

WALL TYPE LEGEND

SCALE: 1" = 1'-0"

GENERAL WALL TYPE NOTES:

- SEE INTERIOR ELEVATIONS (SHEET A801) AND FINISH SCHEDULE (SHEET A501) FOR WALL FINISHES.
- PROVIDE BLOCKING AS REQUIRED TO SECURE WALL HUNG COMPONENTS.
- EXTEND ALL COMPONENTS TO UNDERSIDE OF DECK, UNLESS NOTED OTHERWISE.

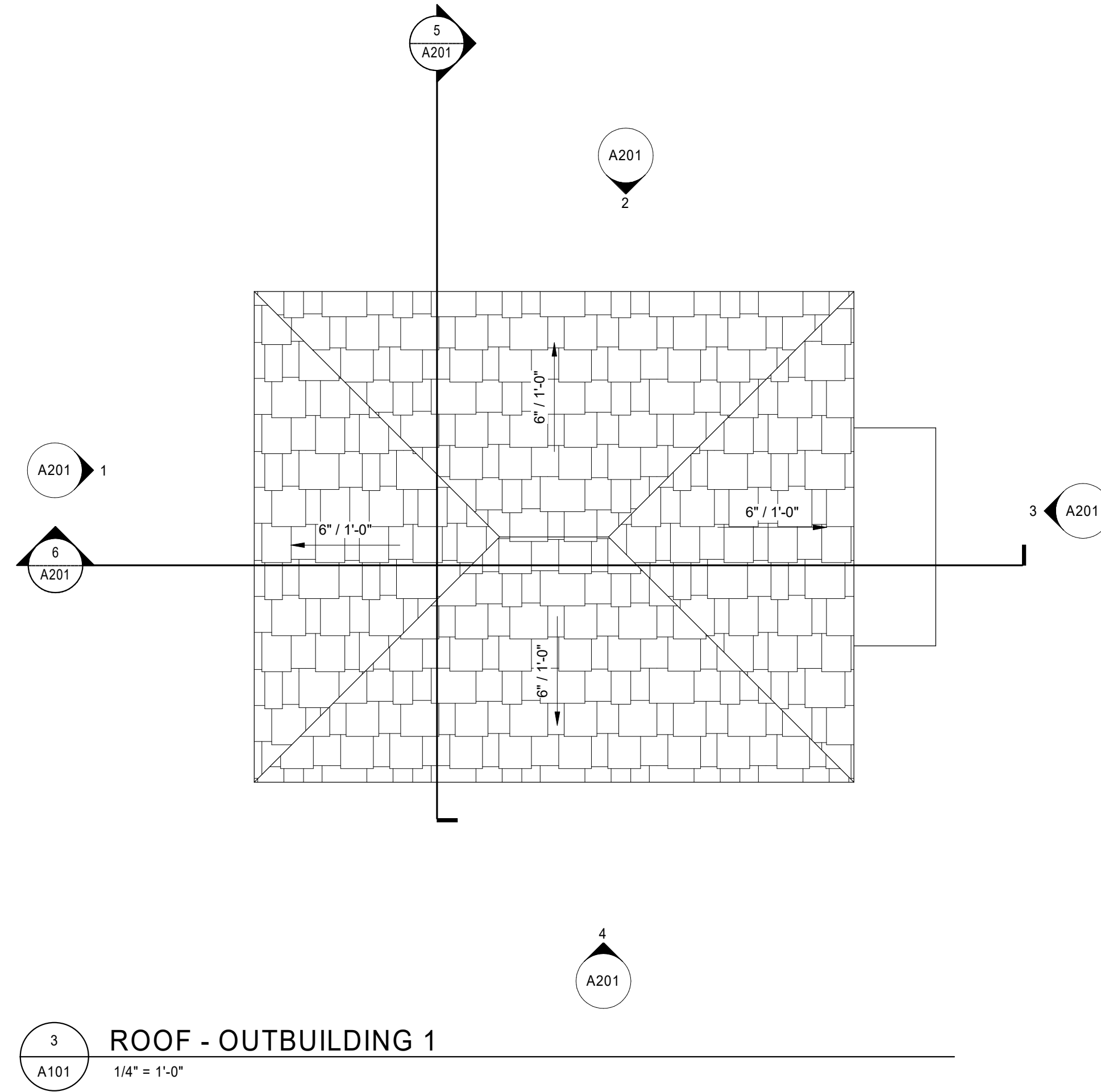
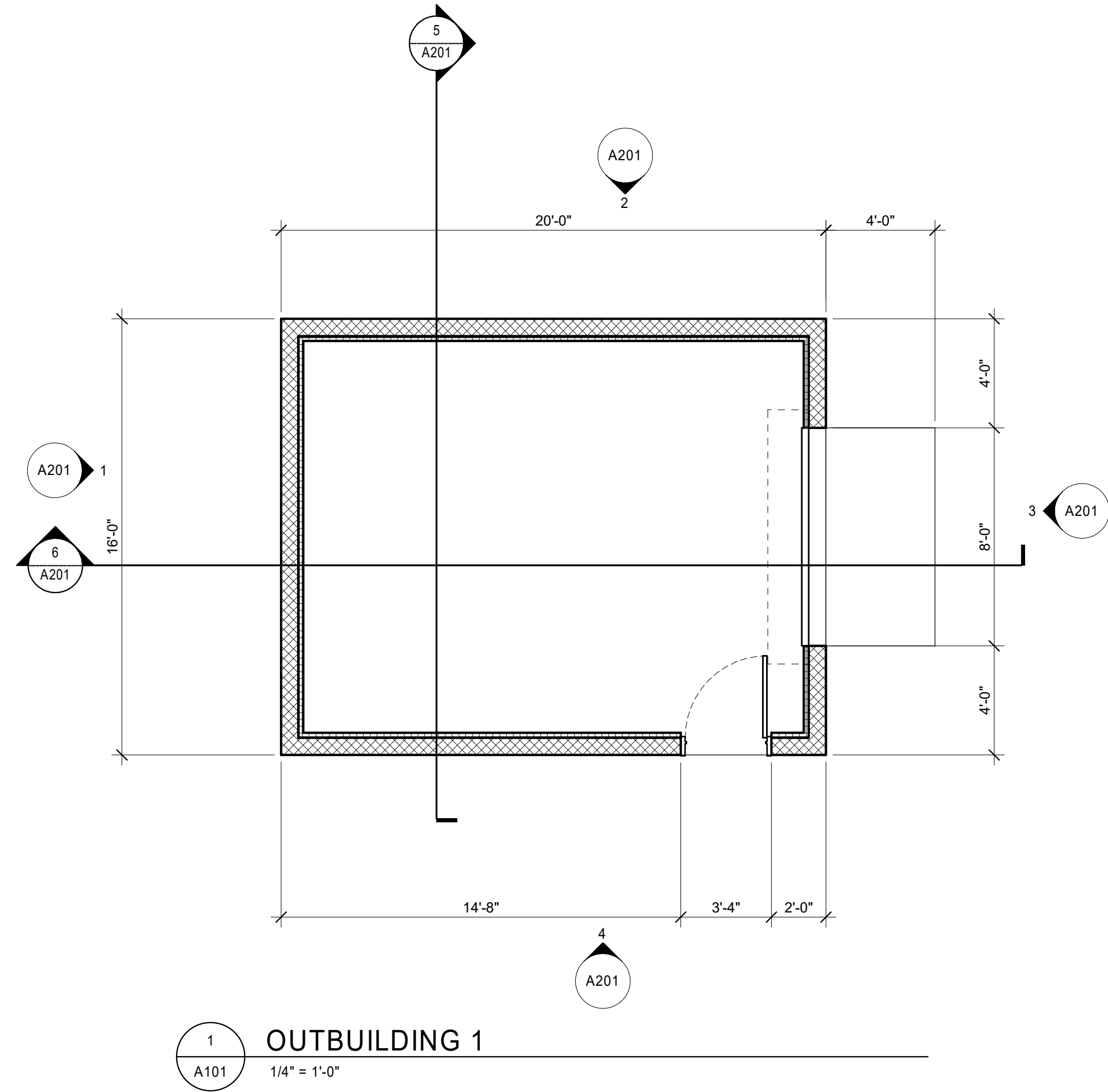
WALL TYPE MODIFIERS:

- NOT USED.
-

PLAN LEGEND

- W# → ASSEMBLY TYPE (SEE ASSEMBLIES SHEET)
→ ASSEMBLY MODIFIER, PER TYPE
- NAME
101 → ROOM NAME AND NUMBER
- X → WINDOW TYPE (SEE A600s)
- (X) → KEYNOTE
- 1 → DIRECTION OF VIEW, IF APPLICABLE
SIM → DRAWING NUMBER
X000 → SHEET WHERE DRAWN
- 101-1 → DOOR NUMBER (SEE SHEET A601)
- DIMENSION TO FACE OF FRAMING
- DIMENSION TO GRID LINE
- DIMENSION TO CENTER LINE

KEYNOTES



NOT FOR CONSTRUCTION - PRELIMINARY DESIGN

MISSOULA, MONTANA
WILDROOT

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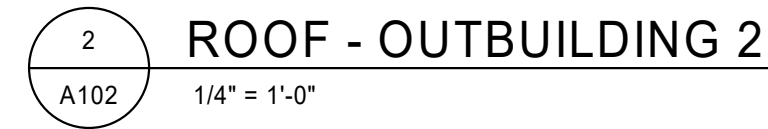
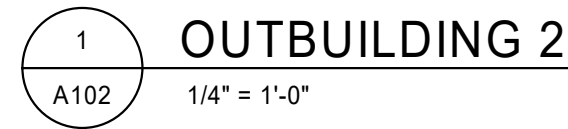
PRELIMINARY PLAT

12.05.2023
DESIGNED BY | AUBE
DRAWN BY | ROXAS
REVIEWED BY | LAST NAME

REVISIONS

OUTBUILDING 1

A101



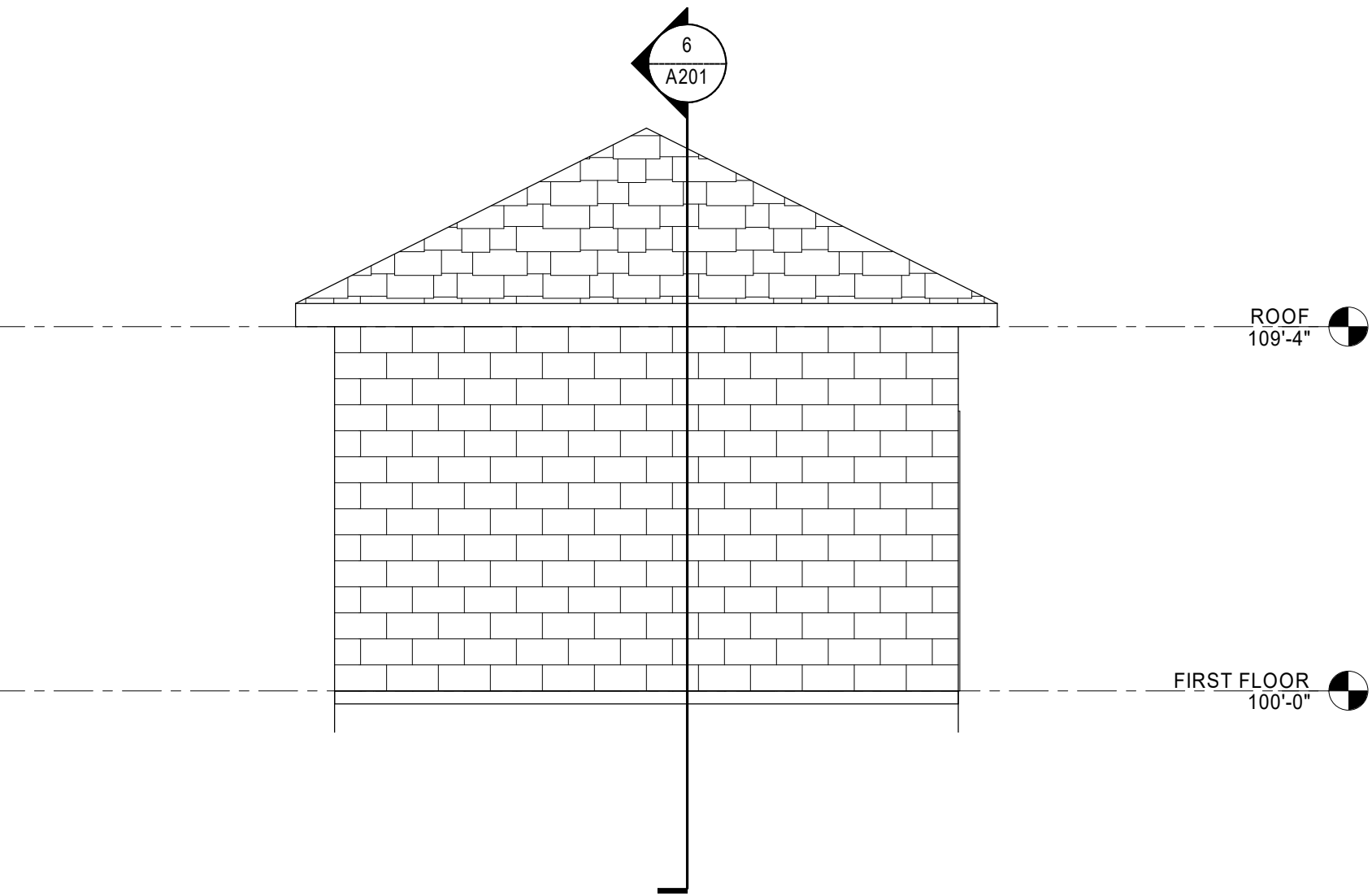
MATERIALS LEGEND

	CMU		MATERIAL 2
	ASPHALT SHINGLE		

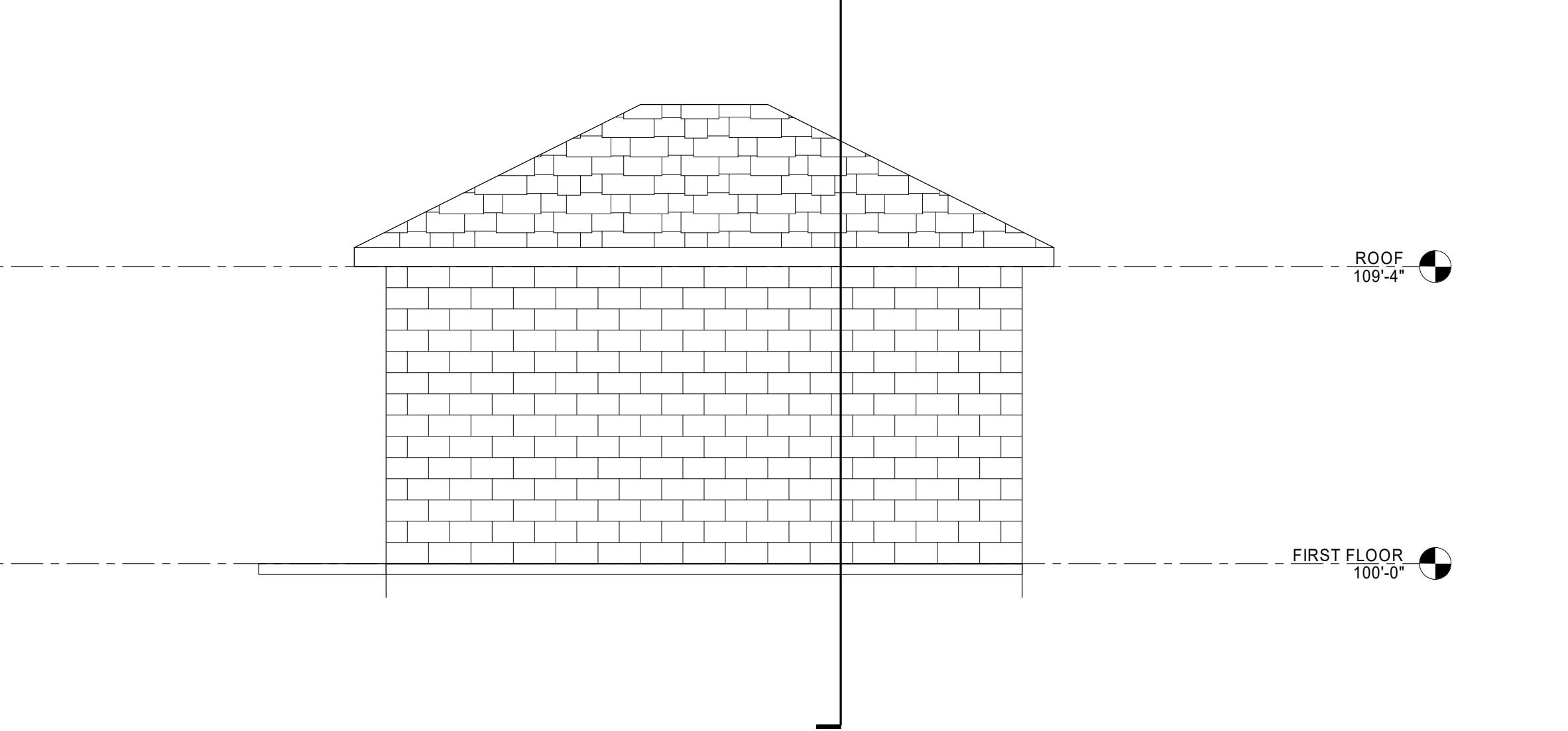
KEYNOTES

Cushing
Terrell.

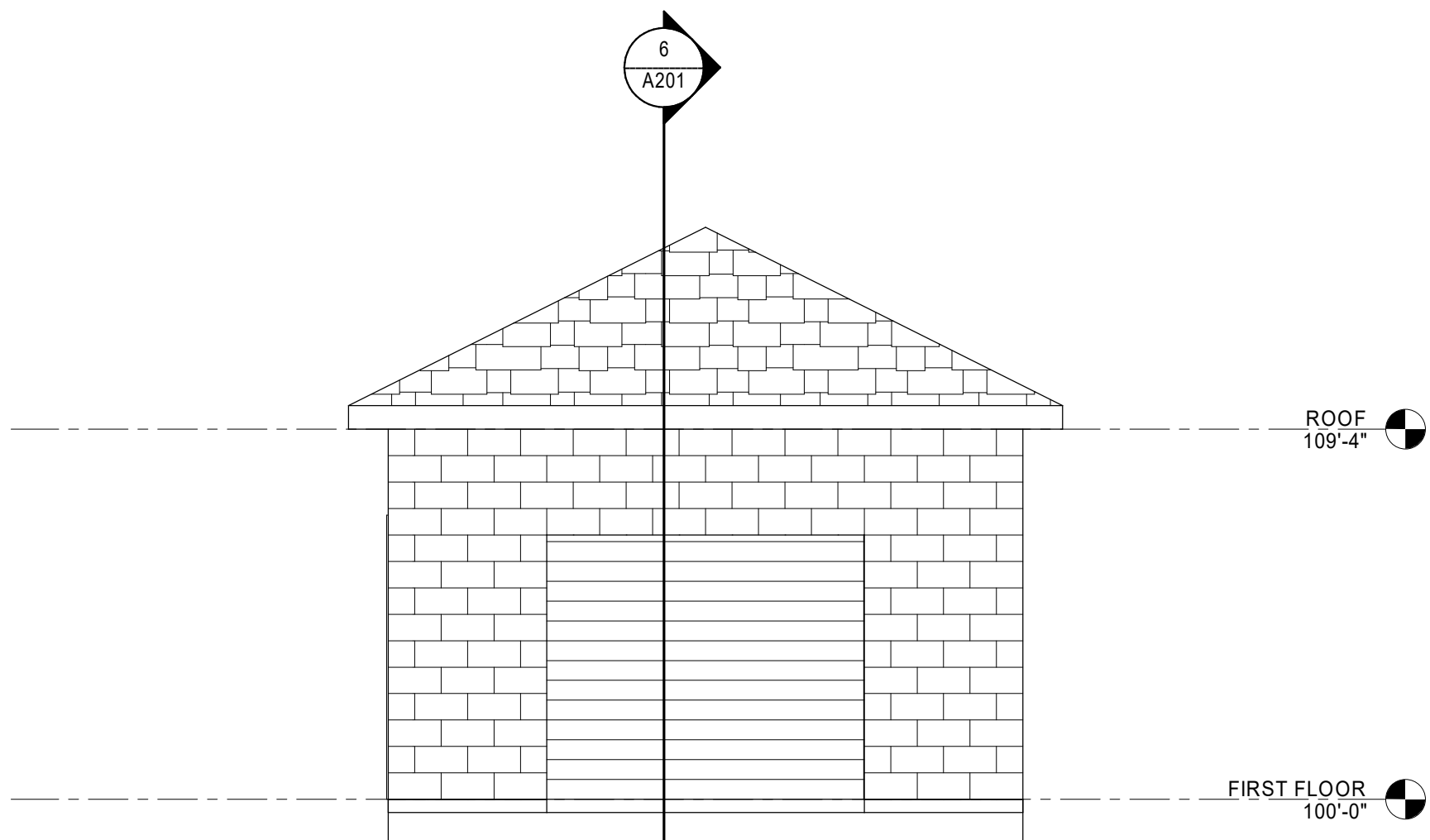
cushingterrell.com
800.757.9522



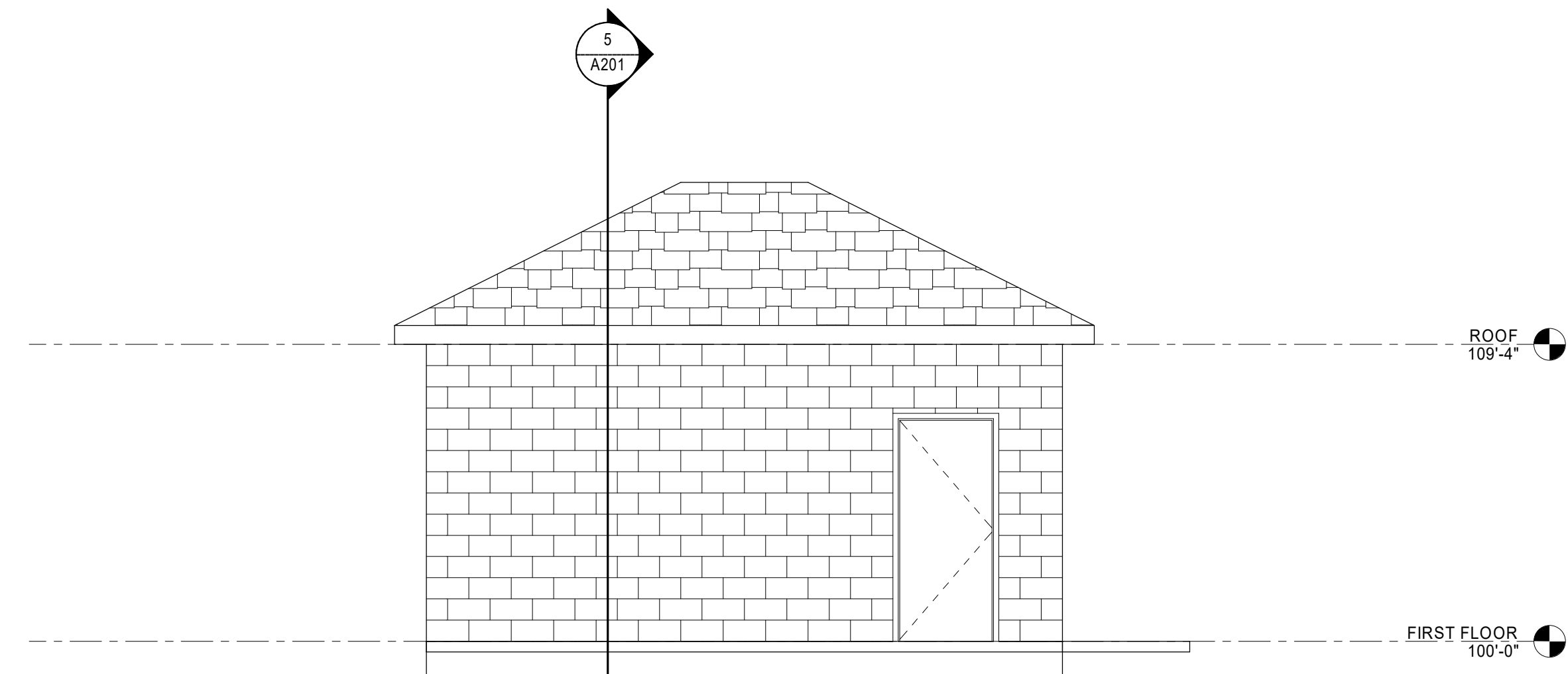
1 OUTBUILDING 1 - ELEVATION 1
1/4" = 1'-0"



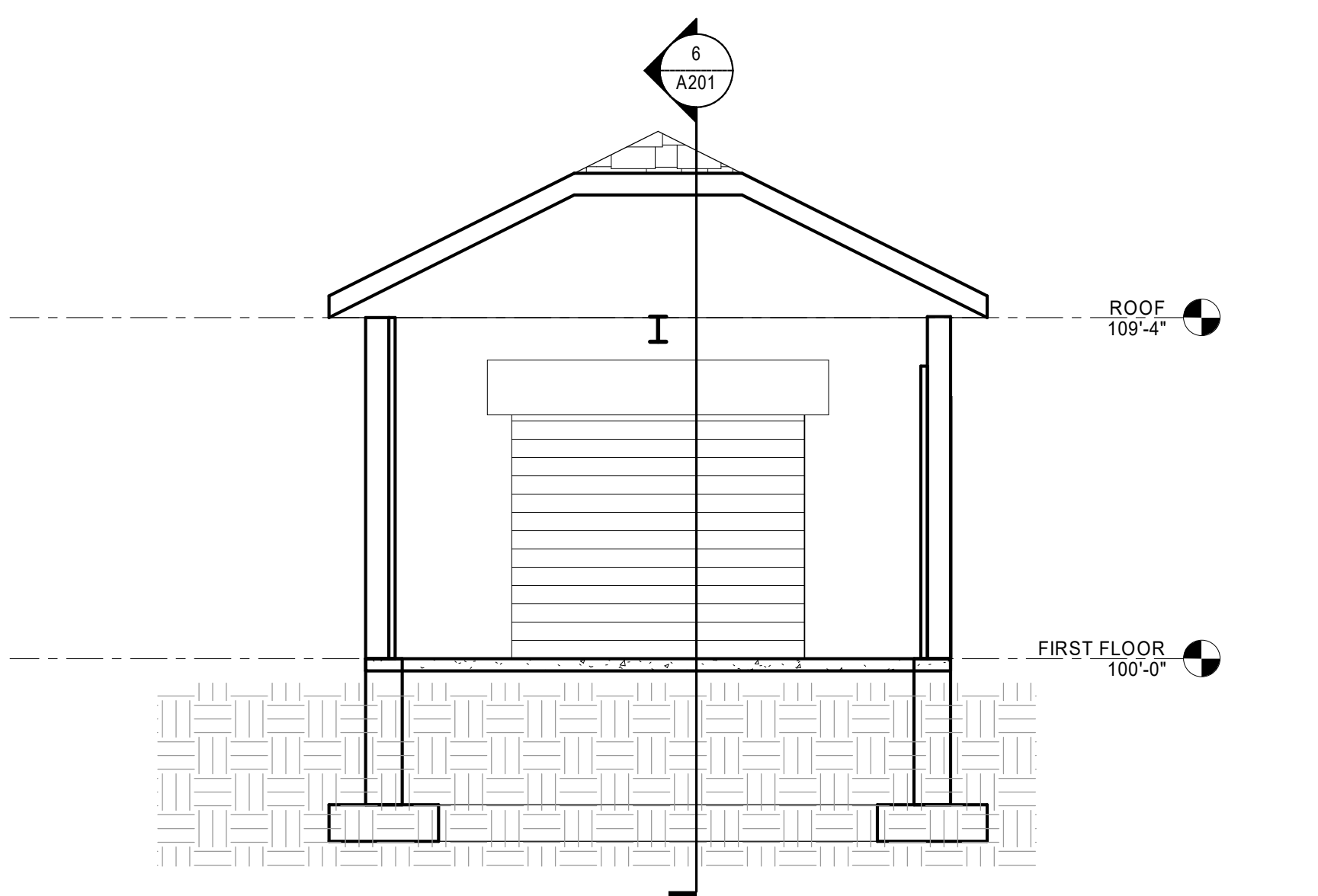
2 OUTBUILDING 1 - ELEVATION 2
1/4" = 1'-0"



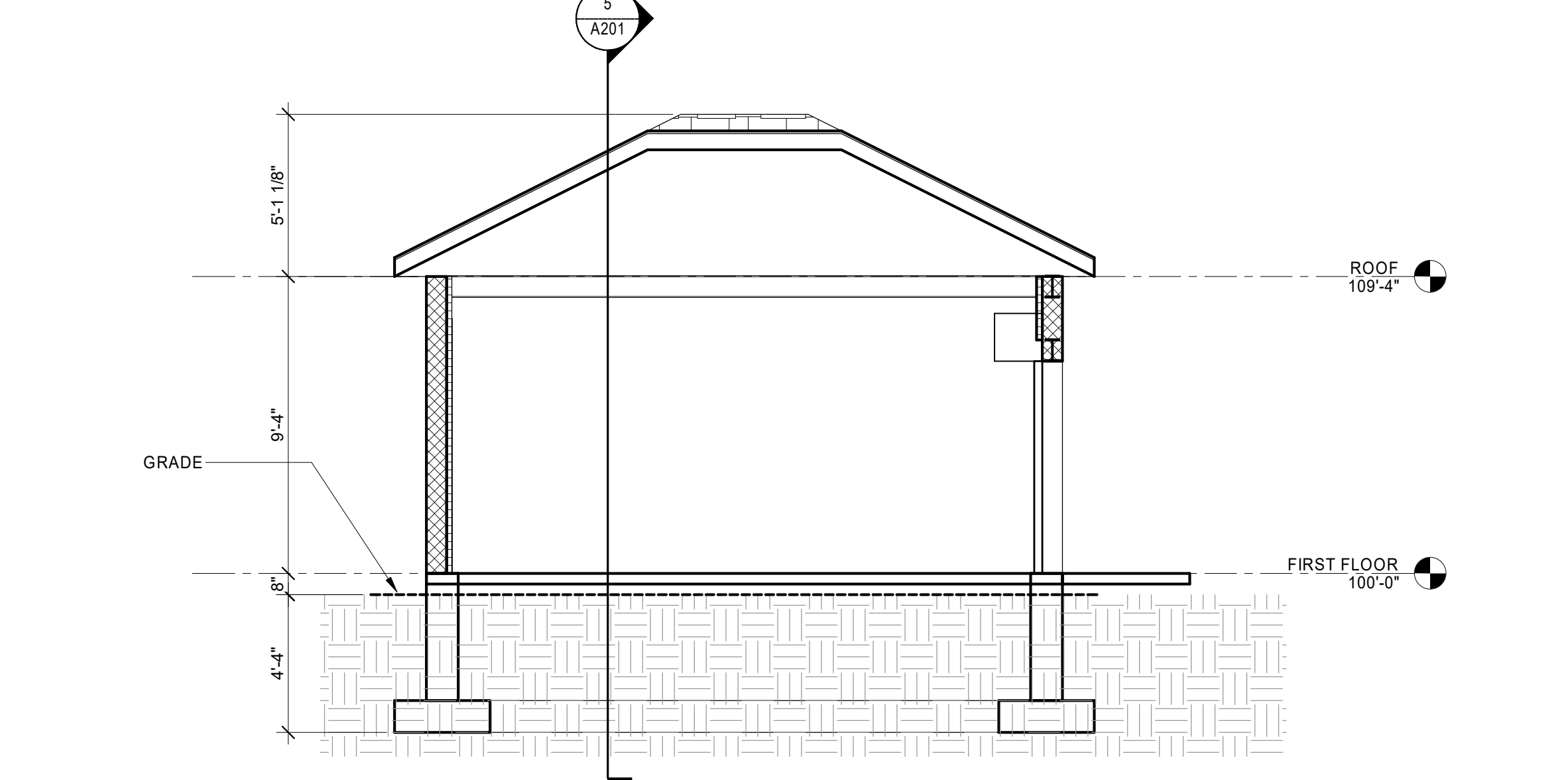
3 OUTBUILDING 1 - ELEVATION 3
1/4" = 1'-0"



