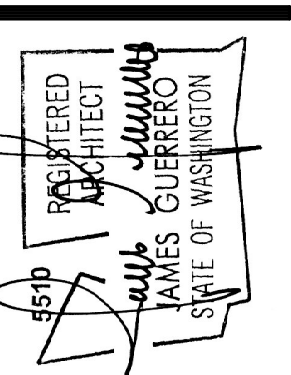


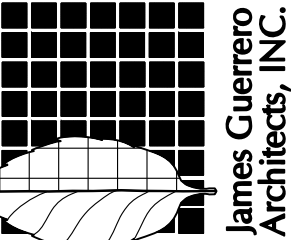
# BOYLE MERCER ISLAND

## 3603 WEST MERCER WAY, MERCER ISLAND, WA 98040



- 2ND SUBMITTAL 05-31-18
- 3RD SUBMITTAL 12-11-18
- 4TH SUBMITTAL 04-05-19
- 5TH SUBMITTAL 07-31-19
- 4TH SUBMITTAL 10-25-19

11150 Gravelly Lake Drive SW  
Lakewood, WA 98499  
Phone: 253/581-6000  
Website: www.jgarch.net



BOYLE MERCER ISLAND  
COVER SHEET & PROJECT INFORMATION

PERMIT REVIEW SET	DATE	10-18-17
	REVISED	5-30-18
		12-11-18
		04-05-19
		07-31-19
	10-25-19	
SHEET NO.	A0.1	
SCALE FACTOR:	240	

### PROJECT DESCRIPTION

THIS PROJECT INCLUDES THE DEMOLITION OF AN EXISTING BUILDING AND THE ADDITION OF A NEW THREE STORY HOUSE WITH AN UNDERGROUND TUNNEL AND ELEVATOR THAT LEADS TO A TWO CAR GARAGE OVER AN ACCESSORY DWELLING UNIT.

### OWNER/PROPERTY INFORMATION

ADDRESS: 3603 PRIVATE DRIVEWAY  
MERCER ISLAND, WA 98040  
TAX PARCEL#: 3623500245

OWNER: MICHAEL BOYLE  
3603 WEST MERCER WAY  
MERCER ISLAND, WA 98040

### BUILDING INFORMATION

ZONING: R-15  
ALLOWABLE USES: RESIDENTIAL  
SITE AREA: 8078 S.F.

OCCUPANCY GROUP: R-3  
CONSTRUCTION TYPE: VB  
NO. OF FLOORS: MAIN HOUSE: 3, GARAGE/ADU: 2  
SPRINKLERED: YES, IS R SYSTEM

BASEMENT: 1089 S.F.  
1ST FLOOR: 1215 S.F.  
2ND FLOOR: 520 S.F.  
ADU: 544 S.F.  
GARAGE: 544 S.F.  
TOTAL BLDG. AREA: 4132 S.F.

### ZONING ALLOWABLE AREAS

GROSS LOT AREA: 8078 S.F.  
LOT SLOPE: 43.78%  
ALLOWABLE LOT COVERAGE: 30%  
NEW IMPERVIOUS SURFACE AREA: 2,332 S.F.  
IMPERVIOUS SURFACE %: 28.8%  
ALLOWABLE GROSS FLOOR AREA: 3435 S.F. / 45%  
GROSS FLOOR AREA: 3401 S.F. / 44.7%

### LOT COVERAGE

LOT SIZE: 8,078 SF  
ALLOWABLE LOT COVERAGE: 30% = 2,423 SF  
IMPERVIOUS AREAS

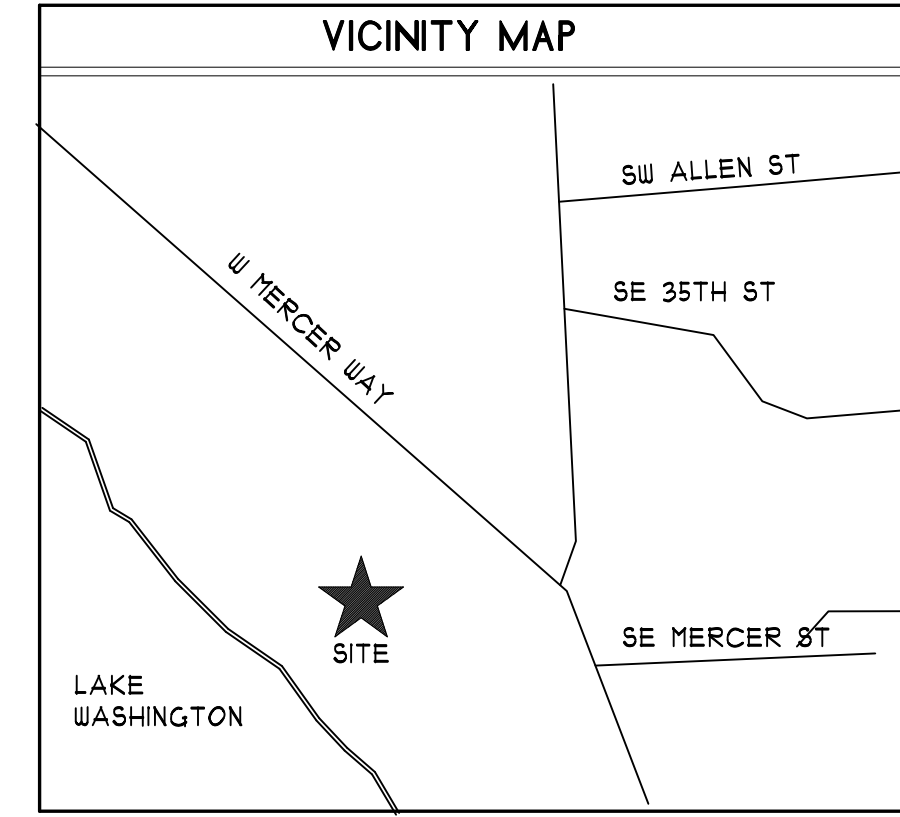
EXISTING HOUSE TO BE REMOVED:	(1,483 SF)
NEW HOUSE ROOF AREA:	1,471 SF
NEW GARAGE/ADU ROOF AREA:	419 SF
CONCRETE APRON & GARAGE:	94 SF
EXPOSED ROOF (15SF) AND CONCRETE LANDING (24SF):	51+24=83 SF
TOTAL:	2,249 SF

PERVIOUS DEVELOPMENT (ALL EXEMPT)

EXISTING WOOD STAIRS+PATHS REMOVED:	300 +/- SF
NEW DECKS & LANDING AT ADU:	12+15 = 181 SF
NEW IMPERVIOUS DECK AT HOUSE:	394 SF
NEW GRAVEL PATH:	74 SF
NEW EXTERIOR STAIRS:	382 SF
PERMEABLE PAVERS:	531 SF
TOTAL:	2,854 SF

### DRAWING INDEX

- AO.1 COVER SHEET AND PROJECT INFORMATION
- T1.0 TOPOGRAPHIC SURVEY
- AO.2 ENLARGED SITE PLAN
- AO.3 TREE RETENTION PLAN
- AO.4 SITE SECTIONS
- AO.5 SITE STAIR DETAILS
- AO.4 SITE STAIR DETAILS
- L1.0 LANDSCAPE PLAN
- C1.0 COVER SHEET/SITE PLAN
- C2.0 T.E.S.C. PLAN AND NOTES
- C3.0 DRAINAGE AND UTILITY PLAN
- C4.0 GRADING PLAN
- C5.0 NOTES AND DETAILS
- C6.0 NOTES AND DETAILS
- SN1 TEMPORARY SHORING WALL NOTES
- SN2 TEMPORARY SHORING WALL NOTES
- SN3 TEMPORARY SHORING WALL NOTES
- SN4 TEMPORARY SHORING WALL SEQUENCING DETAILS
- SN-1 SOIL NAIL WALL PLAN & NOTES
- SN-2 SOIL NAIL WALL PROFILES
- SN-3 SOIL NAIL WALL DETAILS
- A1.0 GARAGE FLOOR PLANS
- A1.2 FIRST LEVEL FLOOR PLAN
- A1.3 BASEMENT & SECOND FLOOR PLANS
- A2.1 EXTERIOR ELEVATIONS
- A2.2 EXTERIOR ELEVATIONS
- A2.3 EXTERIOR ELEVATIONS
- A2.4 EXTERIOR ELEVATIONS STAIRS
- A3.1 BUILDING SECTIONS
- A3.2 BUILDING SECTIONS
- A3.3 WALL SECTIONS
- A4.0 WINDOW SCHEDULE
- S1.0 GENERAL NOTES
- S1.1 GENERAL DETAILS
- S2.1 FOUNDATION & FIRST FLOOR FRAMING PLANS
- S2.2 SECOND FLOOR & ROOF FRAMING PLANS
- S2.3 GARAGE FOUNDATION & FRAMING PLANS
- S3.1 DETAILS
- S3.2 DETAILS
- S3.3 DETAILS

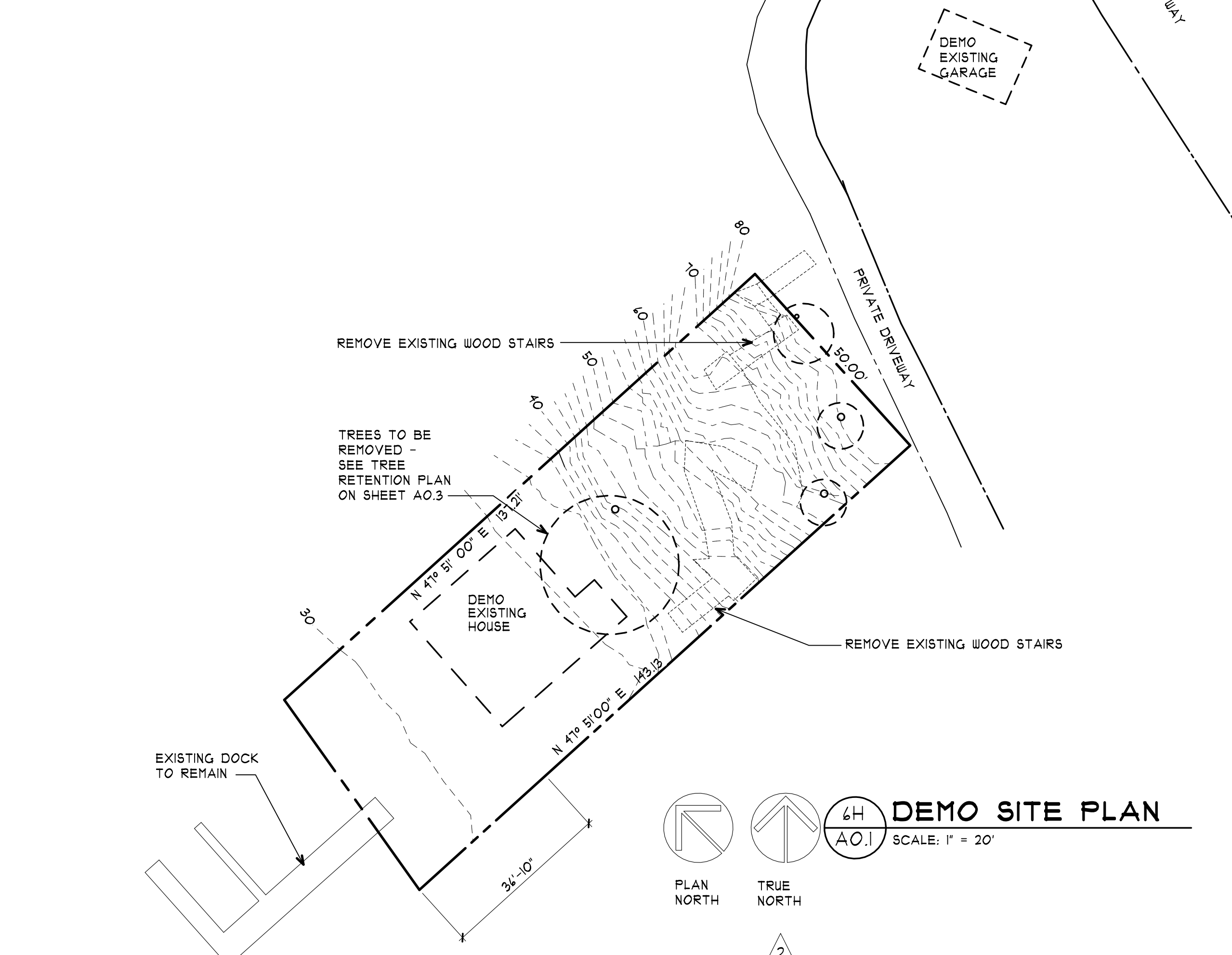


### LEGAL DESCRIPTION

A TRACT OF LAND IN THE NORTHERLY PORTION OF BLOCK "A" IN THE REPLAT OF ISLAND PARK, ACCORDING TO PLAT RECORDED IN VOLUME 13 OF PLATS AT PAGE 58, RECORDS OF KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE NORTHEASTERLY MARGIN OF BLOCK "A" IN THE REPLAT OF ISLAND PARK, DISTANT NORTHWESTERLY ALONG THE SAID MARGIN 1000.00 FEET FROM THE MOST EASTERLY CORNER OF SAID BLOCK "A" AND RUNNING THENCE AT RIGHT ANGLES SOUTHWESTERLY 143 FEET, MORE OR LESS, TO THE SHORE LINE OF LAKE WASHINGTON; THENCE SOUTHEASTERLY ALONG THE SAID SHORE LINE 53 FEET, MORE OR LESS, TO A POINT WHICH BEARS FROM THE POINT OF BEGINNING THIS DESCRIPTION SOUTHWESTERLY AT RIGHT ANGLES TO THE SAID NORTHEASTERLY MARGIN OF BLOCK "A"; THENCE NORTHEASTERLY ALONG THE LINE AT RIGHT ANGLES TO THE SAID NORTHEASTERLY MARGIN 150 FT, MORE OR LESS TO POINT OF BEGINNING, TOGETHER WITH SHORE LANDS OF THE SECOND CLASS AND ADJACENT THERETO, SITUATE IN KING COUNTY, STATE WASHINGTON.

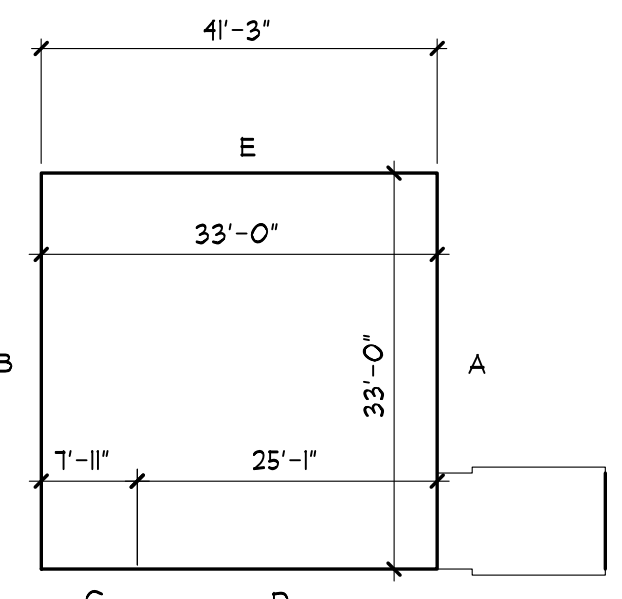
LEGAL DESCRIPTION PER QUIT CLAIM DEED UNDER RECORDING NO. 199505040145



### BASEMENT EXCLUSION CALCULATION

WALL SEGMENT	LENGTH	COVERAGE	RESULT
A	33'	91%	A
B	33'	0%	B
C	8'	0%	C
D	25'	11%	D
E	33'	4%	E

= (1,089 SF X 33X91% + 33X0% + 8X0% + 25X11% + 33X4%)/132'  
= 1,089 SF X 28%  
= 305 SF EXCLUDED FROM THE GROSS AREA



- ### BUILDING ENVELOPE AND PENETRATIONS
- ALL CONSTRUCTION TO MEET 2015 WASHINGTON STATE ENERGY CODE.
  - SEAL, CAULK AND GASKET BUILDING ENVELOPE PER 2015 WSEC.
  - ALL DOORS AND OPERABLE WINDOWS TO BE WEATHERSTRIPPED PER 2015 WSEC.
  - THROUGH WALL RATED PENETRATIONS 2" DIA. OR LESS SHALL COMPLY WITH 2015 IRC.
  - BUILDING MECHANICAL TO BE BASED ON GAS FORCED AIR OR HEAT PUMP.
  - ALL DUCTING AND PIPING TO BE INSULATED PER 2015 WSEC.

### ENERGY CODE INFORMATION

RESIDENCE: HYDRONIC FLOOR HEAT SYSTEM UTILIZING AN AIR SOURCE HEAT PUMP WITH MIN. HSPF OF 9.0  
A.D.U.: DUCTLESS HEAT PUMP

CEILING	R-49
FLOORS	R-38
FLOORS, SLAB	R-10 RIGID AT PERIM.
WALLS	R-21
DOORS	U-.20
VERTICAL WINDOWS	U-.28

GLAZING CALCULATION  
CONDITIONED FLOOR AREA: 3348  
VERTICAL GLAZING (INCL FR. DOORS): 544  
% OF GLAZING: 16.7%

WSEC ENERGY CREDITS - 3.5 REQUIRED

OPTION	CREDITS
3b	1.0 AIR SOURCE HEAT PUMP MIN. HSPF OF 9.0
4	1.0 HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM
5a	0.5 EFFICIENT WATER HEATING
6	1.0 RENEWABLE ELECTRIC ENERGY

- ### GENERAL PROJECT NOTES
- CONTRACTOR TO FIELD VERIFY ALL EXISTING DIMENSIONS. REPORT DISCREPANCIES TO ARCHITECT PRIOR TO BEGINNING CONSTRUCTION.
  - ALL WORK TO BE PERFORMED ACCORDING TO 2015 IRC, CITY OF MERCER ISLAND REQUIREMENTS AND OTHER APPLICABLE CODES.
  - ARCHITECT AND ENGINEER SHALL BE NOTIFIED OF DISCREPANCIES IN THE CONTRACT DOCUMENTS TO DETERMINE COURSE OF ACTION PRIOR TO CONTRACTOR PERFORMING WORK RELATED TO SUCH AREA.
  - ALL WORK TO MEET OR EXCEED STANDARD BUILDING CONVENTIONS FOR RESIDENTIAL CONSTRUCTION.
  - ALL ELEMENTS TO BE CONSTRUCTED TRUE AND PLUMB.
  - FLOOR PLAN DIMENSIONS ARE TO FACE OF STUDS.
  - INTERIOR AND EXTERIOR DOORS ARE TO BE SOLID CORE OR 20 MINUTE FIRE RATED.
  - A CITY OF MERCER ISLAND APPROVED CONSTRUCTION MANAGEMENT PLAN MUST BE PROVIDED PRIOR TO THE START OF ANY WORK.

### WHOLE HOUSE VENTILATION

WHOLE HOUSE VENTILATION CALCULATION  
TABLE M5013.3  
544 SF 1 BEDROOM ADU NEEDS 30 CFM CONTINUOUS  
2,823 SF 3 BEDROOM RESIDENCE NEEDS 40 CFM CONTINUOUS  
TABLE M5014 - KITCHENS NEED 25 CFM CONTINUOUS, BATHROOMS 20 CFM CONTINUOUS

RESIDENCE:  
BASEMENT:  
1,089 SF X 15' = 810 CF X 0.3 = 244/40 = 40.8 CFM NEEDED  
PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH UNIT PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN.

FIRST FLOOR:  
1,434 SF X 15' = 10,710 CF X 0.3 = 3,213/40 = 80.3 CFM NEEDED PER PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH UNIT PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN.

SECOND FLOOR:  
520 SF X 15' = 3,900 CF X 0.3 = 1,170/40 = 29.25 CFM NEEDED  
PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH UNIT PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE ONE IN THE BATHROOM AND ONE IN THE MAIN SPACE








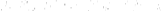









ACCESSORY DWELLING UNIT:  
544 SF X 15' = 4,080 CF X 0.3 = 1,224/40 = 30.6 CFM NEEDED  
PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH UNIT PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN

- R402.4.1.1 Installation. The components of the building thermal envelope as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the code official, an approved third party shall inspect all components and verify compliance.
- R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches a.g. (50 Pascals) where required by the code official. Testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.
- Once visual inspection has confirmed sealing (see Table R402.4.1.1), operable windows and doors manufactured by small business shall be permitted to be sealed off at the frame prior to the test.
- During testing:
- Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
  - Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
  - Interior doors, if installed at the time of the test, shall be open, access hatches to conditioned crawl spaces and conditioned attics shall be open.
  - Exterior openings for continuous ventilation systems and heat recovery ventilators shall be closed and sealed.
  - Heating and cooling systems, if installed at the time of the test, shall be turned off; and
  - Supply and return registers, if installed at the time of the test, shall be fully open.

# TOPOGRAPHIC SURVEY

## IN THE SW 1/4 OF THE NW 1/4 OF SECTION 12, TOWNSHIP 24 NORTH, RANGE 4 EAST, W.M. MERCER ISLAND, KING COUNTY, WASHINGTON

### LEGEND

-  FOUND 1" IRON PIPE APRIL 2014
-  FOUND REBAR AND CAP ASPI 38014 APRIL 2014
-  FOUND REBAR AND CAP 19622 APRIL 2014
-  FOUND REBAR AND CAP GEO 15025 APRIL 2014
-  FOUND REBAR AND CAP DEA APRIL 2014
-  WOOD FENCE
-  CHAIN LINK FENCE
-  WATER PAINT MARK
-  DECIDUOUS TREE
-  CONIFER TREE
-  UTILITY POLE
-  SANITARY SEWER MANHOLE
-  SANITARY SEWER CLEANOUT
-  STORM DRAINAGE CATCH BASIN
-  GUY ANCHOR
-  LIGHT POLE
-  OHWM FLAG

### EQUIPMENT USED

TOPCON PS103A TOTAL STATION. STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

### BASIS OF BEARINGS

ASSUMED: FOUND SURVEY MARKERS ALONG THE NORTHEASTERLY LINE OF BLOCK "A" IN THE REPLAT OF ISLAND PARK ARE N42°09'00"W.

### BASIS OF ELEVATION

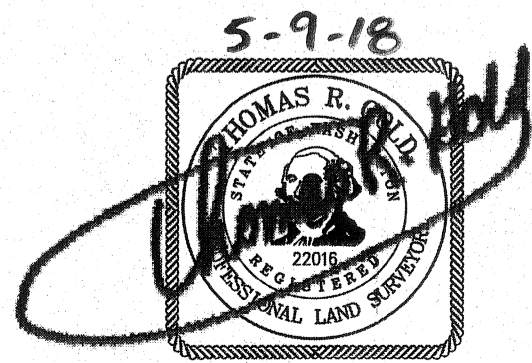
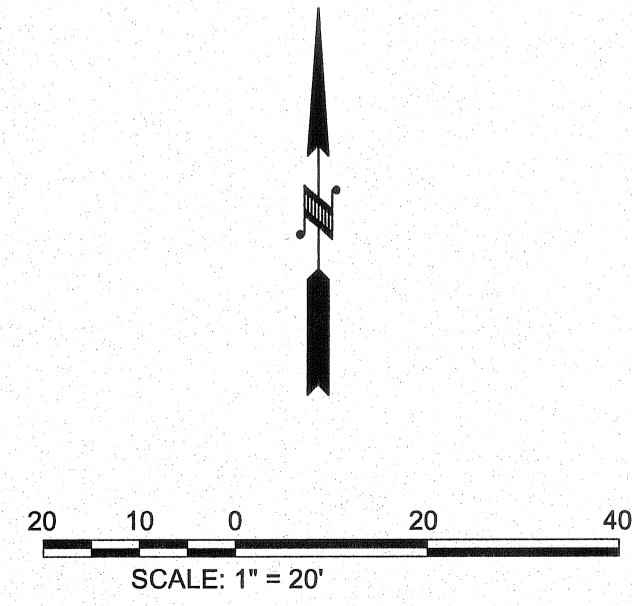
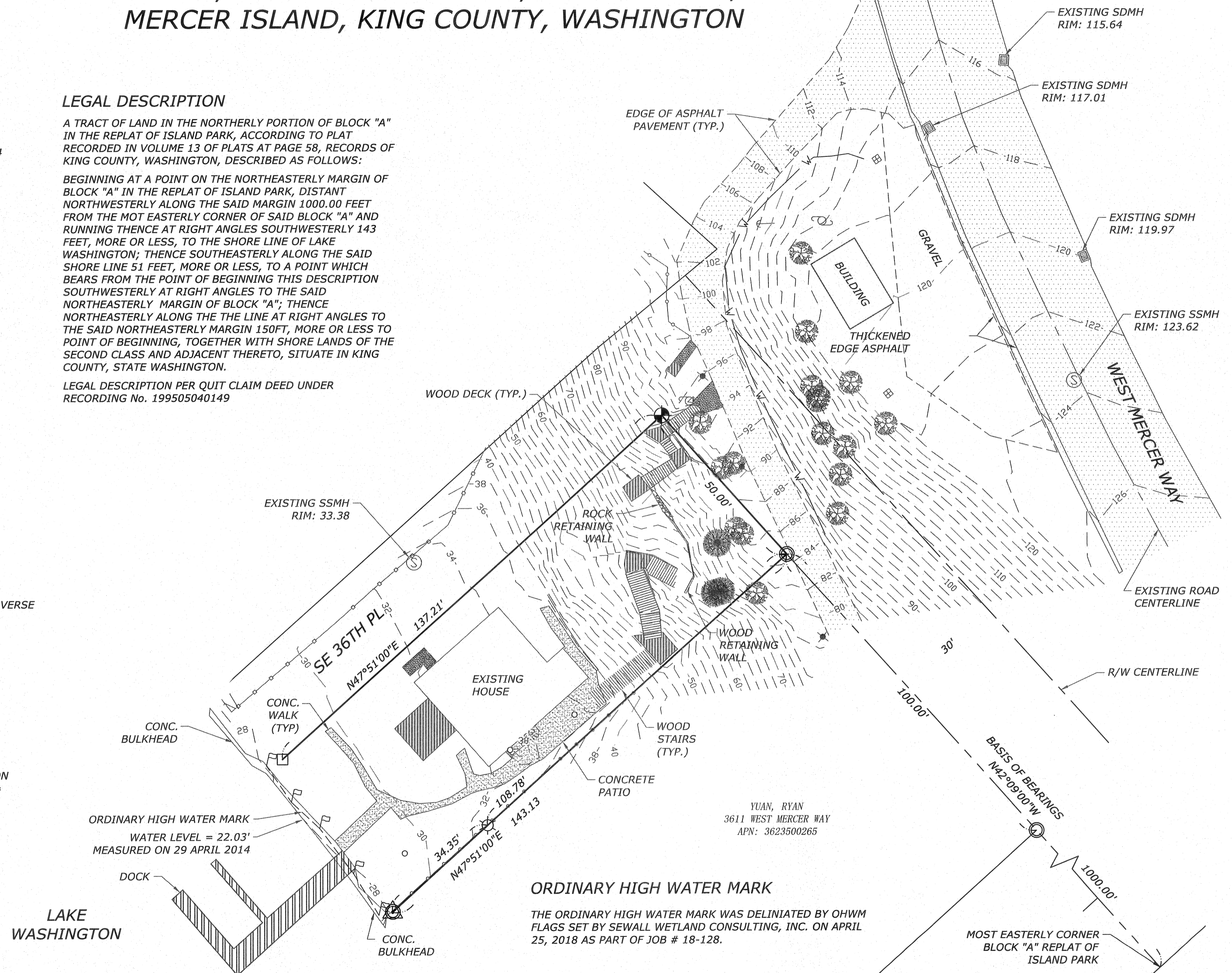
NGVD29 PER MONUMENT CACS14: 2" ALUMINUM CAP IN CONCRETE LOCATED AT THE END OF THE STOP STRIPE ON 67TH AVENUE SE AND WEST MERCER WAY. ELEVATION = 54.09.

### LEGAL DESCRIPTION

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LEGAL DESCRIPTION PER QUIT CLAIM DEED UNDER RECORDING No. 199505040149



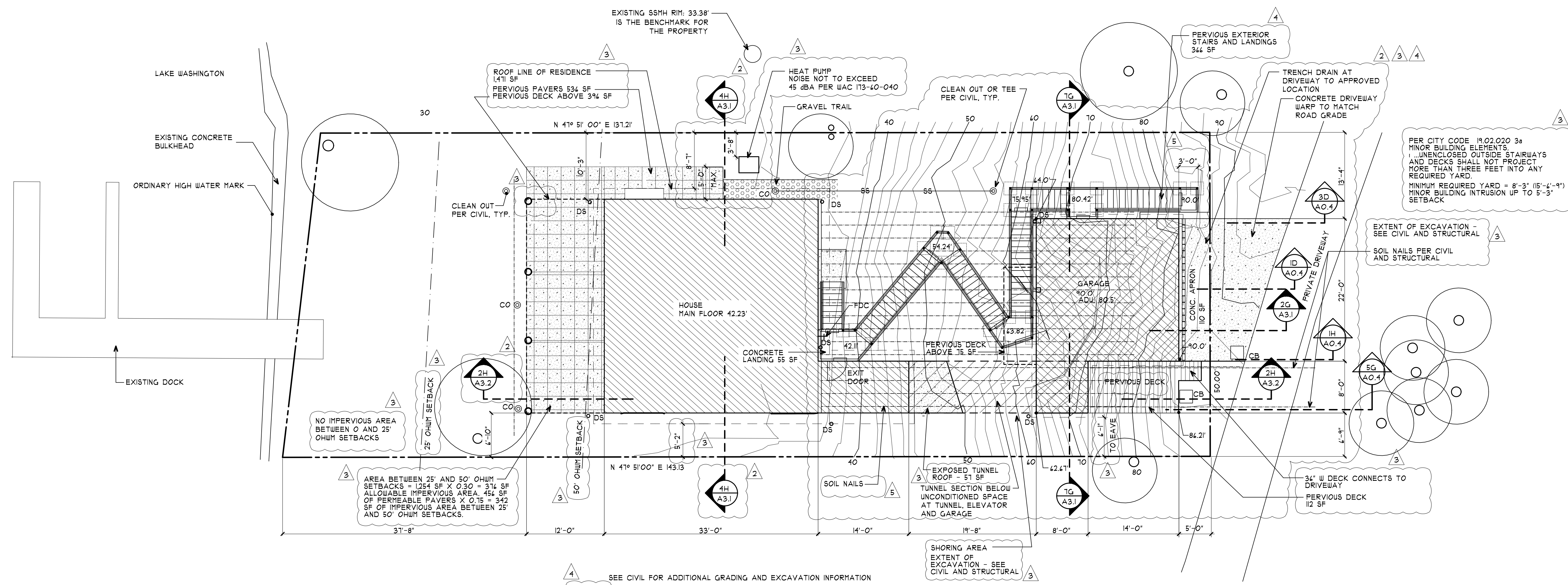
**ORDINARY HIGH WATER MARK**  
THE ORDINARY HIGH WATER MARK WAS DELINIATED BY OHWM FLAGS SET BY SEWALL WETLAND CONSULTING, INC. ON APRIL 25, 2018 AS PART OF JOB # 18-128.

YUAN, RYAN  
3611 WEST MERCER WAY  
APN: 3623500265

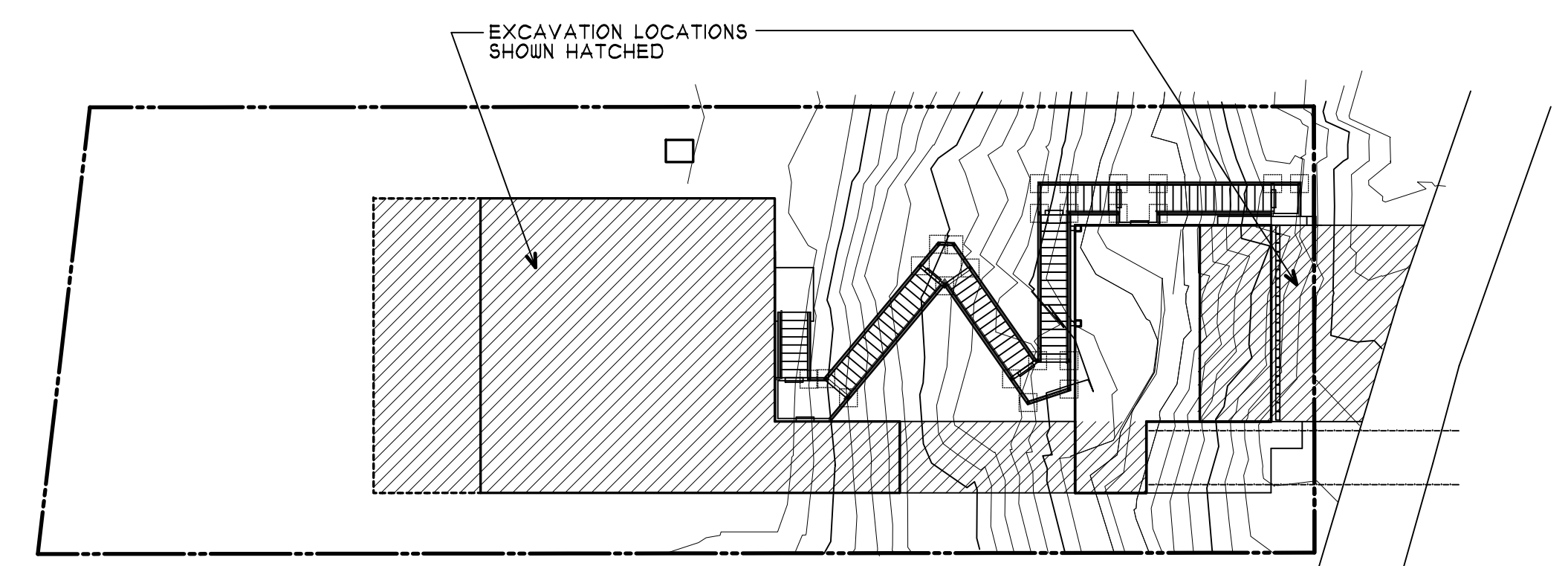
<b>BEYLER CONSULTING</b>			SURVEY FOR: <b>MICHAEL D. BOYLE</b> 3606 WEST MERCER WAY MERCER ISLAND, WA 98040		
CONTACT phone: 253-301-4157 fax: 253-336-3950 beylerconsulting.com	OFFICE 5920 100th St SW #25 Lakewood, WA 98499		DRWN. BY: <b>PEG/TAG</b>	DATE: <b>05/08/2018</b>	JOB #: <b>17.196</b>
			CHKD. BY: <b>tgold</b>	SCALE: <b>1"=20'</b>	SHEET: <b>1 OF 1</b>

1 2 3 4 5 6 7 8 9 10

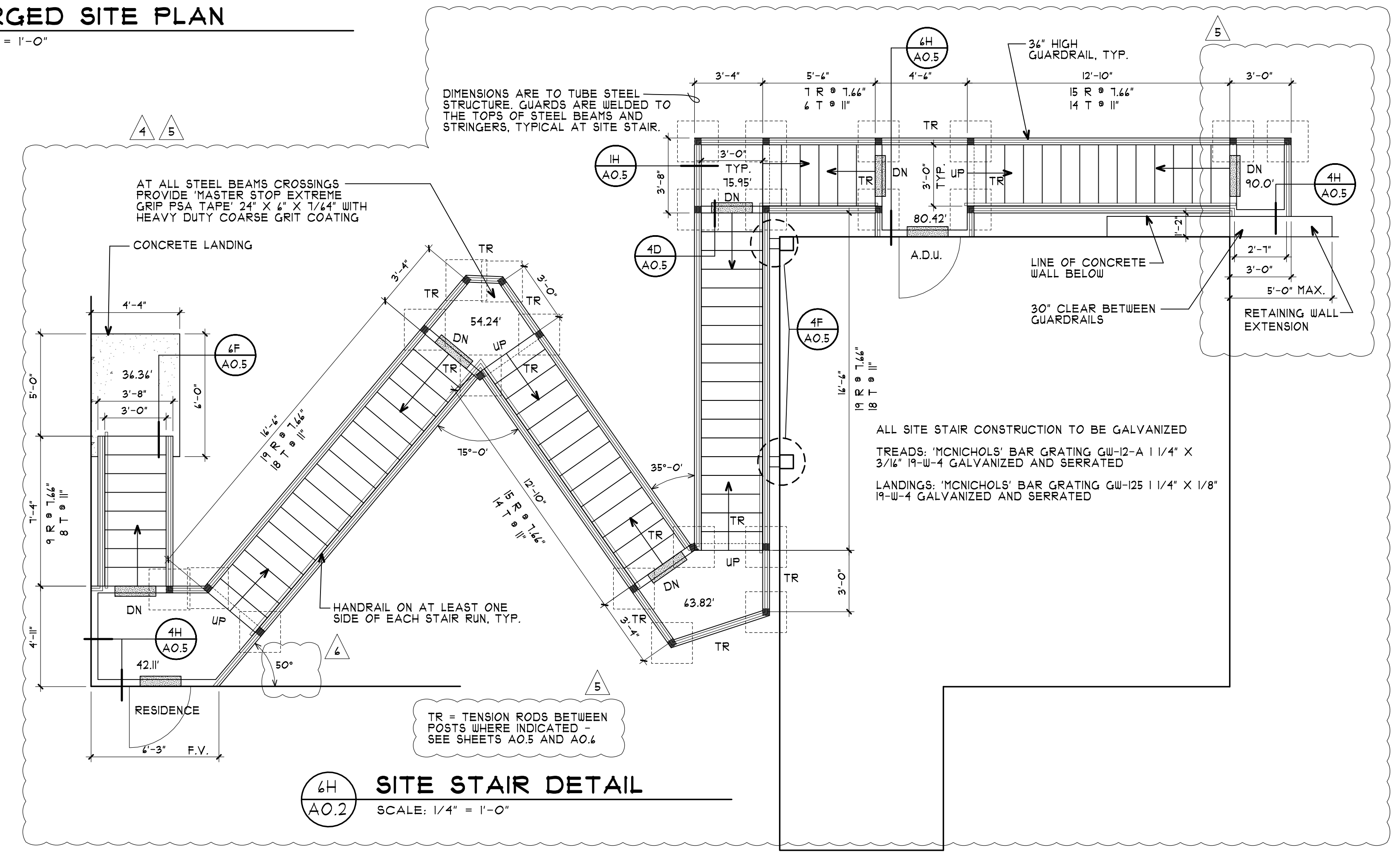
A  
B  
C  
D  
E  
F  
G  
H



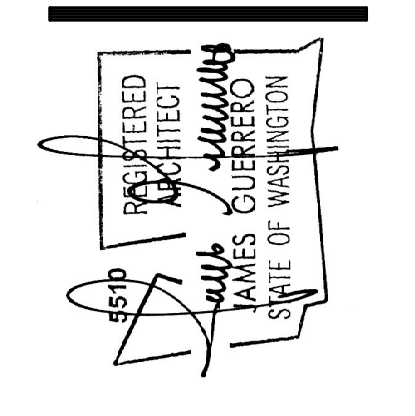
**1E ENLARGED SITE PLAN**  
SCALE: 1/8" = 1'-0"  
PLAN NORTH



**2G EXCAVATION DIAGRAM**  
SCALE: 1/16" = 1'-0"



**4H SITE STAIR DETAIL**  
SCALE: 1/4" = 1'-0"



- 2ND SUBMITTAL 05-31-18
- 3RD SUBMITTAL 12-11-18
- 4TH SUBMITTAL 04-05-19
- 5TH SUBMITTAL 07-31-19
- 6TH SUBMITTAL 10-25-19

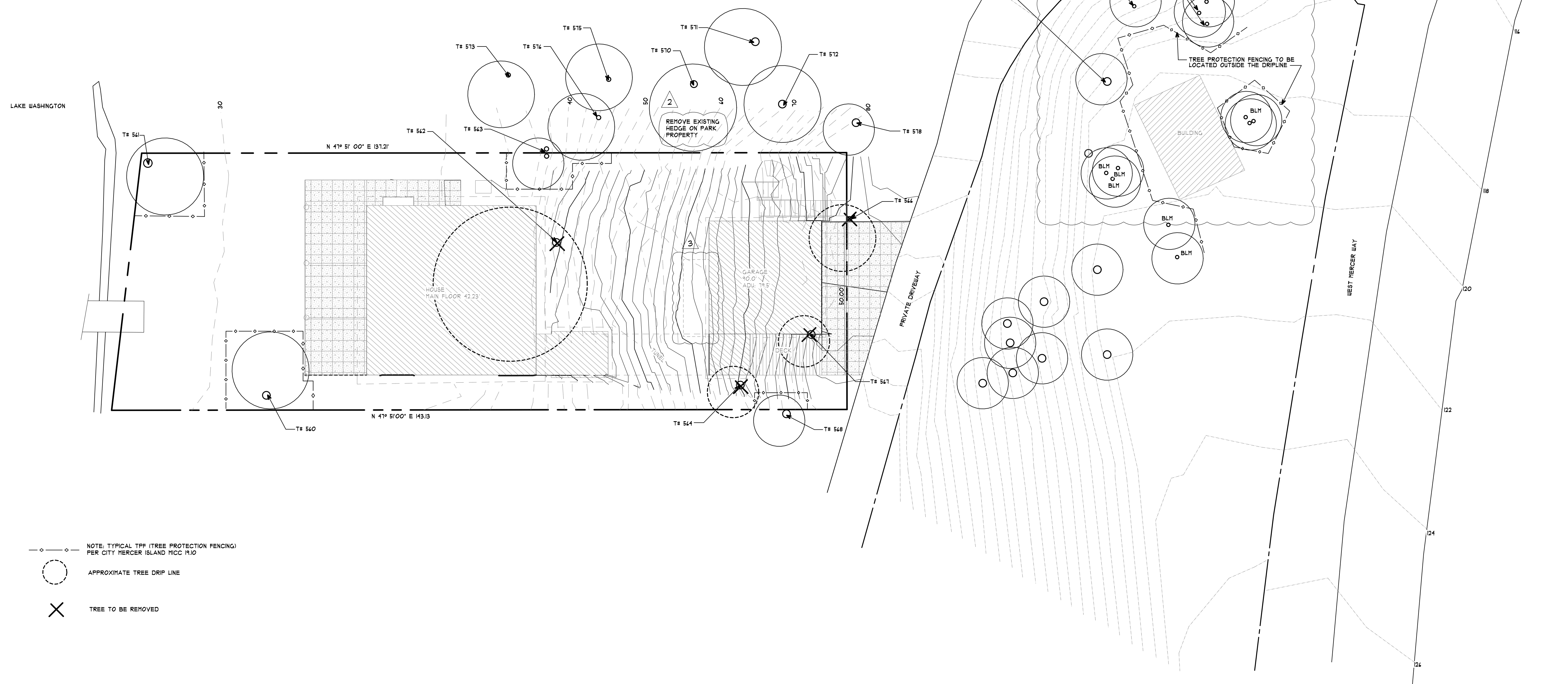
11150 Gravelly Lake Drive SW  
Lakewood, WA 98499  
Phone: 253/581-6000  
Website: www.jgarch.net  
**James Guerrero Architects, INC.**

PROJECT: **BOYLE MERCER ISLAND**  
DRAWING TITLE: **ENLARGED SITE PLAN**

PERMIT REVIEW SET	DATE	10-18-17
	REVISED	5-30-18
		12-11-18
		04-05-19
		07-31-19
	10-25-19	
	SHEET NO.	<b>A0.2</b>
	SCALE FACTOR:	96

Mike Boyle September 3, 2017 Thomas Quigley ISA certified arborist PN0655A

Tree #	Species	Cir"	DBH"	Comments	Action
560	Camelia Japonica		8-10'	On-site, Canopy of 15' radius over eaves of house	
561	Pawlonia		20"	On-site, Canopy of 15' radius over eaves of house	
562	Big leaf maple		Mlt*	On-site, Large multi-stems, leaning west over house, root collar issues	Risk assessment, likley a High risk. Remove
563	Big leaf maple		Mlt*	On-site, three stems 4" to 10" each, may be on Park property line, leans dc	Remove
564	Western red cedar		36"	On-site, Dominated by canopy of taller Big leaf maples, root collar void, ivy, 25% LCR*	
565	Alder		18"	ROW Ivy dominated, 5% LCR, deadwood	Remove
566	Alder		16"	ROW tree, ivy dominated, 5% LCR, deadwood, leans West above 20' height	Remove
567	Big leaf maple		Mlt*	On-site, Eight (8) stems 8" to 10", 25% LCR, Heavy ivy growth.	
568	Big leaf maple		12", 14"	Appears to be just off-site, some canopy over-hang, 15% LCR, ivy	
569	Big leaf maple		mlt*	Corner of existing garage, in ROW, tagged as typical of stand. See narrative.	
570	Big leaf maple		15"	Park' tree, ivy infested, low LCR, deadwood	
571	big leaf maple		18"	Park' tree, ivy infested, low LCR, deadwood	
572	Big leaf maple		32"	Park' tree, ivy infested, low LCR, deadwood	
573	Ash		11"	Leaning 45degrees west	
574	# 574 Tag not used			Tag not used	
575	Big leaf maple			Park' tree, ivy infested, low LCR, deadwood	
576	Big leaf maple			Park' tree, ivy infested, low LCR, deadwood	
578	Big leaf maple			Park' tree, ivy infested, low LCR, deadwood	
			Mlt	Multi-stem	
			ROW	Right of way	
			LCR	Live Crown ratio - see narrative	



NOTE: TYPICAL TPF (TREE PROTECTION FENCING) PER CITY MERCER ISLAND MICC #10  
 APPROXIMATE TREE DRIP LINE  
 TREE TO BE REMOVED

**TREE RETENTION PLAN**  
 SCALE: 3/32" = 1'-0"  
 PLAN NORTH

- 2ND SUBMITTAL 05-31-18
- 3RD SUBMITTAL 12-11-18
- 4TH SUBMITTAL 04-05-19

11150 Gravelly Lake Drive SW  
 Lakewood, WA 98499  
 Phone: 253/561-6000  
 Website: www.jgarch.net

**James Guerrero Architects, INC.**

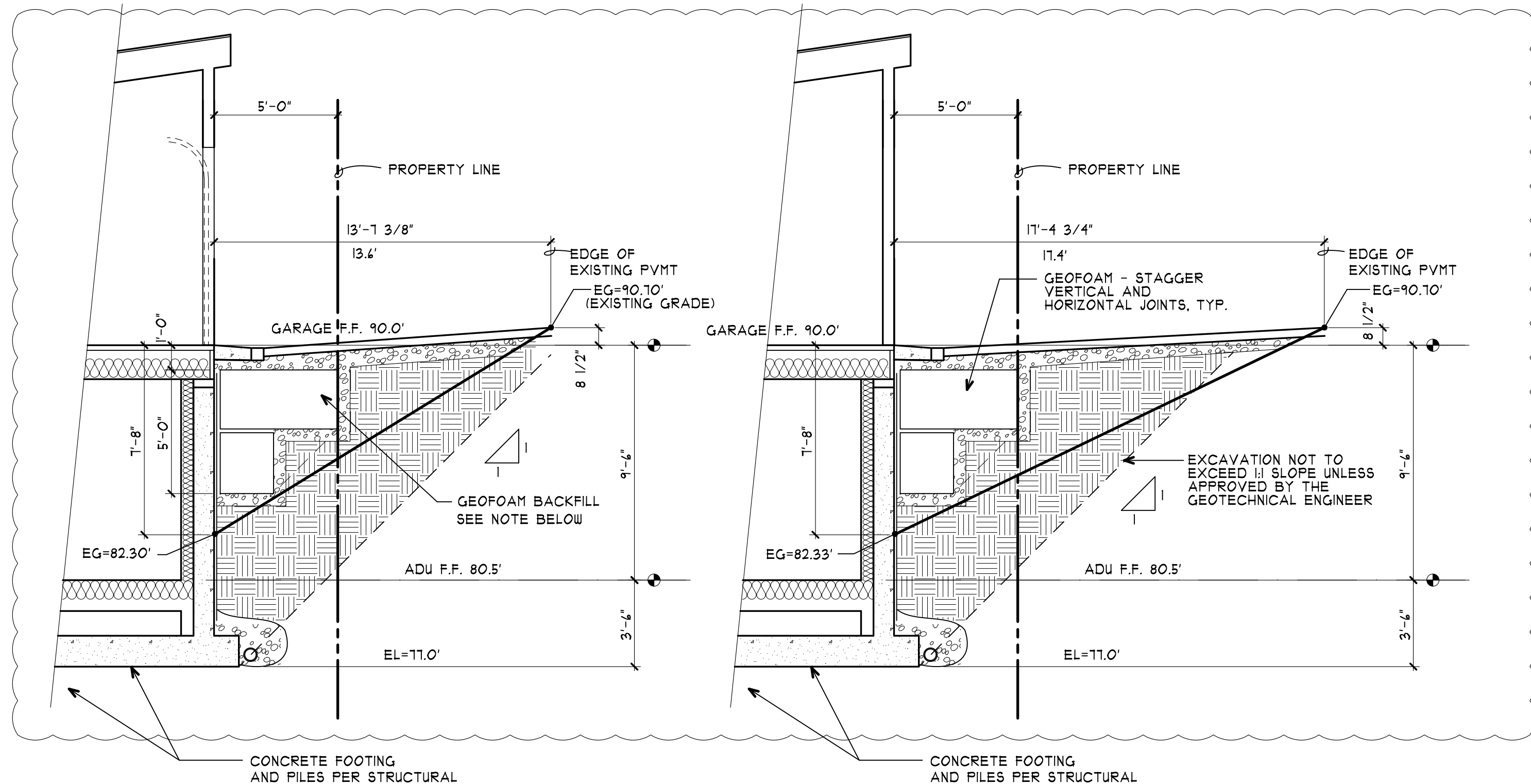
PROJECT: **BOYLE MERCER ISLAND**  
 DRAWING TITLE: **TREE RETENTION PLAN**

PERMIT REVIEW SET

DATE	10-18-17
REVISED	5-30-18
	12-11-18
	04-05-19

SHEET NO. **A0.3**

SCALE FACTOR: 1/28



**SITE SECTION**  
**MID-POINT GARAGE DOOR**

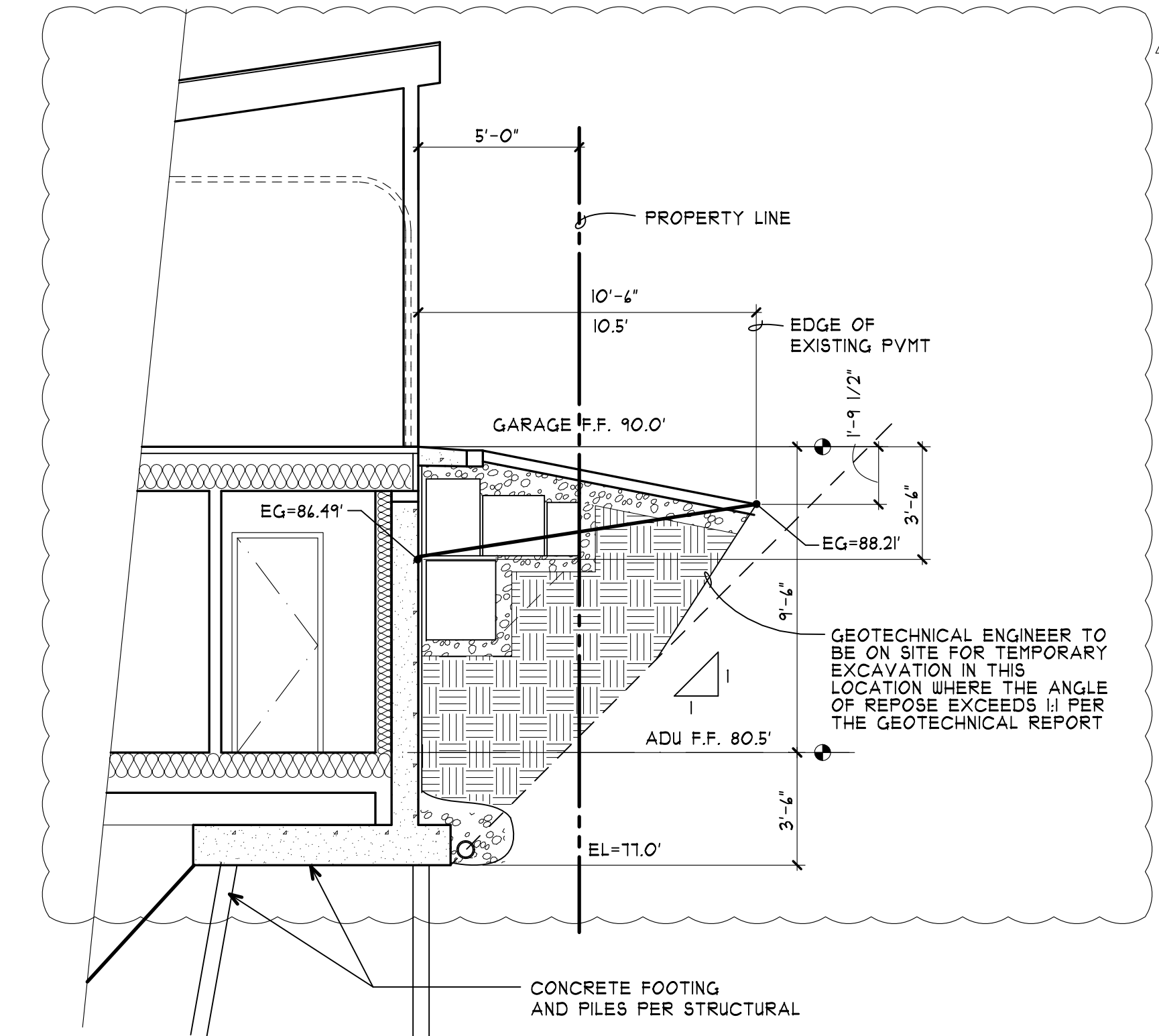
1D  
 A0.4  
 SCALE: 1/4" = 1'-0"

**SITE SECTION**  
**NE CORNER OF GARAGE**

3D  
 A0.4  
 SCALE: 1/4" = 1'-0"

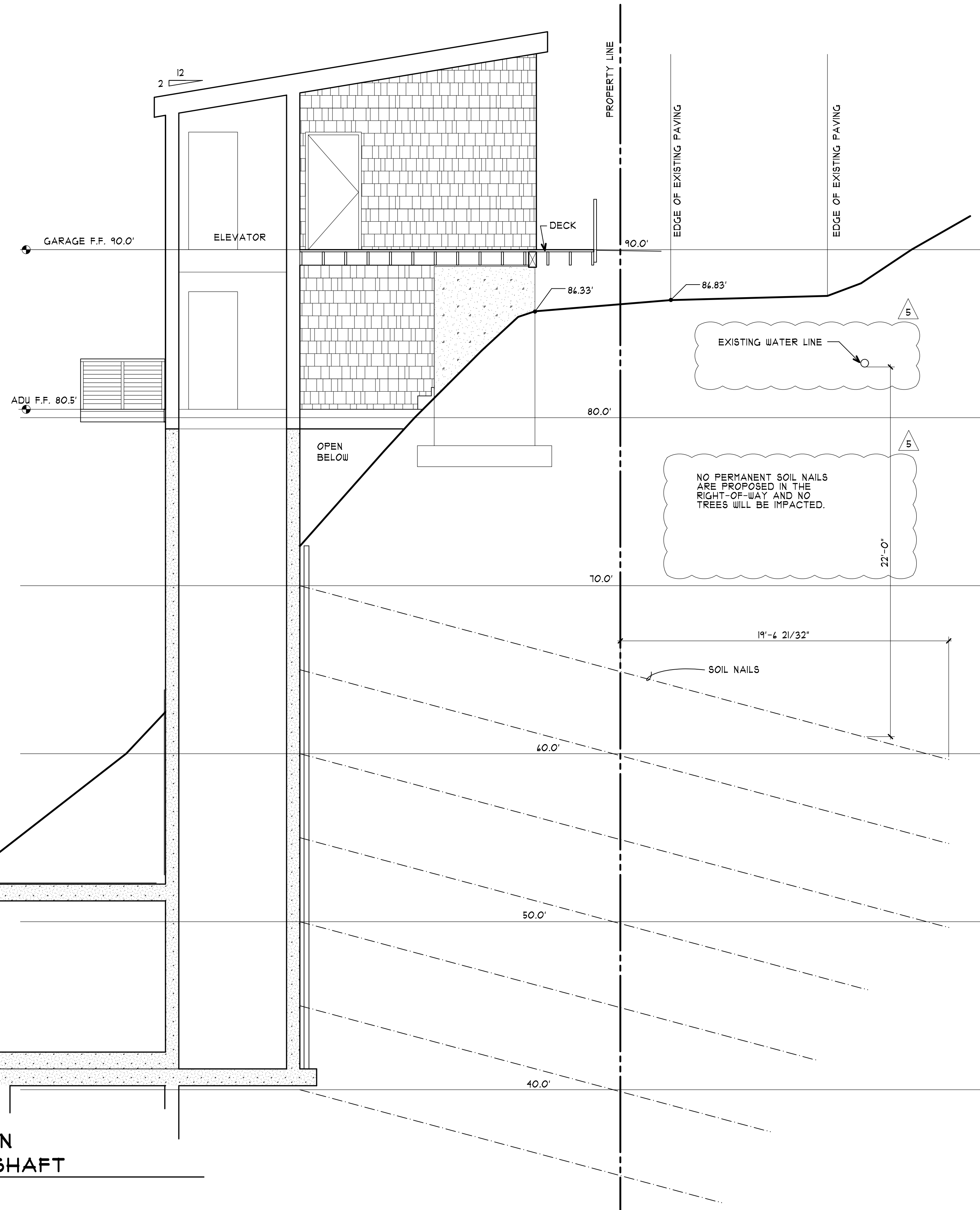
Excerpt from the Second Geotechnical Report

**Geofam Backfill and Drainage**  
 At the garage location we recommend that lightweight fill, like Geofam be used to lower the earth pressures on the structural walls. Geofam consists of expanded polystyrene with a unit weight ranging from 1 to 3 pounds per cubic foot. Typically the equivalent fluid weight from the geofam would also be assumed to be 3 psf where the slope behind it is stable or typically about a 1H:1V inclination. For the area around the garage adjacent to the property line the temporary cut slope will likely be steeper and we recommend an equivalent fluid weight of 35 pcf be used in this area. For this project we recommend geofam meeting the minimum requirements of ASTM D-4811 Type EPS22, based on the deformation properties, but this should be confirmed by the structural engineer. In addition, if carpenter ants are likely to be present, on site we recommend using geofam that has been treated to prevent insect infestation.  
 We recommend the geofam blocks extend horizontally a distance equal to the slope height and vertically at least 1 foot below the finish grades, assuming 1 foot is required for the slab and capillary break. The geofam blocks should be placed in a staggered pattern so that the joints between the blocks do not align with the underlying or overlying rows. Gaps of about 1/2" inch between the geofam blocks should be completely filled as the blocks are placed with a free draining, granular material, such as pea gravel. The gaps must be large enough to allow the drainage material to completely fill the gaps.  
 A minimum of 4-inches of drainage material should be placed on the slope behind the geofam and below the lowest row of geofam. The drainage material below the bottom row of geofam blocks should be graded so that the blocks sit level and a perforated or slotted drain pipe could be placed at the bottom of the excavation if groundwater is encountered. If a drain is required it should be conveyed to the same point as the other drains at the site. Where the perforated/slotted pipe connects to a tightline, a structure or check-dam should be utilized.  
 Geofam is subject to deterioration if exposed to petroleum products, such as gasoline or diesel fuel. We recommend that landscape maintenance equipment using these fuels not be allowed near areas of geofam. During construction special care must be taken to avoid spilling fuel on the geofam. A geotextile separator per WSDOT specification 9-33.2 could be placed over the geofam to reduce the risk from spills, particularly if a gravel driveway is to be constructed. A minimum of 1-foot of separation should be maintained over the geofam to the final grades where the blocks are below the garage driveway.



**SITE SECTION**  
**S. SIDE OF GARAGE**

1H  
 A0.4  
 SCALE: 1/4" = 1'-0"



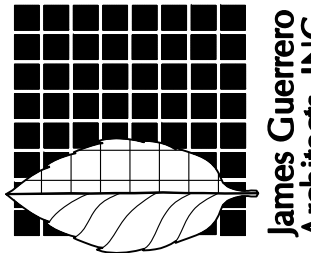
**SITE SECTION**  
**ELEVATOR SHAFT**

5G  
 A0.4  
 SCALE: 1/4" = 1'-0"



5TH SUBMITTAL  
 01-31-19

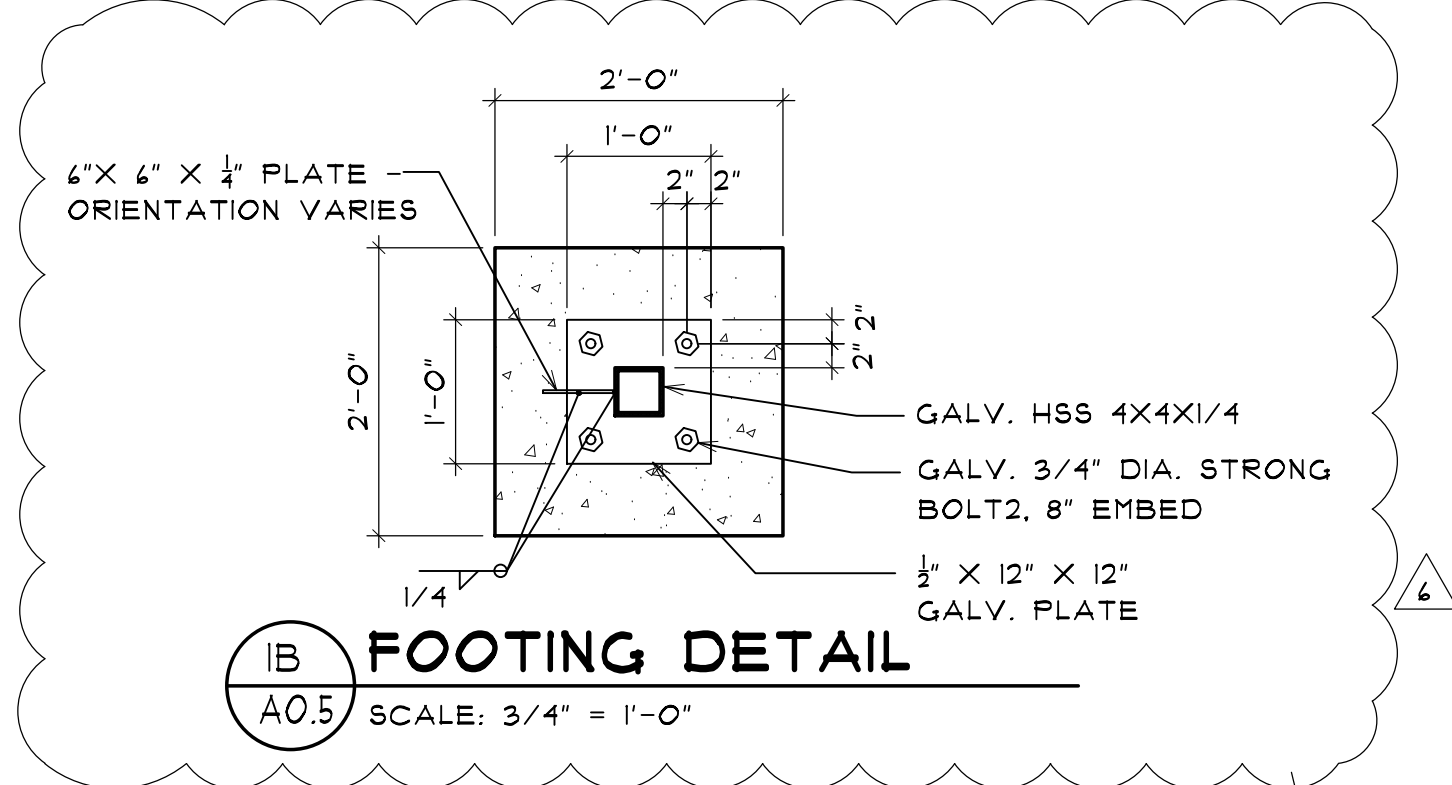
11150 Gravelly Lake Drive SW  
 Lakewood, WA 98499  
 Phone: 253/581-6000  
 Website: www.jgarch.net



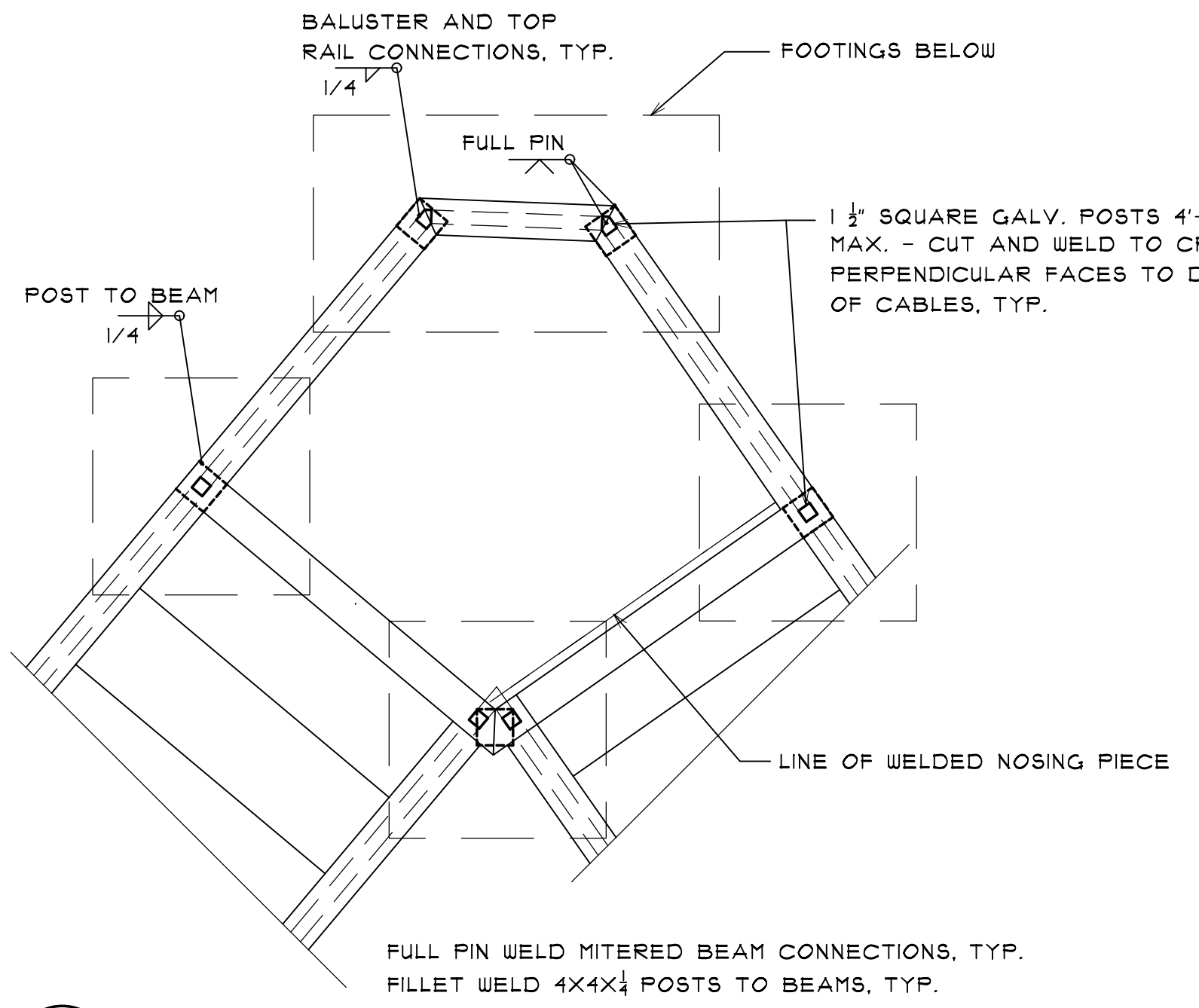
PROJECT  
**BOYLE MERCER ISLAND**  
 DRAWING TITLE  
**SITE SECTIONS**

PERMIT REVIEW SET  
 DATE  
 REVISION  
 04-05-19  
 07-31-19

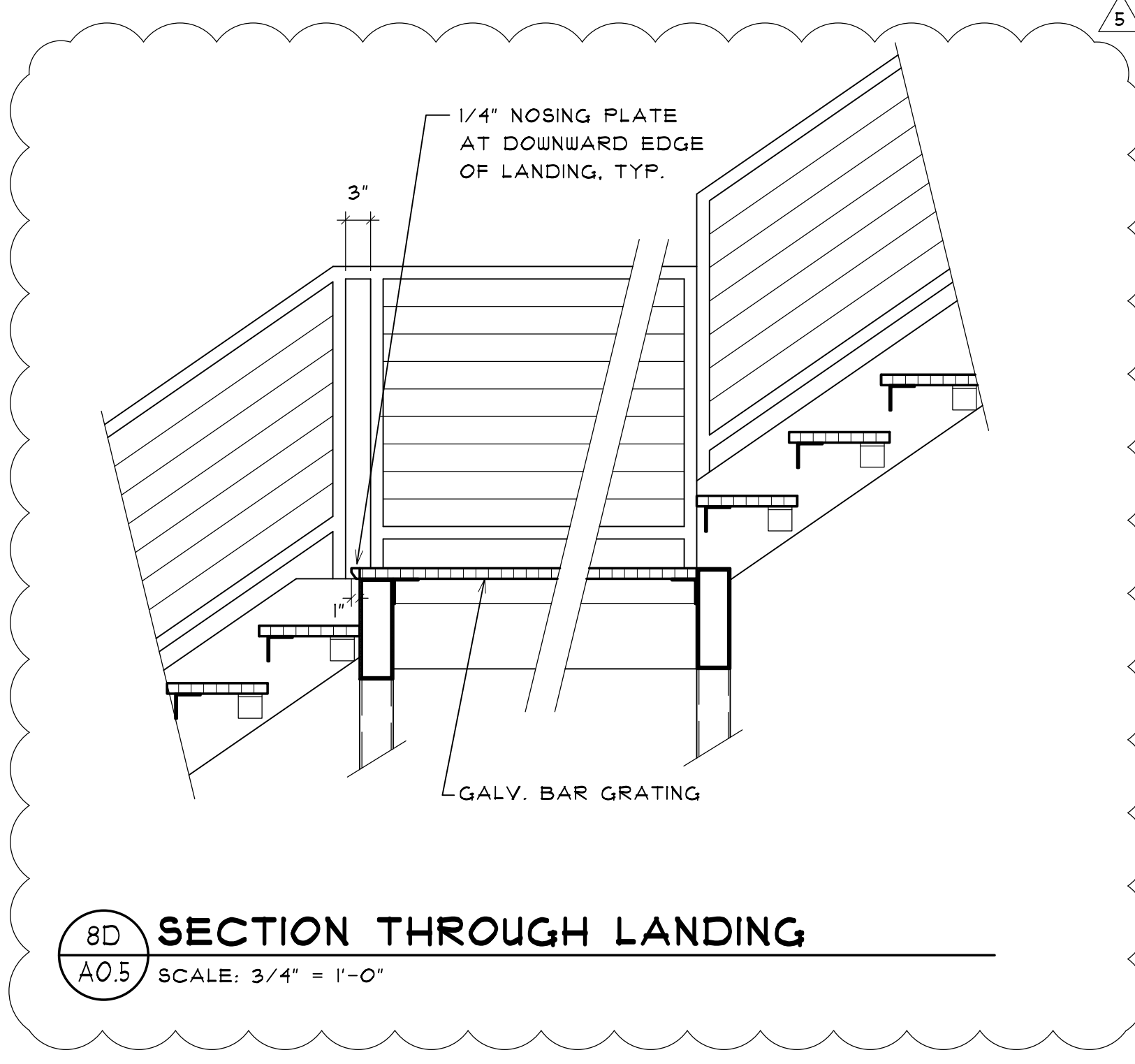
SHEET NO.  
**A0.4**  
 SCALE FACTOR: 48



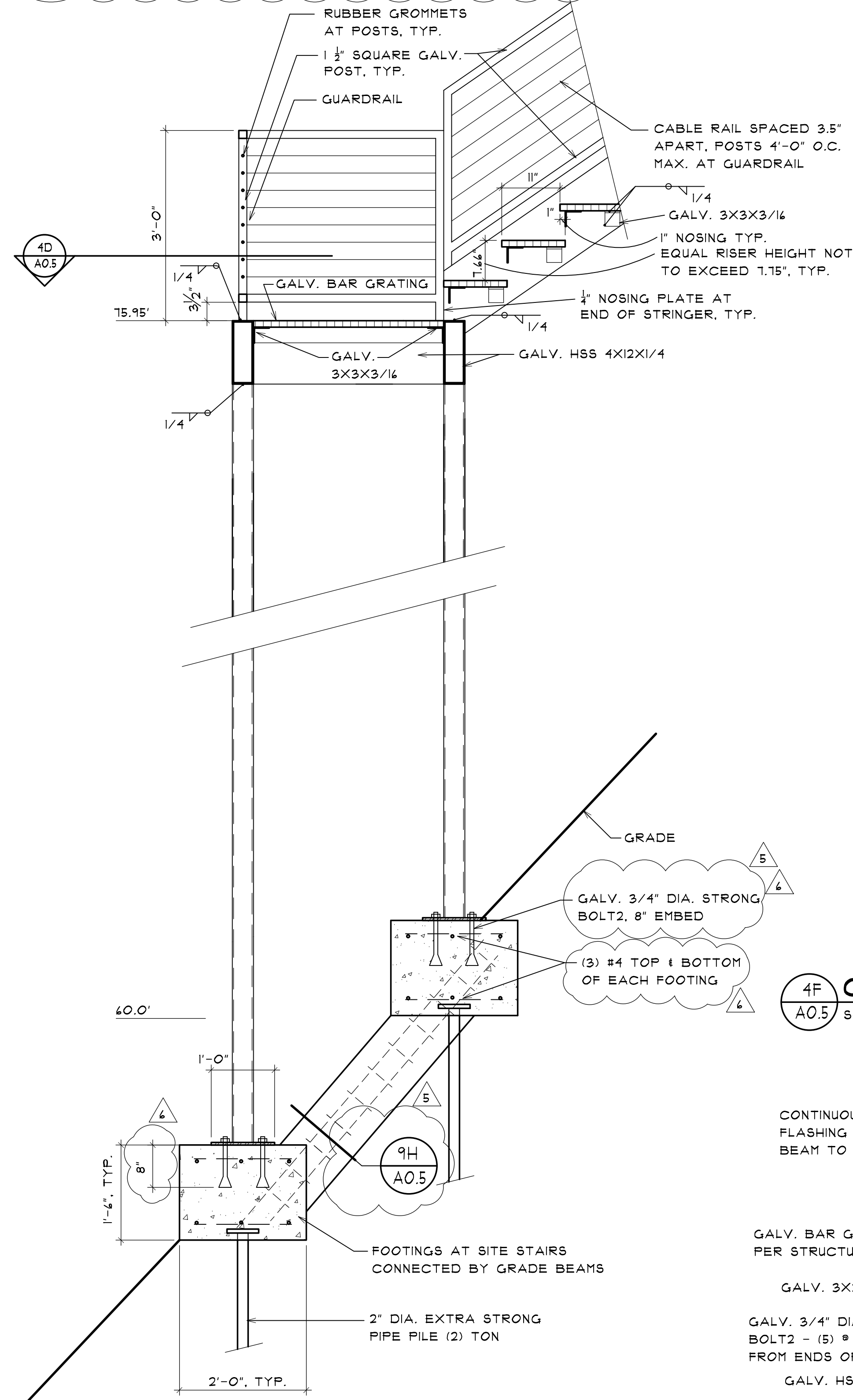
**IB FOOTING DETAIL**  
A0.5 SCALE: 3/4" = 1'-0"



