accordance with Local rules and regulations.
- No utilities, cable wire, drain tile, etc shall be located in dripline.
- Fence off entire dripline prior to any construction.
- System is not to be installed when ground is wet.
- Be sure you have everything required for the installation before opening trenches. Pre-assemble as many sets of components as practical above ground and in a comfortable place. Compression or Lockslip adapters should be glued to PVC tees, riser units should be pre-assembled, the submain manifold with tees can be pre-assembled and used to mark the beginning and end of WASTEFLOW lines.
- For particularly tough soil conditions moisten the soil 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 and not cause smearing in the trenches. The soil surface should be dry so that the installation equipment maintains traction.
- Mark the four corners of the field. The top two corners should be at the same elevation and the bottom two corners should be at a lower elevation. In freezing conditions the bottom dripline must be higher than the supply and return line elevation at the dosing tank.
- Install the PVC supply line from the dosing tank, up hill through one lower and one upper corner stake of the dispersal field. 18-inch depth of burial.
- Paint a line between the two remaining corner stakes.
- Install the Geoflow WASTEFLOW dripline from the supply line trench to the painted line, approximately 8" deep as specified. Upon reaching the painted line, pull the plow out of the ground and cut the dripline 1" above the ground. Tape the end of the dripline to prevent debris from entering. Continue this process until the required footage of pipe is installed. Geoflow dripline must be spaced according to specification. Depth of burial of dripline must be consistent throughout the field. Take care not to dig dirt into the lines.
- Install the supply header with tees lined up at each Geoflow line. Hook up the Geoflow lines to the supply header. Do not glue WASTEFLOW dripline.
- Installing Lockslip fittings:  
a) Hold the fitting in one hand and position the tubing with the other hand.  
b) Move the sleeve back, and push the tubing onto the exposed stem as far as possible.  
c) Push the sleeve out over the tubing and thread the sleeve onto tubing, as though tightening a nut to a bolt. Hand tighten. Do not use tools.
- Install the pre-assembled Headworks between the field and the pump tank on the supply line.
- If using a pressure regulator, install it downstream of the filter or Headworks, just ahead of the dispersal field, on the supply line. The pressure regulator can be installed inside a small valve box for easy access.
- Install the floats in the dosing tank and wire up to the timer control. The timer control should be set to pump no more than the design flow, do not set to match the treatment capacity.
- Fill the dosing tank with fresh water and turn on the pump. Check for flow out the ends of all of the Geoflow lines. Let the pump run for about five minutes to flush out any dirt. Shut off the pump and tape the ends of the lines.
- Dig the return header ditch along the line painted on the ground and back to the pre-treatment tank. Start the return header at the farthest end from the dosing tank. The return line must have slope back to the treatment tank or septic tank.
- Install the return header and connect all of the Geoflow lines. Care must be taken not to kink the dripline.
- Install air vacuum breakers at the highest points in the dispersal field. Use pipe dope or Teflon tape and hand tighten.
- If Headworks was installed on the supply line, connect the return line back through the Headworks box. Open the field flush valve and turn on the pump to flush lines then close the valve and check the field and all piping and connections for leaks. Turn off the system
- Turn on the pump and check the pressure at the air vacuum breaker(s). It should be between 15 to 60 PSI. Check the pressure in the WASTEFLOW Headworks if used. It should be five psi or higher. If using a manual valve for field flushing, crack it open until at least one PSI is lost or design pressure is reached and leave in that position.
- Check the filter for construction debris and clean.

**ROTH TANK INSTALLATION: See detailed manual provided by manufacturer**

**CONSTRUCTION INSPECTION SCHEDULE**

In accordance with requirements of Marin County EHS, the following construction activities shall be inspected by Designer and EHS Staff.

- INSPECTION #1**
- Onsite pre-construction conference to discuss project with Contractor; and
  - Staking of septic tank and pump chambers; and
  - Review for sand material; and
  - Staking and layout of subsurface drip dispersal system and sand filter.

- INSPECTION #2**
- Septic Tank and pump chamber leak test; and
  - Check water tight sand filter liner; and
  - Placement of ABS, delivery & return drip lines to drip, delivery lines and gravity lines.

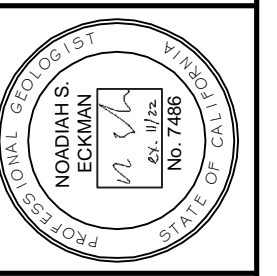
- INSPECTION #3**
- Assembly and layout of Geoflow drip pipe network; and
  - Testing of pumps and distribution systems; and
  - Complete sand filter installation. Set timer and determine dose rates.

- INSPECTION #4**
- Complete Geoflow installation. Set timer and determine dose rates and other settings; and
  - Final grading for drainage and erosion control; and
  - General site clean up.

APN	199-201-03
DATE /REV.	01 - 15 - 2021 / A
SCALE/SIZE	NONE /ARCHD
SHEET	3 OF 3

**ON-SITE WASTEWATER SYSTEM PLAN CONSTRUCTION DETAILS**

HARDY YAKA, INC  
68 STARBUCK DRIVE  
MUIR BEACH, CALIFORNIA



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