4 OUTBUILDING 1 - ELEVATION 4
1/4" = 1'-0"



5 OUTBUILDING 1 - SECTION 1
1/4" = 1'-0"



6 OUTBUILDING 1 - SECTION 2
1/4" = 1'-0"

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WILDROOT

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PRELIMINARY PLAT

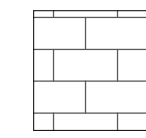
12.05.2023
DESIGNED BY | LAST NAME
DRAWN BY | LAST NAME
REVIEWED BY | LAST NAME

REVISIONS

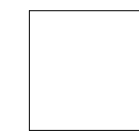
EXTERIOR
ELEVATIONS

A201

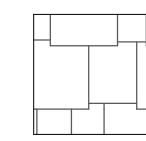
MATERIALS LEGEND



CMU

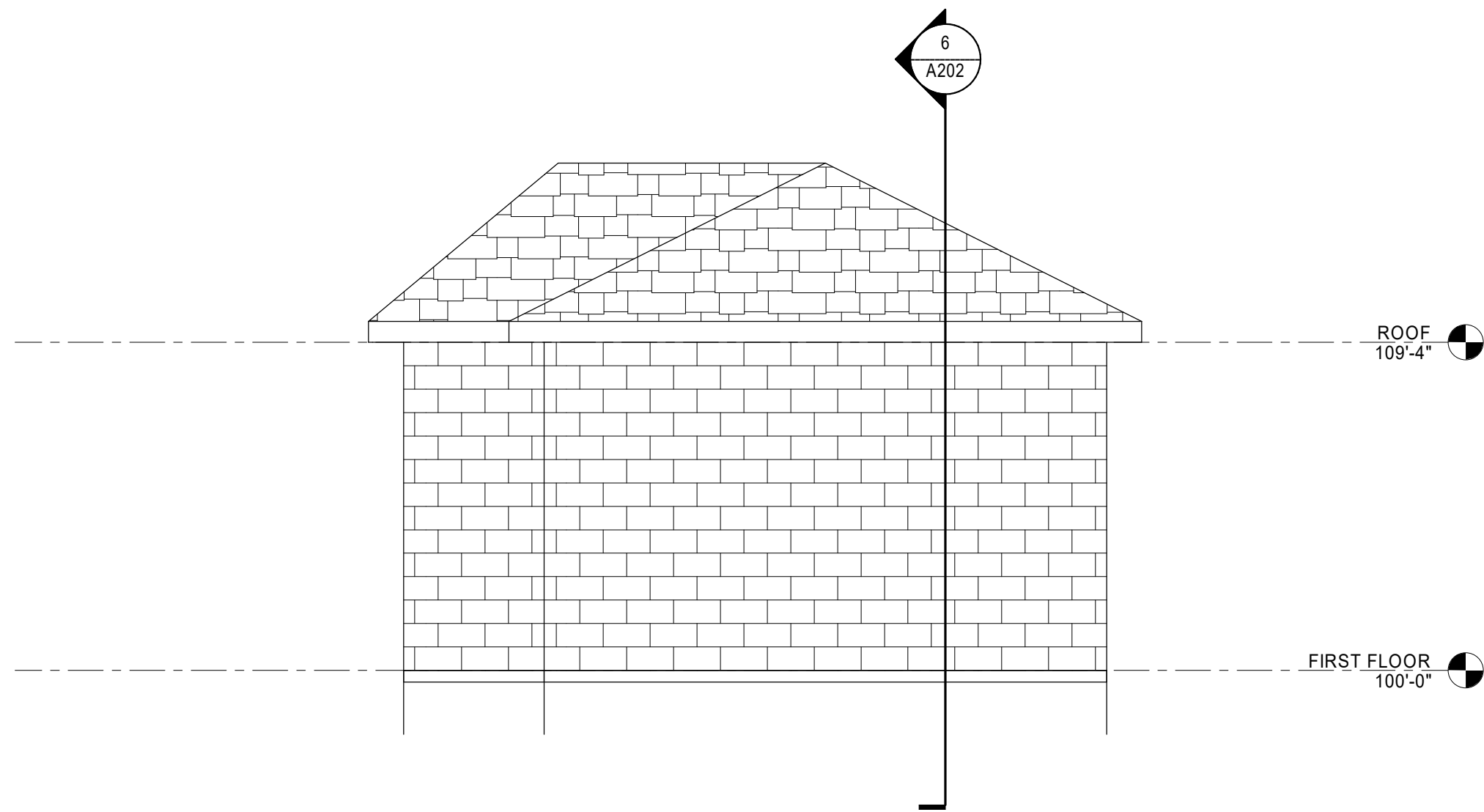


MATERIAL 2

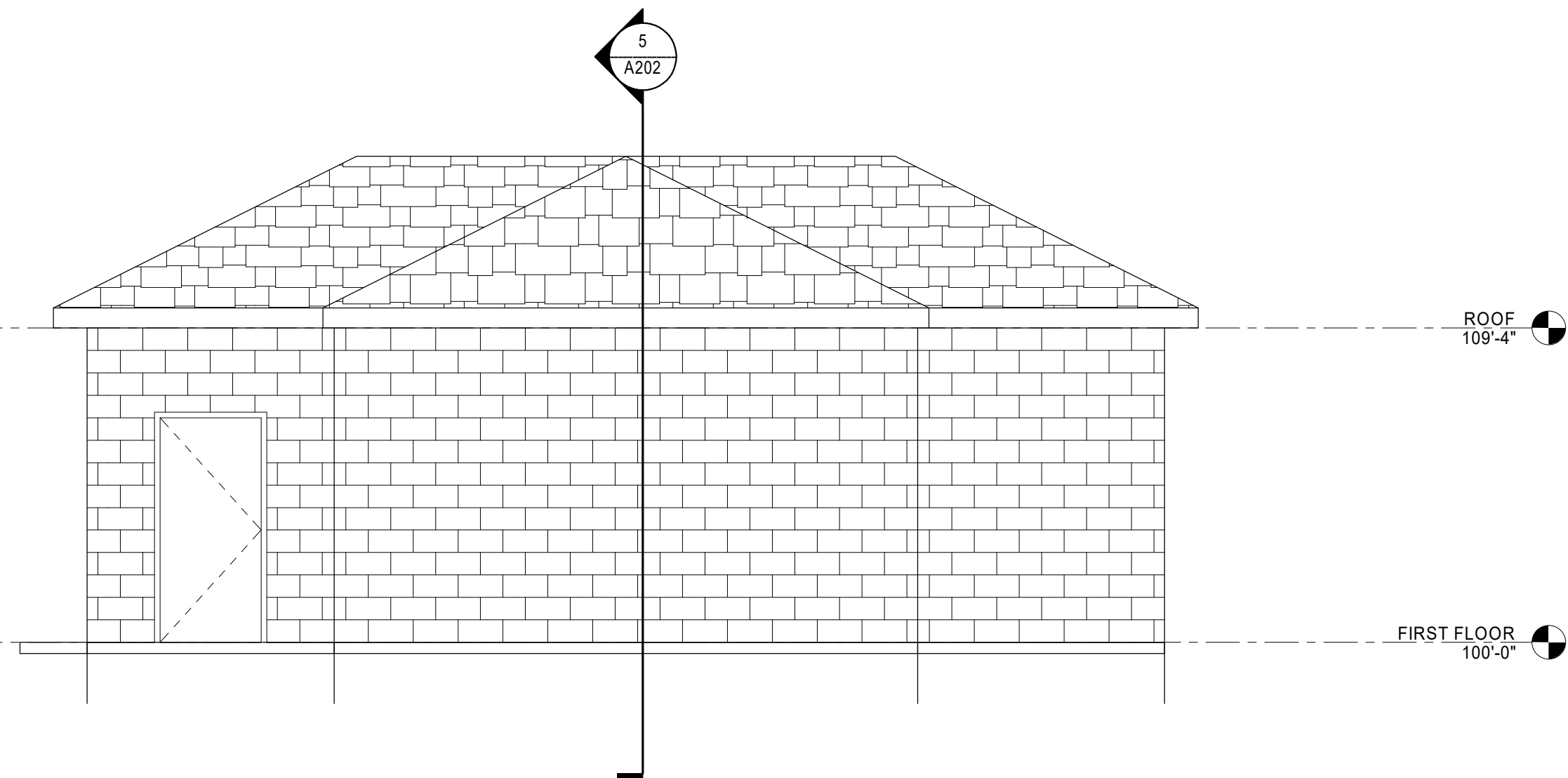


ASPHALT SHINGLE

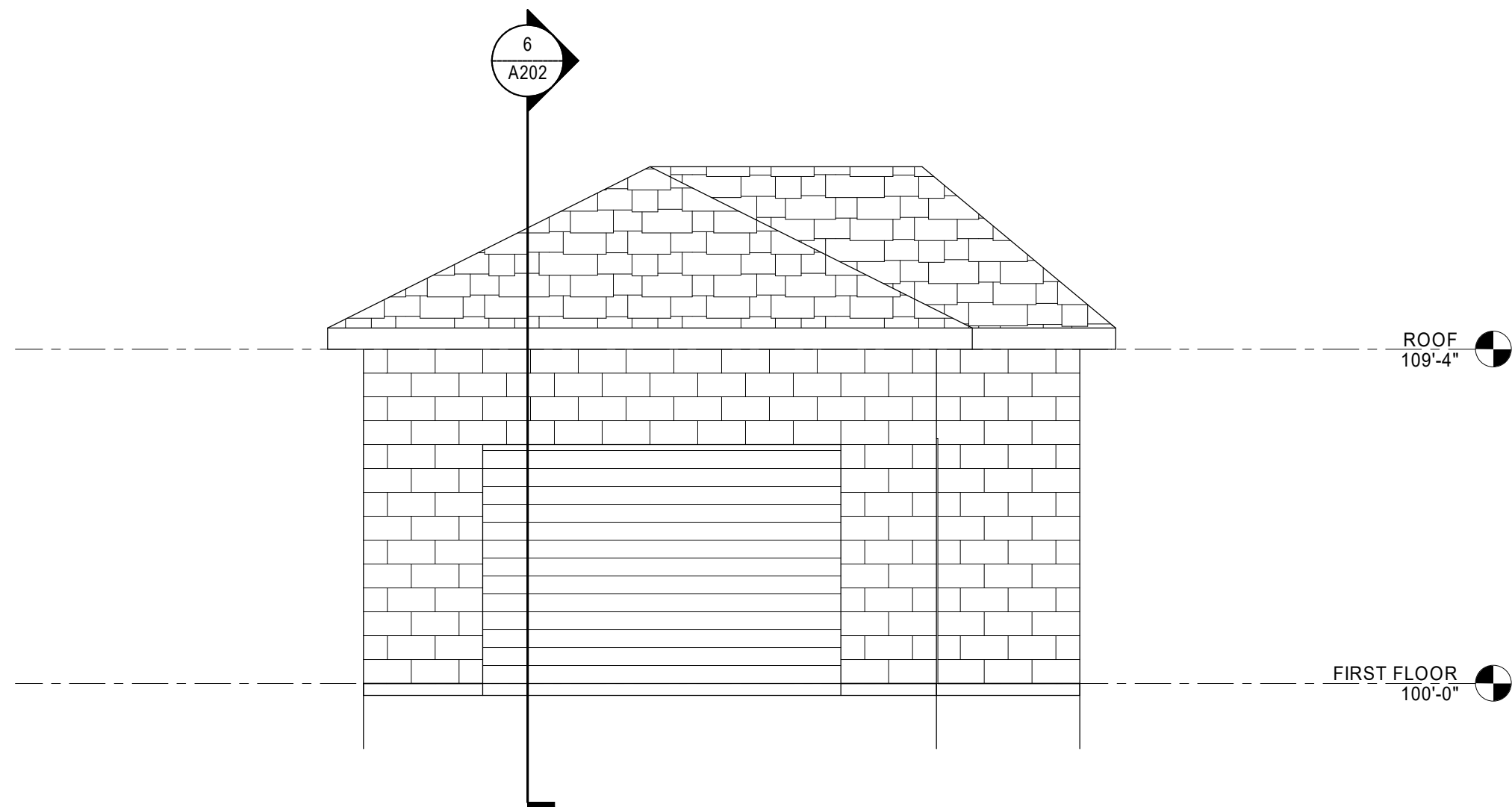
KEYNOTES



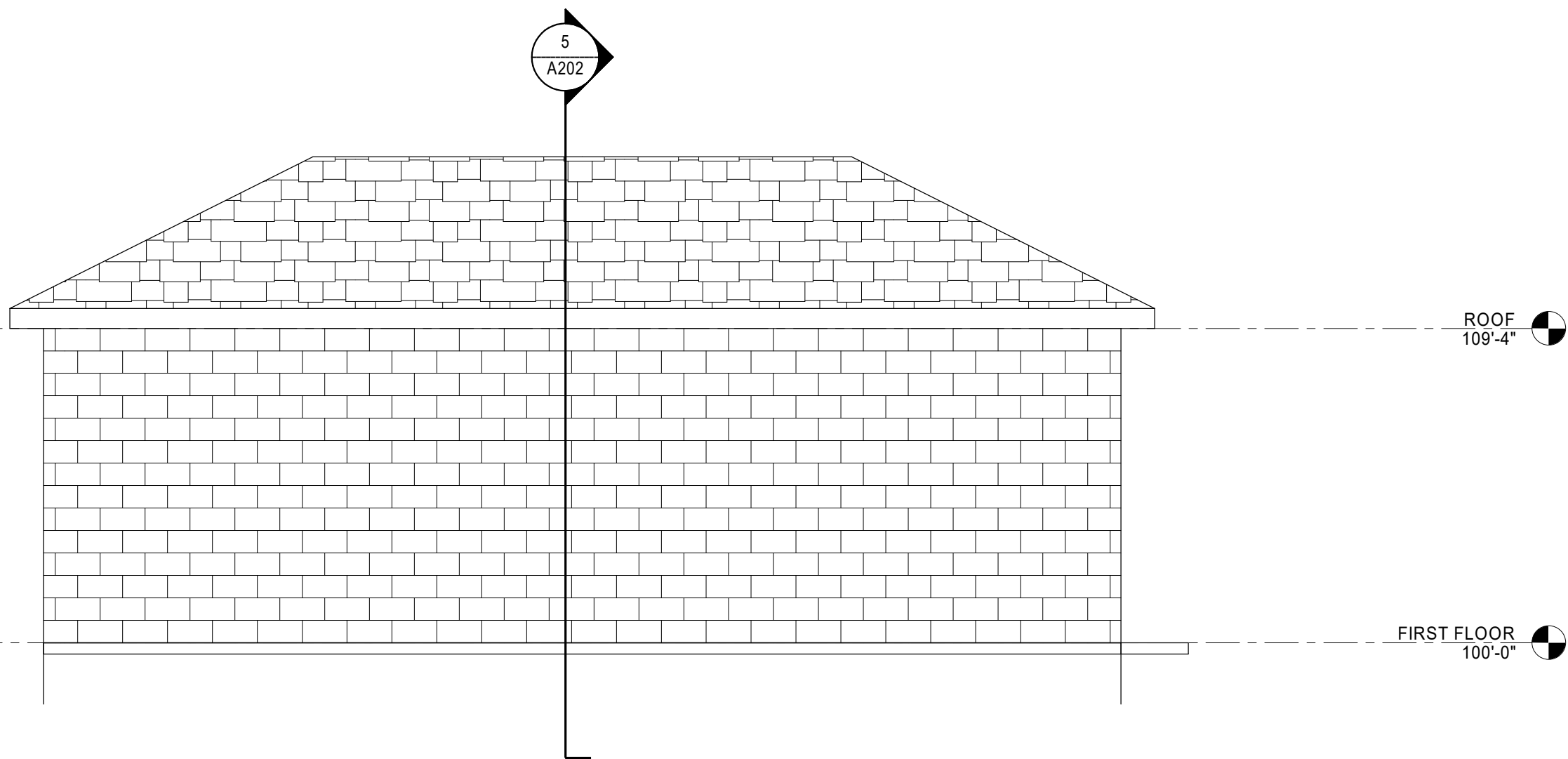
1 OUTBUILDING 2 - ELEVATION 1
A202 1/4" = 1'-0"



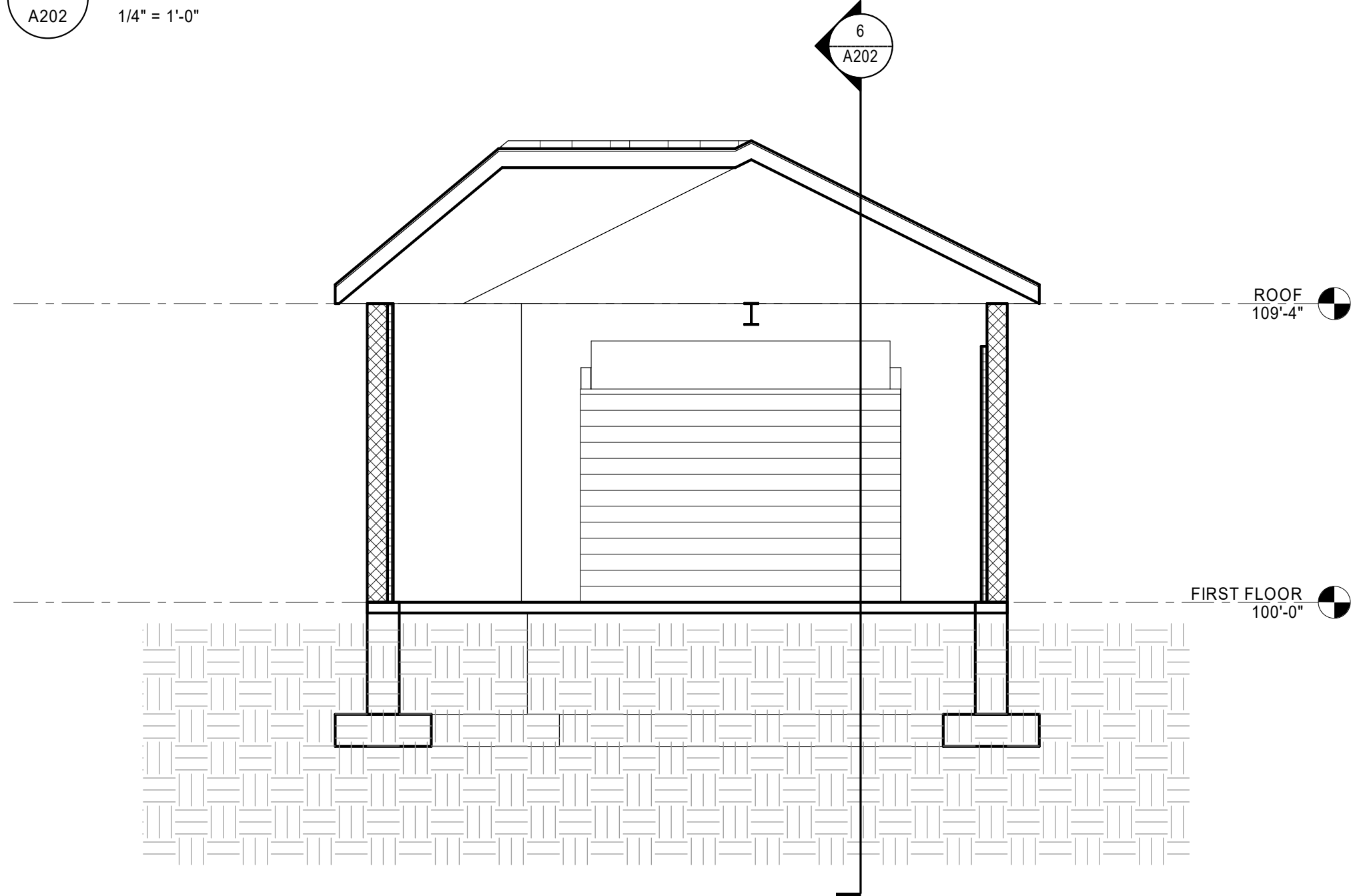
2 OUTBUILDING 2 - ELEVATION 2
A202 1/4" = 1'-0"



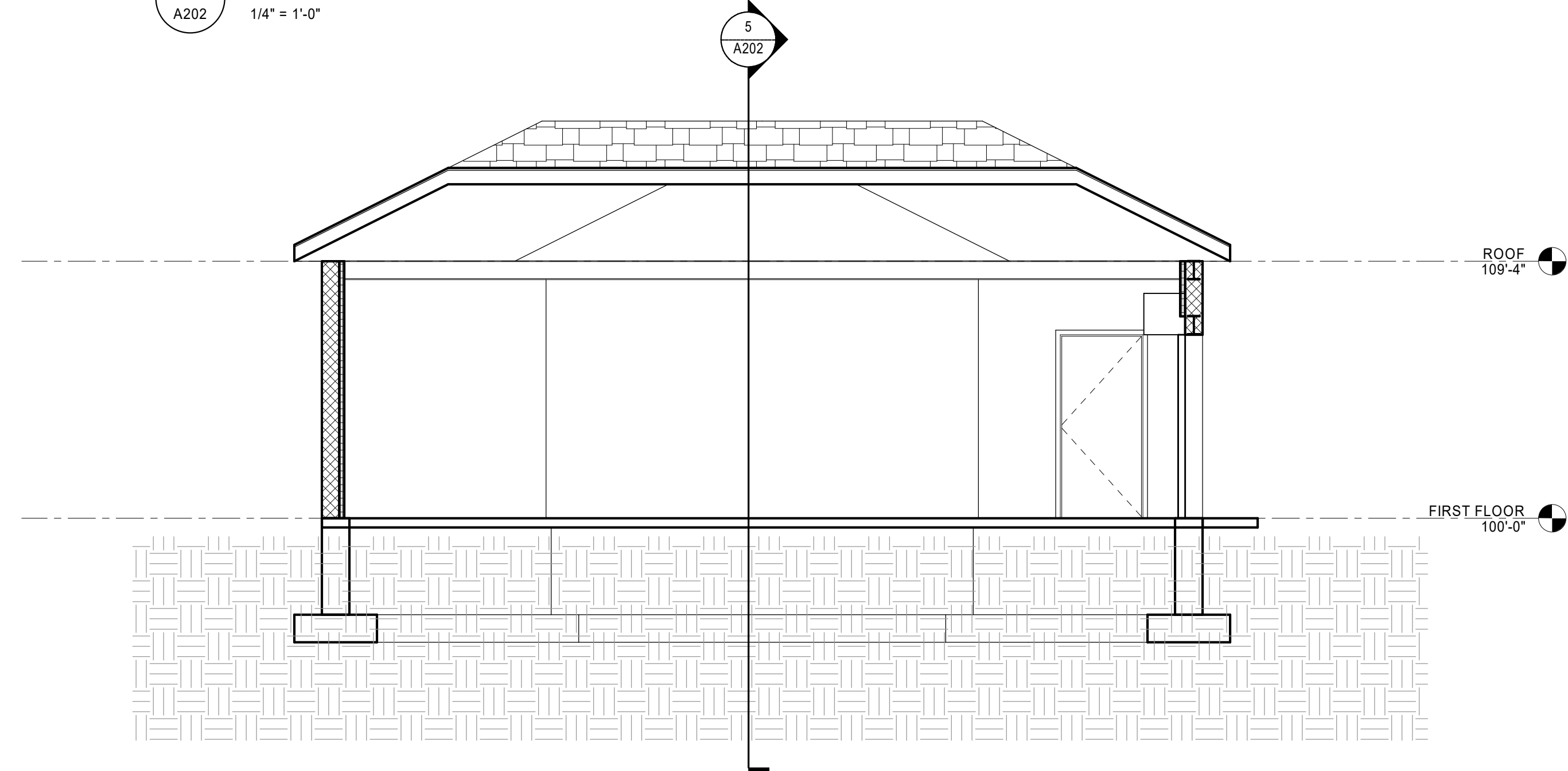
3 OUTBUILDING 2 - ELEVATION 3
A202 1/4" = 1'-0"



4 OUTBUILDING 2 - ELEVATION 4
A202 1/4" = 1'-0"



5 OUTBUILDING 2 - SECTION 1
A202 1/4" = 1'-0"



6 OUTBUILDING 2 - SECTION 2
A202 1/4" = 1'-0"

MISSOULA, MONTANA
WILDROOT

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PRELIMINARY PLAT

12.05.2023
DESIGNED BY | Designer
DRAWN BY | Author
REVIEWED BY | Checker

REVISIONS

EXTERIOR
ELEVATIONS

A202

NOT FOR CONSTRUCTION - PRELIMINARY DESIGN

GENERAL STRUCTURAL NOTES:

THESE DRAWINGS HAVE BEEN PREPARED SOLELY FOR USE IN THE CONSTRUCTION OF THE CORVALLIS WASTEWATER TREATMENT PLANT AT THE LOCATION OF CORVALLIS, MT. POSSESSION OF THESE DRAWINGS DOES NOT GRANT A LICENSE TO CONSTRUCT OR FABRICATE THE WHOLE, OR PARTS OF THIS PROJECT IN OTHER LOCATIONS.

STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH PROCESS, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND SITE CIVIL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DRAWINGS INCLUDING BUT NOT LIMITED TO DIMENSIONS, BLOCKOUTS, OPENINGS, SLEEVES, EMBEDDED ITEMS, ETC. INTO THEIR SHOP DRAWINGS AND WORK. NOTIFY THE ARCHITECT/STRUCTURAL ENGINEER OF RECORD OF ANY DISCREPANCIES OR IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN OR NOTED.

THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.

THE CONTRACTOR SHALL FURNISH THE PRODUCTS SPECIFIED ON THE DRAWINGS. SUBSTITUTIONS WILL BE CONSIDERED ONLY IF THE CONTRACTOR PROVIDES DOCUMENTAION TO PROVE THE ALTERNATIVE EQUALS OR EXCEEDS THE STRUCTURAL PERFORMANCE CHARACTERISTICS OF THE SPECIFIED PRODUCT.

CODE REQUIREMENTS:
ALL WORK SHALL BE IN STRICT COMPLIANCE WITH:
A. 2021 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE STATE OF MONTANA (INTERNATIONAL BUILDING CODE, 2021 EDITION, EFFECTIVE JUNE 9, 2022)
B. ALL OTHER STATE AND LOCAL BUILDING REQUIREMENTS THAT APPLY.

TEMPORARY CONDITIONS:
CONTRACTOR SHALL PROVIDE ALL NECESSARY TEMPORARY SUPPORT PRIOR TO COMPLETION OF VERTICAL AND LATERAL LOAD SYSTEMS. MORRISON-MAIERLE HAS NOT BEEN RETAINED TO PROVIDE ANY SERVICES RELATED TO JOB SITE SAFETY PRECAUTIONS, OR TO REVIEW THE MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES FOR THE CONTRACTOR TO PERFORM WORK. UNLESS WE ARE SPECIFICALLY RETAINED AND COMPENSATED TO DO OTHERWISE, OUR WORK IS LIMITED TO THE FINAL DESIGN OF THE WORK DESCRIBED ON OUR DRAWINGS FOR THIS PROJECT.

CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.

ASSUMED FUTURE CONSTRUCTION:
VERTICAL: NONE
HORIZONTAL: NONE

DESIGN CRITERIA:
DESIGN IS BASED ON THE FOLLOWING LOADING FOR THE BASIS OF STRENGTH, PERFORMANCE, AND SERVICEABILITY OF THE STRUCTURE:

DESIGN CRITERIA		
LIVE LOAD CRITERIA (IBC 1603.1.1)		
FLOOR LIVE LOADS:	UNIFORM LOAD	CONCENTRATED LOAD
MANUFACTURING: LIGHT	125 PSF (NON-REDUCABLE)	2000 LBS
ROOF LIVE LOAD CRITERIA (IBC 1603.1.2)		
ORDINARY FLAT, PITCHED, CURVED	20 PSF (SEE SNOW LOAD)	N/A
SNOW LOAD CRITERIA (IBC 1603.1.3)		
DESIGN ROOF SNOW LOAD	36 PSF	
SNOW DRIFT	PER ASCE 7-16 AS SHOWN ON PLANS	
GROUND SNOW LOAD	Pg = 43 PSF (MONTANA SNOW LOAD FINDER)	
FLAT ROOF SNOW LOAD	Pf = 36 PSF	
SNOW EXPOSURE FACTOR	Ce = 0.9	
SNOW LOAD IMPORTANCE FACTOR	Is = 1.1	
THERMAL FACTOR	Ct = 1.2	
WIND LOAD CRITERIA (IBC 1603.1.4)		
BASIC DESIGN WIND SPEED	V = 112 MPH	
RISK CATEGORY	III	
WIND EXPOSURE	C	
INTERNAL PRESSURE COFFICIENT	GCpi = +/- 0.18	
SEISMIC LOAD CRITERIA (IBC 1603.1.5)		
RISK CATEGORY	III	
SEISMIC IMPORTANCE FACTOR	Ie = 1.25	
MAPPED SPECTRAL RESPONSE	Ss = 0.320	S1 = 0.106
SITE CLASS	C	
DESIGN SPECTRAL RESPONSE	Sds = 0.256	Sd1 = 0.120
SEISMIC DESIGN CATEGORY	B	
BASIC SEISMIC FORCE RESISTING SYSTEM (SFRS)	X DIRECTION (E/W) ORDINARY REINFORCED MASONRY SHEAR WALLS	Z DIRECTION (N/S) ORDINARY REINFORCED MASONRY SHEAR WALLS
SEISMIC RESPONSE COEFFICIENT	0.160	0.160
RESPONSE MODIFICATION FACTOR	2.0	2.0
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE	EQUIVALENT LATERAL FORCE
GEOTECHNICAL CRITERIA (IBC 1603.1.6)		
DESIGN BASED ON REPORT BY	TETRA TECH DATED 03/20/2023	
DESIGN SOIL BEARING PRESSURE	3000 PSF (DL + LL)	4000 PSF (EL / WL INCLUDED)

STRUCTURAL OBSERVATIONS:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF RECORD A MINIMUM OF 24 HOURS IN ADVANCE OF REQUIRED OBSERVATION(S). CONTRACTOR SHALL PROVIDE SUFFICIENT NOTICE AND ACCESS FOR THE OBSERVER. APPROVAL BY THE MUNICIPAL INSPECTOR DOES NOT PRECLUDE OBSERVATIONS BY THE ENGINEER OF RECORD AND APPROVAL BY THE ENGINEER OF RECORD DOES NOT PRECLUDE THE INSPECTION PROCESS BY THE MUNICIPAL INSPECTOR AND ANY OTHER CODE REQUIREMENTS FOR INSPECTION.

UPON COMPLETION OF WORK THE STRUCTURAL OBSERVER SHALL SUBMIT A REPORT TO THE OWNER AND BUILDING OFFICIAL ATTESTING TO THE VISUAL OBSERVATION MADE. THE REPORT SHALL IDENTIFY ANY REPORTED DEFICIENCIES WHICH HAVE NOT BEEN RESOLVED.

STRUCTURAL OBSERVATIONS SHALL BE PERFORMED TO DOCUMENT GENERAL CONFORMANCE OF THE STRUCTURAL DRAWINGS AND SPECIFICATIONS AT THE FOLLOWING STAGES:
• FOOTING REINFORCING
• AT COMPLETION OF ROOF DIAPHRAGM FASTENING
• AS REQUIRED TO ADDRESS STRUCTURAL ISSUES

SUBMITTALS:
SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND CONSTRUCTION OF ALL STRUCTURAL PRODUCTS, INCLUDING THE FOLLOWING:

SUBMITTALS		
ITEM	SUBMITTAL	DEFERRED SUBMITTAL
METAL PLATE-CONNECTED WOOD TRUSSES	X	X
CONCRETE MIX DESIGNS	X	
CONCRETE REINFORCEMENT	X	
MASONRY REINFORCEMENT	X	
MASONRY BLOCK, MORTAR, GROUT MATERIALS	X	

SHOP DRAWINGS SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND CONSTRUCTION FOR ALL STRUCTURAL PRODUCTS DELIVERED TO THE PROJECT. IF THE SHOP DRAWINGS DEVIATE FROM OR ADD TO THE DESIGN OF THE STRUCTURAL DRAWINGS, THEY SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. ANY CHANGES TO THE STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER OF RECORD.

DEFERRED SUBMITTAL DESIGN DRAWINGS, SHOP DRAWINGS, AND CALCULATIONS FOR THE DESIGN AND FABRICATION OF ITEMS THAT ARE DESIGNED BY OTHERS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. THE DEFERRED SUBMITTAL SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION AND ARE SUBJECT TO REVIEW AND ACCEPTANCE OF THE STRUCTURAL ENGINEER FOR LOADS IMPOSED ON THE SUPPORTING STRUCTURE. CALCULATIONS SHALL BE INCLUDED FOR ALL CONNECTIONS TO THE STRUCTURE, CONSIDERING LOCALIZED EFFECTS ON STRUCTURAL ELEMENTS INDUCED BY THE CONNECTION LOADS. DESIGN SHALL BE BASED ON THE REQUIREMENTS OF THE CODES AND DESIGN CRITERIA NOTED IN THESE GENERAL STRUCTURAL NOTES.

THE CONTRACTOR SHALL COORDINATE SEISMIC RESTRAINTS OF MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT, MACHINERY AND ASSOCIATED PIPING WITH THE STRUCTURE. CONNECTIONS TO STRUCTURE SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO CONSTRUCTION.

FIELD ENGINEERED DETAILS DEVELOPED BY THE CONTRACTOR THAT DEVIATE FROM OR ADD TO THE STRUCTURAL DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED AND SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CONSTRUCTION.

THE USE OF REPRODUCTIONS OR PHOTOCOPIES OF THE CONTRACT DOCUMENTS SHALL NOT BE PERMITTED. WHEN CAD OR REVIT FILES ARE PROVIDED TO THE CONTRACTOR OR SUBCONTRACTORS, IT IS THE RESPONSIBILITY OF THE DETAILERS TO REMOVE ALL INFORMATION NOT DIRECTLY RELEVANT TO THE CREATION OF THE PLACING DRAWINGS AS WELL AS ALL REFERENCES TO THE OUTSIDE SOURCE FILES.

SUBMITTAL DOCUMENTS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO BEING SUBMITTED TO THE ARCHITECT FOR REVIEW.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE REVIEWED SUBMITTAL TO THE BUILDING DEPARTMENT FOR DEFERRED PERMIT APPLICATION. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

EARTHWORK:

GENERAL:
A GEOTECHNICAL INVESTIGATION AND REPORT HAS BEEN COMPLETED AS NOTED IN THE 'DESIGN CRITERIA'. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS ON SITE PREPARATIONS, FILL SPECIFICATIONS AND SITE SPECIFIC CONSTRUCTION CONSIDERATIONS.

STABILITY OF CONSTRUCTION EXCAVATION AND WORKER SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR. BASED UPON THE GEOTECHNICAL REPORT, TEMPORARY CONSTRUCTION EXCAVATIONS, ABOVE GROUNDWATER, TO BE PLANNED IN ACCORDANCE WITH OSHA PROVISIONS SHOULD ASSUME TYPE B MATERIAL FOR STIFF CLAY, AND TYPE C MATERIAL FOR SAND.

DO NOT EXCAVATE CLOSER THAN 2:1 SLOPE BELOW FOOTING EXCAVATIONS.

ALL SLABS-ON-GRADE SHALL BEAR ON COMPACTED STRUCTURAL FILL OR COMPETENT NATIVE SOIL PER THE GEOTECHNICAL REPORT. ALL MOISTURE SENSITIVE SLABS-ON-GRADE OR THOSE SUBJECT TO RECEIVE MOISTURE SENSITIVE COATINGS OR COVERINGS SHALL BE PROVIDED WITH AN APPROPRIATE CAPILLARY BREAK AND VAPOR BARRIER OR RETARDANT OVER THE SUBGRADE PREPARED AND INSTALLED AS NOTED IN THE GEOTECHNICAL REPORT. BARRIER MANUFACTURER'S WRITTEN RECOMMENDATIONS AND COORDINATED WITH THE FINISHES SPECIFIED BY THE ARCHITECT.

CONCRETE:

CAST-IN-PLACE CONCRETE:
CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301, *SPECIFICATION FOR STRUCTURAL CONCRETE*, AND ACI 117, *SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS*, UNLESS NOTED OTHERWISE.

AVERAGE CONCRETE STRENGTH DETERMINED BY JOB CAST LAB CURED CYLINDER TO BE AS INDICATED BELOW PLUS INCREASE DEPENDING ON THE PLANT'S STANDARD DEVIATION AS SPECIFIED IN ACI 318. MINIMUM CONCRETE PROPERTIES SHALL BE AS FOLLOWS:

CONCRETE PROPERTIES						
USE	EXPOSURE	MIN COMPRESSIVE STRENGTH	TEST AGE DAYS	AIR CONTENT	MAX WATER TO CEMENT RATIO	MAX AGGREGATE SIZE
EXTERIOR FOOTINGS AND WALLS	F2	4,500 PSI	28	6% +/- 1.5%	0.45	1"
INTERIOR FOOTINGS AND WALLS	F0	4,000 PSI	28	NO LIMIT	0.45	1"
EXTERIOR SLABS ON GRADE	F1	3,500 PSI	28	4.5% +/- 1.5%	0.55	1"
INTERIOR SLABS ON GRADE	F0	3,500 PSI	28	NO LIMIT	0.50	1"

THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS ALONG WITH TEST DATA A MINIMUM OF TWO WEEKS PRIOR TO PLACING CONCRETE.

CONDUITS EMBEDDED IN SLABS SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAN ONE THIRD OF THE THICKNESS OF THE SLAB AND SHALL NOT BE SPACED CLOSER THAN THREE DIAMETERS ON CENTER.

CURING OF CONCRETE SHALL COMPLY WITH ACI 308, UNLESS NOTED OTHERWISE.

WHERE CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED AND ROUGHENED TO A MINIMUM 1/4" AMPLITUDE.

PROVIDE 3/4" CHAMFERS ON ALL EXPOSED CONCRETE CORNERS UNLESS NOTED OTHERWISE.

PROVIDE TOOLED OR SAW-CUT CONTROL JOINTS IN SLABS ON GRADE COMPLYING WITH THE FOLLOWING CRITERIA. THE CONTRACTOR SHALL SUBMIT CONTROL JOINT PLAN PRIOR TO POURING THE SLABS.
• JOINT SPACING SHALL NOT EXCEED 30 TIMES THE SLAB THICKNESS
• ASPECT RATIO OF SLAB PANELS SHALL BE MAXIMUM OF 1.5 TO 1.0; HOWEVER A RATIO OF 1.0 TO 1.0 IS PREFERABLE
• JOINTS SHALL BE CONTINUOUS ACROSS INTERSECTING JOINTS, NOT STAGGERED OR OFFSET
• JOINTS SHALL EXTEND FROM ISOLATION JOINT AROUND COLUMNS AND WALLS

REINFORCING STEEL:
REINFORCING STEEL SHALL CONFORM TO THE FOLLOWING PROPERTIES:

REINFORCEMENT STEEL PROPERTIES		
USE	REINFORCEMENT SIZE	SPECIFICATION
GENERAL USE	ALL SIZES	ASTM A615, GRADE 60

REINFORCING STEEL TO BE WELDED SHALL USE ONLY LOW HYDROGEN ELECTRODES. ALL WELDING TO BE IN COMPLIANCE WITH AWS D1.4. WELD REINFORCING STEEL ONLY WHERE INDICATED ON THE DRAWINGS. WELDING OR TACK WELDING OF REINFORCEMENT BARS TO OTHER BARS OR STEEL COMPONENTS IS PROHIBITED.

REINFORCING STEEL IN BEAMS AND SLABS SHALL BE SUPPORTED ON CONCRETE DOBBIES, OR APPROVED CHAIRS IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT. FABRICATE AND INSTALL REINFORCING STEEL ACCORDING TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES - ACI STANDARD 315.

CONTACT LAP ALL REINFORCING BARS PER THE TYPICAL LAP SPLICE LENGTH SCHEDULE, EXCEPT AS NOTED ON DRAWINGS. MECHANICAL SPLICES NOTED ON THE DRAWINGS SHALL BE DAYTON SUPERIOR BAR-LOCK OR APPROVED WITH A CURRENT ICC-ES OR IAPMO-ES EVALUATION REPORT.

GRADE 60 REINFORCING STEEL LAP SPLICE LENGTH AND DEVELOPMENT LENGTH															
BAR SIZE	Fc = 3,000 PSI					Fc = 4,000 PSI					Fc = 5,000 PSI				
	MISC BARS		TOP BARS (SEE NOTE 3)		HOOK BARS	MISC BARS		TOP BARS (SEE NOTE 3)		HOOK BARS	MISC BARS		TOP BARS (SEE NOTE 3)		HOOK BARS
	Ld	LAP	Ld	LAP	Ldh	Ld	LAP	Ld	LAP	Ldh	Ld	LAP	Ld	LAP	Ldh
#3	17	22	22	28	9	15	19	29	25	8	13	17	17	22	7
#4	22	29	29	38	11	19	25	25	33	10	17	23	23	29	9
#5	28	36	36	47	14	24	31	31	41	12	22	28	28	36	11
#6	33	43	43	56	17	29	37	37	49	15	26	34	34	44	13
#7	48	63	63	81	20	42	54	54	71	17	38	49	49	63	15
#8	55	72	72	93	22	48	62	62	81	19	43	56	56	72	17

- ALL TABULATED VALUES ARE IN INCHES. FOR GRADE 60, UNCOATED REINFORING, NORMAL WEIGHT CONCRETE WITH CLEAR SPACING AND CLEAR COVER GREATER THAN THE BAR DIAMETER.
- IT SHALL BE PERMITTED TO INTERPOLATE BETWEEN CONCRETE STRENGTHS OR USE THE NEXT LOWER CONCRETE STRENGTH.
- TOP BARS ARE ANY HORIZ BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZ WALL BARS ARE CONSIDERED TOP BARS.
- LAP SPLICES ARE FOR NON-LATERAL LOAD RESISTING ELEMENTS. FOR REBAR LAPS SPLICES AT LATERAL LOAD RESISTING ELEMENTS, REFERENCE PLANS AND ELEVATIONS.
- Ld = DEVELOPMENT LENGTH IN TENSION OF DEFORMED BAR
Ldh = DEVELOPMENT LENGTH IN TENSION OF DEFORMED BAR OR DEFORMED WIRE WITH A STANDARD HOOK
LAP = LAP SPLICE LENGTH OF DEFORMED BAR OR DEFORMED WIRE

REINFORCING STEEL SHALL BE PROTECTED BY PLACING BARS WITH A MINIMUM COVER, UNLESS NOTED OTHERWISE.

REINFORCING STEEL CONCRETE COVER	
USE	CLEAR COVER
SLABS	3/4"
WALLS (INTERIOR FACES)	3/4"
CONCRETE CAST AGAINST EARTH	3"
CONCRETE EXPOSED TO WEATHER OR EARTH	1-1/2" (FOR #5 OR SMALLER), 2" (FOR #6 AND LARGER)

CONCRETE:

PROVIDE DOWELS FROM FOOTINGS TO MATCH ALL VERTICAL WALL, PILASTER AND COLUMN REINFORCING. PROVIDE CORNER BARS TO MATCH HORIZONTAL REINFORCING IN WALLS AND FOOTINGS AT ALL CORNERS AND INTERSECTIONS. CONTINUE HORIZONTAL WALL BARS THROUGH PILASTERS COLUMNS AND INTERSECTING WALLS.

CONCRETE CONNECTORS:
STEEL HEADED STUD ANCHORS SHALL BE NELSON GRANULAR FLUX-FILLED HEADED STUDS OR PRIOR APPROVED EQUAL AND BE MANUFACTURED FROM ASTM A29-12 / A108, GRADES 1010-1020 COLD ROLLED CARBON STEEL WITH A MINIMUM TENSILE STRENGTH OF 60,000 PSI. DEFORMED BAR ANCHORS SHALL BE NELSON, TYPE D2L. STUDS AND DEFORMED BAR SHALL BE AUTOMATICALLY END WELDED WITH A STUD WELDING GUN TO FULLY DEVELOP THE CONNECTOR.

UNLESS A SPECIFIC ANCHOR PRODUCT IS NOTED IN THE DRAWINGS, POST-INSTALLED ANCHORS MAY USE ONE OF THE ANCHORS LISTED BELOW FOR THE REQUIRED TYPE.

POST INSTALLED CONCRETE ANCHORS		
TYPE	PRODUCT	REPORT #
ADHESIVE ANCHORS & DOWELS	SIMPSON SET-XP SIMPSON AT-XP HILTI HIT-HY 200	ICC-ES ESR-2508 IAPMO-UES ER-263 ICC-ES ESR-3187
SCREW ANCHOR	SIMPSON TITEN HD HILTI KWIK HUS-EZ	ICC-ES ESR-2713 ICC-ES ESR-3027

ALL ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PRODUCT EVALUATION REPORTS.

EMBEDMENTS SPECIFIED ON DRAWINGS ARE "EFFECTIVE" EMBEDMENTS. REFERENCE MANUFACTURER LITERATURE FOR CORRESPONDING ACTUAL EMBEDMENT DEPTH.

ANCHORS RODS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT-DIP GALVANIZING OR USE OF STAINLESS STEEL. POST INSTALLED EXPANSION AND SCREW ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE STAINLESS STEEL.

FOR POST-INSTALLED ANCHORS, LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED.

IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF (2) ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOVEL MANY NOT BE SHIFTED AS NOTED ABOVE, SEEK GUIDANCE FROM THE STRUCTURAL ENGINEER OF RECORD.

SPECIAL INSPECTION OF ANCHOR INSTALLATION IS REQUIRED UNLESS SPECIFICALLY NOTED OTHERWISE IN DRAWINGS. SEE SPECIAL INSPECTION AND MATERIALS TESTING PROGRAM AND NOTES.

MASONRY:

REINFORCED CONCRETE MASONRY:
CONCRETE MASONRY UNITS TO BE MEDIUM WEIGHT UNITS AND SHALL COMPLY WITH ASTM C90, SAMPLED AND TESTED IN ACCORDANCE WITH ASTM C140. LINEAL SHRINKAGE FOR UNITS SHALL NOT EXCEED 0.065%. BLOCK COMPRESSIVE STRENGTH SHALL BE AS INDICATED IN THE 'CONCRETE MASONRY ASSEMBLY STRENGTH' TABLE. ASSEMBLIES SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (Fm) AS INDICATED IN THE TABLE AS VERIFIED BY THE UNIT STRENGTH METHOD.

CONCRETE MASONRY ASSEMBLY STRENGTH			
Fm [PSI]	BLOCK UNIT STRENGTH [PSI]	MORTAR	GROUT STRENGTH [PSI]
2,000	2,000	TYPE M OR S	2,000

WALLS SHALL BE REINFORCED AS SHOWN ON THE PLANS AND DETAILS AND, IF NOT SHOWN, SHALL BE AS NOTED UNDER "MASONRY REINFORCING STEEL".

PROVIDE VERTICAL CONTROL JOINTS IN CONTINUOUS MASONRY SUCH THAT THE DISTANCE BETWEEN JOINTS DOES NOT EXCEED THE LESSER OF A LENGTH-TO-HEIGHT RATIO OF 1.5 OR 25 FEET. CONTROL JOINTS SHALL BE LOCATED NO CLOSER THAN 2'-0" FROM EDGE OF OPENINGS. EXCEPT WHERE OFFSETS ARE SHOWN, MASONRY CONTROL JOINTS SHALL BE A CONTINUOUS VERTICAL LINE FROM TOP OF FOUNDATION TO TOP OF MASONRY WALL. REFERENCE ARCHITECTURAL DRAWINGS FOR LOCATIONS.

CONCRETE SURFACES ABUTTING STRUCTURAL MASONRY STARTER COURSES SHALL BE CLEANED AND ROUGHENED TO A FULL 1/4" AMPLITUDE.

MORTAR:
MORTAR SHALL BE OF THE TYPE INDICATED IN THE 'CONCRETE MASONRY ASSEMBLY STRENGTH' TABLE AND SHALL CONFORM TO ASTM C270 USING THE 'PROPERTY METHOD'. THE MORTAR MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 1,800 PSI FOR TYPE S AND 2,500 PSI FOR TYPE M. MORTAR PROJECTIONS INTO CELLS TO BE GROUTED SHALL BE LIMITED TO 3/8" MAXIMUM.

MASONRY GROUT:
GROUT SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH AS INDICATED IN THE 'CONCRETE MASONRY ASSEMBLY STRENGTH' TABLE AND CONFORM TO ASTM C476. GROUT SHALL CONSIST OF A MIXTURE OF CEMENTITIOUS MATERIALS, AGGREGATE AND A FLUIDIFIER ADMIXTURE, INTRUSION AID BY SPECRETE-IP OR APPROVED EQUAL. ADMIXTURE DOSAGE TO BE IN STRICT COMPLIANCE WITH MANUFACTURERS RECOMMENDATIONS.

THE MAXIMUM GROUT POUR HEIGHT SHALL BE 12'-8". CLEAN-OUTS AND BAR POSITIONERS ARE REQUIRED FOR ANY POUR HEIGHT GREATER THAN 5'-0" UNLESS A GROUT DEMONSTRATION PANEL IS CONSTRUCTED. WHERE CLEAN-OUTS ARE REQUIRED, CLEAN-OUTS SHALL BE LOCATED AT ALL CORES CONTAINING VERTICAL REINFORCEMENT AND AT A MAXIMUM OF 32" O.C. GROUT LIFTS GREATER THAN 5'-0" ARE PERMITTED PROVIDED THAT THE FOLLOWING CONDITIONS ARE MET:
• THE MASONRY HAS CURED FOR AT LEAST 4 HOURS.
• THE GROUT SLUMP IS MAINTAINED BETWEEN 10 AND 11 INCHES.
• NO INTERMEDIATE REINFORCED BOND BEAMS ARE PLACED BETWEEN THE TOP AND THE BOTTOM OF THE POUR HEIGHT.

75% REVIEW SET

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10.13.2023
DRAWN BY | SGH
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REVISIONS

NOT FOR CONSTRUCTION

GENERAL
STRUCTURAL NOTES

S001

MASONRY (CONTINUED):

MASONRY REINFORCING STEEL:
REINFORCING FOR MASONRY SHALL CONFORM TO ASTM A615, GRADE 60. WELDED REINFORCEMENT SHALL CONFORM TO ASTM A706 GRADE 60. REINFORCING SHALL BE SECURELY PLACED IN ACCORDANCE WITH ACI 530 SECTION 3.4.

FABRICATE AND INSTALL REINFORCING STEEL IN ACCORDANCE WITH CONCRETE REINFORCING STEEL INSTITUTE MANUAL OF STANDARD PRACTICE. SHOP DRAWINGS SHALL INCLUDE ELEVATIONS OF ALL STRUCTURAL CONCRETE MASONRY WALLS SHOWING LOCATIONS OF BOND BEAMS, REINFORCING BARS, AND OTHER SPECIAL REINFORCEMENT.