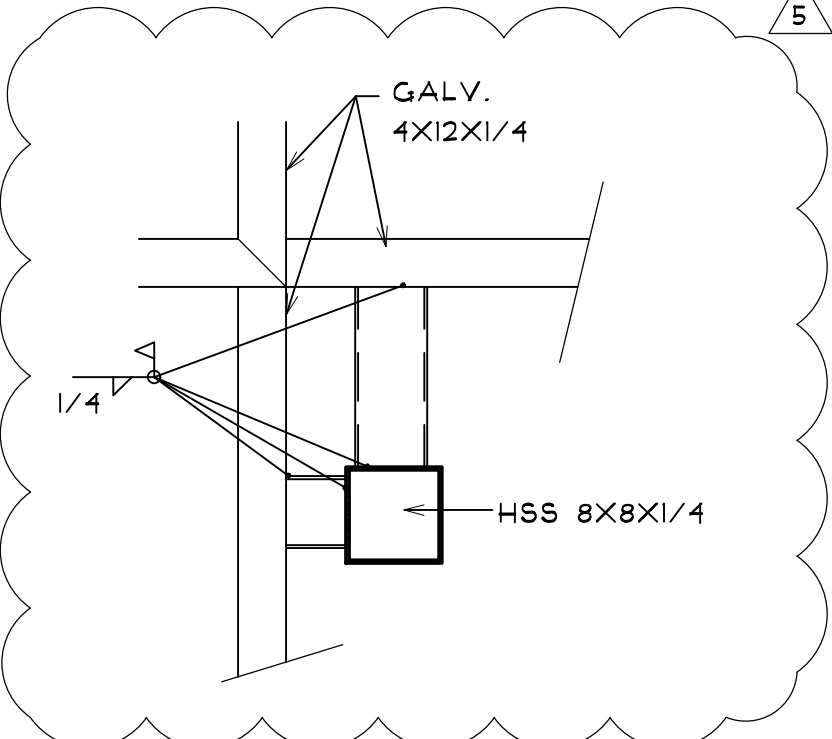
**4D LANDING BEAMS AND GUARDS DETAIL**  
A0.5 SCALE: 3/4" = 1'-0"



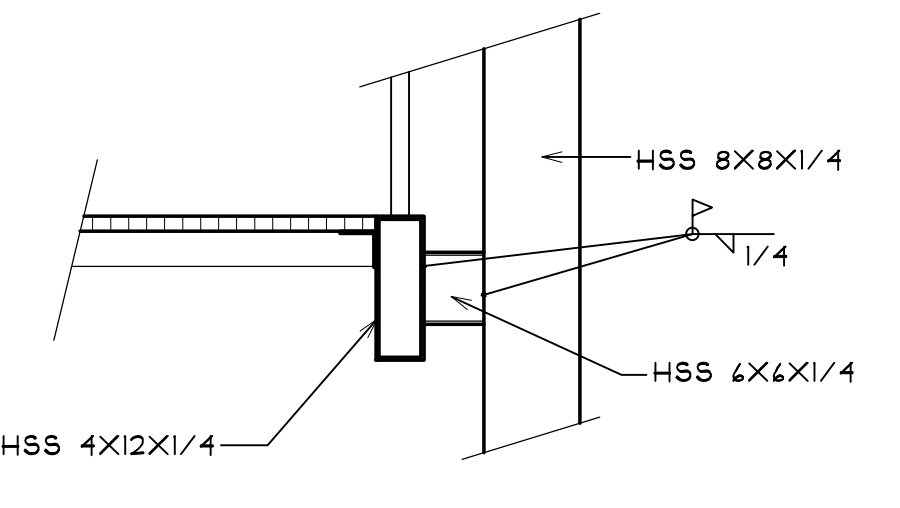
**8D SECTION THROUGH LANDING**  
A0.5 SCALE: 3/4" = 1'-0"



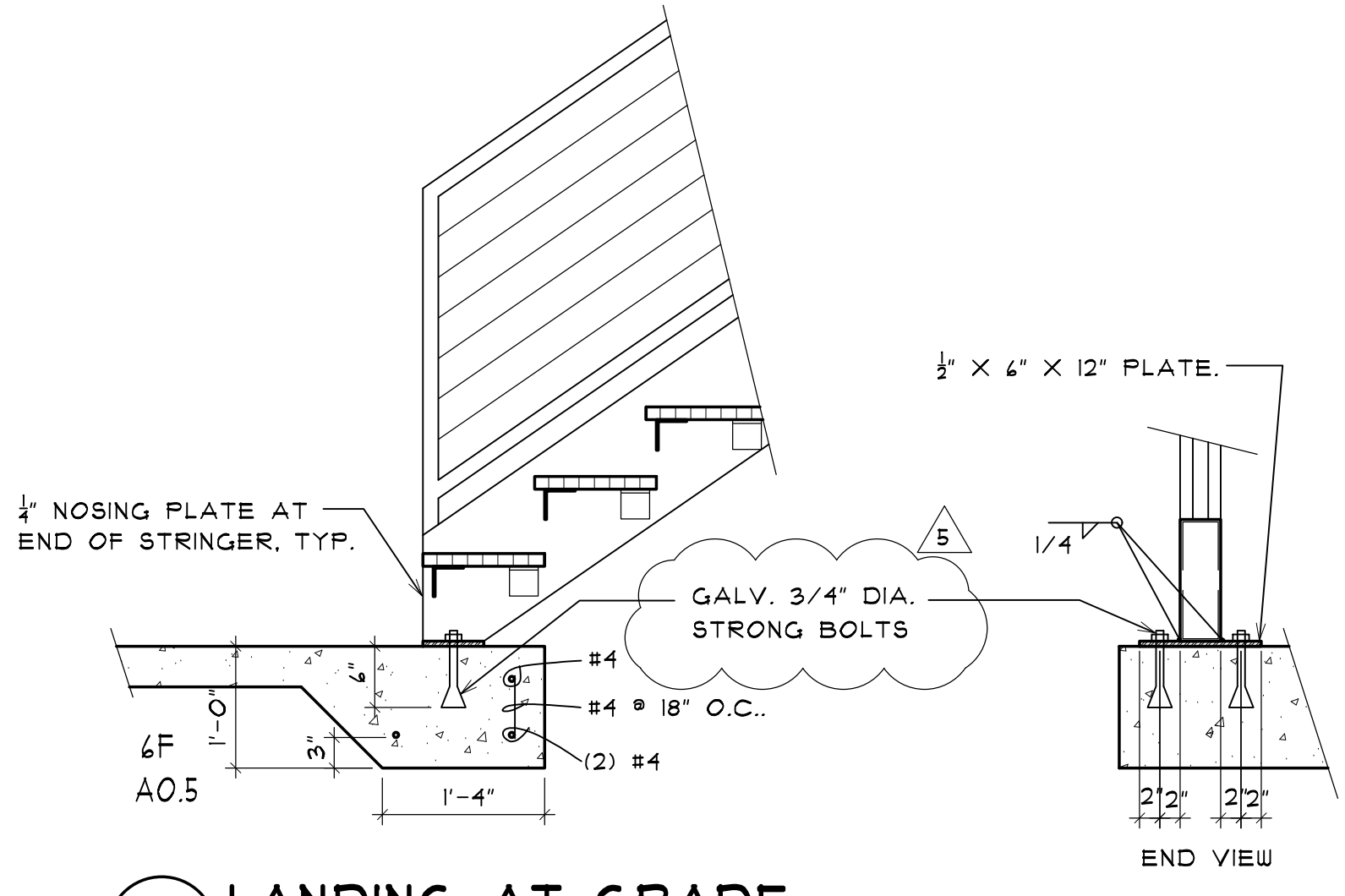
**1H SITE STAIR LANDING**  
A0.5 SCALE: 3/4" = 1'-0"



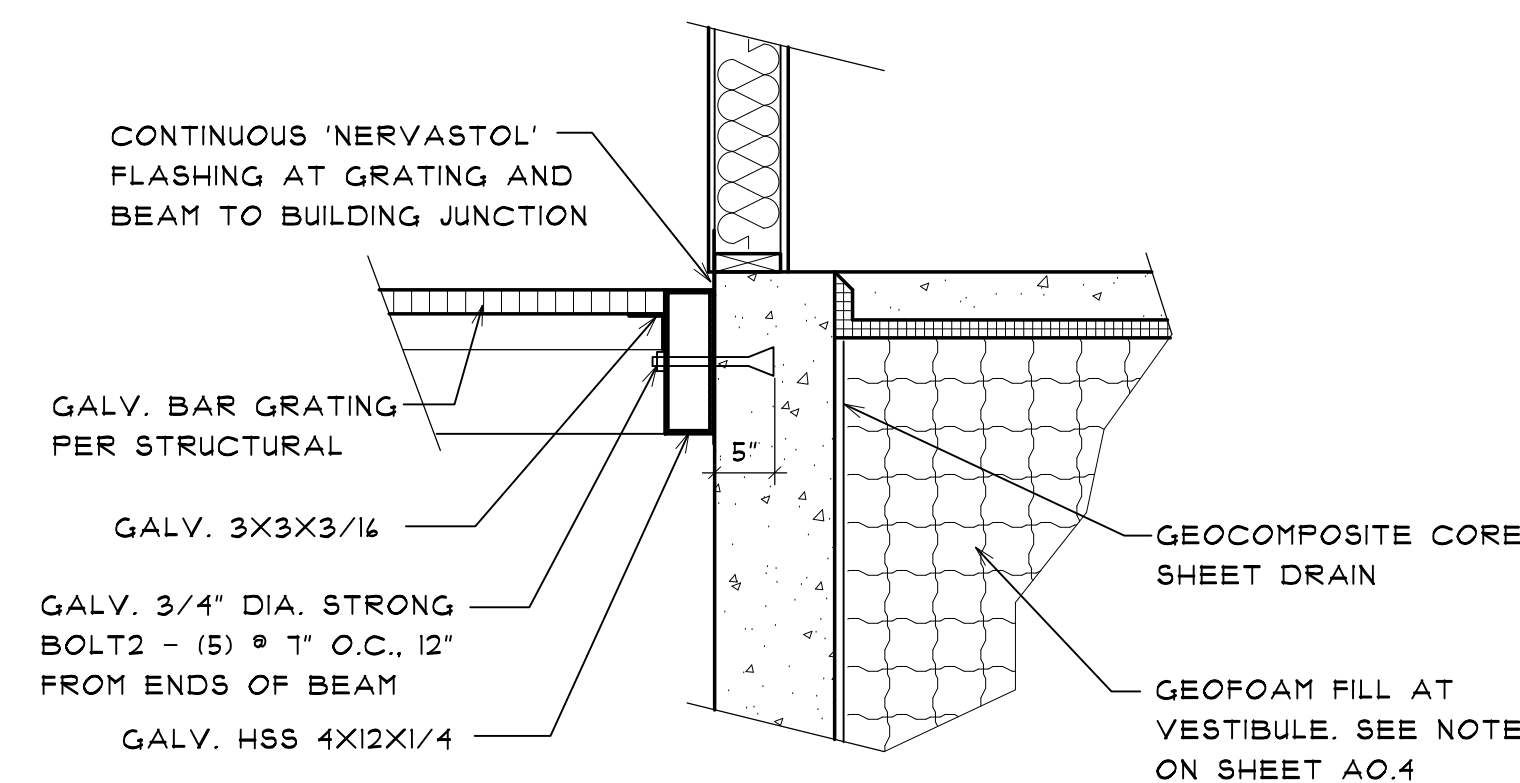
**4F CONNECTION TO A.D.U. POST**  
A0.5 SCALE: 3/4" = 1'-0"



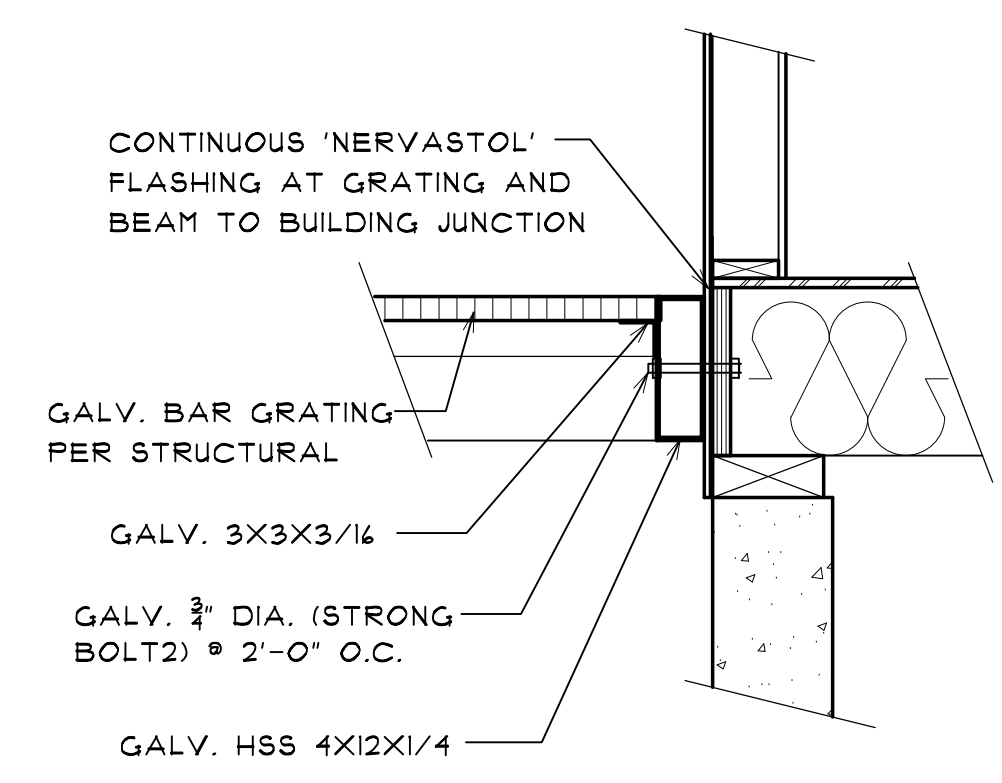
**6F LANDING AT GRADE**  
A0.5 SCALE: 3/4" = 1'-0"



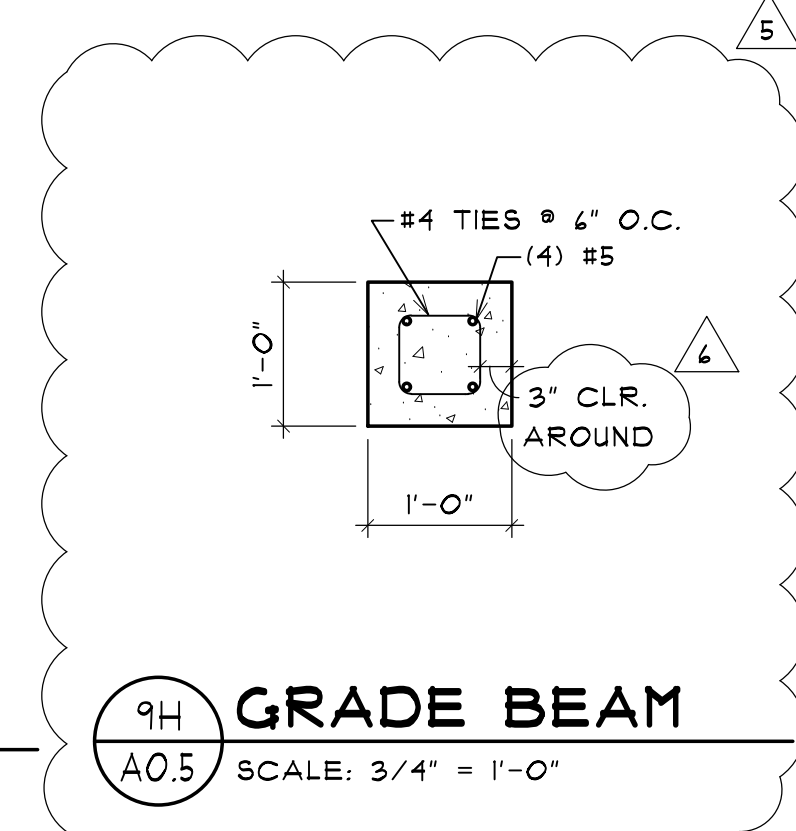
**6H LANDING AT A.D.U.**  
A0.5 SCALE: 3/4" = 1'-0"



**4H LANDING AT RESIDENCE**  
A0.5 SCALE: 3/4" = 1'-0"

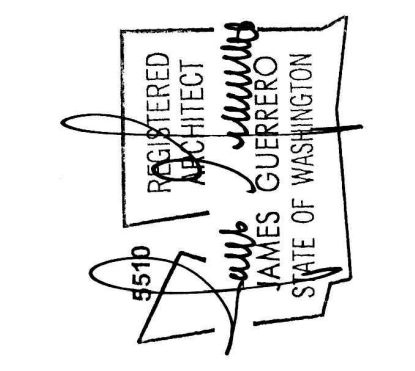


**6H LANDING AT A.D.U.**  
A0.5 SCALE: 3/4" = 1'-0"



**9H GRADE BEAM**  
A0.5 SCALE: 3/4" = 1'-0"

5TH SUBMITTAL 07-31-19  
6TH SUBMITTAL 10-25-19

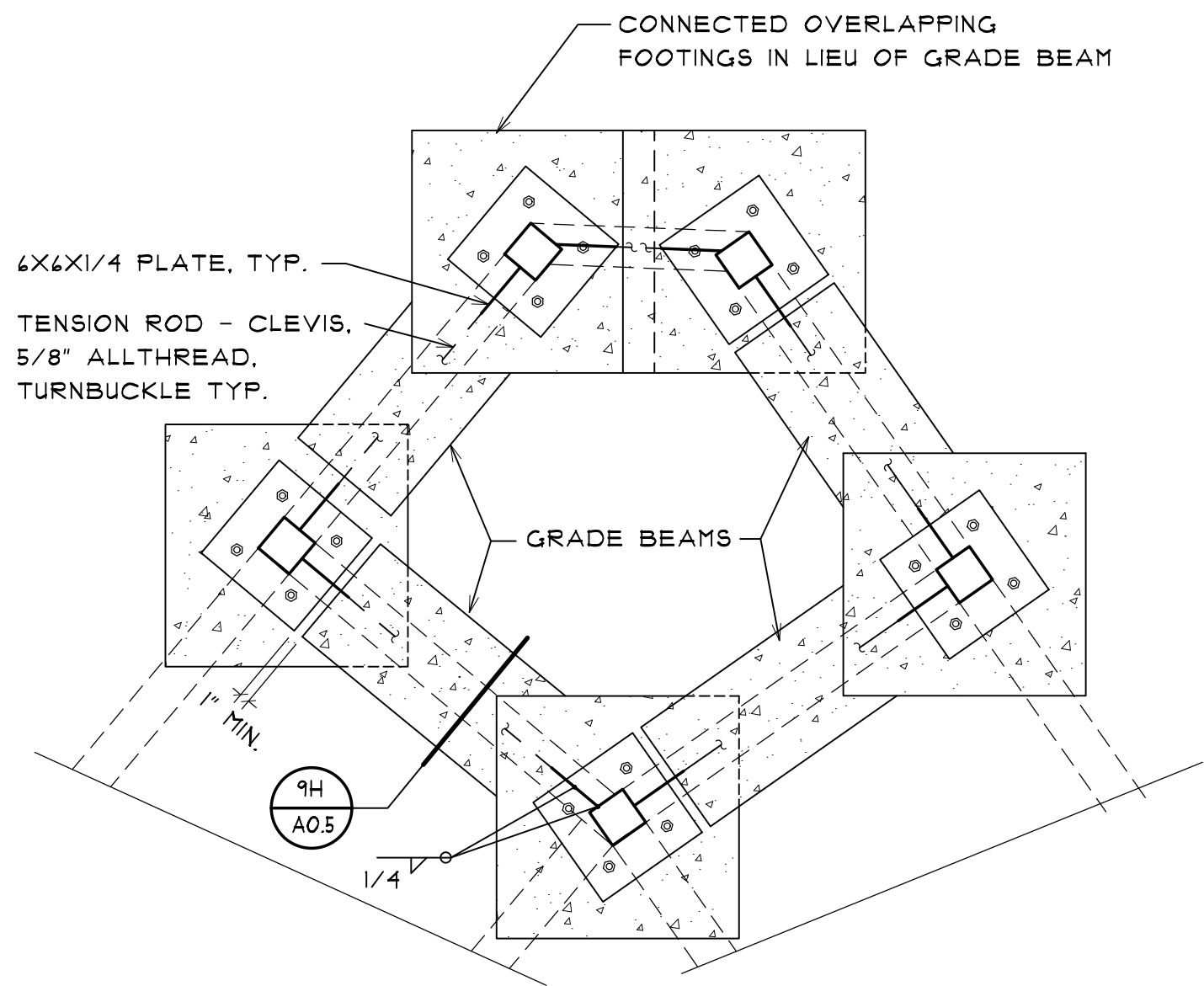


7520 Bridgeport Way West  
Lakewood, WA 98499  
Phone: (253) 581-6000  
Website: www.jgarch.net  
James Guerrero Architects, Inc.

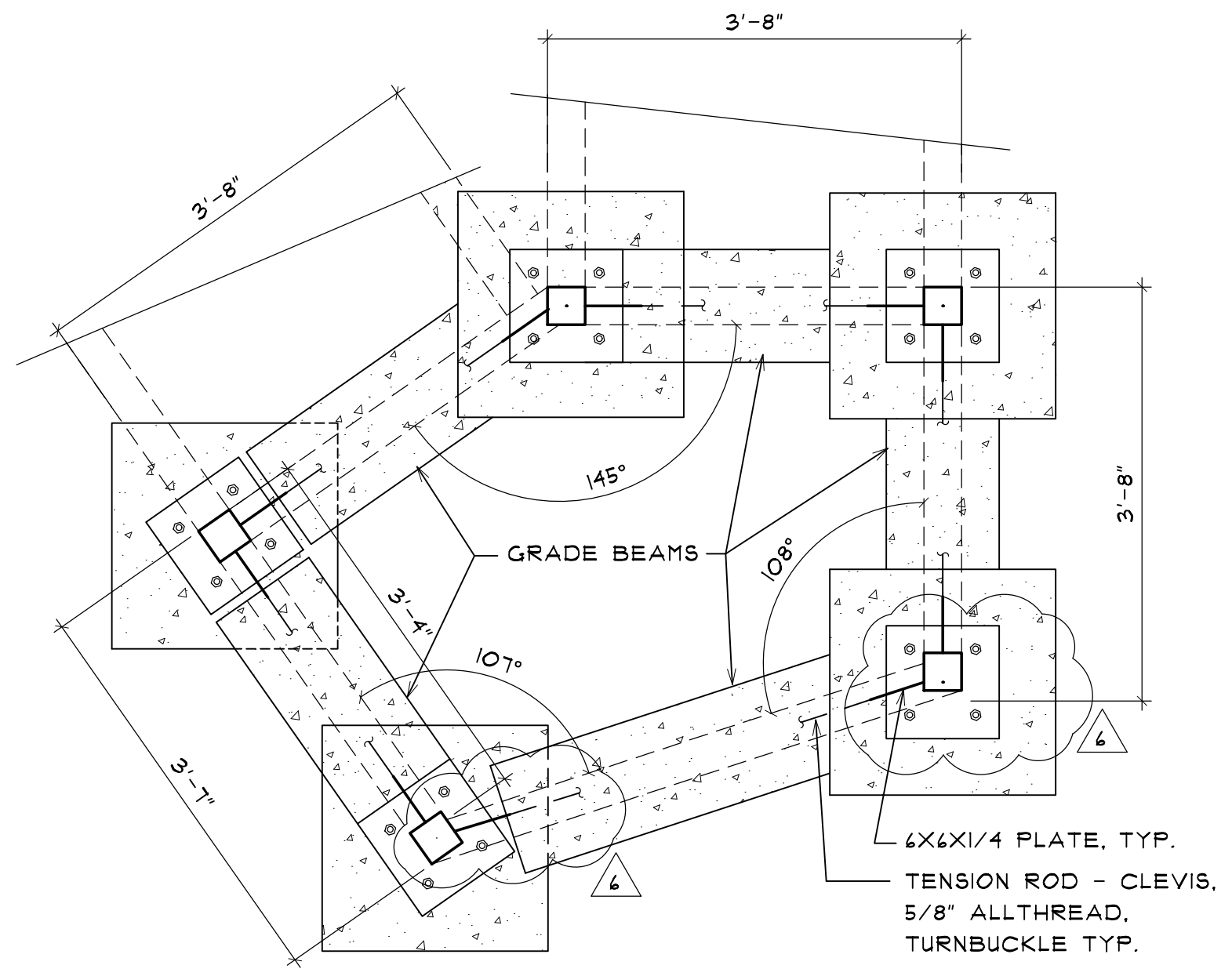
**BOYLE MERCER ISLAND**  
**SITE STAIR DETAILS**

PROJECT: BOYLE MERCER ISLAND  
DRAWING TITLE: SITE STAIR DETAILS  
DATE: 07/31/19  
REVISED: 10-25-19  
SHEET NO.: **A0.5**

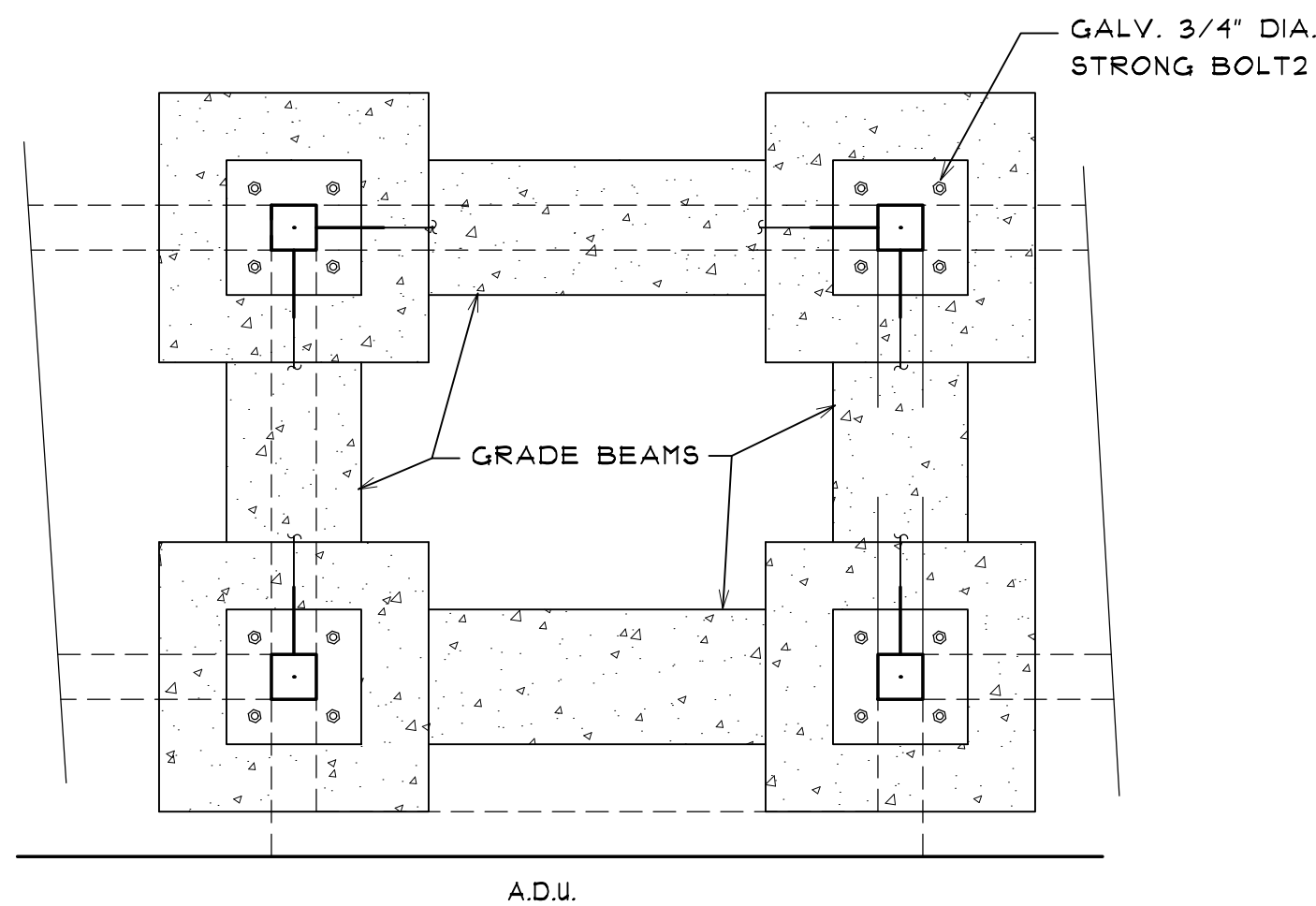
PERMIT REVIEW SET



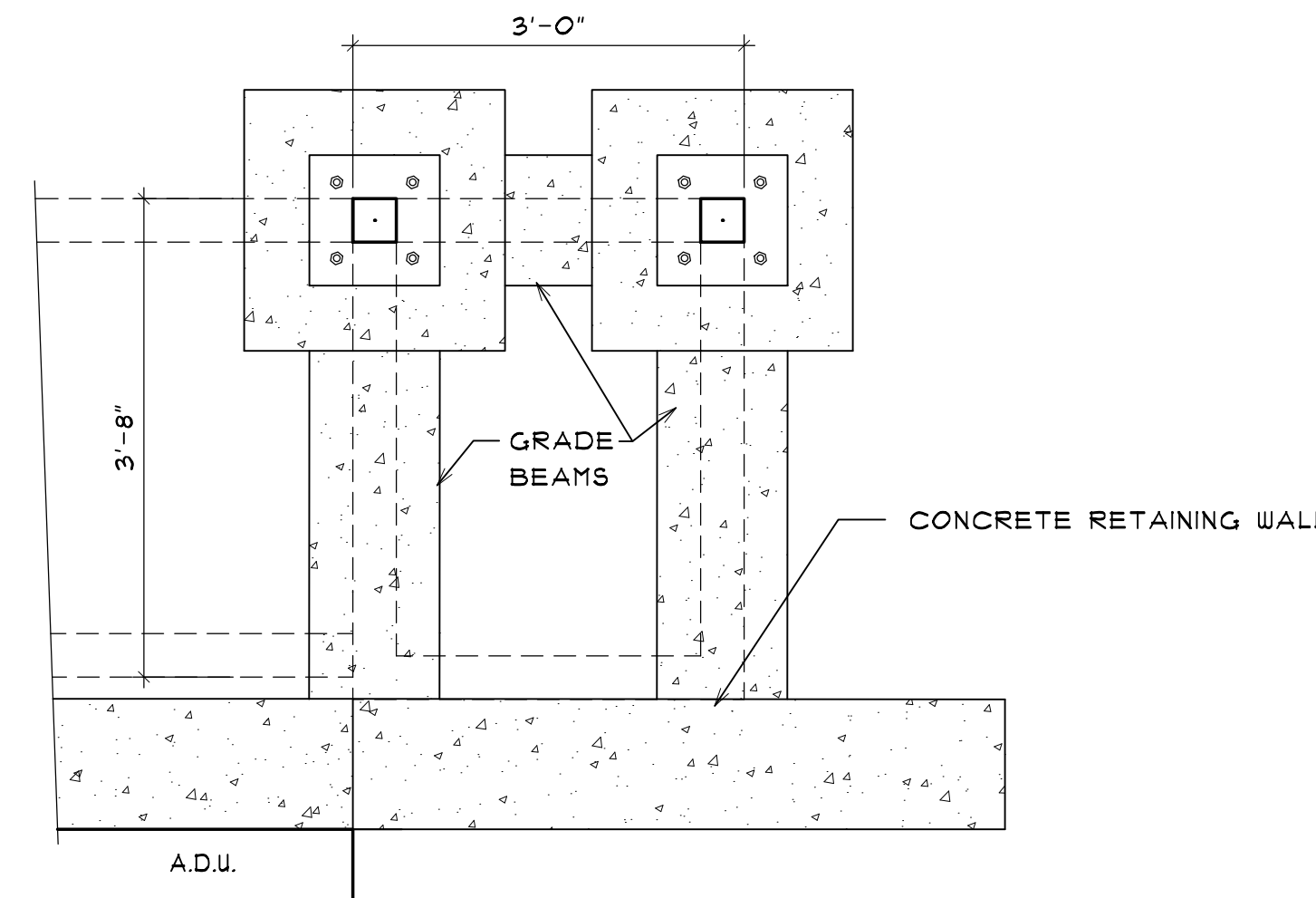
**1C LANDING 54.24' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"



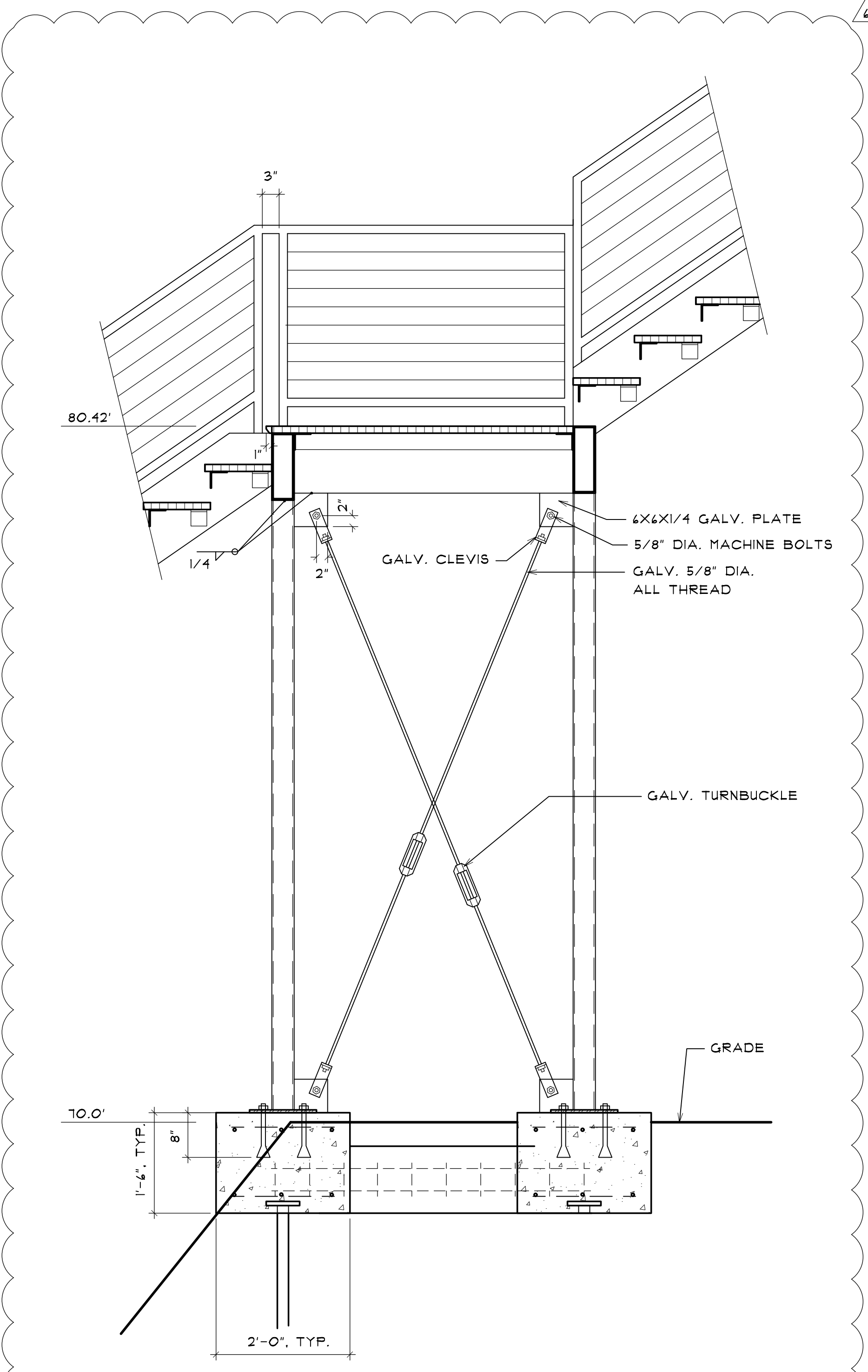
**4C LANDING 43.82' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"



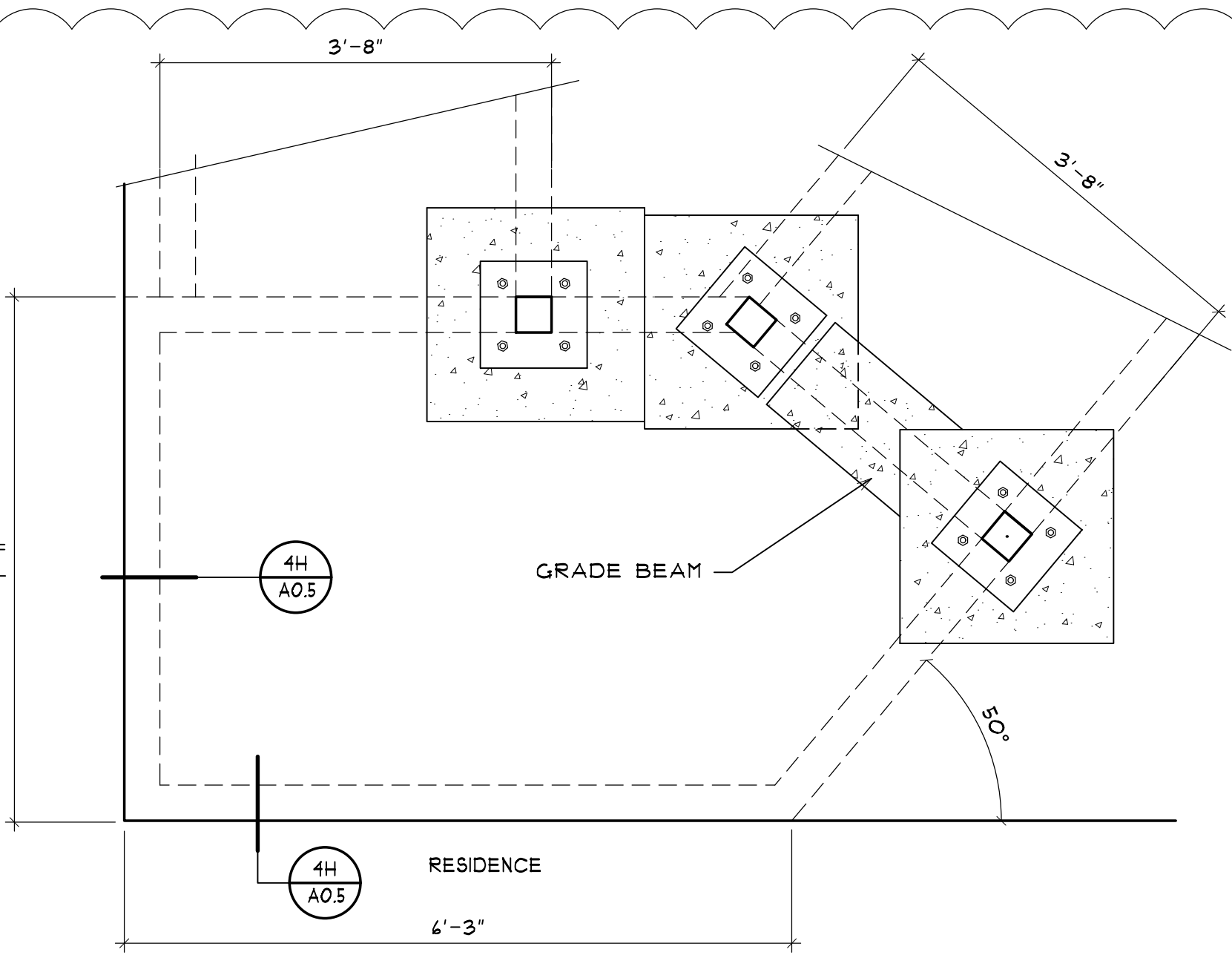
**1F LANDING 80.42' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"



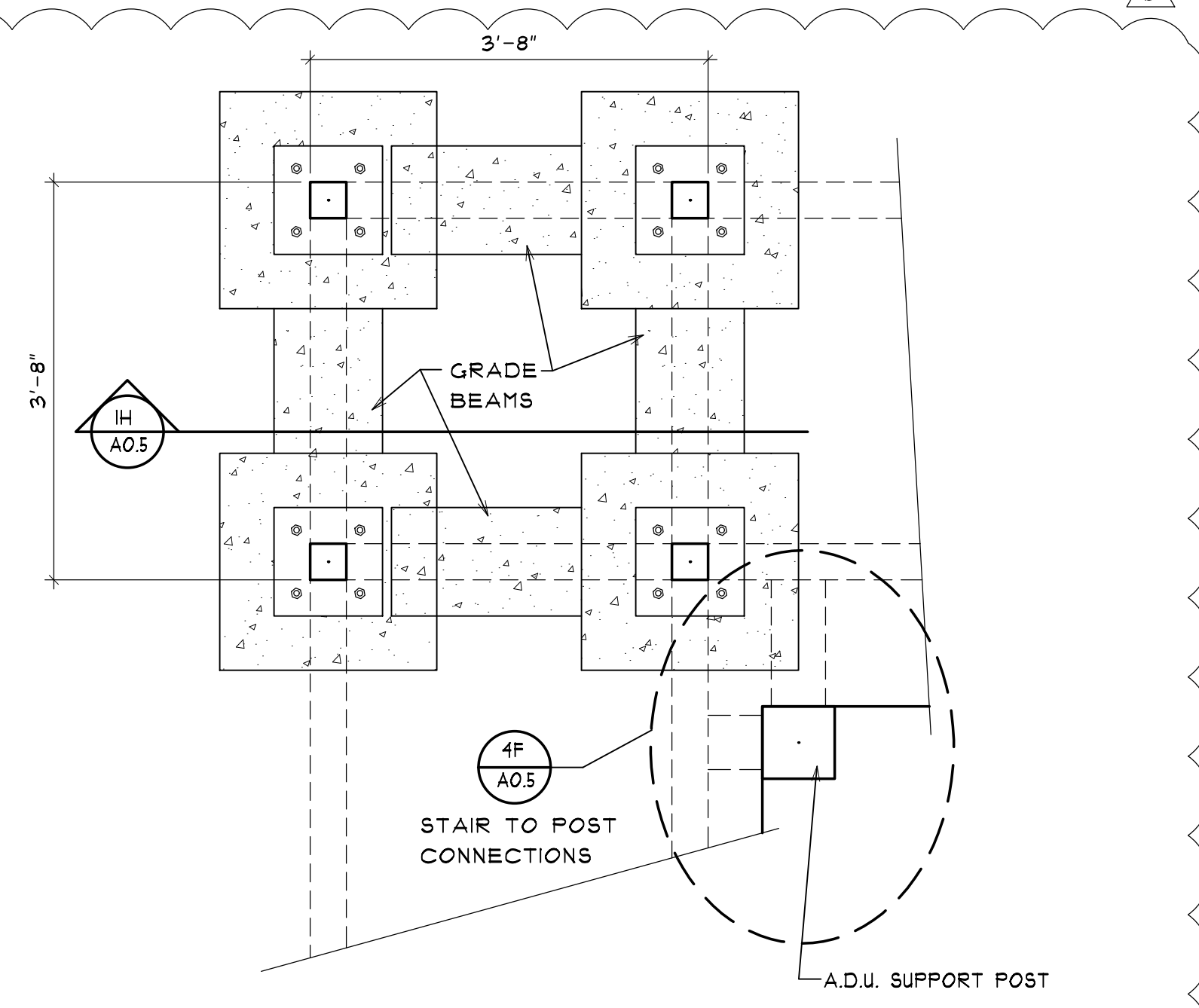
**4F LANDING 90.0' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"



**1H SITE STAIR LANDING**  
A0.6 SCALE: 3/4" = 1'-0"

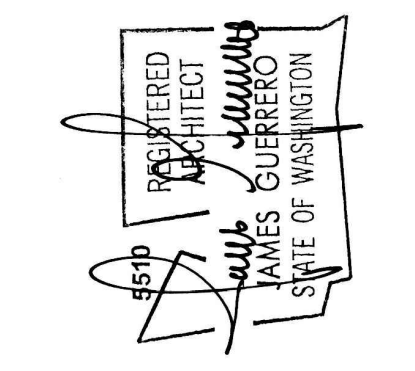


**1H LANDING 42.11' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"



**4H LANDING 75.95' DETAIL - FOOTINGS**  
A0.6 SCALE: 3/4" = 1'-0"

4TH SUBMITTAL 10-25-19



7520 Bridgeport Way West  
Lakewood, WA 98499  
Phone: (253) 581-6000  
Website: www.jgarch.net

James Guerrero  
Architects, INC.

**BOYLE MERCER ISLAND**  
**SITE STAIR DETAILS**

PROJECT: BOYLE MERCER ISLAND  
DRAWING TITLE: SITE STAIR DETAILS

DATE: 07/31/19  
REVISED: 10-25-19  
SHEET NO. A0.6

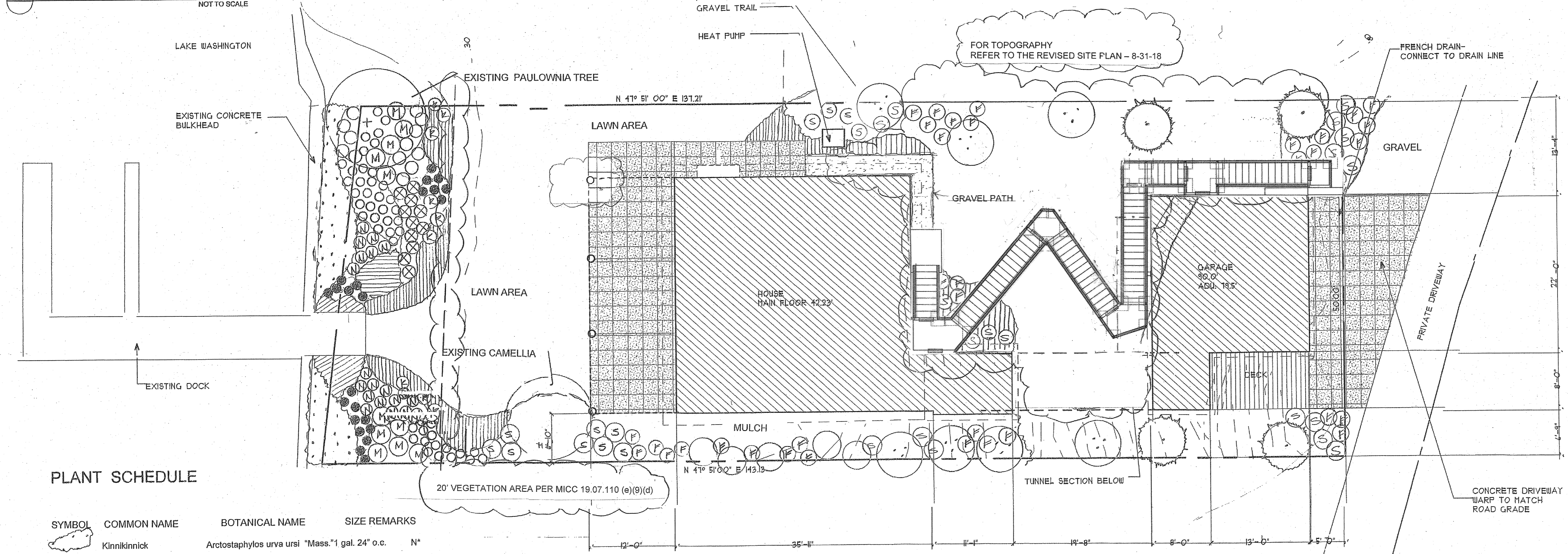
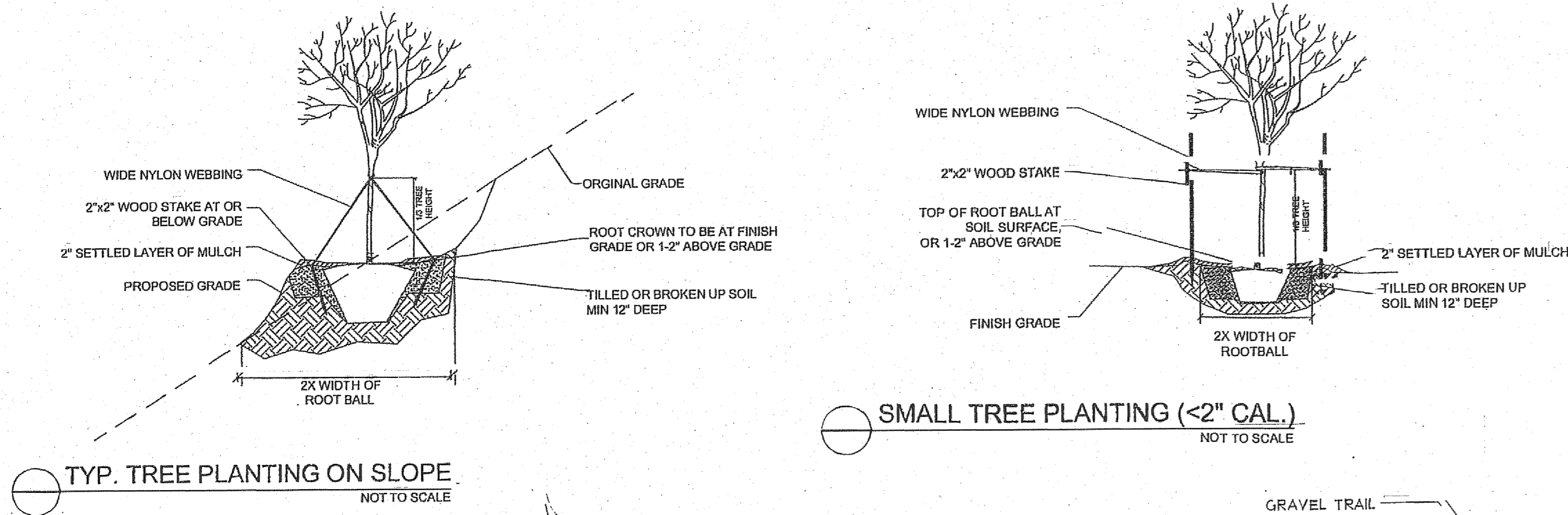
PERMIT REVIEW SET

CONSTRUCTION NOTES

- VEGETATION DISTURBANCE:** ALL EXISTING GROUND COVER DISTURBED DURING THE CONSTRUCTION PROCESS WILL BE REESTABLISHED UPON COMPLETION OF CONSTRUCTION. JUTE MATTING WILL BE USED IN SLOPED AREAS WITH A GRADIENT OF 30 DEGREES OR MORE. A NATIVE GROUND COVER SUCH AS SALAL IS PERFERRED OVER THE USE OF HEDERA HELIX (IVY). GALTHERIA SHALLOON (SALAL) IN 1 GALLON POTS, WILL BE PLANTED IN A TRIANGULAR PLANTING SCHEME, 30" ON CENTER. IF IVY IS USED, 1 GALLON POTS, TRIANGULAR SPACING, 48" ON CENTER.
- LAWN AREA:** THE LAWN AREA, AS NOTED ON THE PLANS, WILL BE PREPPED IN THE FOLLOWING MANNER. 2" OF ACCEPTED MULCH WILL BE DISTRIBUTED AND TILLED INTO THE TOP 6" OF SOIL TO PROVIDE A FERTILE GROWING MEDIUM AND LOOSEN ANY COMPACTION THAT OCCURRED DURING THE CONSTRUCTION PROCESS. PRE-APPROVED MULCH'S ARE AS FOLLOWS:  
SCREENED COMPOSITION MULCH - PACIFIC TOPSOILS  
PRO-MULCH- CEDAR GROVE COMPOST
- THE USE OF SOD OR HYDROSEEDING WILL BE AN OPTION FOR THE LAWN. THE SEASON AND HOMEOWNER WILL BE A DETERMINING FACTOR ON CHOICE.**
- PLANTING BEDS:** THE PLANTING BEDS WILL BE PREPPED THE SAME AS THE LAWN AREAS. 2" OF APPROVED MULCH WILL BE TILLED INTO THE EXISTING SOIL. PLANTINGS WILL BE PLACED AND PLANTED PER LANDSCAPE PLANS AND PLANT SCHEDULE.
- MULCH:** AFTER PLANTING A 2" LAYER OF MULCH WILL BE APPLIED IN THE PLANTING BEDS TO HELP SUPPRESS WEEDS AND EVAPORATION. THE PRE APPROVED MULCHES ARE MENTIONED ABOVE.

VERIFICATION OF NATURAL VEGETATION PERCENTAGE FOR BUFFER PLANTING

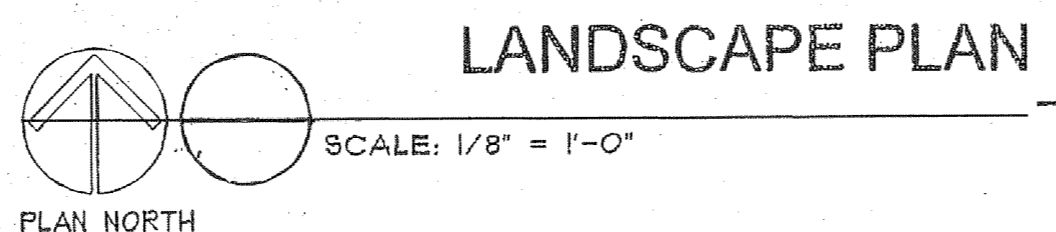
TOTAL SQUARE FOOTAGE OF PLANTING AREA 1000 SQ. FT.  
UNPLANTABLE AREA - (EXISTING DOCK) - 50 SQ. FT.  
TOTAL AREA 950 SQ. FT.  
TOTAL AREA PLANTED WITH NATIVE VEGETATION 830 SQ. FT.  
830 SQ FT DIVIDED BY 950 SQ FT. EQUALS .87 87 %  
THE NATURAL BUFFER AREA IS PLANTED 87% WITH NATIVE PLANT MATERIAL.  
PLEASE REFER TO THE PLANT SCHEDULE FOR NATIVE SPECIES SPECIFIED.



PLANT SCHEDULE

SYMBOL	COMMON NAME	BOTANICAL NAME	SIZE	REMARKS
	Kinnikinnick	Arctostaphylos urva ursi "Mass."	1 gal. 24" o.c.	N*
	Goats Beard	Arunus dioicous	1 gal.	N*
	Douglas Aster	Aster Subspicatus	1 gal. 12" o.c.	N*
	Great Camas	Camassia leitchlinii	1 gal.	N*
	Soft Rush	Juncus effuses	1gal.	N*
	Small Flowered Alumroot	Heuchera microcrantha	1gal. 12" o.c.	N*
	Pacific wax Myrtle	Myrica californica	5gal.	N*
	Salal	Gaultheria shallon	1gal.	N*
	Oregon Grape	Mahonia auifolium	5gal.	N*
	Creeping Mahonia	Mahonia repens	2gal	N*
	Sweet Box	Sarcococca ruscifolia	5gal	N*
	Vine Maple	Acer circinatum	6-7' multistemmed	N* R*
	Alaskan Fern	Polystichum setiferum	2gal.	N*
	Virescens Cedar	Thuja plicata "Virescens"	6-7'	R*
	Wild Ginger	Asarum caudatum	4"pots -18"oc	N*
	Black Eyed Susan	Rudbeckia goldstrum	1gal.	N*

N\* PLANT IS INCLUDED ON WASHINGTON NATIVE PLANT SOCIETY LIST FOR KING COUNTY  
R\* TREES ALLOCATED FOR REPLACEMENT OF PROPOSED REMOVED TREES.



ST EVE WALL DESIGNS  
425-802-1507  
stevewalldesigns@gmail.com

1119 Gravelly Lake Drive SW  
Lakewood WA 9849  
P phone: 531581-6000  
Webster: www.jgarc.net  
James Guerrero Architects, INC

BOYLE MER CER ISLAND  
LANDSCAPE PLAN

DATE	09-26-17
REVISED	
11-30-18	
SHEET NO.	L1

SCALE FACTOR: 98

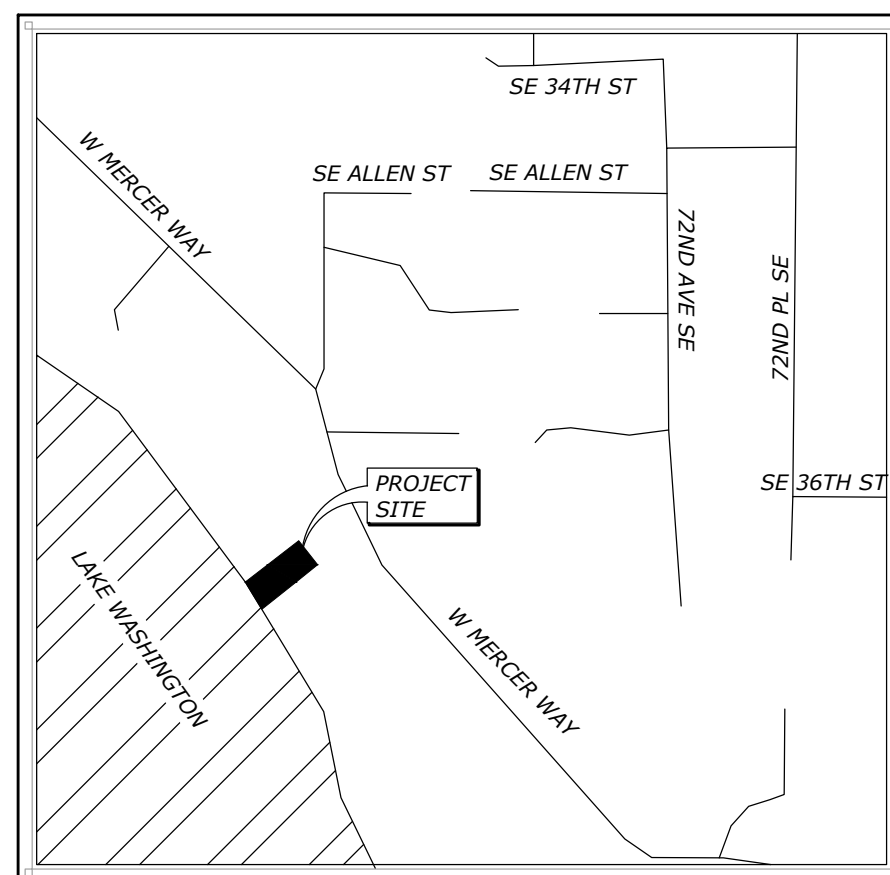


# 3603 W MERCER WAY

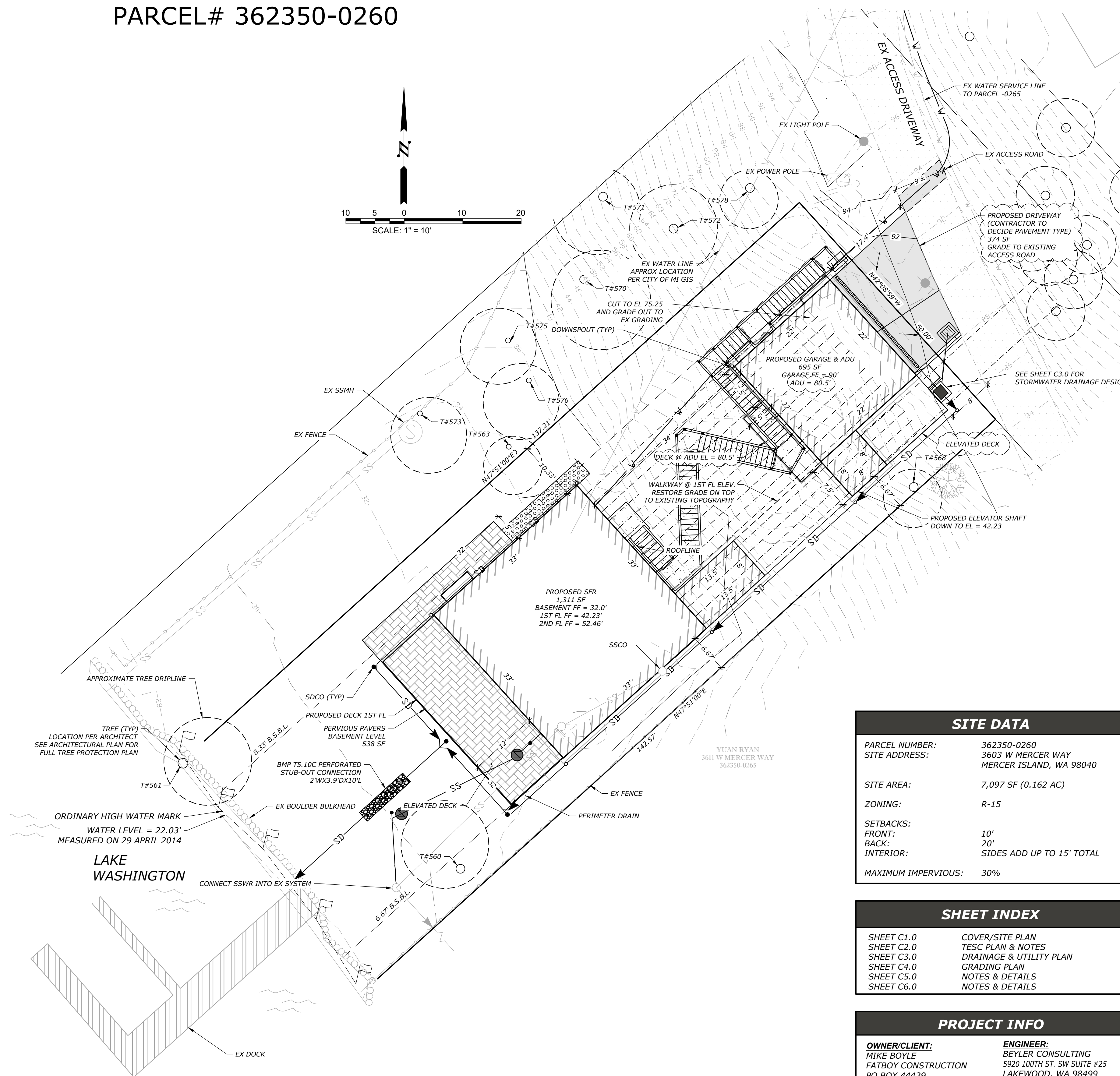
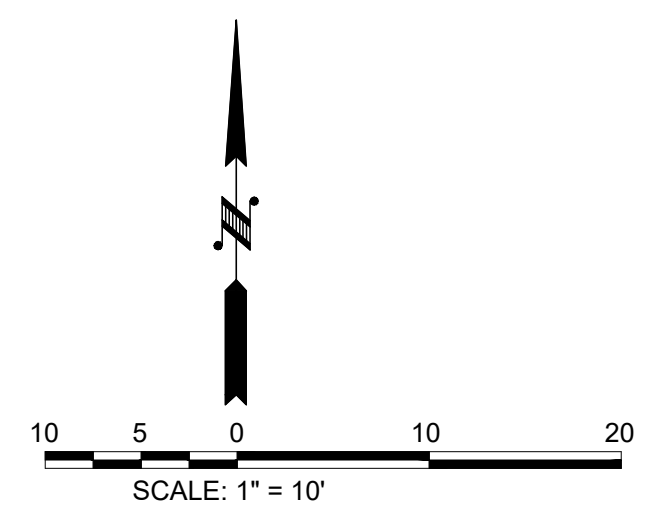
## DRAINAGE REVIEW

PARCEL# 362350-0260

CALL 48 HRS  
BEFORE YOU DIG  
1-800-424-5555



VICINITY MAP  
N.T.S



### SOIL LOGS

SOIL PROFILE: TEST DATE: 11-3-2015

**HA1 - HAND AUGER 1**

0.0-1.0' BROWN SILTY SAND WITH ORGANICS (MED DENSE, MOIST)

1.0-2.0' SP GREY SILTY SAND WITH MOTTLING, WOOD DEBRIS, AND ORGANICS (MED DENSE, MOIST)

2.0-3.5' SP BROWN SAND WITH SILT, MOTTLING, AND WOOD DEBRIS (MED DENSE, MOIST)

3.5-4.3' CL GREY SAND WITH SILT WITH MOTTLING (MED DENSE, MOIST)

4.3-4.5' SP GREY SAND WITH SILT TO SILTY FINE SAND (DENSE, MOIST)

4.5-5.0' SP GREY SAND WITH SILT TO SILTY FINE SAND (DENSE, WET)

5.0-5.5' CL GREY SILTY WITH SOME FINE SANDY (DENSE, WET)

\*TERMINATED AT 5.5' BELOW GROUND SURFACE. NO CAVING OBSERVED. GROUNDWATER OBSERVED AT 5' BELOW GROUND SURFACE.

**HA2 - HAND AUGER 2**

0.0-0.3' TOPSOIL, DUFF

0.3-1.0' SP L. BROWN SAND WITH ORGANICS AND ROOTS (MED DENSE)

1.0-1.6' SP L. BROWN SAND WITH MOTTLING (MED DENSE)

1.6-3.5' SP GREY SAND WITH MOTTLING (MED DENSE)

3.5-4.0' SP GREY SAND WITH WOOD DEBRIS (MED DENSE)

4.0-6.0' SP GREY/TAN FINE SAND (DENSE)

\*TERMINATED AT 6.0' BELOW GROUND SURFACE. NO CAVING OBSERVED. NO GROUNDWATER SEEPAGE OBSERVED.

**B1 - BORING 1**

0-0.8' TOPSOIL/DUFF

0.8-2.5' TAN/GRAY FINE SAND WITH SOME SILT (LOOSE, MOIST)

2.5-4.5' SILTY SAND GRADES TO D GRAY FINE TO MEDIUM SAND (MED DENSE, MOIST)

4.5-6.5' GRADES TO BLUE-GRAY FINE SANDY SILT (VERY STIFF, MOIST)

6.5-10' BECOMES INTERBEDDED GRAY FINE SAND AND SILT (DENSE, MOIST)

10-15' SILTY SAND GRADES TO GRAY SILTY FINE TO MEDIUM SAND (DENSE, MOIST)

15-18'

18-21.5'

\*BOTTOM OF BORING @ 21.5'

### TOPOGRAPHIC NOTE

THE EXISTING CULTURAL AND TOPOGRAPHICAL DATA SHOWN ON THESE DRAWINGS HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, BEYLER CONSULTING CANNOT ENSURE ACCURACY AND THIS IS NOT RESPONSIBLE FOR THE ACCURACY OF THAT INFORMATION OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.

### IMPERVIOUS/PERVIOUS AREA SUMMARY

	SURFACE TYPE	EXISTING SURFACES (SF)	(AC)
IMPERVIOUS	EXISTING HOUSE TO BE REMOVED	1683	0.039
	NEW HOUSE ROOF AREA	1471	0.034
	EXPOSED CONCRETE ROOF	57	0.001
	NEW GARAGE/ADU ROOF AREA	619	0.014
	CONCRETE APRON @ GARAGE	110	0.003
	EXTERIOR CONCRETE STAIRS	75	0.002
<b>TOTAL</b>		<b>2332</b>	<b>0.054</b>
PERVIOUS	EXISTING WOOD STAIRS + PATHS REMOVED	300	0.007
	NEW DECKS & LANDING AT ADU	221	0.005
	NEW DECK AT HOUSE	396	0.009
	NEW GRAVEL PATH	449	0.010
<b>TOTAL</b>		<b>1602</b>	<b>0.037</b>

### LEGAL DESCRIPTION

A TRACT OF LAND IN THE NORTHERLY PORTION OF BLOCK "A" IN THE REPLAT OF ISLAND PARK, ACCORDING TO PLAT RECORDED IN VOLUME 13 OF PLATS AT PAGE 58, RECORDS OF KING COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTHEASTERLY MARGIN OF BLOCK "A" IN THE REPLAT OF ISLAND PARK, DISTANT NORTHWESTERLY ALONG THE SAID MARGIN 1000.00 FEET FROM THE MOST EASTERLY CORNER OF SAID BLOCK "A" AND RUNNING THENCE AT RIGHT ANGLES SOUTHWESTERLY 143 FEET, MORE OR LESS, TO THE SHORE LINE OF LAKE WASHINGTON; THENCE SOUTHEASTERLY ALONG THE SAID SHORE LINE 51 FEET, MORE OR LESS, TO A POINT WHICH BEARS FROM THE POINT OF BEGINNING THIS DESCRIPTION SOUTHWESTERLY AT RIGHT ANGLES TO THE SAID NORTHEASTERLY MARGIN OF BLOCK "A"; THENCE NORTHEASTERLY ALONG THE LINE AT RIGHT ANGLES TO THE SAID NORTHEASTERLY MARGIN 150FT, MORE OR LESS TO POINT OF BEGINNING, TOGETHER WITH SHORE LANDS OF THE SECOND CLASS AND ADJACENT THERETO, SITUATE IN KING COUNTY, STATE WASHINGTON. LEGAL DESCRIPTION PER QUIT CLAIM DEED UNDER RECORDING No. 199505040149

### SURVEY DATA

**BASIS OF BEARINGS**  
ASSUMED: FOUND SURVEY MARKERS ALONG THE NORTHEASTERLY LINE OF BLOCK "A" IN THE REPLAT OF ISLAND PARK ARE N42°09'00"W.

**EQUIPMENT USED**  
TOPCON PS103A TOTAL STATION. STANDARD FIELD TRAVERSE METHODS FOR CONTROL AND STAKING.

### SITE DATA

PARCEL NUMBER:	362350-0260
SITE ADDRESS:	3603 W MERCER WAY MERCER ISLAND, WA 98040
SITE AREA:	7,097 SF (0.162 AC)
ZONING:	R-15
SETBACKS:	
FRONT:	10'
BACK:	20'
INTERIOR:	SIDES ADD UP TO 15' TOTAL
MAXIMUM IMPERVIOUS:	30%

### SHEET INDEX

SHEET C1.0	COVER/SITE PLAN
SHEET C2.0	TESC PLAN & NOTES
SHEET C3.0	DRAINAGE & UTILITY PLAN
SHEET C4.0	GRADING PLAN
SHEET C5.0	NOTES & DETAILS
SHEET C6.0	NOTES & DETAILS

### PROJECT INFO

<b>OWNER/CLIENT:</b> MIKE BOYLE FATBOY CONSTRUCTION PO BOX 44429 TEL: 253-576-8333	<b>ENGINEER:</b> BEYLER CONSULTING 5920 100TH ST. SW SUITE #25 LAKEWOOD, WA 98499 TEL: 253-984-2900
--	---

NO.	DESCRIPTION	INIT	DATE
1	REVISIONS PER REDLINES #1	KRD	5/24/18
2	ADU FF ADJUSTMENT	KRD	12/11/18
3	REDLINES & SITE CHANGES	KRD	04/22/19
4	REDLINES	KRD	06/17/19

**BEYLER CONSULTING**  
Plan. Design. Manage  
CIVIL & STRUCTURAL ENGINEERING | LAND SURVEYING | PLANNING  
PROJECT MANAGEMENT | FEASIBILITY | PERMIT EXPEDITING

LAKWOOD OFFICE  
11515 SW 48TH AVE  
LAKEWOOD, WA 98499  
phone: 253-984-2900  
beylerconsulting.com

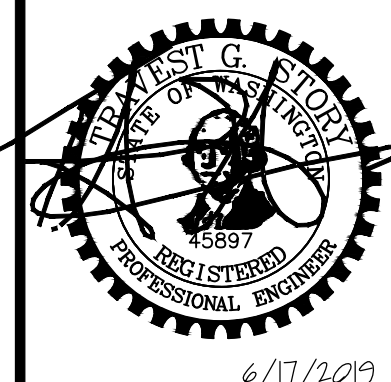
COVER SHEET/ SITE PLAN

## 3603 MERCER WAY DRAINAGE

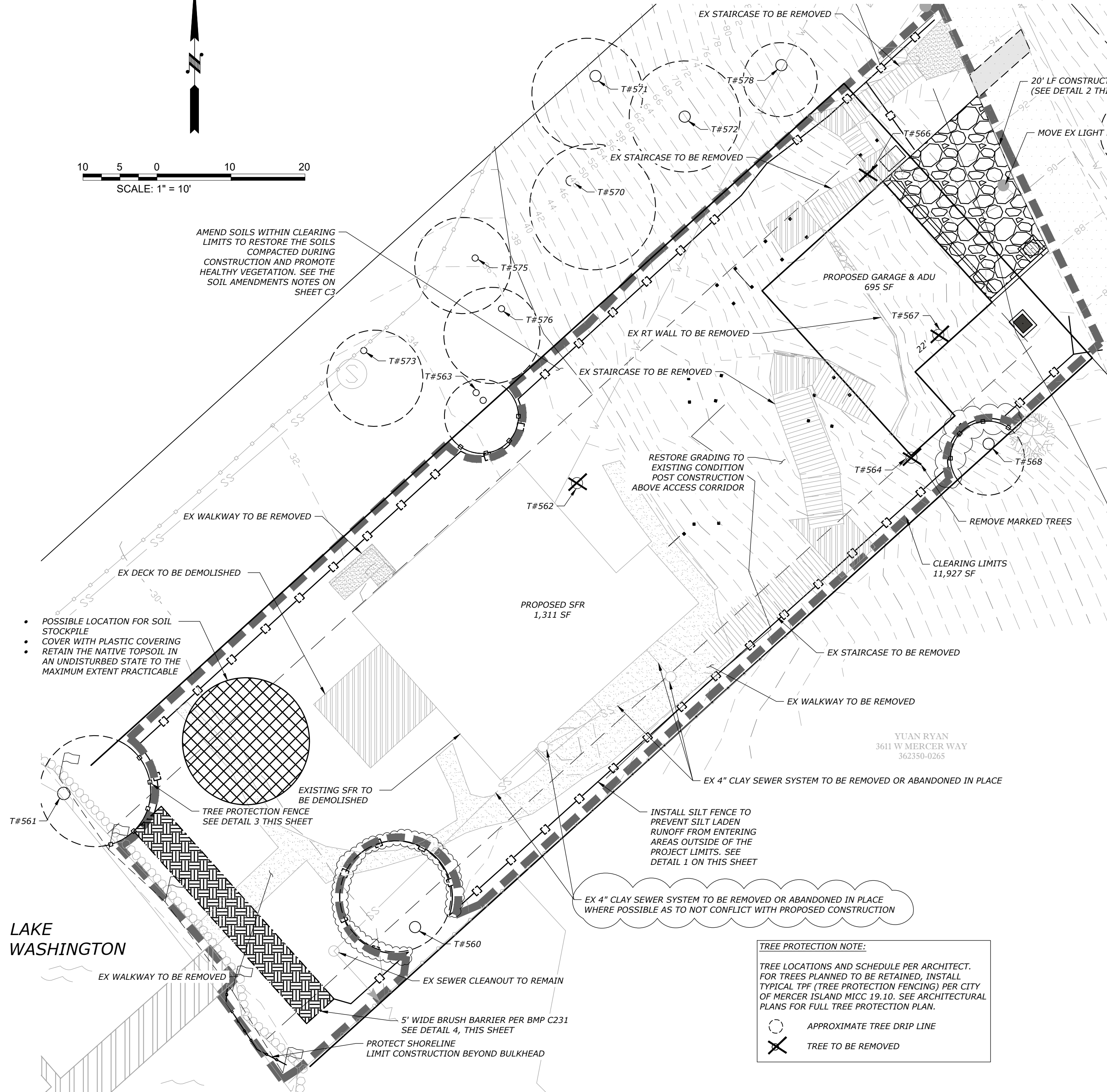
PARCEL# 362350-0260

CITY OF MERCER ISLAND, WASHINGTON

DRAWN BY: N/JD  
CHECKED BY: DRB  
SCALE: HORIZ: 1"=10' VERT: N/A  
DATE: 10/18/2017



JOB NUMBER  
**17-196**  
SHEET 1 OF 6  
**C1.0**



### BMP 231: BRUSH BARRIER DESIGN

- BRUSH BARRIERS MAY BE USED DOWNSLOPE OF ALL DISTURBED AREAS OF LESS THAN ONE-QUARTER ACRE.
- BRUSH BARRIERS ARE NOT INTENDED TO TREAT CONCENTRATED FLOWS, NOR ARE THEY INTENDED TO TREAT SUBSTANTIAL AMOUNTS OF OVERLAND FLOW. ANY CONCENTRATED FLOWS MUST BE CONVEYED THROUGH THE DRAINAGE SYSTEM TO A SEDIMENT POND. THE ONLY CIRCUMSTANCE IN WHICH OVERLAND FLOW CAN BE TREATED SOLELY BY A BRUSH BARRIER, RATHER THAN BY A SEDIMENT POND, IS WHEN THE AREA DRAINING TO THE BARRIER IS SMALL.
- BRUSH BARRIERS SHOULD ONLY BE INSTALLED ON CONTOURS
- HEIGHT 2 FEET (MINIMUM) TO 5 FEET (MAXIMUM).
- WIDTH 5 FEET AT BASE (MINIMUM) TO 15 FEET (MAXIMUM).
- FILTER FABRIC (GEOTEXTILE) MAY BE ANCHORED OVER THE BRUSH BERM TO ENHANCE THE FILTRATION ABILITY OF THE BARRIER. TEN-OUNCE BURLAP IS AN ADEQUATE ALTERNATIVE TO FILTER FABRIC.
- CHIPPED SITE VEGETATION, COMPOSTED MULCH, OR WOOD-BASED MULCH (HOG FUEL) CAN BE USED TO CONSTRUCT BRUSH BARRIERS.
- A 100 PERCENT BIODEGRADABLE INSTALLATION CAN BE CONSTRUCTED USING 10-OUNCE BURLAP HELD IN PLACE BY WOODEN STAKES. FIGURE 4.2.11 DEPICTS A TYPICAL BRUSH BARRIER.
- THERE SHALL BE NO SIGNS OF EROSION OR CONCENTRATED RUNOFF UNDER OR AROUND THE BARRIER. IF CONCENTRATED FLOWS ARE BYPASSING THE BARRIER, IT MUST BE EXPANDED OR AUGMENTED BY TOE-IN FILTER FABRIC.
- THE DIMENSIONS OF THE BARRIER MUST BE MAINTAINED.

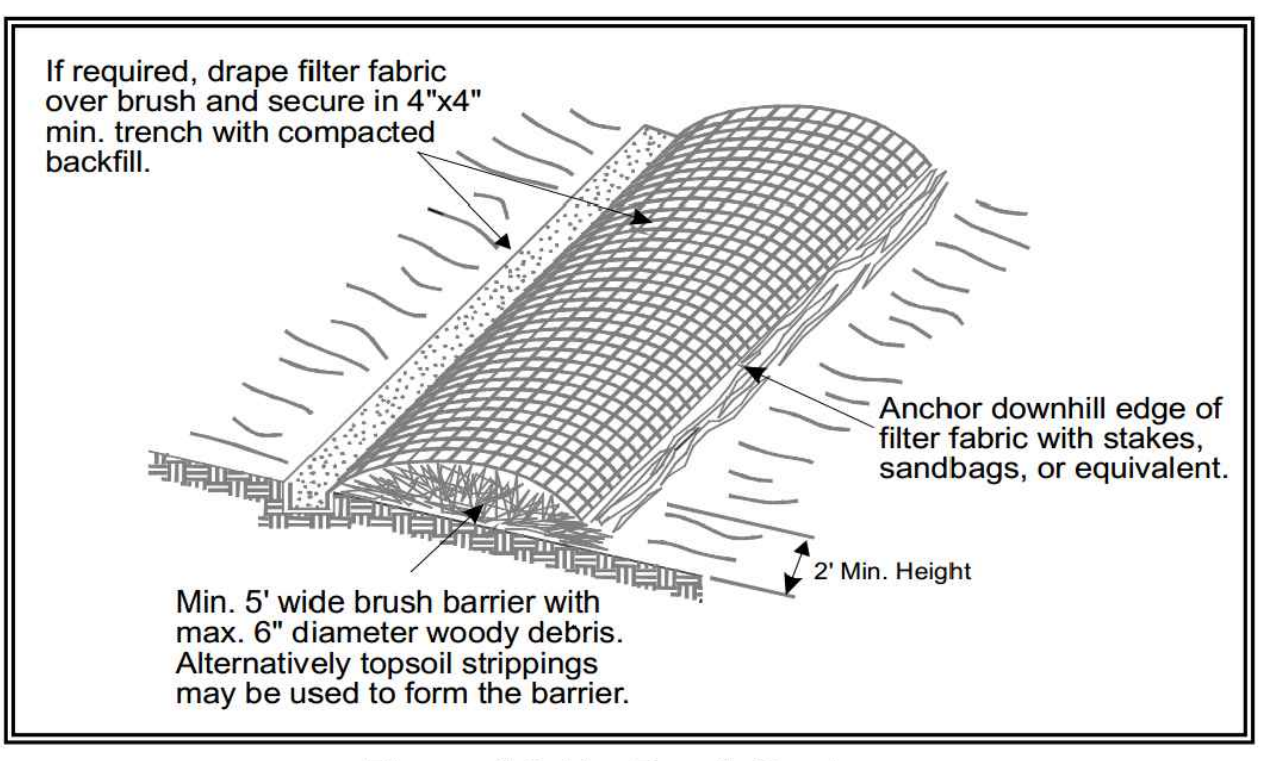


Figure 4.2.11 - Brush Barrier

**4** **BMP C231: BRUSH BARRIER** N.T.S.  
 SOURCE: WSDOE SMMWM 2014 REVISION

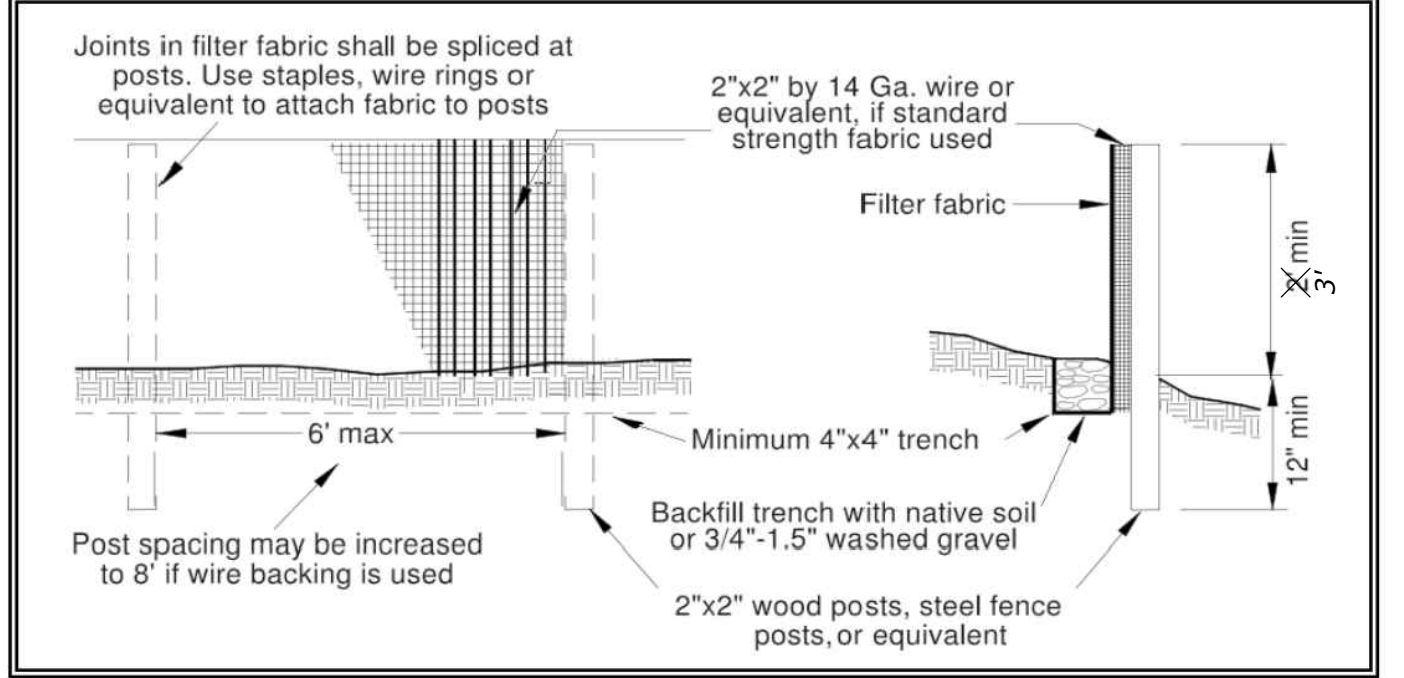


Figure 4.2.12 - Silt Fence

**1** **SILT FENCE DETAIL** N.T.S.  
 C2.0

### GEOTECHNICAL CONSIDERATIONS

THE GEOTECHNICAL REPORT, PREPARED BY GEORESOURCES 3/3/16, LISTS CONSIDERATIONS FOR CONSTRUCTION ON THE STEEP SLOPES. THE FOLLOWING IS A SUMMARY. SEE GEOTECHNICAL REPORT FOR FURTHER DISCUSSION.

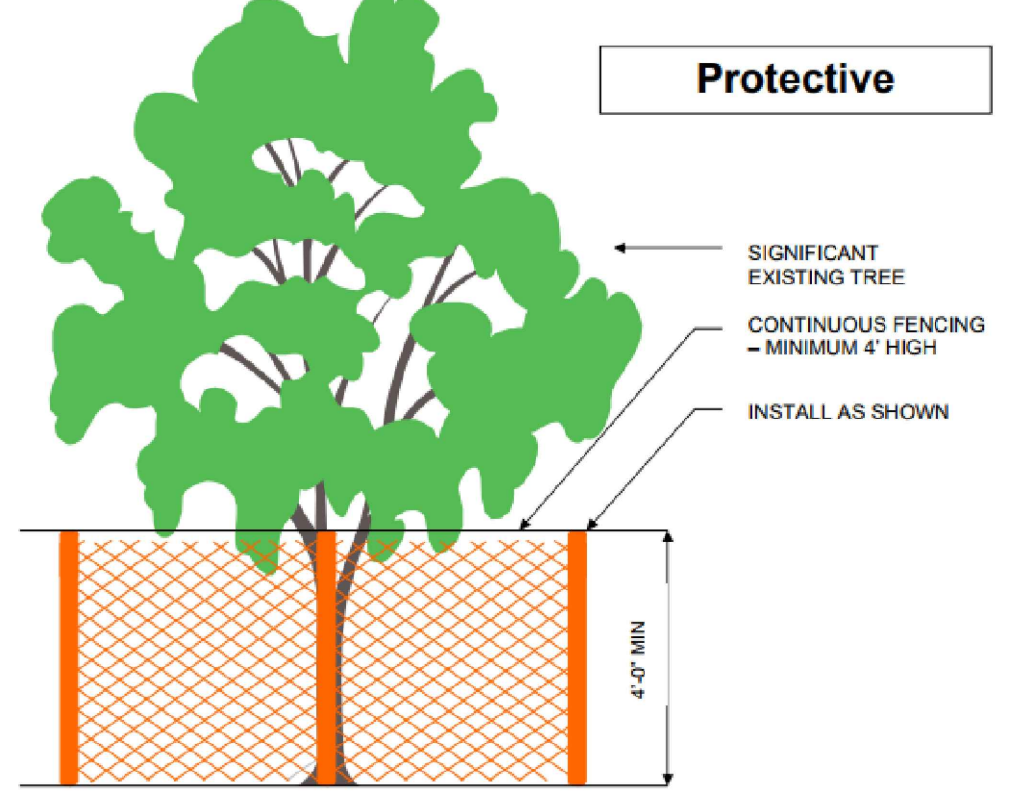
- ALL STRUCTURAL AREA ON SITE TO BE GRADED SHOULD BE STRIPPED OF VEGETATION. STRIPPING DEPTH OF 4-12"
- WHERE FILL MATERIAL IS REQUIRED, THE STRIPPED/ EXPOSED SUBGRADE SHOULD BE COMPACTED.
- STRUCTURAL FILL SHOULD BE COMPACTED TO DENSITIES DESCRIBED IN "STRUCTURAL FILL" SECTION OF REPORT. THE SITE CONTAINS TYPE B & C SOILS. FOR TEMPORARY EXCAVATIONS OF THESE SOILS SIDE SLOPES OF 1H:1V AND 3/4H:1V, RESPECTIVELY, ARE RECOMMENDED IN ORDER TO COMPLY WITH WISHA REGULATIONS.
- ALL EXPOSED SLOPE FACES SHOULD BE COVERED WITH DURABLE REINFORCED PLASTIC MEMBRANE, JUTE MATTING, OR OTHER EROSION CONTROL MATS DURING CONSTRUCTION TO PREVENT SLOPE RAVELING AND RUTTING DURING PERIODS OF PRECIPITATION.
- SCHEDULE EARTHWORK DURING THE DRY WEATHER MONTHS OF JUNE-SEPTEMBER. MOST OF THE SOIL AT THE SITE CONTAINS SUFFICIENT FINES TO PRODUCE AN UNSTABLE MIXTURE WHEN WET.
- PLACE EROSION CONTROL MEASURES ABOVE THE STEEP SLOPE SO THAT NO OVERBANK CONCENTRATED FLOWS CAN OCCUR.

### EARTHWORK CALCULATIONS

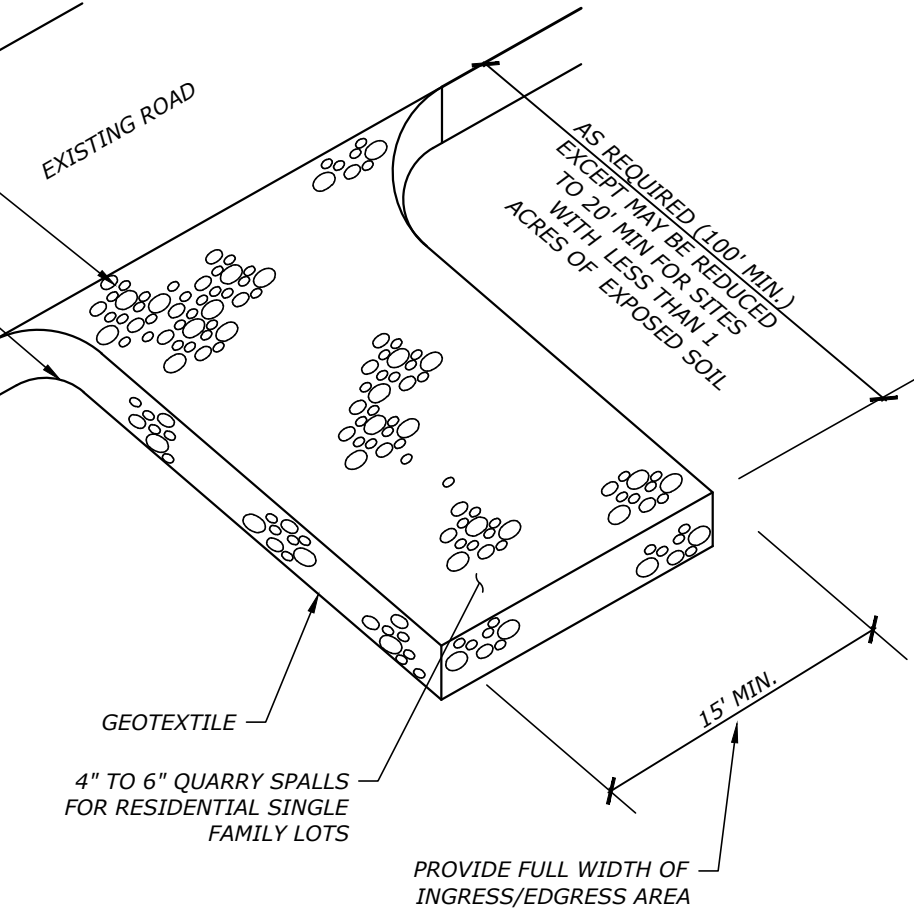
CUT VOLUME:	48 CY
FILL VOLUME:	72 CY
NET VOLUME:	24 CY (FILL)*

\*SHRINK/SWELL FACTORS HAVE NOT BEEN APPLIED

NOTE: THE GRADING QUANTITIES SHOWN REPRESENT ROAD GRADING AND ROUGH LOT GRADING. ADDITIONAL FINE LOT GRADING MAY BE NECESSARY AT TIME OF BUILDING CONSTRUCTION. GRADING QUANTITIES SHOWN ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXACT QUANTITIES PRIOR TO CONSTRUCTION.



**3** **TREE PROTECTION DETAIL** N.T.S.  
 SOURCE: CITY OF MERCER ISLAND - TREE CARE



**2** **CONSTRUCTION ENTRANCE DETAIL** N.T.S.  
 C2.0

### CONSTRUCTION ENTRANCE NOTES:

- MATERIAL SHALL BE 4 INCH TO 8 INCH QUARRY SPALLS (4 TO 6 INCH FOR RESIDENTIAL SINGLE FAMILY LOTS) AND MAY BE TOP-DRESSED WITH 1 INCH TO 3 INCH ROCK. (STATE STANDARD SPECIFICATIONS, SECTION 8-15.)
- THE ROCK PAD SHALL BE AT LEAST 12 INCHES THICK AND 50 FEET LONG (20 FEET FOR SITES WITH LESS THAN 1 ACRE OF DISTURBED SOIL). WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA. SMALLER PADS MAY BE APPROVED FOR SINGLE-FAMILY RESIDENTIAL AND SMALL COMMERCIAL SITES.
- ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF PAD.
- IF THE PAD DOES NOT ADEQUATELY REMOVE THE MUD FROM THE VEHICLE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET. THE WASHING SHALL BE DONE IN AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN TO A SEDIMENT RETENTION FACILITY OR THROUGH A SILT FENCE.
- GEOTEXTILE SHALL MEET THE FOLLOWING STANDARDS:
  - GRAB TENSILE STRENGTH (ASTM D4751) - 200 PSI MIN.
  - GRAB TENSILE ELONGATION (ASTM D4632) - 30% MAX
  - MULLEN BURST STRENGTH (ASTM D3786-80a) - 400 PSI MIN.
  - AOS (ASTM D4751) - 20 TO 45 (U.S. STANDARD SIEVE SIZE)

### TREE PROTECTION NOTES

- PROTECTIVE FENCING SHALL BE LOCATED WHERE SHOWN ON PLANS. FENCE SHALL COMPLETELY ENCIRCLE TREE(S) AT THE DRIPLENE OR BEYOND. AVOID DRIVING POSTS OR STAKES INTO MAJOR ROOTS. FENCE MUST REMAIN UP THROUGHOUT PROJECT.
- NO STOCKPILING OF MATERIALS, GRADE CHANGES, VEHICULAR TRAFFIC OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. PLEASE CALL ARBORIST FOR MITIGATION MEASURES IF FENCING MUST COME DOWN.
- TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER 1" IN DIAMETER DAMAGED DURING CONSTRUCTION. MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP WITH CONTINUOUS IRRIGATION TO PREVENT DRYING. COVER WITH SOIL AS SOON AS POSSIBLE-3" OF MULCH RECOMMENDED.

### FILTER FABRIC FENCE NOTES:

- FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT THE SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POST.
- POST SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
- A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POST AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
- WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POST USING A HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG. TIE WIRES OR HOG RINGS THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED TO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH CASE, THE FILTER FABRIC IS STAPLED OR WIRE DIRECTLY TO THE POST WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
- FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
- FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY. SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.
- CONTRIBUTING LENGTH TO FENCE WILL NOT BE GREATER THAN 100 FEET.
- DO NOT INSTALL BELOW AN OUTLET PIPE OR WEIR.
- INSTALL DOWNSLOPE OF EXPOSED AREAS.
- DO NOT DRIVE OVER OR FILL OVER SILT FENCES.

### EROSION CONTROL NOTES

- APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
- THE IMPLEMENTATION OF THESE EROSION AND SEDIMENT CONTROL PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
- THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
- THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
- THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
- THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
- THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.
- AT NO TIME SHALL MORE THAN 1 FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

CAD FILE: X:\Projects\17-000\17-196 Mike Boyle, 3603 Mercer Way, Mercer Island, WA 98040  
 PLOT DATE/TIME: 6/17/2019 6:34pm GO HAWKS!  
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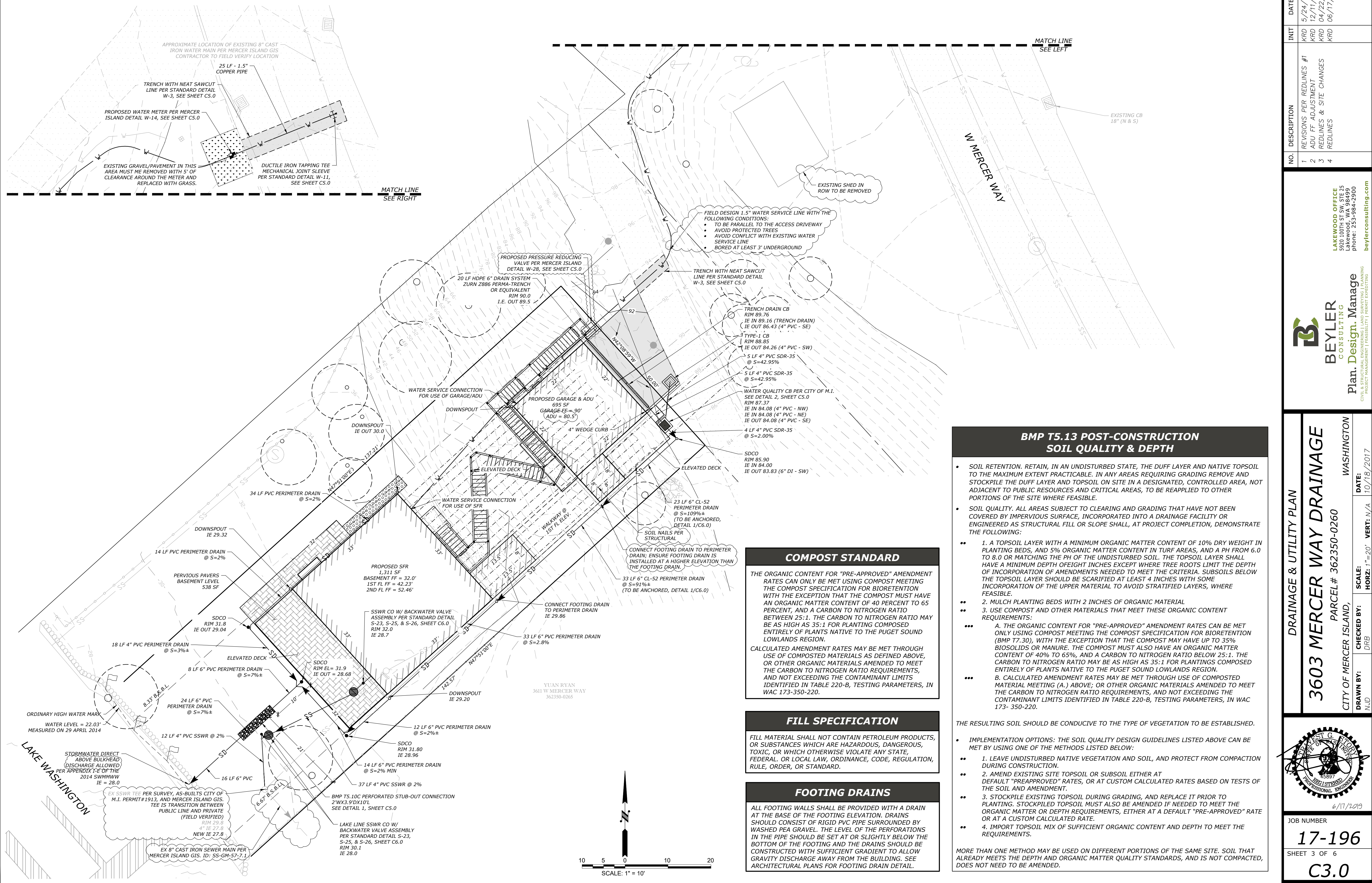
NO.	DESCRIPTION	REVISIONS PER REDLINES #1	INIT	DATE
1			KRD	5/24/18

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 Lakewood, WA 98465  
 phone: 253-984-2900  
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**TESC PLAN & NOTES**  
**3603 MERCER WAY DRAINAGE**  
 PARCEL# 362350-0260  
 CITY OF MERCER ISLAND, WASHINGTON  
 DRAWN BY: NJD  
 CHECKED BY: DRB  
 SCALE: HORIZ: 1"=10'  
 VERT: N/A  
 DATE: 10/18/2017

**PROFESSIONAL ENGINEER**  
 45897  
 6/17/2019  
 JOB NUMBER  
**17-196**  
 SHEET 2 OF 6  
**C2.0**

A PORTION OF SECTION 12, TOWNSHIP 24 N., RANGE 04 W., W.M.



**COMPOST STANDARD**

THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN ONLY BE MET USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BIORETENTION WITH THE EXCEPTION THAT THE COMPOST MUST HAVE AN ORGANIC MATTER CONTENT OF 40 PERCENT TO 65 PERCENT, AND A CARBON TO NITROGEN RATIO BETWEEN 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTING COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.

CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIALS AS DEFINED ABOVE, OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.

**FILL SPECIFICATION**

FILL MATERIAL SHALL NOT CONTAIN PETROLEUM PRODUCTS, OR SUBSTANCES WHICH ARE HAZARDOUS, DANGEROUS, TOXIC, OR WHICH OTHERWISE VIOLATE ANY STATE, FEDERAL, OR LOCAL LAW, ORDINANCE, CODE, REGULATION, RULE, ORDER, OR STANDARD.

**FOOTING DRAINS**

ALL FOOTING WALLS SHALL BE PROVIDED WITH A DRAIN AT THE BASE OF THE FOOTING ELEVATION. DRAINS SHOULD CONSIST OF RIGID PVC PIPE SURROUNDED BY WASHED PEA GRAVEL. THE LEVEL OF THE PERFORATIONS IN THE PIPE SHOULD BE SET AT OR SLIGHTLY BELOW THE BOTTOM OF THE FOOTING AND THE DRAINS SHOULD BE CONSTRUCTED WITH SUFFICIENT GRADIENT TO ALLOW GRAVITY DISCHARGE AWAY FROM THE BUILDING. SEE ARCHITECTURAL PLANS FOR FOOTING DRAIN DETAIL.

**BMP T5.13 POST-CONSTRUCTION SOIL QUALITY & DEPTH**

- SOIL RETENTION. RETAIN, IN AN UNDISTURBED STATE, THE DUFF LAYER AND NATIVE TOPSOIL TO THE MAXIMUM EXTENT PRACTICABLE. IN ANY AREAS REQUIRING GRADING REMOVE AND STOCKPILE THE DUFF LAYER AND TOPSOIL ON SITE IN A DESIGNATED, CONTROLLED AREA, NOT ADJACENT TO PUBLIC RESOURCES AND CRITICAL AREAS, TO BE REAPPLIED TO OTHER PORTIONS OF THE SITE WHERE FEASIBLE.
  - SOIL QUALITY. ALL AREAS SUBJECT TO CLEARING AND GRADING THAT HAVE NOT BEEN COVERED BY IMPERVIOUS SURFACE, INCORPORATED INTO A DRAINAGE FACILITY OR ENGINEERED AS STRUCTURAL FILL OR SLOPE SHALL, AT PROJECT COMPLETION, DEMONSTRATE THE FOLLOWING:
    - 1. A TOPSOIL LAYER WITH A MINIMUM ORGANIC MATTER CONTENT OF 10% DRY WEIGHT IN PLANTING BEDS, AND 5% ORGANIC MATTER CONTENT IN TURF AREAS, AND A PH FROM 6.0 TO 8.0 OR MATCHING THE PH OF THE UNDISTURBED SOIL. THE TOPSOIL LAYER SHALL HAVE A MINIMUM DEPTH OF EIGHT INCHES EXCEPT WHERE TREE ROOTS LIMIT THE DEPTH OF INCORPORATION OF AMENDMENTS NEEDED TO MEET THE CRITERIA. SUBSOILS BELOW THE TOPSOIL LAYER SHOULD BE SCARIFIED AT LEAST 4 INCHES WITH SOME INCORPORATION OF THE UPPER MATERIAL TO AVOID STRATIFIED LAYERS, WHERE FEASIBLE.
    - 2. MULCH PLANTING BEDS WITH 2 INCHES OF ORGANIC MATERIAL
    - 3. USE COMPOST AND OTHER MATERIALS THAT MEET THESE ORGANIC CONTENT REQUIREMENTS:
      - A. THE ORGANIC CONTENT FOR "PRE-APPROVED" AMENDMENT RATES CAN BE MET ONLY USING COMPOST MEETING THE COMPOST SPECIFICATION FOR BIORETENTION (BMP T7.30), WITH THE EXCEPTION THAT THE COMPOST MAY HAVE UP TO 35% BIOSOLIDS OR MANURE. THE COMPOST MUST ALSO HAVE AN ORGANIC MATTER CONTENT OF 40% TO 65%, AND A CARBON TO NITROGEN RATIO BELOW 25:1. THE CARBON TO NITROGEN RATIO MAY BE AS HIGH AS 35:1 FOR PLANTINGS COMPOSED ENTIRELY OF PLANTS NATIVE TO THE PUGET SOUND LOWLANDS REGION.
      - B. CALCULATED AMENDMENT RATES MAY BE MET THROUGH USE OF COMPOSTED MATERIAL MEETING (A.) ABOVE; OR OTHER ORGANIC MATERIALS AMENDED TO MEET THE CARBON TO NITROGEN RATIO REQUIREMENTS, AND NOT EXCEEDING THE CONTAMINANT LIMITS IDENTIFIED IN TABLE 220-B, TESTING PARAMETERS, IN WAC 173-350-220.
- THE RESULTING SOIL SHOULD BE CONDUCTIVE TO THE TYPE OF VEGETATION TO BE ESTABLISHED.
- IMPLEMENTATION OPTIONS: THE SOIL QUALITY DESIGN GUIDELINES LISTED ABOVE CAN BE MET BY USING ONE OF THE METHODS LISTED BELOW:
    - 1. LEAVE UNDISTURBED NATIVE VEGETATION AND SOIL, AND PROTECT FROM COMPACTION DURING CONSTRUCTION.
    - 2. AMEND EXISTING SITE TOPSOIL OR SUBSOIL EITHER AT DEFAULT "PRE-APPROVED" RATES, OR AT CUSTOM CALCULATED RATES BASED ON TESTS OF THE SOIL AND AMENDMENT.
    - 3. STOCKPILE EXISTING TOPSOIL DURING GRADING, AND REPLACE IT PRIOR TO PLANTING. STOCKPILED TOPSOIL MUST ALSO BE AMENDED IF NEEDED TO MEET THE ORGANIC MATTER OR DEPTH REQUIREMENTS, EITHER AT A DEFAULT "PRE-APPROVED" RATE OR AT A CUSTOM CALCULATED RATE.
    - 4. IMPORT TOPSOIL MIX OF SUFFICIENT ORGANIC CONTENT AND DEPTH TO MEET THE REQUIREMENTS.
- MORE THAN ONE METHOD MAY BE USED ON DIFFERENT PORTIONS OF THE SAME SITE. SOIL THAT ALREADY MEETS THE DEPTH AND ORGANIC MATTER QUALITY STANDARDS, AND IS NOT COMPACTED, DOES NOT NEED TO BE AMENDED.

NO.	DESCRIPTION	INIT	DATE
1	REVISIONS PER REDLINES #1	KRD	5/24/18
2	ADU FF ADJUSTMENT	KRD	12/11/18
3	REDLINES & SITE CHANGES	KRD	04/22/19
4	REDLINES	KRD	06/17/19

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**DRAINAGE & UTILITY PLAN**

**3603 MERCER WAY DRAINAGE**

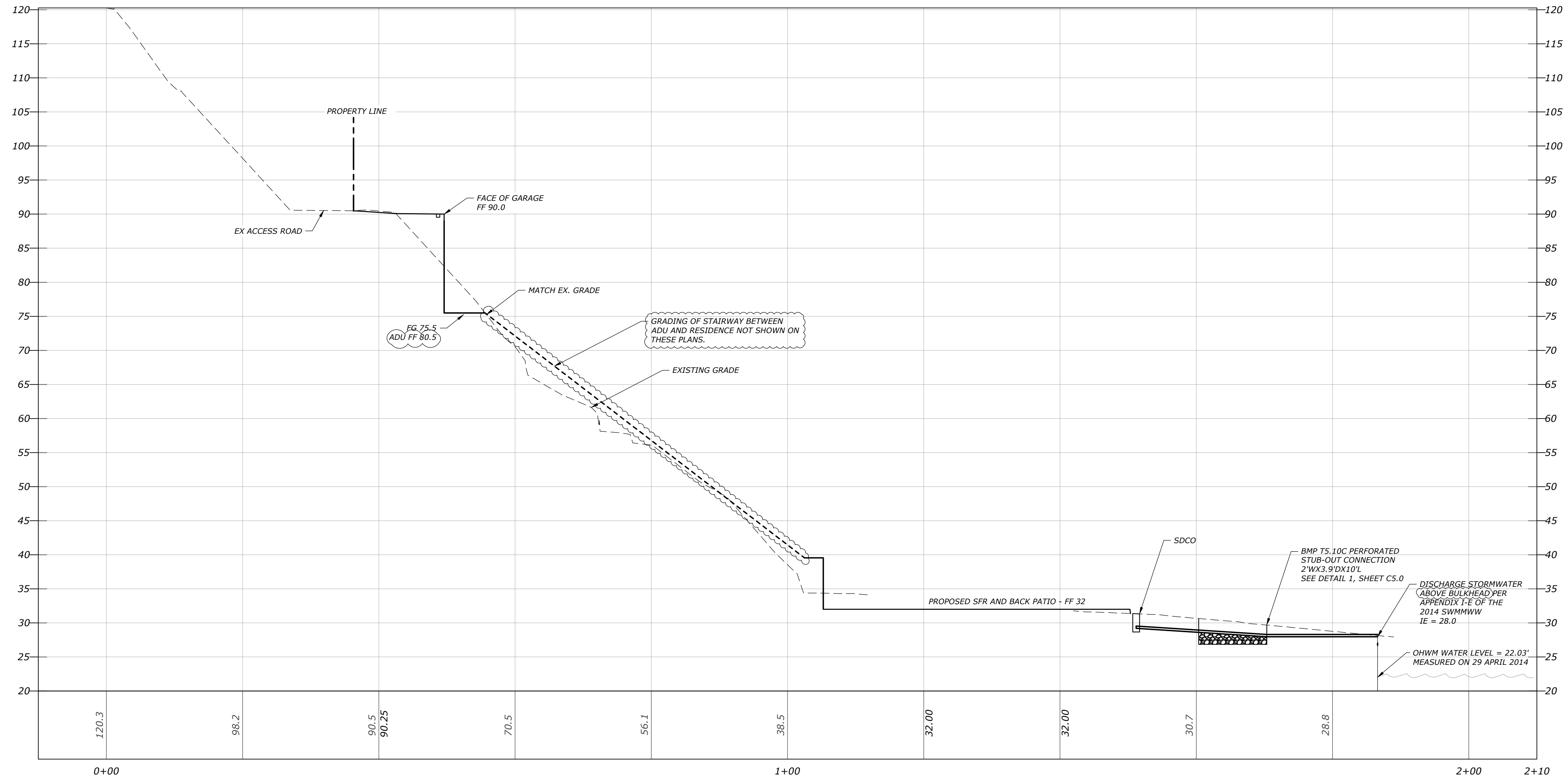
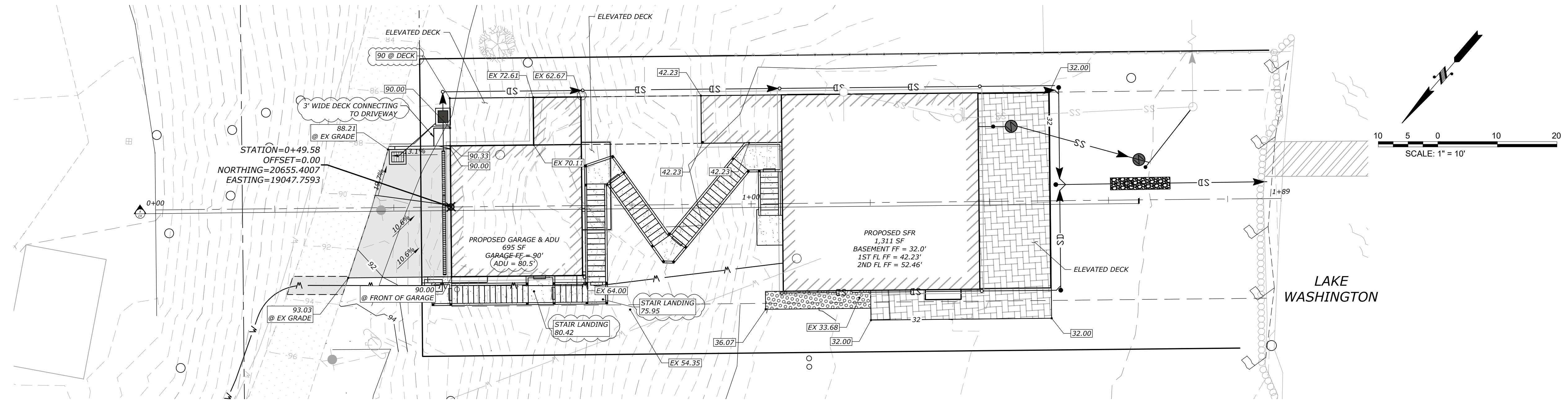
WASHINGTON  
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 VERT: N/A  
 DATE: 10/18/2017

PROFESSIONAL ENGINEER  
 45897  
 6/17/2019

JOB NUMBER  
**17-196**  
 SHEET 3 OF 6  
**C3.0**

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 PLOT DATE/TIME: 6/17/2019 - 6:34pm GO HAWKSI

A PORTION OF SECTION 12, TOWNSHIP 24 N., RANGE 04 W., W.M.



SECTION - A  
SCALE 1"=10' HORIZ, 1"=10'

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NO.	DESCRIPTION	INIT	DATE
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2	ADU FF ADJUSTMENT	KRD	12/11/18
3	REDLINES & SITE CHANGES	KRD	04/22/19
4	REDLINES	KRD	06/17/19

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GRADING PLAN

**3603 MERCER WAY DRAINAGE**

PARCEL# 362350-0260

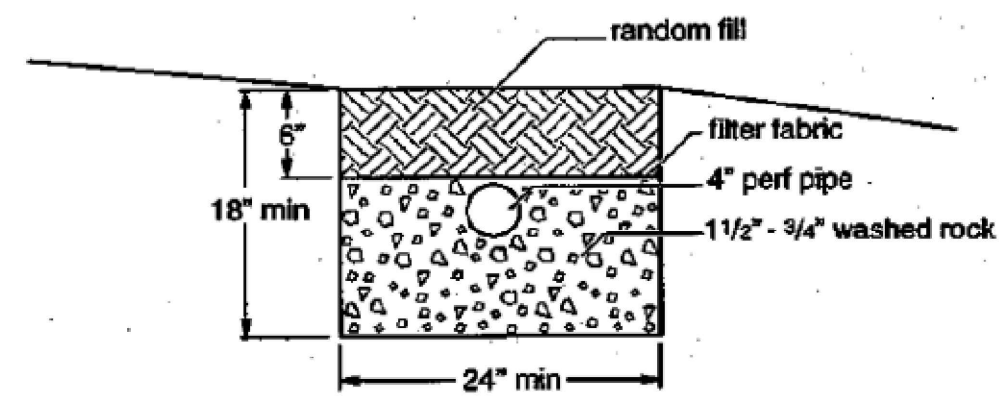
CITY OF MERCER ISLAND, WASHINGTON

DRAWN BY: NJD  
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DATE: 6/10/18/2017

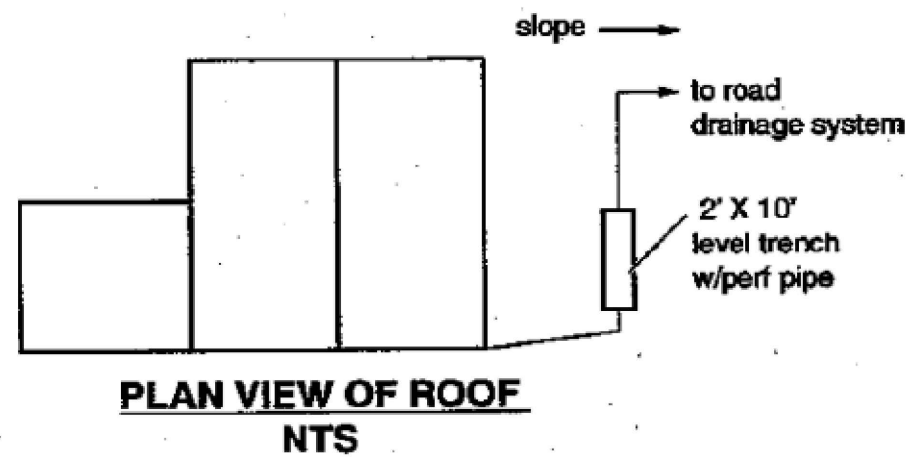
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JOB NUMBER  
**17-196**

SHEET 4 OF 6  
**C4.0**

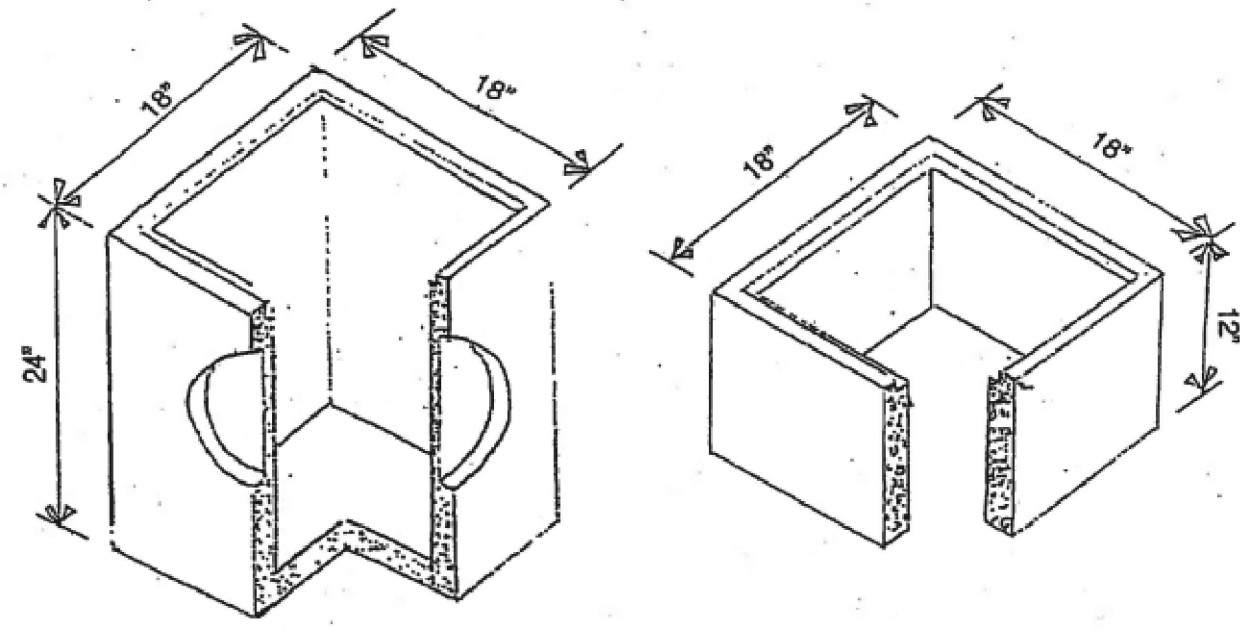


**TRENCH X-SECTION NTS**



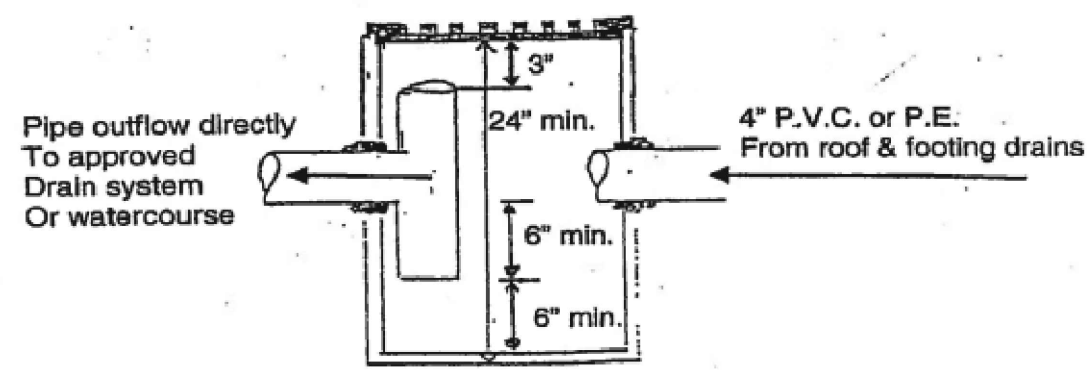
**PLAN VIEW OF ROOF NTS**

**1** **BMP T5.10C PERFORATED STUB-OUT CONNECTION**  
SOURCE: 2014 SWMMWW FIG. 3.1.8 N.T.S.



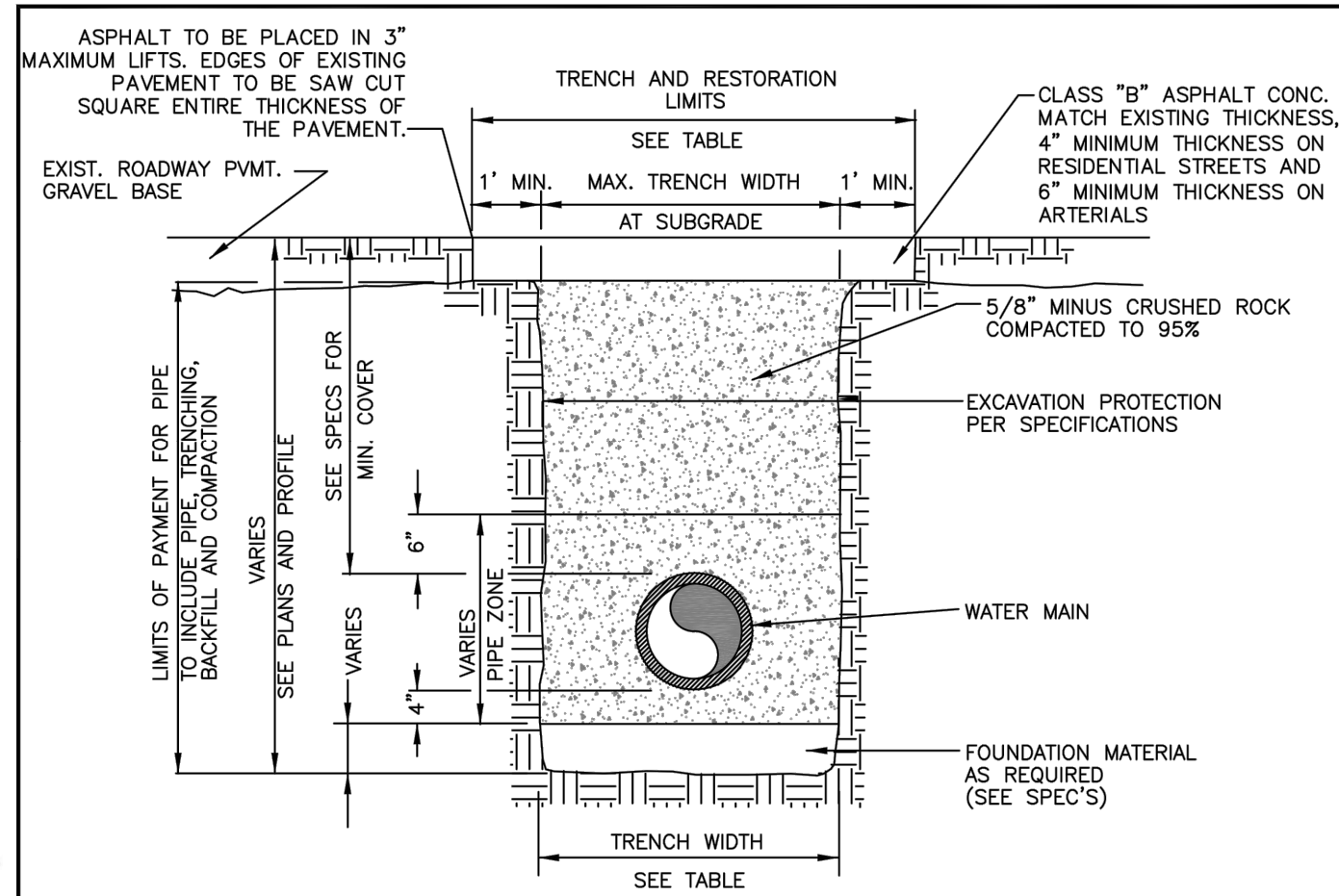
**Catch Basin (C.B.)**  
Depth & Volume are Minimum Dimensions.  
Minimum Volume = 24 gal.

**6" & 12" Adjustment Riser**



**Catch Basin with Oil Separator**

**2** **CATCH BASIN WITH OIL SEPARATOR**  
SOURCE: CITY OF MERCER ISLAND STANDARD DETAIL N.T.S.

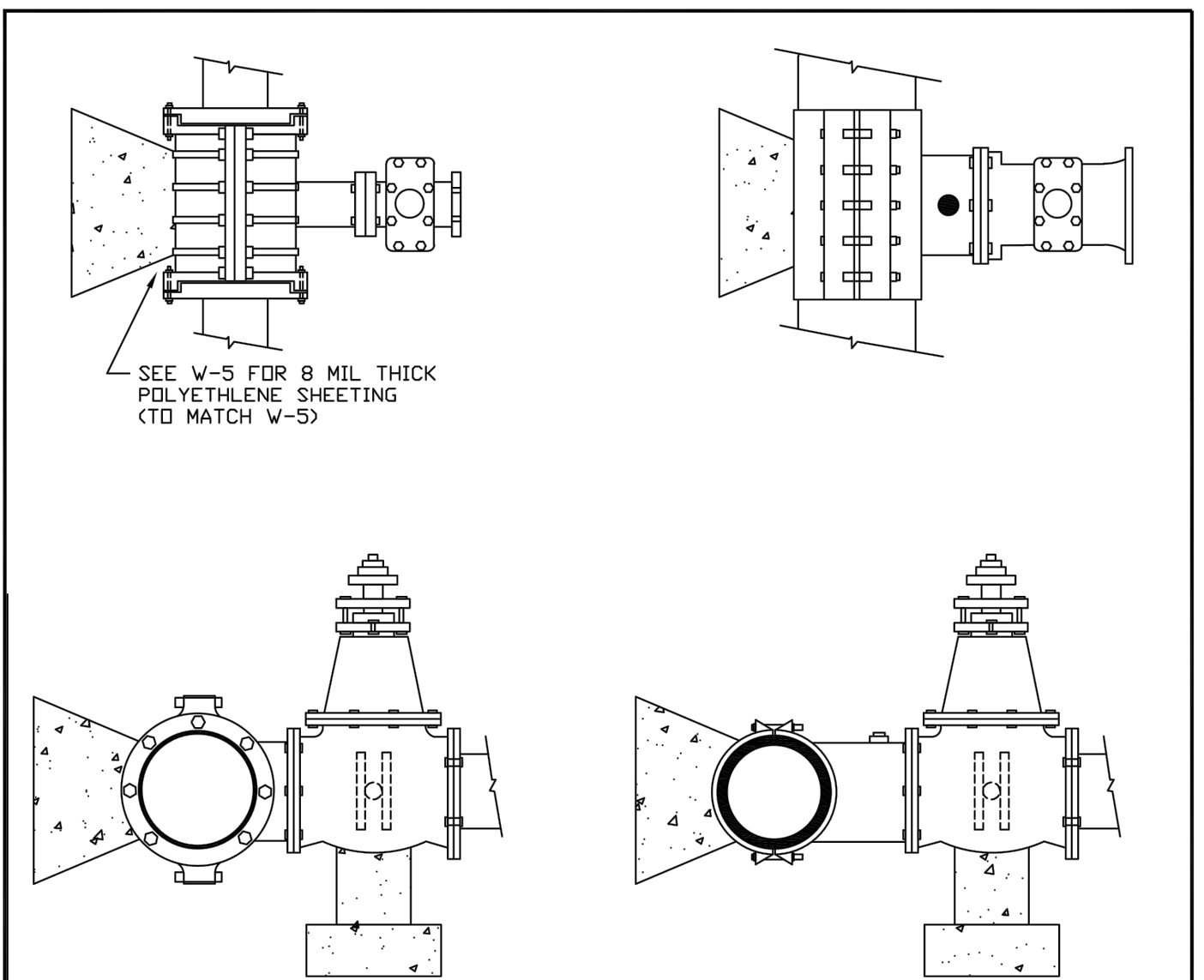


TRENCH WIDTH			
PIPE ZONE	MAX. TRENCH WIDTH AT SUBGRADE	MAX. RESTORATION WIDTH AT SURFACE	
PIPE SIZE	TRENCH WIDTH		
WATER SERVICES	2'-0"	2'-0"	4'-0"
4" OR 6"	2'-2"	3'-0"	5'-0"
8"	2'-4"	4'-0"	6'-0"
10"	2'-6"	4'-0"	6'-0"
12"	2'-8"	4'-6"	6'-6"
16"	3'-0"	5'-0"	7'-0"

**NOTES**  
1. CALL TWO BUSINESS DAYS BEFORE YOU DIG. (1-800-424-5555)  
2. IN RIGHT OF WAY USE 100% 5/8 MINUS CRUSHED ROCK BACKFILL.

**CITY OF MERCER ISLAND STANDARD DETAILS WATER TRENCH SECTION**

11-3-2017 NO SCALE **W-3** APPROVED



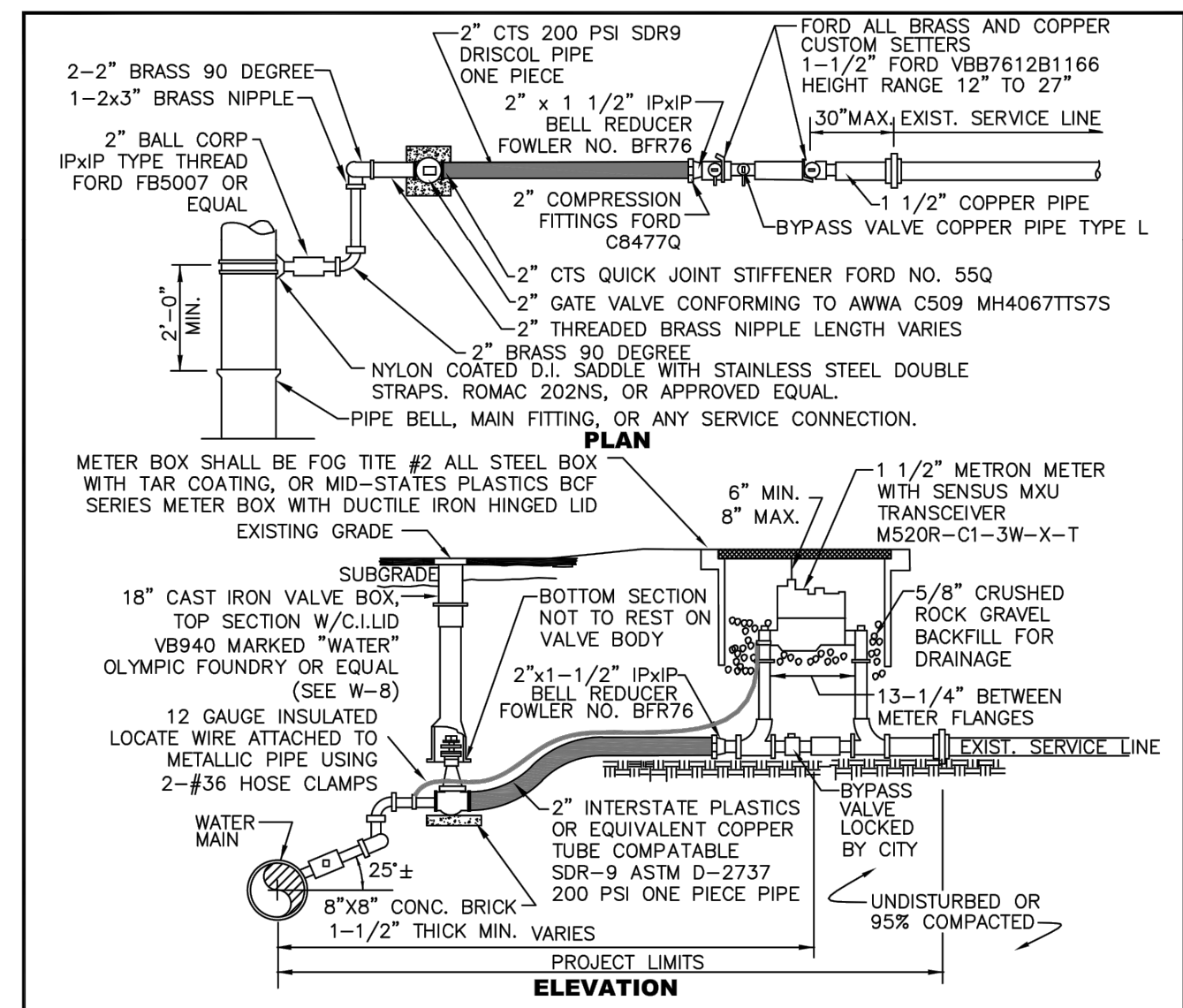
**DUCTILE IRON TAPPING TEE MECHANICAL JOINT SLEEVE**  
INSTALLED ON ASBESTOS CEMENT PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE

**STAINLESS STEEL TAPPING TEE**  
INSTALLED ON ASBESTOS CEMENT PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE

**NOTES**  
1. STAINLESS STEEL TAPPING TEES SHALL HAVE FULL CIRCLE SEAL.  
2. STEEL TAPPING TEES SHALL BE EPOXY COATED.  
3. NO SIZE ON SIZE TAPS. TAP SHALL BE AT LEAST 2" SMALLER DIAMETER THAN THE EXISTING MAIN.  
4. TAPPING TEES SHALL BE MULLER OR EQUAL.

**CITY OF MERCER ISLAND STANDARD DETAILS WATER TAPPING TEE**

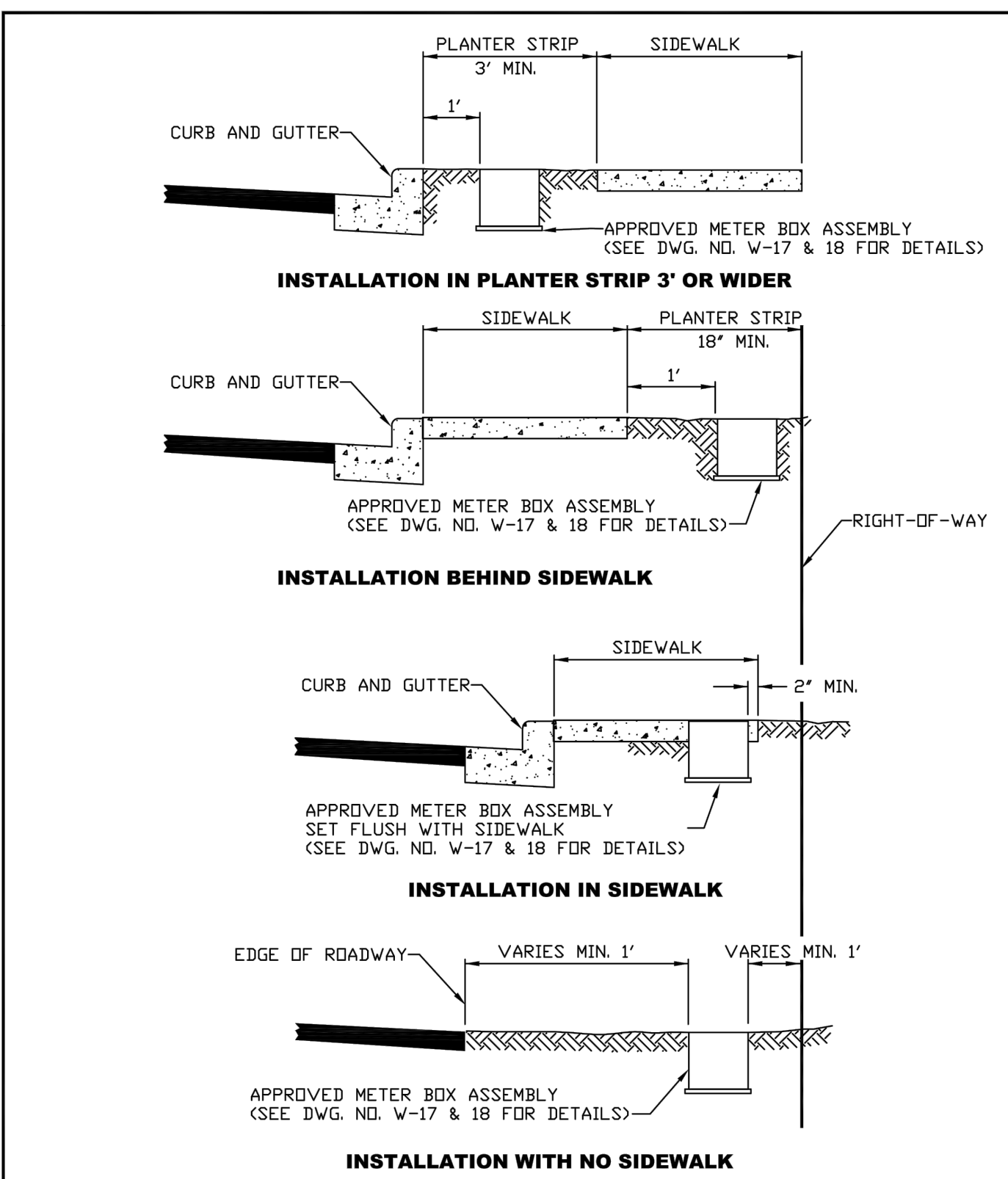
8-12-2009 NO SCALE **W-11** APPROVED



**NOTES**  
1. WATER SERVICES SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT DATED 01/04/2014.  
2. MINIMUM DISTANCE BETWEEN CORP STOPS SHALL BE 18" MINIMUM DISTANCE BETWEEN TAPS, BETWEEN CORP STOP AND PIPE ENDS SHALL BE 24", ALL HORIZONTALLY STAGGERED.  
3. PLASTIC METER BOXES SHALL NOT BE INSTALLED WITHIN ROADWAY, SIDEWALK, OR DRIVEWAYS.  
4. WHEN METER BOXES ARE INSTALLED IN PORTLAND CEMENT CONCRETE PAVEMENT OR SIDEWALK, CONTINUOUS FELT EXPANSION MATERIAL SURROUNDING THE PERIMETER OF THE METER BOX SHALL BE PROVIDED.  
5. WHEN CONNECTING TO EXISTING SERVICE LINE CONTAINING FERROUS METAL, PROVIDE INSULATING COUPLING (DB SERIES WITH C21 SERIES ADAPTERS) AND PROVIDE REDUCER AS NECESSARY TO MATCH EXISTING SERVICE LINE DIAMETER.  
6. SERVICE LINE SHALL BE PERPENDICULAR TO THE WATER MAIN AND STRAIGHT TO WATER METER UNLESS OTHERWISE APPROVED BY CITY ENGINEER. PROVIDE WINDING SLACK IN THE SERVICE LINE BETWEEN THE MAIN AND WATER METER.  
7. WATER METER SUPPLIED BY CITY.  
8. ALL FITTINGS TO BE BRASS COMPRESSION TYPE, FORD QUICK JOINT OR EQUAL.  
9. NO SERVICE CONNECTIONS BETWEEN BLOW-OFF AND END OF MAIN.

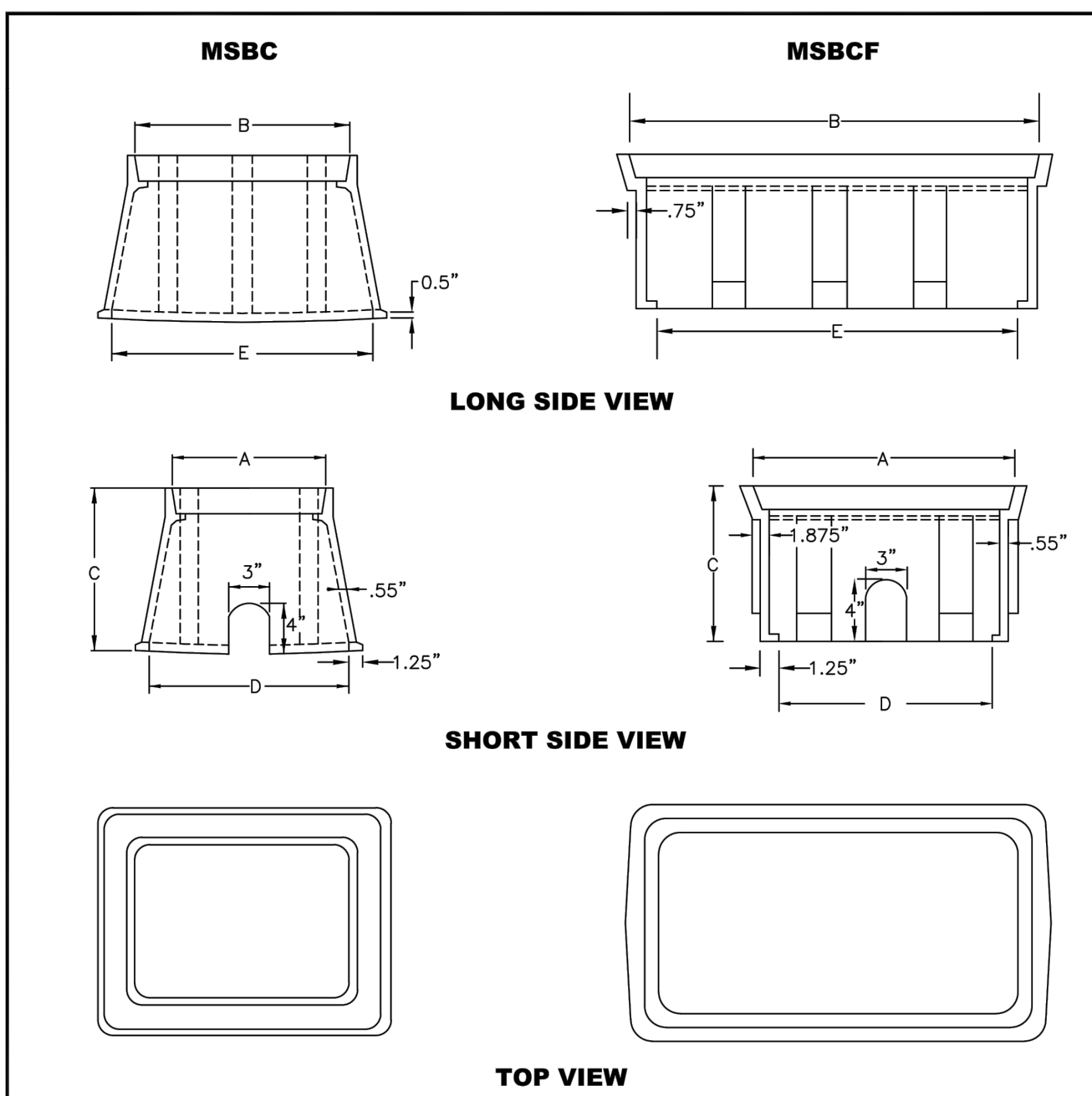
**CITY OF MERCER ISLAND STANDARD DETAILS WATER 1-1/2" WATER METER INSTALLATION**

09-26-2017 NO SCALE **W-14** APPROVED



**CITY OF MERCER ISLAND STANDARD DETAILS WATER WATER METER PLACEMENT**

3-20-2006 NO SCALE **W-16** APPROVED

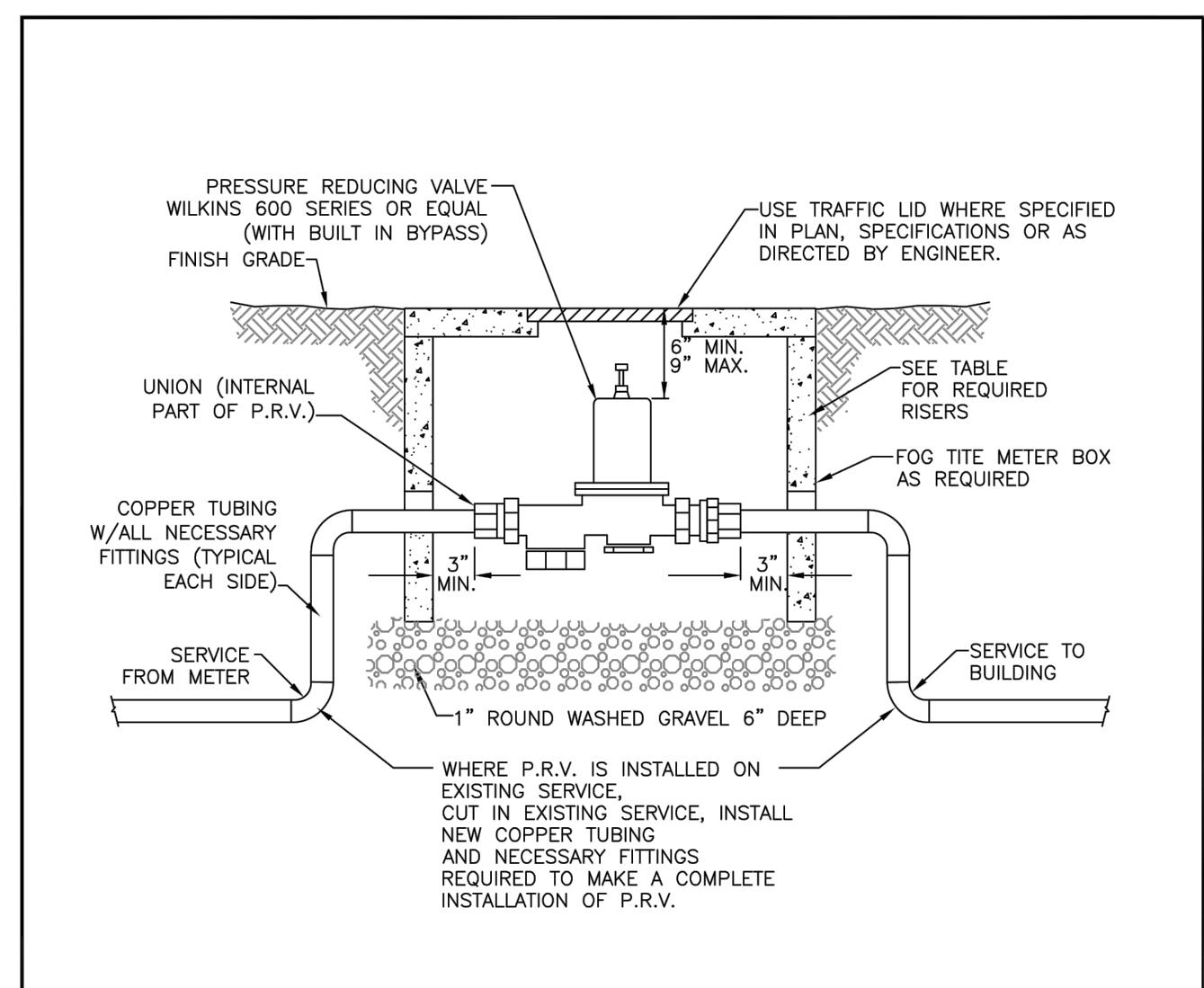


WATER SERVICE SIZE	PART NO.	A	B	C	D	E
1"	MSBC1324-12	13.75"	23.1875"	12"	12.125"	24.5"
2"	MSBC1730-18	17.625"	30.5"	18"	22.875"	35"

**NOTES**  
1. METER BOX SHALL BE MID-STATES PLASTICS AS SHOWN, WITH A DUCTILE IRON LID WITH A FLIP OR HINGED INSPECTION LID TO INCLUDE A 3/4" PICK HOLE.  
2. PLASTIC WATER METER BOXES SHALL NOT BE INSTALLED WITHIN A DRIVING OR PARKING AREA.

**CITY OF MERCER ISLAND STANDARD DETAILS WATER 1" & 2" PLASTIC WATER METER BOX**

12-23-2013 NO SCALE **W-18A** APPROVED



P.R.V. SIZE	FOG TITE METER BOX NO.	RISER REQUIRED
2"	2	12"
1-1/2"	2	12"
1-1/4"	1	6"
1"	1	6"
3/4"	1	4"
1/2"	1	4"

**NOTES**  
1. P.R.V. SHALL HAVE AN INTEGRAL BYPASS.

**CITY OF MERCER ISLAND STANDARD DETAILS WATER RESIDENTIAL PRESSURE REDUCING VALVE**

12-24-2013 NO SCALE **W-28** APPROVED

CAD FILE: X:\Projects\17-000\17-196 Mike Boyle Mercer Way Drainage.dwg PLOT DATE/TIME: 6/17/2019 6:35pm GO HAWKS!