SPLICES IN VERTICAL WALL REINFORCING CONTAINING (2) OR MORE BARS SHALL BE LAPPED 62 BAR DIAMETERS. FOR OTHER SPLICES A 52 BAR DIAMETER LAP MAY BE USED.

BOND BEAMS WITH TWO #4 BARS HORIZONTALLY SHALL OCCUR AT EACH INTERMEDIATE FLOOR OR ROOF LEVEL AND AT TOP OF WALLS WHERE WALLS EXTEND ABOVE THE ROOF. STEP BOND BEAMS AS REQUIRED TO MATCH ROOF SLOPES. PROVIDE A BOND BEAM WITH TWO #4 BARS HORIZONTALLY ABOVE AND BELOW ALL OPENINGS, AND EXTEND 2'-6" PAST THE OPENING AT EACH SIDE. PROVIDE (2) #6 EXTENDING THE FULL LEVEL HEIGHT AT EACH SIDE OF OPENINGS AND AT WALL ENDS UNLESS NOTED OTHERWISE.

FOUNDATION DOWELS SHALL BE PROVIDED TO MATCH SIZE AND SPACING OF WALL REINFORCING AND BE DEVELOPED IN THE MASONRY AND CONCRETE.

MINIMUM GROUT COVER BETWEEN REINFORCEMENT AND THE INSIDE FACE OF CELLS SHALL BE 1/4" FOR FINE GROUT AND 1/2" FOR COURSE GROUT.

MASONRY CONNECTORS:
HEADED STEEL STUD CONNECTORS SHALL BE NELSON GRANULAR FLUX-FILLED HEADED STUDS OR PRIOR APPROVED EQUAL AND BE MANUFACTURED FROM ASTM A29-12 / A108, GRADES 1010-1020 COLD ROLLED CARBON STEEL WITH A MINIMUM TENSILE STRENGTH OF 60,000 PSI. DEFORMED BAR ANCHORS SHALL BE NELSON, TYPE D2L OR APPROVED EQUAL. STUDS AND DEFORMED BAR TO BE AUTOMATICALLY END WELDED WITH A STUD WELDING GUN. ALTERNATE WELDING PROCEDURES MAY BE USED ONLY WITH PRIOR WRITTEN APPROVAL FROM THE ENGINEER.

UNLESS A SPECIFIC ANCHOR PRODUCT IS NOTED IN THE DRAWINGS, POST-INSTALLED ANCHORS MAY USE ONE OF THE ANCHORS LISTED BELOW FOR THE REQUIRED TYPE.

POST INSTALLED MASONRY ANCHORS		
TYPE	PRODUCT	REPORT #
ADHESIVE ANCHORS & DOWELS	SIMPSON SET-XP	IAPMO ER-265
	SIMPSON AT-XP	IAPMO ER-281
	HILTI HIT-HY 270	ICC ESR-4143
SCREW ANCHOR	SIMPSON TITEN HD	ICC ESR-1056
	HILTI KWIK HUS-EZ	ICC ESR-3056

ALL ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PRODUCT EVALUATION REPORTS. EMBEDMENTS SPECIFIED ON DRAWINGS ARE "EFFECTIVE" EMBEDMENTS. REFERENCE MANUFACTURER LITERATURE FOR CORRESPONDING ACTUAL EMBEDMENT DEPTHS.

ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT-DIP GALVANIZING OR USE OF STAINLESS STEEL.

WOOD AND WOOD PRODUCTS:

SAWN LUMBER:
SAWN LUMBER SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE NATIONAL DESIGN SPECIFICATION (NDS) DESIGN VALUES FOR WOOD CONSTRUCTION AND CONFORMING TO THE WEST COAST LUMBER INSPECTION BUREAU OR WESTERN WOOD PRODUCTS ASSOCIATION GRADING RULES OR APPROVED EQUIVALENT. ALL LUMBER SHALL BE MARKED BY THE GRADING AGENCY EXCEPT FOR ARCHITECTURAL/ EXPOSED MEMBERS. A CERTIFICATE OF COMPLIANCE BY THE MANUFACTURER SHALL BE PROVIDED IN LIEU OF MARKING. LUMBER SHALL BE THE SPECIES, AND GRADE NOTED BELOW UNLESS NOTED OTHERWISE ON DRAWINGS.

SAWN LUMBER	
USE	SPECIES AND GRADE
BUCKS, BLOCKING, BRIDGING AND MISCELLANEOUS	DOUGLAS FIR-LARCH OR HEM FIR #3
SILLS, LEDGERS, ETC. IN CONTACT WITH CONCRETE	PRESSURE TREATED HEM FIR #2
POSTS, COLUMNS (5x AND GREATER)	DOUGLAS FIR-LARCH #1

DIMENSIONAL LUMBER SHALL BE DELIVERED WITH MOISTURE CONTENT LESS THAN 19% AND SURFACED S4S. TIMBERS SHALL BE DELIVERED WITH MOSTURE CONTENT LESS THAN 15%. ALL LUMBER DELIVERED TO THE SITE SHALL BE STACKED OR STORED OFF THE GROUND AND PROPERLY PROTECTED AGAINST WEATHR.

ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED, UNLESS AN APPROVED MOISTURE BARRIER IS PROVIDED.

GLUED-LAMINATED TIMBER:
GLUED-LAMINATED (GLULAM) MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ANSI STANDARD A190.1. EACH MEMBER SHALL BEAR AN IDENTIFICATION MARK OR BE ACCOMPANIED BY A CERTIFICATE OF CONFORMANCE. GLUED-LAMINATED TIMBER SHALL CONFORM TO THE COMBINATION NOTED BELOW:

GLUED-LAMINATED MEMBERS				
LOCATION	USE	COMBINATION SYMBOL	FLEXURAL STRESS Fb (Psi)	MODULUS OF ELASTICITY (Psi)
INTERIOR	SIMPLE SPAN BEAMS	24F-V4 (DF/DF)	+2,400 / -1,850	1,800,000
	CONTINUOUS AND CANTILEVER BEAMS	24F-V8 (DF/DF)	+/-2,400	1,800,000
	COLUMNS AND TRUSS MEMBERS	2-DF-L2	+/-1,300	1,600,000
EXTERIOR	SIMPLE SPAN BEAMS	20F-V12 (AC/AC)	+2,000 / -1,450	1,500,000
	CONTINUOUS AND CANTILEVER BEAMS	20F-V13 (AC/AC)	+/-2,000	1,500,000
	COLUMNS AND TRUSS MEMBERS	70-AC-L2	+/-1,000	1,300,000

EXPOSED GLUED-LAMINATED MEMBERS SHALL CONFORM TO AITC, ARCHITECTURAL APPEARANCE GRADE WHILE CONCEALED MEMBERS SHALL CONFORM TO AITC, INDUSTRIAL GRADE. GLUED-LAMINATED MEMBERS THAT ARE OUTSIDE OF A CONDITIONED BUILDING ENVELOPE SHALL UTILIZE WET-USE EXTERIOR WATERPROOF ADHESIVES.

GLUED-LAMINATED MEMBERS SHALL BE MANUFACTURED BETWEEN 3,500 AND 5,000 FOOT STANDARD MILL CAMBER WITH TOLERANCES AS ALLOWED BY ANSI A190. THE DRAWINGS WILL INDICATE WHETHER ADDITIONAL CAMBER IS REQUIRED.

WOOD CONNECTIONS:
FRAMING ACCESSORIES SHALL BE MANUFACTURED BY SIMPSON STRONG TIE (OR APPROVED EQUAL) AND OF THE TYPE AND SIZE SHOWN ON THE DRAWINGS. FULLY FASTEN ACCORDING TO MANUFACTURER'S SCHEDULE USING LARGEST SIZE SHOWN AND INSTALL FOLLOWING ALL MANUFACTURES REQUIREMENTS, UNLESS NOTED OTHERWISE.

ALL FRAMING NAILS SHALL BE 'COMMON' NAILS OF THE SIZE AND QUANTITY INDICATED ON THE DRAWINGS. USE OF SMALLER DIAMETER "BOX" NAILS FREQUENTLY USED IN NAIL GUNS REQUIRES USE OF LARGER PENNY WEIGHT TO PROVIDE AN EQUIVALENT DIAMETER/LENGTH NAIL. ALL NAILING SHALL COMPLY WITH IBC FASTENING SCHEDULE PER CHAPTER 23. OBTAIN ENGINEERS APPROVAL OF ALL PROPRIETARY NAILING SYSTEMS.

BOLTS AND LAG SCREWS SHALL BE ASTM A307 AND CONFORM TO ANSI/ASME STANDARD B18.2.1. ALL BOLTS AND LAG SCREWS BEARING ON WOOD SHALL BE INSTALLED WITH STANDARD CUT WASHERS. BOLT HOLES IN WOOD MEMBERS SHALL NOT EXCEED 1/16" LARGER THAN THE BOLT DIAMETER. AT EXPOSED CONNECTIONS CUT OFF EXTENDED BOLT AND 'KNICK' THREADS TO PRECLUDE LOOSENING. LAG SCREWS HOLE CLEARANCE SHALL BE THE SAME DIAMETER AS THE SHANK AND THE SAME DEPTH AS THE UNTHREADED SHANK. THE LEAD HOLE SHALL BE 60 PERCENT OF THE SHANK DIAMETER AND A LENGTH EQUAL TO THE THREADED PORTION.

CUTTING AND NOTCHING OF JOISTS AND STUDS SHALL CONFORM TO THE TYPICAL WOOD DETAILS PROVIDED.

CONFIRM REQUIRED CORROSION PROTECTION FOR HARDWARE AND FASTENERS WITH SPECIFIC RECOMMENDATIONS FROM PRESSURE TREATING MANUFACTURER OR HANGER MANUFACTURER (USE MOST CONSERVATIVE) FOR SPECIFIC WOOD TREATMENTS USED. MINIMUM CORROSION PROTECTION ON METAL CONNECTORS EXPOSED TO THE ENVIRONMENT OR PRESSURE TREATED LUMBER TO BE PER ASTM A663 CLASS 185 (SIMPSON ZMAX) OR ASTM A123. FINISH FOR EXPOSED CONNECTION HARDWARE SHALL BE EPOXY-BASED CORROSION RESISTANT PAINT WITH COLOR AS CHOSEN BY ARCHITECT.

FASTENERS FOR PRESSURE TREATED LUMBER MUST BE HOT-DIP GALVANIZED, STAINLESS STEEL, SILICON BRONZE OR COPPER. HOT-DIP GALVANIZED HARDWARE AND FASTENERS MUST COMPLY WITH ASTM A153, STAINLESS STEEL FASTENERS TO BE TYPE 304 OR TYPE 316. HARDWARE AND FASTENERS USED TOGETHER MUST BE THE SAME TYPE (E.G. HOT-DIP GALVANIZED NAILS WITH HOT-DIP GALVANIZED HANGERS).

WOOD AND WOOD PRODUCTS:

WOOD STRUCTURAL PANELS:
WOOD STRUCTURAL PANELS SHALL BE IN ACCORDANCE PS 1, STRUCTURAL PLYWOOD, AND/OR PS 2, PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL-USE PANELS. ALL WOOD STRUCTURAL PANELS SHALL BE APA RATED SHEATHING, EXPOSURE 1 PLYWOOD OR OSB, WITH SPAN RATINGS, THICKNESS & NAILING FOR SHEATHING AS SHOWN ON THE DRAWINGS. PANELS SHALL BE STAMPED WITH THE APA TRADEMARK.

ALL SHEATHING DELIVERED TO THE SITE SHALL BE STACKED OR STORED OFF THE GROUND AND PROPERLY PROTECTED AGAINST WEATHER.

WOOD STRUCTURAL PANEL INSTALLATION SHALL BE IN CONFORMANCE WITH APA RECOMMENDATIONS. ALLOW 1/8" SPACING AT PANEL ENDS AND EDGES, UNLESS OTHERWISE RECOMMENDED BY THE PANEL MANUFACTURER.

ALL ROOF SHEATHING AND FLOOR SHEATHING SHALL BE INSTALLED WITH FACE GRAIN OR STRENGTH AXIS PERPENDICULAR TO SUPPORTS AND STAGGERED 48", EXCEPT AS INDICATED ON THE DRAWINGS. ROOF SHEATHING SHALL EITHER BE BLOCKED, TONGUE-AND-GROOVE, OR HAVE EDGES SUPPORTED BY PLYCLIPS. WHERE BLOCKING IS SPECIFICALLY INDICATED ON THE DRAWINGS, T&G EDGES OR PLYCLIPS MAY NOT BE SUBSTITUTED. SHEATHINGS SHALL BE UNBLOCKED, EXCEPT AS INDICATED ON DRAWINGS. FLOOR SHEATHING SHALL BE FIELD GLUED TO THE FRAMING USING ADHESIVES MEETING APA SPECIFICATION AFG-01 OR ASTM D3498. TONGUE AND GROOVE PANELS SHALL ALSO BE GLUED AT THE T&G JOINT.

SHEAR WALL SHEATHING SHALL BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY AND BE BLOCKED AT ALL PANEL EDGES. NO INDIVIDUAL PIECE OF SHEATHING SHALL BE SMALLER THAN 2'-0" x 2'-0".

DRIVE SHEATHING NAILS (OR OTHER SPECIFIED ATTACHMENTS) FLUSH WITH BUT NOT FRACTURING, THE WOOD PANEL SURFACE.

METAL PLATE CONNECTED WOOD TRUSS SYSTEM:
ALL METAL PLATE-CONNECTED WOOD TRUSSES SHALL BE DESIGNED FOR THE LOADS SHOWN ON THE PLANS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

EACH TRUSS SHALL BE LEGIBLY BRANDED, MARKED OR OTHERWISE HAVE PERMANENTLY AFFIXED THERETO THE FOLLOWING INFORMATION LOCATED WITHIN 2 FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM CHORD: A) IDENTITY OF THE COMPANY MANUFACTURING THE TRUSS, B) THE DESIGN LOAD, AND C) THE SPACING OF THE TRUSS.

ALL BRIDGING, BEARING HARDWARE, BLOCKING, HANGERS, ETC., THAT CONNECT TO THE METAL PLATE-CONNECTED WOOD TRUSSES SHALL BE PER THE MANUFACTURERS STANDARD DETAILS. ERECTOR TO INSTALL METAL PLATE-CONNECTED WOOD TRUSSES IN ACCORDANCE WITH THE MANUFACTURERS DRAWINGS AND INSTALLATION GUIDELINES.

TRUSS MANUFACTURER TO INSPECT ALL TRUSSES AFTER THEY HAVE BEEN ERECTED AND FLOOR AND/OR ROOF SHEATHING, BRIDGING, BLOCKING, ETC., HAS BEEN INSTALLED. MANUFACTURER TO SUBMIT CERTIFICATE TO THE STRUCTURAL ENGINEER OF RECORD THAT THE INSPECTION WAS MADE AND THAT TRUSSES ARE IN ACCEPTABLE CONDITION AND MEET THE MANUFACTURER'S DESIGN AND INSTALLATION REQUIREMENTS.

TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING:

METAL PLATE CONNECTED WOOD TRUSS DESIGN CRITERIA	
ROOF TRUSSES	
DEAD LOAD	15 PSF TOP CHORD, 8 PSF BOTTOM CHORD
ROOF LIVE/SNOW LOAD	AS NOTED IN THE "DESIGN CRITERIA"
TOTAL LOAD DEFLECTION LIMIT	L/240
ROOF LIVE/SNOW LOAD DEFLECTION LIMIT	L/360

STATEMENT OF SPECIAL INSPECTION AND TESTING NOTES:

SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE INTERNATIONAL BUILDING CODE (IBC), CONTRACT DOCUMENTS, AND APPROVED SUBMITTALS. THE OWNER SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS AND TESTING DESCRIBED HEREIN.

SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED AND ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (GENERAL), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A880 (STEEL), AND ASTM E543 (NON-DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE ARCHITECT AND ENGINEER A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE APPROVED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER AWS D1.1.

THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION PURPOSES UNTIL COMPLETION OF THE REQUIRED SPECIAL INSPECTIONS.

THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONTRACT DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION AND NOTED IN THE INSPECTION REPORTS. ISSUES REQUIRING IMMEDIATE CORRECTIVE ACTIONS OR ENGINEERING INPUT ARE TO BE BROUGHT TO THE ENGINEER'S ATTENTION IMMEDIATELY UPON DISCOVERY.

THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, ARCHITECT, ENGINEER, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT STATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED, IS IN CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS, AND THAT ALL DISCREPANCIES NOTED IN THE REPORTS HAVE BEEN CORRECTED.

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND- OR SEISMIC FORCE-RESISTING SYSTEM, DESIGNATED SEISMIC SYSTEM, OR A WIND- OR SEISMIC-RESISTING COMPONENT LISTED SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO COMMENCEMENT OF WORK ON THE SYSTEM OF COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED HEREIN.

- INSPECTION FREQUENCY:
- A. CONTINUOUS INSPECTION: THE SPECIAL INSPECTOR SHALL BE PRESENT WHEN AND WHERE THE WORK IS BEING PERFORMED AT ALL TIMES.
 - B. PERIODIC INSPECTION: THE SPECIAL INSPECTOR SHALL BE INTERMITTENTLY PRESENT WHEN AND WHERE THE WORK IS BEING PERFORMED. THE INSPECTOR SHALL OBSERVE THE WORK AT ITS COMMENCEMENT, AT PERIODIC INTERVALS THEREAFTER, AND WHEN THE WORK IS COMPLETED.
 - C. OBSERVE: THE INSPECTOR SHALL OBSERVE THESE FUNCTIONS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING OBSERVATIONS (REFERENCE AISC 360 AND AISC 341 FOR ADDITIONAL INFORMATION).
 - D. PERFORM: THESE INSPECTIONS SHALL BE PERFORMED PRIOR TO FINAL ACCEPTANCE OF THE ITEM (REFERENCE AISC 360 AND AISC 341 FOR ADDITIONAL INFORMATION).
 - E. DOCUMENT: THE INSPECTOR SHALL PREPARE REPORTS INDICATING THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS (REFERENCE AISC 360 AND AISC 341 FOR ADDITIONAL INFORMATION).

SPECIAL INSPECTIONS ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY AN APPROVED SPECIAL INSPECTION AGENCY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

- A. STEEL FABRICATORS AND INSTALLERS CERTIFIED THROUGH AISC COMPLY WITH THIS PROVISION. THE FABRICATOR AND/OR INSTALLER MUST STILL COMPLETE AND DOCUMENT THE QUALITY CONTROL TASKS AND NON-DESTRUCTIVE TESTING OUTLINED IN AISC 360 AND AISC 341, AS APPLICABLE.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS				
TASK	IBC REFERENCE	REFERENCE STANDARD	FREQUENCY	REMARKS
VERIFY MATERIALS BELOW SHALLOW FOUNDATION ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	TABLE 1705.6	GEOTECHNICAL REPORT	PERIODIC	BY THE GEOTECHNICAL ENGINEER
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL			PERIODIC	
VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL			CONTINUOUS	
PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY			PERIODIC	

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION				
TASK	IBC REFERENCE	REFERENCE STANDARD	FREQUENCY	REMARKS
INSPECTION OF REINFORCING STEEL AND PLACEMENT	TABLE 1705.3	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	PERIODIC	
INSPECTION OF ANCHORS CAST-IN CONCRETE	TABLE 1705.3	ACI 318: 17.8.2	PERIODIC	
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE. VERIFY ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, PRODUCT EXPIRATION DATE (IF APPLICABLE), COMPLIANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE (IF APPLICABLE) FOR: a) ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS		ACI 318: 17.8.2.4 PRODUCT EVALUATION REPORT	CONTINUOUS	
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE. VERIFY ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, PRODUCT EXPIRATION DATE (IF APPLICABLE), COMPLIANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE (IF APPLICABLE) FOR: b) MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN a)		ACI 318: 17.8.2 PRODUCT EVALUATION REPORT	PERIODIC	
VERIFY USE OF REQUIRED MIX DESIGN		ACI 318: CH. 19, 26.4.3, 26.4.4	PERIODIC	
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES		ACI 318: 26.5, 26.12	CONTINUOUS	
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES		ACI 318: 26.5.3-25.5.5	PERIODIC	
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		ACI 318: 26.11.1.2(b)	PERIODIC	

SPECIAL INSPECTION OF MASONRY CONSTRUCTION MINIMUM QUALITY ASSURANCE LEVEL					
DESIGNED IN ACCORDANCE WITH	RISK CATEGORY I, II OR III			RISK CATEGORY IV	REMARKS
TMS 402-16 PART 3 OR APPENDIX B OR APPENDIX C	LEVEL 2			LEVEL 3	THE QUALITY ASSURANCE PROGRAM SHALL COMPLY WITH THE LEVEL DEFINED IN TABLE 3.1, DEPENDING ON HOW THE MASONRY WAS DESIGNED AND THE RISK CATEGORY, AS DEFINED IN ASCE 7 OR THE LEGALLY ADOPTED BUILDING CODE
SPECIAL INSPECTION OF MASONRY CONSTRUCTION MINIMUM VERIFICATION REQUIREMENTS					
MINIMUM VERIFICATION	REQUIRED FOR QA			REFERENCE FOR CRITERIA	REMARKS
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 602	
PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS	R	R	R	ART. 1.5	PERIODIC INSPECTION
PRIOR TO CONSTRUCTION, VERIFICATION OF f _m AND f _{acc} , EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE	NR	R	R	ART 1.4B	
DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF-CONSOLIDATION GROUT IS DELIVERED TO THE PROJECT SITE	NR	R	R	ART 1.5, 1.6.3	
INSPECTION OF ANCHORS POST-INSTALLED IN MASONRY CONSTRUCTION. VERIFY ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, PRODUCT EXPIRATION DATE (IF APPLICABLE), COMPLIANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE (IF APPLICABLE)					

SPECIAL INSPECTION TASKS AS MASONRY CONSTRUCTION BEGINS						
INSPECTION TASK	FREQUENCY			REFERENCE FOR CRITERIA		REMARKS
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602	
PROPORTIONS OF SITE-PREPARED MORTAR	NR	P	P		ART. 2.1, 2.6 A, & 2.6C	
GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P		ART. 2.4 B & 2.4 H	
GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P		ART. 3.4 & 3.6 A	
SAMPLE PANEL CONSTRUCTION	NR	P	C		ART. 1.6 D	

SPECIAL INSPECTION OF MASONRY CONSTRUCTION MINIMUM VERIFICATION REQUIREMENTS						
INSPECTION TASK	FREQUENCY			REFERENCE FOR CRITERIA		REMARKS
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602	
GROUT SPACE	NR	P	C		ART. 3.2 D & 3.2 F	
PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	NR	P	P	SEC. 10.8 & 10.9	ART. 2.4 & 3.6	
PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	NR	P	C	SEC. 6.1, 6.3.1, 6.3.6, & 6.3.7	ART. 3.2 E & 3.4	
PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	NR	P	P		ART. 2.6 B & 2.4 G.1.b	

SPECIAL INSPECTION TASKS DURING MASONRY CONSTRUCTION						
INSPECTION TASK	FREQUENCY			REFERENCE FOR CRITERIA		REMARKS
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602	
MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	NR	P	P		ART. 1.5	
PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	NR	P	P		ART. 3.3B	
SIZE AND LOCATION OF STRUCTURAL MEMBERS	NR	P	P		ART. 3.3F	
TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	NR	P	C	SEC. 1.2.1(E), 6.2.1, & 6.3.1		
WELDING OF REINFORCEMENT	NR	C	C	SEC. 6.1.6.1.2		
PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEGREES FAHRENHEIT (4.4 DEGREES CELSIUS)) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES FAHRENHEIT (32.2 DEGREES CELSIUS))	NR	P	P		ART. 1.8C & 1.8D	

SPECIAL INSPECTION TASKS DURING MASONRY TESTING						
INSPECTION TASK	FREQUENCY			REFERENCE FOR CRITERIA		REMARKS
	LEVEL 1	LEVEL 2	LEVEL 3	TMS 402	TMS 602	
OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	NR	P	C		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, & 1.4 B.4	

TESTING OF SOILS AND FOUNDATIONS			
TASK	IBC REFERENCE	REFERENCE STANDARD	FREQUENCY
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	TABLE 1705.6	PROJECT GEOTECHNICAL REPORT	PERIODIC

TESTING OF CONCRETE CONSTRUCTION			
TASK	IBC REFERENCE	REFERENCE STANDARD	FREQUENCY
CONCRETE STRENGTH TEST SPECIMENS	TABLE 1705.3	ASTM C31 AND C39	FOR EACH CLASS OF CONCRETE (E.G. FOOTINGS, WALLS, OR SLAB ON GRADE), ONE SET OF SPECIMENS EACH DAY OR LESSER OF: ONE SET FOR EACH 150 YDS OF CONCRETE OR ONE SET FOR EACH 5,000 SQUARE FEET OF SLABS OR WALL
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE TEMPERATURE OF CONCRETE		ASTM C172 ACI 318-14: 26.4 AND 26.12	FOR EACH SPECIMEN

TESTING OF MASONRY CONSTRUCTION LEVEL B QUALITY ASSURANCE			
TASK	IBC REFERENCE	REFERENCE STANDARD	FREQUENCY
VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX AS DELIVERED TO THE PROJECT SITE FOR SELF CONSOLIDATING GROUT	1705.4	TMS TABLE 1.19.2	
VERIFICATION OF f _m PRIOR TO CONSTRUCTION BY THE UNIT STRENGTH METHOD			

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PRELIMINARY PLAT

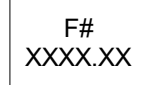
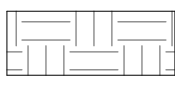

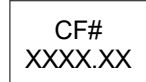
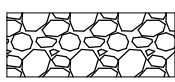


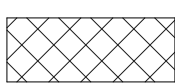


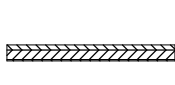


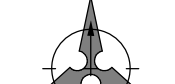
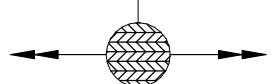


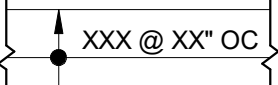


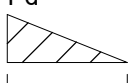

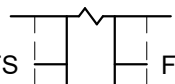

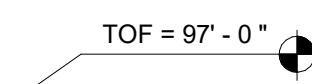
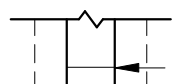
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STATEMENT OF
SPECIAL INSPECTION

S003

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SYMBOL/ANNOTATION	DESCRIPTION	SYMBOL/ANNOTATION	DESCRIPTION	SYMBOL/ANNOTATION	DESCRIPTION
	CONCRETE SPREAD FOOTING MARK (SEE SCHEDULE) & TOP OF FOOTING ELEVATION (IF INDICATED)		EARTH/SOIL HATCH		SAWN LUMBER COLUMN
	CONCRETE CONTINUOUS FOOTING MARK (SEE SCHEDULE)		GRANULAR FILL/GRAVEL HATCH		SAWN LUMBER BEAM
	CONCRETE WALL MARK (SEE SCHEDULE)		MASONRY HATCH		GLULAM BEAM
	CONCRETE PIER MARK (SEE SCHEDULE)		WOOD STRUCTURAL PANEL HATCH		WOOD BLOCKING
	WOOD OR COLD-FORMED STEEL SHEARWALL MARK (SEE SCHEDULE)		NORTH ARROW		WOOD STRUCTURAL PANEL DECK
	HOLD-DOWN MARK (SEE SCHEDULE)		DETAIL CALLOUT (90 DEGREE ORIENTATION TO CURRENT VIEW) VIEW ORIENTED TOWARD ARROW		BEAM/TRUSS SYSTEM CALLOUT
	ELEVATION CALLOUT		DETAIL CALLOUT (MATCHES ORIENTATION OF CURRENT VIEW) ENLARGED VIEW		SNOW DRIFT LOAD "Pd" - MAXIMUM DRIFT SURCHARGE "Wd" - WIDTH OF SNOW DRIFT
	SECTION CALLOUT		FOOTING ELEVATION STEP		BLOCKOUT AT TOP OF WALL OR DOOR OPENING
	COMPONENT ELEVATION		TOP OF WALL ELEVATION STEP		

SYMBOLS & ANNOTATIONS

ABV	ABOVE	J	JOIST
ADDL	ADDITIONAL	LAM	LAMINATED
AA	ADHESIVE ANCHOR	LVL	LAMINATED VENEER LUMBER
AD	ADHESIVE DOWEL	LF	LINEAR FEET
ALT	ALTERNATE	LL	LIVE LOAD
ACI	AMERICAN CONCRETE INSTITUTE	LLH	LONG LEG HORIZONTAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LLV	LONG LEG VERTICAL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MFR	MANUFACTURER
APA	AMERICAN PLYWOOD ASSOCIATION	M	MASONRY
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	ML	MASONRY LINTEL
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	MP	MASONRY PIER
AB	ANCHOR BOLT	MATL	MATERIAL
AR	ANCHOR ROD	MAX	MAXIMUM
L	ANGLE	MECH	MECHANICAL
ARCH	ARCHITECT	MBR	MEMBER
		MTL	METAL
		MD	METAL DECK
		MEZZ	MEZZANINE
		MIN	MINIMUM
B PL	BASE PLATE	MISC	MISCELLANEOUS
BSMT	BASEMENT		
BM	BEAM	NLB	NONLOAD BEARING
BRG	BEARING	N	NORTH
BLW	BELOW	NA	NOT APPLICABLE
BTWN	BETWEEN	NTS	NOT TO SCALE
BLKG	BLOCKING	NO	NUMBER
BOT	BOTTOM		
BC	BOTTOM CHORD	OC	ON CENTER
BLDG	BUILDING	OPNG	OPENING
BU	BUILT UP	OWJ	OPEN WEB JOIST
		OPP	OPPOSITE
CANTIL	CANTILEVER	PAR	PARALLEL
CB	CARRIAGE BOLT	PERP	PERPENDICULAR
CIP	CAST IN PLACE	PREFAB	PREFABRICATE
CTR	CENTER	PH	PHASE
CTRD	CENTERED	PC	PIER CAP/CONCRETE PILE
CL	CENTERLINE	PL	PLATE
C	CHANNEL	PLYWD	PLYWOOD
CLR	CLEAR	LBS	POUND
CPMF	COLD FORMED METAL FRAMING	PLF	POUNDS PER LINEAR FOOT
COL	COLUMN	PSF	POUNDS PER SQUARE FOOT
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CC	CONCRETE COLUMN	PAF	POWER-ACTUATED FASTENERS
CMU	CONCRETE MASONRY UNIT	PT	PRESSURE TREATED
CONN	CONNECTION		
CD	CONSTRUCTION DOCUMENTS	QA	QUALITY ASSURANCE
CJ	CONSTRUCTION JOINT		
CONT	CONTINUOUS/ CONTINUED	R	RADIUS
CF	CONTINUOUS CONCRETE FOOTING	REF	REFERENCE
CONTR	CONTRACTOR	REINF	REINFORCE, REINFORCING
CJ	CONTROL JOINT	REBAR	REINFORCING STEEL BARS
COORD	COORDINATE	REQT	REQUIREMENT
X BRACE	CROSS BRACE	REV	REVISION
		RT	RIGHT
D	PENNY (NAIL) OR DEPTH	RGD INS	RIGID INSULATION
DL	DEAD LOAD	RD	ROUND
DEG	DEGREE		
DEMO	DEMOLITION	SCHED	SCHEDULE
DET	DETAIL	SA	SCREW ANCHOR
DIM	DIMENSION	SHTHG	SHEATHING
DIST	DISTANCE	SIM	SIMILAR
DOUG FIR	DOUGLAS FIR	SCJ	SLAB CONTRACTION JOINT
DWL	DOWEL	SQ	SQUARE
DWG	DRAWING	SF	SQUARE FEET
		SI	SQUARE INCH
EA	EACH	SPEC	SPECIFICATION
EW	EACH WAY	STD	STANDARD
ELEV	ELEVATOR	STL	STEEL
ENGR	ENGINEER	SD	STEEL DECK
EO	EQUAL/ EQUALLY	STL JST	STEEL JOIST
EQUIP	EQUIPMENT	STIF	STIFFENER
EXST	EXISTING	STRUCT	STRUCTURAL
EXP	EXPANSION	SIP	STRUCTURAL INSULATED PANEL
EXP BT	EXPANSION BOLT	SUB FLR	SUBFLOOR
EXT	EXTERIOR	SUB	SUBSTITUTE
FO	FACE OF	KIP	THOUSAND POUNDS
FSTNR	FASTENER	TB	THROUGH BOLT
FT	FEET	TMBR	TIMBER
FLR	FLOOR	T&G	TONGUE AND GROOVE
FDTN	FOUNDATION	T&B	TOP AND BOTTOM
FTG	FOOTING	TOB	TOP OF BEAM
FS	FOOTING STEP	TOC	TOP OF CONCRETE
		TOD	TOP OF DECK/SHEATHING
GALV	GALVANIZED	TOF	TOP OF FOOTING
GA	GAUGE	TOM	TOP OF MASONRY
GC	GENERAL CONTRACTOR	TOS	TOP OF STEEL
GL	GLUE LAMINATED	TOW	TOP OF WALL
GLB	GLUE LAMINATED BEAM	TJI	TRUSS JOIST
GR	GRADE	TYP	TYPICAL
GR BM	GRADE BEAM		
GT	GROUT	UNO	UNLESS NOTED OTHERWISE
GYP	GYPSUM		
		VIF	VERIFY IN FIELD
HGR	HANGER	VERT	VERTICAL
HSA	HEADED STUD ANCHOR		
HDR	HEADER	WLD	WELDED/WELDED
HT	HEIGHT	WWF	WELDED WIRE FABRIC
H	HIGH	W	WIDE
HD	HOLD-DOWN	WF	WIDE FLANGE
HSS	HOLLOW STRUCTURAL SECTION	WL	WIND LOAD
HK	HOOK	W/	WITH
HORIZ	HORIZONTAL	W/O	WITHOUT
		WD	WOOD
INFO	INFORMATION	HG	WOOD BEAM HANGER
INT	INTERIOR	WSP	WOOD STRUCTURAL PANEL
IBC	INTERNATIONAL BUILDING CODE	WP	WORKING POINT

STRUCTURAL ABBREVIATIONS

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PRELIMINARY PLAT

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ANNOTATIONS AND
SYMBOLS &
ABBREVIATIONS

PLAN NOTES

- PROJECT DATUM ELEVATION = 100.00 AT TOP OF SLAB ON GRADE (SEE CIVIL DRAWINGS FOR ABSOLUTE ELEVATION). ALL SPOT ELEVATIONS ARE IN REFERENCE TO THE DATUM ELEVATION.
- REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
- REFER TO THE DRAWING ANNOTATIONS & SYMBOLS FOR EXPLANATION OF DRAWING CONVENTIONS.
- REFER TO THE SD SERIES OF DRAWINGS FOR TYPICAL DETAILS. TYPICAL DETAILS ARE NOT NECESSARILY REFERENCED BY CALLOUTS ON PLAN; IT IS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW THE REQUIREMENTS OF THE DETAILS AT THE LOCATION AT WHICH THEY OCCUR.
- COORDINATE THE FOLLOWING ITEMS WITH DRAWINGS OF OTHER DISCIPLINES:
 - SUBGRADE PREPARATION REQUIREMENTS BELOW FOOTINGS AND SLABS ON GRADE AND BACKFILL REQUIREMENTS BEHIND BASEMENT AND RETAINING WALLS; SEE THE PROJECT GEOTECHNICAL REPORT.
 - SIZES AND LOCATIONS OF OPENINGS AND PENETRATIONS THROUGH WALLS AND FLOORS; SEE ARCHITECTURAL, ELECTRICAL, MECHANICAL, AND PLUMBING DRAWINGS.
 - EXTERIOR CONCRETE, INCLUDING SLABS AND SITE RETAINING WALLS; SEE ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS.
 - LOCATION, SIZE, AND ANCHORAGE OF ELECTRICAL MECHANICAL, AND PLUMBING EQUIPMENT; SEE ELECTRICAL, MECHANICAL, AND PLUMBING DRAWINGS.
 - EXTENT OF AND REQUIREMENTS FOR MASONRY VENEER; SEE ARCHITECTURAL DRAWINGS.
 - WINDOW AND DOOR LOCATIONS AND ROUGH OPENING SIZES IN WALLS; SEE ARCHITECTURAL DRAWINGS.
 - ROUTING OF DUCTS AND UTILITIES THROUGH WEBS OF TRUSSES OR JOISTS; SEE MECHANICAL AND PLUMBING DRAWINGS.
- EXTERIOR GRIDLINES ARE ALIGNED TO THE FACE OF FOUNDATION WALL AND INTERIOR GRIDLINES ARE ALIGNED TO THE CENTER OF COLUMN OR WALL, UNLESS NOTED OTHERWISE.
- CONSTRUCTION JOINT LOCATIONS FOR CONCRETE WORK ARE NOT SHOWN. THE CONTRACTOR SHALL SUBMIT PROPOSED LOCATIONS FOR REVIEW AND APPROVAL.
- SLAB ON GRADE SHALL BE 5" THICK AND REINFORCED WITH #4 @ 12" ON CENTER, IN EACH DIRECTION.
- LOCATIONS OF SLAB ON GRADE CONTROL JOINTS ARE NOT SHOWN. THE CONTRACTOR SHALL SUBMIT A DETAILED LAYOUT OF PROPOSED JOINT LOCATIONS AT LEAST (7) DAYS PRIOR TO SLAB PLACEMENT FOR REVIEW AND APPROVAL.
- UNLESS NOTED OTHERWISE, BEAMS AND/OR JOISTS ARE EQUALLY SPACED BETWEEN COLUMNS.
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- ROOF SHEATHING SHALL BE 5/8" THICK, 40/20 SPAN RATING, APA RATED SHEATHING WITH 8d NAILS AT 6" ON CENTER AT PANEL EDGES AND 8d NAILS AT 12" ON CENTER AT INTERIOR PANEL SUPPORTS.

CONTINUOUS FOOTINGS - SCHEDULE

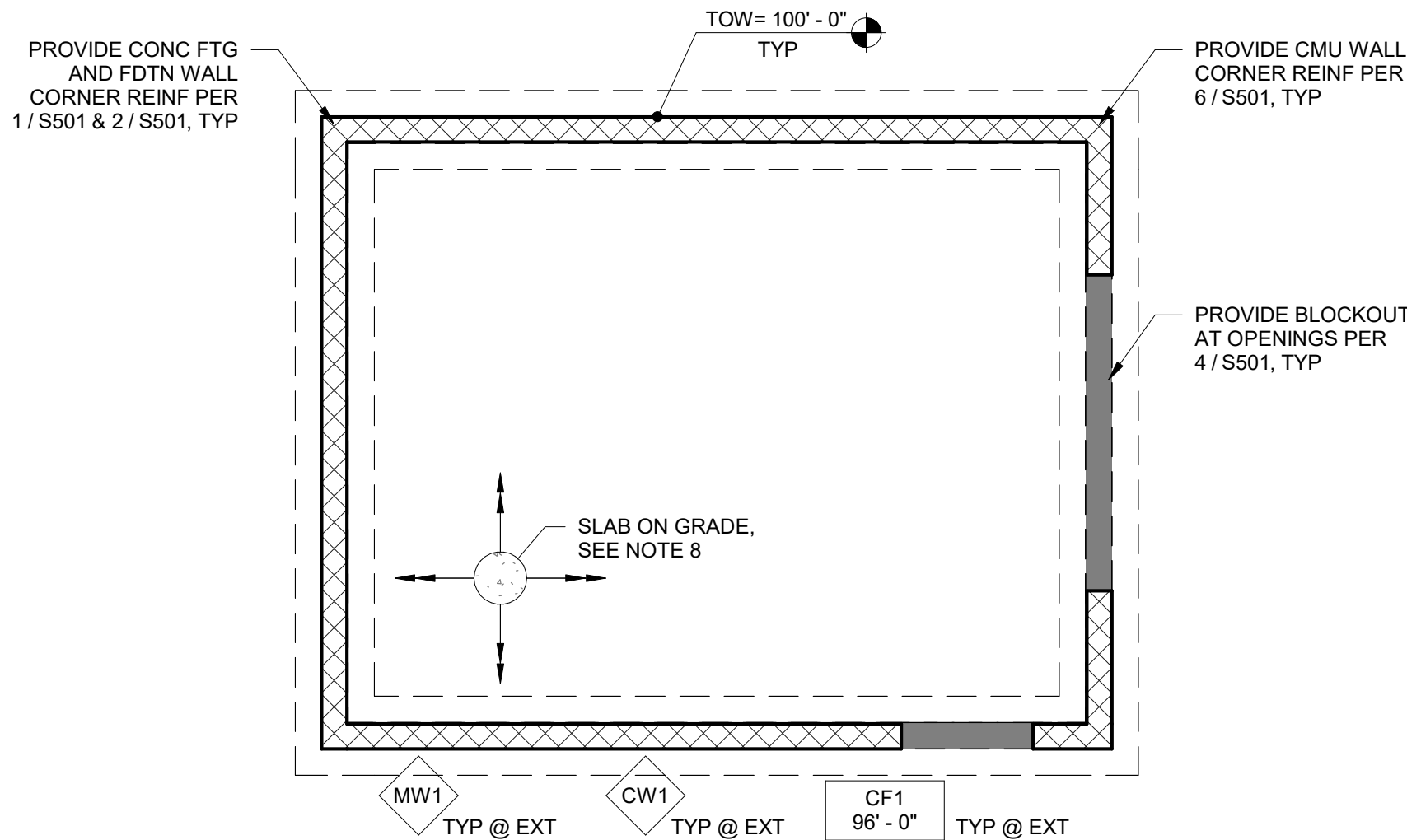
MARK	WIDTH	THICKNESS	# OF REINF MATS	TRANS REINF	LONG REINF
CF1	2' - 0"	1' - 0"	1	#5 @ 12" OC	(3) #5

CONCRETE WALL - SCHEDULE

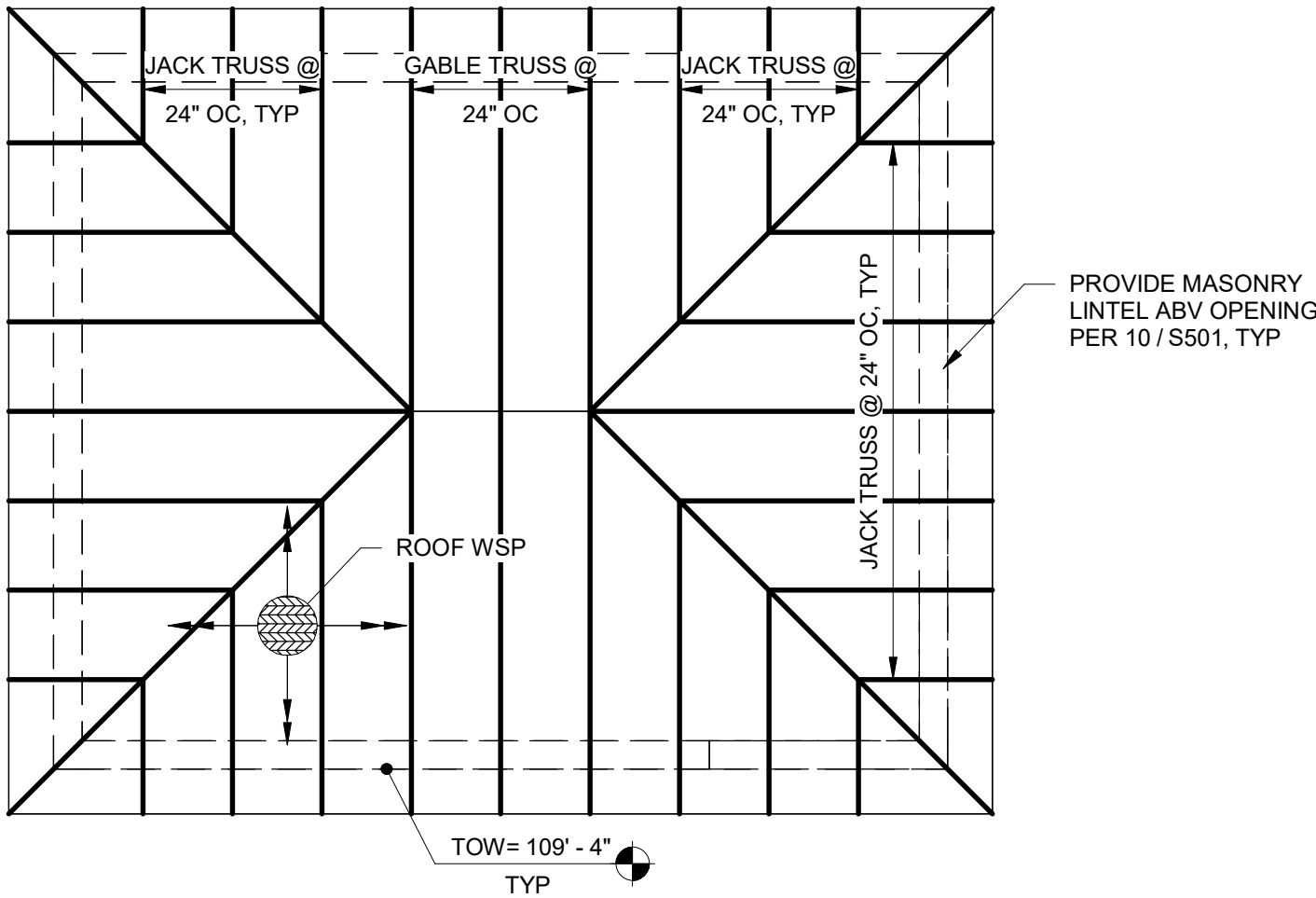
MARK	THICKNESS	HORIZONTAL REINFORCEMENT	VERTICAL REINFORCEMENT
CW1	8"	#5 @ 12" OC	#5 @ 16" OC

CMU WALL - SCHEDULE

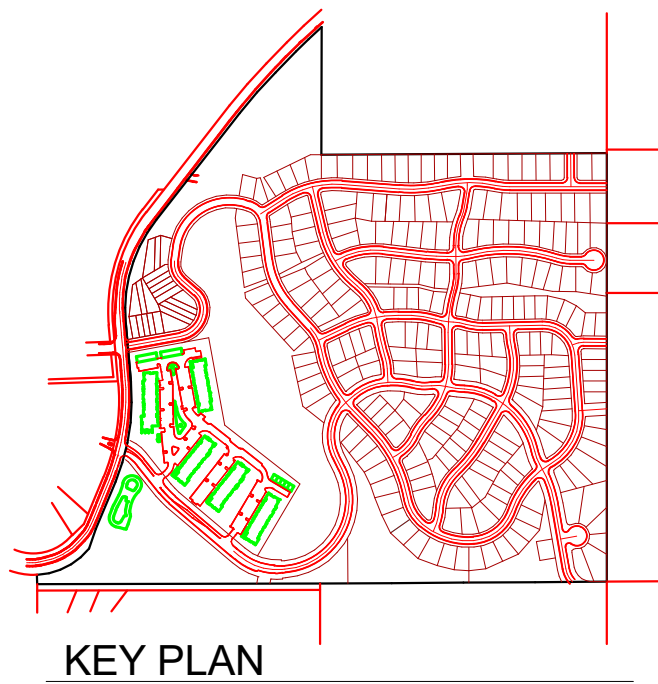
MARK	THICKNESS	VERTICAL REINFORCEMENT	HORIZONTAL REINFORCEMENT	GROUTING	COMMENTS
MW1	8"	#5 @ 32" OC	(2) #4 @ 48" OC	FULLY GROUTED	



1 OUTBUILDING 1 FOUNDATION PLAN
1/4" = 1'-0"



2 OUTBUILDING 1 ROOF STRUCTURAL PLAN
1/4" = 1'-0"



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CONTINUOUS FOOTINGS - SCHEDULE

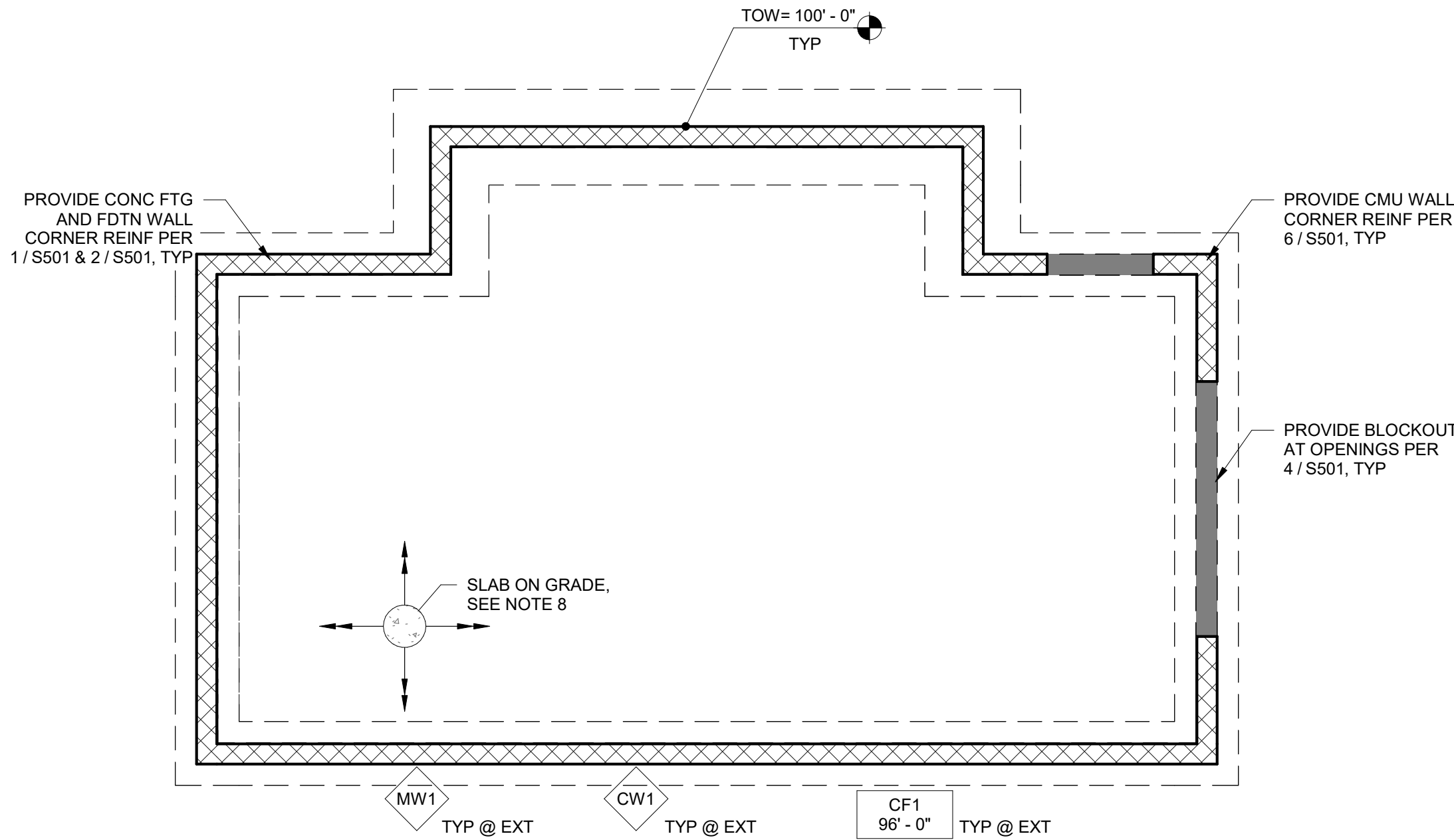
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CONCRETE WALL - SCHEDULE

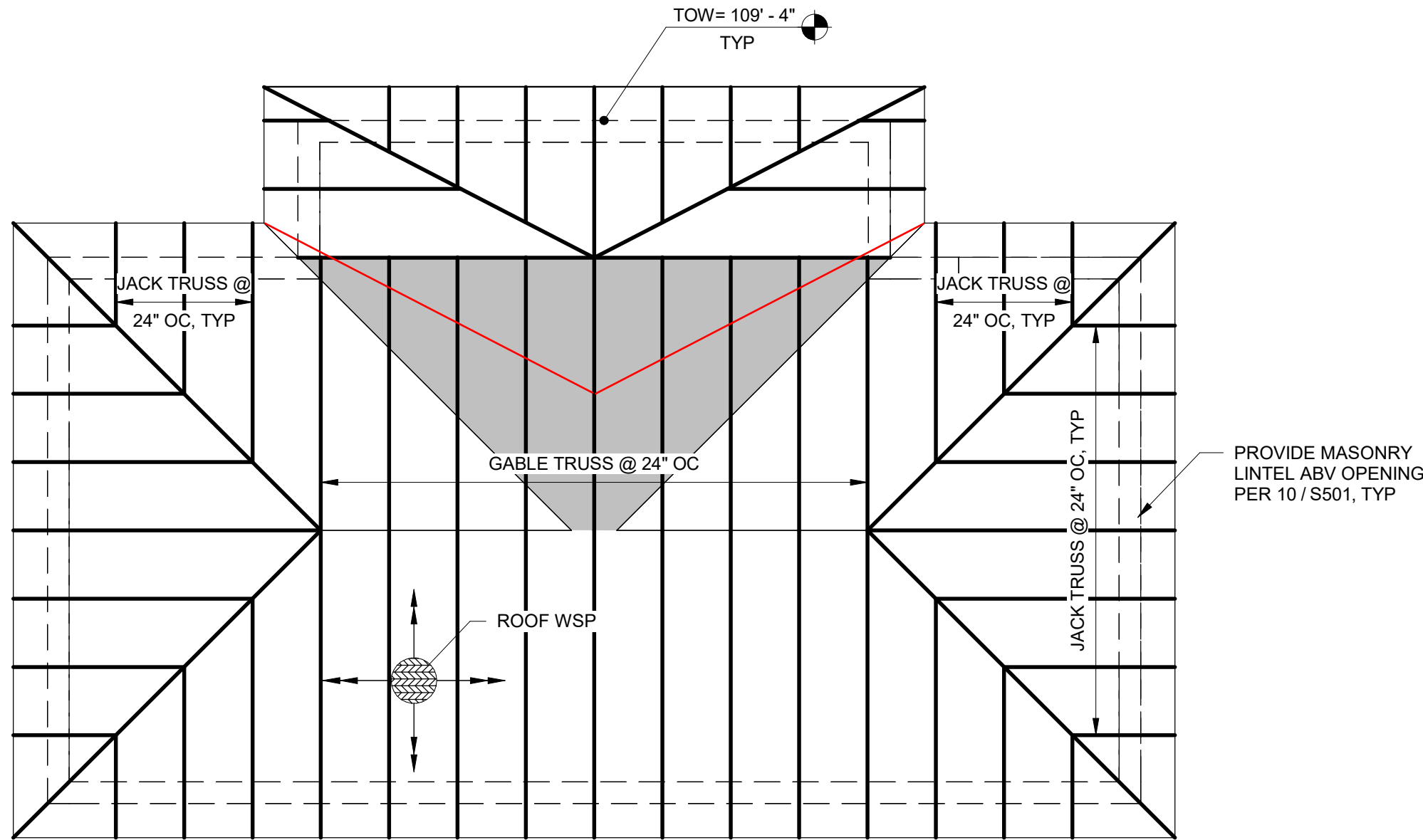
MARK	THICKNESS	HORIZONTAL REINFORCEMENT	VERTICAL REINFORCEMENT
CW1	8"	#5 @ 12" OC	#5 @ 16" OC

CMU WALL - SCHEDULE

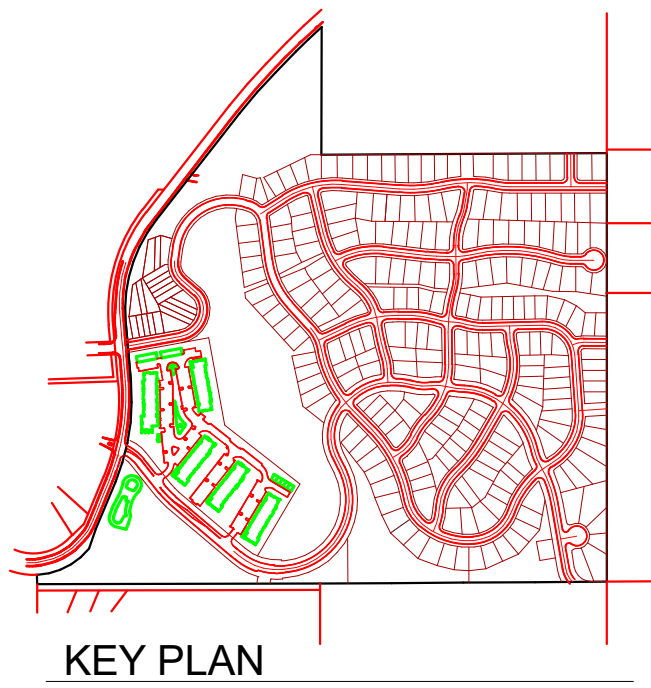
MARK	THICKNESS	VERTICAL REINFORCEMENT	HORIZONTAL REINFORCEMENT	GROUTING	COMMENTS
MW1	8"	#5 @ 32" OC	(2) #4 @ 48" OC	FULLY GROUTED	

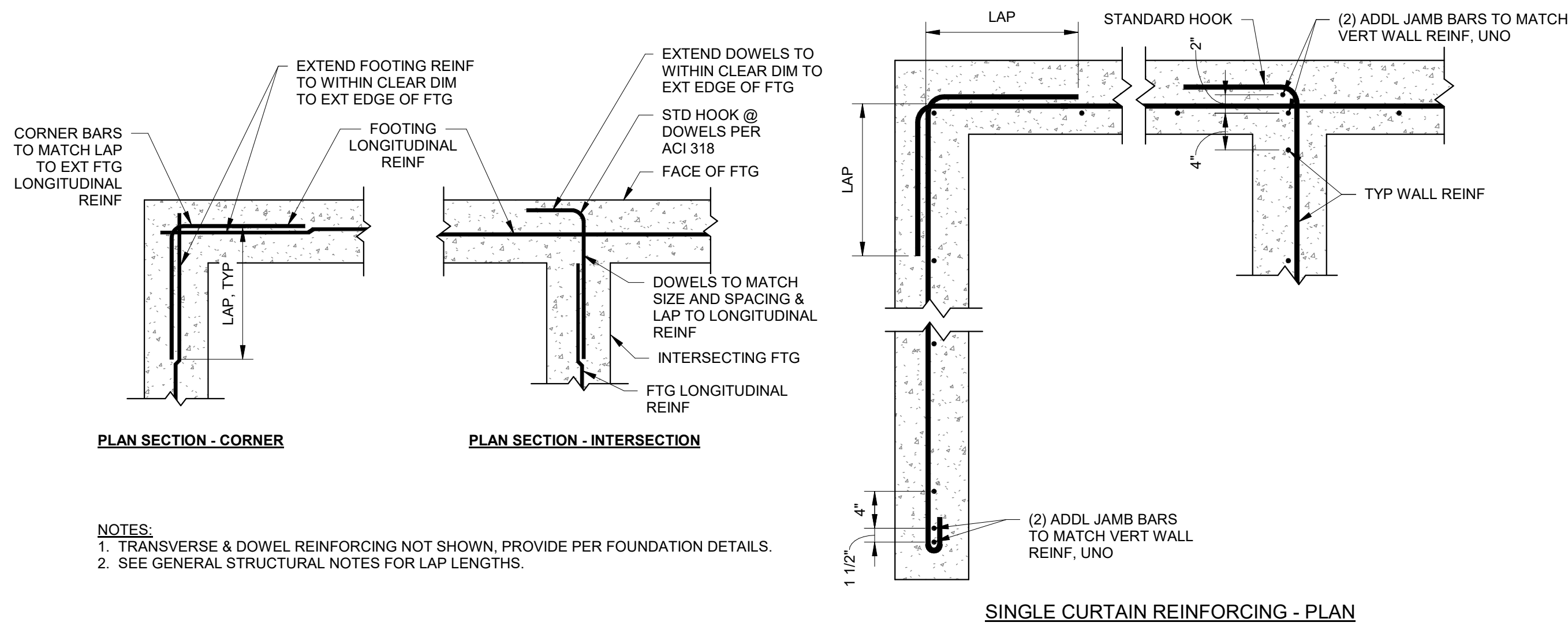


1 OUTBUILDING 2 FOUNDATION PLAN
1/4" = 1'-0"



2 OUTBUILDING 2 ROOF STRUCTURAL PLAN
1/4" = 1'-0"



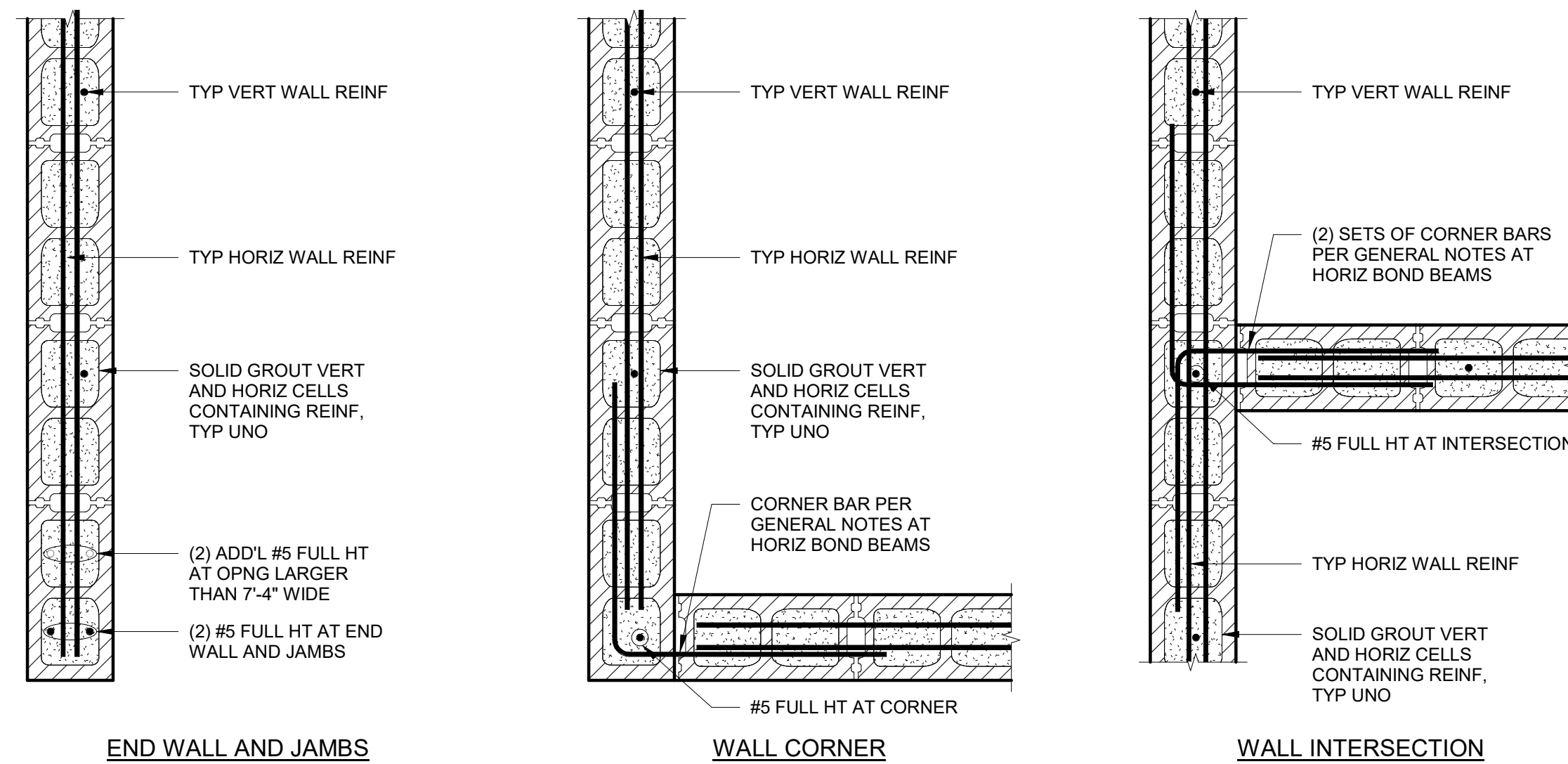


1 WALL FTG CORNER / INTERSECT REINF
3/4" = 1'-0"

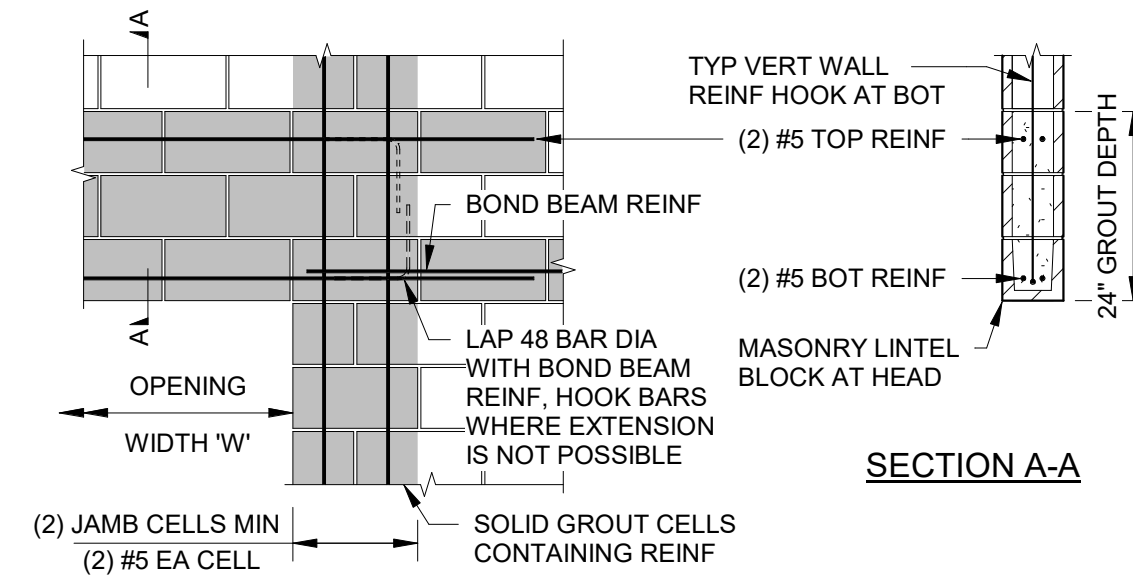
2 WALL REINF AT CORNER AND INTERSECTIONS
1" = 1'-0"

3 FDTN WALL SINGLE REINF
1" = 1'-0"

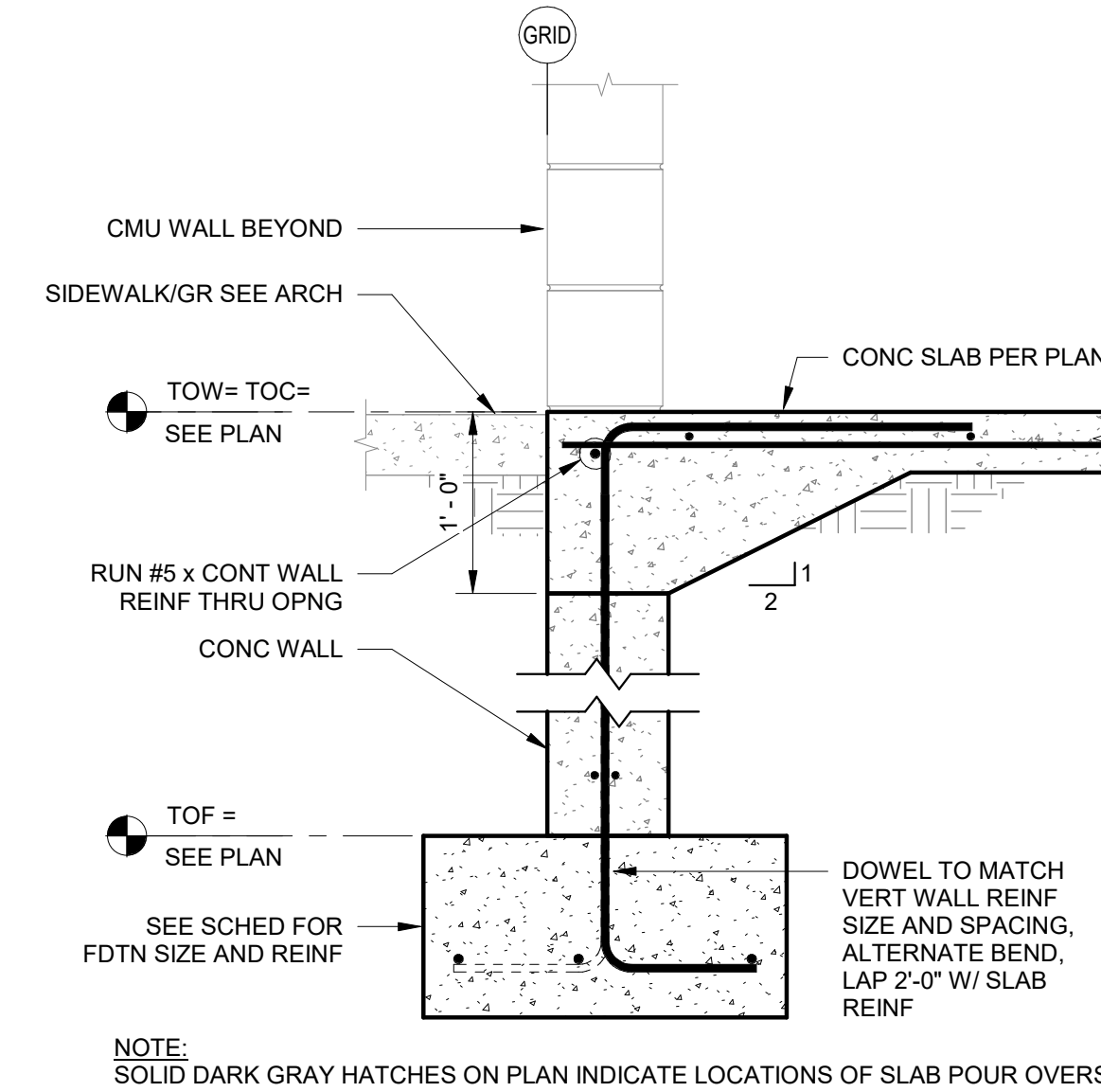
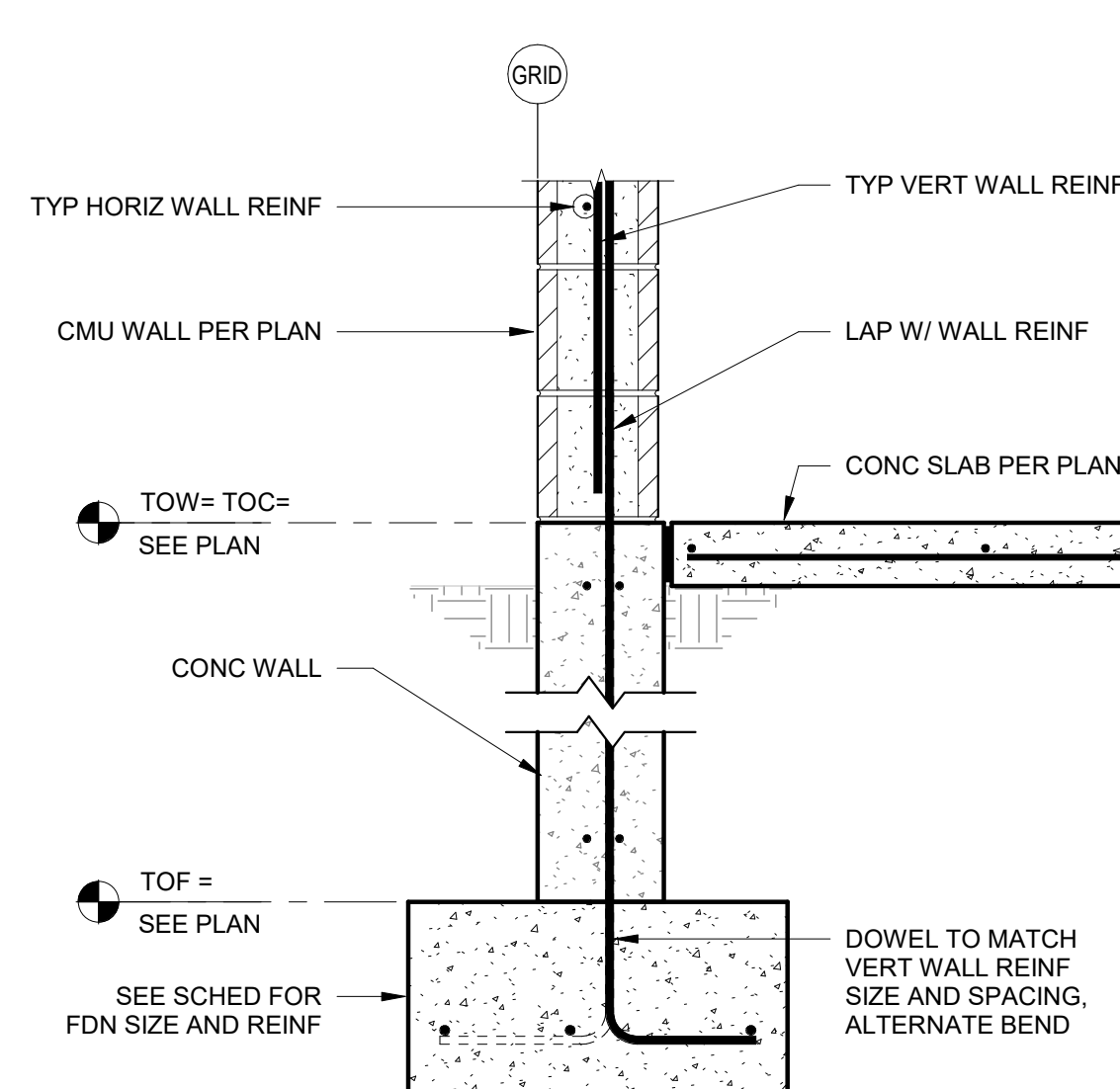
4 EXT FDN WALL AT DOOR OPNG
1" = 1'-0"



6 MASONRY WALL ENDS DETAILS
1" = 1'-0"



10 MASONRY LINTEL
1/2" = 1'-0"



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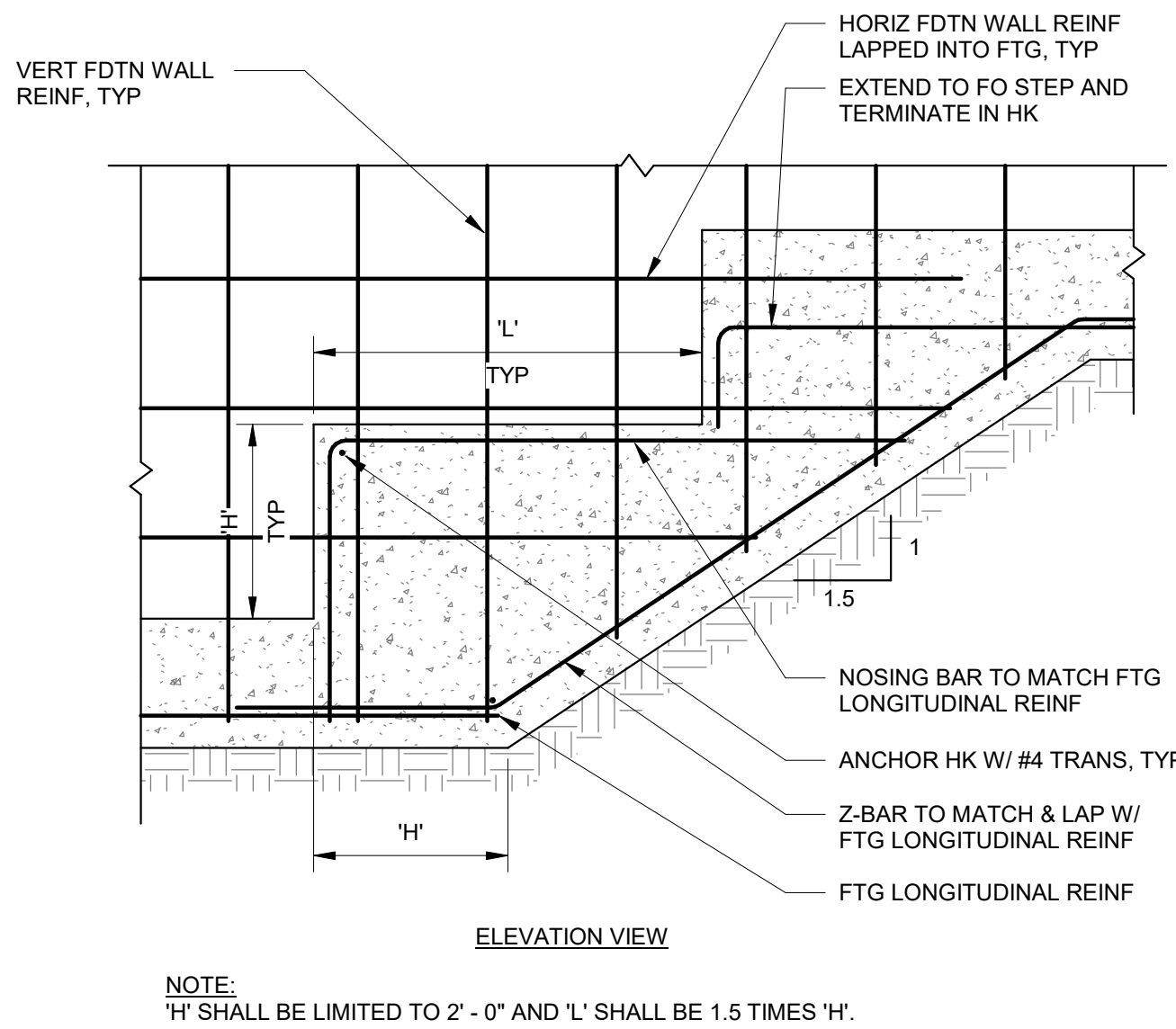
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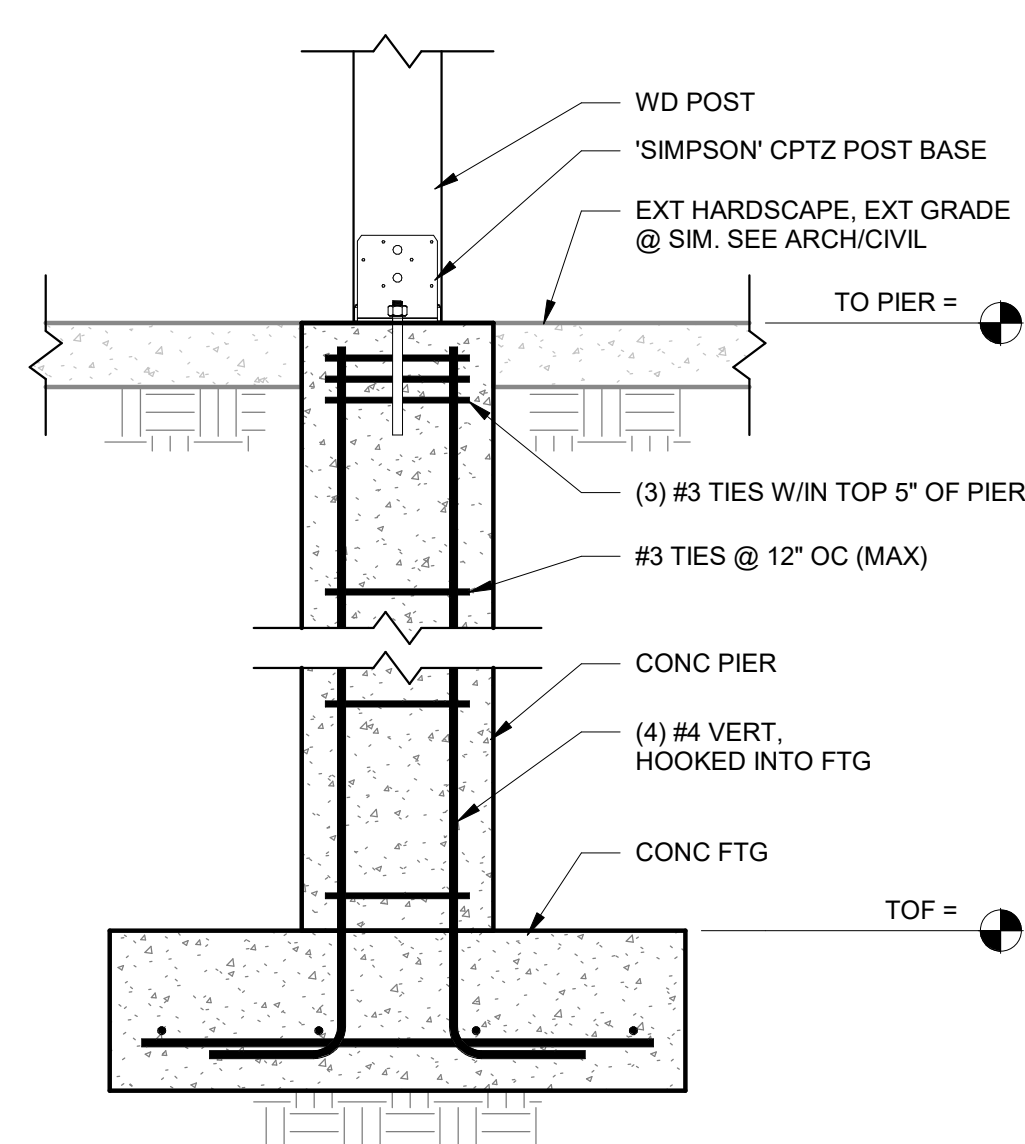
STRUCTURAL DETAILS