NO.	DESCRIPTION	INIT	DATE
1	REVISIONS PER REDLINES #1	KRD	5/24/18

**BEYLER CONSULTING**  
LAKWOOD OFFICE  
1515 S.W. 95th Ave.  
Lakewood, WA 98469  
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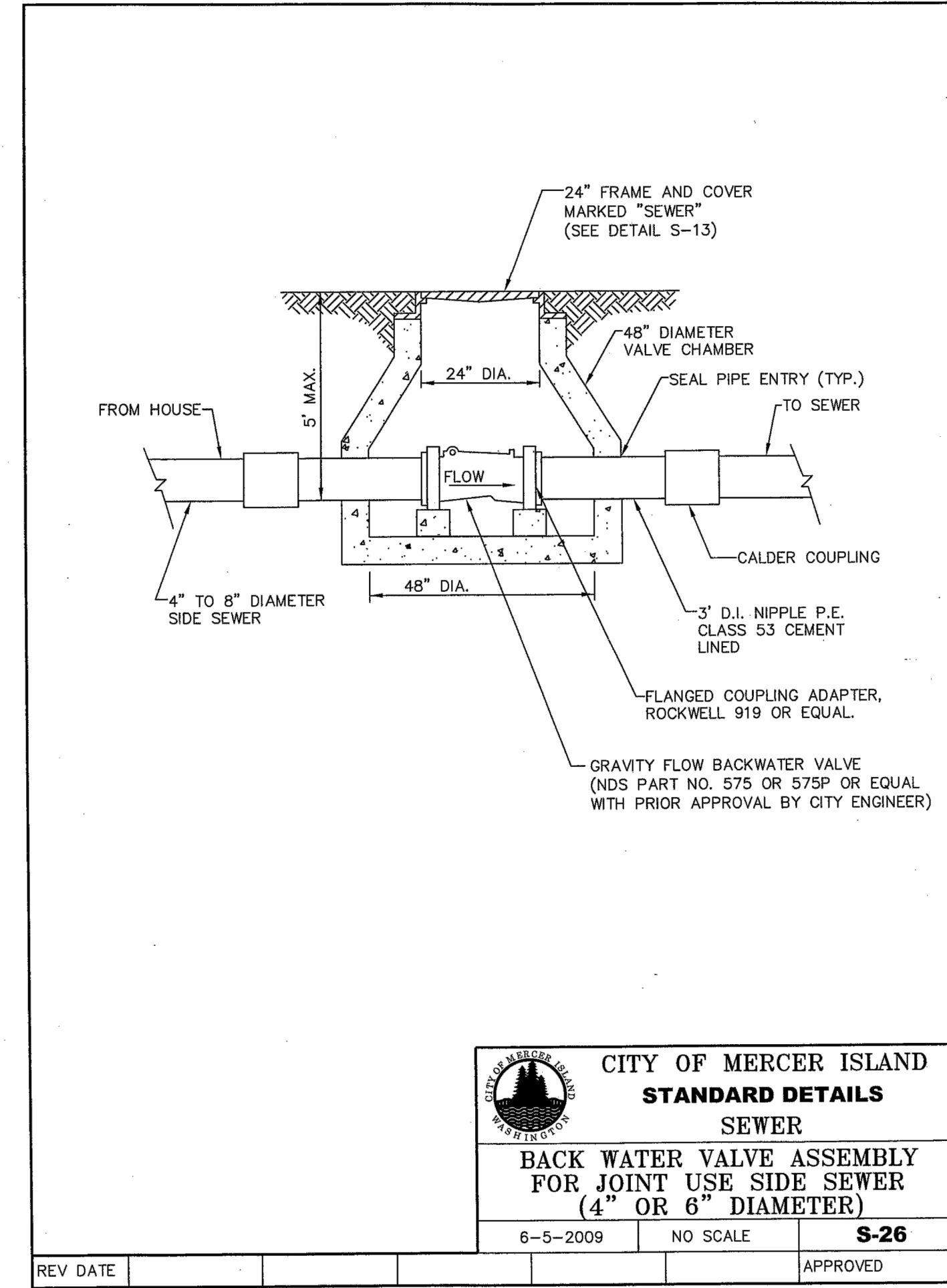
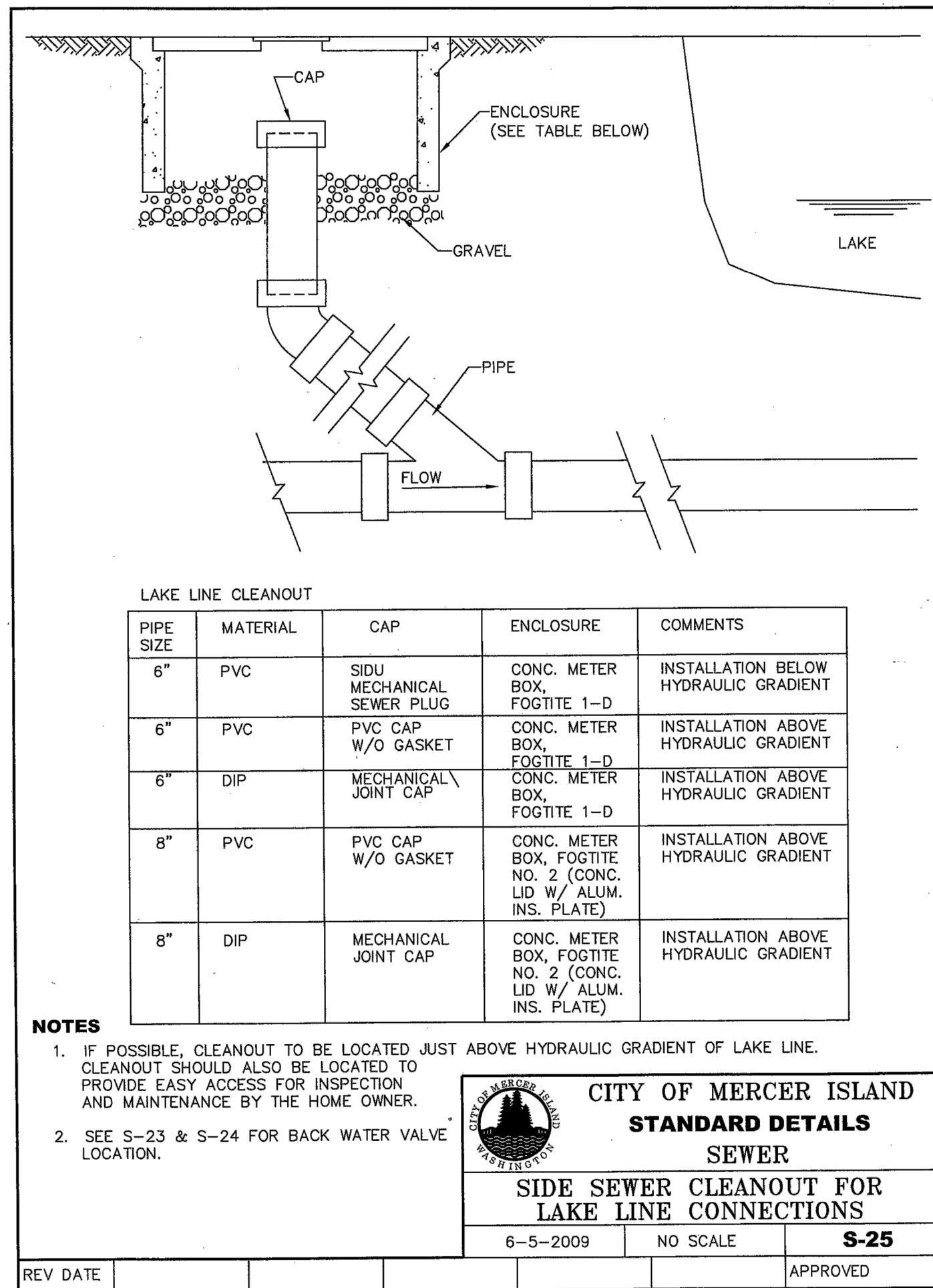
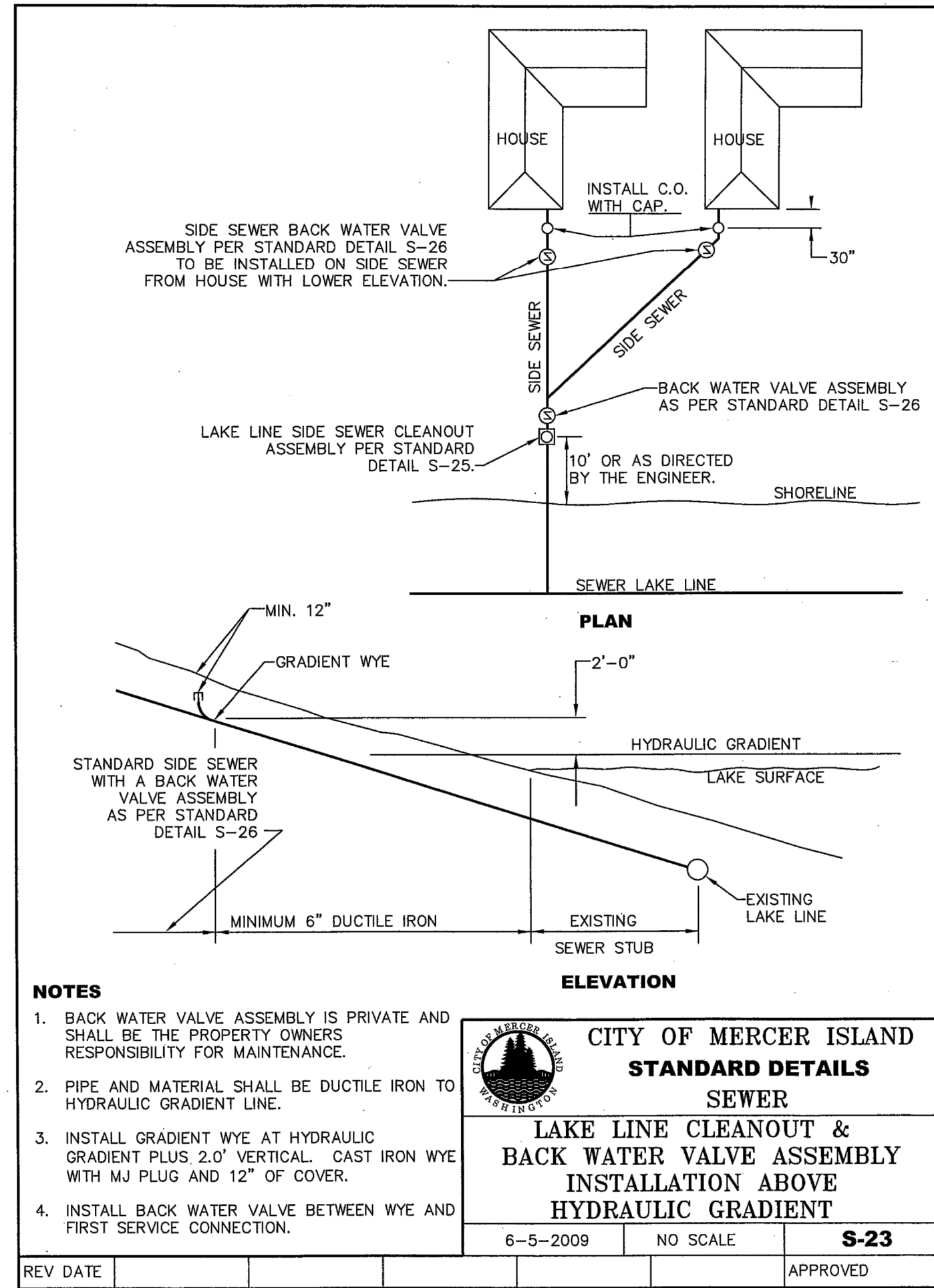
**NOTES & DETAILS**

**3603 MERCER WAY DRAINAGE** WASHINGTON  
PARCEL# 362350-0260  
CITY OF MERCER ISLAND, WA  
DRAWN BY: NJD CHECKED BY: DRB SCALE: HORIZ: N/A VERT: N/A DATE: 10/18/2017

**CITY OF MERCER ISLAND STANDARD DETAILS WATER**

6/17/2019

JOB NUMBER **17-196**  
SHEET 5 OF 6  
**C5.0**



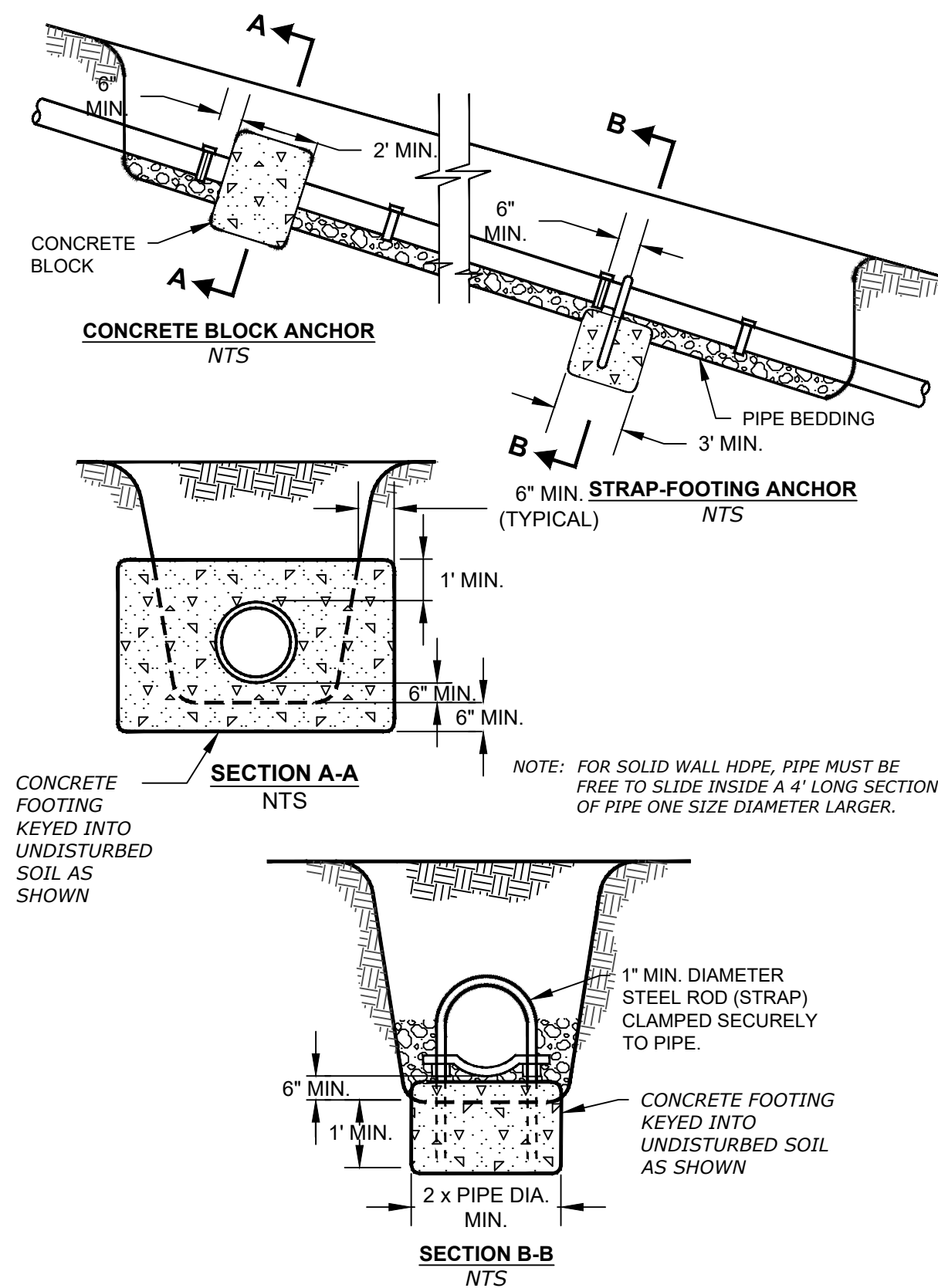
**Maximum Pipe Slopes and Velocities**

Table 4.2.1.A presents maximum pipe slopes and velocities by pipe material.

TABLE 4.2.1.A MAXIMUM PIPE SLOPES AND VELOCITIES			
Pipe Material	Pipe Slope above which Pipe Anchors Required and Minimum Anchor Spacing	Maximum Slope Allowed	Maximum Velocity at Full Flow
CMP, Spiral Rib, PVC, <sup>(1)</sup>	20% (1 anchor per 100 LF of pipe)	30% <sup>(3)</sup>	30 fps
Concrete, CPE, or pp <sup>(1)</sup>	10% (1 anchor per 50 LF of pipe)	20% <sup>(3)</sup>	30 fps
Ductile Iron <sup>(2)</sup>	20% (1 anchor per pipe section)	None	None
Solid wall HDPE <sup>(2)</sup>	20% (1 anchor per 100 LF of pipe, cross-slope installations only)	None	None

**Notes:**

- These materials are not allowed in **landslide hazard areas**.
- Butt-fused or flanged pipe joints are required; above ground installation is recommended on slopes greater than 40%.
- A maximum slope of 200% is allowed for these pipe materials with no joints (one section), with structures at each end, and with proper grouting.



NO.	DESCRIPTION	INIT	DATE
1	REVISIONS PER REDLINES #1	KRD	5/24/18

**BEYLER CONSULTING**

Plan, Design, Manage

CIVIL, STRUCTURAL, ENGINEERING, LAND SURVEYING, PLANNING, PROJECT MANAGEMENT, FEASIBILITY, PERMIT EXPEDITING

LAKEWOOD OFFICE  
1515 S W 95th Ave  
Lakewood, WA 98469  
phone: 253-984-2900  
beylerconsulting.com

**NOTES & DETAILS**

**3603 MERCER WAY DRAINAGE**

WASHINGTON

PARCEL# 362350-0260

CITY OF MERCER ISLAND, WA

DRAWN BY: NJD  
CHECKED BY: DRB  
SCALE: HORIZ: N/A VERT: N/A  
DATE: 10/18/2017

**PROFESSIONAL ENGINEER**

6/17/2019

JOB NUMBER  
**17-196**

SHEET 6 OF 6

**C6.0**

## Temporary Shoring Wall Notes

THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

### 1. GENERAL

#### CODE REQUIREMENTS

A. ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, AND THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, 2015 EDITION, AND THE LATEST EDITION OF THE PTI DOCUMENT, "RECOMMENDATIONS FOR PRE-STRESSED ROCK AND SOIL ANCHORS".

#### REFERENCE DOCUMENTS

A. TOPOGRAPHIC AND BOUNDARY SURVEY BY BEYLER CONSULTING, JOB NO. 17-196

B. GEOTECHNICAL INVESTIGATION BY GEORESOURCES, DOC ID: FATBOYCON.WMERCERWAY.RG

#### GEOTECHNICAL INFORMATION AND CRITERIA

A. INSTALLATION OF SHORING, SUBGRADE PREPARATION INCLUDING DRAINAGE, EXCAVATION, COMPACTION AND FILLING REQUIREMENTS SHALL CONFORM WITH THE RECOMMENDATIONS CONTAINED IN THE SOILS REPORT AND/OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE SUBSURFACE CHARACTERIZATIONS USED TO DESIGN THE SHORING ARE CONTAINED IN THE SOILS REPORT AS REFERENCED ABOVE.

B. EXCAVATIONS FOR FOUNDATIONS SHALL BE PER PLAN DOWN TO UNDISTURBED NATIVE MATERIAL PER THE GEOTECHNICAL ENGINEERING RECOMMENDATIONS. OVER EXCAVATED AREAS SHALL BE BACKFILLED WITH LEAN CONCRETE OR PER GEOTECHNICAL RECOMMENDATIONS AT THE CONTRACTOR'S EXPENSE. EXCAVATION SLOPES SHALL BE SAFE AND SHALL NOT BE GREATER THAN THE LIMITS SPECIFIED BY LOCAL, STATE, AND NATIONAL SAFETY REGULATIONS. CONTRACTOR SHALL PROTECT CUT SLOPES AS NECESSARY IF CONSTRUCTION OCCURS DURING WET WEATHER, AND SHALL CONTROL AND MANAGE RUNOFF TO MINIMIZE EFFECTS ON CONSTRUCTION.

C. DESIGN LOADS ARE DETERMINED BY THE GEOTECHNICAL ENGINEER. THE SOIL PRESSURES INDICATED ON THE SOIL PRESSURE DIAGRAM WERE USED FOR DESIGN, IN ADDITION TO THE DEAD AND LIVE LOADS. SEE REPORT OF GEOTECHNICAL INVESTIGATION FOR MORE COMPLETE INFORMATION, INCLUDING RECOMMENDATIONS FOR SHORING IN GENERAL, SHORING MONITORING, EXCAVATION, LAGGING, AND DRAINAGE.

D. DESIGN PARAMETERS AS APPROVED BY THE GEOTECHNICAL ENGINEER ARE AS FOLLOWS:  
SOIL NAIL DESIGN PARAMETERS:

SOIL UNIT	UNIT WEIGHT (PCF)	SOIL FRICTION (DEG)	SOIL COHESION (PSF)	DESIGN PULLOUT RESISTANCE (K/FT)
NATIVE SOILS	130	33	1000	3.6

THE WATER TABLE HAS BEEN ASSUMED TO OCCUR BENEATH THE BASE OF THE EXCAVATION IN ACCORDANCE WITH THE FINDINGS FROM THE GEOTECHNICAL INVESTIGATION

#### WOOD

FRAMING LUMBER SHALL BE KILN DRIED OR MC-19, AND GRADED AND MARKED IN CONFORMANCE WITH W.C.L.B. STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17. FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

Use	Grade	Fb (psi, single use)
2X OR 4X TIMBER LAGGING	HEM-FIR NO. 1	975

#### STEEL

STEEL SPECIFICATIONS: DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC MANUAL, AISC 360 AND SECTION 2205 OF THE BUILDING CODE.

STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

TYPE OF MEMBER	ASTM SPECIFICATION	Fy
SHAPES, PLATES, AND RODS	A36	36 KSI
PIPE COLUMNS	A53 (E OR S, GR. B)	35 KSI
WOOD CONNECTION BOLTS	A307	

ALL WELDING SHALL BE IN CONFORMANCE WITH A.I.S.C. AND A.W.S. STANDARDS AND SHALL BE PERFORMED BY W.A.B.O. CERTIFIED WELDERS USING E70 XX ELECTRODES. ONLY PREQUALIFIED WELDS (AS DEFINED BY A.W.S.) SHALL BE USED.

#### DESCRIPTION

A. THE GENERAL CONTRACTOR AND SUBCONTRACTORS (HEREAFTER REFERRED TO COLLECTIVELY AS THE CONTRACTOR UNLESS INDICATED OTHERWISE) ARE RESPONSIBLE FOR THE CONSTRUCTION MEANS AND METHODS AND CONTROL FOR THE PROCESSES OF THE WORK. THIS INCLUDES THE CONSTRUCTION SEQUENCE, THE SAFETY OF THE WORKERS, TEMPORARY HANDRAILS, EXCAVATION ACCESS, BARRIERS, LIFTING OF MATERIAL AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF FORMWORK, AND THE STABILITY OF ALL TEMPORARY CUT SLOPES.

B. THE SOIL NAIL SHORING WALL IS A SYSTEM OF SHORING DESIGNED TO SUPPORT THE EXCAVATION SIDEWALLS ONCE THE COMPONENTS OF THE SOIL NAILS AND FACING SYSTEM ARE COMPLETELY INSTALLED FOR ALL LIFTS UP TO AND INCLUDING THE CURRENT EXCAVATION LIFT. THE STABILITY OF INTERIM TEMPORARY FACE CUTS THAT EXIST PRIOR TO INSTALLATION OF THE WALL FACINGS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

C. THE WORK SHALL CONSIST OF INSTALLING SOIL NAILS, WALL DRAINAGE, AND WALL FACING AS SPECIFIED HEREIN AND SHOWN ON THE PLANS. THE WORK SHALL ALSO INCLUDE EXCAVATIONS IN ACCORDANCE WITH THE STAGED LIFTS SHOWN ON THE PLANS, INSTALLING SOIL NAILS TO THE SPECIFIED MINIMUM LENGTH AND ORIENTATION INDICATED ON THE PLANS, PLACING THE WALL DRAINAGE ELEMENTS AND FACING, AND PERFORMING SOIL NAIL PULLOUT TESTING. THE CONTRACTOR SHALL FURNISH ALL LABOR MATERIALS, AND EQUIPMENT REQUIRED FOR COMPLETING THE WORK.

#### PRECONSTRUCTION MEETING

A. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE OWNER'S REPRESENTATIVES, THE ENGINEER, THE GENERAL CONTRACTOR, THE EXCAVATION SUBCONTRACTOR, THE SOIL NAIL SPECIALTY SUBCONTRACTOR, THE GEOTECHNICAL SPECIAL INSPECTOR, AND THE BUILDING DEPARTMENT SITE INSPECTOR. THE PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

#### EXISTING SITE CONDITIONS, UTILITIES, AND UNDERGROUND OBSTRUCTIONS

A. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO ANY CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF OBSERVING AND DOCUMENTING THE PRE-CONSTRUCTION CONDITION OF ALL STRUCTURES, INFRASTRUCTURE, SIDEWALKS, ROADWAYS, AND ALL OTHER FACILITIES ADJACENT TO THE SITE. DURING CONSTRUCTION, THE CONTRACTOR SHALL OBSERVE THE CONDITIONS ABOVE THE SOIL NAIL WALL ON A DAILY BASIS FOR SIGNS OF GROUND OR BUILDING MOVEMENTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND THE ENGINEER IF SIGNS OF MOVEMENT SUCH AS NEW CRACKS, INCREASED SIZE OF OLD CRACKS OR SEPARATION OF JOINTS IN STRUCTURES, FOUNDATIONS, STREETS OR PAVED AND UNPAVED SURFACES ARE OBSERVED. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WRITTEN DOCUMENTATION OF THE OBSERVED CONDITIONS WITHIN 24 HOURS OF INITIAL OBSERVATION.

B. THE CONTRACTOR MUST VERIFY ALL EXISTING DIMENSIONS AND SITE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS, THAT MAY IMPACT OR CONFLICT WITH THE SOIL NAIL WALL.

C. BASED ON THE AS-BUILT LOCATIONS OF SIDE SEWERS, WATER SERVICE AND GAS OR POWER SERVICE LINES, THE CONTRACTOR SHALL SEEK APPROVAL FROM THE ENGINEER TO SHIFT NAIL LOCATIONS TO AVOID CONFLICTS WITH THESE UTILITIES.

D. THE CONTRACTOR IS RESPONSIBLE FOR ANY REMOVAL OF ABANDONED UTILITIES, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE SOIL NAIL WALL.

#### SPECIAL INSPECTION

A. IN ACCORDANCE WITH THE LOCAL BUILDING CODE, SPECIAL INSPECTION SHALL BE PROVIDED BY THE OWNER FOR ALL SOIL NAIL INSTALLATION AND TESTING.

B. THE OWNER'S REPRESENTATIVE PROVIDING THE SPECIAL INSPECTION SHALL BE A QUALIFIED GEOTECHNICAL ENGINEER OR HIS REPRESENTATIVE WITH EXPERIENCE MONITORING SOIL NAIL WALL CONSTRUCTION. ACCURATE RECORDS DOCUMENTING THE SOIL NAIL WALL CONSTRUCTION SHALL BE MAINTAINED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL ASSIST THE OWNER'S REPRESENTATIVE AS NECESSARY TO OBTAIN THE AS-BUILT NAIL LOCATIONS, TOP OF WALL ELEVATIONS, AND ALL OTHER INFORMATION AS REQUIRED BY THE OWNER AND ENGINEER.

### 2. CONSTRUCTION SITE DRAINAGE

A. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING CONSTRUCTION SITE DRAINAGE, BOTH BEHIND AND IN FRONT OF THE SOIL NAIL WALL.

B. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW A DETAILED CONSTRUCTION SITE DRAINAGE PLAN ADDRESSING ALL ELEMENTS NECESSARY TO DIVERT, CONTROL, AND DISPOSE OF SURFACE WATER. AMONG OTHER MEANS, CONTROL OF SURFACE WATER FROM BEHIND THE WALL MAY BE ACCOMPLISHED BY GRADING AWAY FROM THE WALL, TRENCHES AND SUMPS, OR A SHOTCRETE GUTTER SYSTEM. IN ADDITION, THE EXCAVATION SHOULD BE GRADED SO AS TO DIRECT SURFACE WATER AWAY FROM THE TOE OF THE SOIL NAIL WALL AND TO PREVENT THE PONDING OF WATER.

C. EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING THE EXCAVATION SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE. WORK IN THESE AREAS SHALL BE SUSPENDED UNTIL REMEDIAL MEASURES MEETING THE APPROVAL OF THE OWNER'S REPRESENTATIVE ARE IMPLEMENTED BY THE CONTRACTOR. REMEDIAL MEASURES FOR EXISTING SUBSURFACE DRAINAGE FEATURES ENCOUNTERED DURING THE WORK, WHICH WERE NOT IDENTIFIED ON THE PLANS, WILL BE PAID FOR AS EXTRA WORK PER THE CONTRACT DOCUMENTS.

D. THE CONTRACTOR IS RESPONSIBLE FOR THE CONDITION AND MAINTENANCE OF ANY PIPE OR CONDUIT USED TO CONTROL SURFACE WATER DURING CONSTRUCTION. UPON SUBSTANTIAL COMPLETION OF THE WORK, SURFACE WATER CONTROL PIPES OR CONDUITS SHALL BE REMOVED FROM THE SITE. ALTERNATIVELY, PIPES OR CONDUITS THAT ARE LEFT IN PLACE WITH THE APPROVAL OF THE OWNER'S REPRESENTATIVE SHALL BE FULLY GROUTED (ABANDONED) OR LEFT IN A MANNER THAT PROTECTS THE STRUCTURE AND ALL ADJACENT FACILITIES FROM GROUND LOSS ASSOCIATED WITH MIGRATION FINES THROUGH THE PIPE OR CONDUIT.

### 3. CONSTRUCTION METHODS AND SEQUENCE

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT THE PROPOSED CONSTRUCTION METHODS AND SEQUENCE TO THE ENGINEER FOR REVIEW.

B. THE CONSTRUCTION SEQUENCE SHALL BE AS SHOWN ON THE PLANS, OR IN ACCORDANCE WITH THE APPROVED SUBMITTAL, UNLESS APPROVED OTHERWISE BY THE ENGINEER. NO EXCAVATIONS STEEPER OR HIGHER THAN THOSE SPECIFIED HEREIN OR ON THE PLANS SHALL BE MADE ABOVE OR BELOW THE SOIL NAIL WALL WITHOUT WRITTEN APPROVAL OF THE ENGINEER.

C. TENTATIVELY APPROVED CONSTRUCTION METHODS, SEQUENCE, AND FACE CLOSURE TIMES ARE INDICATED ON THE PLANS. HOWEVER, CONSTRUCTION METHODS, SEQUENCE OR CLOSURE TIMES THAT ARE EITHER INDICATED ON THE PLANS OR APPROVED OTHERWISE BY THE ENGINEER DO NOT RELIEVE THE CONTRACTOR OF ALL RESPONSIBILITY FOR STABILITY OF THE TEMPORARY CUT FACE UNTIL IT IS CLOSED AND STABILIZED WITH WALL FACING AND THE NAIL HEAD CONNECTION IS COMPLETELY INSTALLED.

### 4. EXCAVATION

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW EXCAVATION EQUIPMENT TYPES AND METHODS OF EXCAVATING TO THE STAGED LIFTS INDICATED ON THE PLANS.

B. FOR DISTANCES AWAY FROM THE SHOTCRETE WALL FACE GREATER THAN THE CURRENT SHOTCRETE WALL HEIGHT OR 10 FEET, WHICHEVER IS MORE, MASS EXCAVATION MAY OCCUR AT ANY TIME, BUT WITH SLOPES NO STEEPER THAN 1H:1V, UNLESS APPROVED OTHERWISE BY THE ENGINEER.

C. MASS EXCAVATION OF THE DRILL BENCH FOR THE NEXT ROW OF SOIL NAILS MAY OCCUR ANY TIME THE DAY AFTER THE PRECEDING LIFT.

D. MASS EXCAVATION BENEATH A PRECEDING LIFT, CLOSER THAN 5 FEET FROM THE FACING WALL, SHALL NOT OCCUR UNTIL INSTALLATION OF CONNECTION HARDWARE AND NAIL TESTING FOR THE PRECEDING LIFT ARE COMPLETE AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.

E. DURING MASS EXCAVATION OF THE DRILL BENCH FOR THE NEXT ROW OF SOIL NAILS, THE CONTRACTOR SHALL MAINTAIN A BENCH OF MATERIAL TO SERVE AS A PLATFORM FOR THE DRILLING EQUIPMENT AND AS A STABILIZING BERM FOR THE WALL EXCAVATION FACE (NEAT LINE). IN ACCORDANCE WITH THE PLANS OR AS APPROVED BY THE ENGINEER, THE STABILIZING BERM MAY BE EITHER (1) A NATIVE BERM, (2) A FILL BERM, OR (3) NEAT CUT. IN ALL THREE CASES, THE DRILL BENCH SHALL BE ESTABLISHED NOT MORE THAN 3-1/2 FEET BELOW THE ROW OF NAILS TO BE INSTALLED AND SHALL EXTEND OUT FROM THE WALL FACE A MINIMUM DISTANCE NECESSARY TO PROVIDE A SAFE WORKING BENCH FOR THE DRILL EQUIPMENT AND WORKERS.

F. EXCAVATION TO THE NEAT LINE SHALL BE DONE USING PROCEDURES THAT PREVENT OVEREXCAVATION OR LOOSENING, MINIMIZE DEGRADATION OF THE SOIL BEARING SUPPORT BELOW THE OVERTYING PORTIONS OF THE SOIL NAIL WALL AND BELOW THE SOIL NAILS CURRENTLY BEING INSTALLED, MINIMIZE LOSS OF SOIL MOISTURE, AND PREVENT GROUND FREEZING.

G. THE DURATION OF THE TIME BETWEEN FINAL EXCAVATION TO THE NEAT LINE AND THE APPLICATION OF THE WALL FACING IS REFERRED TO AS CLOSURE TIME. THE CLOSURE TIME FOR ALL WALL EXCAVATION FACES SHALL BE LESS THAN A SINGLE WORK SHIFT, UNLESS SHOWN OTHERWISE ON THE PLANS OR APPROVED OTHERWISE BY THE ENGINEER.

H. EXTENSION OF THE CLOSURE TIME SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. NO EXTENSION OF CLOSURE TIME SHALL BE APPROVED UNTIL A TEST CUT IS CONSTRUCTED AND THE CONTRACTOR DEMONSTRATES FOR EACH MATERIAL TYPE THAT THE CUT FACE WILL BE STABLE OVER THE PROPOSED CLOSURE TIME. EXTENSIONS TO THE CLOSURE TIME MAY BE REVOKED BY THE ENGINEER AT ANY TIME DEPENDING ON THE PERFORMANCE OF THE CUT FACE. CLOSURE TIME MAY NOT BE EXTENDED TO LONGER THAN 24 HOURS BETWEEN EXCAVATION AND APPLICATION OF THE WALL FACING.

I. METHODS REMOVAL OF FACE PROTRUSIONS (E.G. COBBLES, BOULDERS, RUBBLE, OR OTHER OBJECTS) TO ACCOMPLISH THE CONSTRUCTION SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE PROPOSED METHOD FOR MITIGATION OF THE FACE PROTRUSION PRIOR TO INITIATION OF THE WORK. SHOULD THE REMOVAL OF FACE PROTRUSIONS RESULT IN VOIDS BEYOND THE NEAT LINE, THE CONTRACTOR SHALL DETERMINE THE APPROPRIATE METHOD OF BACKFILLING AND SHALL SUBMIT TO THE ENGINEER SUCH METHOD(S) PRIOR TO INITIATING THE WORK.

### 5. TEMPORARY SOIL NAILS

#### GENERAL

A. AT LEAST 15 DAYS PRIOR TO INITIATING THE WORK, THE CONTRACTOR SHALL SUBMIT THE FOLLOWING TO THE ENGINEER FOR REVIEW:

- DRILLING METHODS AND EQUIPMENT INCLUDING DRILL RIG TYPE, USE OF CASED OR OPEN-HOLE METHODS, PROPOSED DRILL HOLE DIAMETER, AND METHOD OF CUTTINGS REMOVAL TO ACHIEVE THE SPECIFIED PULLOUT RESISTANCE.
- NAIL GROUT MIX DESIGN INCLUDING: BRAND AND TYPE OF PORTLAND CEMENT; SOURCE, GRADATION, AND QUALITY OF ALL AGGREGATES; PROPORTIONS OF MIX BY WEIGHT AND WATER-CEMENT RATIO; MANUFACTURER AND BRAND NAME OF ALL ADMIXTURES; AND COMPRESSIVE STRENGTH TEST RESULTS (PER ASTM C109 / AASHTO T106) VERIFYING THE SPECIFIED MINIMUM 3 AND 28 DAY GROUT STRENGTHS.
- NAIL GROUT PLACEMENT PROCEDURES AND EQUIPMENT.
- NAIL TESTING METHODS AND EQUIPMENT INCLUDING DETAILS OF THE JACKING FRAME AND APPURTENANT BRACING, METHODS OF ISOLATING TEST NAILS DURING WALL FACING APPLICATION, AND METHODS OF GROUTING THE UNBONDED LENGTH OF TEST NAILS AFTER TESTING.
- IDENTIFICATION NUMBERS AND CERTIFIED CALIBRATION RECORDS FOR EACH TEST JACK AND PRESSURE GAUGE PAIR TO BE USED. CALIBRATION RECORDS SHALL INCLUDE THE DATE TESTED, DEVICE IDENTIFICATION NUMBER, AND THE CALIBRATION TEST RESULTS AND SHALL BE CERTIFIED FOR AN ACCURACY OF AT LEAST 2 PERCENT OF THE APPLIED CERTIFICATION LOADS BY A QUALIFIED INDEPENDENT TESTING LABORATORY WITHIN 90 DAYS PRIOR TO SUBMITTAL.
- ONCE AVAILABLE, CERTIFIED MILL TEST RESULTS FOR NAIL BARS FROM EACH HEAT SPECIFYING THE ULTIMATE STRENGTH, YIELD STRENGTH, ELONGATION AND COMPOSITION.
- MANUFACTURER CERTIFICATIONS FOR THE SOIL NAIL CENTRALIZERS AND SOIL NAIL BAR COUPLERS.

#### MATERIALS

A. MATERIALS FOR CONSTRUCTION OF SOIL NAIL WALLS SHALL BE FURNISHED NEW AND WITHOUT DEFECTS. DEFECTIVE MATERIALS REJECTED BY THE OWNER'S REPRESENTATIVE SHALL BE REMOVED BY THE CONTRACTOR. THE MATERIALS SHALL CONSIST OF THE FOLLOWING:

1. CENTRALIZERS SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC, SHALL BE SECURELY ATTACHED TO THE NAIL BAR, SIZED TO POSITION THE NAIL BAR WITHIN 1 INCH OF THE CENTER OF THE DRILL HOLE, SIZED TO ALLOW TREMIE PIPE INSERTION TO THE BOTTOM OF THE DRILL HOLE, AND SIZED TO ALLOW GROUT TO FLOW FREELY UP THE DRILL HOLE.

2. NAIL GROUT SHALL BE A NEAT CEMENT OR SAND-CEMENT MIXTURE WITH A MINIMUM 3-DAY COMPRESSIVE STRENGTH OF 1500 PSI AND A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI PER ASTM C109 / AASHTO T106.

3. CEMENT SHALL CONFORM TO ASTM C150 / AASHTO M85, TYPE 1.

4. FINE AGGREGATE SHALL CONFORM TO ASTM C33 / AASHTO M6.

5. NAIL BARS SHALL CONFORM TO ASTM A615 / AASHTO M31, GRADE 60 OR 75 OR ASTM A722 / AASHTO M275, GRADE 150.

6. BAR COUPLERS SHALL DEVELOP THE ULTIMATE TENSILE STRENGTH OF THE BAR AS CERTIFIED BY THE MANUFACTURER.

B. CEMENT SHALL BE ADEQUATELY STORED TO PREVENT MOISTURE DEGRADATION AND PARTIAL HYDRATION. CEMENT THAT HAS BECOME CAKED OR LUMPY SHALL NOT BE USED.

C. ALL NAIL BARS SHALL BE CAREFULLY HANDLED AND SHALL BE STORED ON SUPPORTS TO KEEP THE STEEL FROM CONTACT WITH THE GROUND. STEEL BARS SHALL BE PICKED UP IN SUCH A WAY AS TO PREVENT OVERSTRESSING. DAMAGE TO THE NAIL STEEL AS A RESULT OF OVERSTRESSING, ABRASION, CUTS, NICKS, WELDS, AND WELD SPLATTER SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. GROUNDING OF WELDING LEADS TO THE NAIL STEEL SHALL NOT BE ALLOWED. NAIL STEEL SHALL BE PROTECTED FROM AND SUFFICIENTLY FREE OF DIRT, RUST, AND OTHER DELETERIOUS SUBSTANCES PRIOR TO INSTALLATION. HEAVY CORROSION OR PITTING OF NAILS SHALL BE CAUSE FOR REJECTION BY THE OWNER'S REPRESENTATIVE. LIGHT RUST THAT HAS NOT RESULTED IN PITTING IS ACCEPTABLE.

#### NAIL INSTALLATION

A. ONE SUCCESSFUL VERIFICATION TEST SHALL BE PERFORMED IN EACH SOIL UNIT IDENTIFIED ON THE PLANS, PRIOR TO STARTING INSTALLATION OF PRODUCTION NAILS IN THE VARIOUS SOIL UNITS. THE VERIFICATION TEST LOCATIONS ARE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S REPRESENTATIVE.

B. NAILS SHALL BE INSTALLED AT THE LOCATIONS AND TO THE LENGTHS INDICATED ON THE PLANS. THE ENGINEER MAY ADD, ELIMINATE, OR RELOCATE NAILS TO ACCOMMODATE ACTUAL FIELD CONDITIONS.

C. THE CONTRACTOR SHALL SELECT THE DRILLING EQUIPMENT AND METHODS SUITABLE FOR THE GROUND CONDITIONS AT THE SITE. THE DRILL HOLE DIAMETER SHALL BE SELECTED TO PROVIDE THE MINIMUM SPECIFIED GROUT COVER OVER THE NAIL BAR AND TO DEVELOP THE SPECIFIED PULLOUT RESISTANCE. WATER, DRILLING MUDS, OR OTHER FLUIDS USED TO ASSIST IN CUTTING REMOVAL SHALL NOT BE ALLOWED FOR UNCASED DRILL HOLES. UNCASED DRILL HOLES SHALL BE OBSERVED FOR CLEANLINESS PRIOR TO INSERTION OF THE NAIL BAR. IN CAVING GROUND, THE CONTRACTOR SHALL USE CASED OR AUGERCAST DRILLING METHODS TO SUPPORT THE SIDES OF THE DRILLHOLE.

D. THE CONTRACTOR SHALL IMMEDIATELY SUSPEND DRILLING OPERATIONS IF GROUND SUBSIDENCE IS OBSERVED, IF THE SOIL NAIL WALL IS ADVERSELY AFFECTED, OR IF ADJACENT STRUCTURES ARE DAMAGED AS A RESULT OF THE DRILLING OPERATION. THE ADVERSE CONDITIONS SHALL BE STABILIZED IMMEDIATELY AND THE ENGINEER SHALL BE NOTIFIED OF SUCH CONDITIONS WITHIN 24 HOURS.

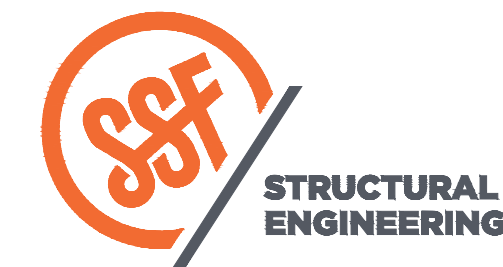
E. NAIL BARS SHALL BE INSERTED INTO THE DRILL HOLE TO THE REQUIRED LENGTH WITHOUT DIFFICULTY AND IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE DRILL HOLE. NAIL BARS THAT CANNOT BE FULLY INSERTED TO THE DESIGN DEPTH SHALL BE REMOVED FROM THE DRILL HOLE AND THE DRILL HOLE SHALL BE CLEANED SUFFICIENTLY TO ALLOW UNOBSTRUCTED INSTALLATION OF THE BAR.

F. IF THE NAIL BAR IS INSTALLED USING CASED OR AUGERCAST METHODS, CENTRALIZERS ARE NOT REQUIRED PROVIDED THE INSTALLATION METHOD ENSURES THAT THE BAR WILL REMAIN IN THE CENTRAL PORTION OF THE GROUT. IN SUCH SITUATIONS, SUMP SHALL NOT EXCEED 8 INCHES.

#### NAIL GROUTING

A. GROUT EQUIPMENT SHALL PRODUCE A UNIFORMLY MIXED GROUT FREE OF LUMPY AND UNDISPERSED CEMENT. A POSITIVE DISPLACEMENT GROUT PUMP SHALL BE USED. THE PUMP SHALL BE EQUIPPED WITH A PRESSURE GAUGE THAT CAN MEASURE AT LEAST TWICE BUT NO MORE THAN THREE TIMES THE INTENDED GROUT PRESSURE. THE GROUTING EQUIPMENT SHALL BE SIZED TO ENABLE THE ENTIRE NAIL TO BE GROUTED IN ONE CONTINUOUS OPERATION. THE MIXER SHALL BE CAPABLE OF CONTINUOUSLY AGITATING THE GROUT DURING USAGE.

B. UNCASED DRILL HOLES SHALL BE GROUTED AFTER INSTALLATION OF THE NAIL BAR. GROUTING PRIOR TO INSERTION OF THE NAIL BAR MAY BE ALLOWED PROVIDED NEAT CEMENT GROUT IS USED AND THE NAIL BAR IS IMMEDIATELY INSERTED THROUGH THE GROUT TO THE SPECIFIED LENGTH WITHOUT DIFFICULTY. NO PORTION OF THE NAIL HOLE SHALL BE LEFT OPEN FOR MORE THAN 1 HOUR PRIOR TO GROUTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE GROUT SHALL BE INJECTED AT THE LOWEST POINT OF EACH DRILL HOLE THROUGH A TREMIE PIPE, HOLLOW-STEM AUGER, OR DRILL RODS WITH THE DRILL HOLE FILLED IN ONE CONTINUOUS OPERATION. COLD JOINTS IN THE GROUT PLACEMENT ARE ALLOWED FOR CONSTRUCTION OF TEST NAILS. THE CONDUIT DELIVERING THE GROUT SHALL BE KEPT BELOW THE SURFACE OF THE GROUT AS THE CONDUIT IS WITHDRAWN. THE GROUTING CONDUIT SHALL BE WITHDRAWN AS THE NAIL HOLE IS FILLED IN A MANNER WHICH PREVENTS THE CREATION OF VOIDS. THE QUANTITY OF GROUT AND THE GROUTING PRESSURES SHALL BE RECORDED FOR EACH SOIL NAIL. GROUT PRESSURES SHALL BE CONTROLLED TO PREVENT EXCESSIVE GROUND HEAVE OR FRACTURING.



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#### REVISIONS:

1	Permit Revisions	Nov. 22, 2018
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#### DPD:

#### PROJECT TITLE:

Boyle Shoring

Mercer Island, WA

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#### ISSUE:

Permit

#### SHEET TITLE:

Temporary  
Shoring Wall  
Notes

#### SCALE:

DATE: May 24, 2018

PROJECT NO: 02087-2018-01

SHEET NO:

Sh1

**Temporary Shoring Wall Notes, Continued**  
THE FOLLOWING APPLY UNLESS SHOWN OTHERWISE ON THE DRAWINGS

C. DURING CASING REMOVAL FOR DRILL HOLES ADVANCED BY EITHER CASED OR AUGERCAST METHODS, THE GROUT SURFACE WITHIN CASING SHALL BE CONTINUALLY MONITORED FOR MAINTENANCE OF "HEAD" SUFFICIENT TO OFFSET THE EXTERNAL GROUNDWATER / SOIL PRESSURE.

D. NAIL GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI IN 3 DAYS AND 3000 PSI IN 28 DAYS. NAIL GROUT SHALL BE TESTED BY A TESTING AGENCY UNDER CONTRACT WITH THE OWNER IN ACCORDANCE WITH ASTM C109 / AASHTO T108 AT A FREQUENCY OF NO LESS THAN ONE TEST FOR EVERY 50 CUBIC YARDS OF GROUT PLACED OR ONCE PER WEEK, WHICHEVER IS FIRST.

E. TEMPORARY UNBONDED LENGTHS SHALL BE PROVIDED FOR EACH TEST NAIL. THE TEST NAIL BAR SHALL BE ISOLATED FROM THE WALL FACING AND THE REACTION FRAME DURING TESTING. SATISFACTORY TEST NAILS MAY BE INCORPORATED IN THE WORK PROVIDED THE TEMPORARY TEST UNBONDED LENGTH IS FULLY GROUTED SUBSEQUENT TO TESTING.

**NAIL TOLERANCES**

A. BARS SHALL BE CENTERED WITHIN 1 INCH OF THE CENTER OF THE DRILL HOLE. INDIVIDUAL NAILS SHALL BE POSITIONED PLUS OR MINUS 1 FOOT FROM THE DESIGN LOCATIONS SHOWN IN THE PLANS. LOCATION TOLERANCES SHALL BE CONSIDERED APPLICABLE TO ONLY ONE NAIL AND NOT CUMULATIVE OVER LARGE WALL AREAS. THE NAIL INCLINATION SHALL BE PLUS OR MINUS 3 DEGREES. NAILS THAT ENCOUNTER UNANTICIPATED OBSTRUCTIONS DURING DRILLING SHALL BE RELOCATED BY THE CONTRACTOR WITH THE APPROVAL OF THE ENGINEER.

**NAIL TESTING**

A. VERIFICATION TESTS SHALL BE PERFORMED AT THE LOCATIONS SELECTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. PROOF TESTS SHALL BE PERFORMED AT THE LOCATIONS SELECTED BY THE OWNER'S REPRESENTATIVE. ALL TEST DATA SHALL BE RECORDED BY THE OWNER'S REPRESENTATIVE, UNLESS APPROVED OTHERWISE. PULLOUT TESTING OF NAILS SHALL NOT BE PERFORMED UNTIL THE NAIL GROUT HAS ATTAINED AT LEAST 50 PERCENT OF ITS SPECIFIED 28-DAY COMPRESSIVE STRENGTHS.

B. WHERE TEMPORARY CASING OF THE UNBONDED LENGTH OF TEST NAILS IS PROVIDED, THE CASING SHALL BE INSTALLED TO PREVENT ANY REACTION BETWEEN THE CASING AND THE GROUTED BOND LENGTH OF THE NAIL AND/OR THE STRESSING APPARATUS.

C. TESTING EQUIPMENT SHALL INCLUDE TWO DIAL GAUGES, A DIAL GAUGE SUPPORT, JACK AND PRESSURE GAUGE, A PUMP, AND A REACTION FRAME.

D. A MINIMUM OF TWO DIAL GAUGES CAPABLE OF MEASURING TO 0.001-INCH SHALL BE AVAILABLE AT THE SITE TO MEASURE THE NAIL MOVEMENT. THE DIAL GAUGES SHALL BE ALIGNED WITHIN 5 DEGREES OF THE AXIS OF THE NAIL AND SHALL BE SUPPORTED INDEPENDENT OF THE JACKING SET-UP AND THE WALL. A HYDRAULIC JACK, PRESSURE GAUGE, AND PUMP SHALL BE USED TO APPLY AND MEASURE THE TEST LOAD.

E. THE JACK AND PRESSURE GAUGE SHALL BE CALIBRATED BY AN INDEPENDENT TESTING LABORATORY AS A UNIT. THE PRESSURE GAUGE SHALL BE GRADUATED IN 100 PSI INCREMENTS OR LESS AND SHALL HAVE A RANGE NOT EXCEEDING TWICE THE ANTICIPATED MAXIMUM PRESSURE DURING TESTING UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE RAM TRAVEL OF THE JACK SHALL BE SUFFICIENT TO ENABLE THE TEST TO BE PERFORMED WITHOUT RE-SETTING THE JACK.

F. THE JACK SHALL BE INDEPENDENTLY SUPPORTED AND CENTERED OVER THE NAIL SO THAT THE NAIL DOES NOT CARRY THE WEIGHT OF THE JACK. THE STRESSING EQUIPMENT SHALL BE PLACED OVER THE NAIL IN SUCH A MANNER THAT THE JACK, BEARING PLATES, AND STRESSING ANCHORAGE ARE IN ALIGNMENT. THE JACK SHALL BE POSITIONED AT THE BEGINNING OF THE TEST SUCH THAT UNLOADING AND REPOSITIONING OF THE JACK DURING THE TEST WILL NOT BE REQUIRED.

G. THE TEST REACTION FRAME SHALL BE SUFFICIENTLY RIGID AND OF ADEQUATE DIMENSION SUCH THAT EXCESSIVE DEFORMATION OF THE TEST APPARATUS REQUIRING REPOSITIONING OF ANY COMPONENTS DOES NOT OCCUR DURING TESTING. WHERE THE REACTION FRAME BEARS DIRECTLY ON THE WALL, THE REACTION FRAME SHALL BE DESIGNED TO PREVENT DAMAGE OF THE WALL FACING.

**VERIFICATION TESTING OF SACRIFICIAL NAILS**

A. VERIFICATION TESTING IN EACH SOIL UNIT SHALL BE PERFORMED PRIOR TO INSTALLATION OF PRODUCTION NAILS IN THAT UNIT TO VERIFY THE CONTRACTOR'S INSTALLATION METHODS, NAIL PULLOUT CAPACITY, AND DESIGN ASSUMPTIONS. THE NAILS USED FOR THE VERIFICATION TESTS MAY BE INCORPORATED AS PRODUCTION NAILS IF APPROVED BY THE ENGINEER. PAYMENT FOR ADDITIONAL VERIFICATION TEST NAILS REQUIRED DUE TO DIFFERENT SITE CONDITIONS, AS DETERMINED BY THE ENGINEER, SHALL BE PER THE CONTRACT UNIT PRICE.

B. TEST NAILS SHALL BE CONSTRUCTED USING THE SAME EQUIPMENT, METHODS, AND HOLE DIAMETER AS PLANNED FOR THE PRODUCTION NAILS. CHANGES IN THE DRILLING OR INSTALLATION METHOD MAY REQUIRE ADDITIONAL NAIL TESTING AS DETERMINED BY THE ENGINEER.

C. THE UNBONDED LENGTH OF TEST NAILS SHALL BE AT LEAST 3 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE BOND LENGTH OF TEST NAILS SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED BUT SHALL NOT BE LESS THAN 10 FEET. THE BAR LOAD DURING TESTING SHALL NOT EXCEED 80 PERCENT OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90 PERCENT OF THE STEEL YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

D. THE DESIGN TEST LOAD (DTL) DURING TESTING SHALL BE DETERMINED BY MULTIPLYING THE BOND LENGTH OF THE NAIL TIMES THE DESIGN PULLOUT RESISTANCE. VERIFICATION TEST NAILS SHALL BE INCREMENTALLY LOADED AND UNLOADED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LOAD	HOLD TIME
AL	1 MINUTE
0.25DL	10 MINUTES
0.50DL	10 MINUTES
0.75DL	10 MINUTES
1.00DL	10 MINUTES
1.25DL	10 MINUTES
1.50DL	60 MINUTES
1.75DL	10 MINUTES
2.00DL	10 MINUTES

E. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD IS APPLIED.

F. EACH LOAD INCREMENT SHALL BE HELD FOR AT LEAST 10 MINUTES. THE VERIFICATION TEST NAIL SHALL BE MONITORED FOR CREEP FOR 60 MINUTES AT THE 1.50 DTL LOAD INCREMENT. NAIL MOVEMENTS DURING THE CREEP PORTION OF THE TEST SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES.

G. A COPY OF THE VERIFICATION TEST RECORDS SHALL BE SUBMITTED TO THE BUILDING DEPARTMENT WITHIN 24 HOURS AFTER COMPLETION OF EACH SOIL NAIL VERIFICATION TEST, REGARDLESS OF THE ENGINEER'S TEST ACCEPTANCE.

**PROOF TESTING OF PRODUCTION NAILS**

A. PROOF TESTING SHALL BE PERFORMED ON ONE PRODUCTION NAIL AS DETERMINED BY THE OWNER'S REPRESENTATIVE. IF NAIL INSTALLATION METHODS ARE SUBSTANDARD ON ANY PARTICULAR NAIL OR SERIES OF NAILS, ADDITIONAL TESTS MAY BE REQUIRED.

B. THE UNBONDED LENGTH OF TEST NAILS SHALL BE AT LEAST 3 FEET UNLESS APPROVED OTHERWISE BY THE ENGINEER. THE BOND LENGTH OF TEST NAILS SHALL BE DETERMINED BY THE OWNER'S REPRESENTATIVE SUCH THAT THE ALLOWABLE BAR LOAD IS NOT EXCEEDED BUT SHALL NOT BE LESS THAN 10 FEET. THE BAR LOAD DURING TESTING SHALL NOT EXCEED 80 PERCENT OF THE STEEL ULTIMATE STRENGTH FOR GRADE 150 BARS OR 90 PERCENT OF THE STEEL YIELD STRENGTH FOR GRADE 60 AND GRADE 75 BARS.

C. PROOF TEST NAILS SHALL BE INCREMENTALLY LOADED IN 0.25DTL INCREMENTS TO A MAXIMUM LOAD OF 1.50DTL IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LOAD	HOLD TIME
AL	1 MINUTE
0.25DL	1 MINUTE
0.50DL	1 MINUTE
0.75DL	1 MINUTE
1.00DL	1 MINUTE
1.25DL	1 MINUTE
1.50DL	10 MINUTES

D. THE ALIGNMENT LOAD (AL) SHOULD BE THE MINIMUM LOAD REQUIRED TO ALIGN THE TESTING APPARATUS AND SHOULD NOT EXCEED 0.05DTL. DIAL GAUGES SHOULD BE ZEROED AFTER THE ALIGNMENT LOAD IS APPLIED.

E. DEPENDING ON PERFORMANCE, EITHER A 10 MINUTE OR 60 MINUTE CREEP TEST SHALL BE PERFORMED AT 1.50DTL. NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THE MAXIMUM TEST LOAD SHALL BE MAINTAINED AN ADDITIONAL 50 MINUTES AND MOVEMENTS SHALL BE RECORDED AT 20, 30, 50, AND 60 MINUTES.

**TEST NAIL ACCEPTANCE**

A. A TEST NAIL SHALL BE CONSIDERED ACCEPTABLE WHEN:

- FOR VERIFICATION TESTS, A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS IS OBSERVED DURING CREEP TESTING, AND THE RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
- FOR PROOF TESTS, A CREEP RATE LESS THAN 0.04 INCHES PER LOG CYCLE OF TIME BETWEEN THE 1 AND 10 MINUTE READINGS IS OBSERVED OR A CREEP RATE LESS THAN 0.08 INCHES PER LOG CYCLE OF TIME BETWEEN THE 6 AND 60 MINUTE READINGS, AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.
- THE TOTAL MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE UNBONDED LENGTH.
- A PULLOUT FAILURE DOES NOT OCCUR DURING TESTING. PULLOUT FAILURE IS DEFINED AS THE LOAD AT WHICH ATTEMPTS TO INCREASE THE TEST LOAD SIMPLY RESULTS IN CONTINUED PULLOUT MOVEMENT OF THE TEST NAIL.

B. AT THE CONTRACTOR'S OPTION, SUCCESSFUL PROOF TEST NAILS MEETING THE ABOVE TEST ACCEPTANCE CRITERIA MAY BE INCORPORATED AS PRODUCTION NAILS PROVIDED THAT (1) THE UNBONDED TEST LENGTH OF THE NAIL HOLE HAS NOT COLLAPSED DURING TESTING, (2) THE MINIMUM REQUIRED HOLE DIAMETER HAS BEEN MAINTAINED, AND (3) THE TEST NAIL LENGTH AND BAR SIZE ARE EQUAL TO OR GREATER THAN THE SCHEDULED PRODUCTION NAIL LENGTH AND BAR SIZE. TEST NAILS MEETING THESE REQUIREMENTS SHALL BE COMPLETED BY SATISFACTORILY GROUTING THE UNBONDED TEST LENGTH. MAINTAINING THE TEMPORARY UNBONDED TEST LENGTH FOR SUBSEQUENT GROUTING IS THE CONTRACTOR'S RESPONSIBILITY.

C. THE ENGINEER SHALL EVALUATE THE RESULTS OF EACH VERIFICATION TEST. NAIL INSTALLATION METHODS THAT DO NOT SATISFY THE NAIL TESTING REQUIREMENTS SHALL BE CONSIDERED INADEQUATE. THE CONTRACTOR SHALL PROPOSE ALTERNATIVE METHODS AND INSTALL REPLACEMENT VERIFICATION TEST NAILS.

D. THE ENGINEER MAY REQUIRE THAT THE CONTRACTOR REPLACE SOME OR ALL OF THE PRODUCTION NAILS REPRESENTED BY INADEQUATE PROOF TESTS.

**OPTICAL SURVEY**

THE SHORING MONITORING PROGRAM SHALL CONSIST OF THE FOLLOWING:

PRE-CONSTRUCTION SURVEY (VIDEO OR PHOTOGRAPHIC SURVEY) OF ADJACENT STREETS, UTILITIES, BUILDING, AND OTHER STRUCTURES WITHIN A DISTANCE NOT LESS THAN 40 FEET FROM THE SHORING.

ALL SEWER AND STORM LINES IN THE RIGHT OF WAY WITHIN 10 FEET (OR WITHIN 20 FEET IF SUCH LINES ARE 30 FEET OR MORE FROM THE SITE PROPERTY LINE) OF ANY PROPOSED SHORING ELEMENT SHALL BE VIDEOTAPE IN THE PRE-PROJECT CONDITION AND A COPY SENT TO THE BUILDING DEPARTMENT PRIOR TO THE PRECONSTRUCTION MEETING.

OPTICAL SURVEY OF MONITORING POINTS SHALL BE COMPLETED WEEKLY DURING CONSTRUCTION, AND TWICE PER MONTH (OR AS DETERMINED BY THE GEOTECHNICAL SPECIAL INSPECTOR WITH THE CONCURRENCE OF THE BUILDING DEPARTMENT) FOLLOWING COMPLETION OF THE EXCAVATION AND BEFORE THE INTERIOR BUILDING FLOORS REACH THE GROUND SURFACE. MONITORING SHALL INCLUDE VERTICAL AND HORIZONTAL SURVEY MEASUREMENTS TO AN ACCURACY OF 0.01 FEET. BASELINE READINGS ARE TO BE TAKEN PRIOR TO THE START OF CONSTRUCTION. ALL RESULTS ARE TO BE SENT TO THE GEOTECHNICAL SPECIAL INSPECTOR WITHIN 24 HOURS AND TO THE BUILDING DEPARTMENT WEEKLY. A LICENSED SURVEYOR CONTRACTED DIRECTLY WITH THE OWNER MUST PERFORM THE MONITORING AT LEAST ONCE PER WEEK.

OPTICAL SURVEY POINTS SHOULD BE ESTABLISHED AT THE TOP OF THE SHORING WALL AROUND THE PERIMETER OF THE EXCAVATION.

ADDITIONAL SURVEY POINTS SHOULD BE ESTABLISHED ALONG THE CURBLINES AND CENTERLINES OF ADJACENT ROADWAY, AND ON SETTLEMENT SENSITIVE STRUCTURES, AND AT DISTANCES UP TO AT LEAST THE WALL HEIGHT ON PRIVATE PROPERTY ADJACENT THE EXCAVATION, AND SPACED AT 20 FEET HORIZONTALLY. THESE POINTS SHALL BE MONITORED IF SHORING WALL MOVEMENTS EXCEED 0.5 INCH, OR AT THE REQUEST OF THE BUILDING DEPARTMENT.

THE GEOTECHNICAL SPECIAL INSPECTOR SHALL BE CONTINUOUSLY PRESENT DURING DRILLING FOR AND INSTALLATION OF SOIL NAILS, AND DURING TESTING OF SOIL NAILS. A REPRESENTATIVE OF THE SHORING WALL DESIGNER MAY ALSO BE PRESENT, BUT NOT IN LIEU OF THE GEOTECHNICAL SPECIAL INSPECTOR.

SURVEY FREQUENCY CAN BE DECREASED AFTER THE SHORING SYSTEM HAS BEEN INSTALLED AND EXCAVATION IS COMPLETE IF THE DATA INDICATES LITTLE OR NO ADDITIONAL MOVEMENT. SURVEYING MUST CONTINUE UNTIL THE PERMANENT STRUCTURE IS COMPLETE UP TO FINAL AND STREET GRADES. THE SURVEY FREQUENCY WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AFTER REVIEW AND APPROVAL BY THE BUILDING DEPARTMENT.

THE GEOTECHNICAL ENGINEER SHALL REVIEW SURVEY DATA AND PROVIDE AN EVALUATION OF WALL PERFORMANCE WITH A GRAPHICAL REPRESENTATION OF WALL MOVEMENT AND SURVEY DATA TO THE BUILDING DEPARTMENT ON AT LEAST A WEEKLY BASIS AND IMMEDIATELY IF SIGNIFICANTLY INCREASED MOVEMENT OCCURS.

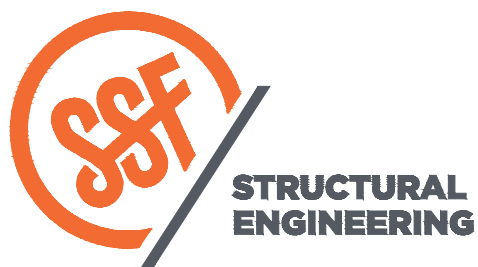
IMMEDIATELY AND DIRECTLY NOTIFY THE GEOTECHNICAL AND STRUCTURAL ENGINEERS, WALL DESIGNER, THE BUILDING DEPARTMENT, IF 0.5 INCHES OF MOVEMENT OCCURS BETWEEN TWO CONSECUTIVE READINGS AND WHEN TOTAL MOVEMENTS REACH 0.5 INCH. AT THAT AMOUNT OF MOVEMENT, THE ENGINEERS AND DESIGNERS SHALL DETERMINE THE CAUSE OF DISPLACEMENT AND DEVELOP REMEDIAL MEASURES SUFFICIENT TO LIMIT TOTAL WALL MOVEMENTS TO 1 INCH. ALL EARTHWORK AND CONSTRUCTION ACTIVITIES MUST BE DIRECTED TOWARDS IMMEDIATE IMPLEMENTATION OF REMEDIAL MEASURES NECESSARY TO LIMIT TOTAL WALL MOVEMENT TO WHAT HAS BEEN DEFINED AS ACCEPTABLE BY THE DESIGN TEAM AND THE BUILDING DEPARTMENT (AS INDICATED ABOVE).

**WET WEATHER CONDITIONS**

A SITE VISIT FROM THE GEOTECHNICAL SPECIAL INSPECTOR SHALL OCCUR DURING EACH DAY OF ACTIVE GRADING AND IN THE EVENT OF SIGNIFICANT RAINFALL WHICH MIGHT COMPROMISE STABILIZATION MEASURES BETWEEN NOVEMBER 1 AND MARCH 31. THE DETERMINATION OF WHAT CONSTITUTES SIGNIFICANT RAINFALL IS SUBJECT TO THE DISCRETION OF THE GEOTECHNICAL SPECIAL INSPECTOR. HOWEVER, AS A MINIMUM STANDARD, THE GEOTECHNICAL SPECIAL INSPECTOR IS REQUIRED TO CONDUCT A SITE VISIT IF MORE THAN ONE HALF INCH OF PRECIPITATION OCCURS ON ANY GIVEN DAY. ANY RECOMMENDATIONS REQUIRED TO MAINTAIN STABILITY OF EXCAVATIONS AND PROPER FUNCTIONING OF THE SEDIMENT/EROSION CONTROL SYSTEM PROVIDED BY THE GEOTECHNICAL SPECIAL INSPECTOR AND BUILDING DEPARTMENT PERSONNEL SHALL BE IMPLEMENTED IMMEDIATELY. THE GEOTECHNICAL SPECIAL INSPECTOR SHALL PROVIDE COPIES OF FIELD REPORTS TO THE BUILDING DEPARTMENT NO LATER THAN 48 HOURS AFTER EACH INSPECTION. THE GEOTECHNICAL SPECIAL INSPECTOR SHALL PROVIDE WRITTEN NOTICE THAT THE SITE HAS BEEN STABILIZED FOLLOWING COMPLETION OF GRADING.

**5. PIN PILES:**

PIN PILES SHOWN ON THE PLAN SHALL BE 2" DIAMETER SCHEDULE 80.



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**REVISIONS:**

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2	Permit Revisions	Feb. 11, 2019

**PROJECT TITLE:**

**Boyle Shoring**

Mercer Island, WA

**CLIENT:**

**Max Corp.**

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**ISSUE:**

**Permit**

**SHEET TITLE:**

**Temporary Shoring Wall Notes, Cont.**

**SCALE:**

DATE: May 24, 2018

PROJECT NO: 02087-2018-01

SHEET NO:

**Sh2**





DRAWN: RJ  
DESIGN: ABB  
CHECKED: ABB  
APPROVED: ABB

REVISIONS:  
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2 Permit Revisions Feb. 11, 2019

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PROJECT TITLE:  
**Boyle Shoring**  
Mercer Island, WA

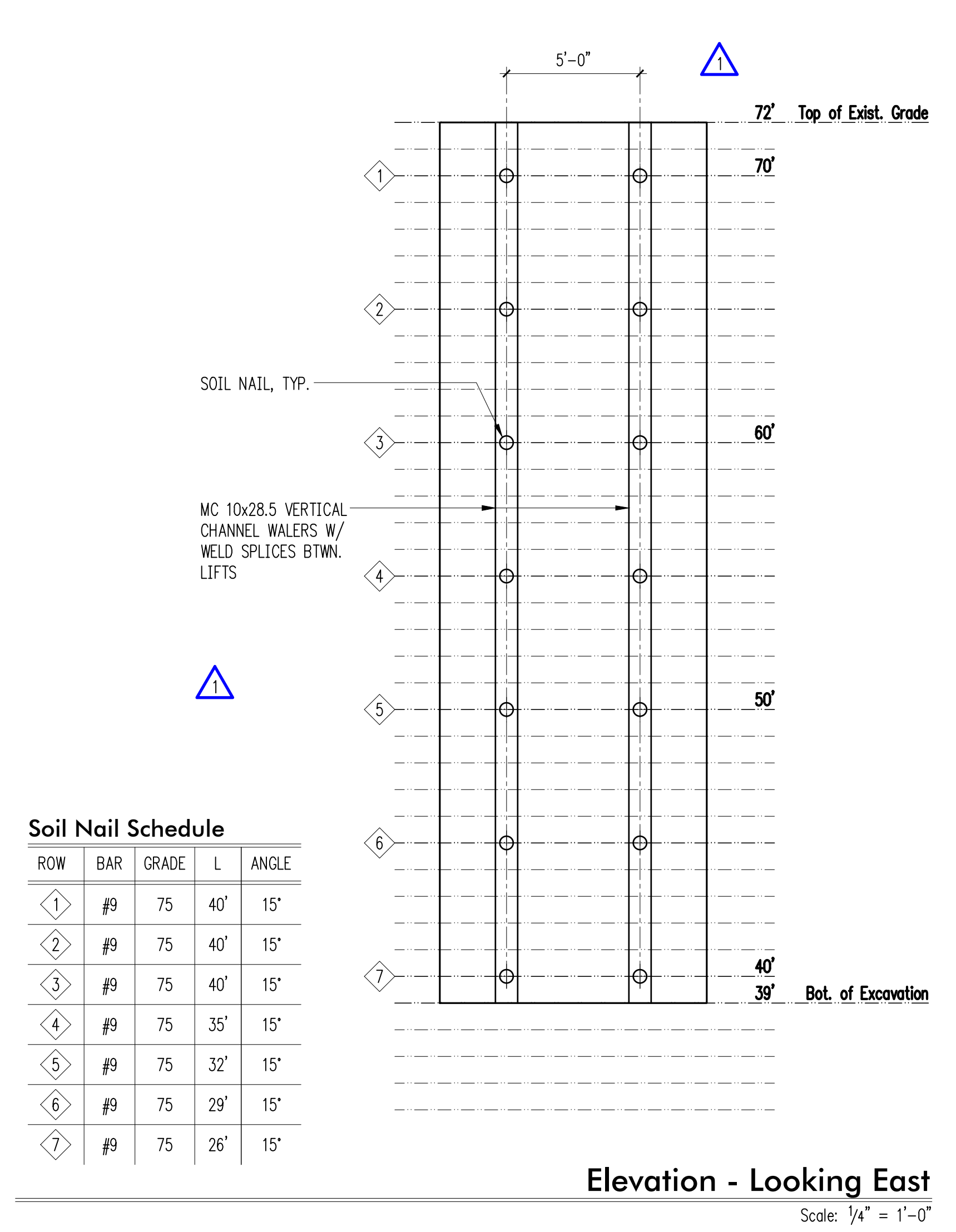
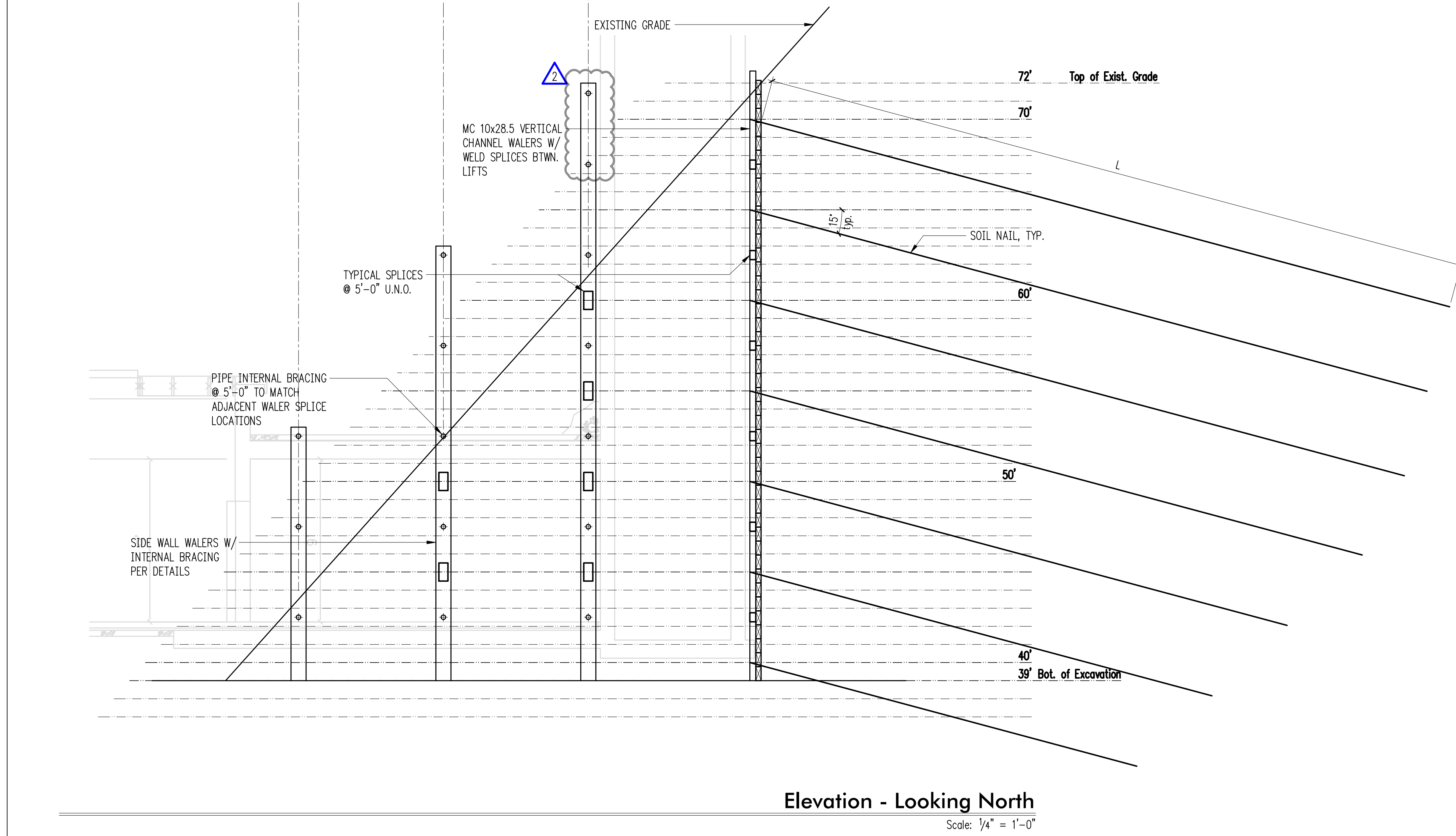
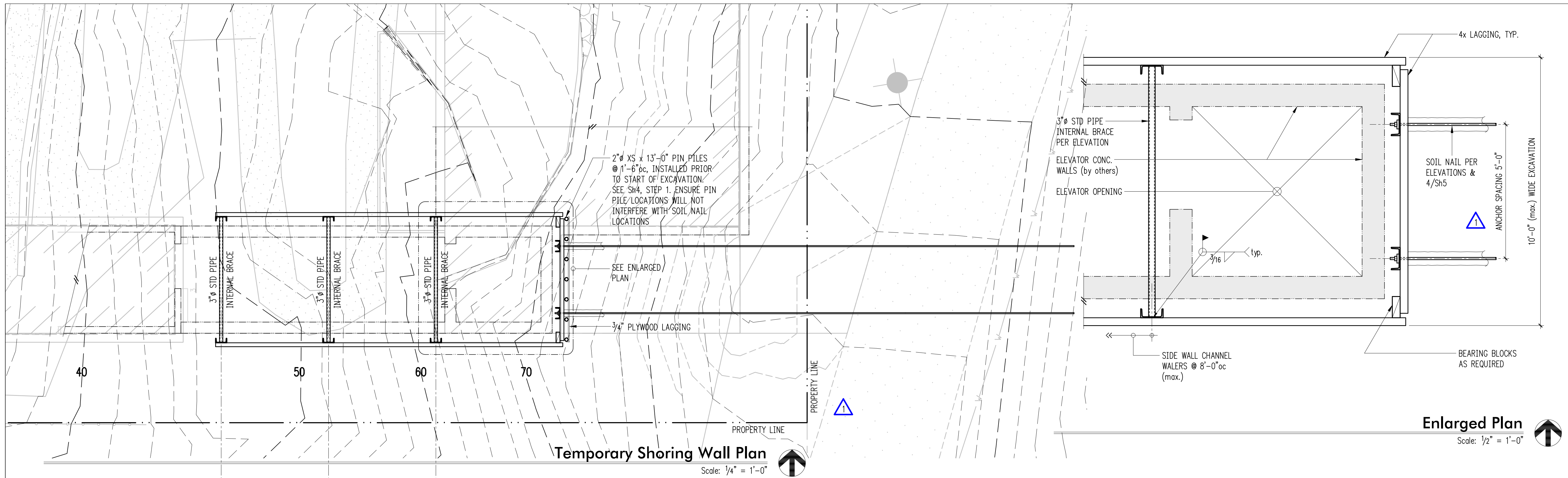
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SHEET TITLE:  
**Temporary Shoring Plans & Elevations**

SCALE: As Noted  
DATE: May 24, 2018  
PROJECT NO: 02087-2018-01  
SHEET NO:

**Sh3**



**Soil Nail Schedule**

ROW	BAR	GRADE	L	ANGLE
1	#9	75	40'	15'
2	#9	75	40'	15'
3	#9	75	40'	15'
4	#9	75	35'	15'
5	#9	75	32'	15'
6	#9	75	29'	15'
7	#9	75	26'	15'



DRAWN:	RJ
DESIGN:	ABB
CHECKED:	ABB
APPROVED:	ABB

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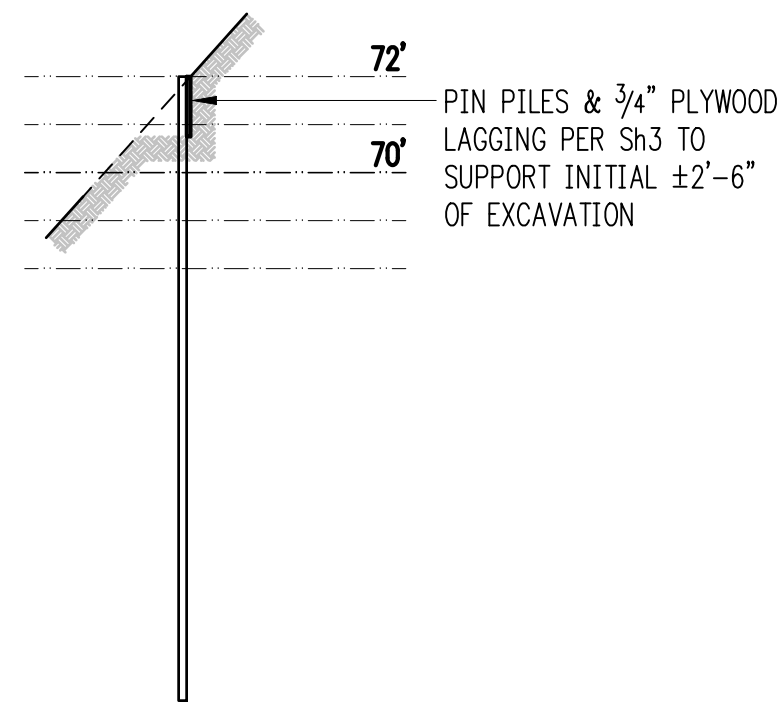
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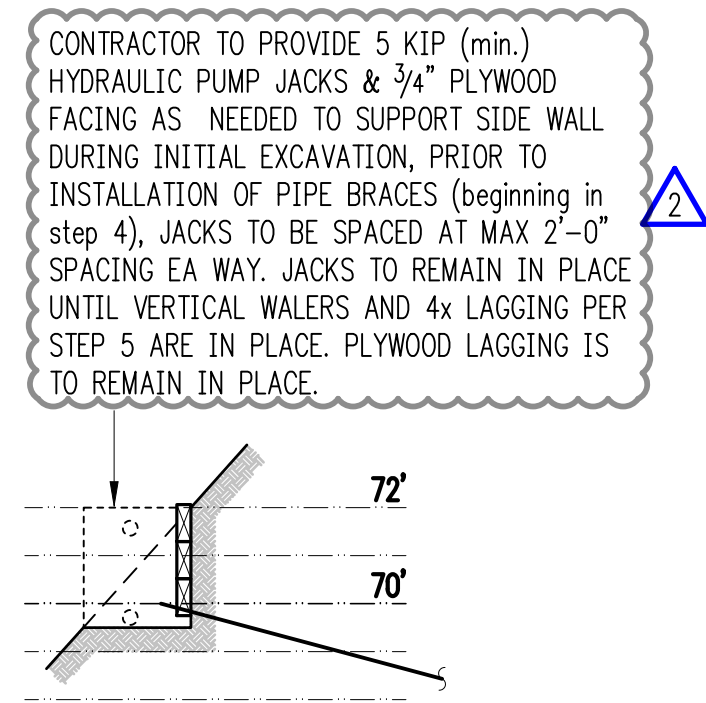
SHEET TITLE:  
**Temporary Shoring Wall Sequencing**

SCALE: 1/4" = 1'-0"  
DATE: May 24, 2018  
PROJECT NO: 02087-2018-01  
SHEET NO:

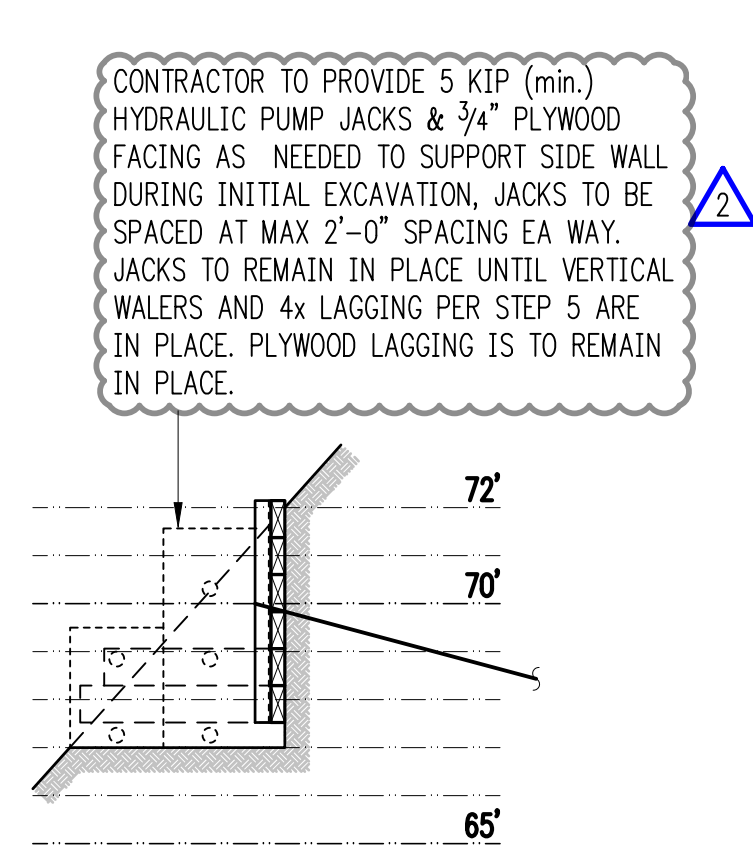
**Sh4**



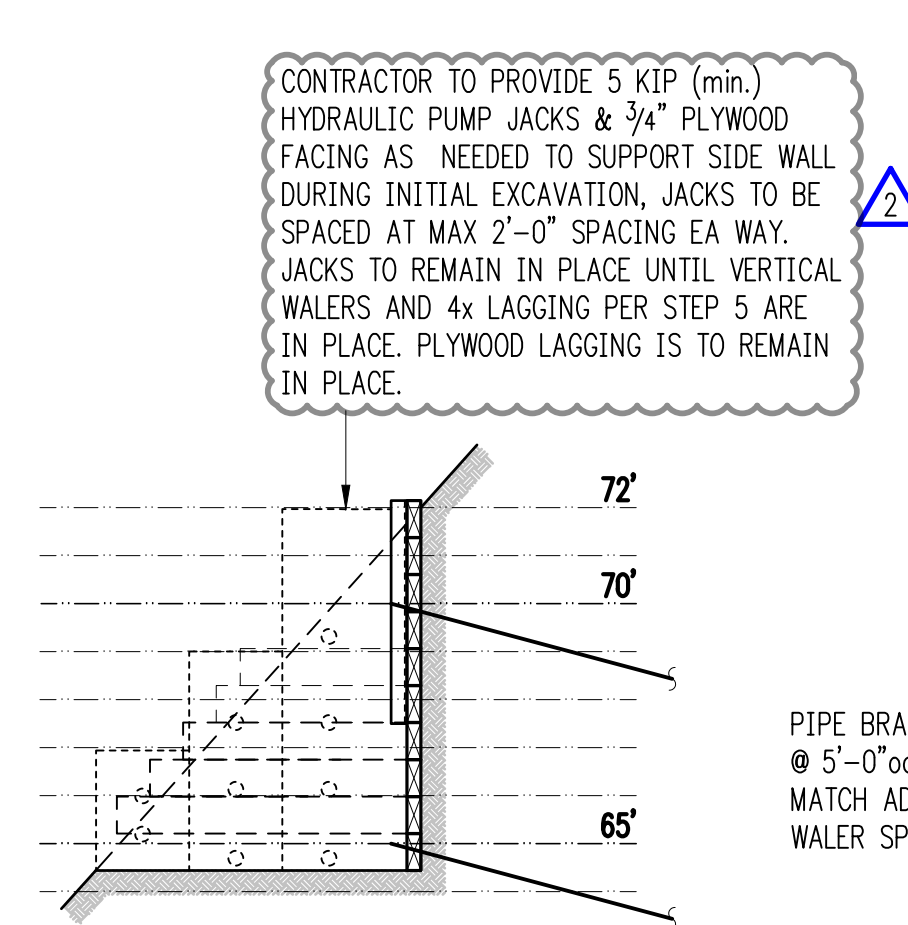
1. INSTALL PIN PILES PER PLAN Sh3 PRIOR TO EXCAVATION
  2. CONTINUALLY SUPPORT INITIAL EXCAVATION WITH 3/4" PLYWOOD BEHIND PIN PILES
  3. EXCAVATE TO ±2'-6" DEPTH
- Step 1**



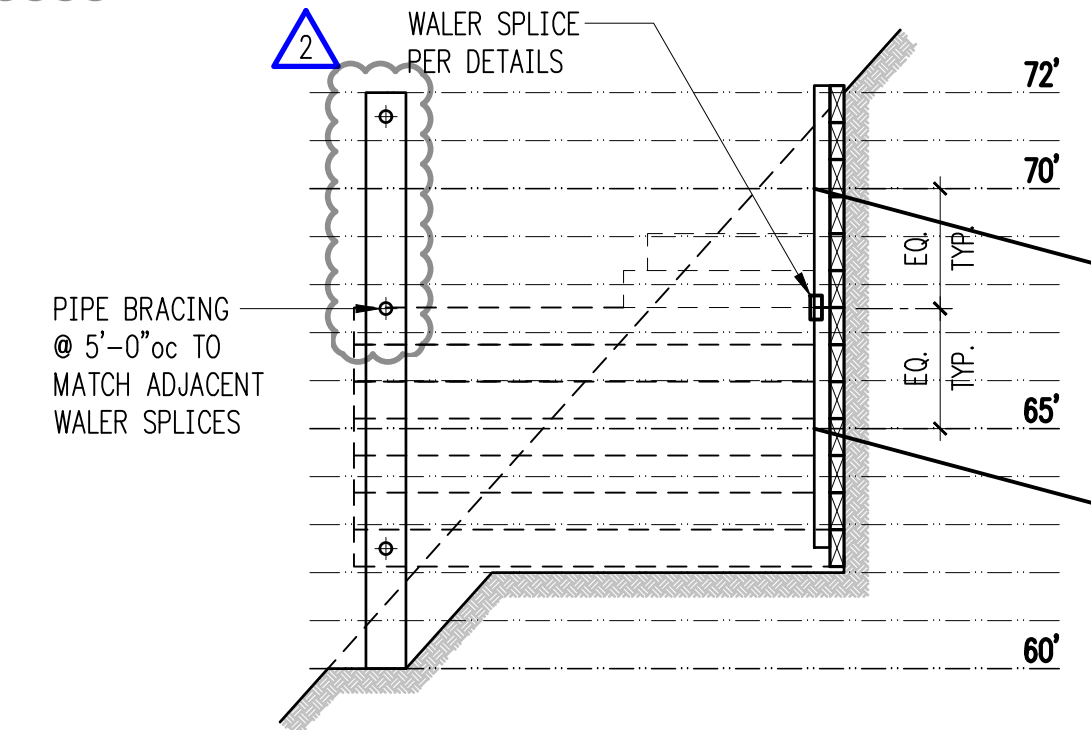
1. INSTALL ANCHORS
  2. PLACE 4x LAGGING TOP 3'±
- Step 2**



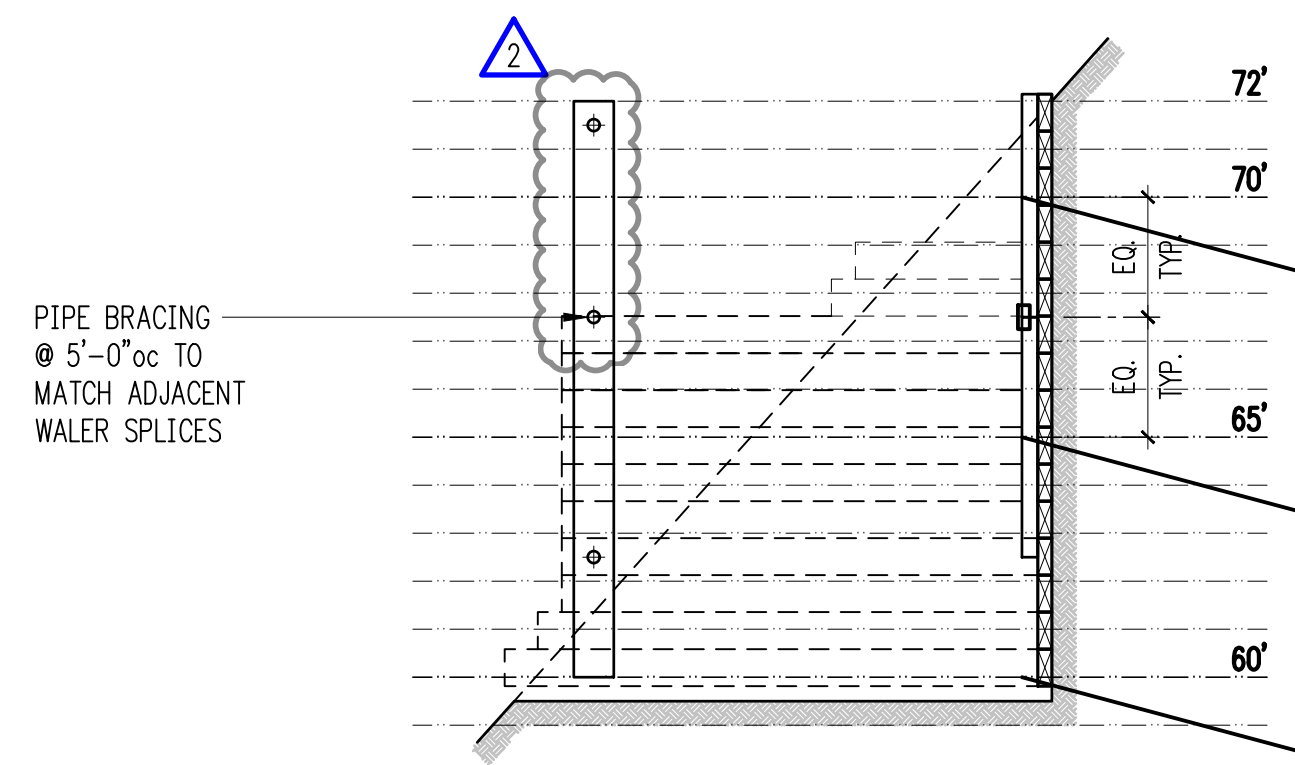
1. EXCAVATE NEXT 2'-6"±
  2. INSTALL LAGGING
  3. INSTALL VERTICAL WALERS TO EAST WALL
  4. LOCK OFF ANCHORS
- Step 3**



1. EXCAVATE NEXT 2'-6"±
  2. INSTALL LAGGING (3) SIDES
  3. INSTALL TEMP. SIDE WALL BRACING
  4. INSTALL ANCHORS
- Step 4**

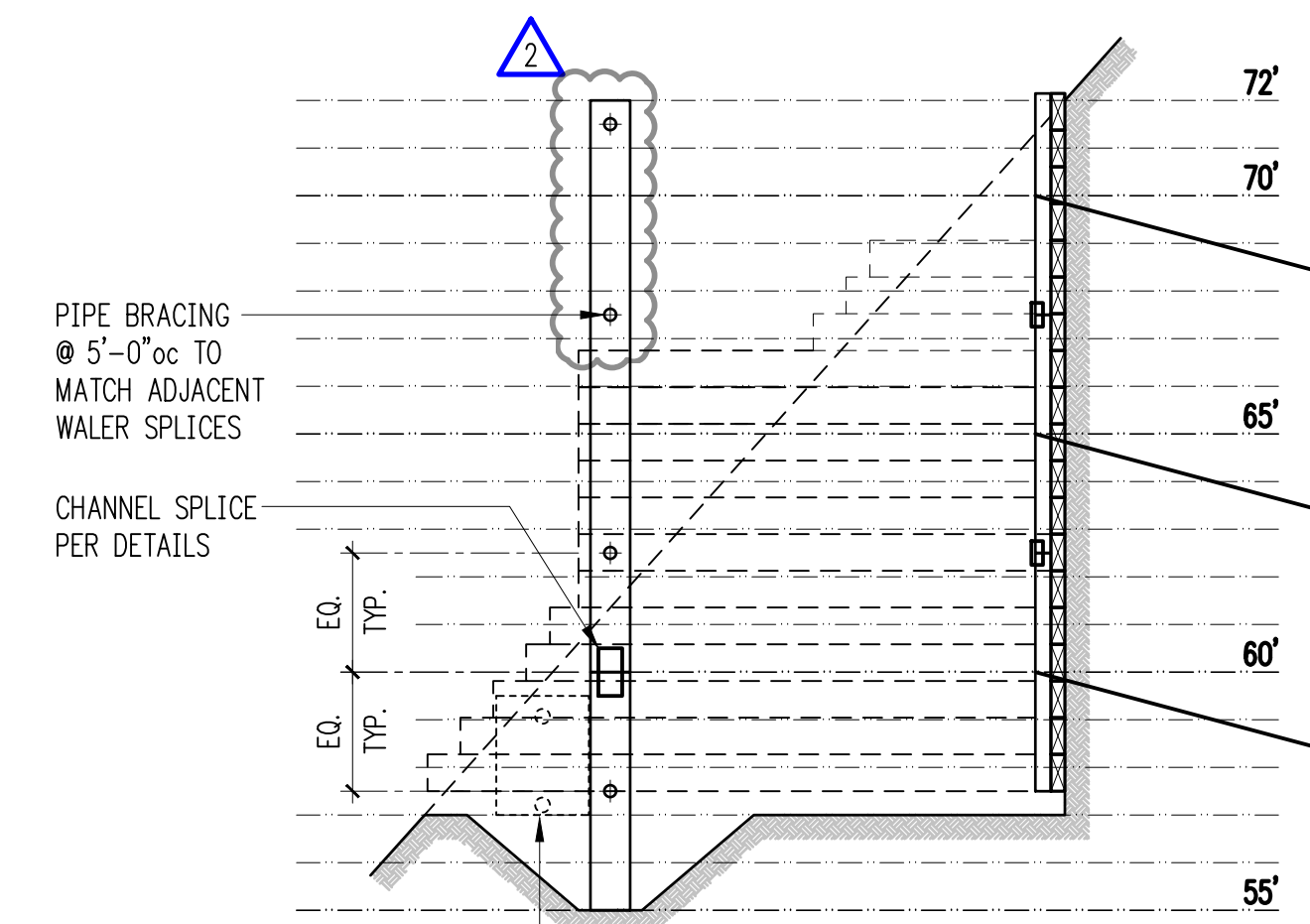


1. EXCAVATE NEXT 2'-6"±
  2. INSTALL LAGGING (3) SIDES
  3. INSTALL & SPLICE VERTICAL WALERS TO EAST WALL
  4. INSTALL TEMP. SIDE WALL WALERS & BRACING
  5. LOCK OFF ANCHORS
- Step 5**



1. EXCAVATE NEXT 2'-6"±
2. INSTALL LAGGING (3) SIDES
3. INSTALL & SPLICE VERTICAL WALERS TO EAST WALL
4. INSTALL ANCHORS
5. INSTALL VERTICAL WALERS & BRACING TO SIDE WALLS

**Step 6**



1. EXCAVATE NEXT 2'-6"±
2. INSTALL LAGGING (3) SIDES
3. INSTALL & SPLICE VERTICAL WALERS TO EAST WALL
4. INSTALL & SPLICE VERTICAL WALERS TO SIDE WALLS
5. LOCK OFF ANCHORS

**Step 7**

REPEAT STEPS 6-7 TO BOTTOM OF EXCAVATION



DRAWN: RJ  
 DESIGN: ABB  
 CHECKED: ABB  
 APPROVED: ABB

REVISIONS:  
 1 Permit Revisions Nov. 22, 2018  
 2 Permit Revisions Feb. 11, 2019

DPD:

PROJECT TITLE:  
**Boyle Shoring**  
 Mercer Island, WA

CLIENT:  
**Max Corp.**  
 PO Box 811  
 Gig Harbor, WA 98335  
 253.851.2522

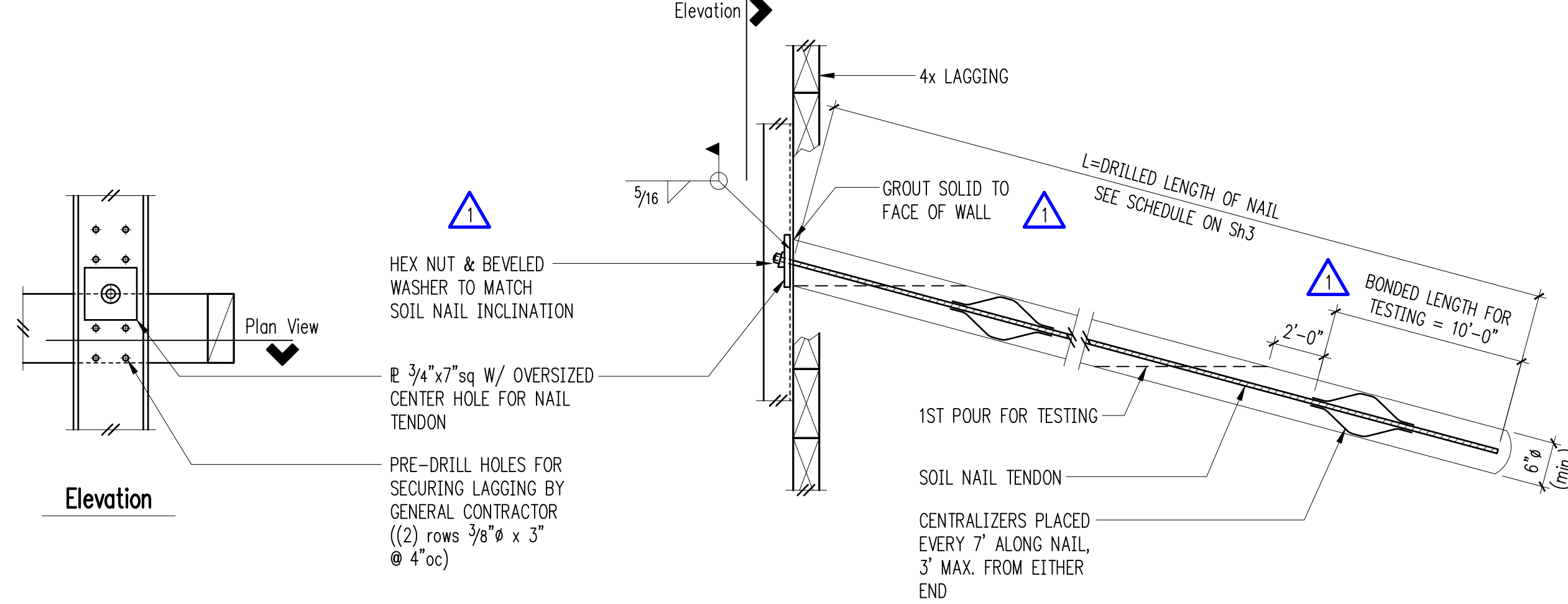
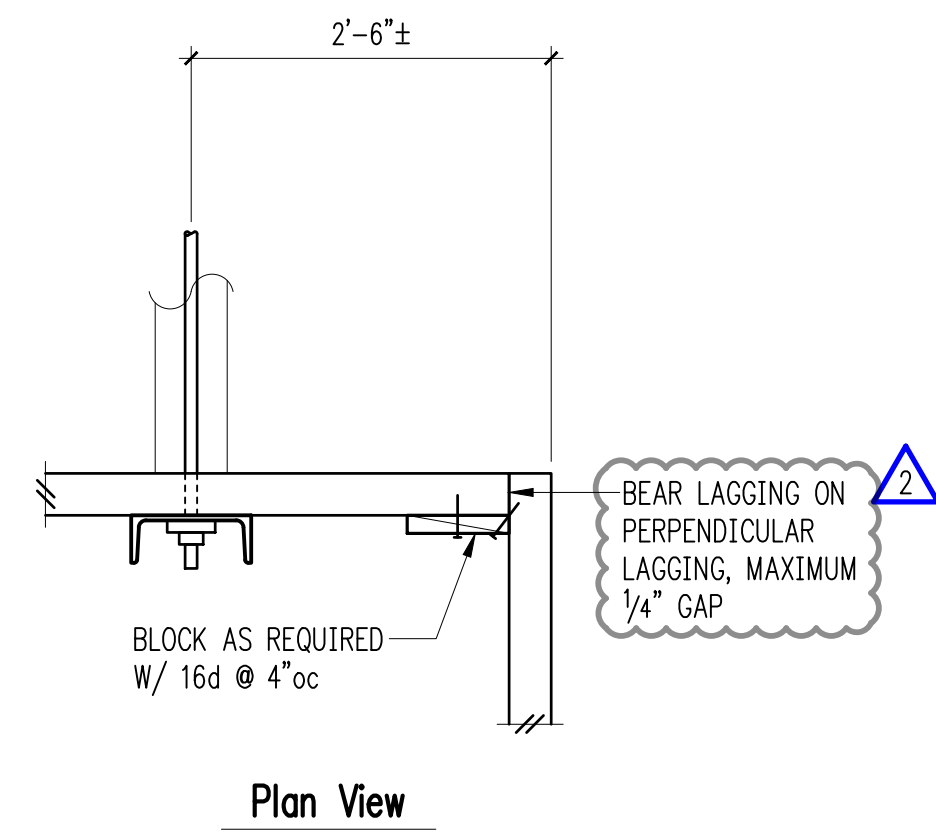
ISSUE:  
**Permit**

SHEET TITLE:  
**Details**

SCALE: As Noted  
 DATE: May 24, 2018  
 PROJECT NO: 02087-2018-01  
 SHEET NO:

**Sh5**

1

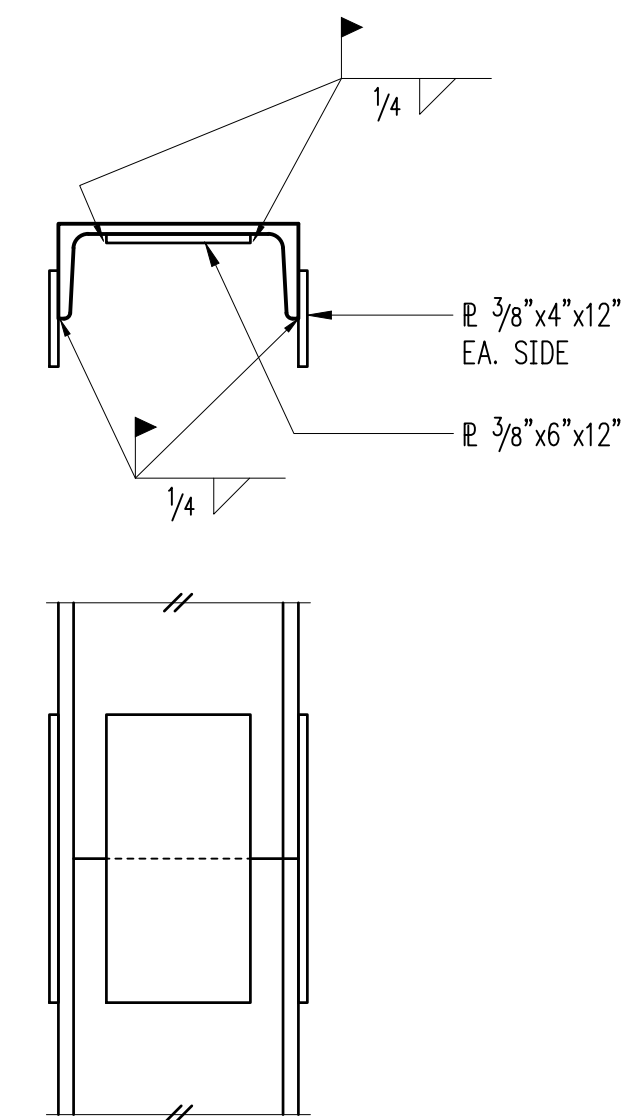


Soil Nail & Facing Detail  $\frac{3}{4}'' = 1'-0''$  4

5

6

7



Typical Channel Splice  $\frac{1}{2}'' = 1'-0''$  8

9

10

11

12

**GENERAL NOTES AND SOIL NAIL WALL DESIGN PARAMETERS**

- The soil nail wall has been designed in general accordance with the procedure contained in the FHWA "Manual for Design and Construction Monitoring of Soil Nail Walls" Report No. FHWA-SA-96-069. The shotcrete facing and wall drainage construction shall be in accordance with the FHWA Guide Specifications for Temporary Shotcrete Facing and Wall Drainage, Appendix C1, Manual for Design and Construction of Soil Nail Walls, Publication No. FHWA-SA-96-069R.
- Reinforced Shotcrete Facing:  
 $f_y = 60,000$  psi  
 $f_c = 4,000$  psi  
 $f_c = 3,000$  psi  
 Nail Bearing Plates A36  
 Welded Wire (WWR)  $F_y = 60$ ksi  
 Contractor shall submit shotcrete and nail grout mix design to the Engineer for review and approval.
- Design Soil Parameters:  
 These values are conservatively reduced from Georesources, LLC soil strength values for slope stability.  

	Friction Angle	Cohesion	Soil Unit Weight
Native Soil	32 deg.	500 psf	130 pcf
- Ultimate Pullout:  
 $3,000$  lb./ft. at and near wall face  
 $6,000$  lb./ft. beyond wall face soils
- Nail locations, drilled nail lengths, and bar sizes shall be in accordance with the wall profiles and soil nail schedules. Nail locations may be modified, upon approval by the Engineer. Nails shall be verification and proof tested (See Nail Testing Section).
- The Contractor is responsible for field locating all utilities. Nail locations shall be adjusted, as necessary, to avoid utilities. Nails shall maintain a minimum five foot distance from utilities, unless approved by the Engineer. Utility conflicts or intrusion into neighboring property is not allowed without an easement.
- Slopes constructed above and below the temporary soil nail walls shall be in accordance with the plans and recommendations of the Engineer. The Contractor shall submit to the Engineer an excavation plan and no mass or shotcrete cut face excavation shall commence prior to approval.
- The soil nail wall alignments shall be located by the Contractor and project Surveyor.

**TYPICAL CONSTRUCTION SEQUENCE**

- Walls shall be constructed from the top down, in a staged construction sequence. Excavation lifts shall not exceed six feet in height.
- The following wall construction sequence shall be followed for each lift of the soil nail wall:
  - Excavate lift to wall line. The engineer shall observe excavated face. Supplement recommendations will be provided by the Engineer where sloughing or unstable face conditions develop. Use of a stabilizing berm may be recommended.
  - Drill, install, and grout nails. Casing of soil nail holes may be recommended by the Engineer, to control ground loss during drilling. Two nails shall be appropriately sized to accommodate verification testing. The nail locations shall be selected by the Engineer.
  - Install geocomposite drain strips.
  - Place reinforcing and apply shotcrete facing. Areas of exposed excavation face not stabilized by shotcrete shall be stabilized with a berm.
  - Perform verification testing and proof testing of nails after shotcrete and nail grout have attained their design strengths.
  - Install PVC weep hole pipe along base of final lift at geocomposite drain strip locations.

**CLOSURE TIME**

Closure time shall not exceed the end of the work shift unless approved by the Engineer. Closure time up to 24 hours between face cut and shotcrete application can be approved by the Engineer if Contractor can demonstrate 24 hour closure time would not adversely affect excavation face stability.

**SOIL NAIL MONITORING PLAN**

- The Engineer and Contractor shall develop a soil nail monitoring program prior to the beginning of construction. The project Surveyor and Contractor shall meet onsite with the engineer prior to beginning the site mass excavation and shoring wall installation.
- Survey points shall be installed on the soil nail wall surface, and along the top of the soil nail wall. Survey points shall also be established on adjacent structures sensitive to ground movements. For planning purposes, monitoring points shall be established at maximum 50 foot intervals along right-of-ways (if applicable). The monitoring points shall be established along the curb or pavement, and shall be setback 10 to 15 feet from the shoring wall. Along the top of the soil nail walls, spacing of the survey points shall not exceed 25 feet. Spacing of the survey points established on the soil nail wall surface shall not exceed 50 feet. Baseline readings shall be acquired for all survey points prior to excavation and installation of shoring system.
- Monitoring of the survey points shall occur a minimum of twice a week during soil nail installation and excavation. At least one of the two weekly readings must be performed by a licensed surveyor.
- Following soil nail installation and excavation, decreased survey frequency can be considered if data indicate little or no movement and monitoring can be ceased when determined by the Geotechnical Engineer.
- Immediately and directly notify the geotechnical and structural engineers, and wall designer, if 0.5 inches of movement occurs between two consecutive readings and when total movements reach 0.5 inch. At that amount of movement, the Engineers and Designers shall determine the cause of displacement and develop remedial measures sufficient to limit total movements to 1 inch. All earthwork and construction activities must be directed towards immediate implementation of remedial measures necessary to limit total wall movements to what has been defined as acceptable by the design team.

- Where horizontal movements of one inch or greater are detected, construction shall be suspended and remedial measures shall be implemented. Remedial measures shall include construction of a soil berm in front of the shoring wall, where one inch or greater horizontal movements have occurred. The extent and height of the soil berm shall be determined by the Engineer, but shall be sufficient to arrest excavation related movements. Following stabilization of the excavation, supplement shoring recommendations shall be prepared to ensure wall movements do not progress. Supplement shoring could include additional soil nailing or soldier pile installation, as determined necessary by the engineer.
- Survey monitoring data shall be e-mailed to the Engineer within 24 hours of acquiring the readings. The Engineer shall be immediately contacted if shoring wall or excavation related movements are detected.

**NAIL TESTING**

Prior to nail testing, grout shall be allowed to cure at least 72 hours. Minimum 3-day compressive strength shall be 1,500 psi.

**VERIFICATION TESTING**

A minimum of two verification test nails shall be installed and tested. Test nail lengths shall correspond to lengths in the nail schedule. Verification test nails shall be incrementally loaded to a maximum test load of 200 percent of the Design Test Load (DTL) in accordance with the following loading schedule. The soil nail movements shall be recorded at each load increment. Additional verification tests shall be conducted if different drill / installation equipment or techniques are used to install the nails.

Load	Hold Time	Maximum Nail Bond Length ( $L_{bv}$ ) for verification testing shall be determined based on the following: $L_{bv} = CfyAs / 2Qd$ $C = 0.9$ for grade 60 or 75 Bars $f_y =$ Bar Yield Stress $A_s =$ Bar Steel Area $2 =$ Pullout Factor of Safety $Qd = 3,000$ lb./ft. (Allow. Pullout) $D =$ Bond Length ( $L_b$ ) x Qd
AL (.05 DTL Max.)	1 minute	
0.25 DTL	10 minutes	
0.50 DTL	10 minutes	
0.75 DTL	10 minutes	
1.00 DTL	10 minutes	
1.25 DTL	10 minutes	
1.50 DTL (Creep Test)	60 minutes	
1.75 DTL	10 minutes	
2.00 DTL (Max. Test Load)	10 minutes	Note: MIN. BOND LENGTH = 8 ft.

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the Design Test Load (DTL).

**PROOF TESTING**

Perform proof testing on 5 percent of the production nails in each row or minimum of 1 per row. The locations shall be designated by the Engineer. A verification test nail successfully completed during production work shall be considered equivalent to a proof test nail and shall be accounted for in determining the number of proof tests required in that particular row.

Load	Hold Time	Maximum Nail Bond Length ( $L_{bp}$ ) for proof testing shall be determined based on the following: $L_{bp} = CfyAs / 1.5 Qd$ $C = 0.9$ for Grade 60 or 75 Bars $f_y =$ Bar Yield Stress $A_s =$ Bar Steel Area $1.5 =$ Pullout Factor of Safety $Qd = 3,000$ lb. / ft. (Allow. Pullout) $DTL =$ Bond Length ( $L_b$ ) x Qd
AL (.05 DTL Max.)	Until Stable	
0.25 DTL	Until Stable	
0.50 DTL	Until Stable	
0.75 DTL	Until Stable	
1.00 DTL	Until Stable	
1.25 DTL	Until Stable	
1.50 DTL (Max. Test Load)	See Below	Note: MIN. BOND LENGTH = 8 ft.

Soil nail contractor shall provide Engineer a description of test setup and jack, pressure gauge and load cell calibration curves prior to testing.

The Alignment Load (AL) should be the minimum load required to align the testing apparatus and should not exceed 5 percent of the Design Test Load (DTL). Dial gauges should be set to "zero" after the alignment load has been applied.

All load increments shall be maintained within 5 percent of the intended load. Depending on performance, either 10 minute or 60 minute creep tests shall be performed at the maximum test load (1.50 DTL). The creep period shall start as soon as the maximum test load is applied and the nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6, and 10 minutes. Where the nail movement between 1 minute and 10 minutes exceeds 0.04 in., the maximum test load shall be maintained an additional 50 minutes and movements shall be recorded at 20 minutes, 30, 50, and 60 minutes.

**TEST NAIL ACCEPTANCE CRITERIA**

A test nail shall be considered acceptable when:

- For verification tests, a total creep movement of less than 0.08 in. per log cycle of time between the 6 and 60 minute readings is measured during creep testing and the creep rate is linear or decreasing throughout the creep test load period.
- For proof tests, a total creep movement of less than 0.04 in. is measured between the 1 and 10 minute readings or a total creep movement of less than 0.08 in. is measured between the 6 and 60 minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.

**TEST NAIL REJECTION**

Verification test nails failing to meet the acceptance criteria or otherwise determined unsatisfactory by the Engineer shall be replaced and retested. Adjustments to the nail installation method may be recommended.

Proof test nails failing to meet the acceptance criteria or otherwise determined unsatisfactory by the Engineer shall be replaced and retested. Replacement and testing of adjacent non-proof tested nails may be recommended by the Engineer, depending on the circumstances of the nail failure.

**PRECONSTRUCTION MEETING**

A Preconstruction Meeting between the Contractor, Geotechnical Engineer and Surveyor shall be scheduled prior to the Soil Nail Wall Excavation and construction. Preconstruction meetings shall be completed prior to beginning construction.

**SPECIAL INSPECTION**

Special Inspection of the soil nail wall construction shall be provided in general accordance with IBC 1704, 1705, and 1803 (soils). Inspections shall include Vertical Element installation, Soil Nail installation, Nail Testing, and Shotcrete Materials testing and placement and Steel Reinforcement. Shotcrete inspections shall be continuous. Steel reinforcement inspection shall be periodic.

Copies of field reports, test results, and memorandums relating to shoring activities shall be provided to the Owner and Contractor on a timely basis.

**SIDE SEWERS AND SEWER MAINS**

Side sewers and sewer mains must be located by the contractor prior to excavation and installation of the shoring. Side sewers must be protected or properly abandoned prior to beginning construction.

**WATER SERVICES**

Existing water services must be located and protected or properly abandoned prior to excavation and shoring activities.

**FENCING - WALLS AND SLOPE CUTS**

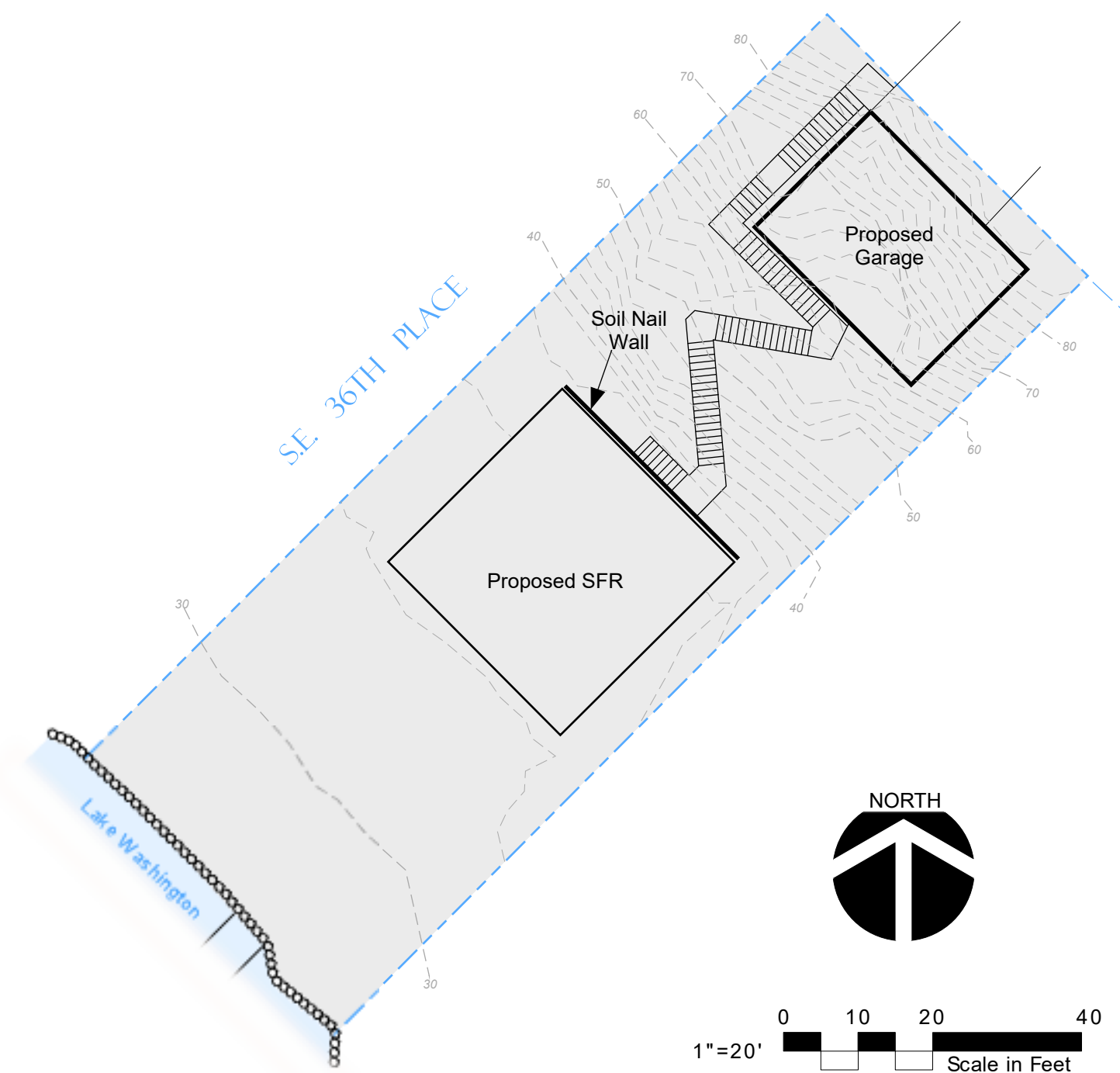
The top of all walls and cut slopes shall be sufficiently fenced by the contractor to protect pedestrians and workers.

**SOIL NAIL "SHOTCRETE" WALL DRAINAGE**

Geocomposite drainage panels or strips are used to provide drainage. The drains are daylighted by means of a weep hole and care must be taken to avoid creating a low spot for water to collect. Weep holes should be covered during placement of shotcrete to avoid clogging the drain. Care must be taken during construction to avoid placing the shotcrete behind the drainage panel. The drains must be securely fastened against the cut face prior to shotcrete placement.

**STRUCTURAL SUBMITTALS**

Special inspection reports / certificates shall be submitted by the contractor to the Engineer. Certificates of compliance of fabricated structural steel members shall also be submitted.



**SOIL NAIL WALL ALIGNMENT**

**SOIL NAIL BARS AND GROUT**

Soil Nail Bars shall conform to ASTM A615 / AASHTO M31, Grade 75 or ASTM A722 / AASHTO M275, Grade 150.

Nail Grout shall have a minimum 28-day compressive strength of 3000 psi. Nail Grout shall be Neat-Cement Grout or Ready-Mix Sand-Cement Grout. Type I / II Portland Cement conforming to ASTM C150 / AASHTO M85.

**SHOTCRETE**

Snotcrete shall have a minimum 28-day compressive strength of 4000 psi. Type I / II Portland Cement conforming to ASTM C150 / AASHTO M85.

**REINFORCING STEEL**

Reinforcing Steel shall conform to ASTM A615 / AASHTO M31, Grade 60 for deformed bars, and ASTM A185 / AASHTO M55 for welded wire fabric. Laps shall be 2 squares for Welded Wire Fabric.



**SOIL NAIL WALL PLAN AND NOTES**  
**BOYLE RESIDENCE**  
 Mercer Island, WASHINGTON



**Earth Solutions NW LLC**

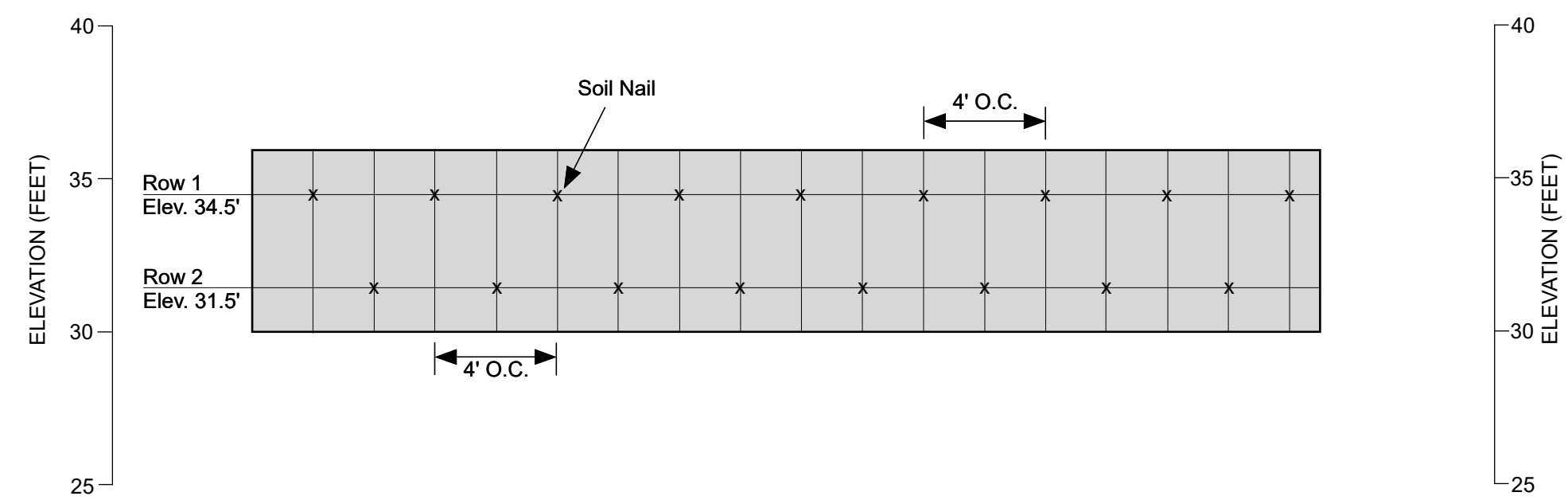
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 Date 05/22/2019  
 Phone: 425-449-4704

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 CHK BY: \_\_\_\_\_  
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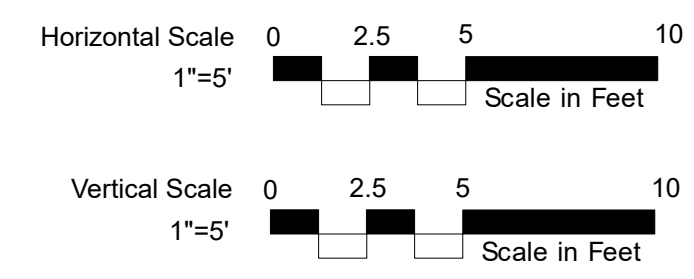
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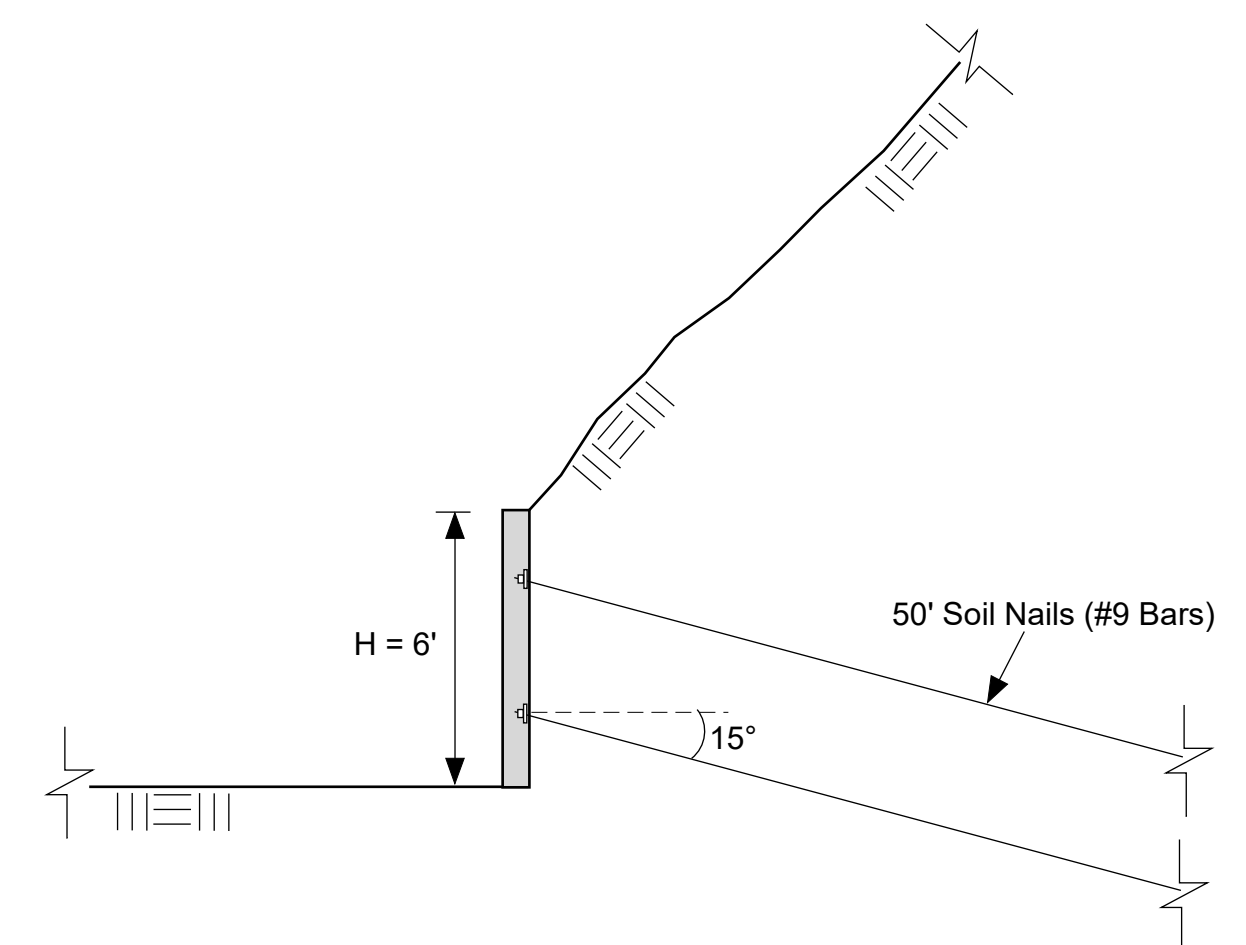
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**WALL PROFILE**

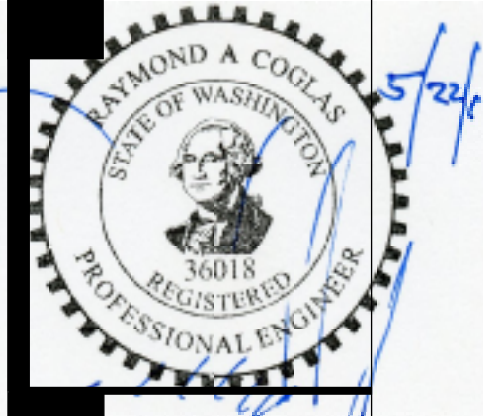


SOIL NAIL SCHEDULE			
Row	Length	Declination	Bar (75ksi)
1	50'	15 deg.	#9
2	50'	15 deg.	#9



**SOIL NAIL WALL SECTION (TYP.)**

NOT - TO - SCALE



SOIL NAIL WALL PROFILES  
**BOYLE RESIDENCE**  
 Mercer Island, WASHINGTON



Proj. No. 6690  
 Date 05/22/2019  
 Phone: 425-449-4704

DATE: \_\_\_\_\_  
 DWN BY: \_\_\_\_\_  
 CHR BY: \_\_\_\_\_  
 JOB NO. \_\_\_\_\_

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**SN-2**



**SOIL NAIL WALL DETAILS**  
**BOYLE RESIDENCE**  
 Mercer Island, WASHINGTON



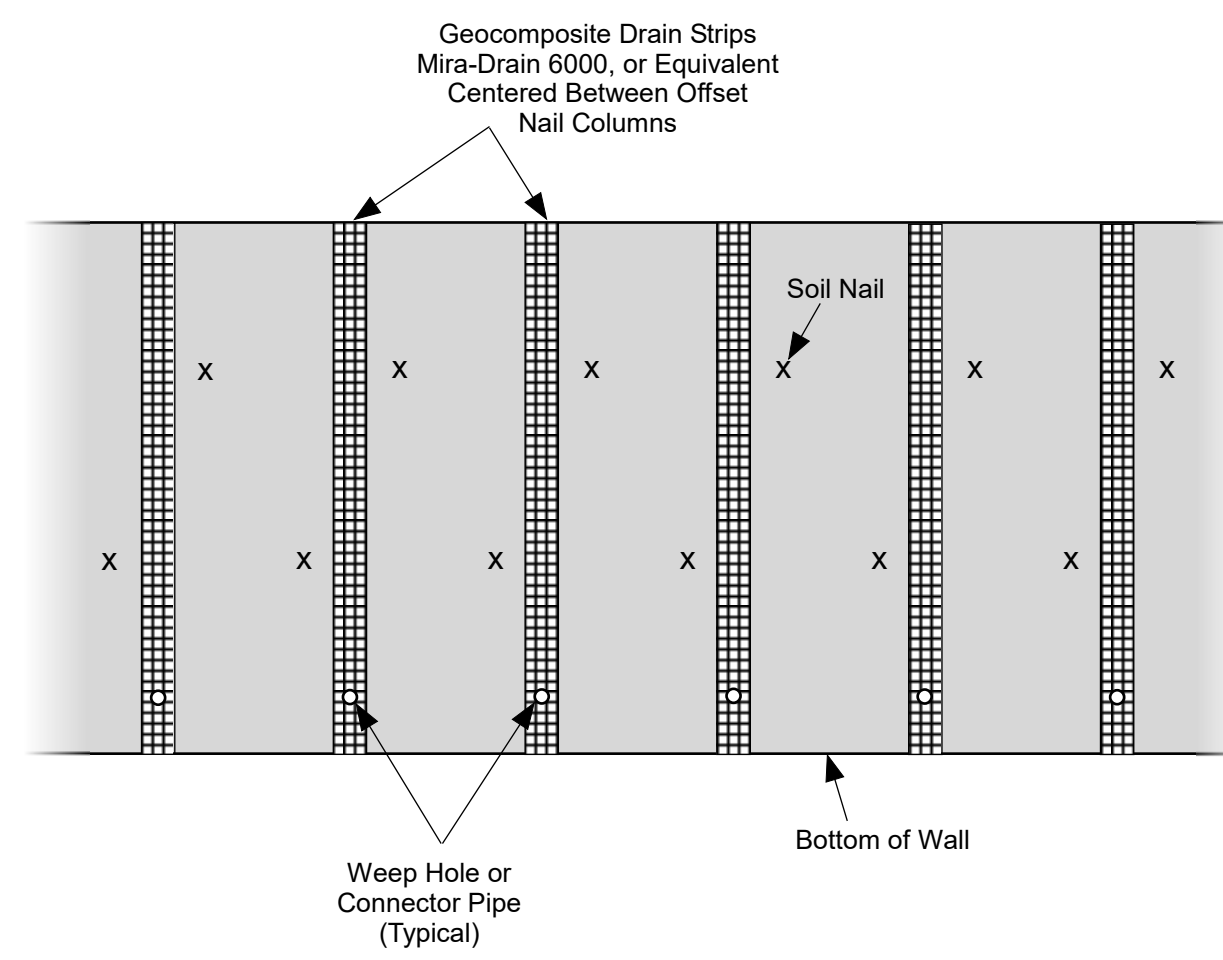
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 Date 05/22/2019  
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REVISIONS: \_\_\_\_\_

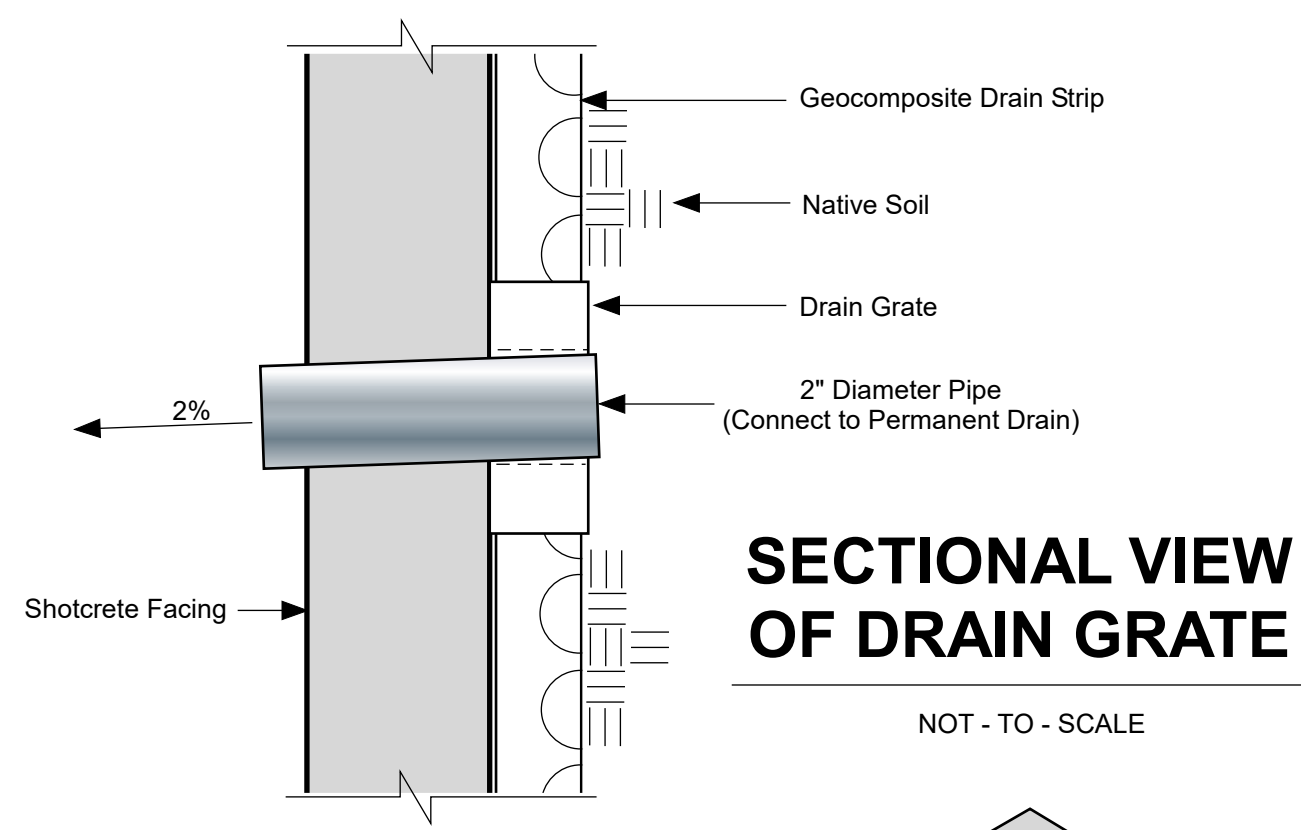
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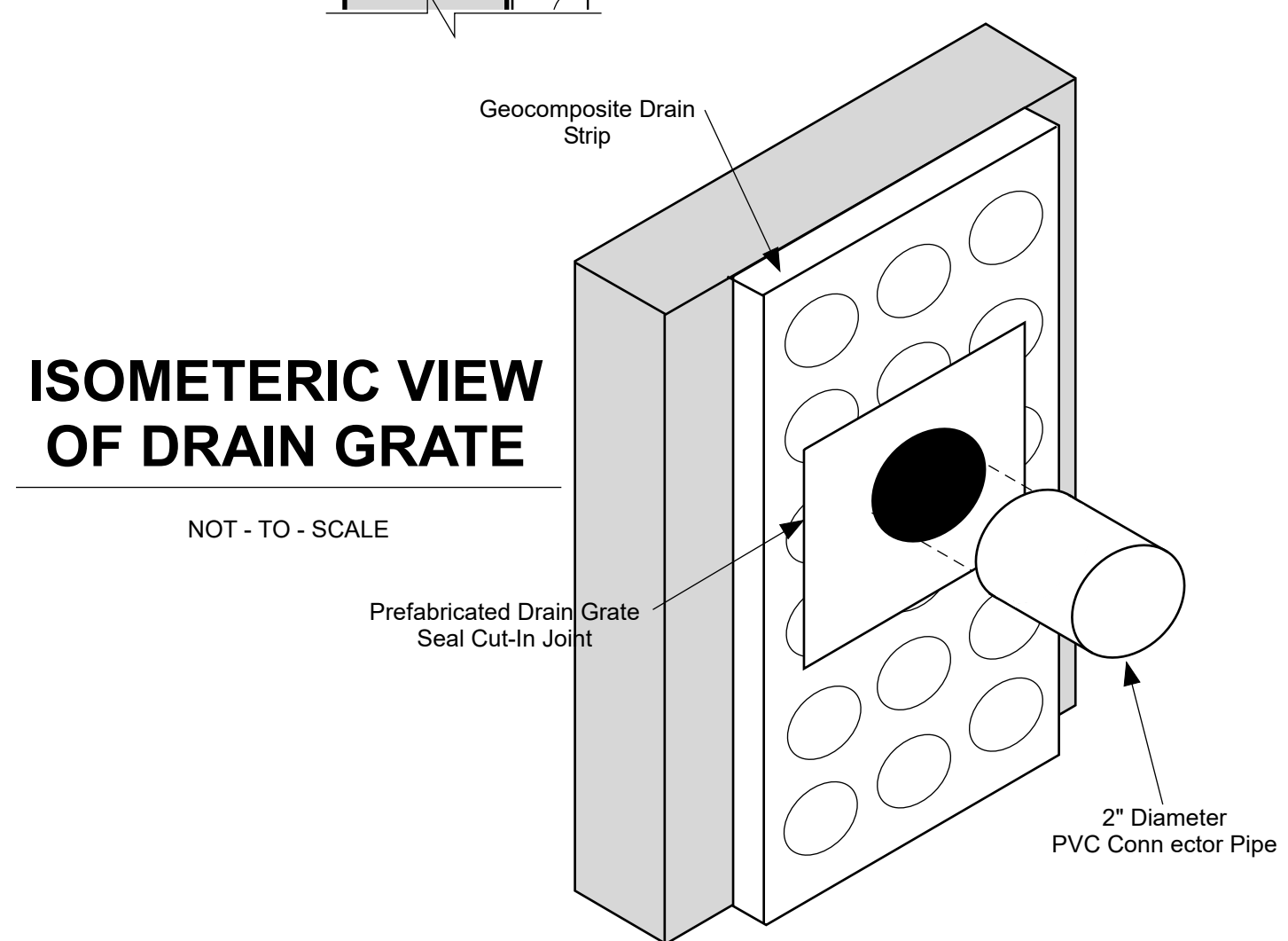
**GEOCOMPOSITE  
DRAIN STRIP DETAIL**

NOT - TO - SCALE



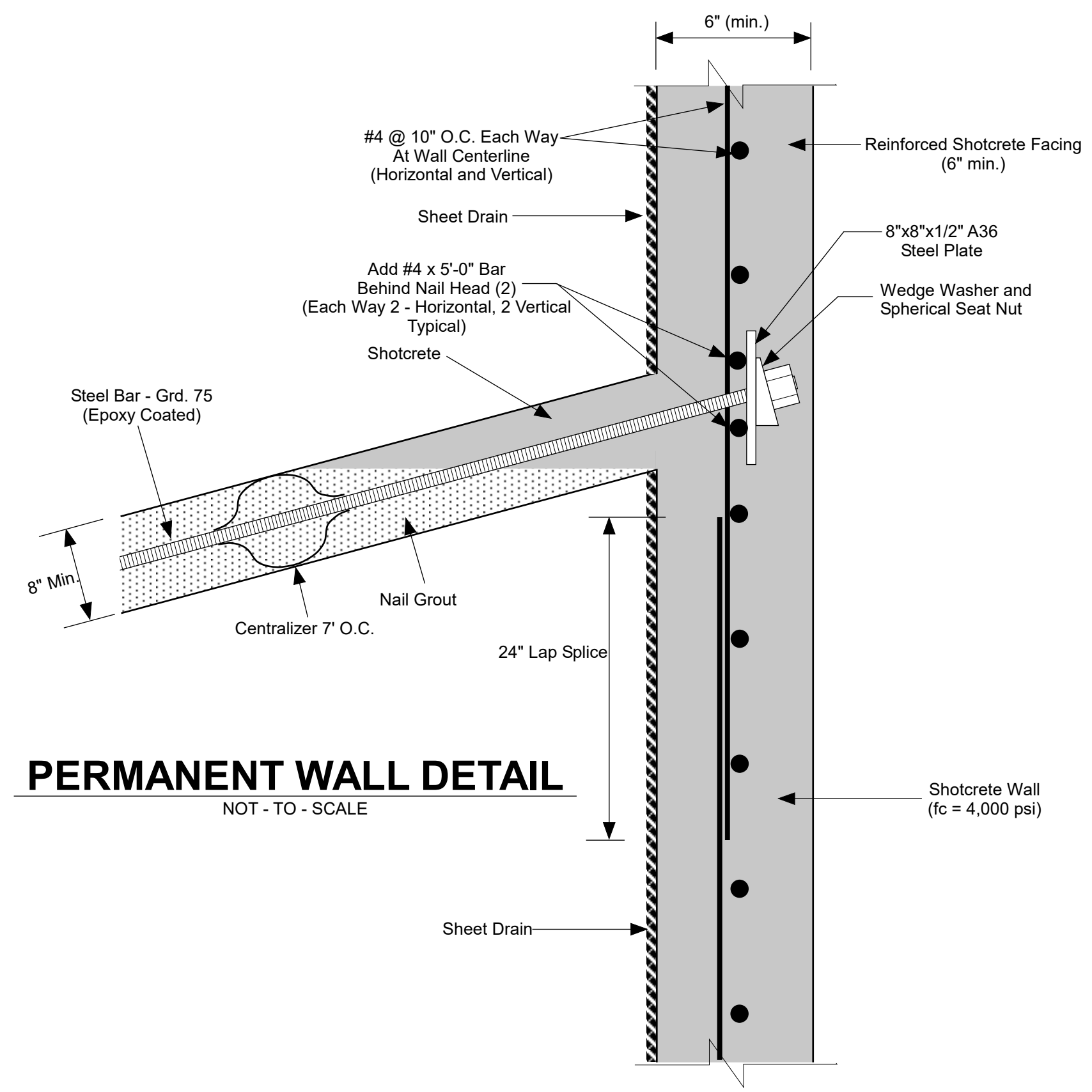
**SECTIONAL VIEW  
OF DRAIN GRATE**

NOT - TO - SCALE



**ISOMETRIC VIEW  
OF DRAIN GRATE**

NOT - TO - SCALE

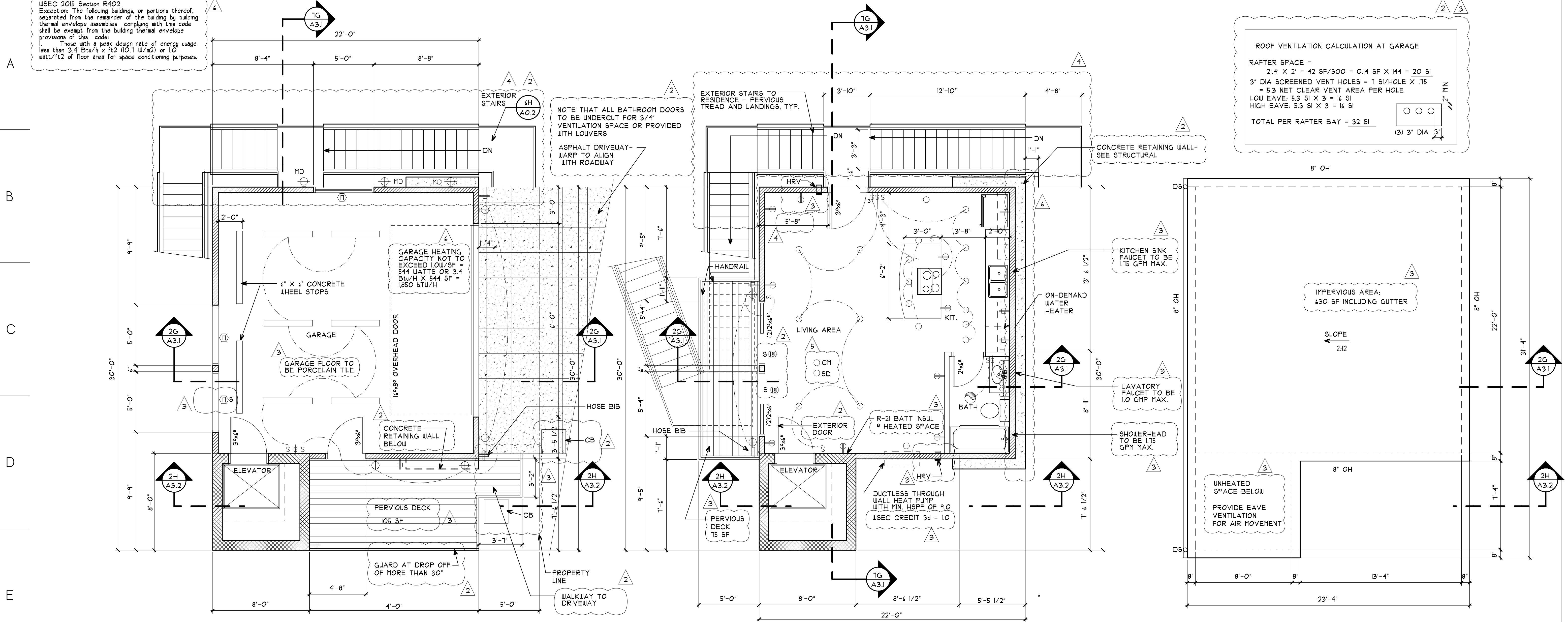


**PERMANENT WALL DETAIL**

NOT - TO - SCALE

WSEC 2015 Section R402  
 Exception: The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:  
 Those with a peak design rate of energy usage less than 3.4 Btu/h x ft2 (10.1 W/m2) or 1.0 wati/ft2 of floor area for space conditioning purposes.