S501

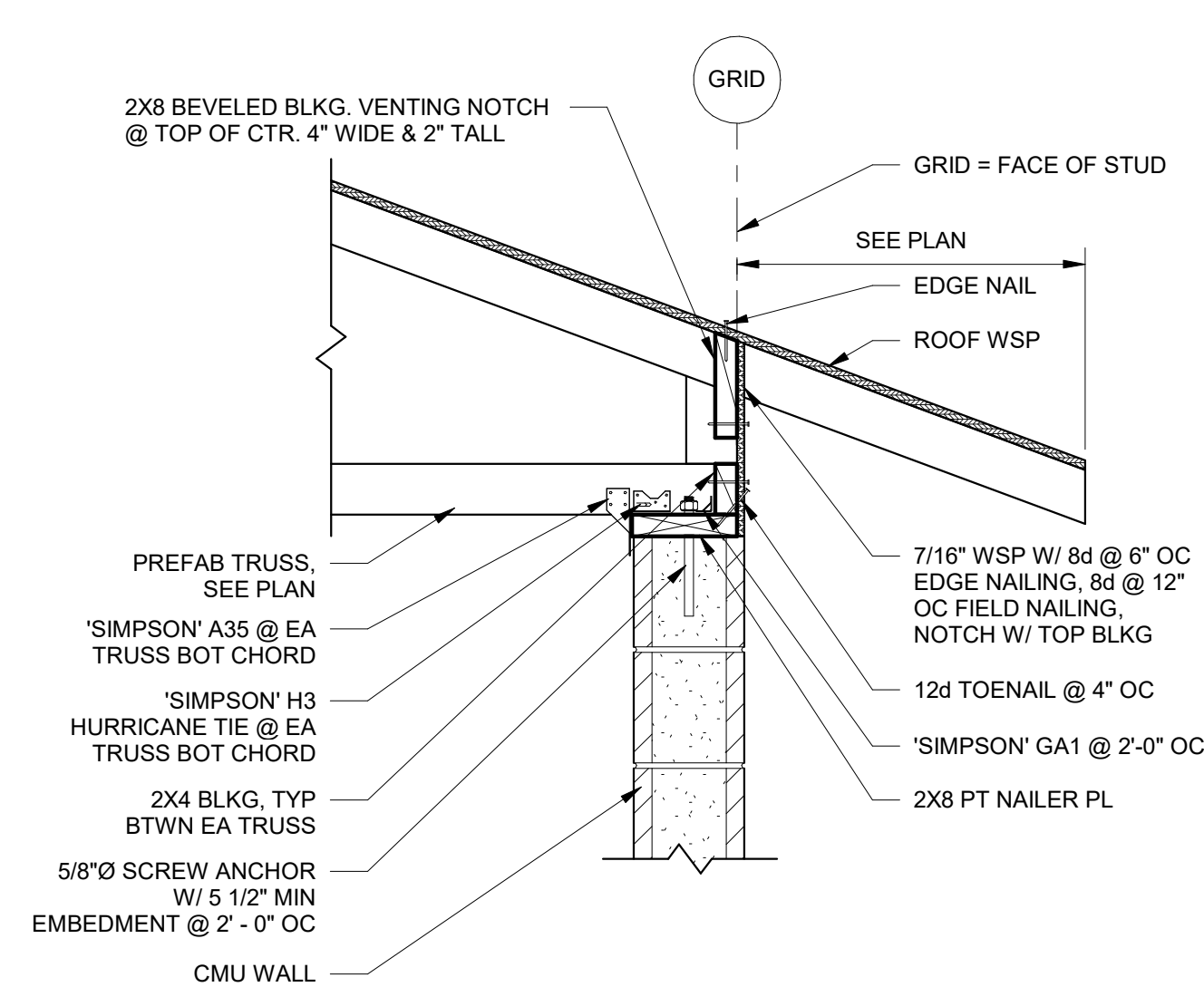
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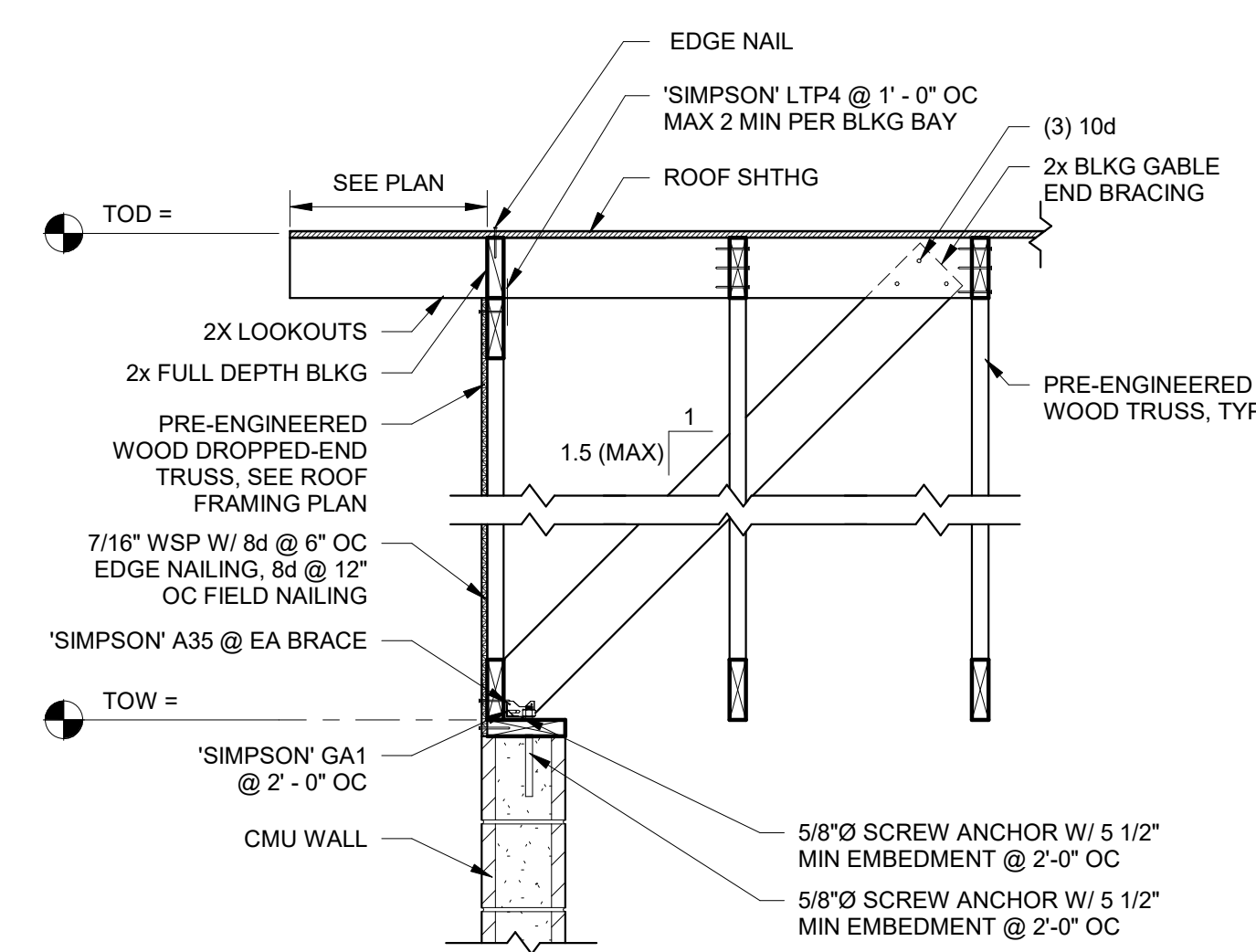
1 TYPICAL CONTINUOUS FTG STEP
3/4" = 1'-0"



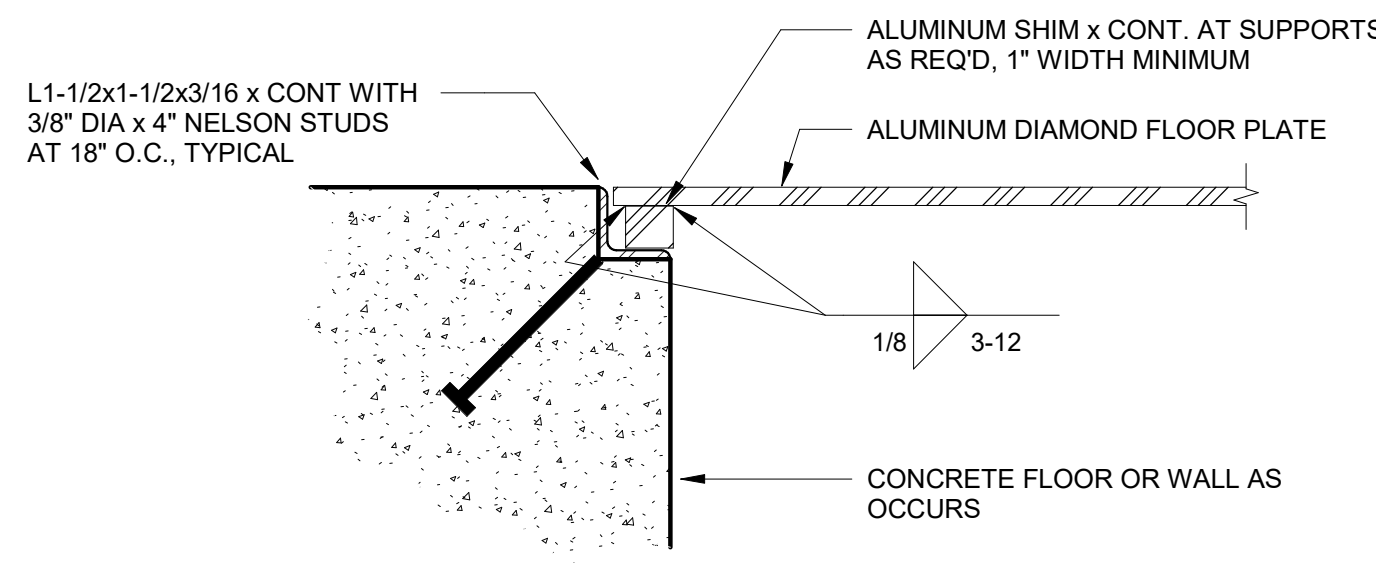
2 CONC PIER TO WD POST CONN
1" = 1'-0"



3 TYP ROOF CONN @ EXT WALL - TRUSSES PERP
1" = 1'-0"



4 TYP ROOF CONN @ EXT WALL - TRUSSES PARALLEL
3/4" = 1'-0"



5 TYP COVER PLATE SUPPORT
NTS

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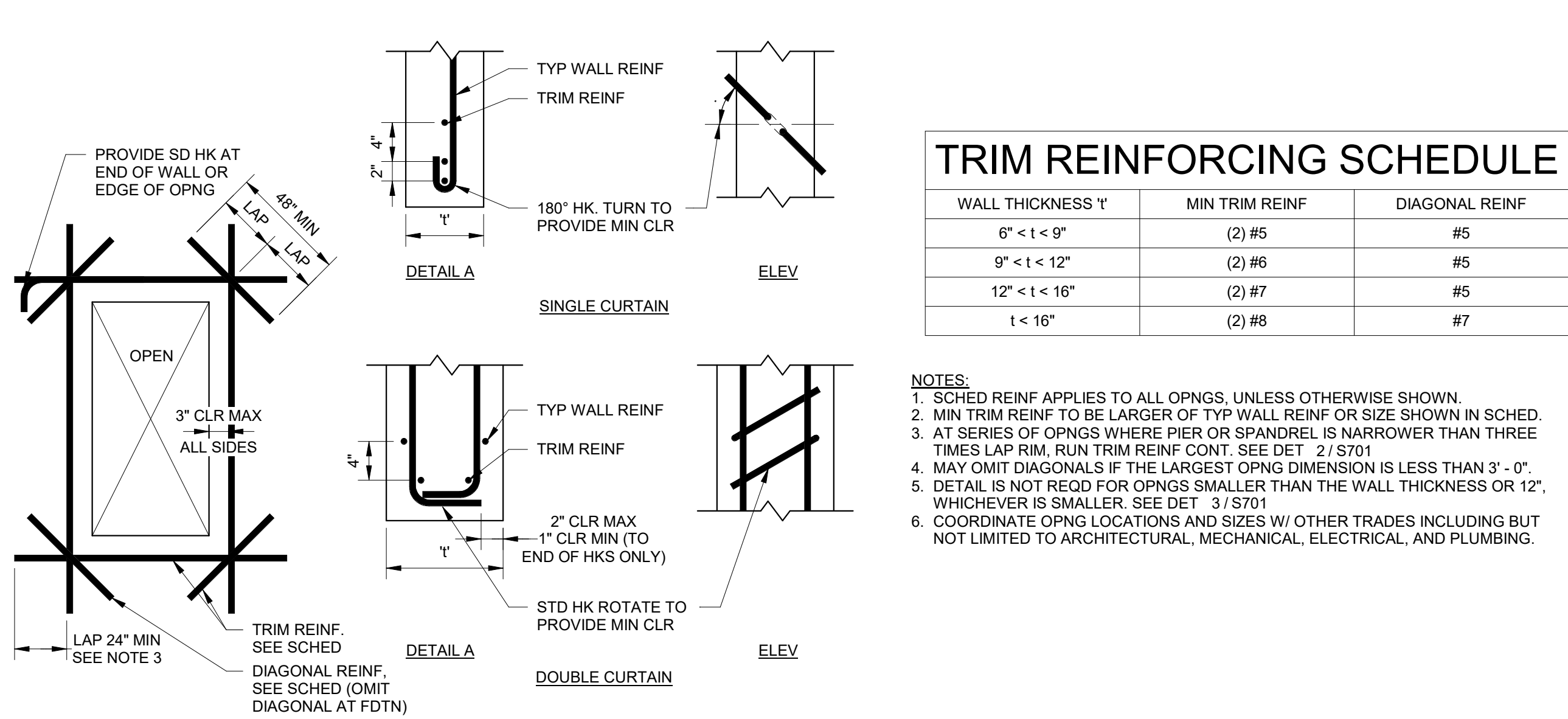
PRELIMINARY PLAT

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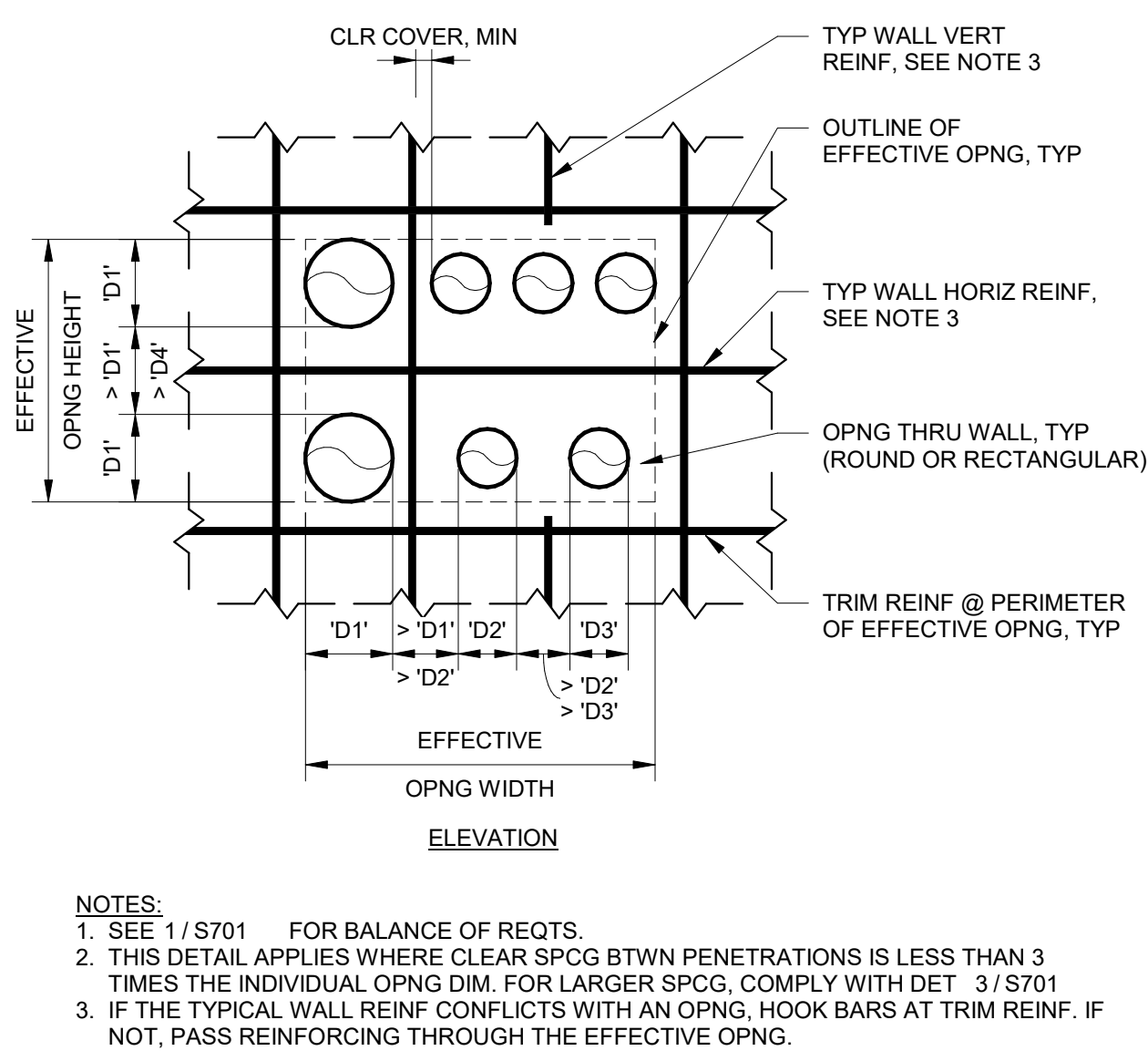
STRUCTURAL DETAILS

S502

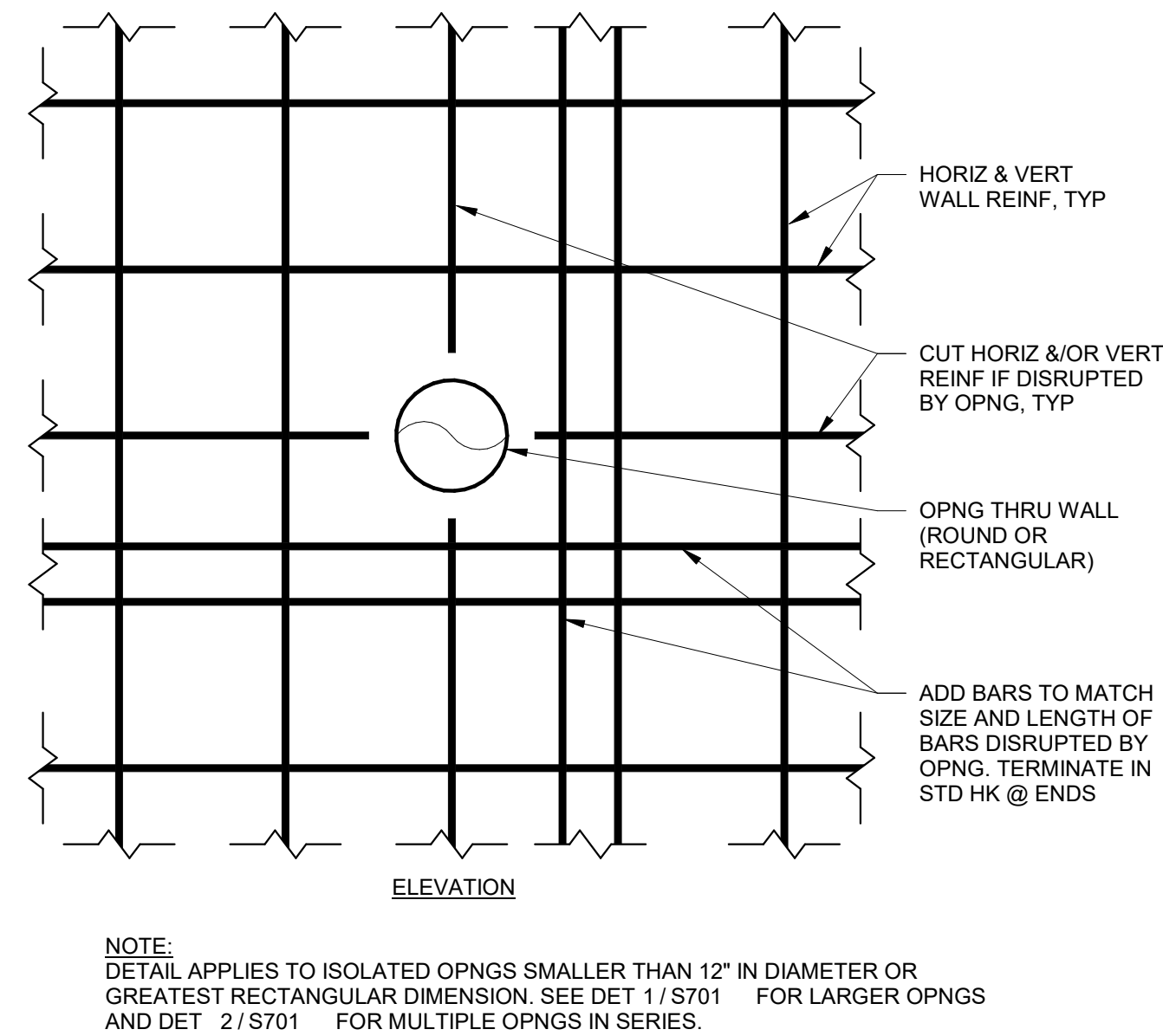
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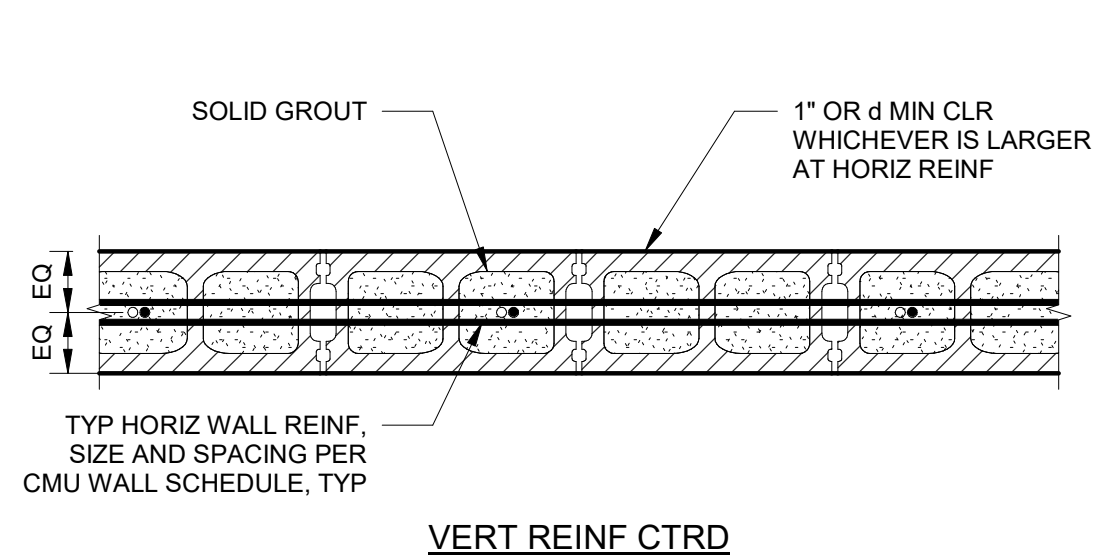
1 TYP WALL REINF AT OPENINGS
NTS



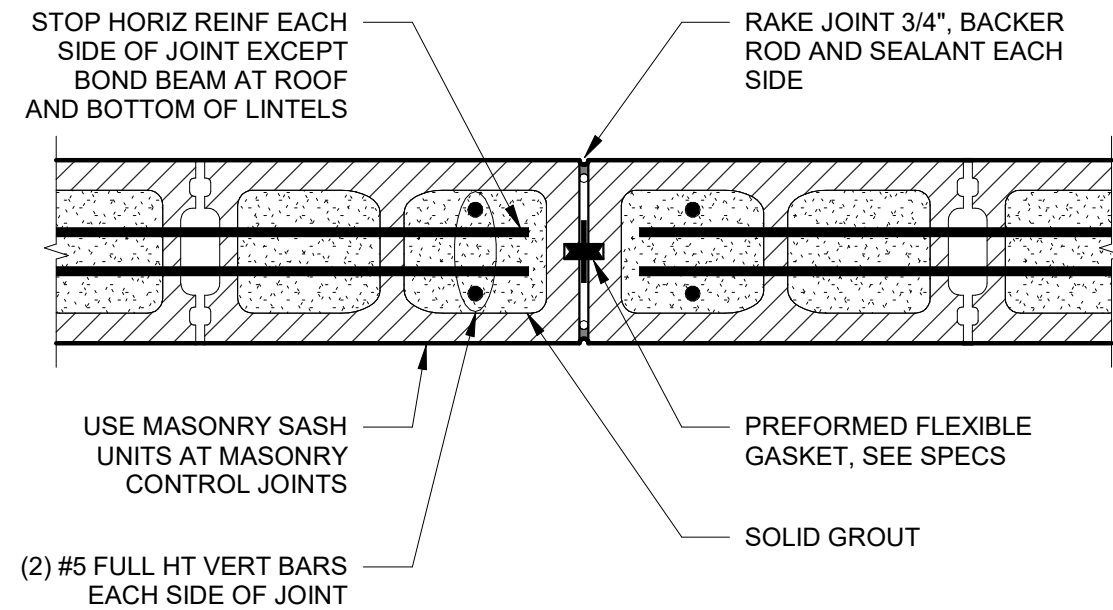
2 TYP WALL/SLAB REINF AT SERIES OF OPNGS
NTS



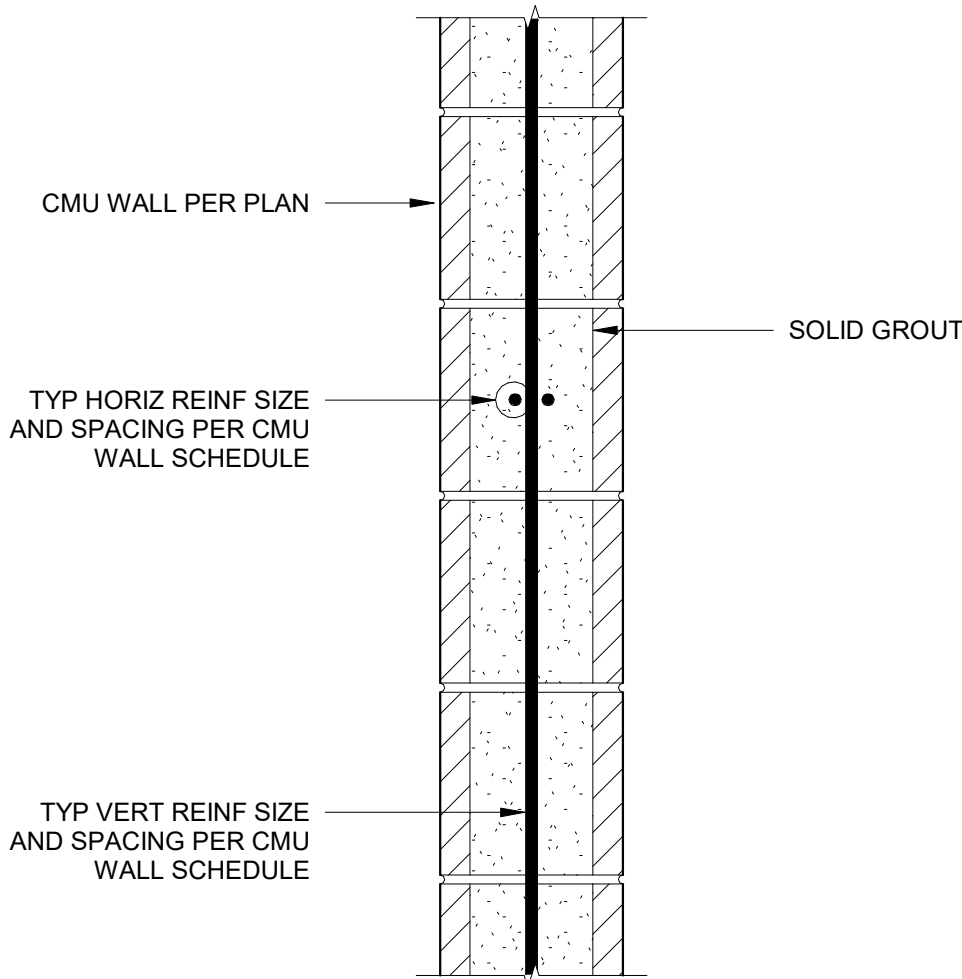
3 TYP WALL/SLAB REINF AT SMALL OPNGS
1" = 1'-0"



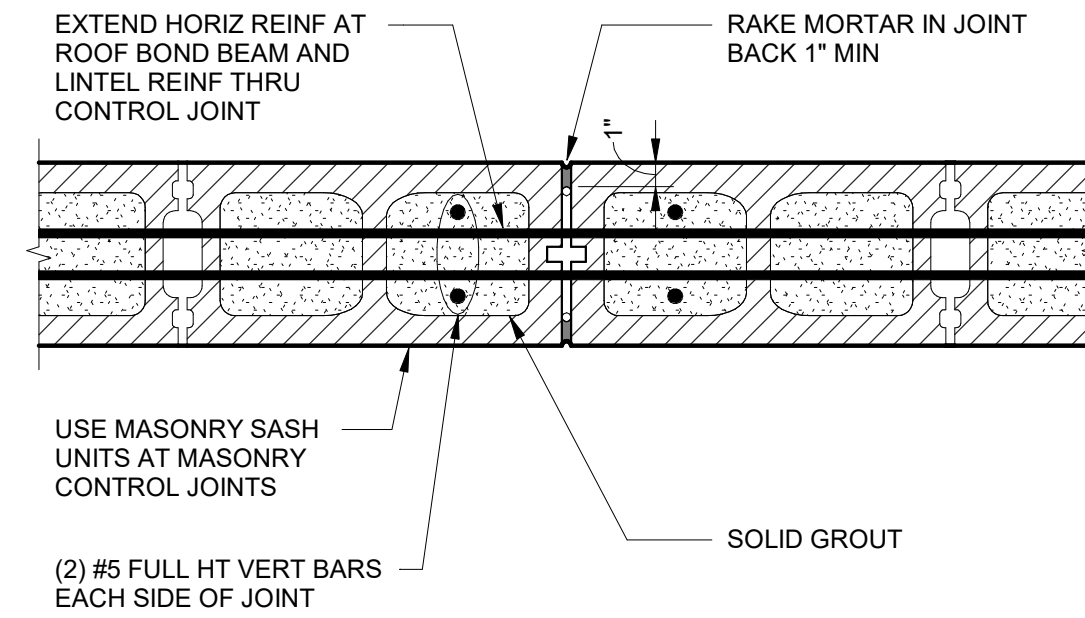
4 MASONRY WALL REINF PLACEMENT
1" = 1'-0"



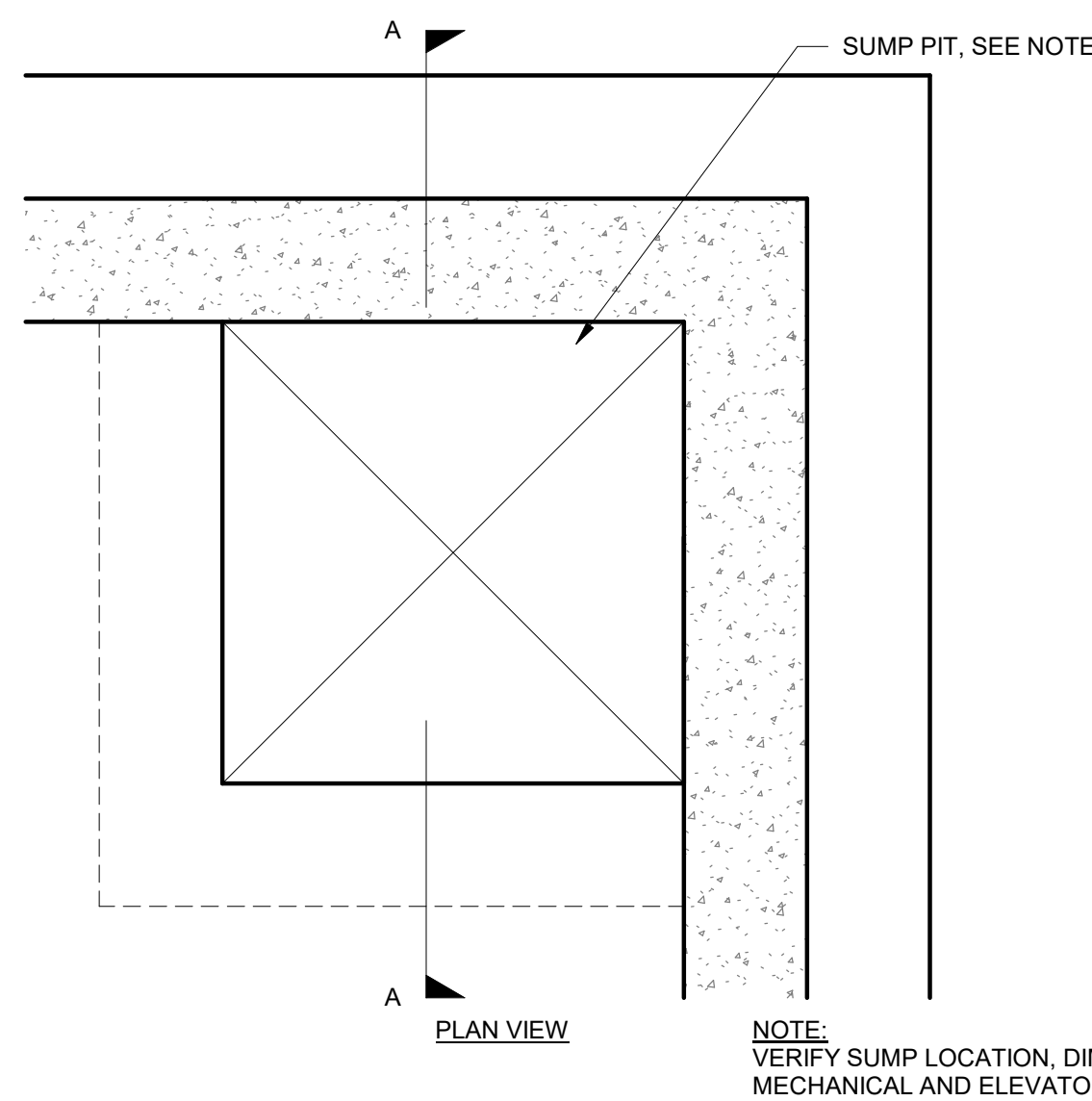
5 MASONRY CONTROL JOINT
1 1/2" = 1'-0"



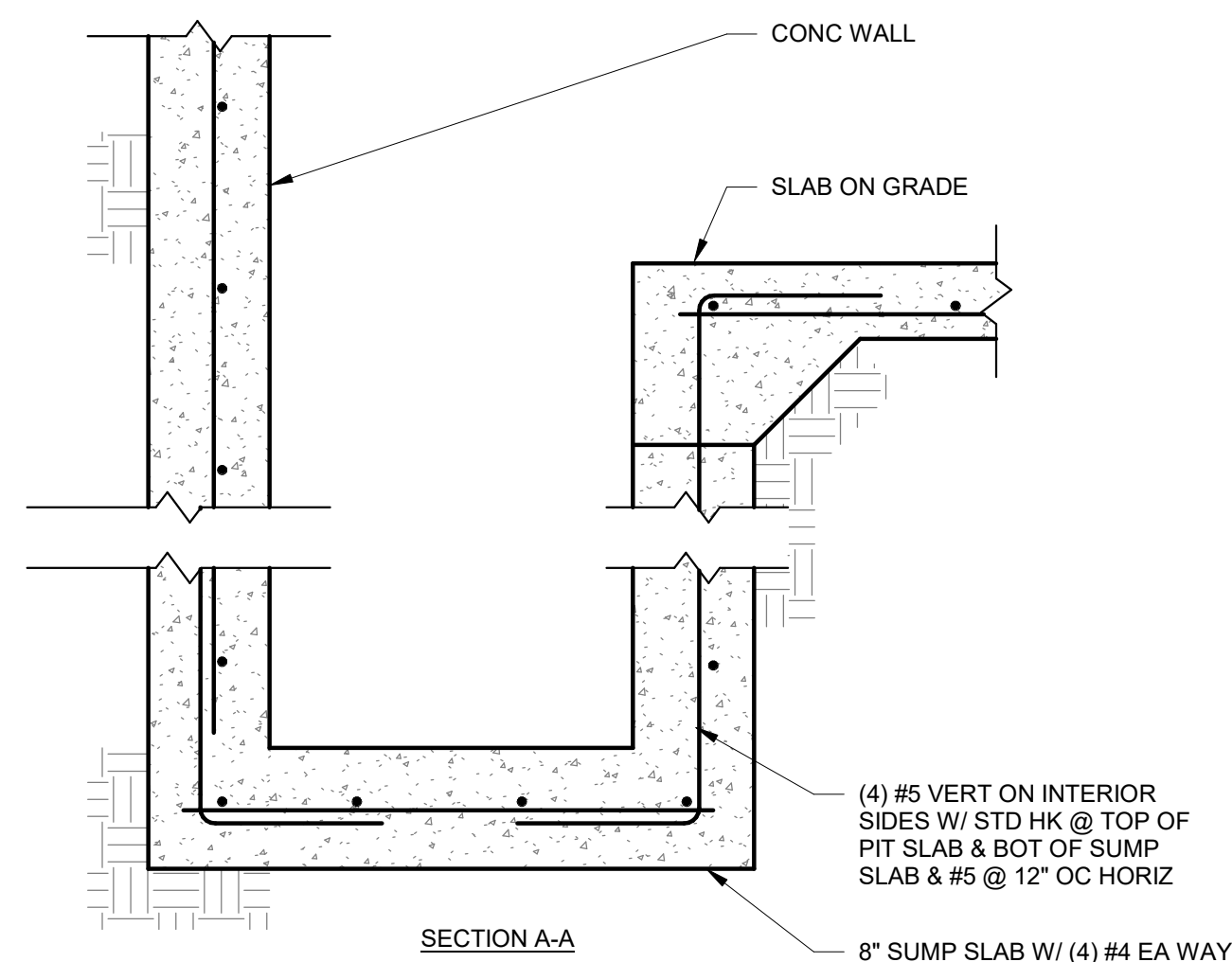
6 MASONRY BOND BEAM
1 1/2" = 1'-0"

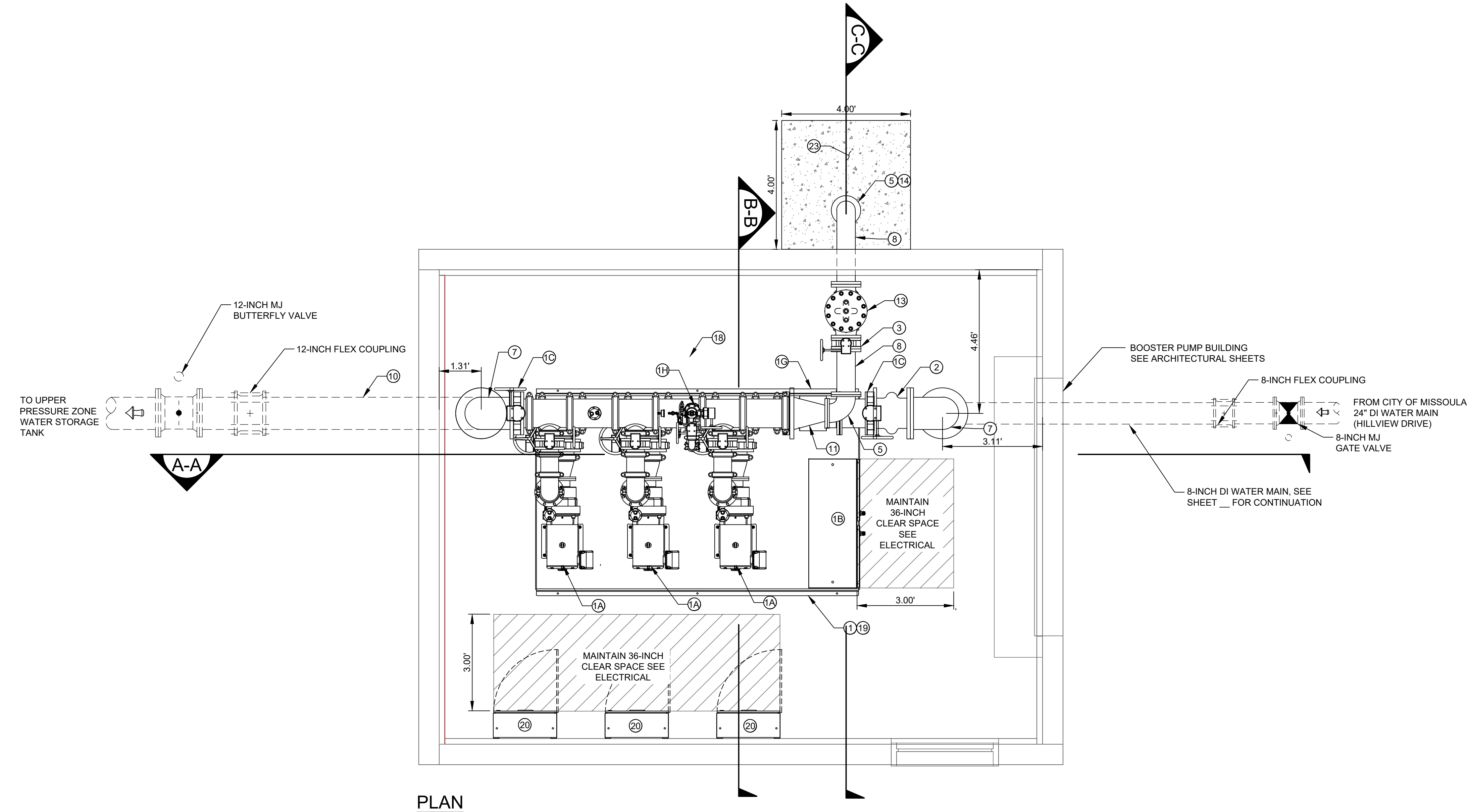


7 CONTROL JOINT AT ROOF BOND BM/INTEL
1 1/2" = 1'-0"



8 TYPICAL PIT SUMP
1" = 1'-0"





BOOSTER PUMP SPECIFICATIONS	
SITE CONDITIONS	
ELECTRICAL INPUT	480V, 3 PH, 60Hz
STATION PERFORMANCE	
NORMAL DUTY	500-750 GPM @ 60 PSI BOOST
HIGH FLOW	1500 GPM @ 60 PSI BOOST
PUMP DESIGN CRITERIA	
TYPE	END SUCTION CENTRIFUGAL
MOTOR STARTING	VARIABLE FREQUENCY DRIVE
MOTOR NAMEPLATE (HP)	40 HP / ODP
MOTOR NOMINAL SPEED	3600 RPM
DESIGN PERFORMANCE	750 GPM @ 140 FT TDH
MIN. PUMP EFFICIENCY	75%
QUANTITY	3