ROOF VENTILATION CALCULATION AT GARAGE  
 RAFTER SPACE =  
 $21.4' \times 2' = 42 \text{ SF}/300 = 0.14 \text{ SF} \times 144 = 20 \text{ SI}$   
 $3' \text{ DIA SCREENED VENT HOLES} = 1 \text{ SI/HOLE} \times .75 = 5.3 \text{ NET CLEAR VENT AREA PER HOLE}$   
 LOW EAVE:  $5.3 \text{ SI} \times 3 = 14 \text{ SI}$   
 HIGH EAVE:  $5.3 \text{ SI} \times 3 = 14 \text{ SI}$   
 TOTAL PER RAFTER BAY = 32 SI



**2E GARAGE FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"  
 PLAN NORTH

**5E APARTMENTS FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"  
 PLAN NORTH

**8E ROOF PLAN**  
 SCALE: 1/4" = 1'-0"  
 NORTH

ACCESSORY DWELLING UNIT  
 SMALL DWELLING UNIT CREDITS REQUIRED = 15  
 OPTION 5a EFFICIENT WATER HEATING = 0.5  
 ALL SHOWERHEAD AND KITCHEN SINK FAUCETS INSTALLED IN THE HOUSE SHALL BE RATED AT 1.15 GPM OR LESS. ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM OR LESS.  
 OPTION 3d HIGH EFFICIENCY HVAC EQUIPMENT = 1.0  
 DUCTLESS HEAT PUMP PROVIDES HEATING TO THE LARGEST ZONE OF THE HOME  
 TOTAL PROVIDED FOR THE ADU = 15 CREDITS

WHOLE HOUSE VENTILATION CALCULATION  
 TABLE M501.3.3  
 544 SF 1 BEDROOM ADU NEEDS 30 CFM CONTINUOUS  
 TABLE M501.4  
 KITCHENS NEED 100 CFM INTERMITTENT OR 25 CFM CONTINUOUS  
 BATHROOMS 50 CFM INTERMITTENT OR 20 CFM CONTINUOUS  
 PROVIDE TWO 'LUNOS' "E2" SHORT VERSION - EACH PAIR PROVIDES 30 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN. USE MERV 4 OR BETTER FILTER.

**FLOOR ASSEMBLIES**

	<b>GARAGE FLOOR</b> PORCELAIN FLOOR TILE WITH PORCELAIN ENAMEL INSTITUTE HARDNESS RATING OF 4 OR MORE 'SCHLUTER' DITRA XL SLIP SHEET 1 1/8" P.T. SHEATHING PER STRUCT. PRESERVATIVE TREATED JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" TYPE 'X' GWB
	<b>RESIDENCE LOWER LEVEL</b> 4" CONCRETE FLOOR SLAB PER STRUCTURAL R-10 RIGID INSULATION VAPOR BARRIER 4" GRAVEL BASE
	<b>RESIDENCE FIRST AND SECOND FLOORS</b> 3/4" SHEATHING PER STRUCTURAL JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" GWB

**LIGHTING LEGEND**

	'LUNOS' THROUGH WALL HEAT RECOVERY VENTILATORS - INSTALL BALANCED PAIRS CAPABLE OF PROVIDING A MINIMUM OF 30 CFM OF CONTINUOUS AIR EXCHANGE PER PAIR
	4"x4" FLOURESCENT FIXTURE
	3-WAY LIGHT SWITCH D INDICATES A DIMMER
	SINGLE POLE LIGHT SWITCH
	FOUR-PLEX RECEPTACLE
	WALL MTD FIXTURE
	WALL MTD FIXTURE (W/ MOTION DETECTOR)
	RECESSED COMPACT FLOURESCENT
	DUPLEX RECEPTACLE
	FREEZE PROOF HOSE BIB
	EXHAUST FAN, MIN. 100 CFM, MAX. 300 CFM PROVIDE TIMER ON SWITCH
	WALL MTD LIGHT FIXTURE
	GFI DUPLEX RECEPTACLE
	LED FLOOD LIGHTS
	CHANDELIER
	SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR

**WALL ASSEMBLIES**

	<b>WALL TYPE 1 - CONCRETE WALL</b> SEE STRUCTURAL FOR SIZES
	<b>WALL TYPE 2 - NEW EXTERIOR WALLS</b> SHINGLES WRB OVER SHEATHING PER STRUCTURAL 2x4 @ 16" O.C. R-21 BATT INSULATION VAPOR BARRIER 5/8" GWB
	<b>WALL TYPE 3 - TYPICAL INTERIOR WALL</b> 1/2" GWB 2x4 @ 16" O.C. 1/2" GWB SOUND BATT AT BATHROOMS/BEDROOMS
	<b>WALL TYPE 4 - ELEVATOR WALL</b> UNCONDITIONED SPACE SHINGLES WRB OVER SHEATHING PER STRUCTURAL 2x0 STUDS - SEE STRUCTURAL R-21 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE WHERE NOTED ON PLANS
	<b>WALL TYPE 5 - BASEMENT WALL</b> 10" CONCRETE WALL 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB
	<b>WALL TYPE 6 - CATCHMENT WALL</b> WALL TYPE 2 ATOP CONCRETE 12" CONCRETE WALL 4" HIGH 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB

**WALL TYPES LEGEND**

	WALL TYPE 1
	WALL TYPE 2
	WALL TYPE 3
	WALL TYPE 4
	WALL TYPE 5
	WALL TYPE 6

**SYMBOL LEGEND**

	NEW DOOR SIZE INDICATED
	INDICATES SAFETY GLAZING REQUIRED
	WINDOW ID NEW WINDOW
	SECTION CUT
	DETAIL LOCATION SHEET NUMBER

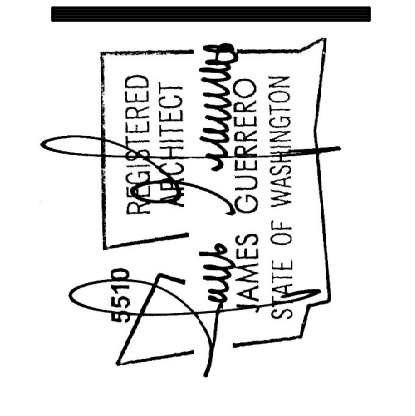
**PERMIT REVIEW SET**

PROJECT: **BOYLE MERCER ISLAND**  
 DRAWING TITLE: **GARAGE FLOOR PLANS**

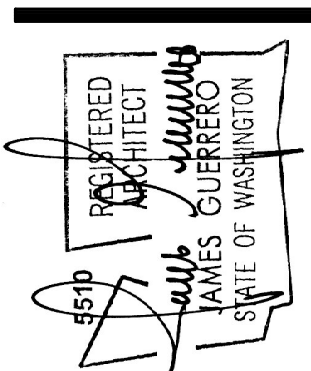
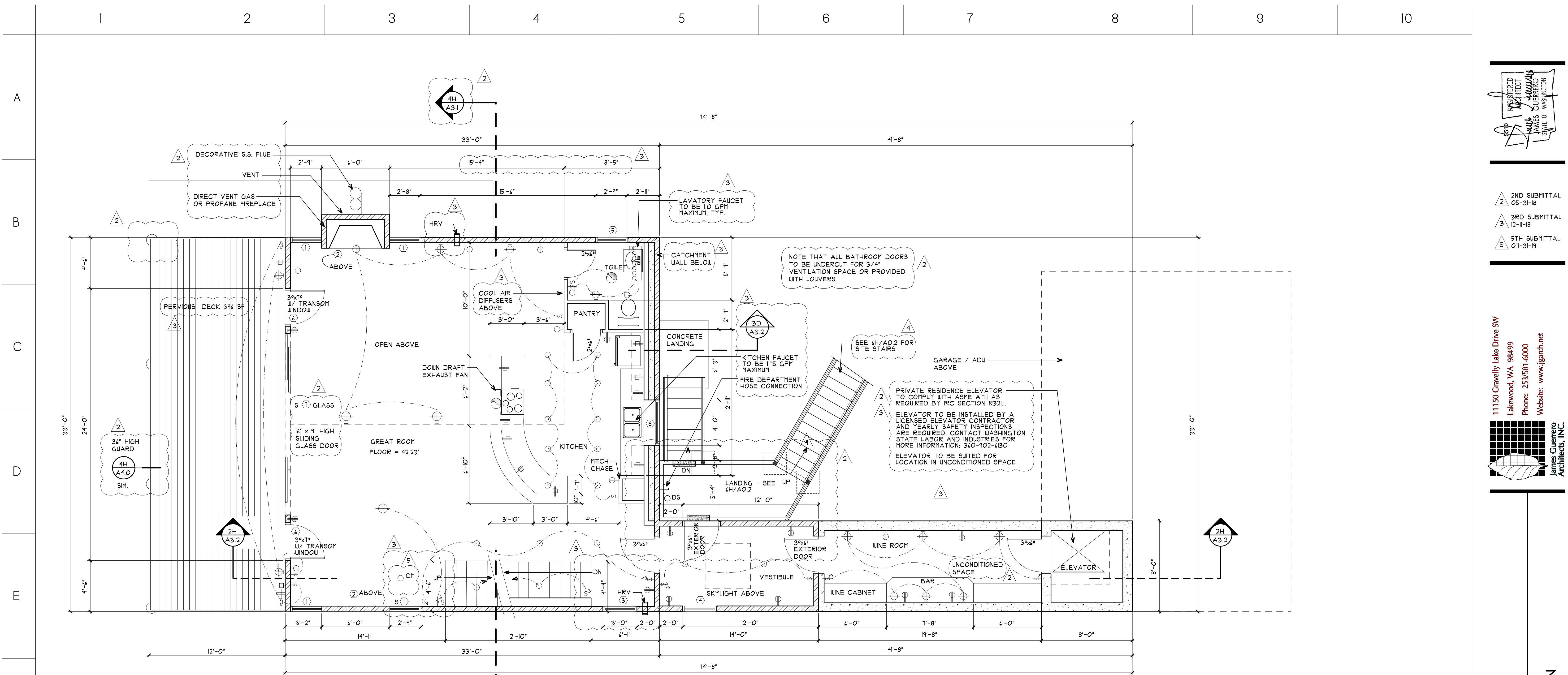
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SHEET NO. **A1.1**  
 SCALE FACTOR: 48

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- 3RD SUBMITTAL 12-11-18
- 4TH SUBMITTAL 04-05-19
- 5TH SUBMITTAL 07-31-19
- 6TH SUBMITTAL 10-25-19



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05-31-18  
3RD SUBMITTAL  
12-11-18  
5TH SUBMITTAL  
07-31-19

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PROJECT: BOYLE MERCER ISLAND  
DRAWING TITLE: FIRST LEVEL FLOOR PLAN

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SCALE FACTOR: 48

**4F FIRST FLOOR PLAN**  
SCALE: 1/4" = 1'-0"  
PLAN NORTH

**ENERGY CREDITS RESIDENCE:**  
MEDIUM DWELLING UNIT CREDITS REQUIRED = 3.5  
OPTION 5a EFFICIENT WATER HEATING = 0.5  
ALL SHOWERHEAD AND KITCHEN SINK FAUCETS INSTALLED IN THE HOUSE SHALL BE RATED AT 1.75 GPM OR LESS. ALL OTHER LAVATORY FAUCETS SHALL BE RATED AT 1.0 GPM OR LESS.  
OPTION 3b AIR SOURCE HEAT PUMP = 1.0  
AN AIR SOURCE HEAT PUMP WITH MINIMUM HSPF OF 9.0 IS USED FOR HYDRONIC HEAT SYSTEM AND AIR CONDITIONING SYSTEM  
OPTION 4 HIGH EFFICIENCY HVAC DISTRIBUTION SYSTEM = 1.0  
ALL HEATING AND COOLING SYSTEM COMPONENTS INSTALLED INSIDE THE CONDITIONED SPACE. HYDRONIC HEATING AND AIR CONDITIONING DUCTS ARE INSTALLED WITHIN THE BUILDING ENVELOPE AS SHOWN ON THE PLANS.  
OPTION 6 RENEWABLE ELECTRIC ENERGY = 1.0  
3.0 kW SYSTEM SIZE, STANDARD MODULES, FIXED POSITION, 33 DEG. TILT, FACING WEST RESULTS IN APPX. 2,148 kWh/YEAR  
TOTAL PROVIDED FOR THE RESIDENCE = 3.5 CREDITS

**WHOLE HOUSE VENTILATION CALCULATION**  
TABLE M501.3.3  
2,823 SF 3 BEDROOM RESIDENCE NEEDS 40 CFM CONTINUOUS  
TABLE M501.4 --KITCHENS NEED 25 CFM CONTINUOUS, BATHROOMS 20 CFM CONTINUOUS  
RESIDENCE:  
FIRST FLOOR:  
1,434 SF X 1.5" = 10,110 CF X 0.3 = 3,231/40 = 54 CFM NEEDED PER PROVIDE TWO 'LUNOS' "E2" - EACH UNIT PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN

FLOOR ASSEMBLIES	
	<b>GARAGE FLOOR</b> PORCELAIN FLOOR TILE WITH PORCELAIN ENAMEL INSTITUTE HARDNESS RATING OF 4 OR MORE 'SCHLUTER' DITRA XL SLIP SHEET 1 1/8" P.T. SHEATHING PER STRUCT. PRESERVATIVE TREATED JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" TYPE 'X' GWB
	<b>RESIDENCE LOWER LEVEL</b> 4" CONCRETE FLOOR SLAB PER STRUCTURAL R-10 RIGID INSULATION VAPOR BARRIER 4" GRAVEL BASE
	<b>RESIDENCE FIRST AND SECOND FLOORS</b> 3/4" SHEATHING PER STRUCTURAL JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" GWB

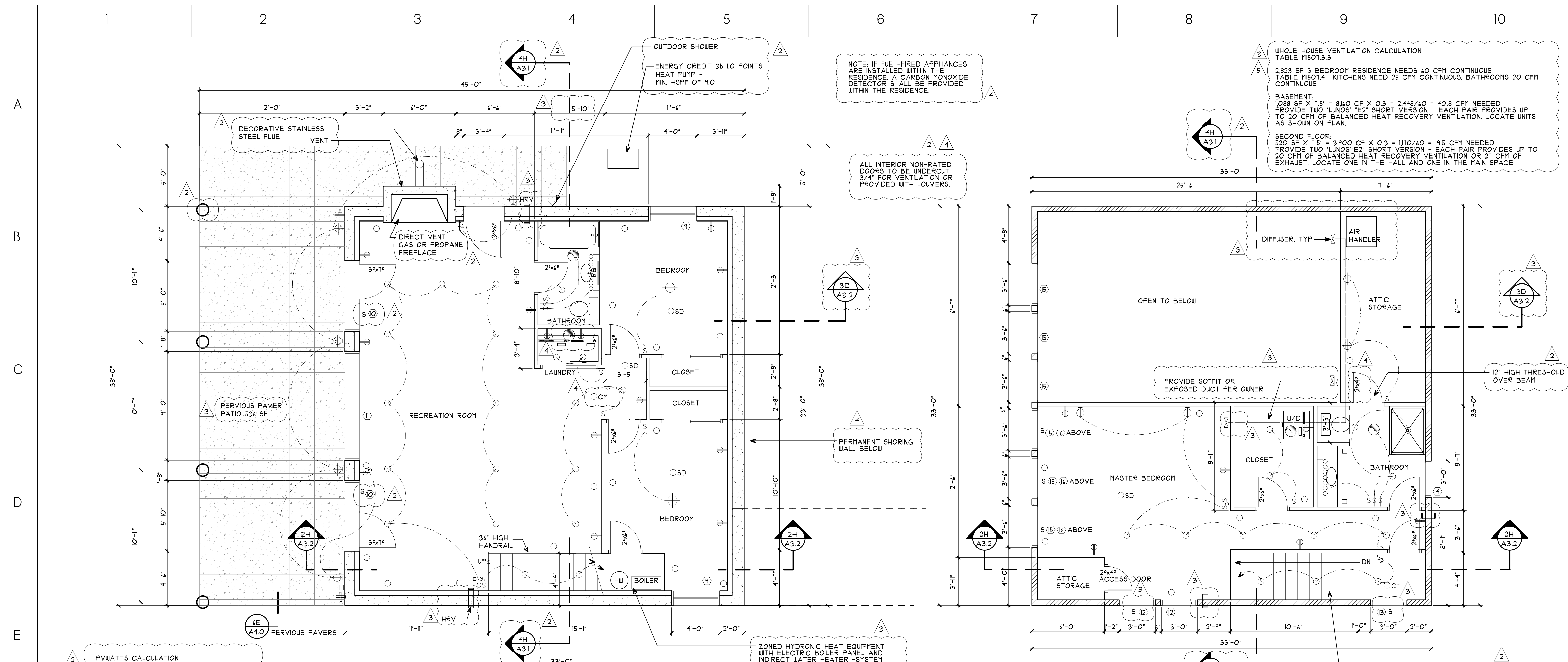
LIGHTING LEGEND	
	'LUNOS' THROUGH WALL HEAT RECOVERY VENTILATORS - INSTALL BALANCED PAIRS CAPABLE OF PROVIDING A MINIMUM OF 30 CFM OF CONTINUOUS AIR EXCHANGE PER PAIR
	4"x4" FLOURESCENT FIXTURE
	3-WAY LIGHT SWITCH D INDICATES A DIMMER
	SINGLE POLE LIGHT SWITCH
	FOUR-FLEX RECEPTACLE
	WALL MTD FIXTURE
	WALL MTD FIXTURE (W/ MOTION DETECTOR)
	RECESSED COMPACT FLOURESCENT
	DUPLEX RECEPTACLE
	FREEZE PROOF HOSE BIB
	EXHAUST FAN, MIN. 100 CFM, MAX. 300 CFM PROVIDE TIMER ON SWITCH
	WALL MTD LIGHT FIXTURE
	GFI DUPLEX RECEPTACLE
	LED FLOOD LIGHTS
	CHANDELIER
	SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR

WALL ASSEMBLIES	
	<b>WALL TYPE 1 - CONCRETE WALL</b> SEE STRUCTURAL FOR SIZES
	<b>WALL TYPE 2 - NEW EXTERIOR WALLS</b> SHINGLES URB OVER SHEATHING PER STRUCTURAL 2x4 @ 16" O.C. R-21 BATT INSULATION VAPOR BARRIER 5/8" GWB
	<b>WALL TYPE 3 - TYPICAL INTERIOR WALL</b> 1/2" GWB 2x4 @ 16" O.C. 1/2" GWB SOUND BATT AT BATHROOMS/BEDROOMS
	<b>WALL TYPE 4 - ELEVATOR WALL</b> UNCONDITIONED SPACE SHINGLES URB OVER SHEATHING PER STRUCTURAL 2x10 STUDS - SEE STRUCTURAL R-21 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE WHERE NOTED ON PLANS
	<b>WALL TYPE 5 - BASEMENT WALL</b> 10" CONCRETE WALL 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB
	<b>WALL TYPE 6 - CATCHMENT WALL</b> WALL TYPE 2 ATOP CONCRETE 12" CONCRETE WALL 4' HIGH 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB

WALL TYPES LEGEND	
WALL TYPE 1	
WALL TYPE 2	
WALL TYPE 3	
WALL TYPE 4	
WALL TYPE 5	
WALL TYPE 6	

SYMBOL LEGEND	
	NEW DOOR SIZE INDICATED
	INDICATES SAFETY GLAZING REQUIRED
	WINDOW ID NEW WINDOW
	SECTION CUT DETAIL LOCATION SHEET NUMBER





**WHOLE HOUSE VENTILATION CALCULATION**  
TABLE M1601.3.3

2,833 SF 3 BEDROOM RESIDENCE NEEDS 40 CFM CONTINUOUS  
TABLE M1601.4 - KITCHENS NEED 25 CFM CONTINUOUS, BATHROOMS 20 CFM CONTINUOUS.

**BASEMENT:**  
1,088 SF X 1.5' = 8,160 CF X 0.3 = 2,448/40 = 40.8 CFM NEEDED  
PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH PAIR PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION. LOCATE UNITS AS SHOWN ON PLAN.

**SECOND FLOOR:**  
520 SF X 1.5' = 3,900 CF X 0.3 = 1,170/40 = 19.5 CFM NEEDED  
PROVIDE TWO 'LUNOS' 'E2' SHORT VERSION - EACH PAIR PROVIDES UP TO 20 CFM OF BALANCED HEAT RECOVERY VENTILATION OR 21 CFM OF EXHAUST. LOCATE ONE IN THE HALL AND ONE IN THE MAIN SPACE

NOTE: IF FUEL-FIRED APPLIANCES ARE INSTALLED WITHIN THE RESIDENCE, A CARBON MONOXIDE DETECTOR SHALL BE PROVIDED WITHIN THE RESIDENCE.

ALL INTERIOR NON-RATED DOORS TO BE UNDERCUT 3/4" FOR VENTILATION OR PROVIDED WITH LOUVERS.

ZONED HYDRONIC HEAT EQUIPMENT WITH ELECTRIC BOILER PANEL AND INDIRECT WATER HEATER - SYSTEM SIZED AND DESIGNED BY OTHERS  
ENCLOSED ACCESSIBLE SPACE UNDER STAIRS SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD, TYPICAL.

**3F BASEMENT FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

**2F SECOND FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

**PVWATTS CALCULATION**  
3.0 kW SYSTEM SIZE, STANDARD MODULES, FIXED POSITION, 33 DEG. TILT, FACING WEST RESULTS IN APPX. 2,148 kWh/YEAR

INSTALL PANELS USING 55 CLIPS, CLIPS TO BE SPACED NO FARTHER APART THAN THE STANDING SEAM ROOF ANCHORS AND PER MANUFACTURER SPECIFICATIONS.

**RESIDENCE ROOF VENTILATION CALCULATION**

RAFTER SPACE AT 1 1/2 ROOF = 19' X 2' = 38 SF/300 = 0.124 SF X 144 = 18.2 SI REQUIRED

3" DIA SCREENED VENT HOLES = 5.3 SI/HOLE  
5.3 SI X (3) HOLES = 16 SI AT LOW END  
CONTINUOUS RIDGE VENT 0.5" X 24" = 12 SI  
TOTAL PER RAFTER BAY = 28 SI

RAFTER SPACE AT 3/12 ROOF = 17' X 2' = 34 SF/300 = 0.113 SF X 144 = 16.3 SI

5.3 SI X (3) HOLES = 16 SI AT LOW END  
CONTINUOUS RIDGE VENT 0.5" X 24" = 12 SI  
TOTAL PER RAFTER BAY = 28 SI

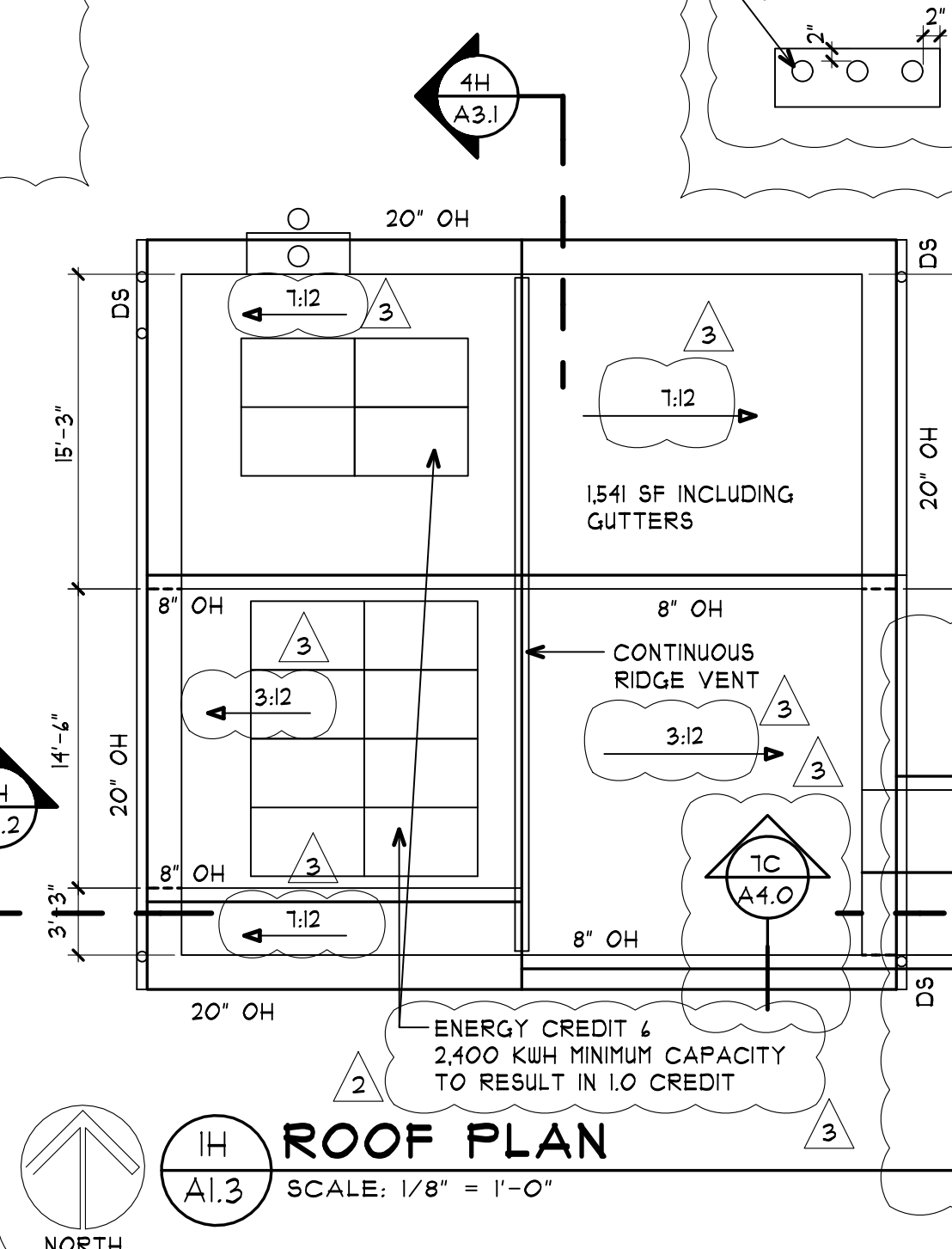
FLOOR ASSEMBLIES	
	<p><b>GARAGE FLOOR</b> PORCELAIN FLOOR TILE WITH PORCELAIN ENAMEL INSTITUTE HARDNESS RATING OF 4 OR MORE 'SCHLUTER' DITRA XL SLIP SHEET 1 1/8" P.T. SHEATHING PER STRUCT. PRESERVATIVE TREATED JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" TYPE 'X' GWB</p>
	<p><b>RESIDENCE LOWER LEVEL</b> 4" CONCRETE FLOOR SLAB PER STRUCTURAL R-10 RIGID INSULATION VAPOR BARRIER 4" GRAVEL BASE</p>
	<p><b>RESIDENCE FIRST AND SECOND FLOORS</b> 3/4" SHEATHING PER STRUCTURAL JOISTS PER STRUCTURAL R-30 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE 5/8" GWB</p>

LIGHTING LEGEND	
	'LUNOS' THROUGH WALL HEAT RECOVERY VENTILATORS - INSTALL BALANCED PAIRS CAPABLE OF PROVIDING A MINIMUM OF 30 CFM OF CONTINUOUS AIR EXCHANGE PER PAIR
	4"x4" FLOURESCENT FIXTURE
	3-WAY LIGHT SWITCH D INDICATES A DIMMER
	SINGLE POLE LIGHT SWITCH
	FOUR-PLEX RECEPTACLE
	WALL MTD FIXTURE
	WALL MTD FIXTURE (W/ MOTION DETECTOR)
	RECESSED COMPACT FLOURESCENT
	DUPLEX RECEPTACLE
	FREEZE PROOF HOSE BIB
	EXHAUST FAN, MIN. 100 CFM, MAX. 300 CFM PROVIDE TIMER ON SWITCH
	WALL MTD LIGHT FIXTURE
	GFI DUPLEX RECEPTACLE
	LED FLOOD LIGHTS
	CHANDELIER
	SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR

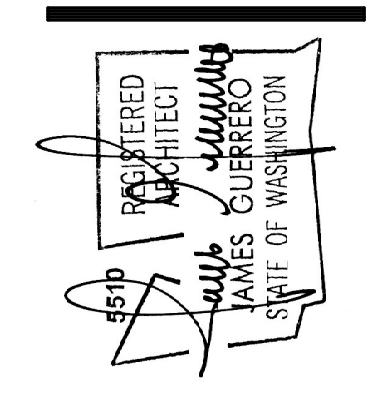
WALL ASSEMBLIES	
	<p><b>WALL TYPE 1 - CONCRETE WALL</b> SEE STRUCTURAL FOR SIZES</p>
	<p><b>WALL TYPE 2 - NEW EXTERIOR WALLS</b> SHINGLES WRB OVER SHEATHING PER STRUCTURAL 2x4 @ 16" O.C. R-21 BATT INSULATION VAPOR BARRIER 5/8" GWB</p>
	<p><b>WALL TYPE 3 - TYPICAL INTERIOR WALL</b> 1/2" GWB 2x4 @ 16" O.C. 1/2" GWB SOUND BATT AT BATHROOMS/BEDROOMS</p>
	<p><b>WALL TYPE 4 - ELEVATOR WALL UNCONDITIONED SPACE</b> SHINGLES WRB OVER SHEATHING PER STRUCTURAL 2x10 STUDS - SEE STRUCTURAL R-21 BATT INSULATION WITH VAPOR BARRIER ON WARM SIDE WHERE NOTED ON PLANS</p>
	<p><b>WALL TYPE 5 - BASEMENT WALL</b> 10" CONCRETE WALL 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB</p>
	<p><b>WALL TYPE 6 - CATCHMENT WALL</b> WALL TYPE 2 ATOP CONCRETE 12" CONCRETE WALL 4" HIGH 1" RIGID INSULATION R-15 BATT INSULATION 2x4 @ 24" O.C. 5/8" GWB</p>

WALL TYPES LEGEND	
	WALL TYPE 1
	WALL TYPE 2
	WALL TYPE 3
	WALL TYPE 4
	WALL TYPE 5
	WALL TYPE 6

SYMBOL LEGEND	
	NEW DOOR SIZE INDICATED
	INDICATES SAFETY GLAZING REQUIRED
	WINDOW ID NEW WINDOW
	SECTION CUT DETAIL LOCATION SHEET NUMBER



**ROOF PLAN**  
SCALE: 1/8" = 1'-0"



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- 5TH SUBMITTAL 01-31-19

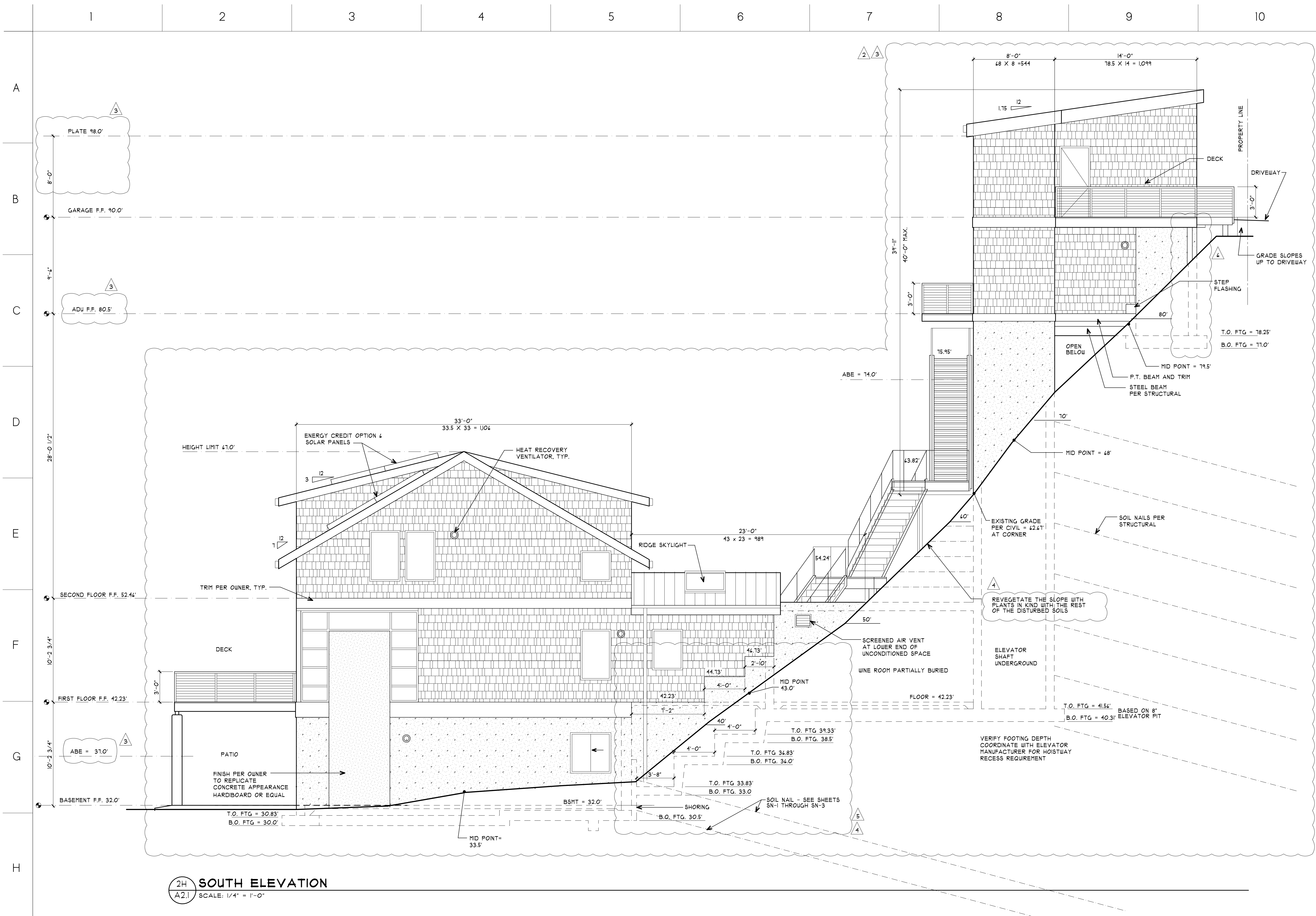
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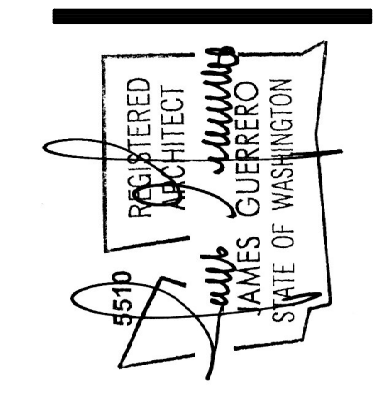
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**BASEMENT & SECOND FLOOR PLAN**

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2H SOUTH ELEVATION  
 A2.1 SCALE: 1/4" = 1'-0"



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- 5TH SUBMITTAL 07-31-19
- 6TH SUBMITTAL 10-25-19

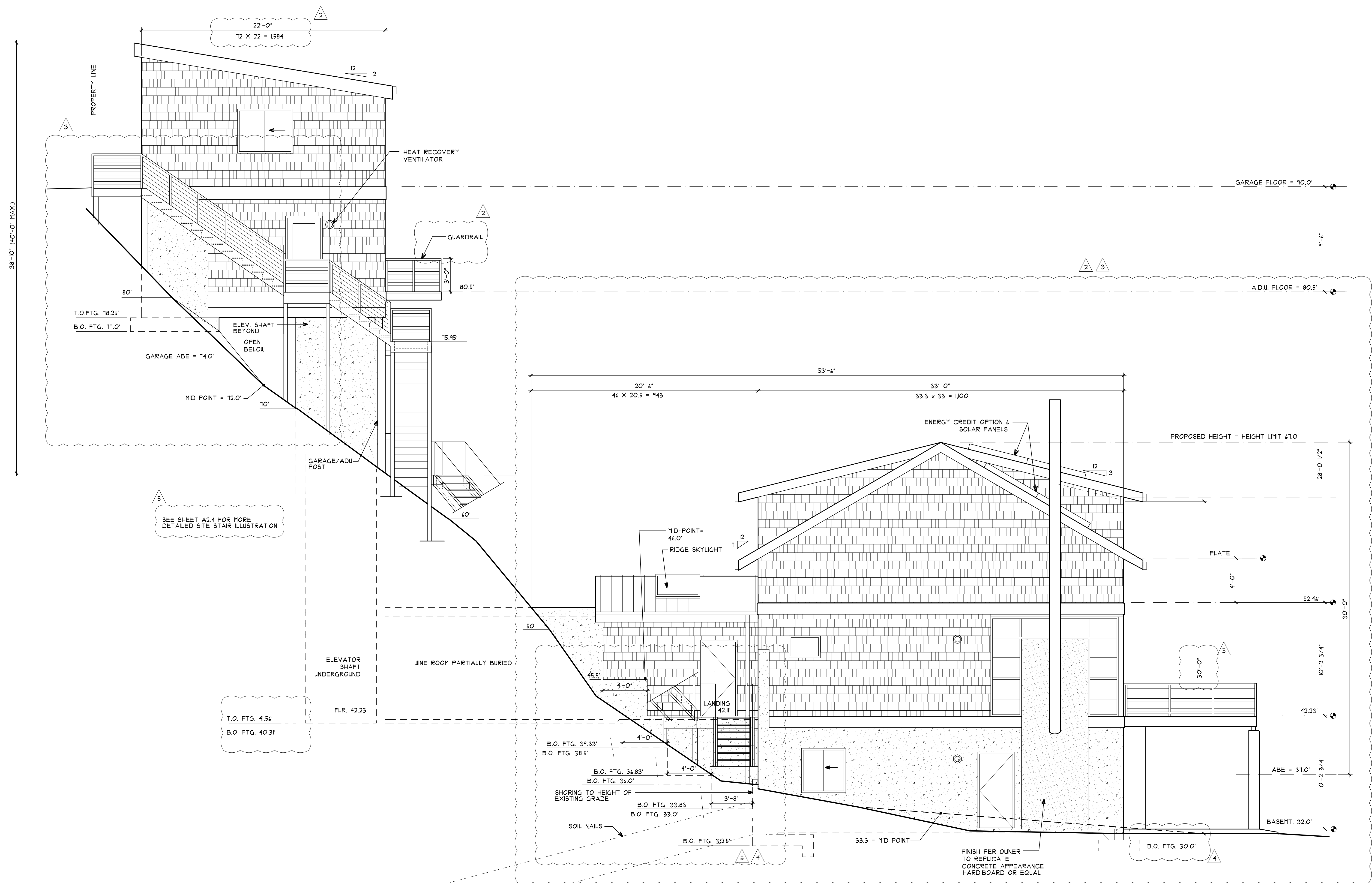
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 DRAWING TITLE: **EXTERIOR ELEVATIONS**

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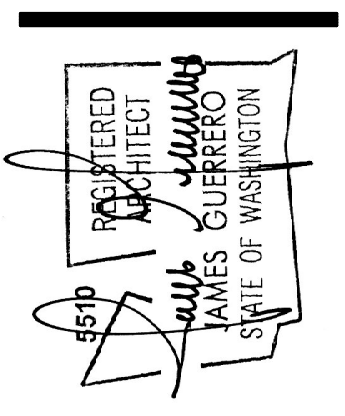
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SEE SHEET A2.4 FOR MORE DETAILED SITE STAIR ILLUSTRATION

**NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"

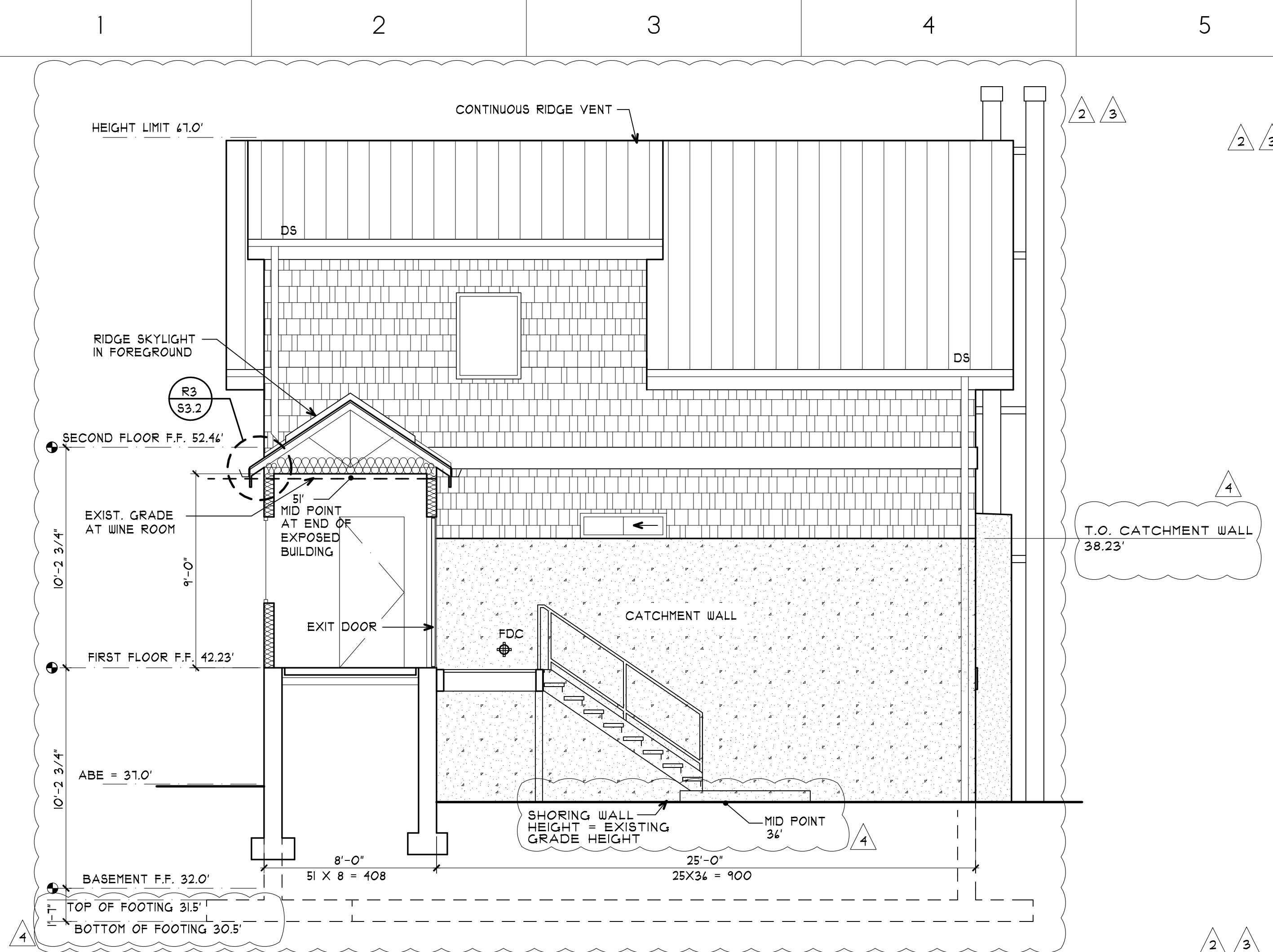


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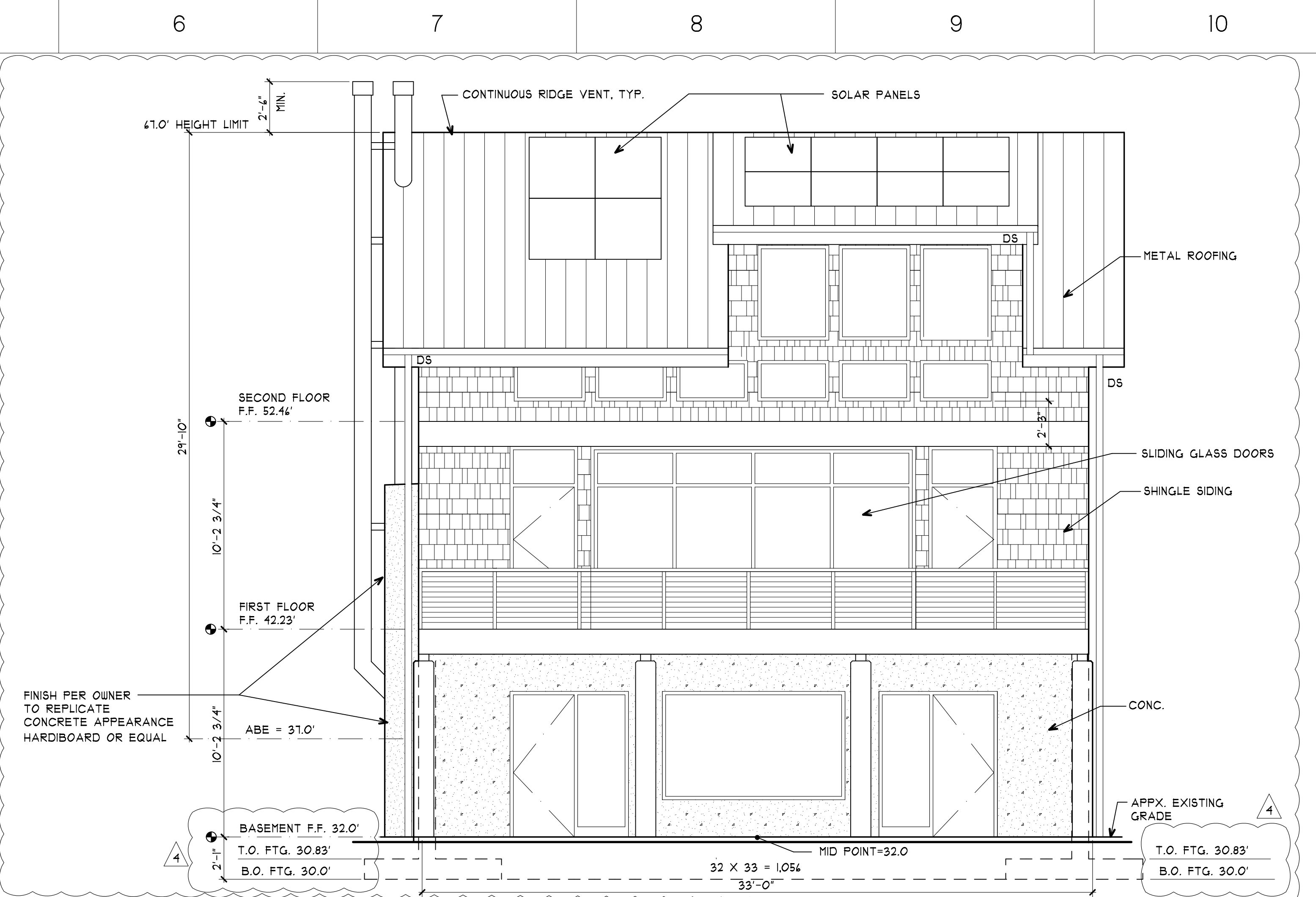
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**BOYLE MERCER ISLAND**  
**EXTERIOR ELEVATION**

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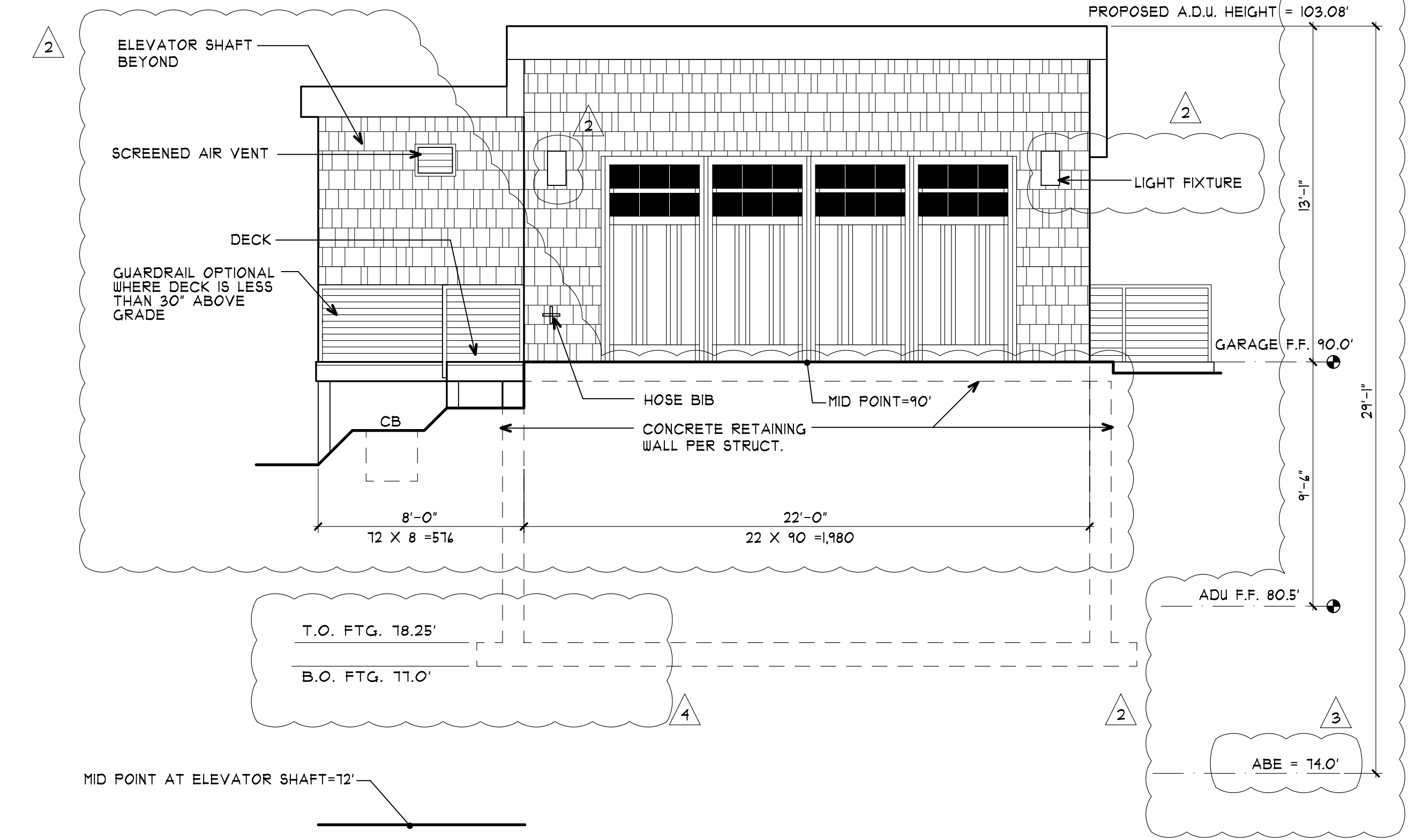


**1E EAST ELEVATION**  
A2.3 SCALE: 1/4" = 1'-0"

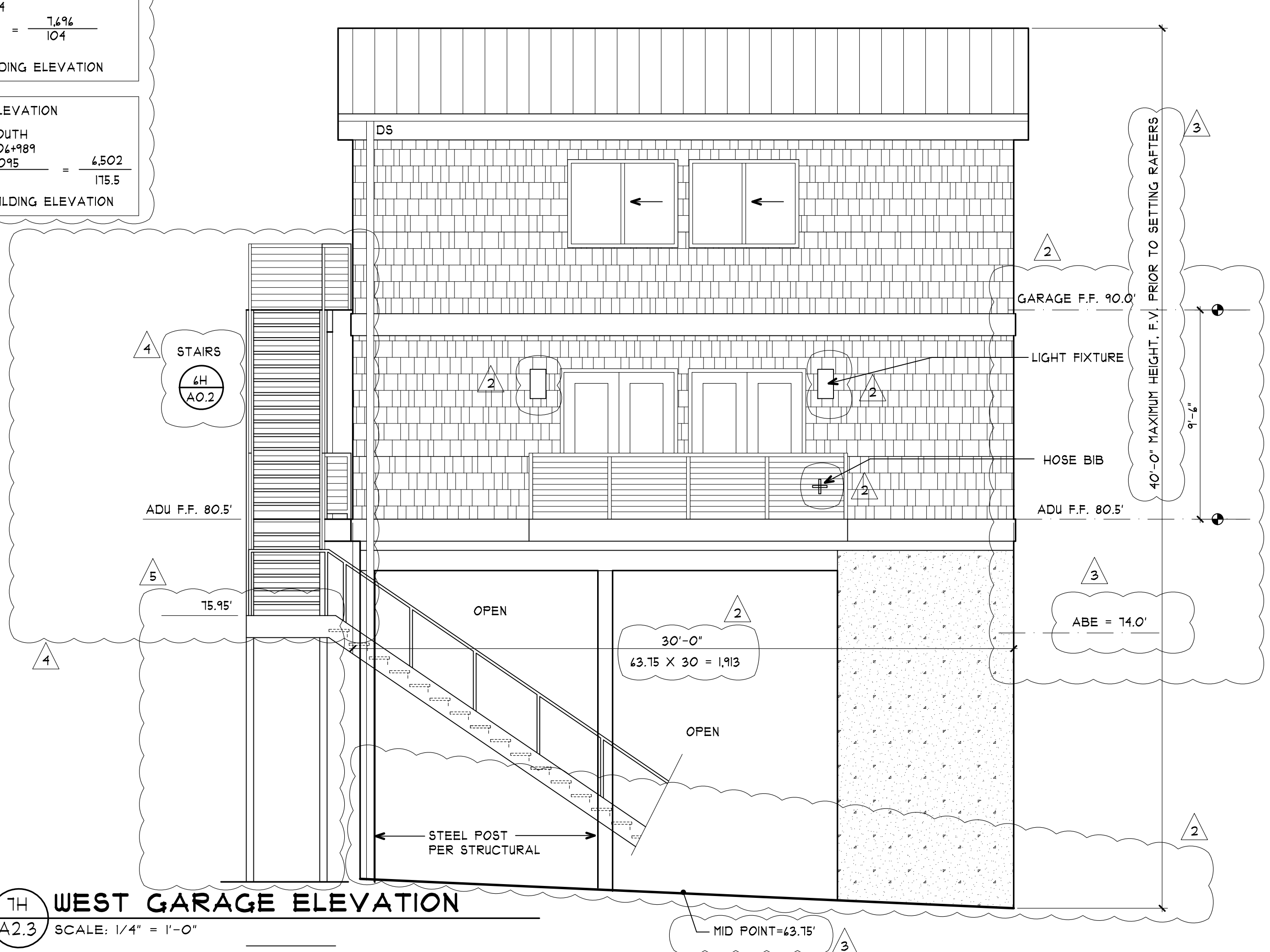


**1E WEST ELEVATION**  
A2.3 SCALE: 1/4" = 1'-0"

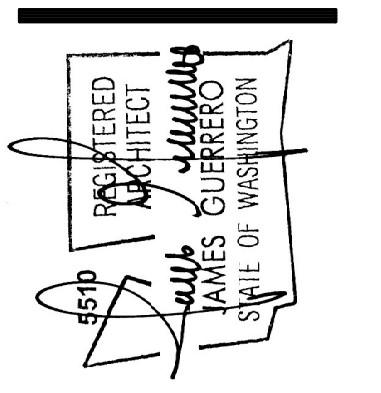
GARAGE/ADU AVERAGE BUILDING ELEVATION				
EAST	WEST	NORTH	SOUTH	
1,980+574	1,913	1,584	1,094+544	
2,554	1,913	1,584	1,643	
8+22	30	22	8+4	
= 14%				
1,715/104 = 14.0' = AVERAGE BUILDING ELEVATION				
RESIDENCE AVERAGE BUILDING ELEVATION				
EAST	WEST	NORTH	SOUTH	
408+900	1,004+943	1,104+989		
1,308	1,054	2,043	2,095	
= 4,502				
33+25+8+20.5+33+23+33				
= 115.5				
4,552/115.5 = 31.0' = AVERAGE BUILDING ELEVATION				



**1H EAST GARAGE ELEVATION**  
A2.3 SCALE: 1/4" = 1'-0"



**1H WEST GARAGE ELEVATION**  
A2.3 SCALE: 1/4" = 1'-0"



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- 5TH SUBMITTAL 07-31-19

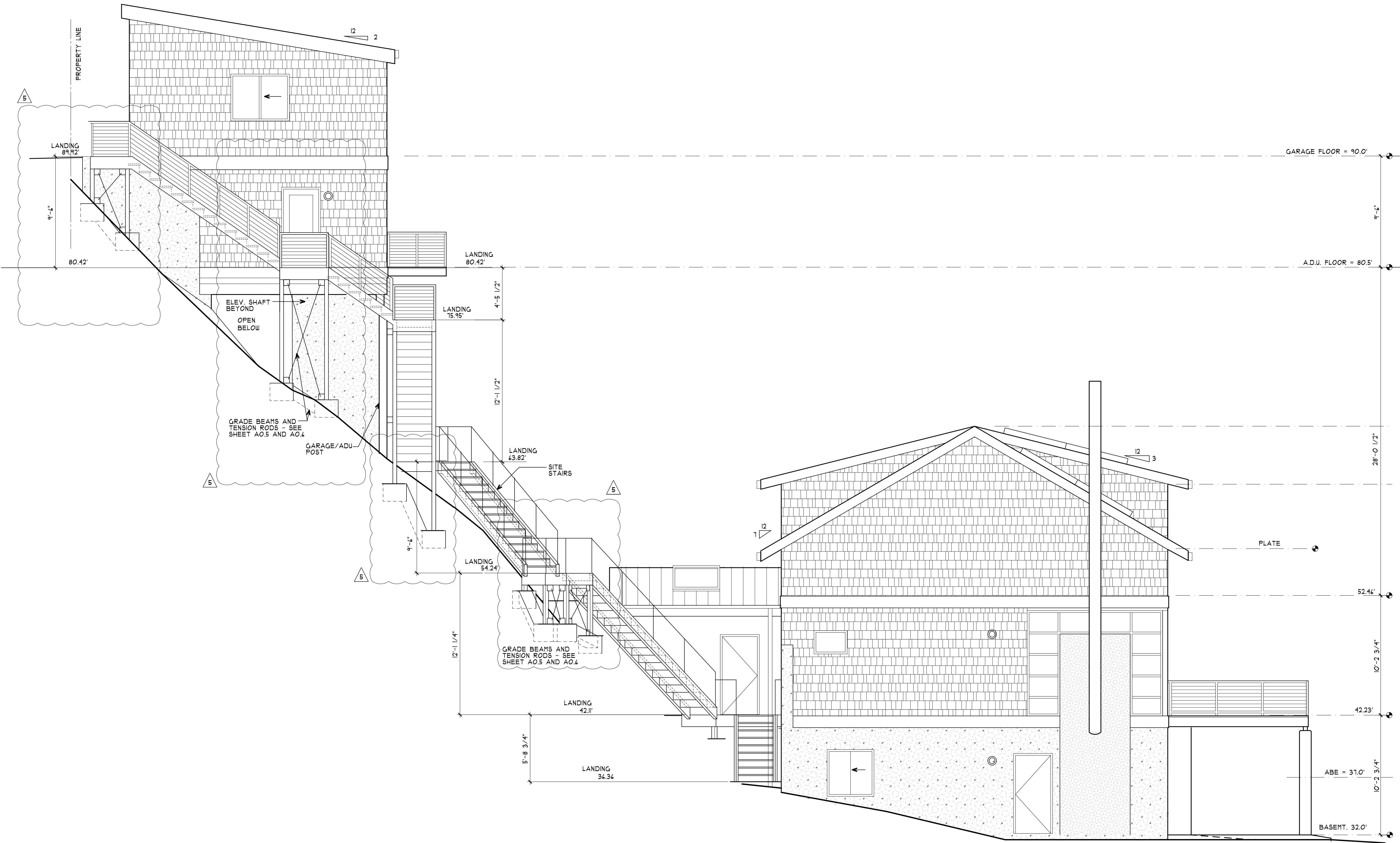
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DRAWING TITLE: **EXTERIOR ELEVATIONS**

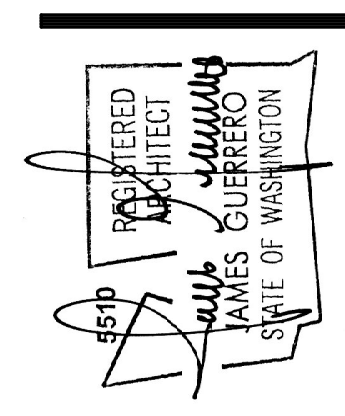
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SHEET NO.	<b>A2.3</b>	
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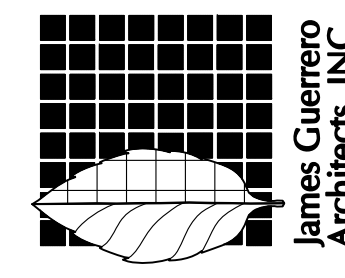


1H NORTH ELEVATION  
 A2.2 SCALE: 1/4" = 1'-0"



5TH SUBMITTAL  
 07-31-19

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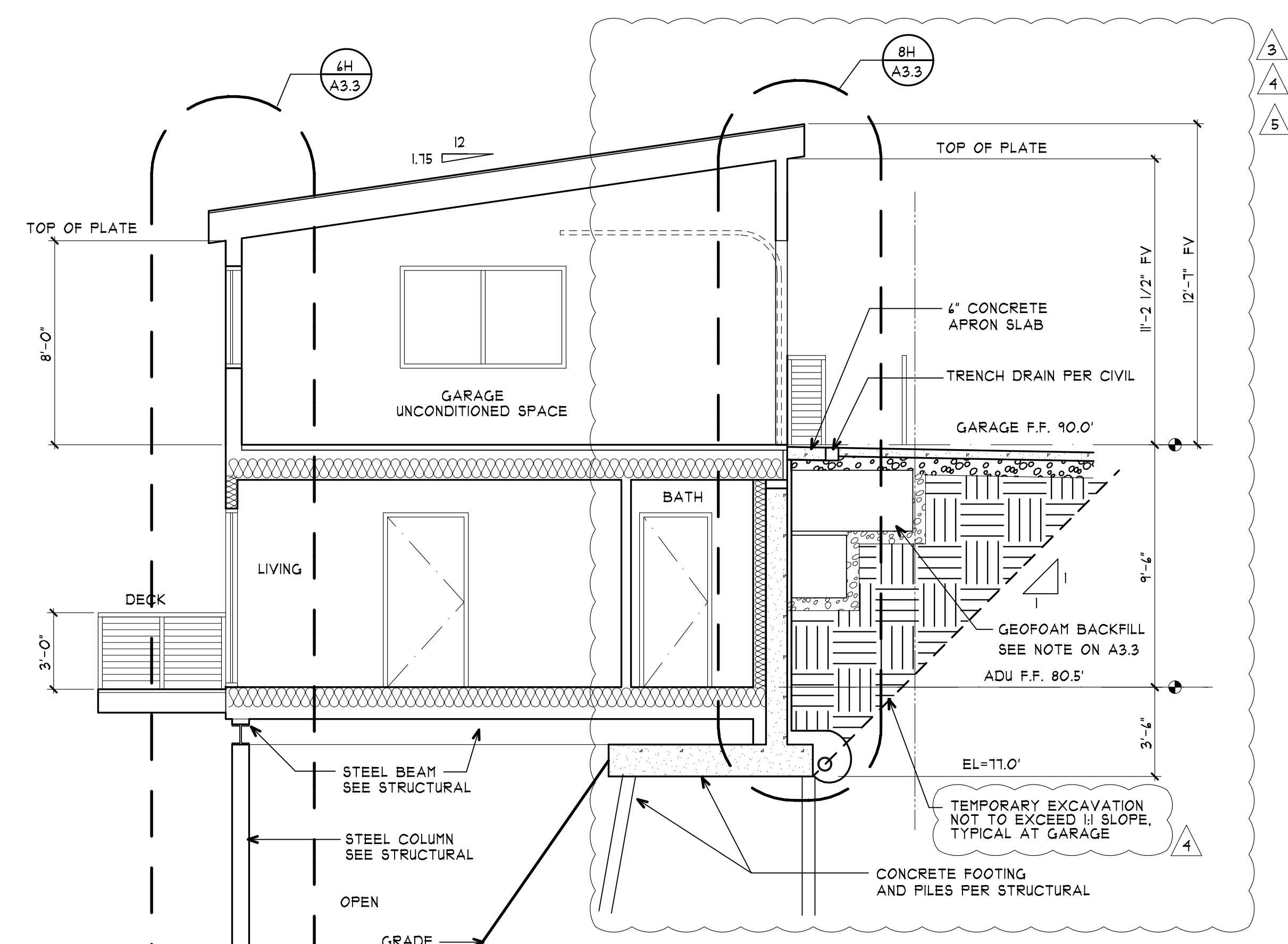
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 DRAWING TITLE: EXTERIOR ELEVATION STAIRS

PERMIT REVIEW SET	DATE	04-05-19
	REVISED	07-31-19
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OF	48	

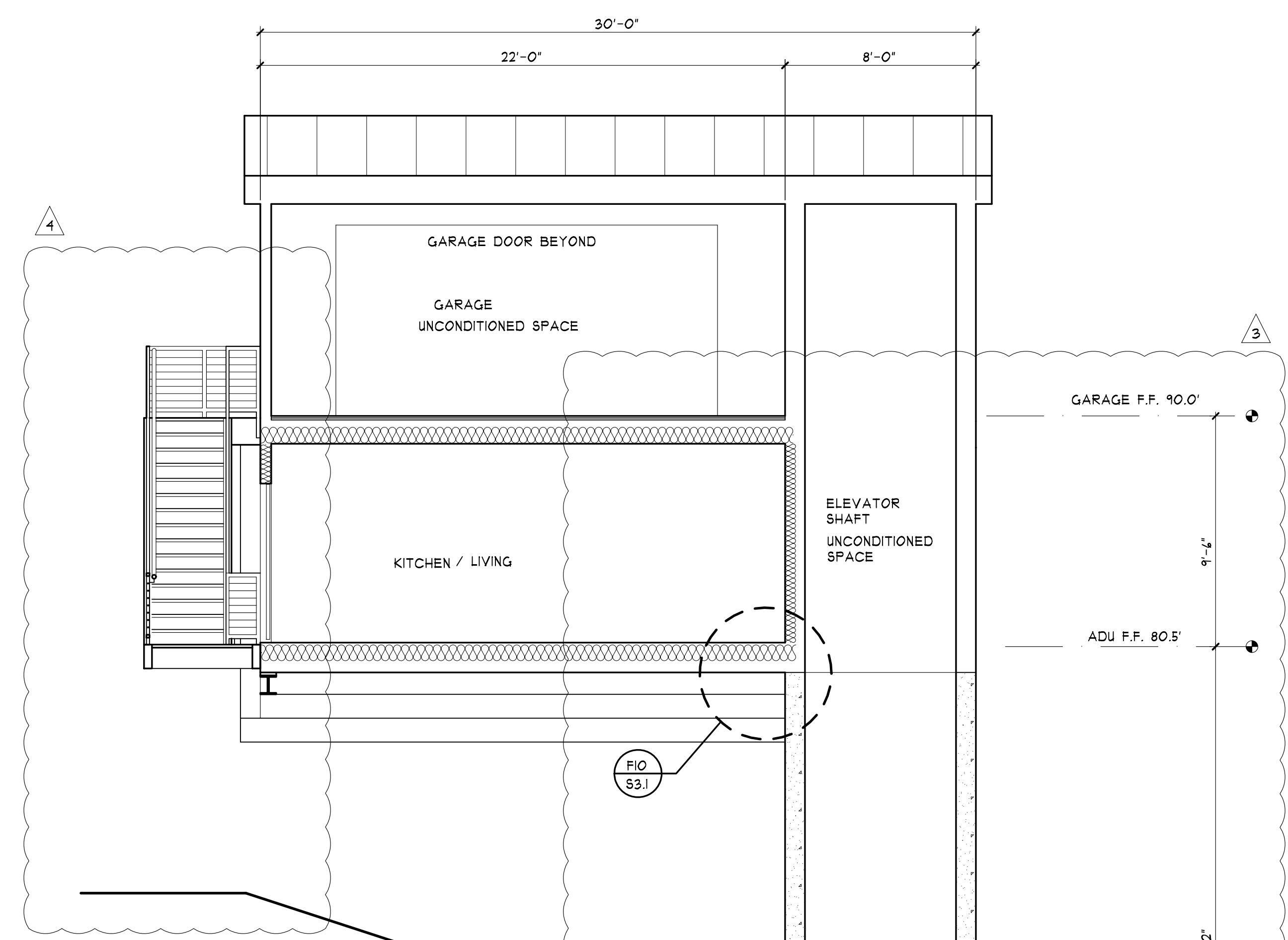
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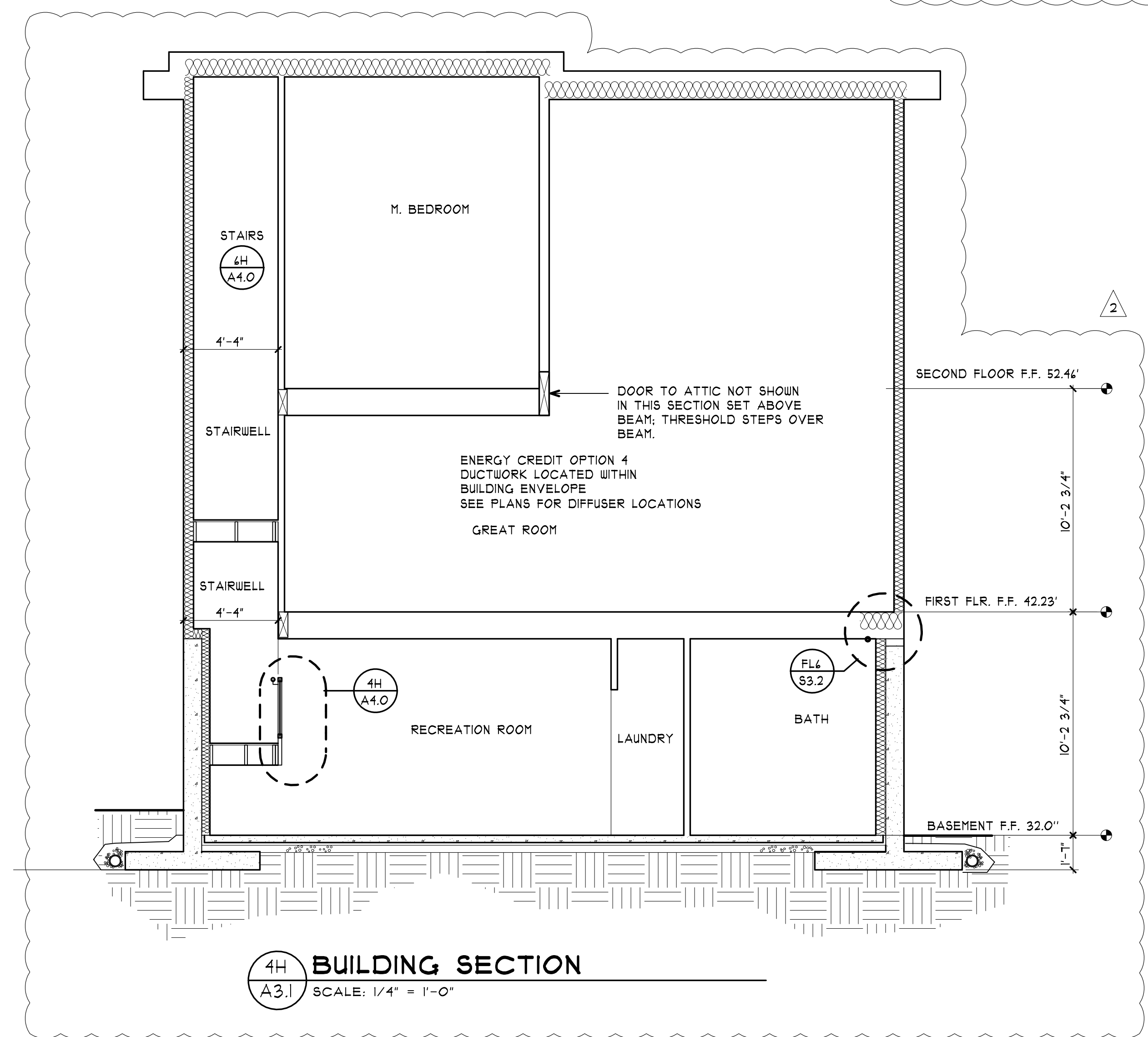
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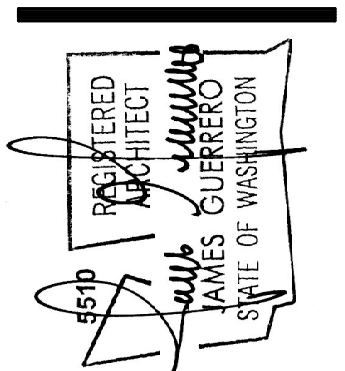
**2G BUILDING SECTION**  
SCALE: 1/4" = 1'-0"



**TG BUILDING SECTION**  
SCALE: 1/4" = 1'-0"



**4H BUILDING SECTION**  
SCALE: 1/4" = 1'-0"



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- 5TH SUBMITTAL 07-31-19

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**BUILDING SECTIONS**

PERMIT REVIEW SET

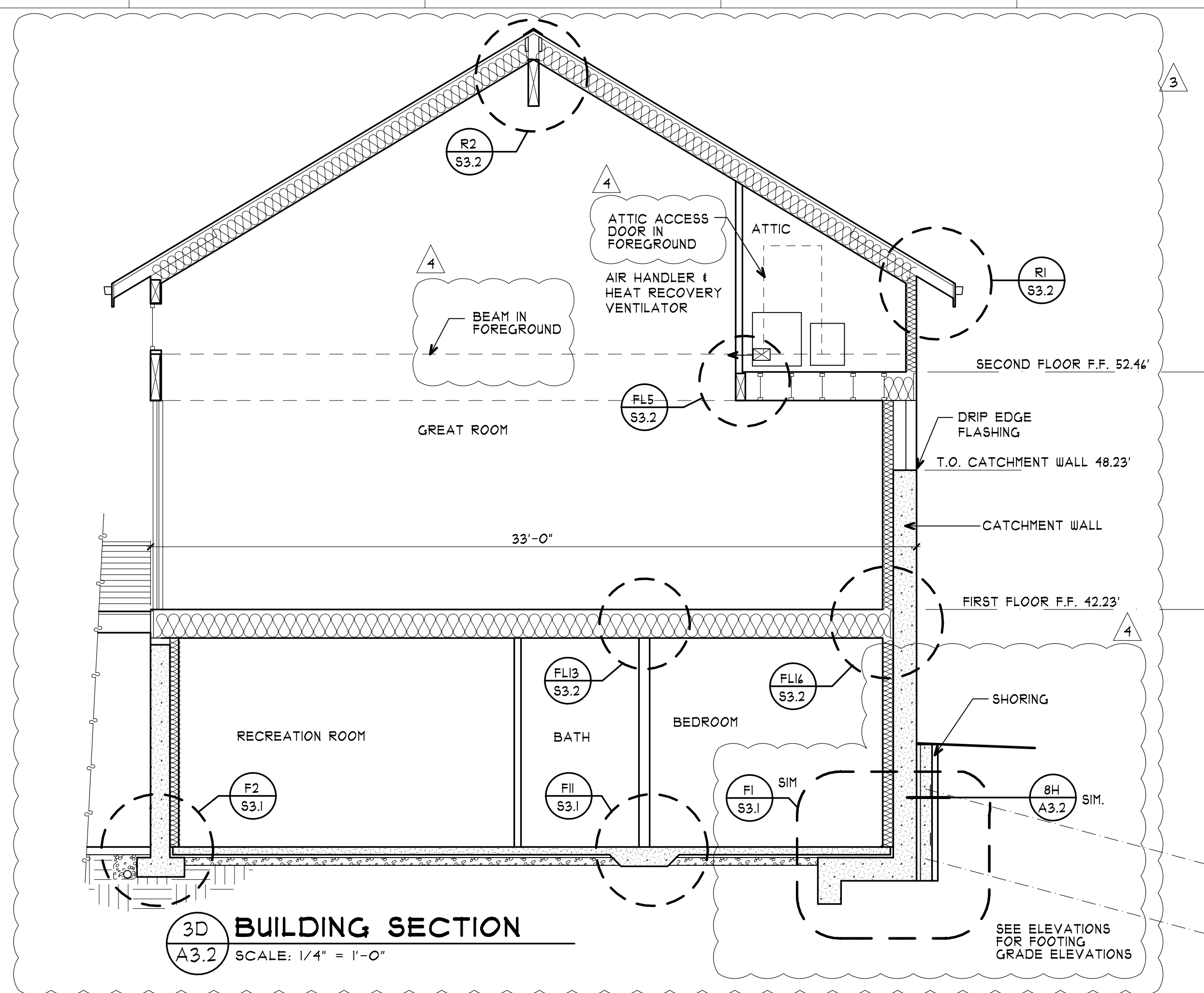
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SHEET NO.  
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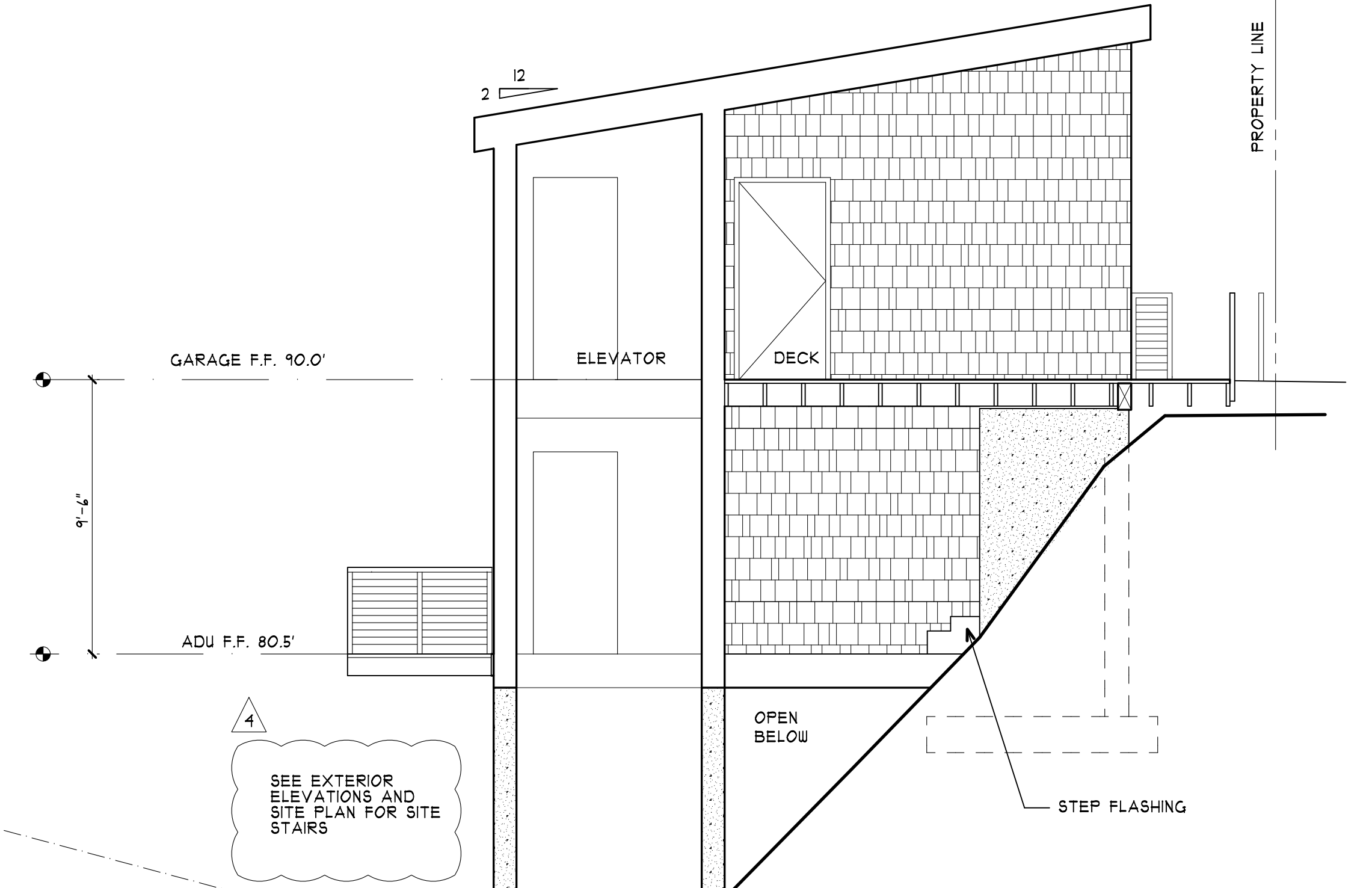
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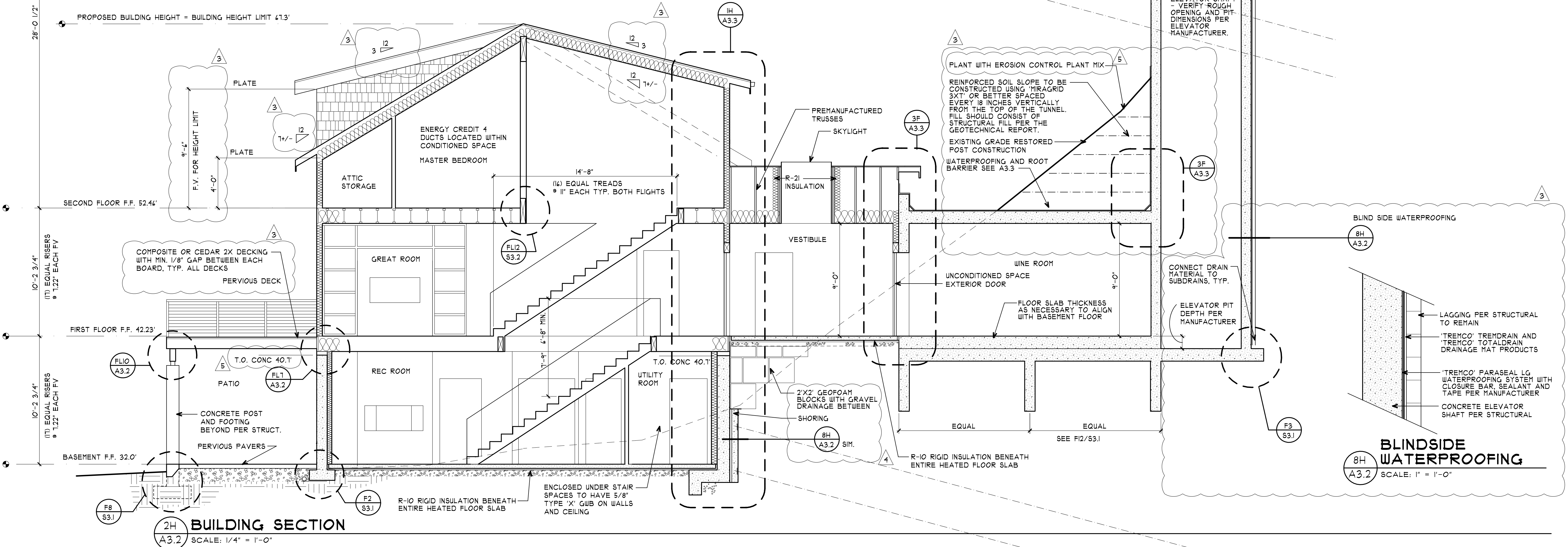


**3D BUILDING SECTION**  
A3.2 SCALE: 1/4" = 1'-0"



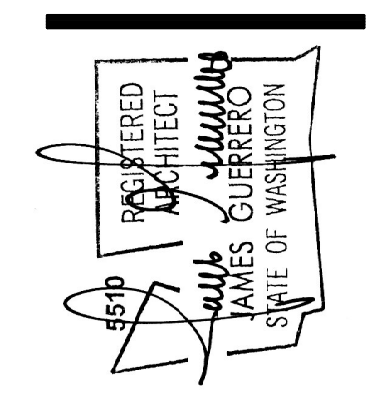
SEE EXTERIOR ELEVATIONS AND SITE PLAN FOR SITE STAIRS

ELEVATOR SHAFT - VERIFY ROUGH OPENING AND FIT-DIMENSIONS PER ELEVATOR MANUFACTURER.



**2H BUILDING SECTION**  
A3.2 SCALE: 1/4" = 1'-0"

**BLINDSIDE WATERPROOFING**  
8H A3.2 SCALE: 1" = 1'-0"



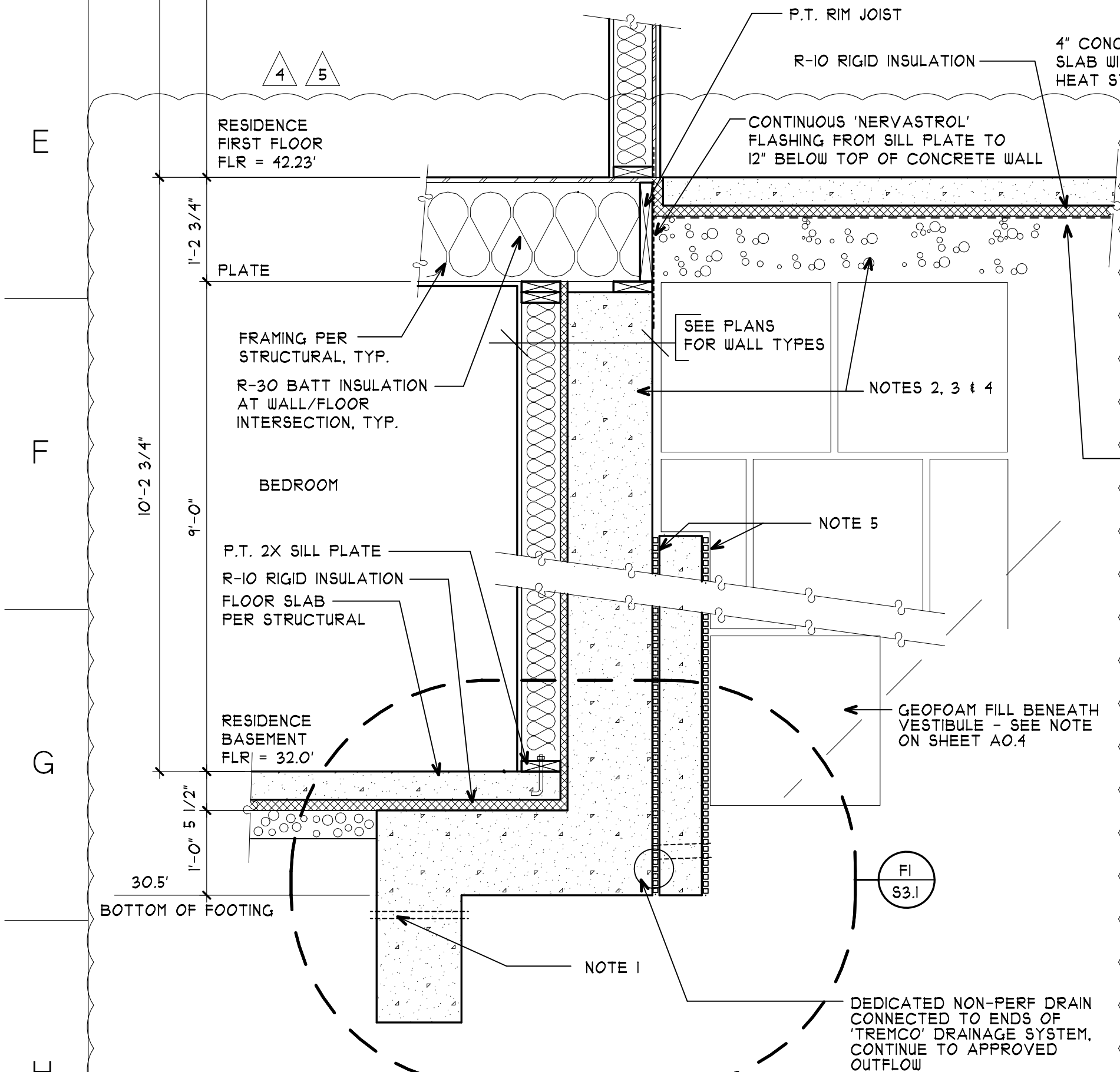
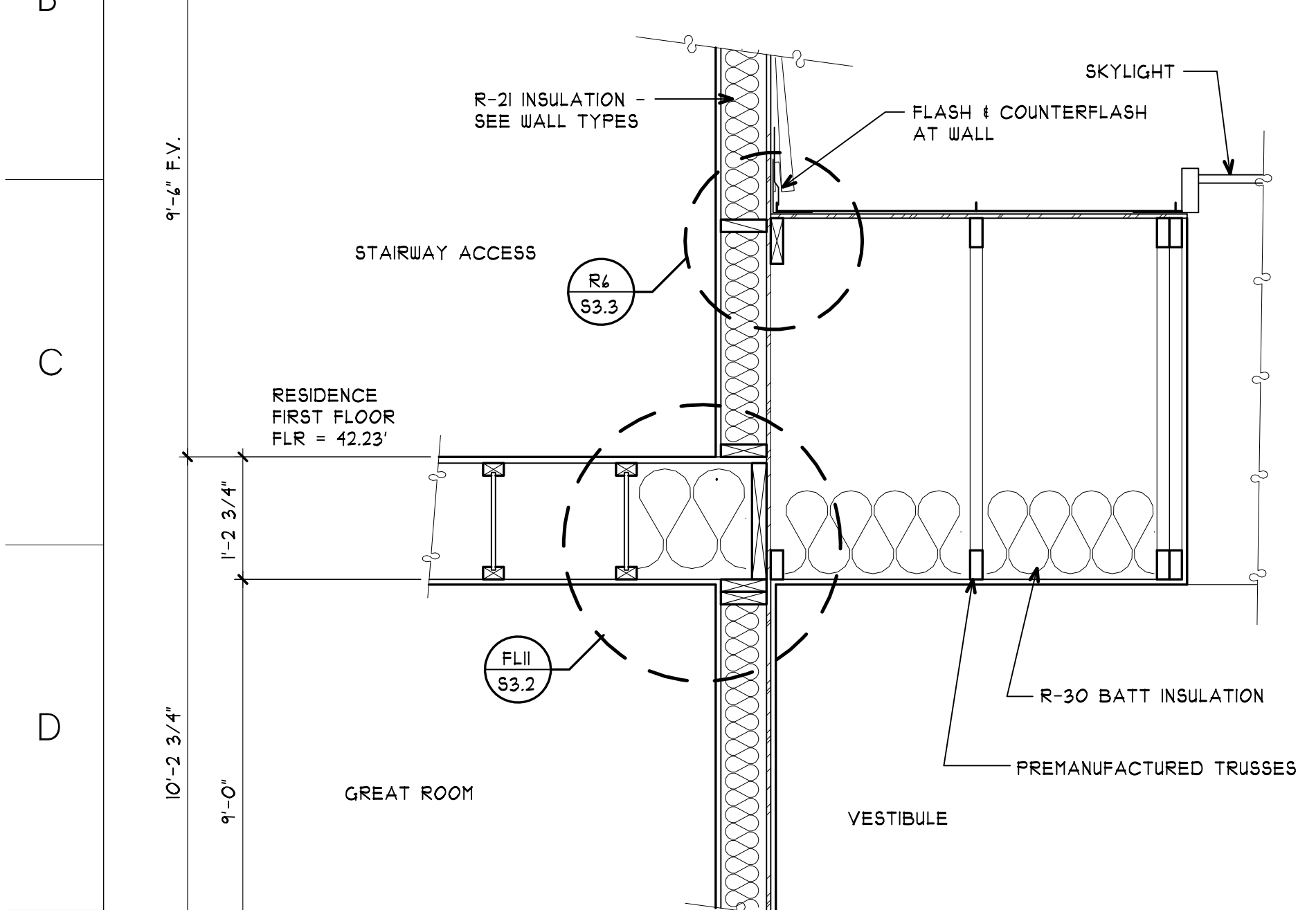
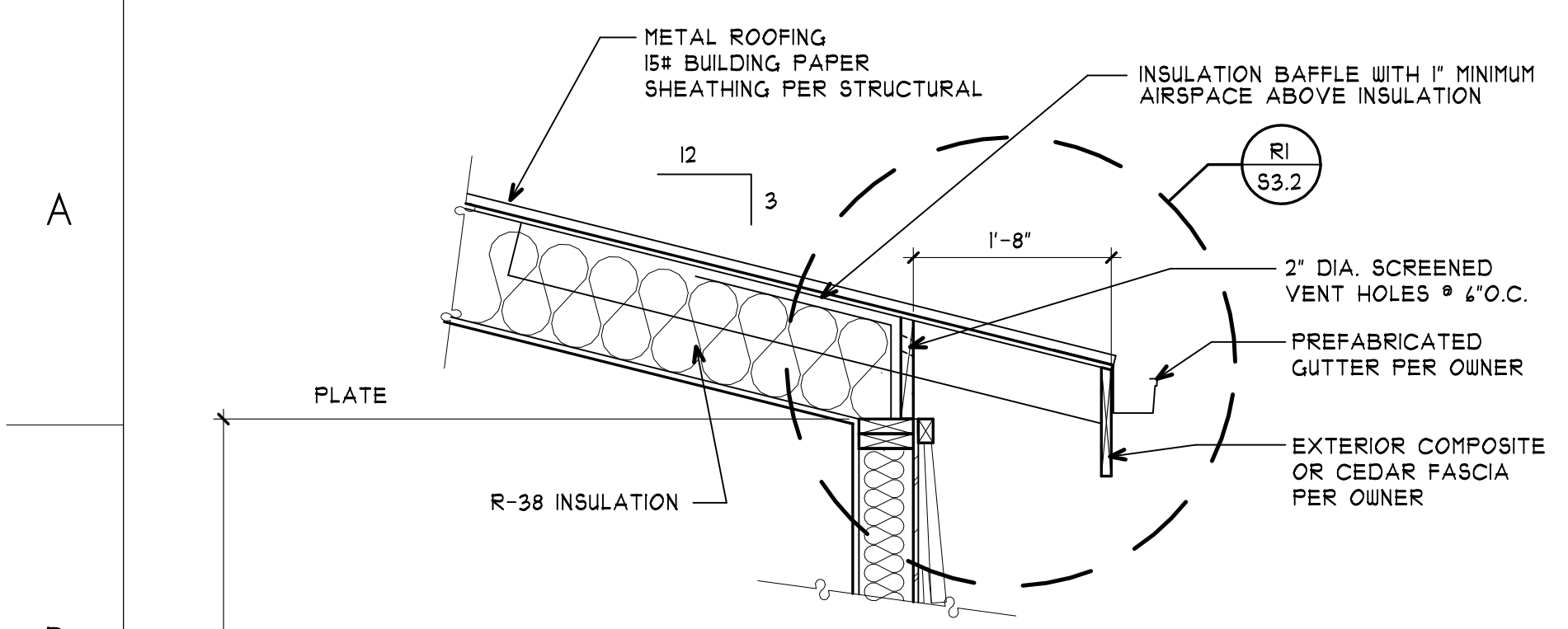
- 2ND SUBMITTAL 05-31-18
- 3RD SUBMITTAL 12-11-18
- 4TH SUBMITTAL 04-05-19
- 5TH SUBMITTAL 07-31-19

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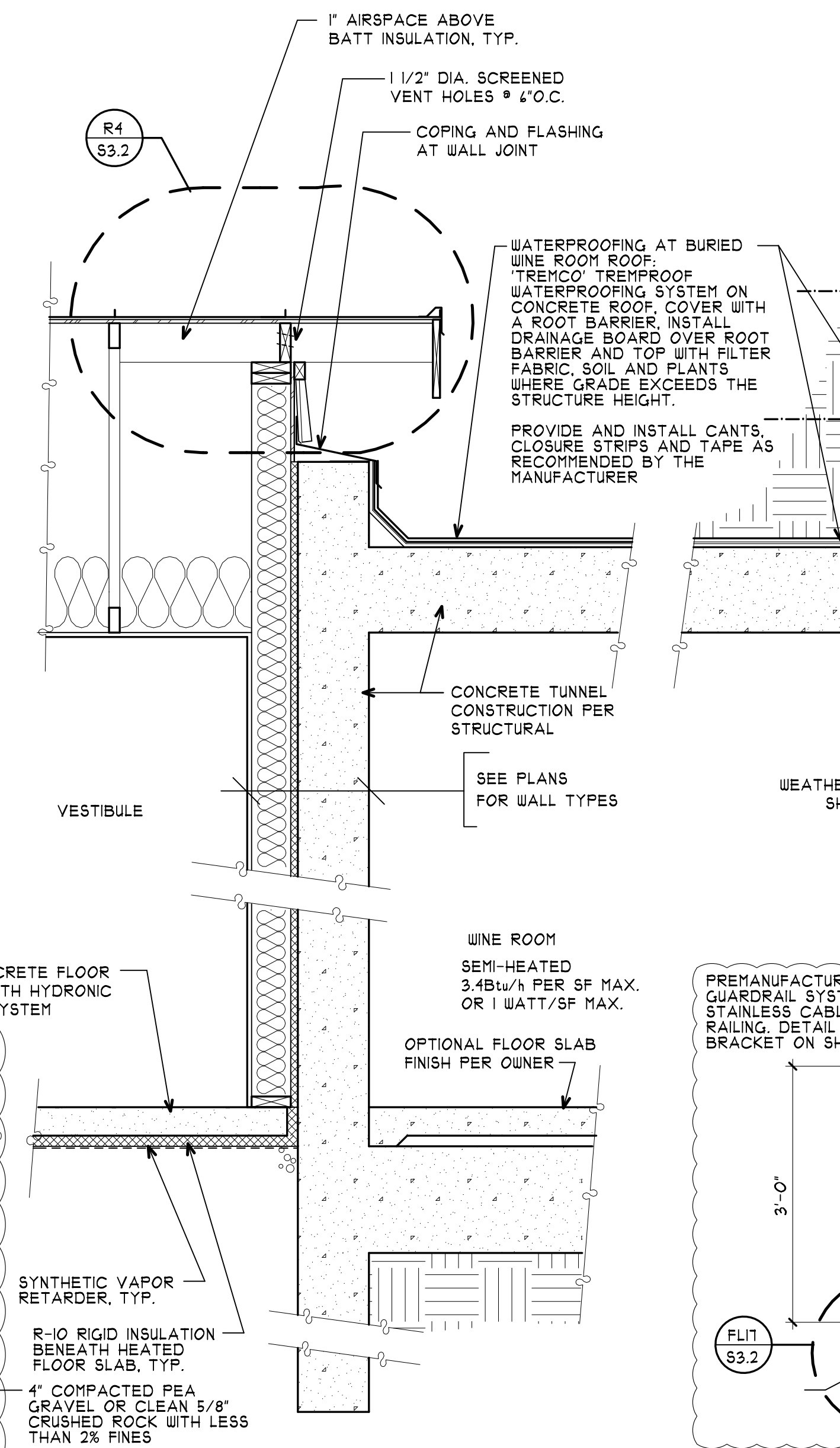
PROJECT: BOYLE MERCER ISLAND  
DRAWING TITLE: BUILDING SECTIONS

DATE	10-18-17
REVISION	5-30-18
	12-11-18
	04-05-19
	07-31-19
SHEET NO.	A3.2
SCALE FACTOR	48

PERMIT REVIEW SET

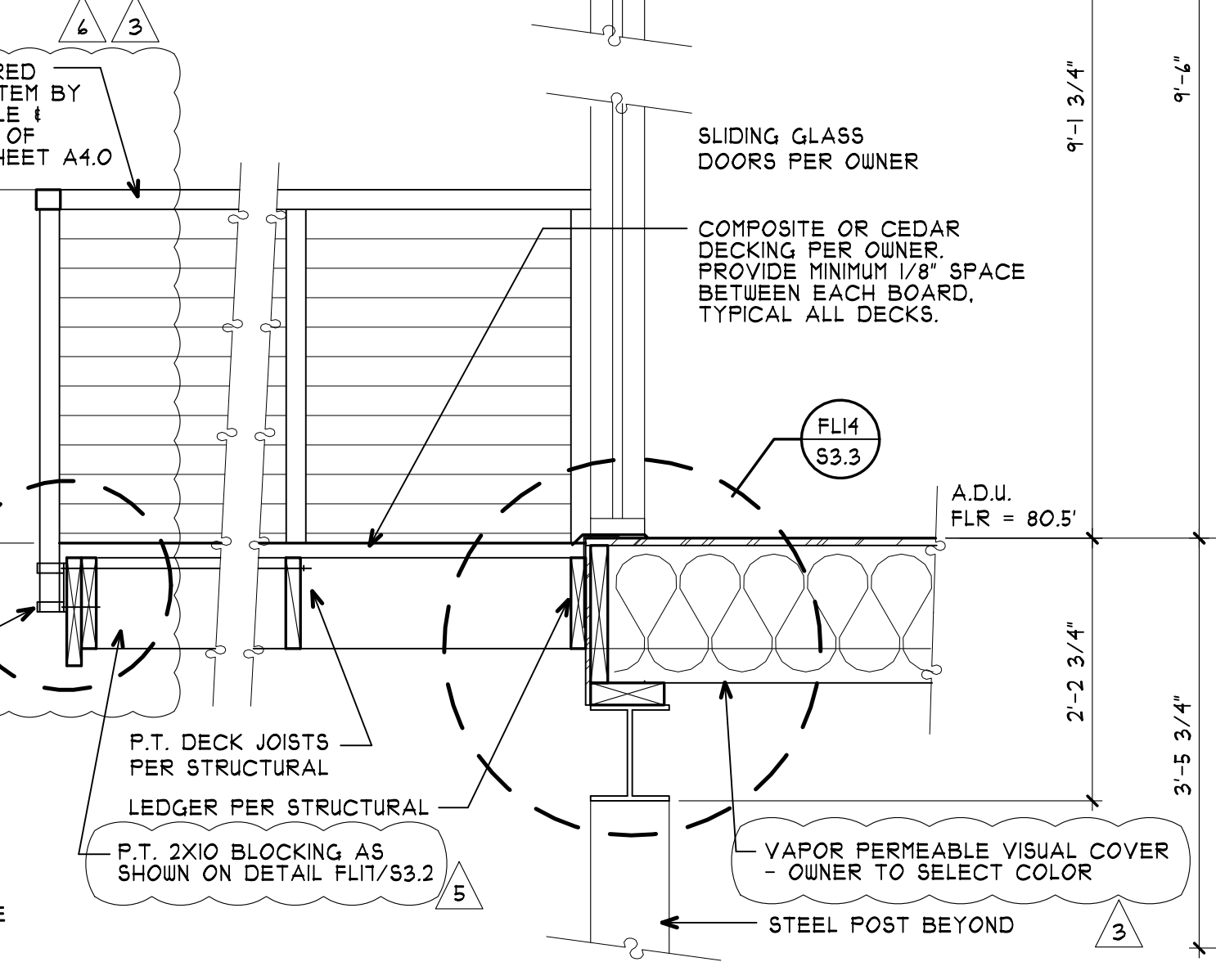
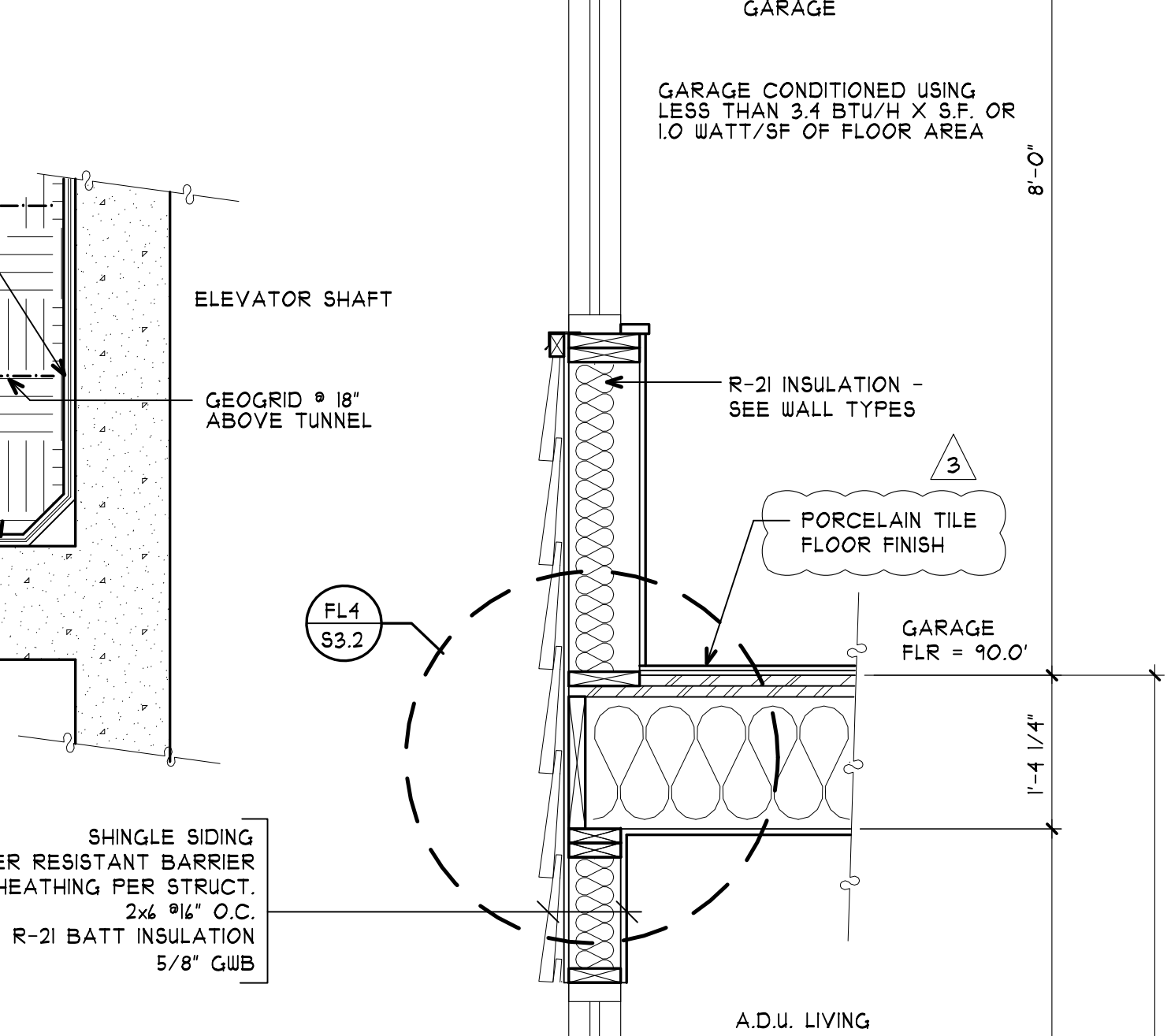
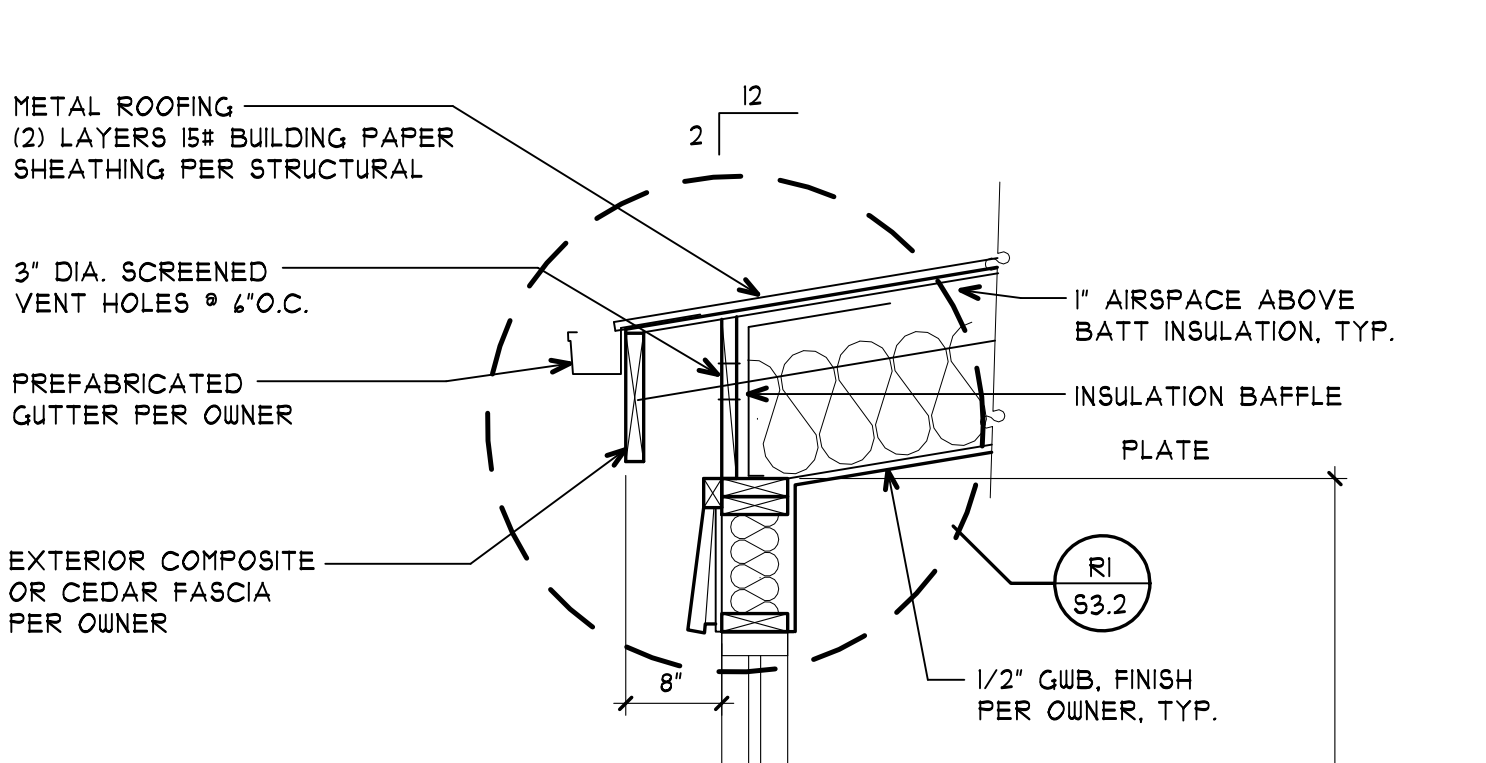


**1H WALL SECTION @ RESIDENCE EAST**  
A3.3 SCALE: 3/4" = 1'-0"

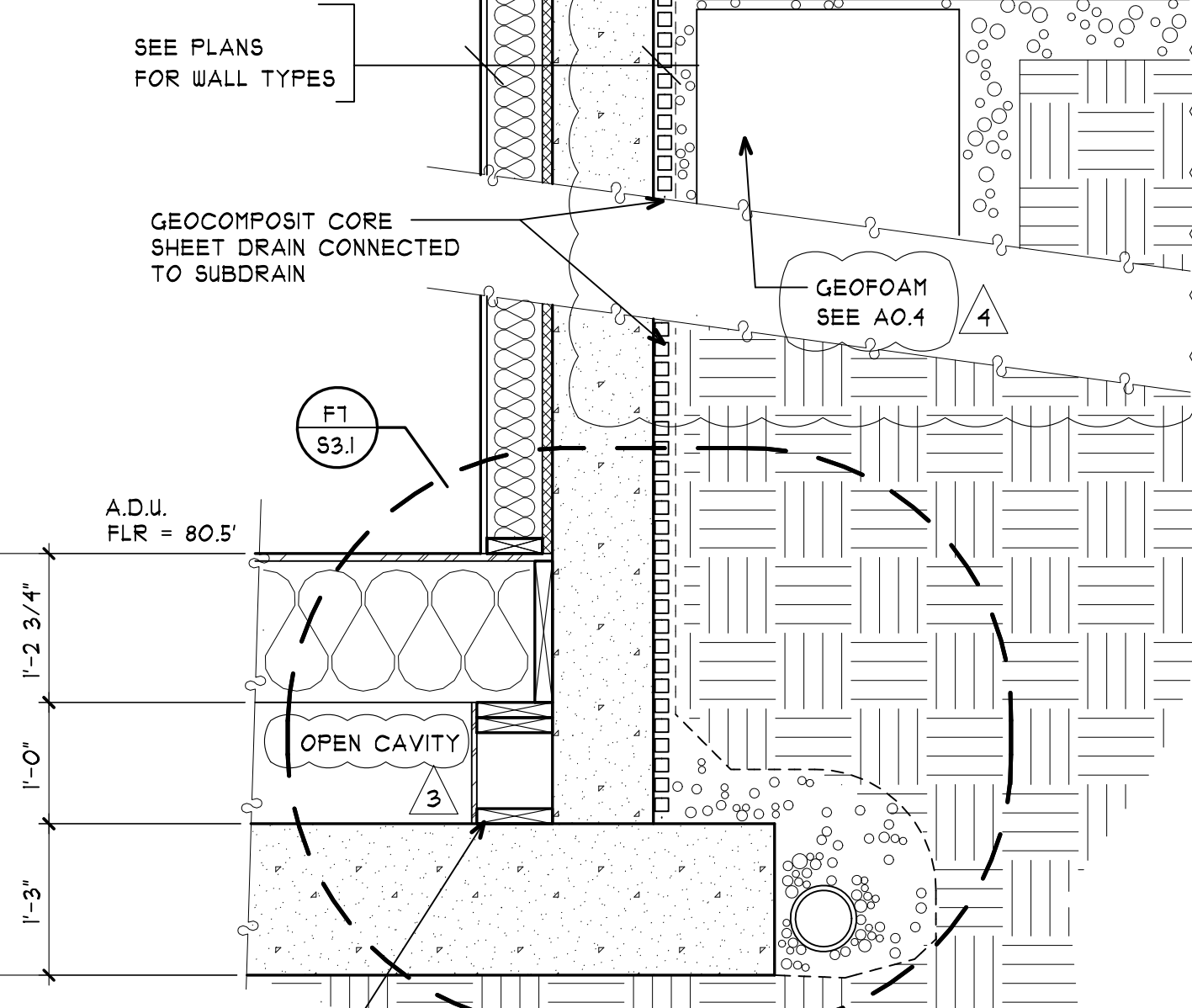
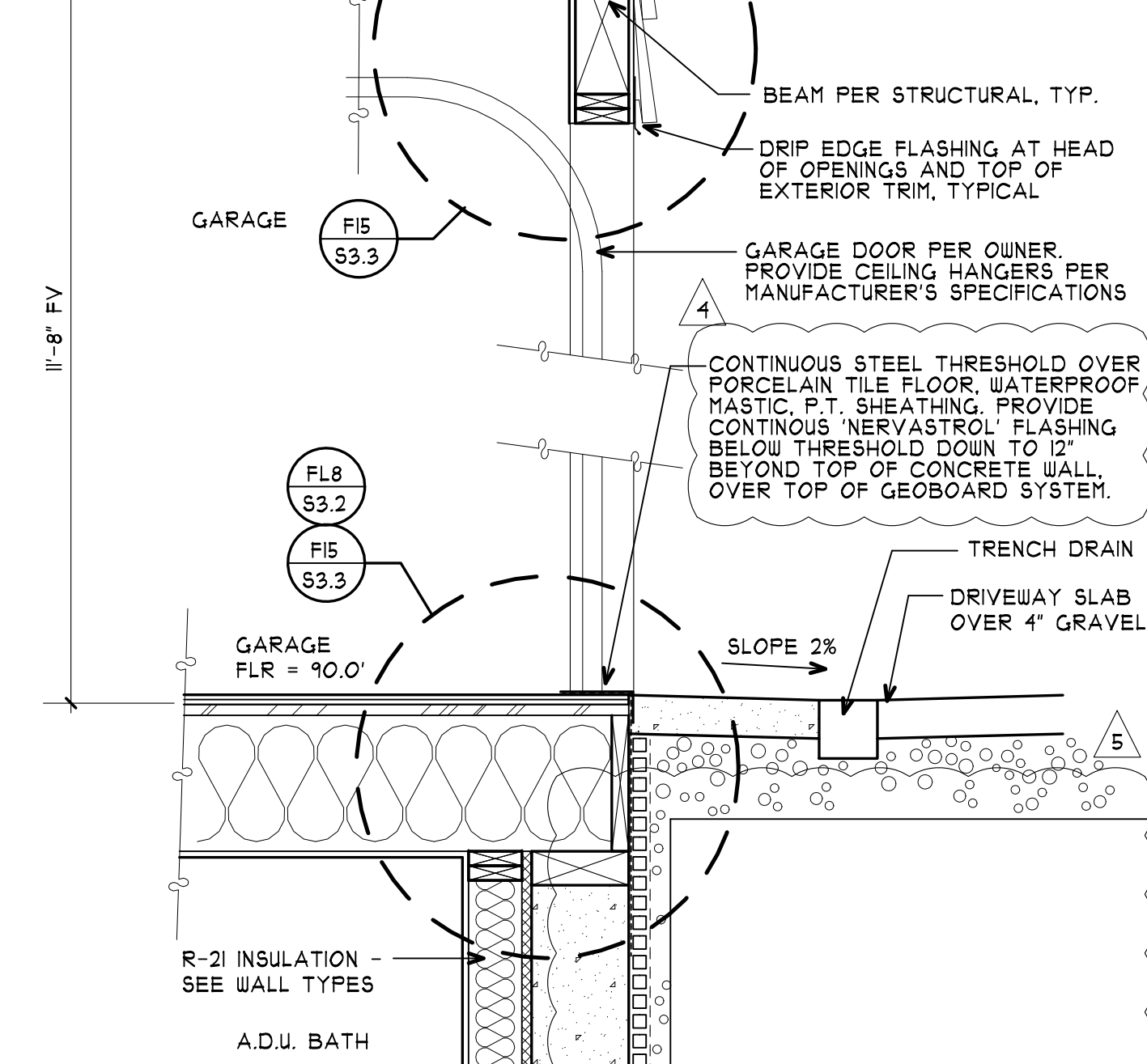
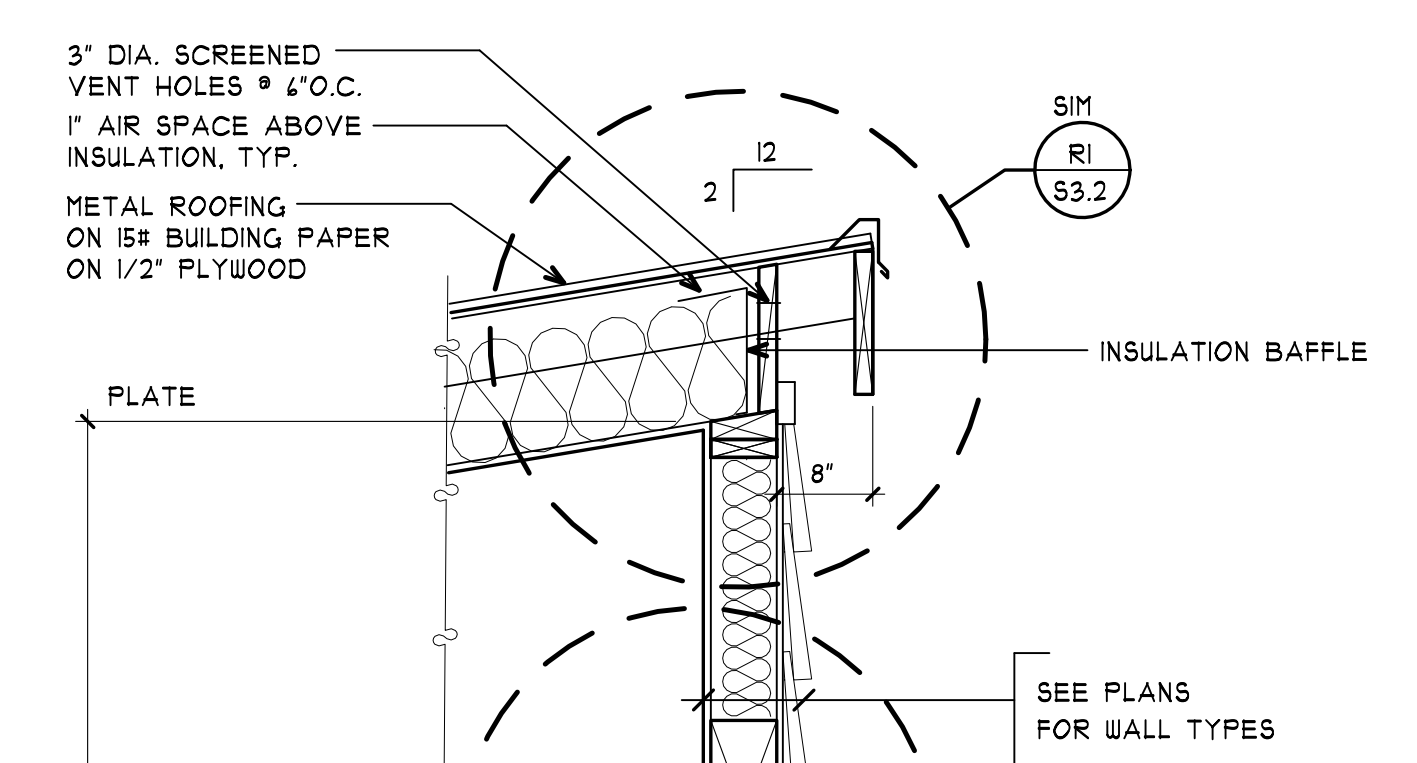


**3F WALL SECTION @ VESTIBULE**  
A3.3 SCALE: 3/4" = 1'-0"

NOTES FROM GEOTECHNICAL REPORT  
 1) WASHED PEA GRAVEL/CRUSHED ROCK BENEATH FLOOR SLAB TO BE HYDRAULICALLY CONNECTED TO PERIMETER/SUBDRAIN PIPE. USE OF 1" DIAMETER WEEP HOLES AS SHOWN IS ONE APPLICABLE METHOD. CRUSHED GRAVEL SHOULD CONSIST OF 3/4" MINUS WASHED PEA GRAVEL SHOULD CONSIST OF 3/8" TO NO. 8 STANDARD SIEVE.  
 2) WALL BACKFILL SHOULD MEET WSDOT GRAVEL BACKFILL FOR WALLS SPECIFICATION 9-03-12(2).  
 3) DRAINAGE SAND AND GRAVEL BACKFILL WITHIN 18" OF WALL SHOULD BE COMPACTED WITH HAND-OPERATED EQUIPMENT. HEAVY EQUIPMENT SHOULD NOT BE USED FOR BACKFILL, AS SUCH EQUIPMENT OPERATED NEAR THE WALL COULD INCREASE LATERAL EARTH PRESSURES AND POSSIBLY DAMAGE THE WALL. THE TABLE BELOW PRESENTS THE DRAINAGE SAND AND GRAVEL GRADATION.  
 4) ALL WALL BACKFILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 4" LOOSE THICKNESS FOR LIGHT EQUIPMENT AND 8" FOR HEAVY EQUIPMENT AND SHOULD BE DENSELY COMPACTED BENEATH PAVED OR SIDEWALK AREAS. COMPACT TO AT LEAST 95% MODIFIED PROCTOR MAXIMUM DENSITY (ASTM D1557-10 TO METHOD C) IN LANDSCAPING AREAS, COMPACT TO 90% MINIMUM.  
 5) DRAINAGE SAND AND GRAVEL MAY BE REPLACED WITH A GEOCOMPOSITE CORE SHEET DRAIN PLACED AGAINST THE WALL AND CONNECTED TO THE SUBDRAIN PIPE. THE GEOCOMPOSITE CORE SHEET SHOULD HAVE A MINIMUM TRANSMISSIVITY OF 3.0 GALLONS/MINUTE/FOOT WHEN TESTED UNDER A GRADIENT OF 1.0 ACCORDING TO ASTM D414.  
 6) THE SUBDRAIN SHOULD CONSIST OF 4" DIAMETER (MINIMUM) SLOTTED OR PERFORATED PLASTIC PIPE MEETING THE REQUIREMENTS OF AASHTO M304. 1/8" MAXIMUM SLOT WIDTH, 3/16" TO 3/8" PERFORATED PIPE HOLES IN THE LOWER HALF OF PIPE, WITH LOWER THIRD SEGMENT UNPERFORATED FOR WATER FLOW. TIGHT JOINTS, SLOPED AT A MINIMUM OF 2:100 TO DRAIN. CLEANOUTS TO BE PROVIDED AT REGULAR INTERVALS.  
 7) SURROUND SUBDRAIN PIPE WITH 3 INCHES (MINIMUM) OF WASHED PEA GRAVEL (2" BELOW PIPE) OR 5/8" MINUS CLEAN CRUSHED GRAVEL. WASHED PEA GRAVEL TO BE GRADED FROM 3/8" TO NO. 8 STANDARD SIEVE.  
 8) SEE GEOTECHNICAL REPORT AND ADDENDUMS FOR FLOOR SLAB SUBGRADE PREPARATION.

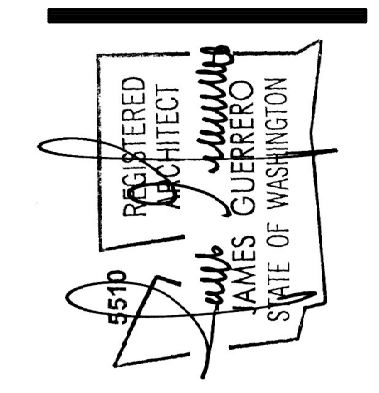


**6H WALL SECTION @ GARAGE/ADU WEST**  
A3.3 SCALE: 3/4" = 1'-0"



**8H WALL SECTION @ GARAGE/ADU EAST**  
A3.3 SCALE: 3/4" = 1'-0"

Except from the second addendum to the geotechnical report:  
 For this project we recommend geofabric meeting the minimum requirements of ASTM D1681 Type EP522, based on the deformation properties, but this should be confirmed by the structural engineer. In addition, if carpenter ants are likely to be present on site we recommend using geofabric that has been treated to prevent insect infestation. We recommend the geofabric blocks extend horizontally a distance equal to the slope height and vertically at least 1 foot below the final grades, assuming 1 foot is required for the slab and capillary break. The geofabric blocks should be placed in a staggered pattern so that the joints between the blocks do not align with the underlying or overlying rows. Gaps of about 1/2 inch between the geofabric blocks should be completely filled with a free draining, granular material, such as pea gravel. The gaps must be large enough to allow the drainage material to completely fill the gaps.  
 A minimum of 4-inches of drainage material should be placed on the slope behind the geofabric and below the lowest row of geofabric. The drainage material below the bottom row of geofabric should be graded so that the blocks sit level and a perforated or slotted drain pipe could be placed at the bottom of the excavation if groundwater is encountered. If a drain is required it should be conveyed to the same point as the other drains at the site. Where the perforated/slotted pipe connects to a tightline, a structure or check-dam should be utilized. We recommend that landscape maintenance equipment using these fuels not be allowed near areas of geofabric. During construction special care must be taken to avoid spilling fuel on the geofabric.  
 A geotextile separator per WSDOT specification 9-33.2 could be placed over the geofabric to reduce the risk from spills, particularly if a gravel driveway is to be constructed. A minimum of 1-foot of separation should be maintained over the geofabric to the final grades where the blocks are below the garage driveway.



ENTIRE SHEET REVISED

2	2ND SUBMITTAL	05-31-18
3	3RD SUBMITTAL	12-11-18
4	4TH SUBMITTAL	04-05-19
5	5TH SUBMITTAL	07-31-19
6	6TH SUBMITTAL	10-25-19

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**BOYLE MERCER ISLAND**  
 WALL SECTIONS

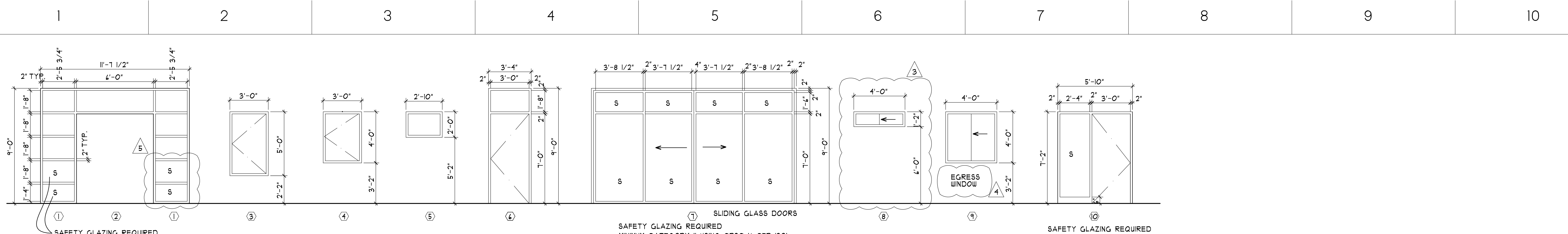
PERMIT REVIEW SET

DATE	10-18-17
REVISED	5-30-18
	12-11-18
	04-05-19
	07-31-19
	10-25-19

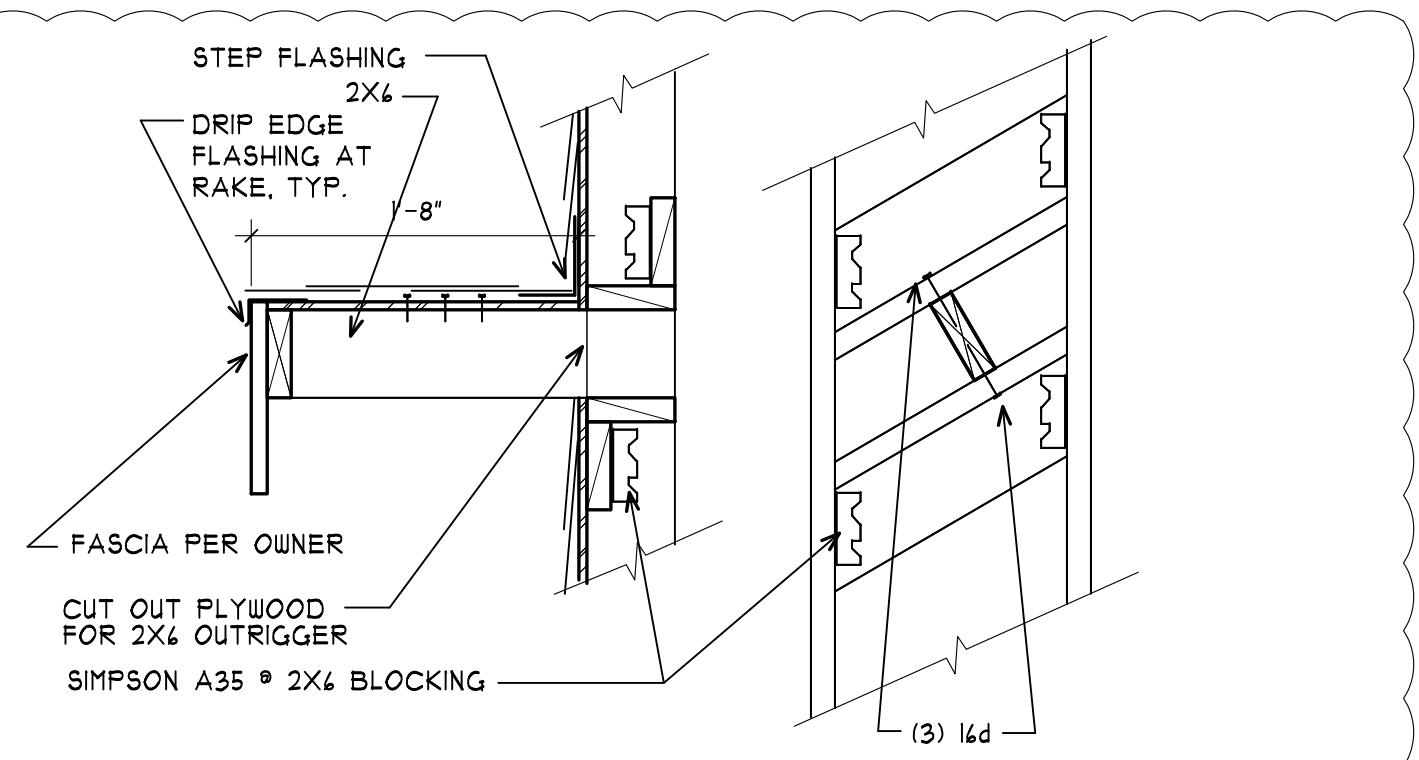
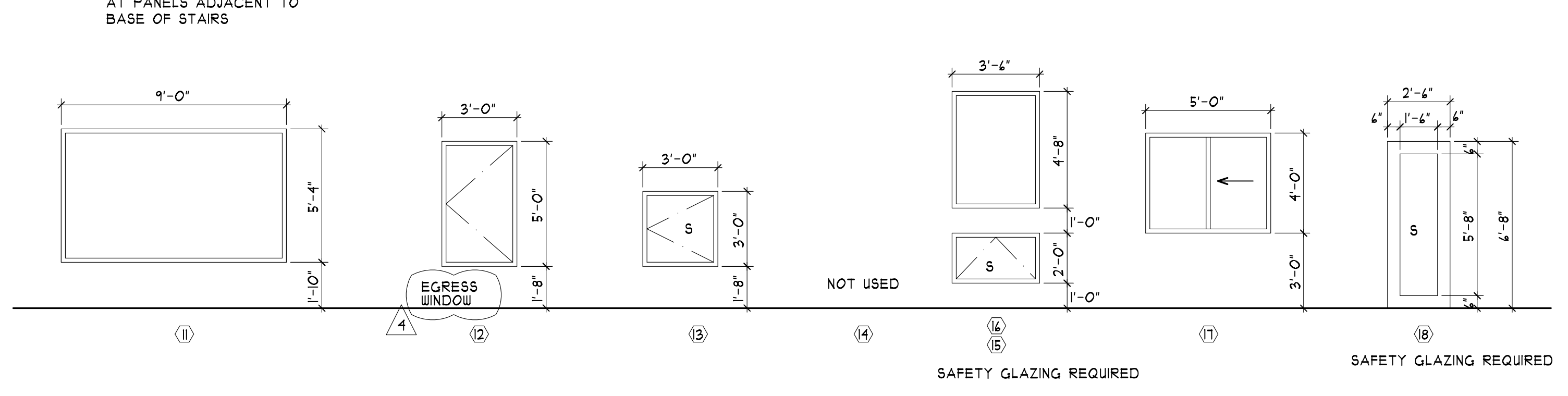
SHEET NO. **A3.3**

SCALE FACTOR: 16

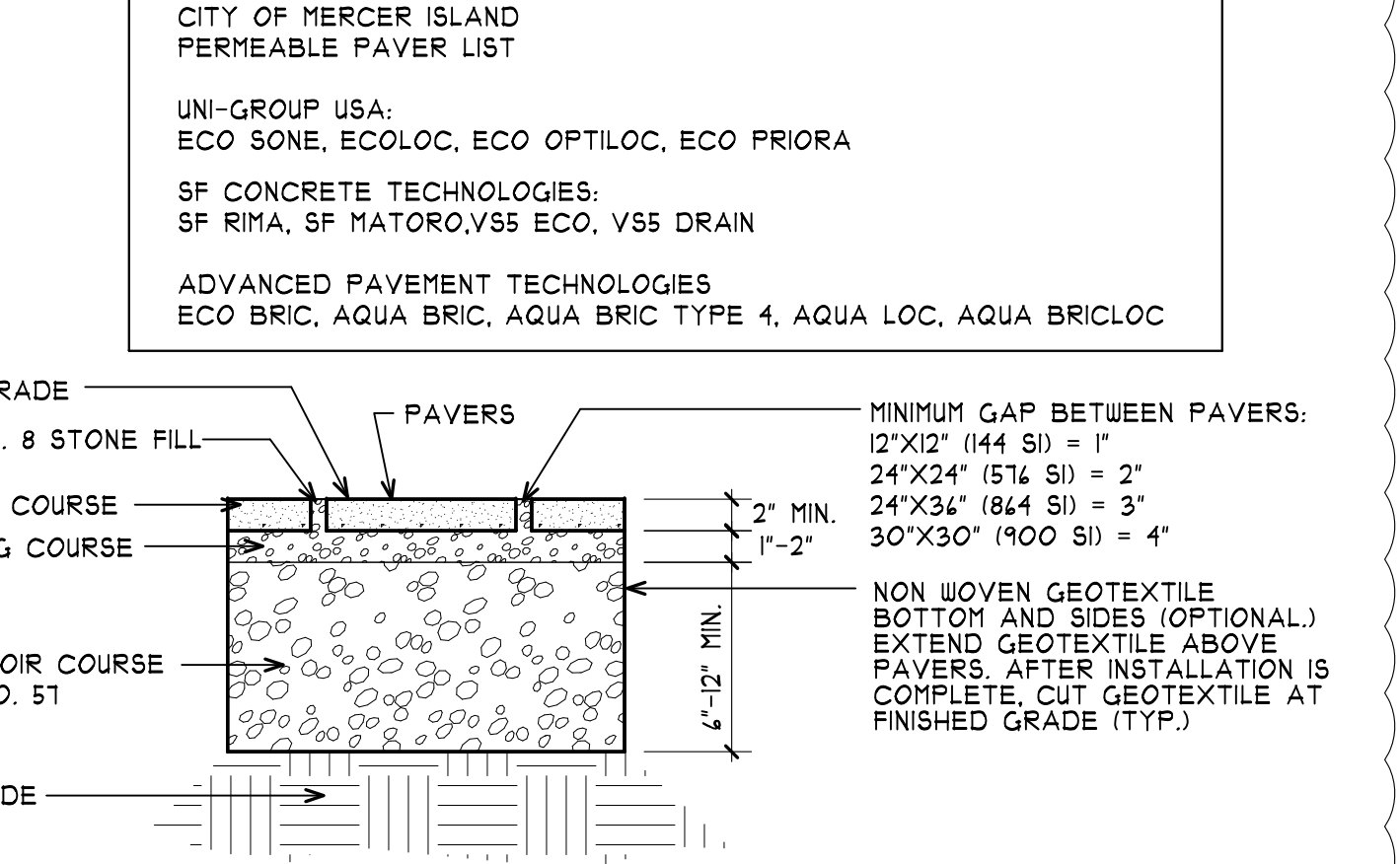




**1D WINDOW SCHEDULE**  
 A4.0 SCALE: 1/4" = 1'-0"



**7C RAKE DETAIL**  
 A4.0 SCALE: 1" = 1'-0"



**6E PERMEABLE PAVING DETAIL**  
 A4.0 SCALE: 1" = 1'-0"

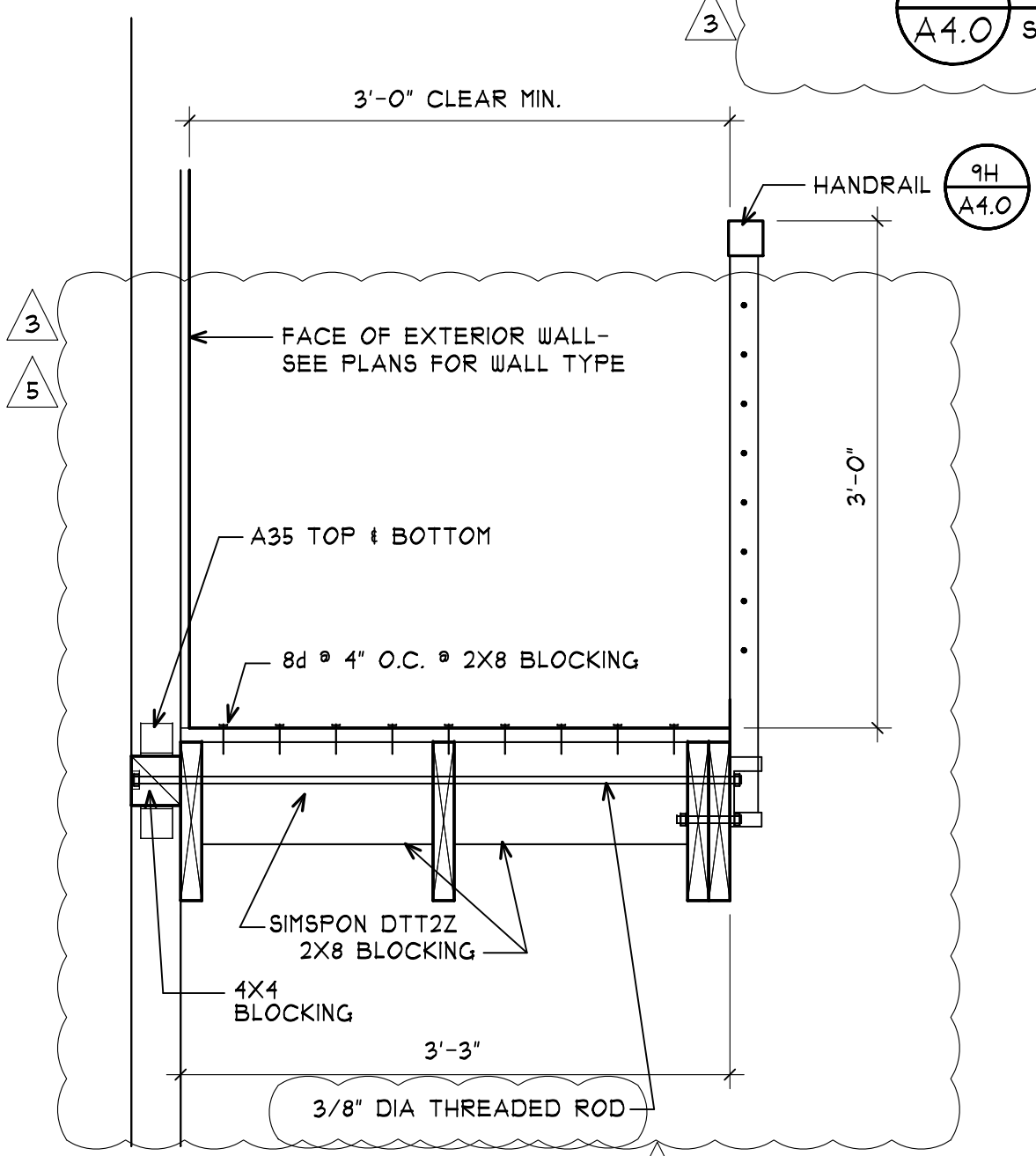
PART NUMBER	DESCRIPTION	QTY.
06-003-01_01	PLATE	1
06-003-01_03	BASE	1
06-003-01-02	RETAINER	1
06-003-01_04	TERMINAL POST HOLDER	1
M8x20	M8x20 LG.	5
M6x13	M6x13 LG.	2

**NOTES:** UNLESS OTHERWISE SPECIFIED

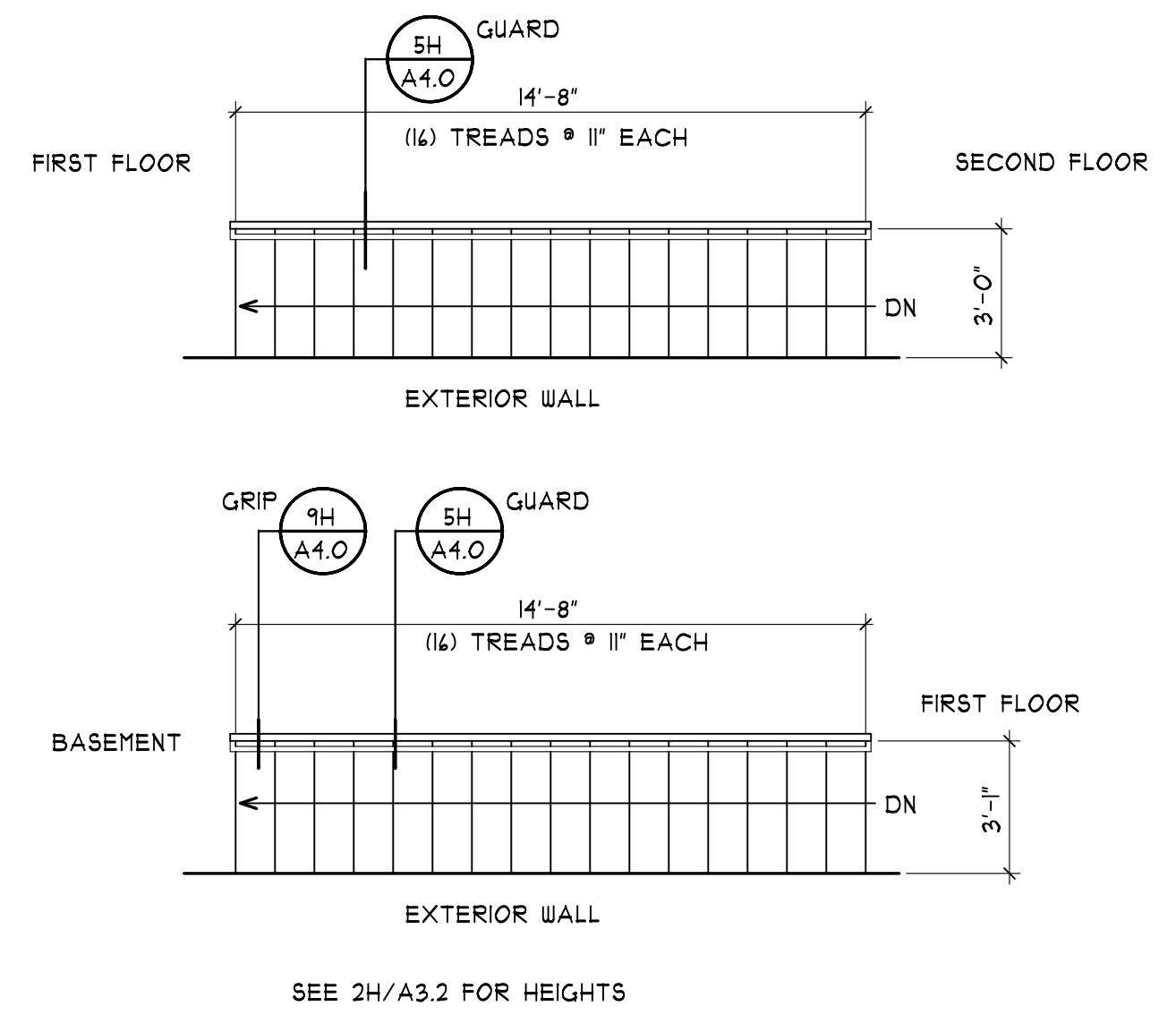
1. DIMENSIONS SHOWN - INCHES (MM).  
 2. MACHINED SURFACES TO BE 68UN MAX.  
 3. PART TO BE FREE OF BURRS AND SHARP EDGES.  
 4. ALL MATERIAL TO BE CLEAN, DISOILED AND FREE OF ALL IMPURITIES.  
 5. ANY CHANGE MUST BE AUTHORIZED BY AN SC&R ENGINEER.

DRAWN: SCR DATE: 03/27/16  
 TITLE: STAINLESS STEEL SQUARE FASCIA POST MOUNT TERMINAL BRACKET  
 SIZE: A DWG. NO.: 982222 REV: 01  
 SCALE: 1:3 WEIGHT: SHEET 1 OF 1

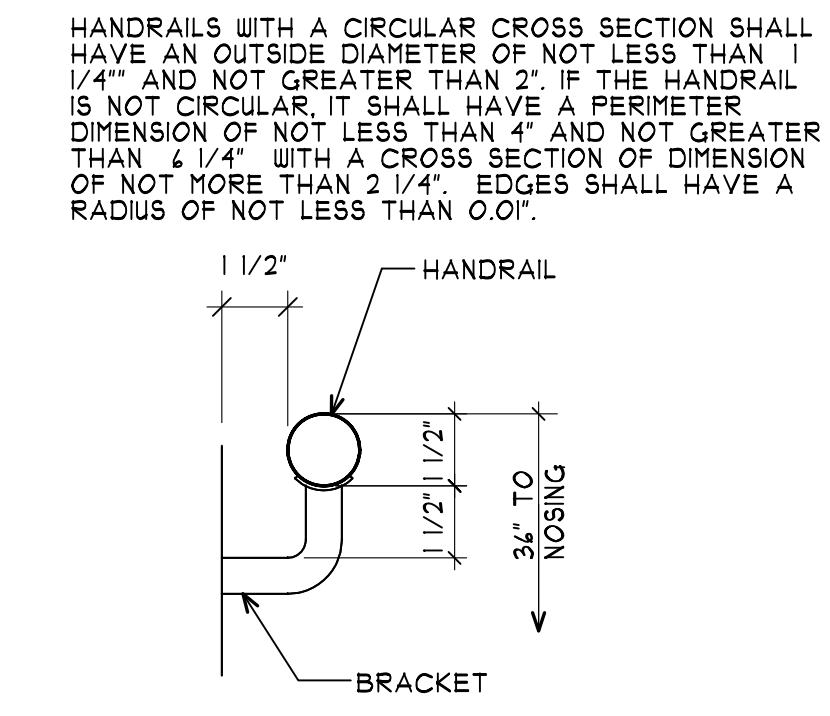
**1H PREMANUFACTURED GUARDRAIL DETAIL**  
 A4.0 SCALE: N.T.S.