BOOSTER PUMP HOUSE NOTES			
NOTE	DESCRIPTION	QTY	UNIT
1	PACKAGE BOOSTER PUMPING STATION, 500-1500 GPM FLOW RANGE*** (480V, 3 PH)	1	LS
1A	40 HP / 750 GPM CENTRIFUGAL HIGH FLOW DUTY PUMP *** (750 GPM @ 140 FT TDH)	3	EA
1B	CONTROL PANEL (VFD) ***	1	EA
1C	12-INCH FL BUTTERFLY VALVE***	2	EA
1D	8-INCH FL BUTTERFLY VALVE***	3	EA
1E	6-INCH FL BUTTERFLY VALVE***	3	EA
1F	3-INCH AUTOMATIC AIR RELEASE VALVE ***	5	EA
1G	12-INCH MAGNETIC FLOW METER, BADGER M2000 SERIES OR APPROVED EQUAL ***	1	EA
1H	3-INCH PRESSURE RELIEF CONTORL VALVE, WATTS LLF115 OR APPROVED EQUAL***	1	EA
2	12-INCH EXPANSION JOINT, GENERAL RUBBER MAXI-JOINT SERIES 1015, OR APPROVED EQUAL	2	EA
3	6-INCH FL BUTTERFLY VALVE	1	EA
4	8-INCH MJ GATE VALVE		EA
5	6-INCH 90-DEG BEND	2	EA
6	8-INCH 90-DEG BEND	1	EA
7	12-INCH 90-DEG FL BEND	4	EA
8	6-INCH CL 350 DI FL PIPE	1	LS
9	8-INCH CL 350 DI FL PIPE	1	LS
10	12-INCH CL 350 DI FL PIPE	1	LS
11	6-INCH X 12-INCH FL REDUCER	1	EA
12	8-INCH X 12-INCH FL REDUCER	1	EA
13	6-INCH SURGE ANTICIPATING GLOBE VALVE, CAL-VAL 52-01 OR APPROVED EQUAL	1	EA
14	# 24 STAINLESS STEEL WIRE MESH ON DISCHARGE TURNDOWN	1	EA
15	PRESSURE TRANSDUCER	1	EA
16	MANUAL PRESSURE GAUGE	1	EA
17	SMOOTH NOSE SAMPLE TAP	1	EA
18	FLOOR DRAIN, SEE MECHANICAL PLUMBING PLAN FOR CONTINUATION	3	EA
19	CONCRETE MECAHNICAL PAD SEE ARCHITECTURAL PLAN FOR CORRINATION	1	LS
20	BUILDING ELECTRICAL/SCADA/ATS PANEL, SEE ELECTRICAL PLAN FOR CORRINATION	1	LS
21	BOOSTER PUMP BUILDING, SEE ARCHITECTUREAL PLAN FOR CORRINATION	1	LS
22	PIPE STAND	1	LS
23	48-INCH SQUARE CONCRETE SPLASH BLOCK	1	LS
***	DENOTES EQUIPMENT PROVIDED AS PART OF BOOSTER PUMP PACKAGE SKID		

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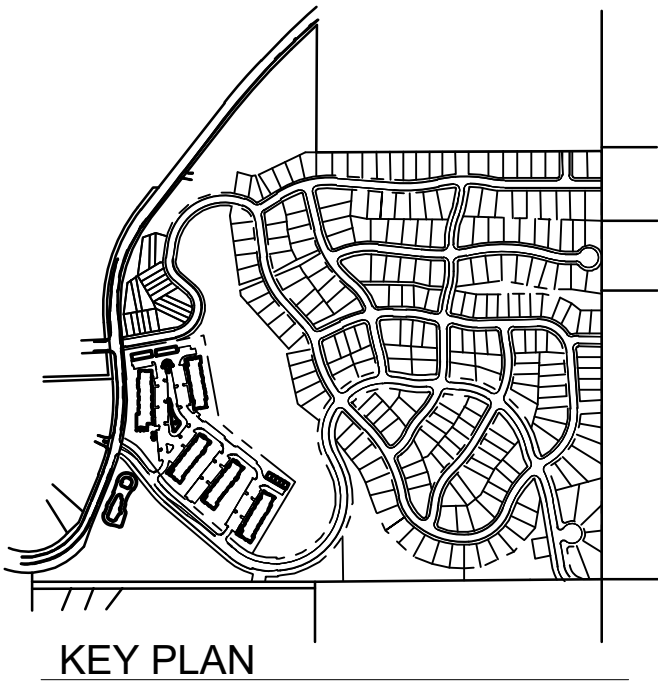
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PUMP HOUSE MECHANICAL
PIPING PLAN: LOWER PUMP
HOUSE

M101

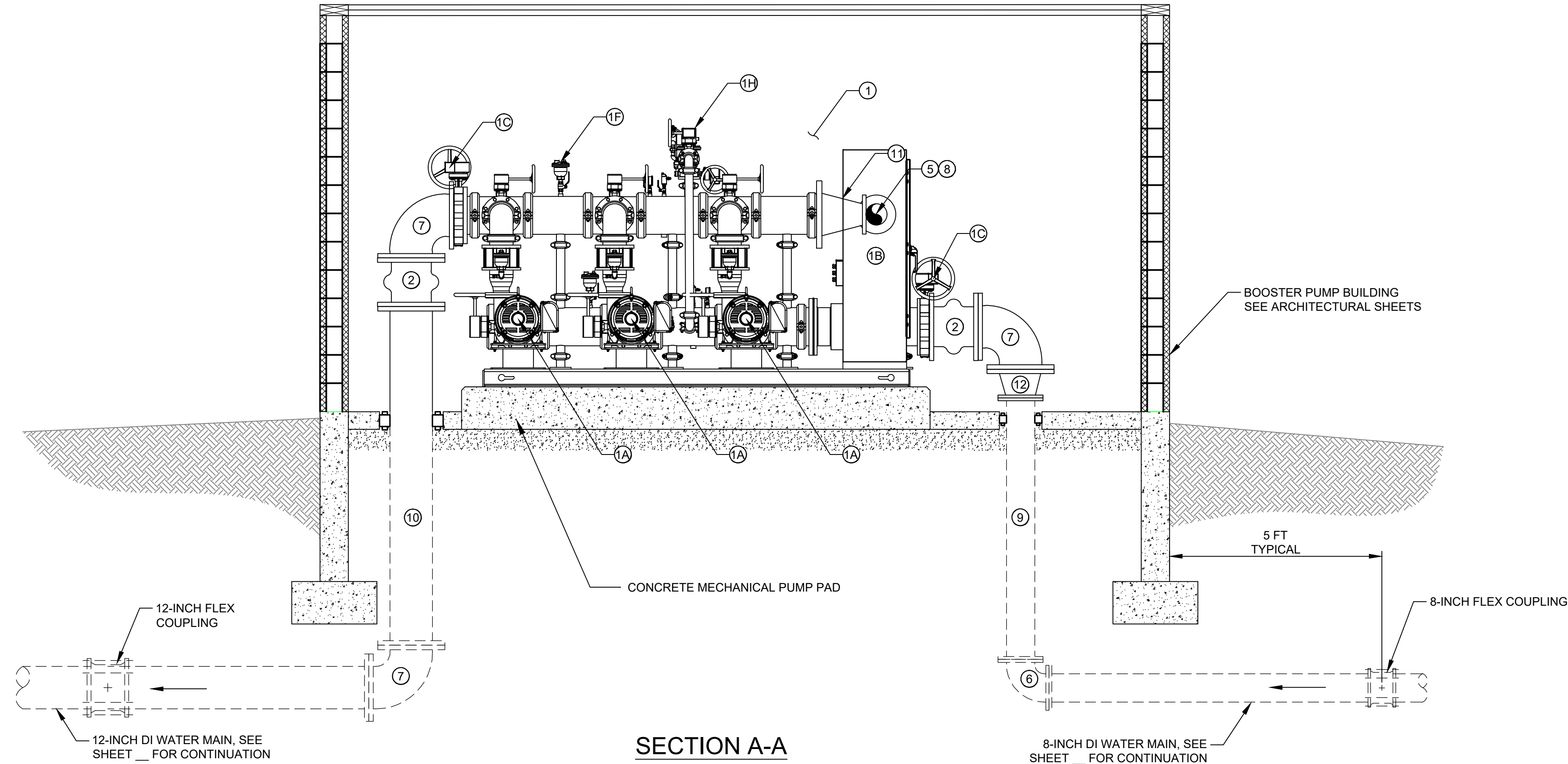
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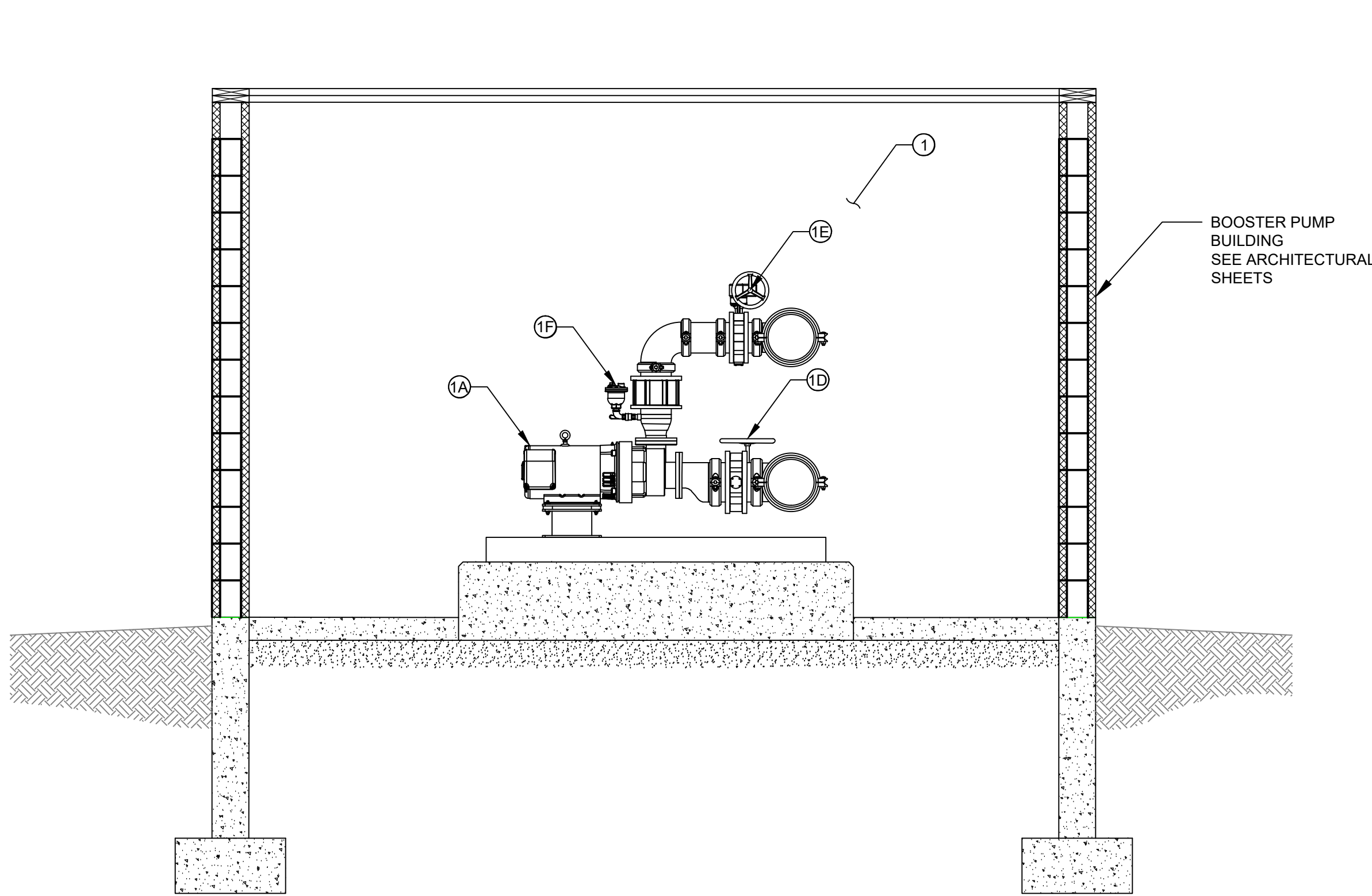
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1 BOOSTER PUMPHOUSE BUILDING SCHEMATICS

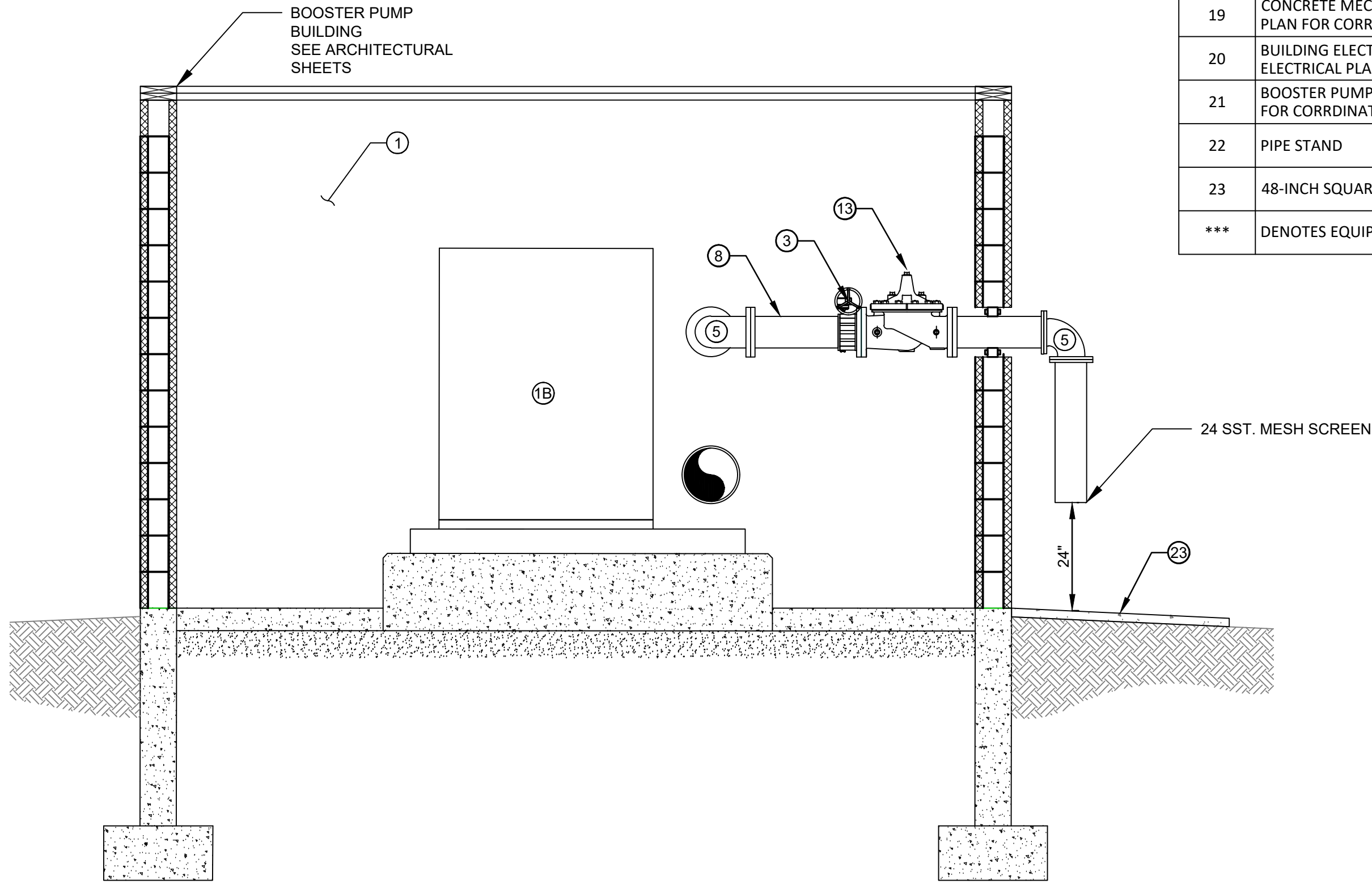
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SECTION A-A

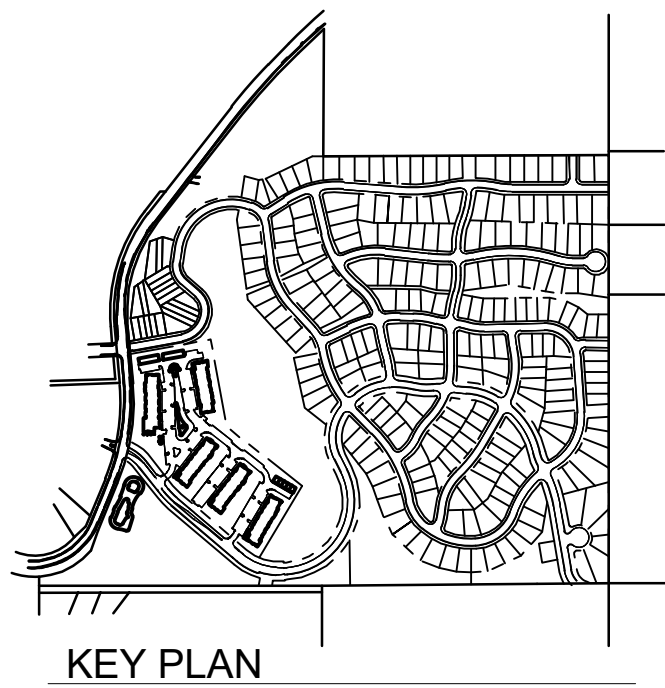


SECTION B-B



SECTION C-C

BOOSTER PUMP HOUSE NOTES			
NOTE	DESCRIPTION	QTY	UNIT
1	PACKAGE BOOSTER PUMPING STATION, 500-1500 GPM FLOW RANGE*** (480V, 3 PH)	1	LS
1A	40 HP / 750 GPM CENTRIFUGAL HIGH FLOW DUTY PUMP *** (750 GPM @ 140 FT TDH)	3	EA
1B	CONTROL PANEL (VFD) ***	1	EA
1C	12-INCH FL BUTTERFLY VALVE***	2	EA
1D	8-INCH FL BUTTERFLY VALVE***	3	EA
1E	6-INCH FL BUTTERFLY VALVE***	3	EA
1F	3-INCH AUTOMATIC AIR RELEASE VALVE ***	5	EA
1G	12-INCH MAGNETIC FLOW METER, BADGER M2000 SERIES OR APPROVED EQUAL ***	1	EA
1H	3-INCH PRESSURE RELIEF CONTORL VALVE, WATTS LLF115 OR APPROVED EQUAL***	1	EA
2	12-INCH EXPANSION JOINT, GENERAL RUBBER MAXI-JOINT SERIES 1015, OR APPROVED EQUAL	2	EA
3	6-INCH FL BUTTERFLY VALVE	1	EA
4	8-INCH MJ GATE VALVE		EA
5	6-INCH 90-DEG BEND	2	EA
6	8-INCH 90-DEG BEND	1	EA
7	12-INCH 90-DEG FL BEND	4	EA
8	6-INCH CL 350 DI FL PIPE	1	LS
9	8-INCH CL 350 DI FL PIPE	1	LS
10	12-INCH CL 350 DI FL PIPE	1	LS
11	6-INCH X 12-INCH FL REDUCER	1	EA
12	8-INCH X 12-INCH FL REDUCER	1	EA
13	6-INCH SURGE ANTICIPATING GLOBE VALVE, CAL-VAL 52-01 OR APPROVED EQUAL	1	EA
14	# 24 STAINLESS STEEL WIRE MESH ON DISCHARGE TURNDOWN	1	EA
15	PRESSURE TRANSDUCER	1	EA
16	MANUAL PRESSURE GAUGE	1	EA
17	SMOOTH NOSE SAMPLE TAP	1	EA
18	FLOOR DRAIN, SEE MECHANICAL PLUMBING PLAN FOR CONTINUATION	3	EA
19	CONCRETE MECAHNICAL PAD SEE ARCHITECTURAL PLAN FOR CORRINATION	1	LS
20	BUILDING ELECTRICAL/SCADA/ATS PANEL, SEE ELECTRICAL PLAN FOR CORRINATION	1	LS
21	BOOSTER PUMP BUILDING, SEE ARCHITECTUREAL PLAN FOR CORRINATION	1	LS
22	PIPE STAND	1	LS
23	48-INCH SQUARE CONCRETE SPLASH BLOCK	1	LS
***	DENOTES EQUIPMENT PROVIDED AS PART OF BOOSTER PUMP PACKAGE SKID		



KEY PLAN

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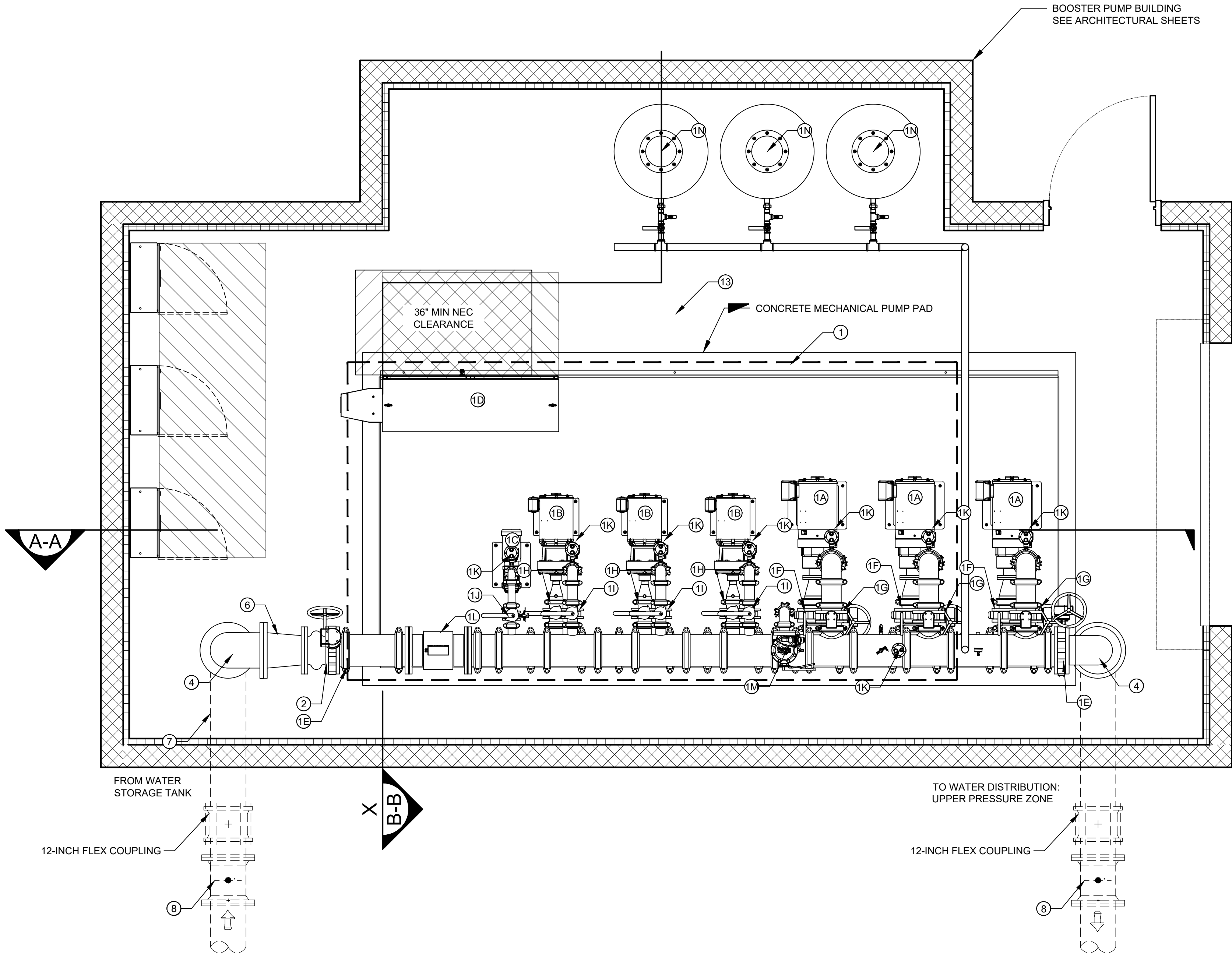
M102

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BOOSTER PUMPHOUSE BUILDING SCHEMATICS

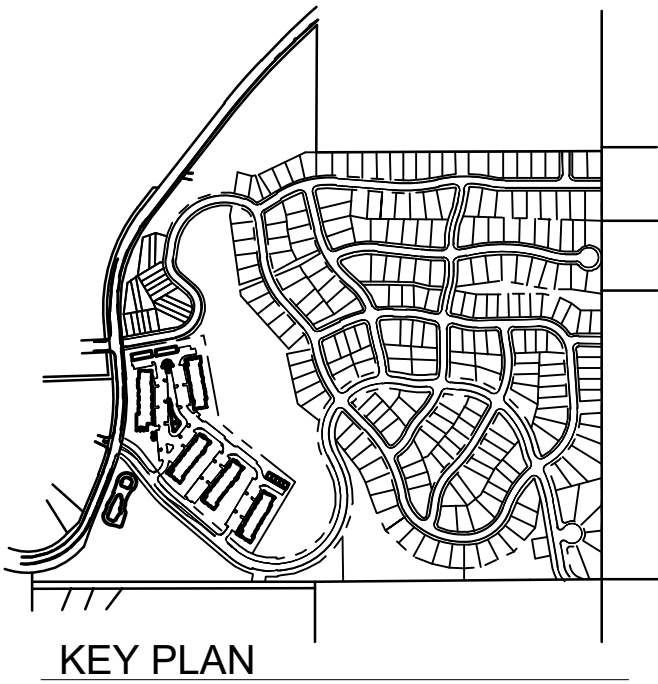
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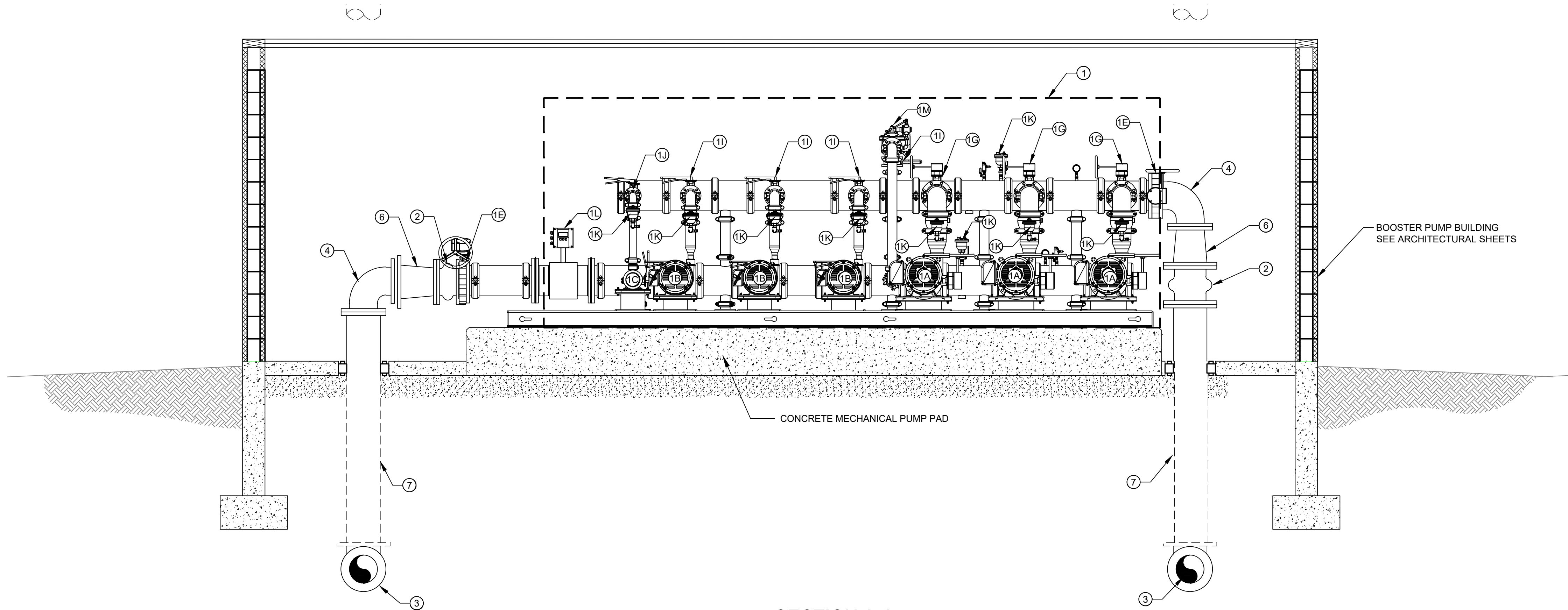


BOOSTER PUMP SPECIFICATIONS	
SITE CONDITIONS	
ELECTRICAL INPUT	480V, 3 PH, 60Hz
STATION PERFORMANCE	
NORMAL DUTY	35-1,990 GPM @ 75 PSI BOOST
HIGH FLOW	890-1500 GPM @ 75 PSI BOOST
PUMP DESIGN CRITERIA: JOCKEY PUMP	
TYPE	END SUCTION CENTRIFUGAL
MOTOR STARTING	VARIABLE FREQUENCY DRIVE
MOTOR NAMEPLATE (HP)	3 HP / ODP
MOTOR NOMINAL SPEED	3600 RPM
DESIGN PERFORMANCE	35 GPM @ 180 FT TDH
MIN. PUMP EFFICIENCY	75%
QUANTITY	1
PUMP DESIGN CRITERIA: DUTY PUMP	
TYPE	END SUCTION CENTRIFUGAL
MOTOR STARTING	VARIABLE FREQUENCY DRIVE
MOTOR NAMEPLATE (HP)	30 HP / ODP
MOTOR NOMINAL SPEED	3600 RPM
DESIGN PERFORMANCE	300 GPM @ 180 FT TDH
MIN. PUMP EFFICIENCY	75%
QUANTITY	3
PUMP DESIGN CRITERIA: HIGH FLOW PUMP	
TYPE	END SUCTION CENTRIFUGAL
MOTOR STARTING	VARIABLE FREQUENCY DRIVE
MOTOR NAMEPLATE (HP)	50 HP / ODP
MOTOR NOMINAL SPEED	3600 RPM
DESIGN PERFORMANCE	750 GPM @ 180 FT TDH
MIN. PUMP EFFICIENCY	75%
QUANTITY	3

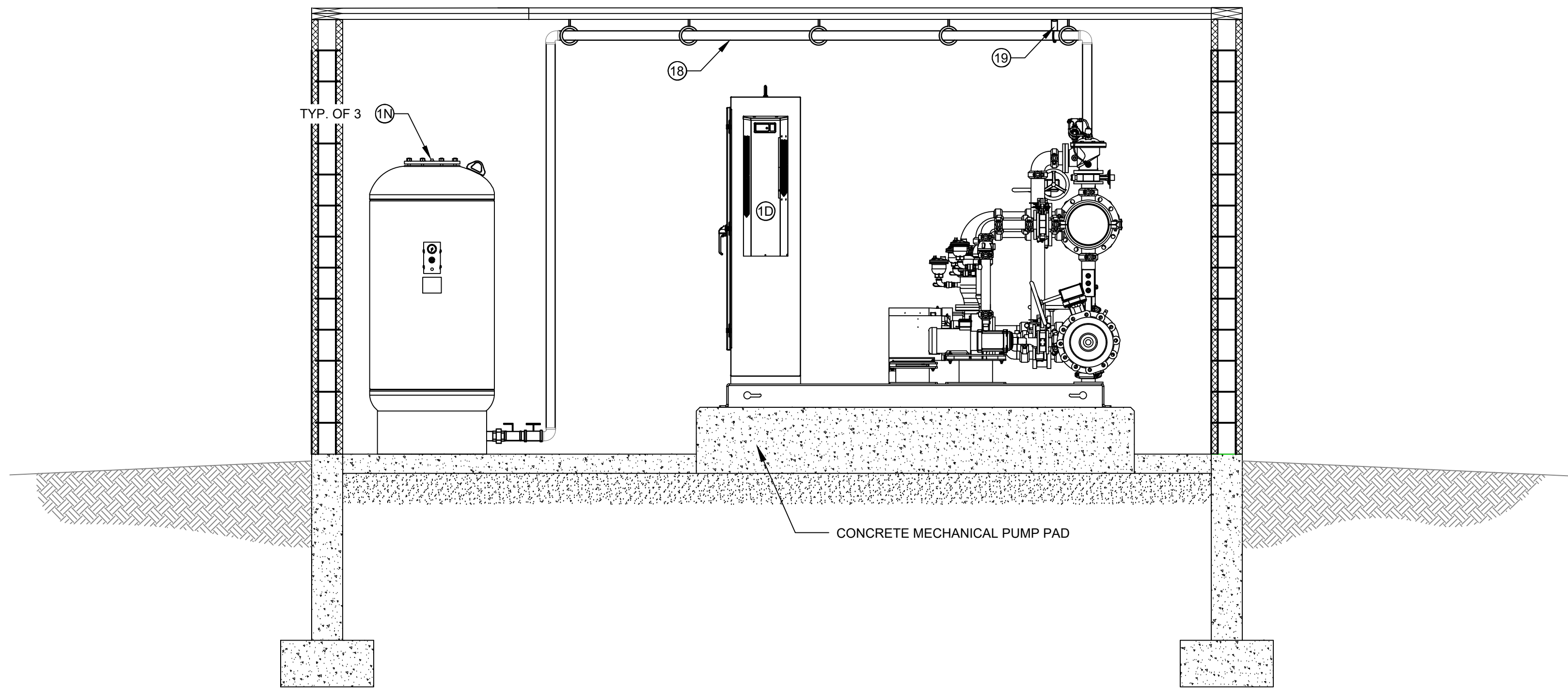
BOOSTER PUMP HOUSE NOTES			
NOTE	DESCRIPTION	QTY	UNIT
1	PACKAGE BOOSTER PUMPING STATION, 15-1990 GPM FLOW RANGE*** (480V, 3 PH)	1	LS
1A	50 HP / 750 GPM CENTRIFUGAL HIGH FLOW DUTY PUMP *** (750 GPM @ 180 FT TDH)	3	EA
1B	30 HP / 300 GPM CENTRIFUGAL HIGH FLOW DUTY PUMP *** (300 GPM @ 180 FT TDH)	3	EA
1C	3 HP / 35 GPM CENTRIFUGAL HIGH FLOW DUTY PUMP *** (35 GPM @ 180 FT TDH)	1	EA
1D	CONTROL PANEL (VFD) ***	1	EA
1E	10-INCH LUG BUTTERFLY VALVE***	2	EA
1F	8-INCH LUG BUTTERFLY VALVE***	3	EA
1G	6-INCH LUG BUTTERFLY VALVE***	3	EA
1H	4-INCH LUG BUTTERFLY VALVE***	2	EA
1I	3-INCH LUG BUTTERFLY VALVE***	3	EA
1J	2-INCH LUG BUTTERFLY VALVE***	2	EA
1K	AUTOMATIC AIR RELEASE VALVE ***	5	EA
1L	10-INCH MAGNETIC FLOW METER, BADGER M2000 SERIES OR APPROVED EQUAL ***	1	EA
1M	3-INCH PRESSURE RELIEF CONTORL VALVE, WATTS LLF115 OR APPROVED EQUAL***	1	EA
1N	PRESSURE TANK ASSEMBLY, BELL & GOSSETT WTA-452 WITH UNION, SAMPLING PORT AND 2-INCH GATE VALVE	3	EA
2	10-INCH EXPANSION JOINT, GENERAL RUBBER MAXI-JOINT SERIES 1015, OR APPROVED EQUAL	2	EA
3	12-INCH 90-DEG FL BEND	3	EA
4	10-INCH 90-DEG FL BEND	2	EA
5	12-INCH FL TEE	0	EA
6	12-INCH x 10-INCH FL DI REDUCER	2	EA
7	12-INCH CL 350 DI FL PIPE	1	LS
8	12-INCH LUG BUTTERFLY VALVE***	0	EA
9	12-INCH FL DISMANTLING COUPLER	0	EA
10	PRESSURE TRANSDUCER	1	EA
11	MANUAL PRESSURE GAUGE	1	EA
12	SMOOTH NOSE SAMPLE TAP	1	EA
13	FLOOR DRAIN, SEE MECHANICAL PLUMBING PLAN FOR CONTINUATION	3	EA
14	CONCRETE MECANHICAL PAD SEE ARCHITECTURAL PLAN FOR CORRDIATION	1	LS
15	BUILDING ELECTRICAL PANEL, SEE ELECTRICAL PLAN FOR CORRDIATION	1	LS
16	BOOSTER PUMP BUILDING, SEE ARCHITECTUREAL PLAN FOR CORRDIATION	1	LS
17	PIPE STAND	1	LS
18	2-INCH GALVANIZED STEEL PIPE	1	LS
19	1-INCH AUTOMATIC AIR RELEASE VALVE, CLA-VAL 3410-AR116.3	1	EA
***	DENOTES EQUIPMENT PROVIDED AS PART OF BOOSTER PUMP PACKAGE SKID		

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SECTION A-A



SECTION B-B

BOOSTER PUMP HOUSE NOTES			
NOTE	DESCRIPTION	QTY	UNIT
1	PACKAGE BOOSTER PUMPING STATION, 15-1990 GPM FLOW RANGE*** (480V, 3 PH)	1	LS
1A	50 HP / 750 GPM CENTRFUGAL HIGH FLOW DUTY PUMP *** (750 GPM @ 180 FT TDH)	3	EA
1B	30 HP / 300 GPM CENTRFUGAL HIGH FLOW DUTY PUMP *** (300 GPM @ 180 FT TDH)	3	EA
1C	3 HP / 35 GPM CENTRFUGAL HIGH FLOW DUTY PUMP *** (35 GPM @ 180 FT TDH)	1	EA
1D	CONTROL PANEL (VFD) ***	1	EA
1E	10-INCH LUG BUTTERFLY VALVE***	2	EA
1F	8-INCH LUG BUTTERFLY VALVE***	3	EA
1G	6-INCH LUG BUTTERFLY VALVE***	3	EA
1H	4-INCH LUG BUTTERFLY VALVE***	2	EA
1I	3-INCH LUG BUTTERFLY VALVE***	3	EA
1J	2-INCH LUG BUTTERFLY VALVE***	2	EA
1K	AUTOMATIC AIR RELEASE VALVE ***	5	EA
1L	10-INCH MAGNETIC FLOW METER, BADGER M2000 SERIES OR APPROVED EQUAL ***	1	EA
1M	3-INCH PRESSURE RELIEF CONTORL VALVE, WATTS LLF115 OR APPROVED EQUAL***	1	EA
1N	PRESSURE TANK ASSEMBLY, BELL & GOSSETT WTA-452 WITH UNION, SAMPLING PORT AND 2-INCH GATE VALVE	3	EA
2	10-INCH EXPANSION JOINT, GENERAL RUBBER MAXI-JOINT SERIES 1015, OR APPROVED EQUAL	2	EA
3	12-INCH 90-DEG FL BEND	3	EA
4	10-INCH 90-DEG FL BEND	2	EA
5	12-INCH FL TEE	0	EA
6	12-INCH x 10-INCH FL DI REDUCER	2	EA
7	12-INCH CL 350 DI FL PIPE	1	LS
8	12-INCH LUG BUTTERFLY VALVE***	0	EA
9	12-INCH FL DISMANTLING COUPLER	0	EA
10	PRESSURE TRANSDUCER	1	EA
11	MANUAL PRESSURE GAUGE	1	EA
12	SMOOTH NOSE SAMPLE TAP	1	EA
13	FLOOR DRAIN, SEE MECHANICAL PLUMBING PLAN FOR CONTINUATION	3	EA
14	CONCRETE MECAHNICAL PAD SEE ARCHITECTURAL PLAN FOR CORRDIATION	1	LS
15	BUILDING ELECTRICAL PANEL, SEE ELECTRICAL PLAN FOR CORRDIATION	1	LS
16	BOOSTER PUMP BUILDING, SEE ARCHITECTUREAL PLAN FOR CORRDIATION	1	LS
17	PIPE STAND	1	LS
18	2-INCH GALVANIZED STEEL PIPE	1	LS
19	1-INCH AUTOMATIC AIR RELEASE VALVE, CLA-VAL 3410-AR116.3	1	EA
***	DENOTES EQUIPMENT PROVIDED AS PART OF BOOSTER PUMP PACKAGE SKID		

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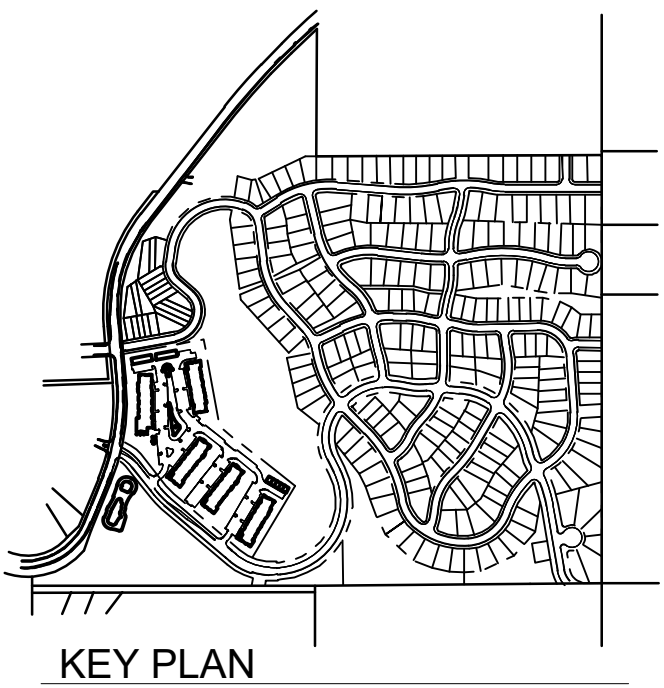
PRELIMINARY PLAT

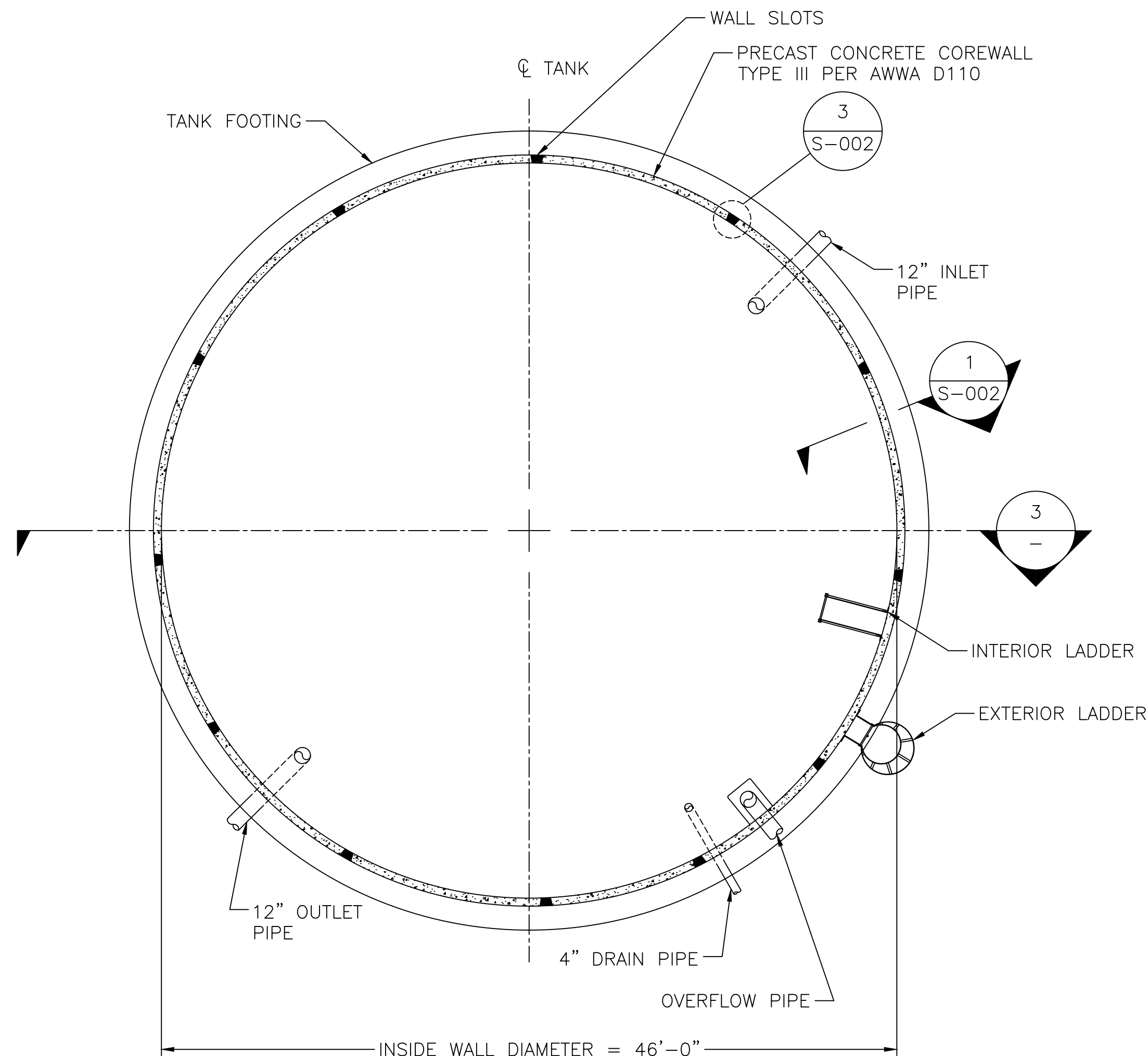
10.13.2023
DRAWN BY | RCB
CHECKED BY | AJM
REVISIONS

PUMP HOUSE MECHANICAL
PIPING PLAN: UPPER PUMP
HOUSE

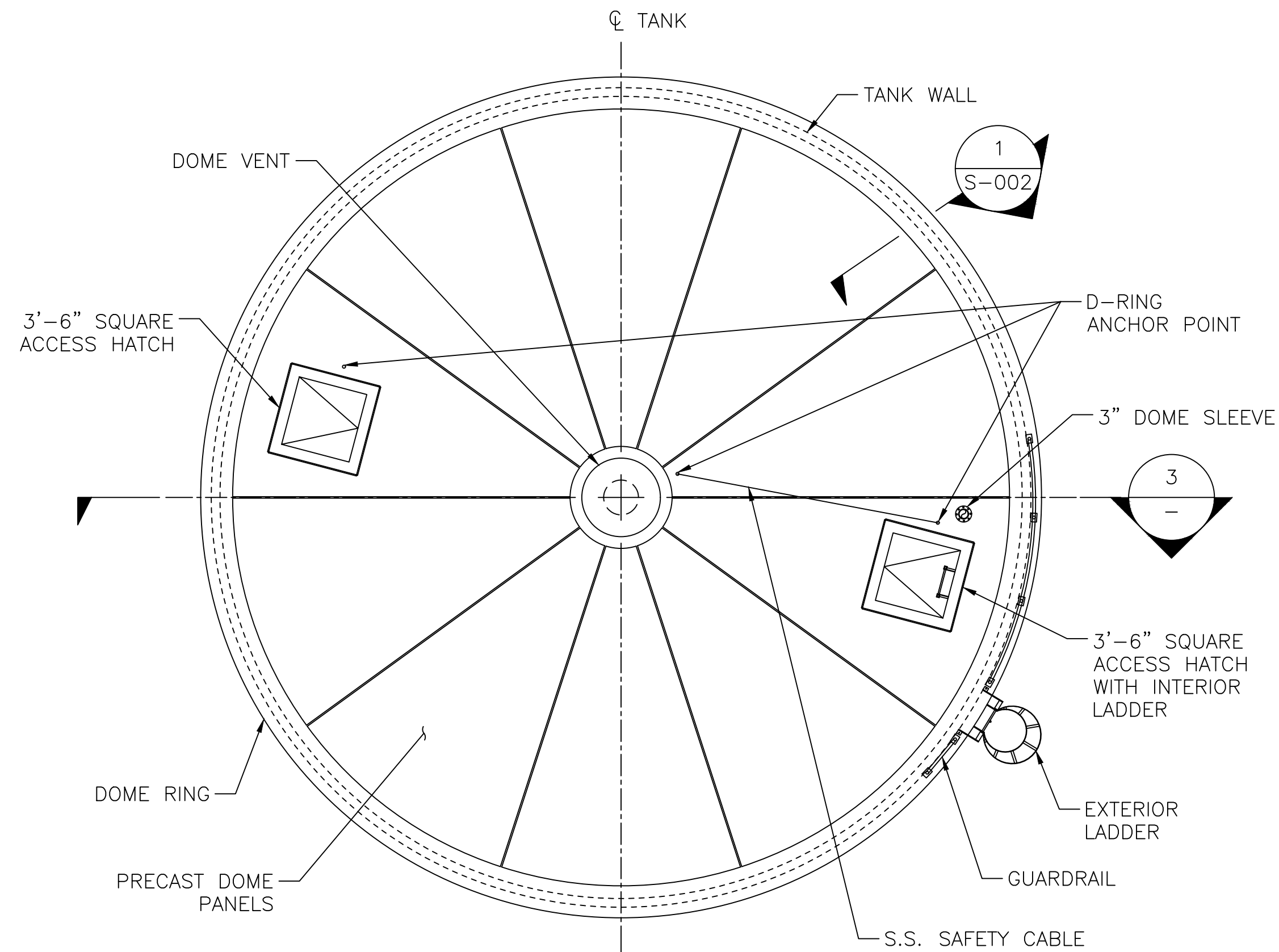
M202

NOT FOR CONSTRUCTION

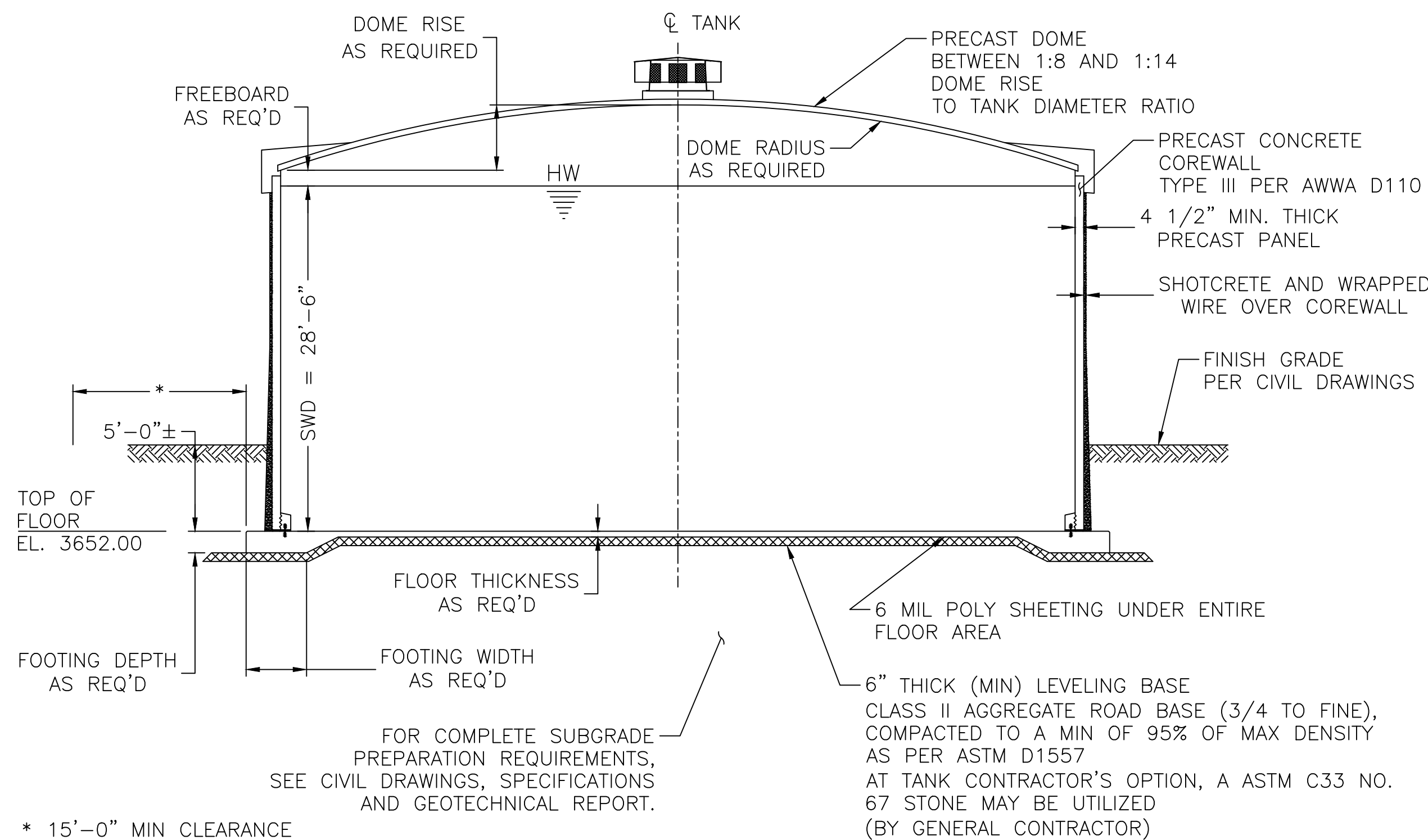




FLOOR PLAN



DOME PLAN



TANK SECTION

GENERAL NOTES:

*ALL DIMENSIONS SHOWN ARE MINIMUM REQUIREMENTS. TANK CONTRACTOR, AS DEFINED IN THE SPECIFICATIONS, TO VERIFY DIMENSIONS WITH STRUCTURAL CALCULATIONS.

- A. DESIGN LOADS
 1. ROOF LOAD : 20.0 PSF LIVE; SNOW
 2. LIQUID (WATER) : 62.4PCF
 3. R_i , IMPULSIVE STRUCTURAL RESPONSE COEFFICIENT : 3.25 (ASCE 7 WITH CABLES) 1.50 (ASCE 7 W/O CABLES)
3.50 (AWWA WITH CABLES) 1.50 (AWWA W/O CABLES)
 4. R_c , CONVECTIVE STRUCTURAL RESPONSE COEFFICIENT : 1.0
 5. ANALYSIS PROCEDURE USED : EQUIVALENT LATERAL FORCE ANALYSIS BASED ON AWWA D110 AND ACI 350.3
- B. CONCRETE AND SHOTCRETE
 1. FLOOR, AND FOOTINGS : 4000 PSI
 2. DOME, DOME RING AND DOME SLOTS : 4000 PSI
 3. PRECAST WALL : 4000 PSI
 4. SHOTCRETE FOR WIRE COVER (1C:3S) AND COVER COAT (1C:4S) : 4500 PSI
 5. SEE TECHNICAL SPECIFICATION FOR COMPLETE MIX DESIGN INFORMATION INCLUDING MINIMUM CEMENT CONTENT, MAXIMUM WATER-CEMENT RATIO, AGGREGATE SIZE AND ACCEPTABLE ADMIXTURES.
 6. SEE TECHNICAL SPECIFICATION FOR CONCRETE PLACING AND FORMING PROCEDURES.
- C. METALS
 1. ALL STAINLESS STEEL (SST) TO BE 304L UNLESS OTHERWISE NOTED.
- D. REINFORCING STEEL
 1. ALL REINFORCING IN TANK SHALL CONFORM TO ASTM A615 GRADE 60 UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
 2. REINFORCING STEEL CALLED OUT AS GALVANIZED SHALL HAVE A CLASS 1 COATING IN ACCORDANCE WITH ASTM A767, WITHOUT CHROMATE.
- E. EARTHWORK REQUIREMENTS
 1. MINIMUM COMPACTION OF CRUSHED ROCK AND SUBGRADE UNDER AND AROUND PIPE BLOCKS AND UNDER FLOOR AND FOOTINGS SHALL EQUAL 95% RELATIVE COMPACTION AS DETERMINED IN ACCORDANCE WITH ASTM D1557.
 2. COMPACTION OF BACKFILL AROUND TANK SHALL EQUAL 90% RELATIVE COMPACTION AS DETERMINED IN ACCORDANCE WITH ASTM D1557. USE ONLY HAND HELD COMPACTION EQUIPMENT WITHIN 5' OF TANK WALL AND LIGHTWEIGHT EQUIPMENT (15,600 LBS MAX) BEYOND THE 5' AND WITHIN 15' OF THE TANK SO AS NOT TO DAMAGE THE WALL. BRING UP THE BACKFILL AROUND THE TANK IN UNIFORM LIFTS WHEN POSSIBLE. DIFFERENCE IN BACKFILL HEIGHTS DURING INSTALLATION SHALL NEVER EXCEED THE FINAL DIFFERENCE IN BACKFILL HEIGHTS.

0.35 MG WATER STORAGE TANK

MISSOULA, MT
ENGR.: CUSHING TERRELL
MISSOULA, MT

DATE: 09/14/23

DESCRIPTION

CHK: YLUO
DESIGNER

DATE

REV

DMN: CYATES

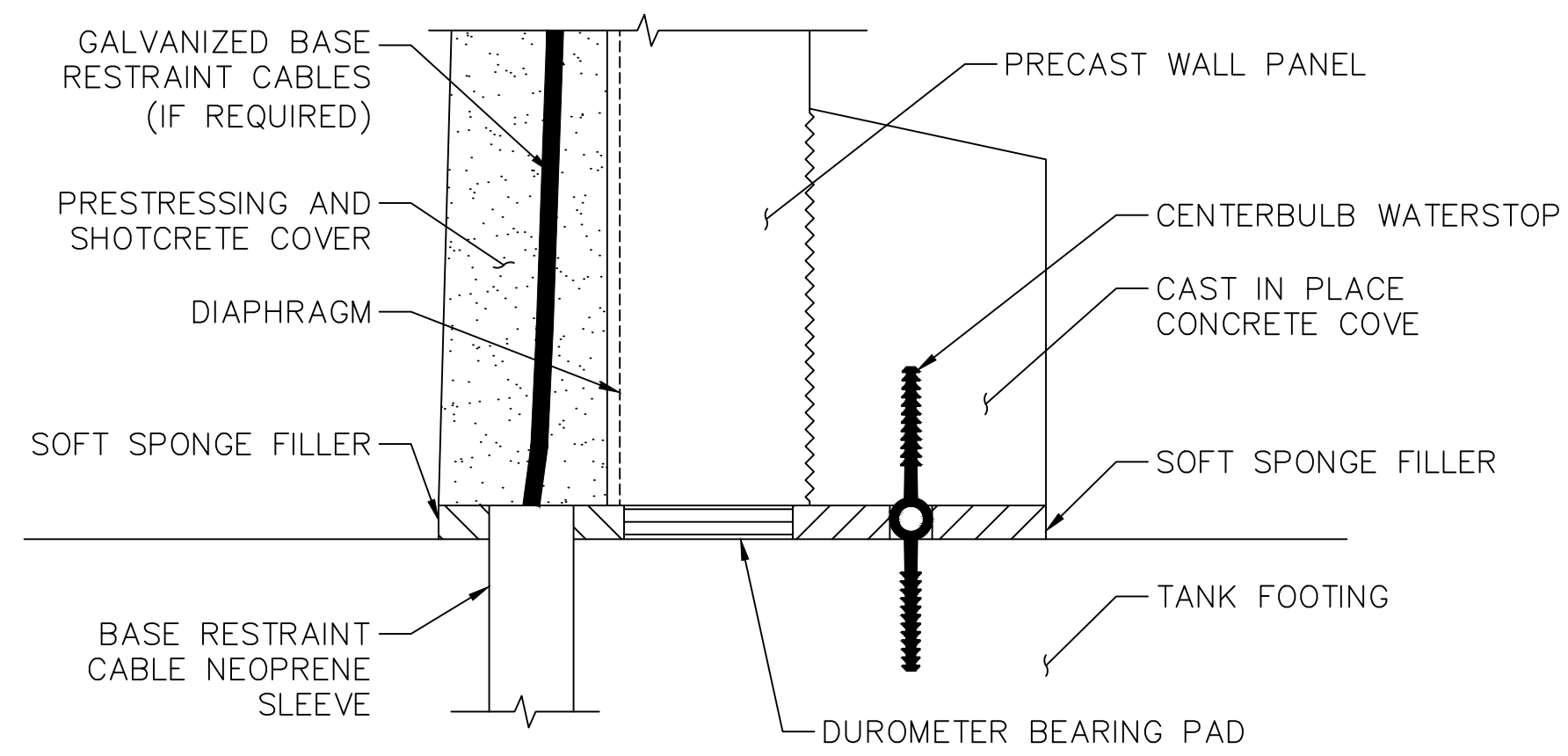
AWWA D110
TYPE III
PRECAST
CONCRETE
STORAGE
TANK

TANK PLANS
AND SECTION

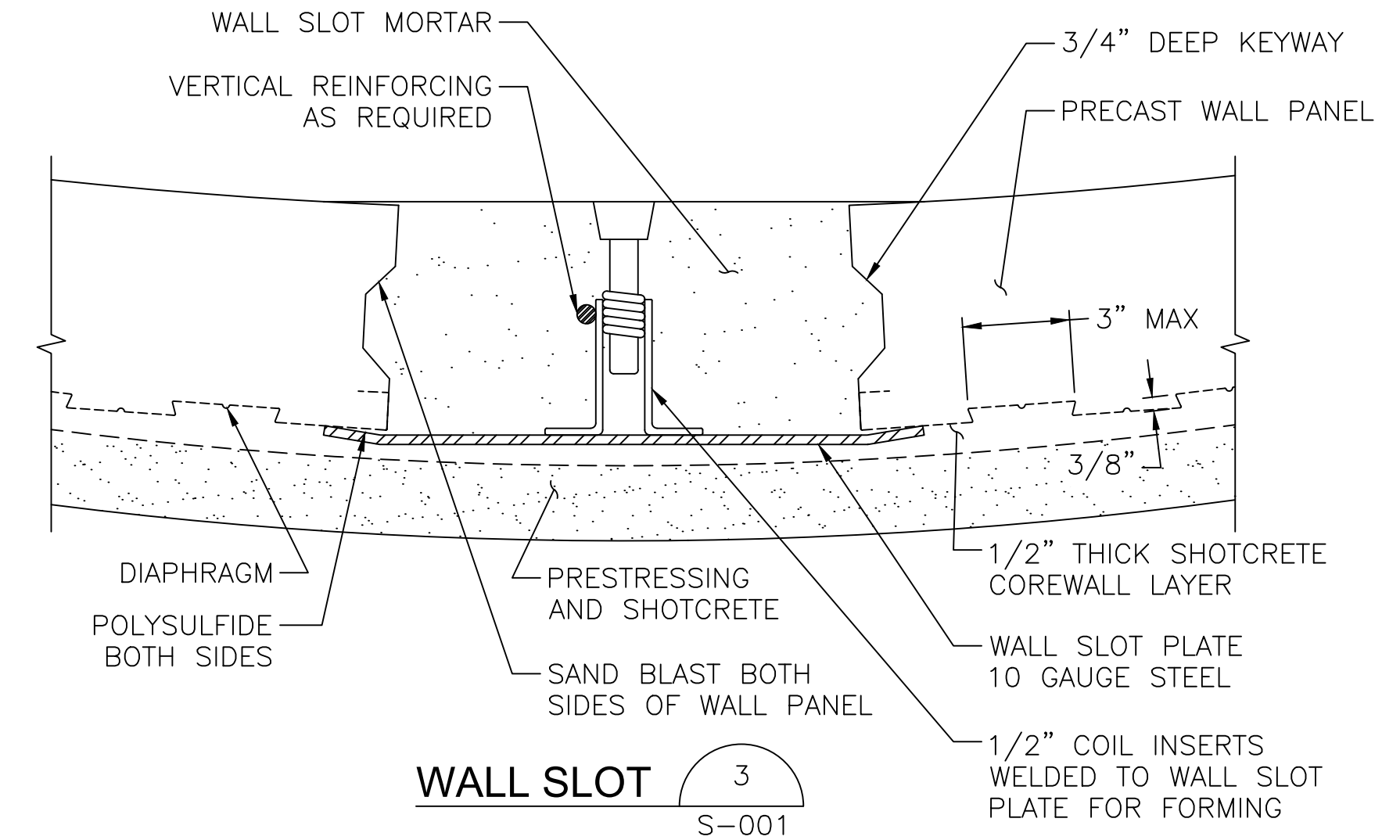
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NOTES:

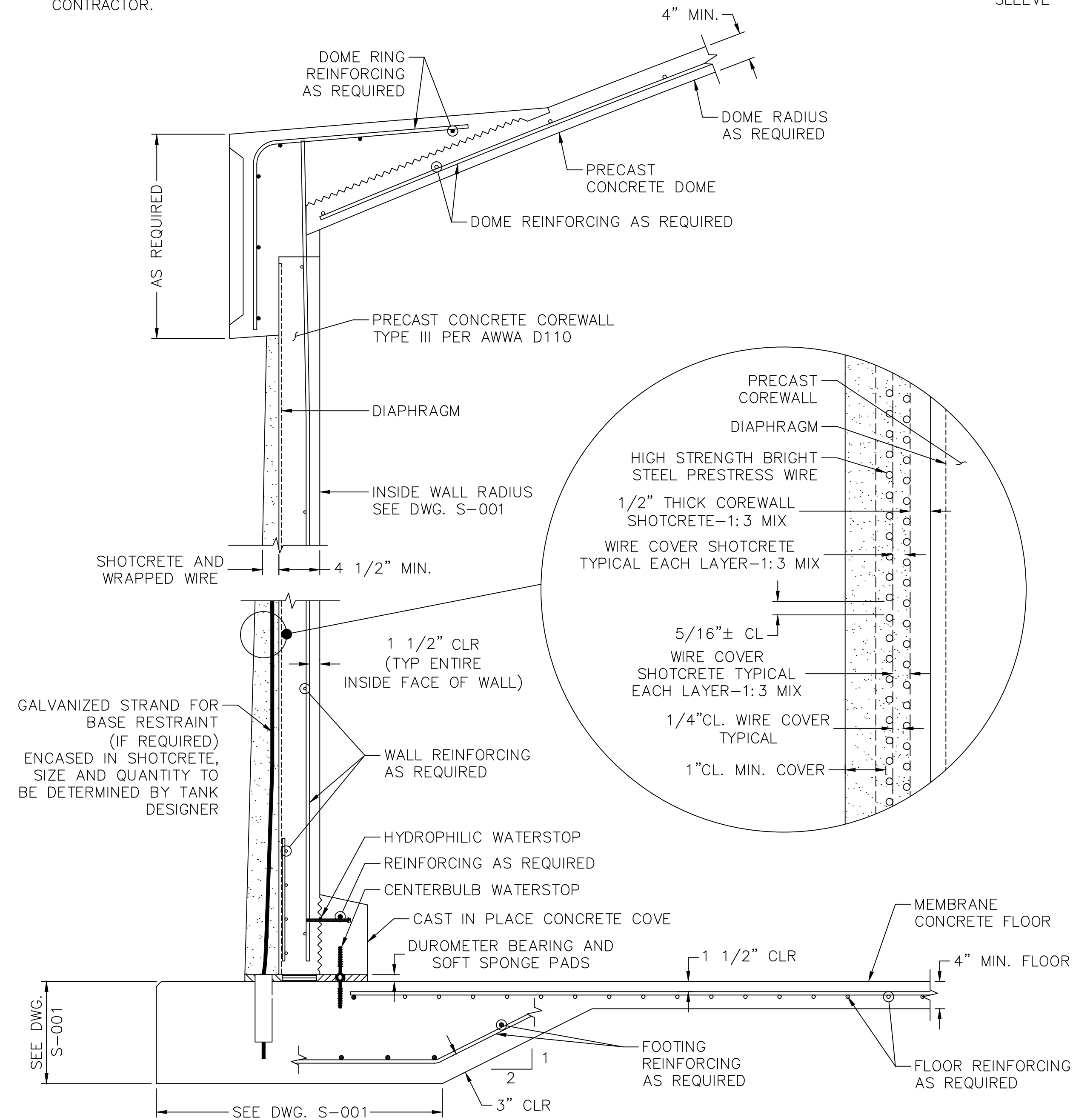
- 1) FOOTING AND FLOOR TO BE FINISHED PER SPECIFICATIONS.
- 2) MAINTAIN CLEARANCE BETWEEN THE INDIVIDUAL STRANDS IN THE BASE RESTRAINT CABLE SETS (DO NOT BUNDLE). CABLES MAY TOUCH WITHIN 2' OF THE BOOT.
- 3) THE COMBINED FLOOR AND WALL FOOTING SHALL BE POURED MONOLITHICALLY UNLESS APPROVED BY THE ENGINEER.
- 4) BASE RESTRAINT CABLES MAY BE BENT PRIOR TO INSTALLATION.
- 5) BASE RESTRAINT CABLE DESIGN REQUIREMENTS TO BE DETERMINED BY TANK CONTRACTOR.



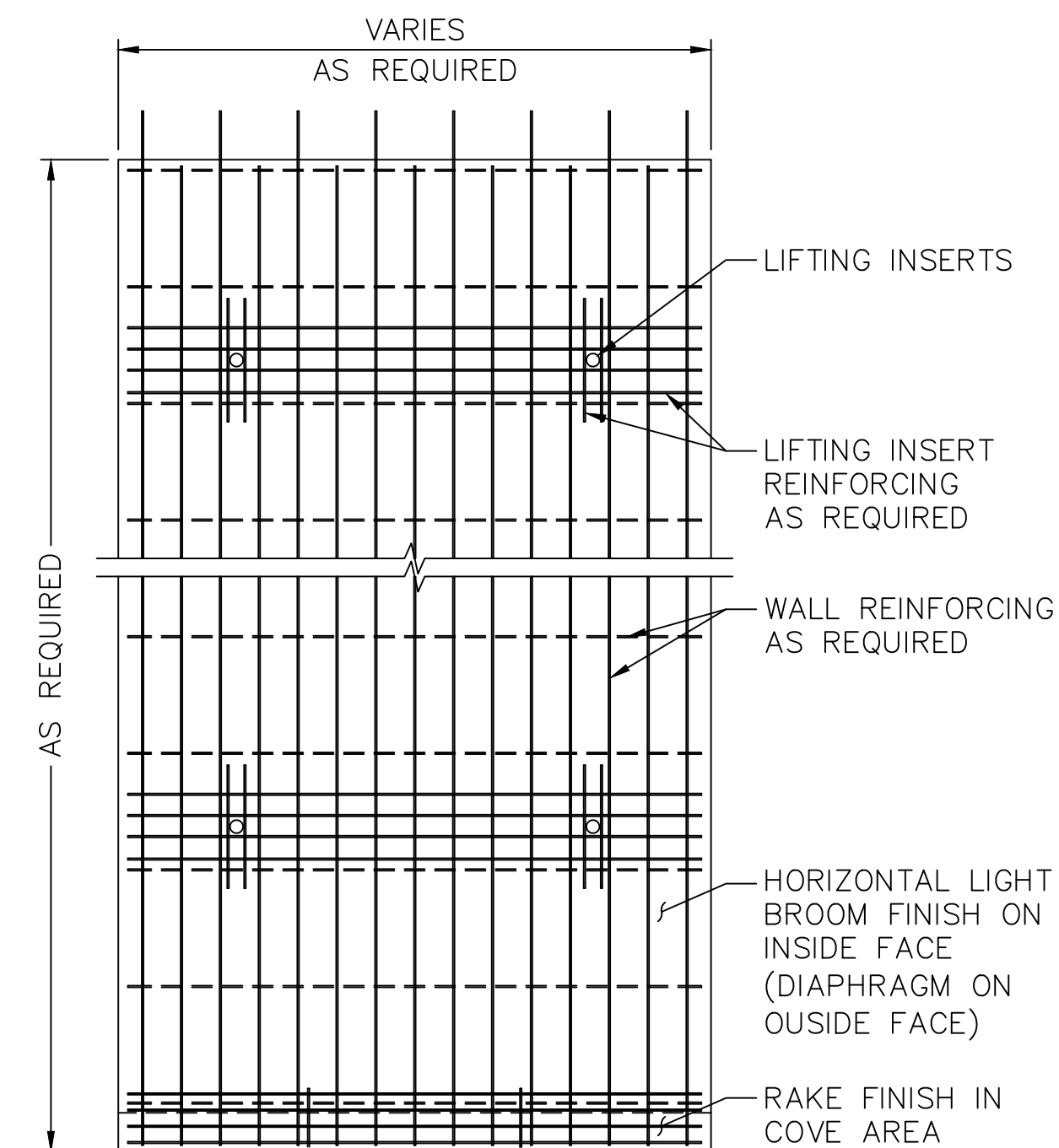
WALL BASE 2



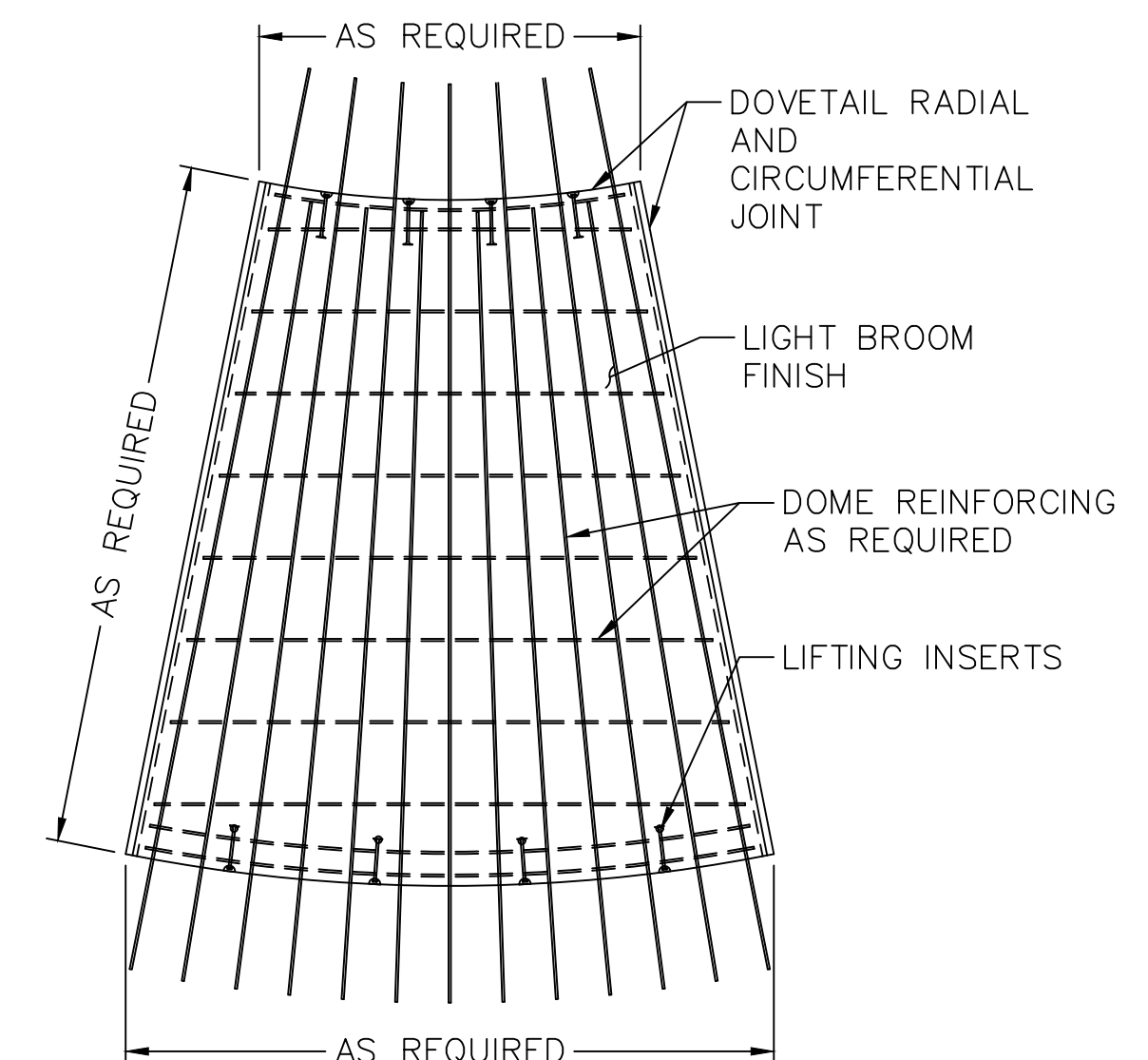
WALL SLOT 3
S-001



FOOTING, WALL AND ROOF SECTION 1
S-001



PRECAST WALL PANEL 4
QTY. AS REQ'D



PRECAST DOME PANEL 5
QTY. AS REQ'D

0.35 MG WATER STORAGE TANK

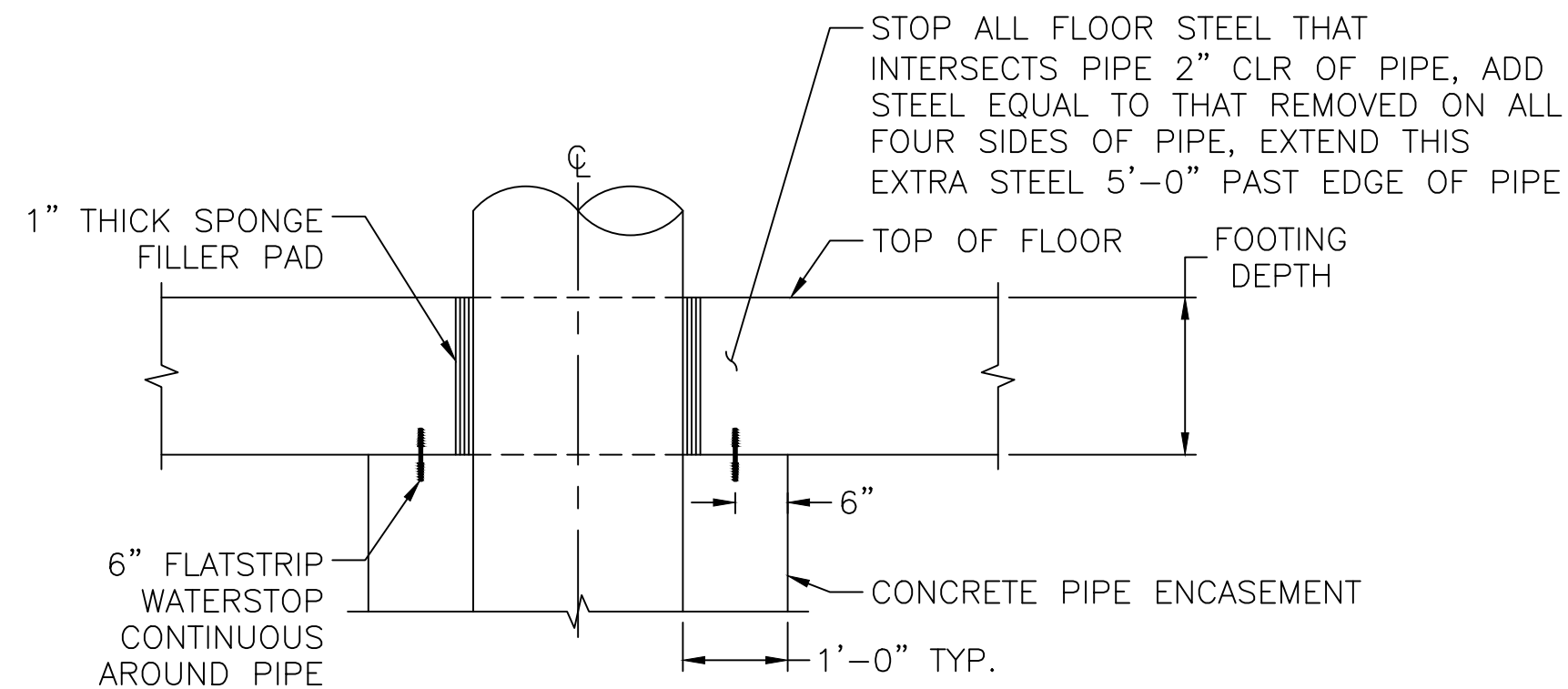
MISSOULA, MT
ENGR.: CUSHING TERRELL
MISSOULA, MT