**5H GUARD DETAIL INTERIOR STAIRS**  
 A4.0 SCALE: 1" = 1'-0"



**6H STAIR DETAIL**  
 A4.0 SCALE: 1/4" = 1'-0"



**9H HANDRAIL DETAIL**  
 A4.0 SCALE: 3" = 1'-0"

**REGISTERED ARCHITECT**  
 JAMES GUERRERO  
 STATE OF WASHINGTON

11150 Gravelly Lake Drive SW  
 Lakewood, WA 98499  
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**BOYLE MERCER ISLAND**  
 WINDOW SCHEDULE, STAIR PLANS

PERMIT REVIEW SET

DATE	10-18-17
REVISED	5-30-18
	12-11-18
	04-05-19
	07-31-19
	10-25-19

SHEET NO. **A4.0**

SCALE FACTOR: 48

**A** 1.0 Construction Notes.  
These notes supplement the specification. Any discrepancy found among the drawings, specifications, these notes, and the site conditions shall be reported to the Architect/Engineer, who shall correct such discrepancy in writing. Any work done by the Contractor after discovery of such discrepancy shall be done at the Contractor's risk. The Contractor shall verify and coordinate the dimensions among all drawings prior to proceeding with any work or fabrication. The Contractor is responsible for all erection bracing, formwork and temporary construction shoring.

1.10 Bidder's warranty.  
By the act of submitting a bid for the proposed contract, the Contractor warrants that: The Contractor and all subcontractors he intends to use have carefully and thoroughly reviewed the drawings and structural notes and have found them complete and free from ambiguities and sufficient for the purpose intended; further that, The Contractor has carefully examined the site of the work and that from his own investigations, he has satisfied himself as to the nature and location of the work, as to the character, quality, quantities of material and difficulties to be encountered, as to the extent of equipment and other facilities needed for the performance of the work and as to the general and local conditions, and other items which may in any way affect the work or its performance, further that, The Contractor and all workmen he intends to use are skilled and experienced in the type of construction represented by the drawings and documents bid upon; further that, Neither the Contractor nor any of his employees, agents, intended suppliers, or subcontractors have relied upon any verbal representations allegedly authorized or unauthorized from the owner or his employees or agents, including the Architect or Engineers, in assembling the bid figures; further that, The bid figure is based solely upon the construction contract documents and properly issued written addenda and not upon any other written or verbal representations.

1.20 Codes.  
All methods, materials and workmanship shall conform to the 2015 International Building Code (IBC) as amended and adopted by the local building authority. All reference to other codes and standards, (AGI, ASTM, etc.) shall be for the latest or most current edition available.

1.30 Design criteria.  
Uniform loads:  
Live load 25 psf\*  
Dead load actual  
Floor 40 psf actual

\*15% increase in stresses for wood framing allowed for snow live load.  
Concentrated loads:  
Mechanical units or other concentrated loads on roof or floor. All manufacturers of pre-engineered systems shall locate, coordinate, verify weights, etc., And design their system for these loads.

Lateral loads:  
Wind (IBC 1609)  
110 MPH - 3 second gust  
W = 1.0  
Exposure C  
Earthquake Design Data (IBC 1613)  
Ie = 1.0  
Ss = 1.41  
S1 = 0.54  
Site Class C  
SDS = 0.94  
SD1 = 0.47  
Seismic Design Category D  
Bearing Wall System - Light framing walls with shear panels - wood structural panels  
V = 0.14N (Strength Design)  
Cs = 0.14  
R = 6.5  
Equivalent lateral force method

1.40 Soil data.  
2500 psf bearing - See soils report by Geo Resources

1.50 Inspection - see specifications.  
1.60 Differed Submittals / Shop drawings.  
Submit drawings to be reviewed by the Engineer for the following:  
Concrete mix  
Reinforcing steel  
Pre-engineered Steel/Wood Trusses (Washington State seal required)  
Glue-laminated members

1.70 Miscellaneous.  
Verify all dimensions and conditions in the field.  
Verify size and location of all openings in the floors, roof and walls with Architectural, mechanical and electrical drawings.  
Construction details not specifically shown on the drawings shall follow similar details of sections of this project as approved by the Architect/Engineer.  
See architectural, mechanical and electrical drawings for dimensions and locations of openings not dimensioned or shown on structural plans.

1.80 Special Inspections  
Special inspection in accordance with IBC section 1704 shall be provided for the following work items: (Refer to Section 1704 for complete descriptions)

Item	Required for	Frequency
Reinforced Concrete	Reinforcing Reinforcing welding Bolts installed in concrete Use of correct design mix Slump & air tests Placement of concrete Curing temp. & technique	Periodic Continuous Continuous Continuous Periodic

Concrete Piles	Drilling & Grouting (1) Load test 6" conc micro pile ASTM D-1143 See 52.3 for testing procedures	Continuous
Pipe Piles	Drilling (1) Load test 4" pipe pile ASTM D-1143	Continuous
Excavation & Shoring	Shoring walls	Continuous

Structural steel	ID markings per construction doc's Mfr certified mill test reports	
Structural steel Welding	All penetration groove welds Multipass fillet welds Single pass fillet welds > 5/16" Single pass fillet welds ≤ 5/16"	Continuous Continuous Continuous Periodic
Timber	Shear wall and diaphragm nailing Drag struts and holdowns	Periodic Periodic

1.90 Quality Assurance  
Quality Assurance Plans for Seismic Resistance: Unless otherwise provided by the Architect or other Consultants for this project, the Contractor shall provide quality assurance for each of the following systems:  
Piping systems and mechanical units containing flammable combustible or highly toxic materials.  
Anchorage of electrical equipment used for emergency or standby power systems.  
Suspended ceiling systems and their anchorage.

Each Contractor responsible for the construction of the building's seismic-force-resisting system or other system listed in the quality assurance plan(s) shall submit a written contractor's statement of responsibility to the Building Official, Owner and Architect prior to commencement of the work on that system. The statement of responsibility shall meet all the requirements of IBC 1705.3.

2.0 Site work.  
2.10 Excavation.  
Excavate to depth shown and to firm undisturbed material. Over-excavations shall be backfilled with lean concrete (f'c = 2,000 psi) at the Contractor's expense. Exercise extreme care during excavation to avoid damage to buried lines, tanks, and other concealed items. Upon discovery, do not proceed with work until receiving written instructions from Architect. A competent representative of the owner shall inspect all footing excavations for suitability of bearing surfaces prior to placement of reinforcing steel. Provide drainage as necessary to avoid water-softened subgrade.

2.20 Fill, backfill and compaction.  
Backfill against walls shall not be placed until after the removal of all material subject to rot or corrosion. All fill placed against retaining walls or basement walls shall be free-draining granular material. Structural fill other than pea gravel shall be granular, placed in 6 inch lifts and compacted to at least 95% of its maximum dry density as determined by ASTM D-1557 (Mod. Proctor) and ASTM D-698 (Standard Proctor). Pea gravel fill shall have a maximum particle size of 3/8" diameter.

3.0 Structural Concrete.  
3.10 General.  
All concrete shall be hard rock concrete meeting requirements of ACI-301, "Specifications for Structural Concrete for Buildings." Proportioning of ingredients for each concrete mix shall be by method 2 or the alternate procedure given in ACI-301. Place concrete per ACI-304 and conform to ACI-604(306) for winter concreting and ACI-605(305) for hot weather concreting. Use interior mechanical vibrators with 1,000 rpm minimum frequency. Do not over-vibrate. Concrete shall be placed in a single pour between construction or control joints. Protect all concrete from premature drying, excessive hot or cold temperature for seven days after placing.

Slabs	psi	slump
Beams, columns, vertically	3000	3" +/- 1"
Formed walls	3000	3" +/- 1"
Footings	3000	4" +/- 1"

These slumps may be increased with proper addition of admixtures for workability without changing the water content of the original approved mix design. Admixtures containing chlorides are not permitted unless approved by the Engineer.

3.30 Materials.  
Cement: ASTM 150, type I or type I-II. Engineer's approval is needed for use of type III cement.  
Coarse and fine aggregate: ASTM C-33.  
Water shall be clean and potable.

3.40 Water reducing admixtures.  
Water reducing admixture: ASTM C-494. Admixtures shall be used in exact accordance with manufacturer's instructions.  
Synergized performance systems: Concrete using admixtures to produce flowable concrete may be used subject to Engineer's approval.  
Air entrainment: ASTM C-260 and ASTM C-494, entrain 4% plus/minus 1% by volume in all exposed concrete.  
No other admixtures permitted unless approved by the Engineer.

3.50 Formwork and shoring.  
Follow recommended practice for concrete formwork (ACI-347).  
Reshoring for early removal of original supports will not be permitted.  
While reshoring operations are underway, no construction loads will be permitted on the new construction.  
All shoring shall be the responsibility of the Contractor. Formwork supports and shoring shall be designed to provide finished concrete surfaces at all faces level, plumb, and true to the dimensions and elevations shown. Tolerances and variations shall be as specified.

3.60 Reinforcing steel.  
Detail, fabricate, and place per ACI-315 and ACI-318. Support reinforcement with approved chairs, spacers, or ties.  
Deformed bar reinforcement: ASTM A-615 Grade 60  
Welded deformed bar reinforcement: ASTM A-615 Grade 60 or 40, weldable grade, submit weld procedures and mill certificates showing carbon content for all bars to be welded.  
Welded wire fabric: ASTM A-185 & ASTM A-82 fy = 65 ksi  
Deformed bar anchors: ASTM A-496

All reinforcing shall be lap-spliced a minimum lap of 40 bar diameters except as noted specifically on the structural drawings. No more than 50% of horizontal or vertical bars shall be spliced at one location.  
Provide elbow bars (40 diameter) to lap horizontal steel at corners and intersections in footings and walls.  
Lap welded fabric 12" or one spacing plus 2", whichever is more.

3.70 Concrete cover on reinforcing (unless shown otherwise).	
Bottom of Footings	3"
Formed earth face & slab-on-grade	2"
Walls, weather face	1-1/2"
Columns and beams to stirrups	1-1/2"
Bottom of interior slab	3/4"
Walls, inside face	1"

3.80 Construction Joints.  
Construction joint spacing in walls shall not exceed 50' on center except as directed by the Architect/Engineer.  
Horizontal construction joints in beams and girders are not permitted except where indicated. Vertical construction joints in beams and slabs shall be located between the midpoint and the third point of the span. Unless noted otherwise, location of the construction or control joints in slab-on-grade shall be on column grids or under permanent partitions and shall not exceed 20'-0" c/c each way.  
No joists, beams or girders shall be sleeved for piping or conduit except as noted on the structural drawings or as approved by the Architect/Engineer.  
Electrical conduit in slabs, shall be placed at the mid-depth of the slab at a minimum spacing of three times the conduit diameter. Conduit outside diameter shall not exceed one-third of the slab thickness.  
Provide control joints in exposed hollow core topping at each end of each hollow core plank. Provide additional joints parallel to planks at 16' o/c maximum.

5.0 Metals.  
5.10 Welding.  
All welding shall be in accordance with the "Structural Welding Code" ANSI/AWS D11. In the case of welding reinforcing bars, all welding shall be in accordance with ANSI/AWS D14. Welding of reinforcement bars shall not be allowed except where shown. Materials: use only E60 or E70 electrodes  
All welding shall be by certified welders. All full penetration welds shall be inspected by ultrasonic non-destructive testing procedures. Submit test results to Architect/Engineer for review.

5.20 Structural steel.  
All detailing, fabrication, and erection shall conform to aisc "manual of steel construction", latest edition.  
Materials:  
Steel shapes/plates ASTM A-36  
Pipe columns ASTM A-53, type E or S (fy=36 ksi.)  
Tube columns ASTM A-500, grade B (fy=46 ksi.)  
Bolts, nuts ASTM A-307 unless noted otherwise

Metal protection: all steel exposed to weather, moisture, soil, or as noted shall be galvanized per ASTM A-123 (1.25 Oz/sf minimum). All other steel surfaces to be shop primed after fabrication.

6.0 Wood.  
6.10 General.  
Framing lumber shall be DF#2 or better, except that 2x framing lumber may be HF #2 unless otherwise shown on the plans. All 2" lumber shall be kiln dried (KD). Each piece of lumber shall bear a grade stamp of a recognized lumber grading or inspection bureau or agency per the NIST American Softwood Lumber Standard PS 20-99.  
Provide cut or malleable iron washers or where bolt heads, nuts, and lag screws bear on wood.

Treat all wood in contact with concrete, mortar, grout, masonry, and within 8" of earth; all wood over water; and all wood in contact with earth; with one of the following processes:

Chromated Copper Arsenate (CCA-C)  
DOT Sodium Borate (SBX)  
Alkaline Copper Quat ACQ-C and ACQ-D (Carbonate)  
Copper Azole (CBA-A and CA-B)

Where possible, pre-cut material before treatment. All field cuts and drilled holes shall be field treated in accordance with ANPFA M-4.

6.20 Accessories.  
Bolts shall be ASTM A-307.  
Washers shall be malleable iron washers (M.I.W) or heavy plate cut washers.  
Nails shall be common, American or Canadian manufacturers only.  
Lag screws, shear plates - see national design specifications.  
Anchors and connections shall be Simpson, Teco, Lumberlok or other International Code Council (ICC) approved products. All fasteners shall be installed per manufacturer's recommendations unless otherwise shown.

All hardware exposed to weather, in unheated portions of building, or in contact with treated wood as specified above shall be galvanized as follows: Fasteners shall be hot dipped per ASTM A 153 or mechanically galvanized per ASTM B 645, class 55 or greater. Hardware shall be galvanized per one of the following processes: ASTM A 653 Class 185 (Simpson 2Max G185) or Batch/Post Hot Dipped Galvanized per ASTM A 123.

Stainless steel hardware and fasteners shall be used in connection with any preservative treatment process not specifically listed above.

6.30 Minimum nailing.  
Minimum nailing shall be per IBC Table 2304.4.1 - Nailing Schedule.

6.40 Sheathing (plywood ONLY).  
All grading shall conform to the following standards: NIST Voluntary Product Standard PS 2-42. Thickness and lay-up shall be as shown. All plywood shall be group 1 or II species. Unless otherwise shown, provide the following minimum nailing:  
Panel edges 8d at 6" on center  
Intermed. Support 8d at 12" on center

6.50 Glue-lam Beams.  
Materials, manufacture and quality control shall be per ANSI/AITC A-190 "Structural Glue Laminated Timber". Unless otherwise shown, camber all beams 1/2 times dead load deflection. Unless otherwise shown all beams shall be combination 24F-12E as listed in AWC-ASD table 3.1 and have exterior glue. Unless otherwise shown, industrial appearance is acceptable.

6.60 Wood adhesive.  
All wood adhesives shall be elastomeric and shall have a current ICC-ES approval. Apply all adhesives in accordance with the adhesive manufacturer's recommendations.

6.70 Pre-Engineered Trusses.  
Member geometry and spacing shall be as shown on the plans. The manufacturer shall provide additional framing member as shown or as necessary to provide support for mechanical equipment, wall or other partitions, snow drift loads, etc. Trusses with spans greater than 35' shall have the heel plates designed considering the effect of eccentric loading.

Where noted pre-cut blocking, bridging, bracing and/or filler pieces shall be furnished by the manufacturer. Where applicable, wind uplift bracing shall be provided by the manufacturer. Unless noted otherwise, the truss manufacturer shall specify and furnish connection hardware for the installation of their system.[]

Shop drawings shall indicate all required permanent bracing. Supporting calculations shall indicate member stresses, species/grades and applicable ICC-ES approvals. Shop drawings and calculations shall be sealed by a professional engineer registered in the State of Washington.

Metal plated trusses shall be manufactured a detailed in conformance with the following standards:  
ANSI/TPI 1-2002 National Design Standards for Metal Plate Connected Wood Truss Construction.  
ANSI/TPI 1-1945 Code of Standard Practice for the Metal Plate Connected Wood Truss Industry.  
ANSI/TPI 2-1945 Standard for Testing Metal Plate Connected Wood Trusses.

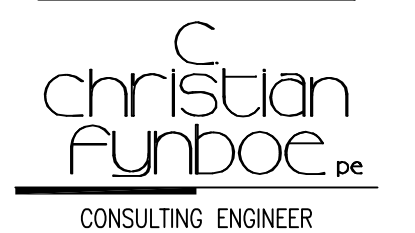
When delivered, the components shall be accompanied by the fabricators certificate of conformance to the above referenced standards, and by the following user advisory notices (or notices equivalent) to:

BC51-BI Summary Sheet - Guide for Handling, Installation and Bracing of Metal Plate Connected Wood Trusses.  
BEC1-B2 Summary Sheet - Truss Installation and Temporary Bracing.  
BEC1-B3 Summary Sheet - Web Member Permanent Bracing/Web Reinforcement.  
BEC1-B4 Summary Sheet - Construction Loading.

TABLE C-N5.4-1 Inspection Tasks Prior to Welding	
Inspection Tasks Prior to Welding	AWS D1.1/D1.1M References*
Welding procedure specifications (WPSs) available	6.3
Manufacturer certifications for welding consumables available	6.2
Material identification (type/grade)	6.2
Welder identification system	6.4 (welder qualification) (identification system not required by AWS D1.1/D1.1M)
Fit-up of groove welds (including joint geometry)	
• Joint preparation	6.5.2
• Dimensions (alignment, root opening, root face, bevel)	5.22
• Cleanliness (condition of steel surfaces)	5.15
• Tacking (tack weld quality and location)	5.18
• Backing type and fit (if applicable)	5.10, 5.22.1.1
Configuration and finish of access holes	6.5.2, 5.17 (also see Section J1.6)
Fit-up of fillet welds	
• Dimensions (alignment, gaps at root)	5.22.1
• Cleanliness (condition of steel surfaces)	5.15
• Tacking (tack weld quality and location)	5.18
Check welding equipment	6.2, 5.11
*AWS (2010)	

TABLE C-N5.4-2 Inspection Tasks During Welding	
Inspection Tasks During Welding	AWS D1.1/D1.1M References*
Use of qualified welders	6.4
Control and handling of welding consumables	6.2
• Packaging	5.3.1
• Exposure control	5.3.2 (for SMAW), 5.3.3 (for SAW)
No welding over cracked tack welds	5.18
Environmental conditions	
• Wind speed within limits	5.12.1
• Precipitation and temperature	5.12.2
WPS followed	6.3.3, 6.5.2, 5.5, 5.21
WPS followed	
• Settings on welding equipment	
• Travel speed	
• Selected welding materials	
• Shielding gas type/flow rate	
• Preheat applied	5.6, 5.7
• Interpass temperature maintained (min/max.)	
• Proper position (F, V, H, OH)	
Welding techniques	6.5.2, 6.5.3, 5.24
• Interpass and final cleaning	5.30.1
• Each pass within profile limitations	
• Each pass meets quality requirements	
*AWS (2010)	

TABLE C-N5.4-3 Inspection Tasks After Welding	
Inspection Tasks After Welding	AWS D1.1/D1.1M References**
Welds cleaned	5.30.1
Size, length and location of welds	6.5.1
Welds meet visual acceptance criteria	6.5.3
• Crack prohibition	Table 6.1(1)
• Weld/base-metal fusion	Table 6.1(2)
• Crater cross section	Table 6.1(3)
• Weld profiles	Table 6.1(4), 5.24
• Weld size	Table 6.1(6)
• Undercut	Table 6.1(7)
• Porosity	Table 6.1(8)
Arc strikes	5.29
k-area*	not addressed in AWS
Backing removed and weld tabs removed (if required)	5.10, 5.31
Repair activities	6.5.3, 5.26
Document acceptance or rejection of welded joint or member	6.5.4, 6.5.5
* k-area issues were identified in AISC (1997b). See Commentary Section A3.1c and Section J10.8. ** AWS (2010)	



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BOYLE RESIDENCE  
MERCER ISLAND, WA  
GENERAL NOTES

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PROJECT DRAWING TITLE

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05/31/18  
12/11/18  
04/22/19

SHEET NO. S1.0

11/24/19

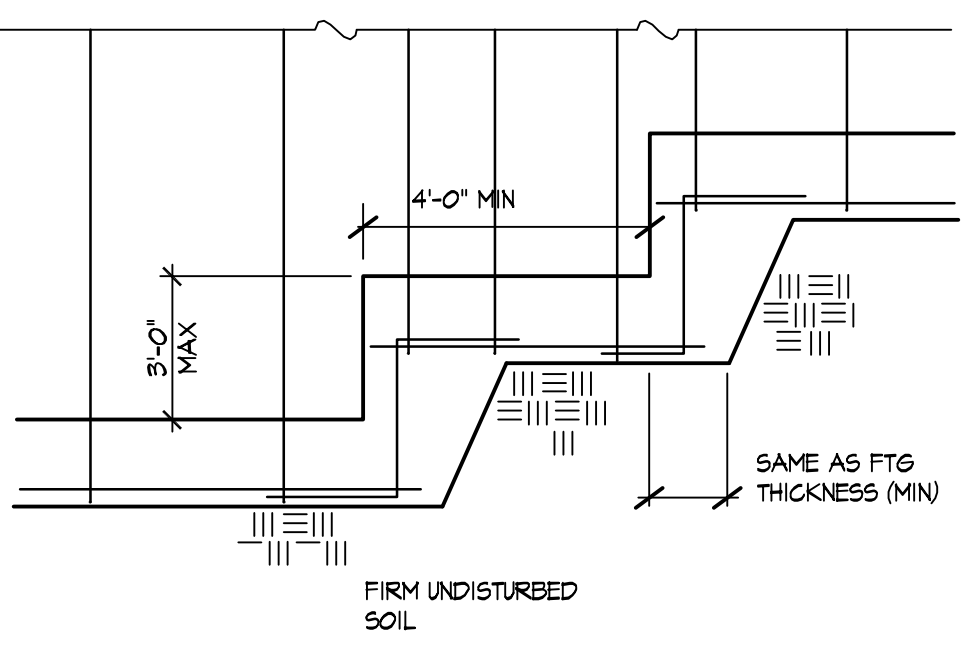
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ABBREVIATION	MEANING	ABBREVIATION	MEANING
AT	AT	SHTG.	SHEATHING
PARALLEL	PARALLEL	SIM.	SIMILAR
BUILT UP	BUILT UP	TYP.	TYPICAL
BLOCKING	BLOCKING	UNLESS	UNLESS
BOTTOM BEARING	BOTTOM BEARING	INDICATED OTHERWISE	INDICATED OTHERWISE
BRS.	BRS.	UN.O.	UNLESS NOTED OTHERWISE
CLEAR	CLEAR	VERT	VERTICAL
COL.	COLUMN	W	WITH
CONN.	CONNECTION		
CONT.	CONTINUE		
d	DIAMETER		
DBL.	DOUBLE		
EA.	EACH		
EQ.	EQUAL		
F.O.	FACE OF		
HDR.	HEADER		
HORIZ	HORIZONTAL		
MFR.	MANUFACTURE		
	OR MANUFACTURE		
O.C.	ON CENTER		
PL.	PLATE		
REQ'D	REQUIRED		
SCHED	SCHEDULE		

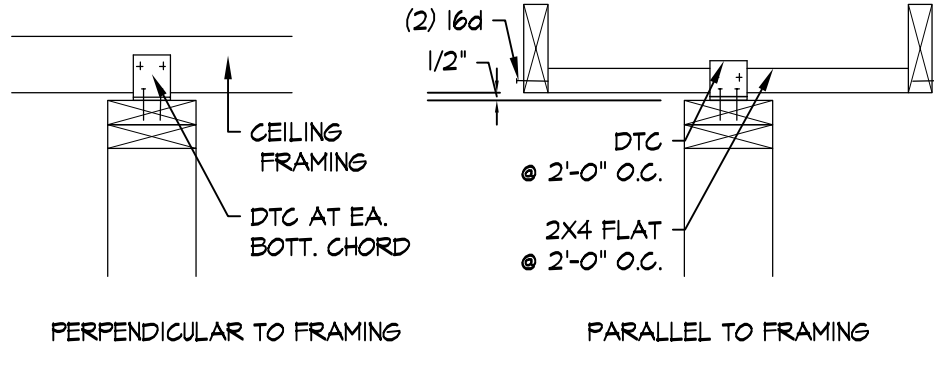
1 NOT USED  
NTS

2 NOT USED  
NTS

NOTE: SEE PLANS & DETAILS FOR REMAINDER OF CALLOUTS



3 TYPICAL STEPPED FTG DETAIL  
NTS



4 PARTITION WALL SUPPORT  
NTS

SHEARWALL NAILING SCHEDULE				
MARK (SHEAR CAPACITY)	WALL TYPE	PANEL EDGE NAILING (1), (2), (7)	INTERMEDIATE NAILING (2)	BOTT. PL. ANCHOR BOLTING OR NAILING (5)
(200 lb/ft)	1/2" CDX PW OSB, ONE SIDE	8d @ 6" O.C.	8d @ 12" O.C.	1/2" A.B. @ 48" O.C. OR 16d @ 7 1/2" O.C.
(350 lb/ft)	1/2" CDX PW OR OSB, ONE SIDE	8d @ 3 1/2" O.C.	8d @ 12" O.C.	5/8" A.B. @ 3'-2" O.C. OR 1" x 4" x 1/2" SDS SCREWS @ 8" O.C.
(700 lb/ft)	1/2" CDX PW OR OSB, BOTH SIDES	8d @ 4" O.C. (4)	8d @ 12" O.C. (4)	3/4" A.B. @ 34" O.C. OR 1" x 4" x 1/2" SDS SCREWS @ 8" O.C.

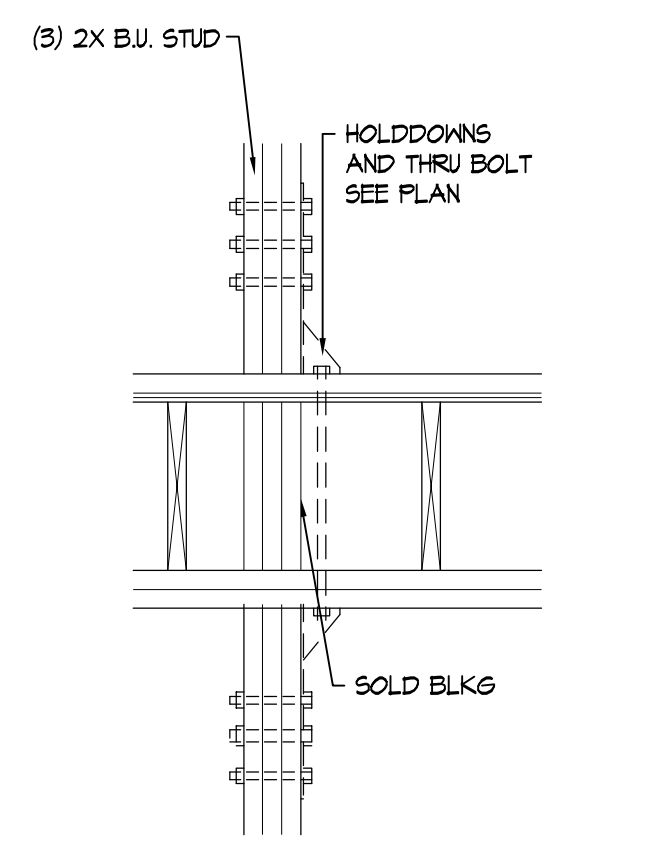
**SHEAR WALL SCHED. NOTE:**

- BLOCK ALL PANEL EDGES
- SEE NAILS - MIN. REQUIREMENTS
- 2X STUDS SHALL BE HF#2 OR BETTER, KILN-DRIED
- USED SX STUDS AND PLATES @ PANEL EDGES @ SHEARWALL 3 ONLY
- ANCHOR BOLTS SHALL HAVE MIN. 5" BY 3" BY 1/4" THICK PL. WASHER
- 1/4" OSB MAY BE SUBSTITUTED FOR 1/2" CDX

NAILS - MIN. REQUIREMENTS	MIN. PENETRATION REQ'D FOR LATERAL STRENGTH
5d COOLER	0.086"
6 d	0.099"
8 d	0.113"
10 d	0.128"
16 d	0.141"

7. PANEL EDGES SHALL BE INCLUDED AT TOP & BOT PLATES  
8. USE 1/2" LSL RIM JOISTS

5 SHEAR WALL NAILING SCHEDULE  
NTS



6 TYP. HOLDOWN DETAILS  
NTS

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STAND/RD*	IBC REFERENCE
1. Inspection of reinforcing steel, including prestressing tendons, and placement.	—	X	ACI 318: 3.5, 7.1-7.7	1910.4
2. Inspection of reinforcing steel welding in accordance with Table 1705.2.2, Item 2b.	—	—	AWS E1.4 ACI 318:3.5.2	—
3. Inspection of anchors cast in concrete where allowable loads have been increased or where strength design is used.	—	X	ACI 318: 8.1.3, 212.8	1908.5, 1909.1
4. Inspection of anchors post-installed in hardened concrete members.	—	X	ACI 318: 3.8.6, 81.3, 21.2.1	1909.1
5. Verifying use of required design mix.	—	X	ACI 318: Ch. 4, 5.2-5.4	1904.2, 1910.2, 1910.3
6. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
7. Inspection of concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
8. Inspection for maintenance of specified curing temperature and techniques.	—	X	ACI 318: 5.11-5.13	1910.9
9. Inspection of prestressed concrete:				
a. Application of prestressing forces.	X	—	ACI 318: 18.20	—
b. Grouting of bonded prestressing tendons in the seismic force-resisting system.	X	—	ACI 318: 18.184	—
10. Erection of precast concrete members.	—	X	ACI 318: Ch. 16	—
11. Verification of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 6.2	—
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 5.1.1	—

**TABLE 1705.4 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS**

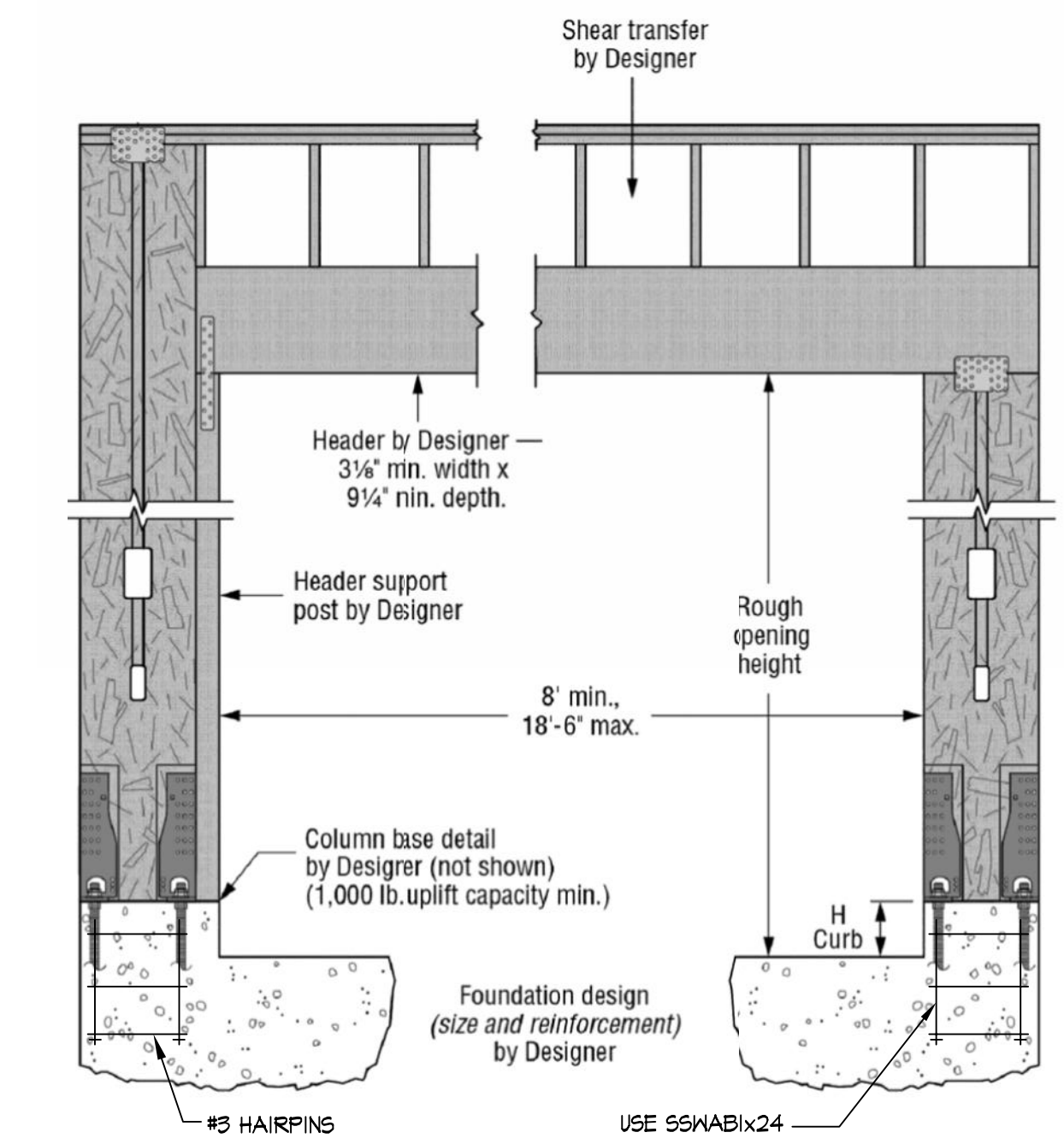
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	—	X
2. Verify excavations are extended to proper depth and have reached proper material.	—	X
3. Perform classification and testing of compacted fill materials.	—	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	X	—
5. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	—	X

**TABLE 1705.7 REQUIRED SPECIAL INSPECTIONS AND TESTS OF DRIVEN DEEP FOUNDATION ELEMENTS**

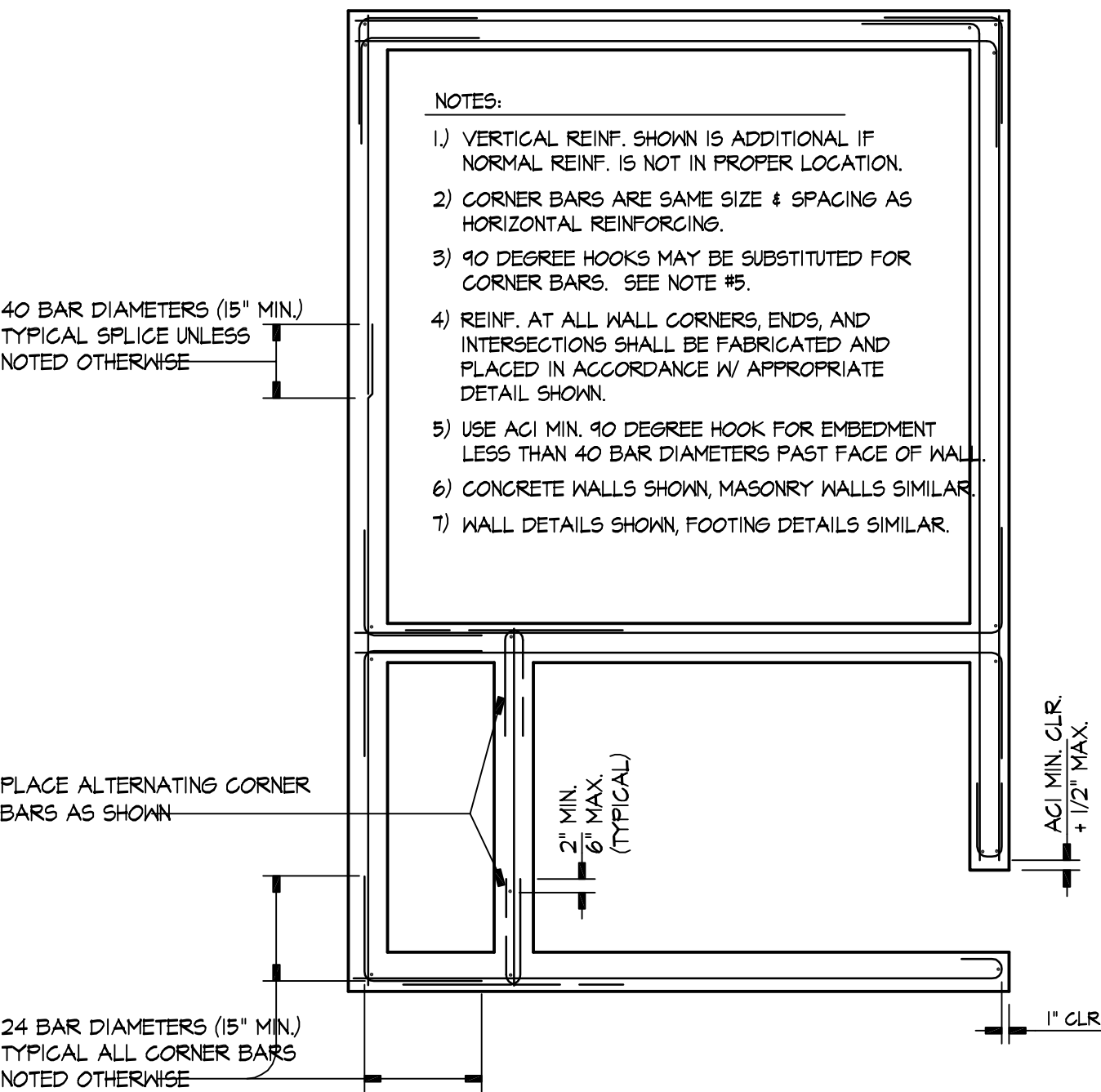
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Verify element materials, sizes and lengths comply with the requirements.	X	—
2. Determine capacities of test elements and conduct additional load tests, as required.	X	—
3. Inspect driving operations and maintain complete and accurate records for each element.	X	—
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element.	X	—
5. For steel elements, perform additional special inspections in accordance with Section 1705.2.	—	—
6. For concrete elements and concrete-filled elements, perform tests and additional special inspections in accordance with Section 1705.3.	—	—
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.	—	—

**TABLE 1705.8 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CAST-IN-PLACE DEEP FOUNDATION ELEMENTS**

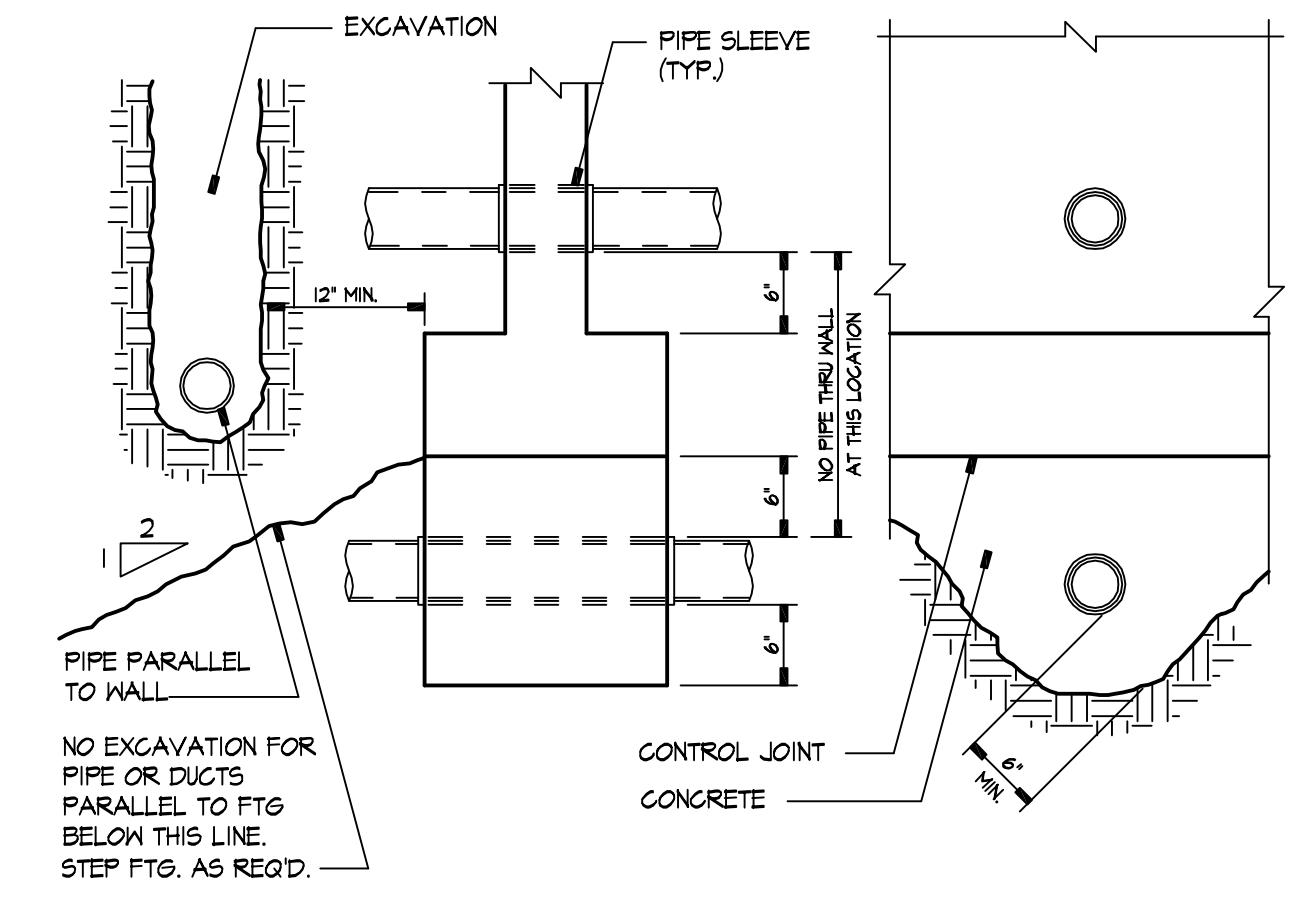
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. Inspect drilling operations and maintain complete and accurate records for each element.	X	—
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes.	X	—
3. For concrete elements, perform tests and additional special inspections in accordance with Section 1705.3.	—	—



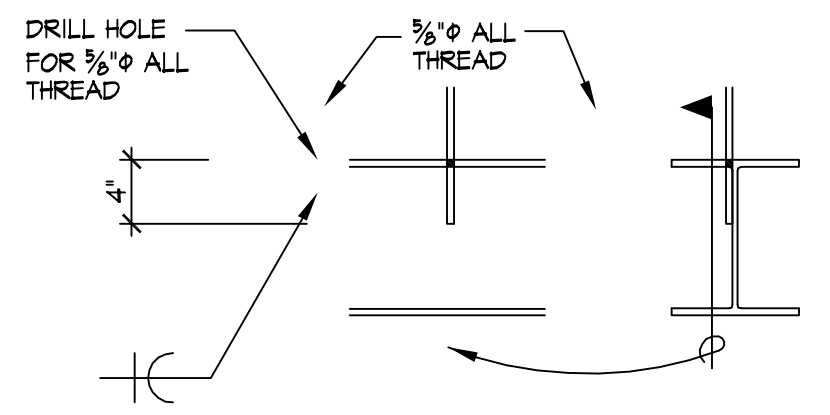
7 PORTAL ELEV - WSW 24x8'  
NTS



8 TYPICAL REINFORCEMENT PLACING DETAIL  
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9 TYPICAL DETAIL OF PIPE @ CONCRETE FOOTING  
NTS

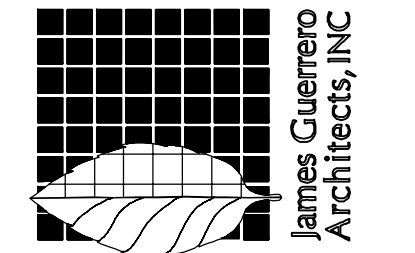


10 THREADED ROD DETAIL  
NTS

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BOYLE RESIDENCE  
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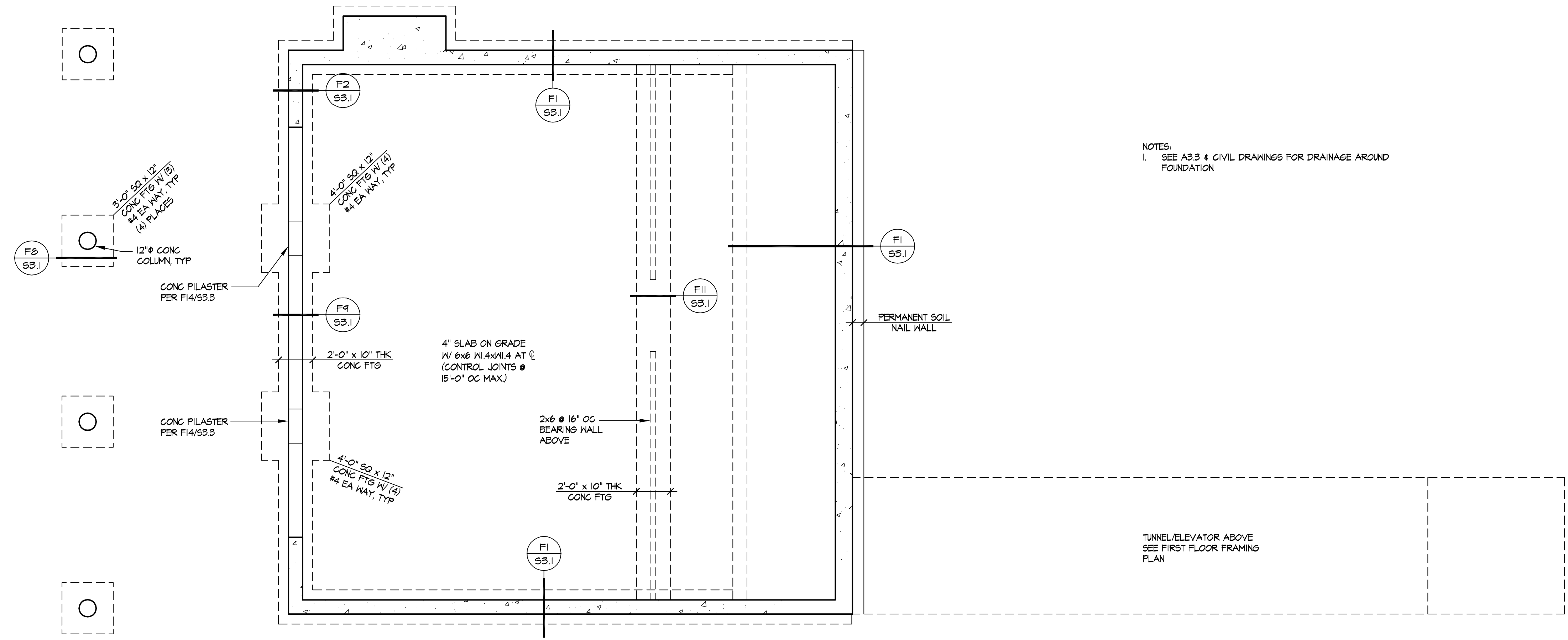
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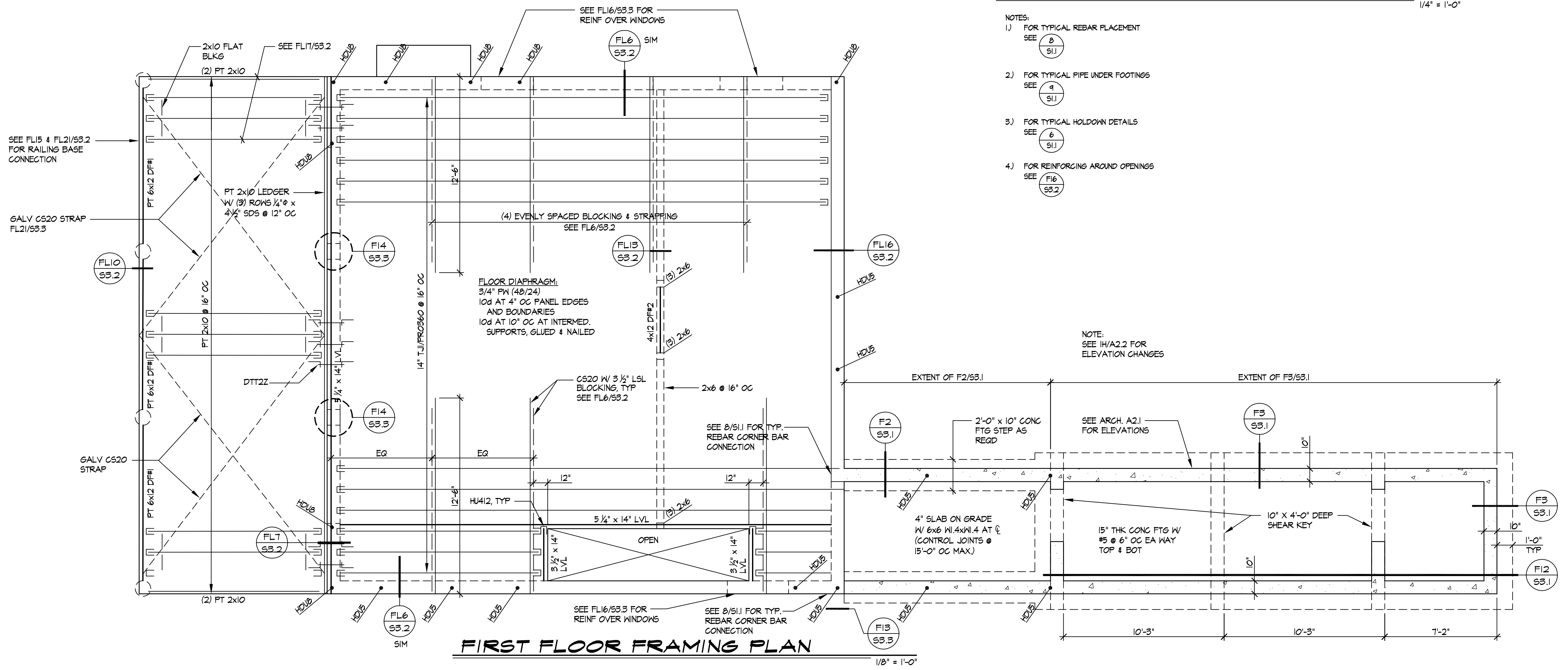


**FOUNDATION PLAN**

1/4" = 1'-0"

- NOTES:
- 1) FOR TYPICAL REBAR PLACEMENT SEE (S11)
  - 2) FOR TYPICAL PIPE UNDER FOOTINGS SEE (S11)
  - 3) FOR TYPICAL HOLDOWN DETAILS SEE (S11)
  - 4) FOR REINFORCING AROUND OPENINGS SEE (F16/S3.2)

NOTE:  
SEE I1/A2.2 FOR ELEVATION CHANGES



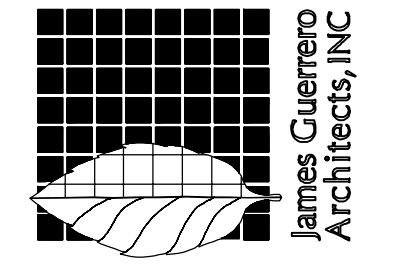
**FIRST FLOOR FRAMING PLAN**

1/8" = 1'-0"

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**BOYLE RESIDENCE  
MERCER ISLAND, WA  
FOUNDATION & FIRST FLOOR  
FRAMING PLANS**

PROJECT

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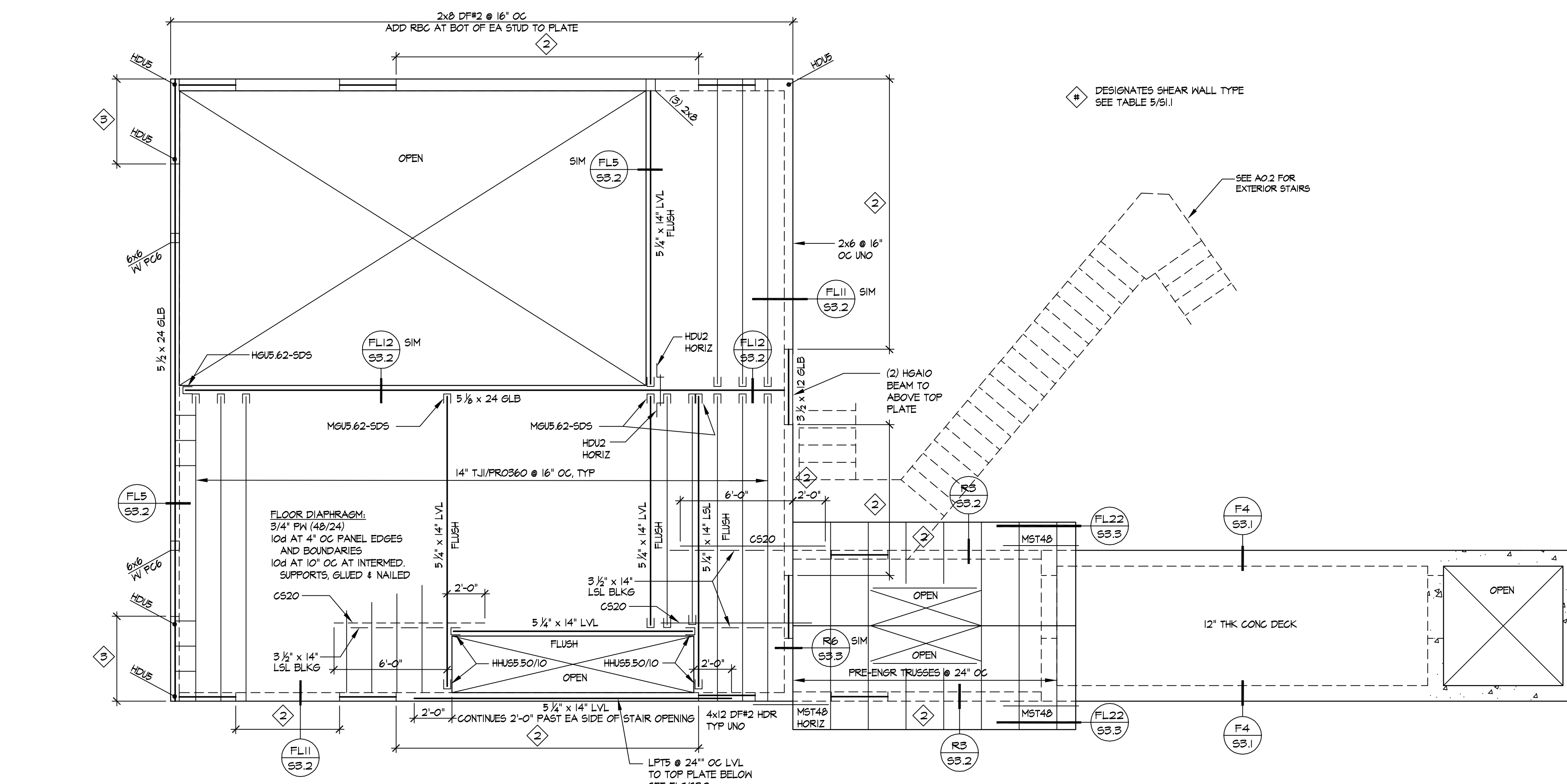
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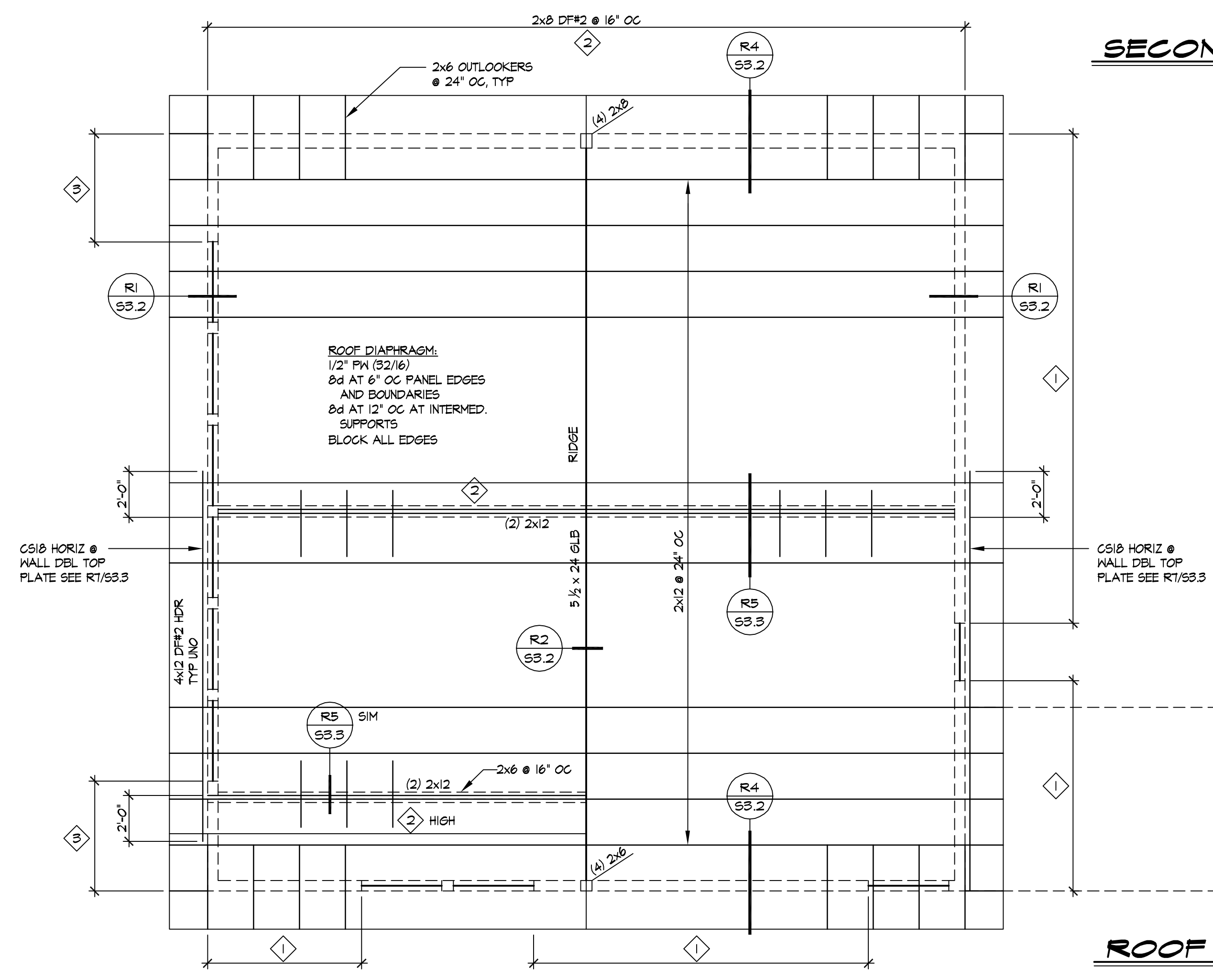
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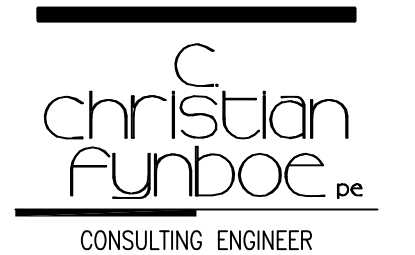
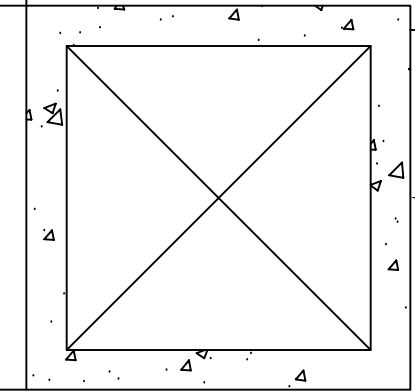
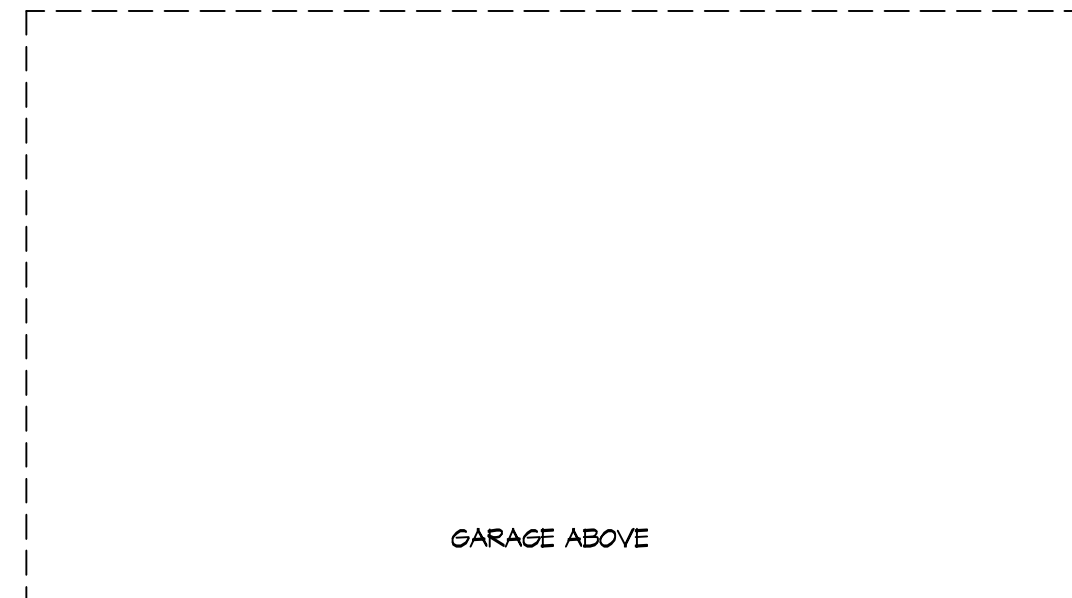


**SECOND FLOOR FRAMING PLAN**  
1/4" = 1'-0"



**ROOF FRAMING PLAN**  
1/4" = 1'-0"

NOTE:  
SEE A3.3 & CIVIL DRAWINGS  
FOR DRAINAGE AROUND  
FOUNDATION



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Architects, INC

**BOYLE RESIDENCE  
MERCER ISLAND, WA  
SECOND FLOOR & ROOF  
FRAMING PLANS**

PROJECT  
DRAWING TITLE

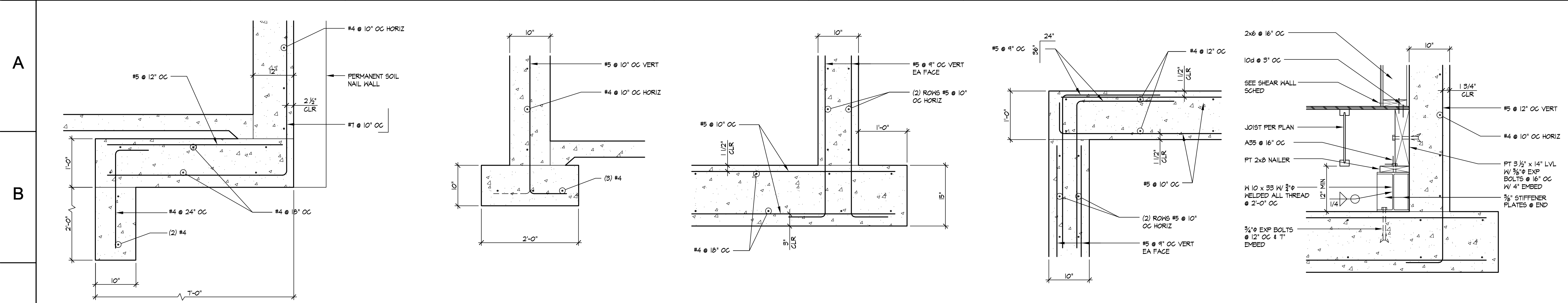
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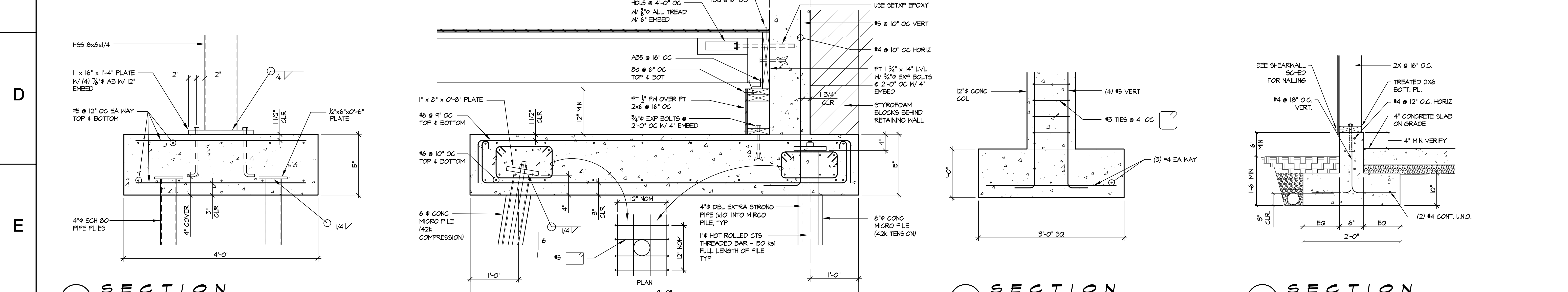
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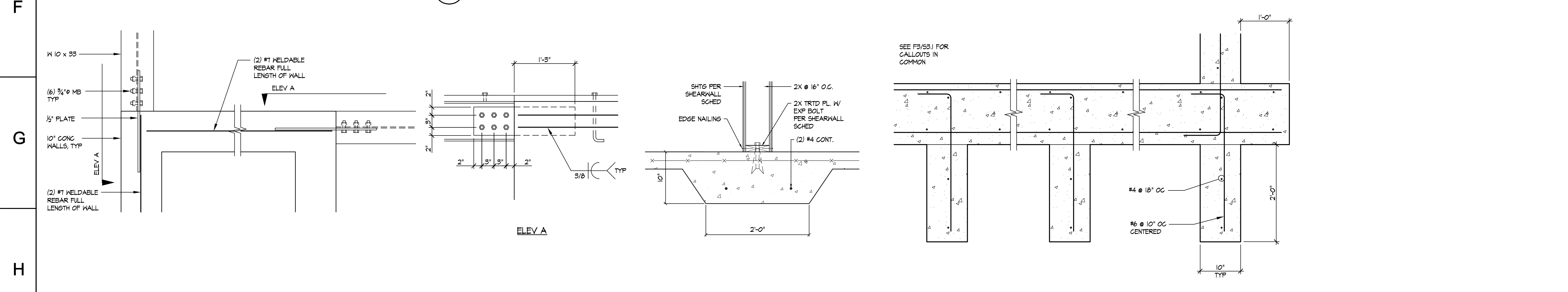
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**F1 SECTION** SCALE: 1" = 1'-0" **F2 SECTION** SCALE: 1" = 1'-0" **F3 SECTION** SCALE: 1" = 1'-0" **F4 SECTION** SCALE: 1" = 1'-0" **F5 SECTION** SCALE: 1" = 1'-0"



**F6 SECTION** SCALE: 1" = 1'-0" **F7 SECTION** SCALE: 1" = 1'-0" **F8 SECTION** SCALE: 1" = 1'-0" **F9 SECTION** SCALE: 1" = 1'-0"

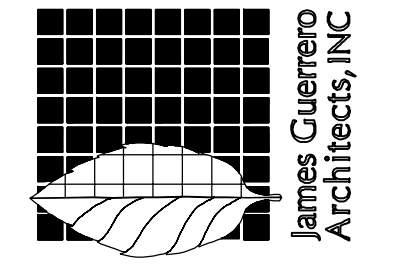


**F10 SECTION** SCALE: 1" = 1'-0" **F11 SECTION** SCALE: 1" = 1'-0" **F12 SECTION** SCALE: 1" = 1'-0"

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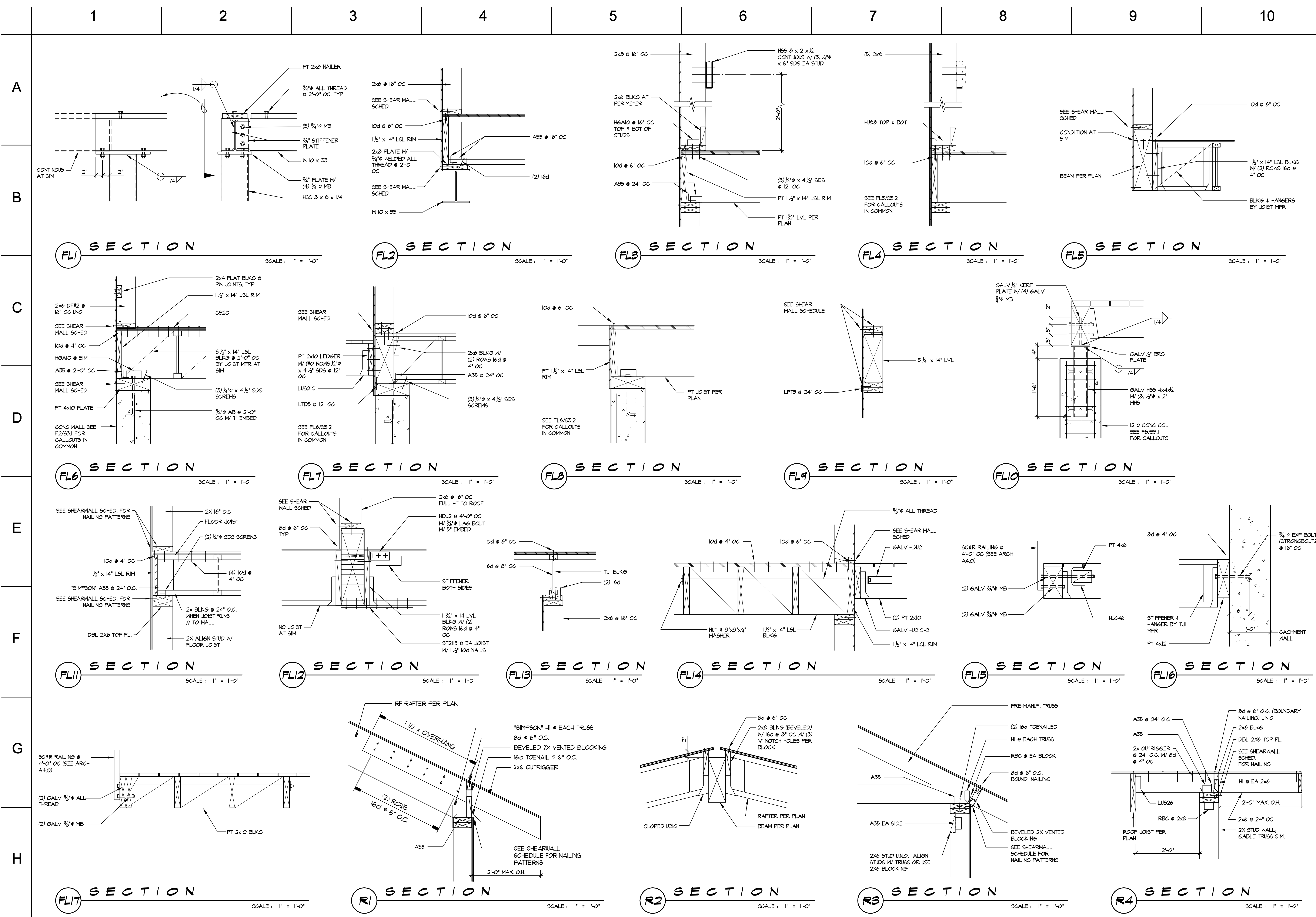


**BOYLE RESIDENCE**  
**MERCER ISLAND, WA**  
**DETAILS**

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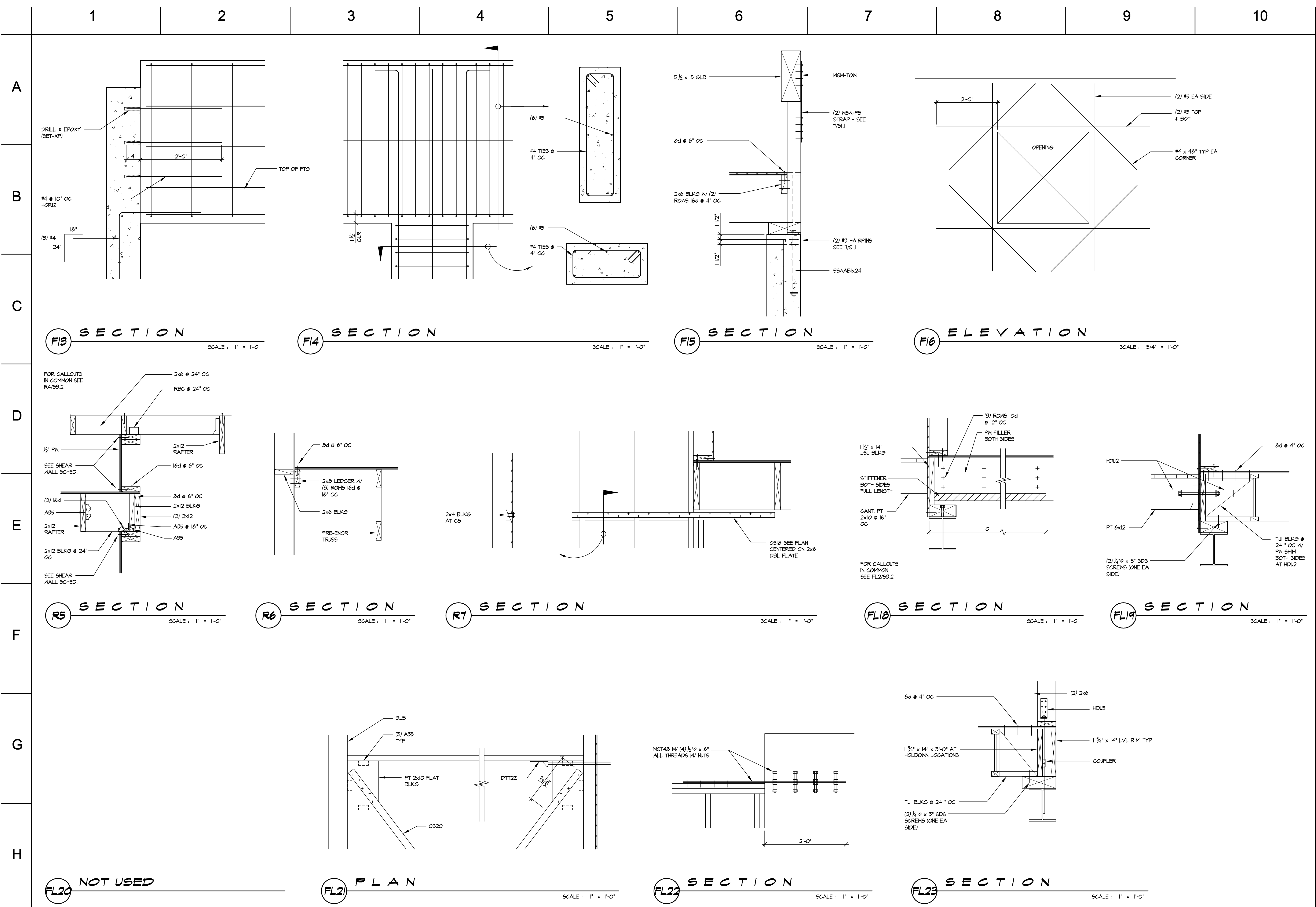
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PERMIT SET





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**James Guerrero**  
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**BOYLE RESIDENCE  
 MERCER ISLAND, WA**  
 DETAILS

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△	04/22/19
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