DWN: CYATES	CHK: YLUO	DATE: 09/14/23
REV	DESIGNER	DESCRIPTION

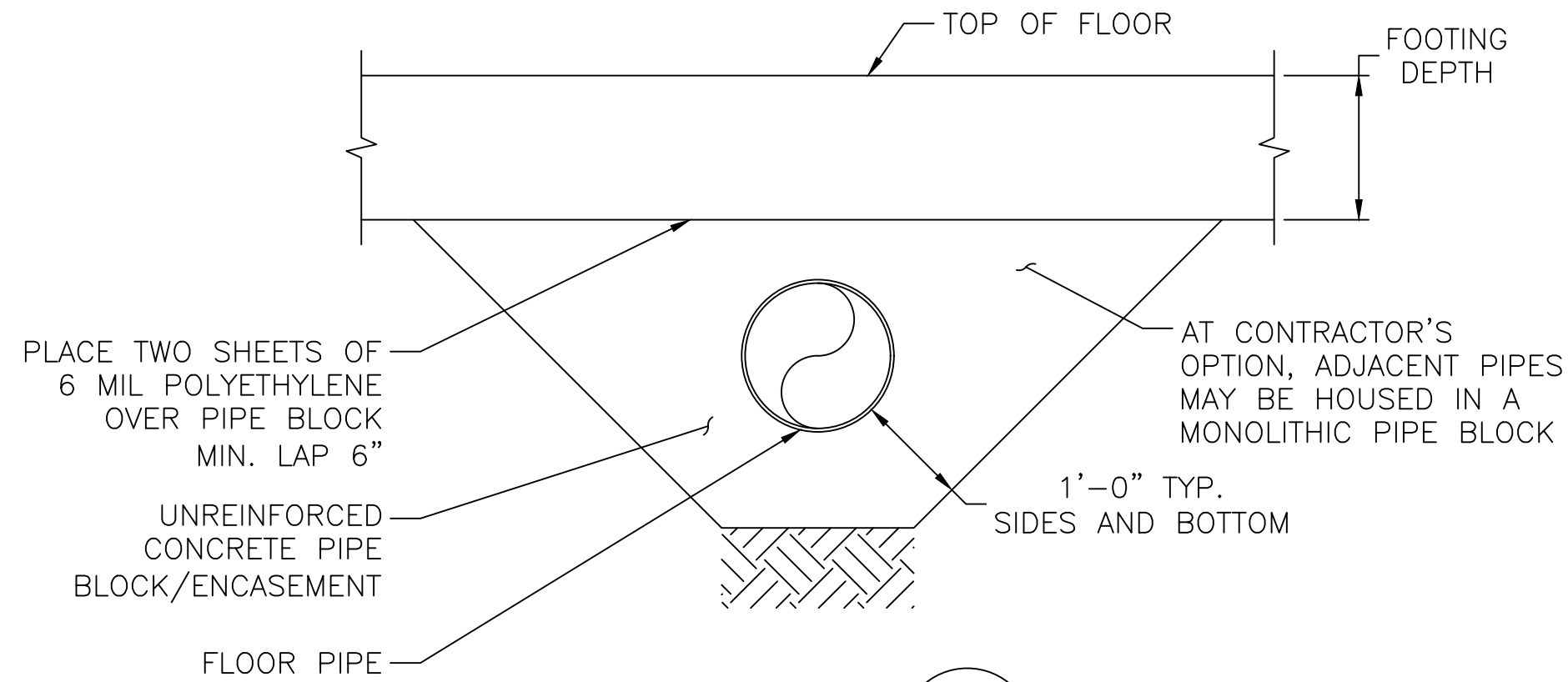
**AWWA D110
TYPE III
PRECAST
CONCRETE
STORAGE
TANK**

ROOF, WALL
AND FOOTING

DRAWING NUMBER
S-002

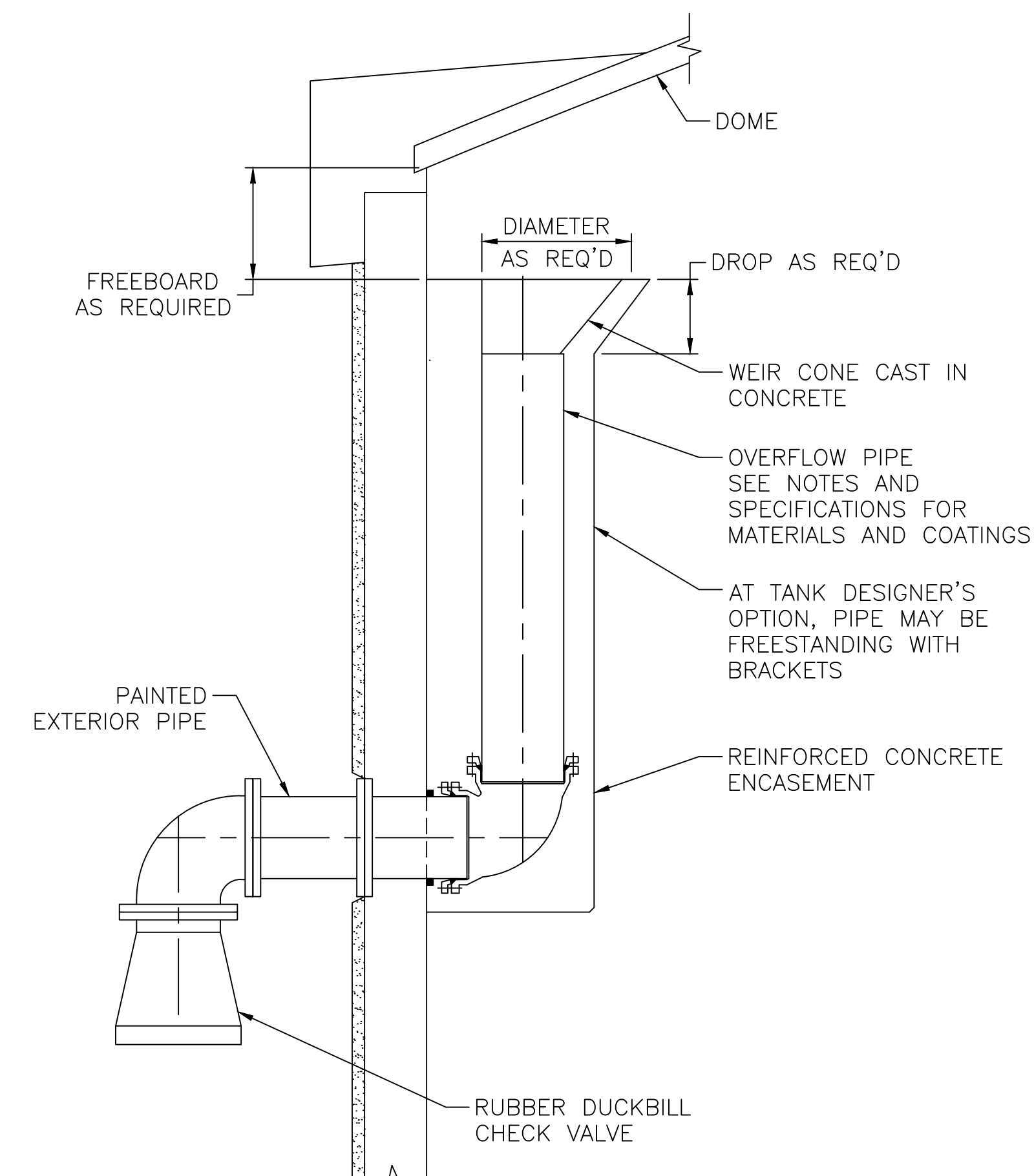


TYPICAL FLOOR PIPE ENTRANCE

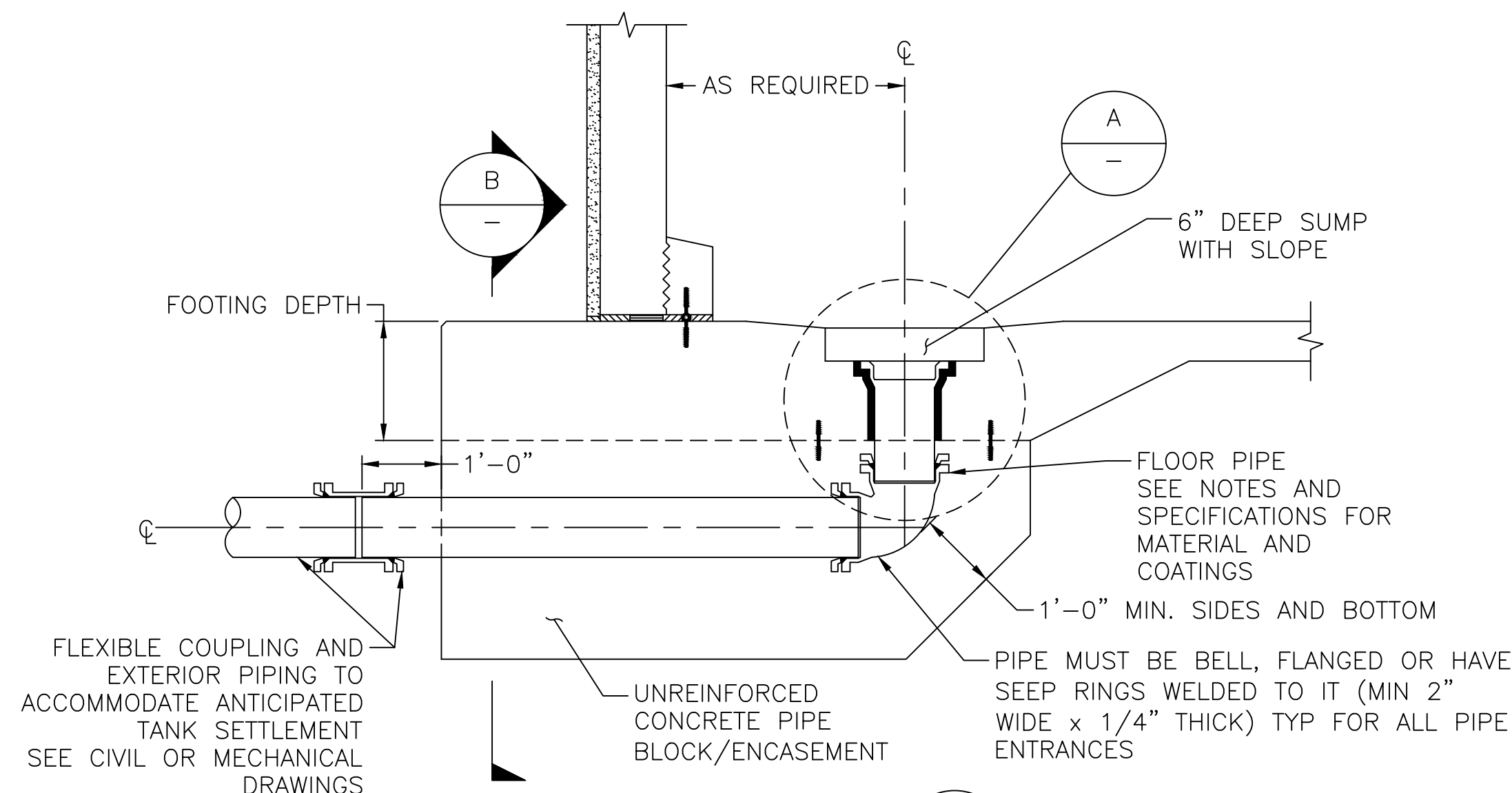


PIPE SECTION

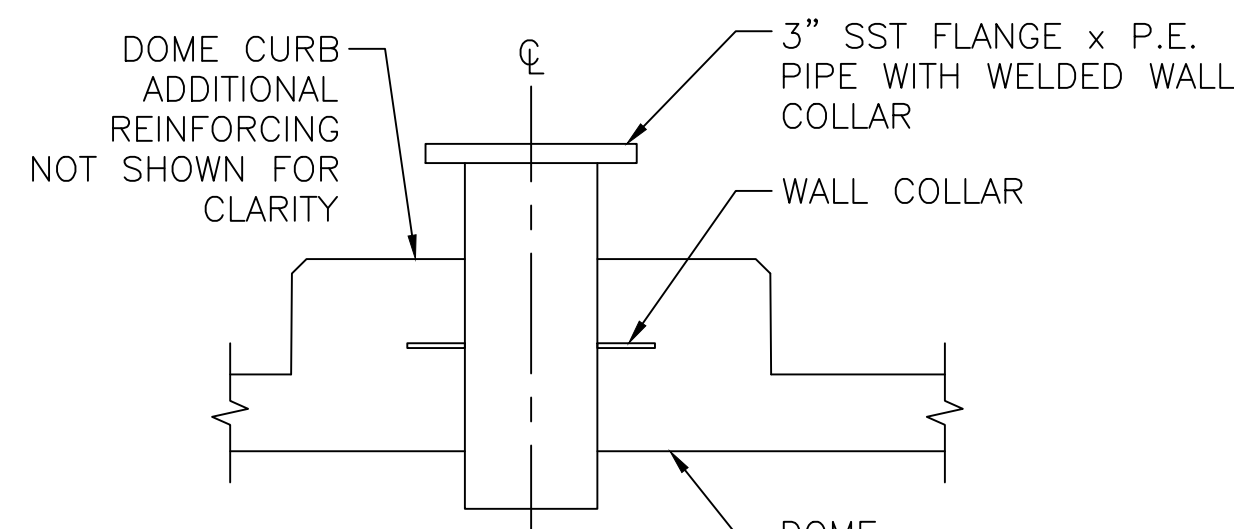
- PIPING NOTES:**
1. ALL PIPE MATERIAL TO BE D.I.C.L. UNLESS NOTED OTHERWISE.
 2. EPOXY COAT EXTERIOR OF PIPING INSIDE TANK. NO COATING ON PIPE IN CONTACT WITH CONCRETE.
 3. EXTERIOR PIPING CONNECTION TO BE DESIGNED TO TOLERATE EXPECTED TANK SETTLEMENT.



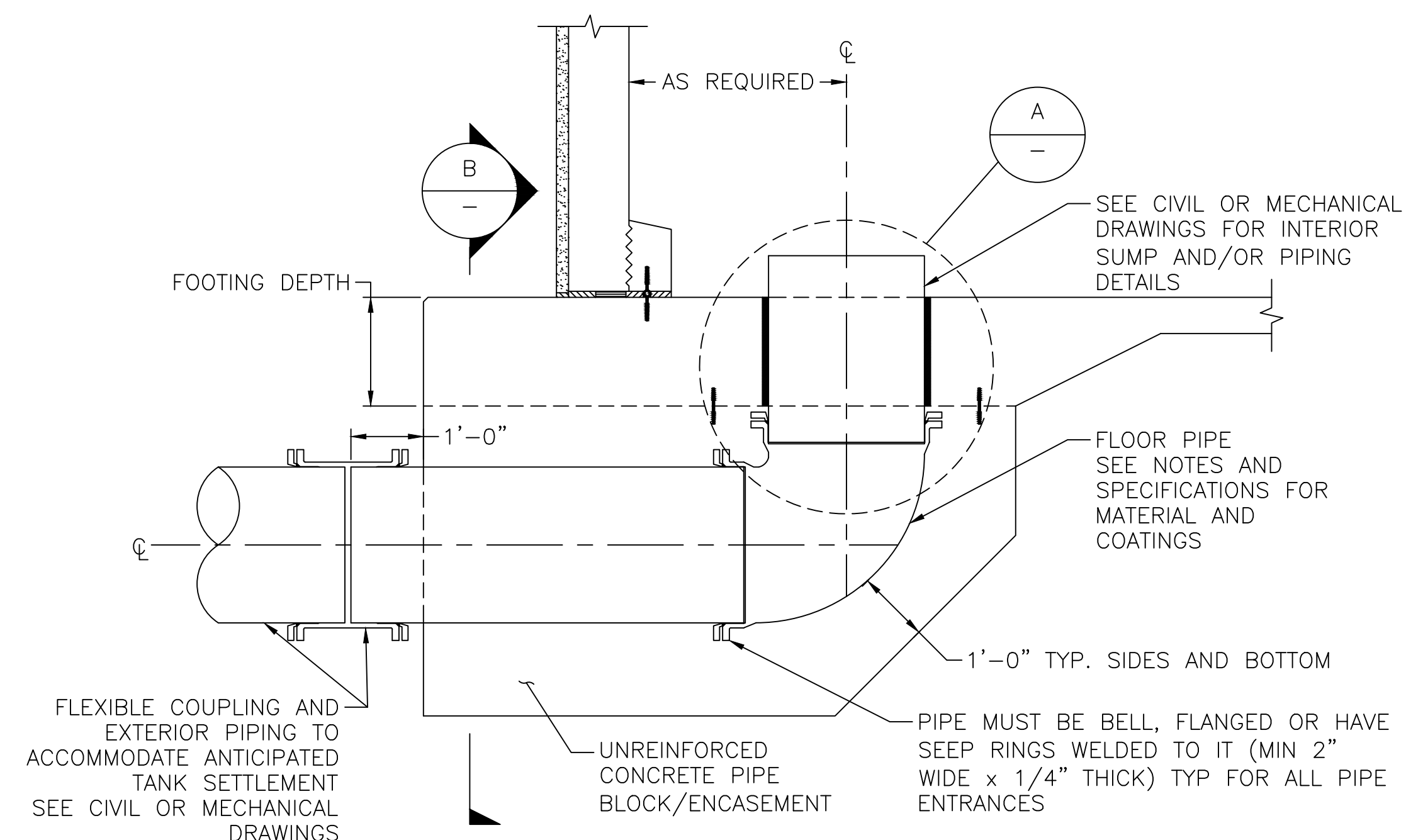
OVERFLOW PIPE



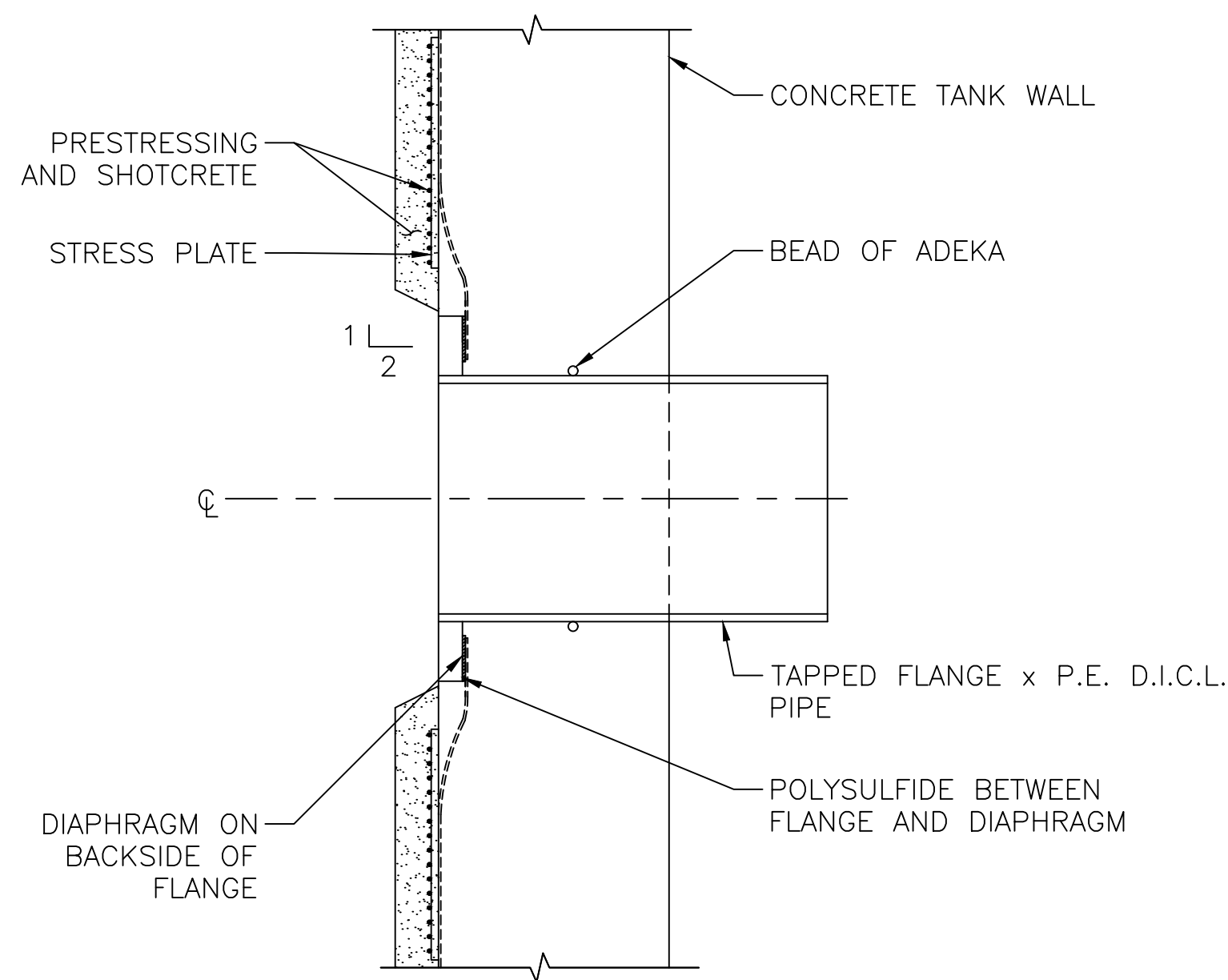
DRAIN PIPE



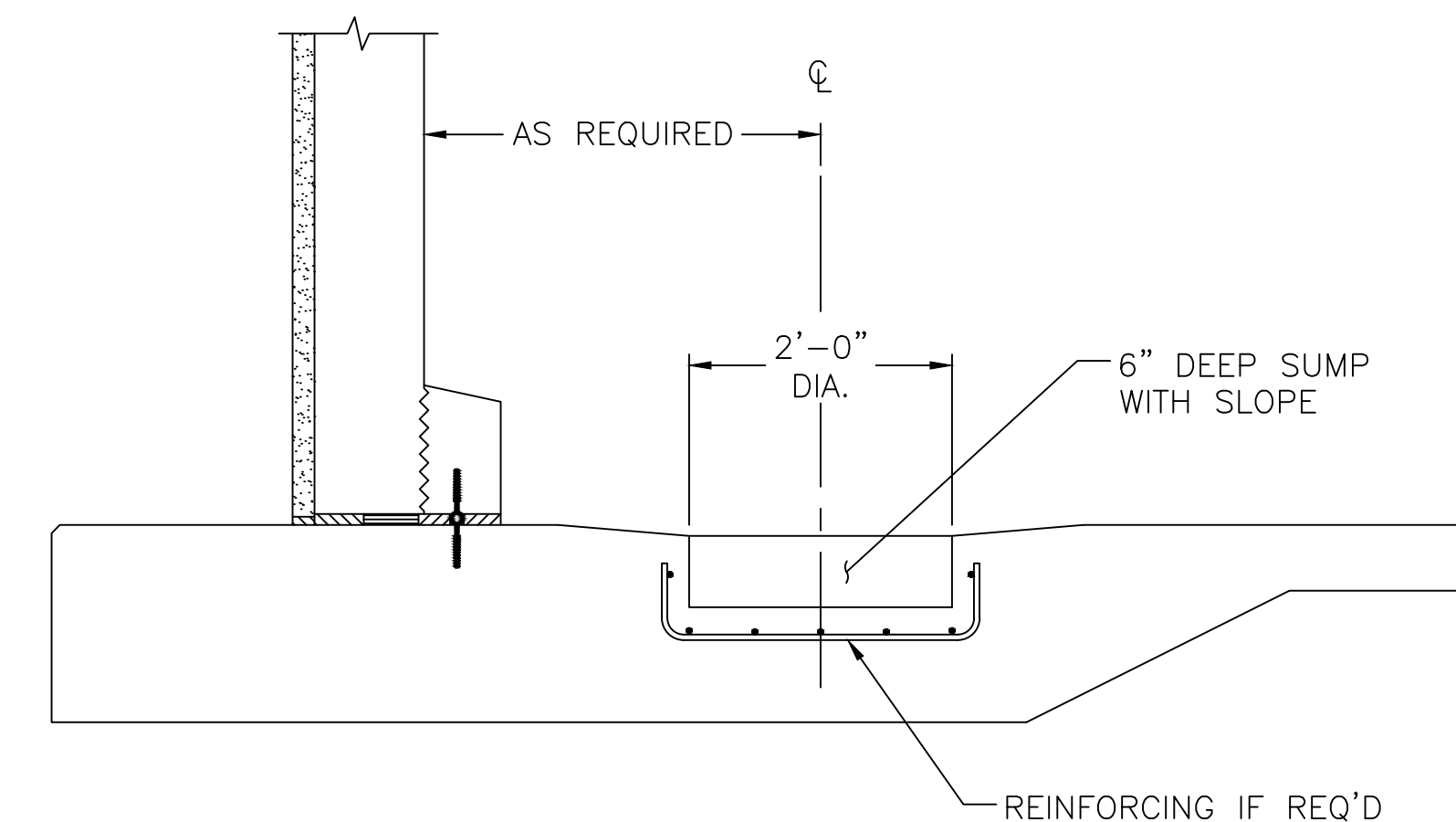
DOMESLEEVE
1 REQ'D



TYPICAL FLOOR PIPE



TYPICAL WALL PIPE ENTRANCE



SUMP

0.35 MG WATER STORAGE TANK

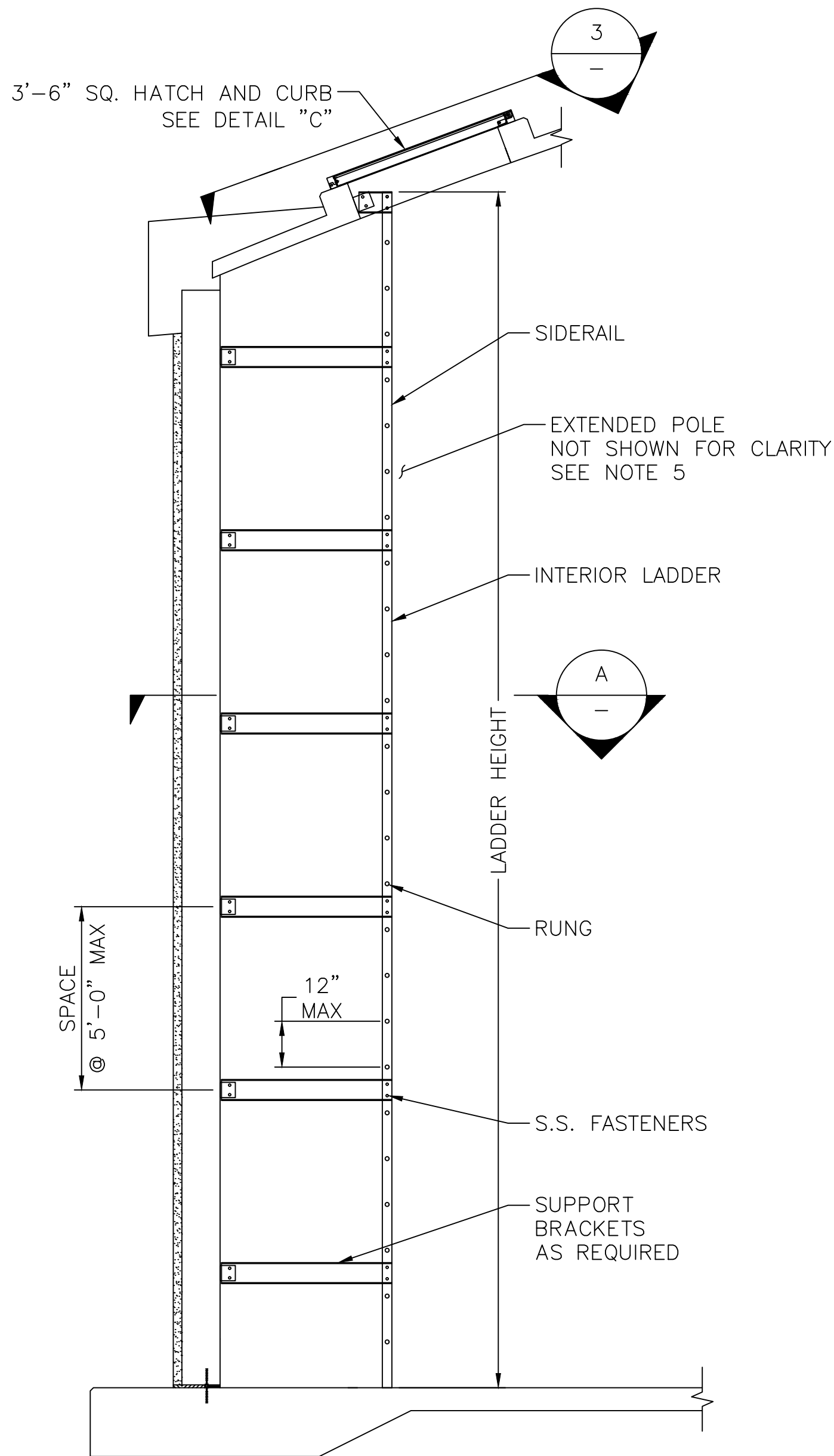
MISSOULA, MT
ENGR.: CUSHING TERRELL
MISSOULA, MT

DWN: CYATES
CHK: YLUO
DATE: 09/14/23

AWWA D110
TYPE III
PRECAST
CONCRETE
STORAGE
TANK

TANK PIPING

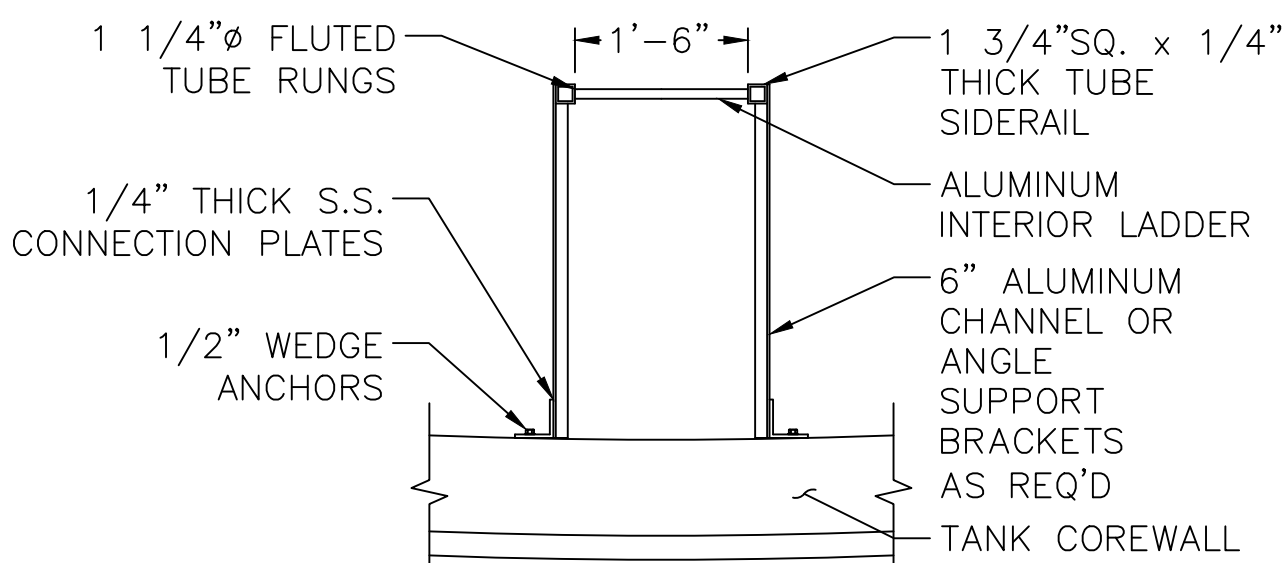
DRAWING NUMBER
S-003



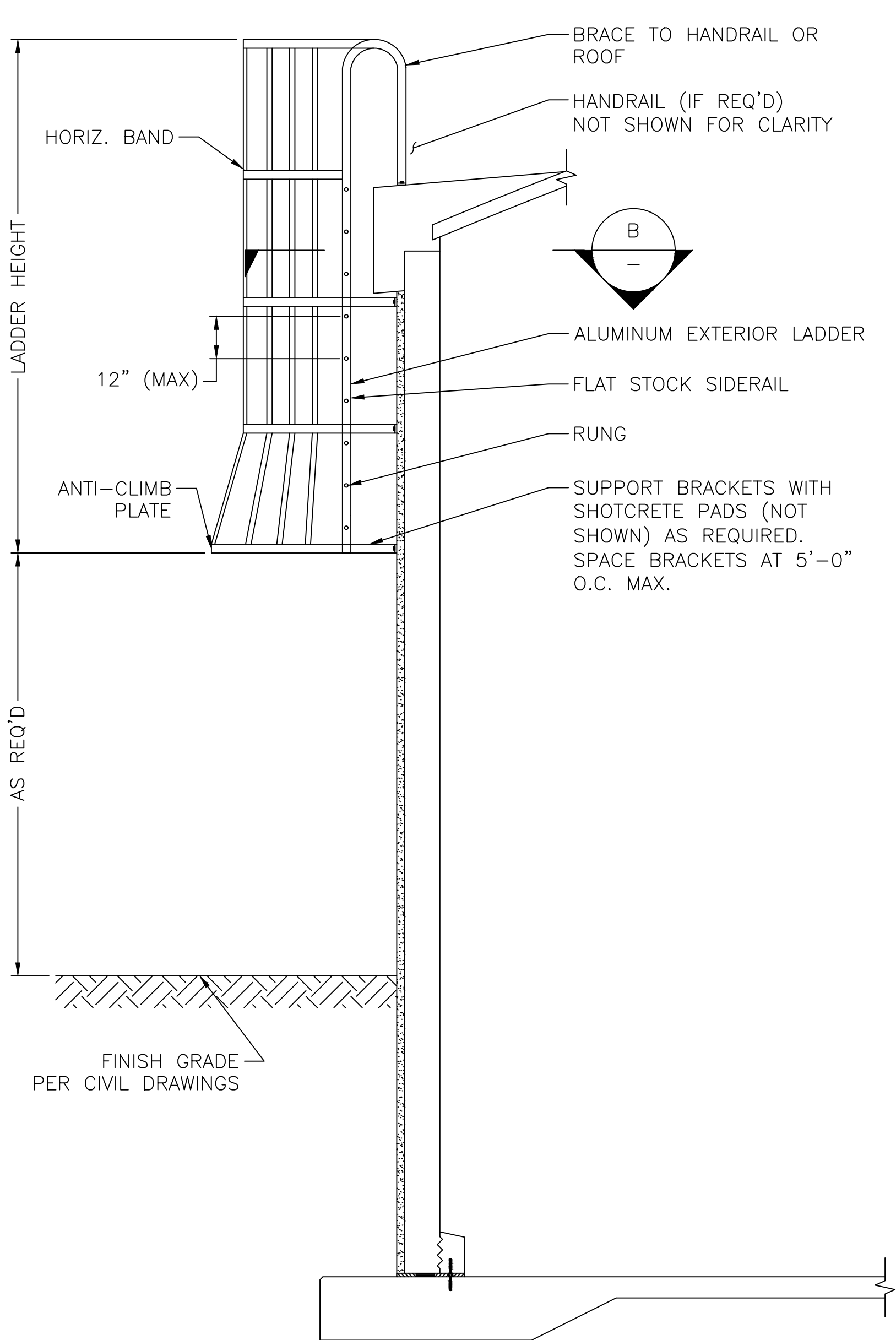
INTERIOR LADDER
1 REQ'D
S-001

INTERIOR LADDER NOTES:

- 1) LADDER MATERIAL SHALL BE ALUMINUM.
- 2) OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
- 3) LADDER RUNGS TO BE SOLID BARS AND FLUTED.
- 4) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
- 5) ALU. LADDER EXTENDED PIPE REQ'D.



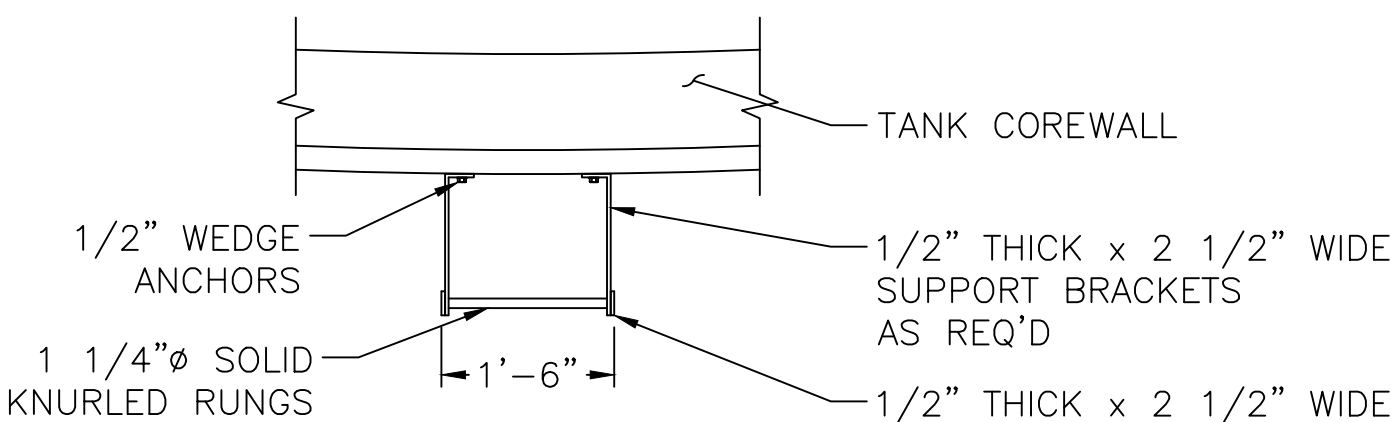
SECTION A



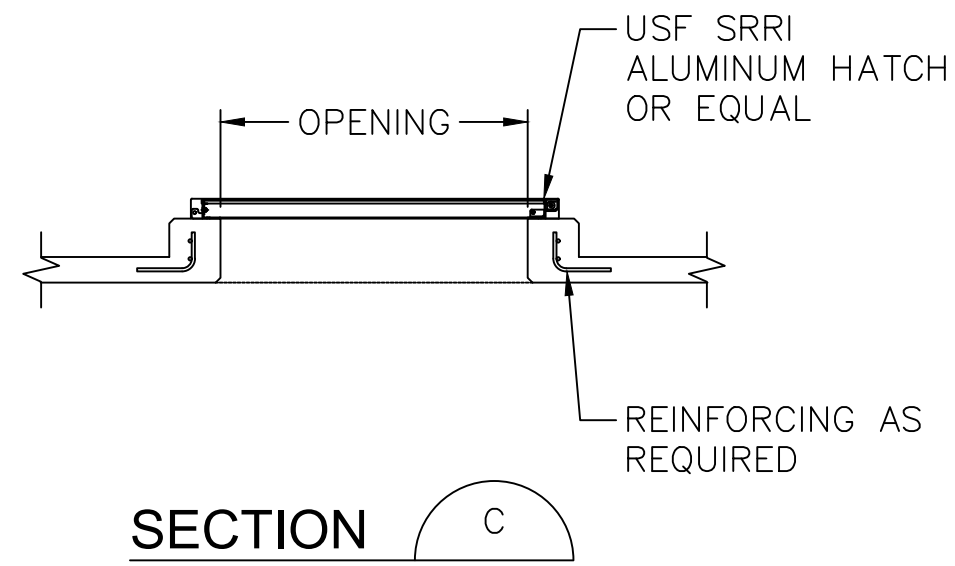
EXTERIOR LADDER
1 REQ'D
S-001

EXTERIOR LADDER NOTES:

- 1) ALL MATERIAL FOR EXTERIOR LADDER, SIDERAILS, RUNGS AND BRACKETS TO BE 6061-T6 ALUMINUM.
- 2) OSHA COMPLIANT FALL PREVENTION DEVICE SHALL BE INSTALLED (SST).
- 3) LADDER RUNGS TO BE SOLID BARS AND KNURLED.
- 4) ALL WELDS TO BE 3/16" MINIMUM.
- 5) ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
- 6) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
- 7) WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
- 8) WHERE SST BOLTS ARE PLACED IN THE WALL EXTERIOR, DRILL AND PLACE AFTER WRAPPING AND BEFORE FINAL SHOTCRETING.



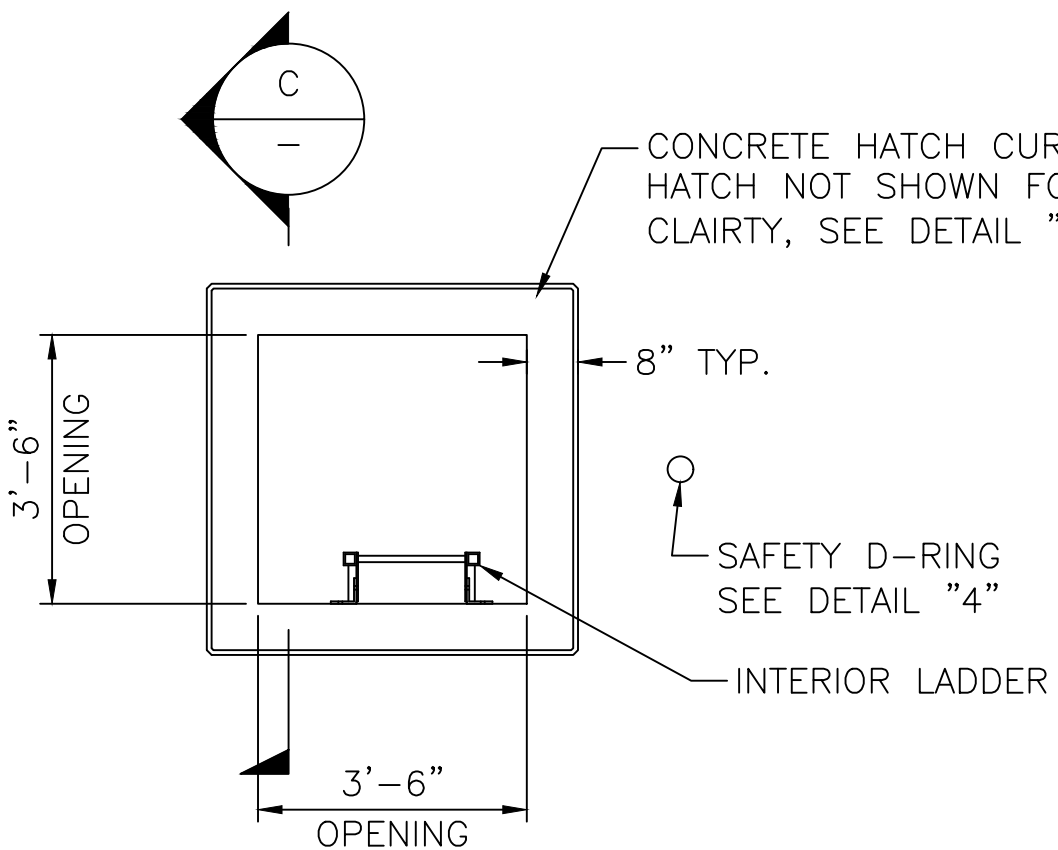
SECTION B



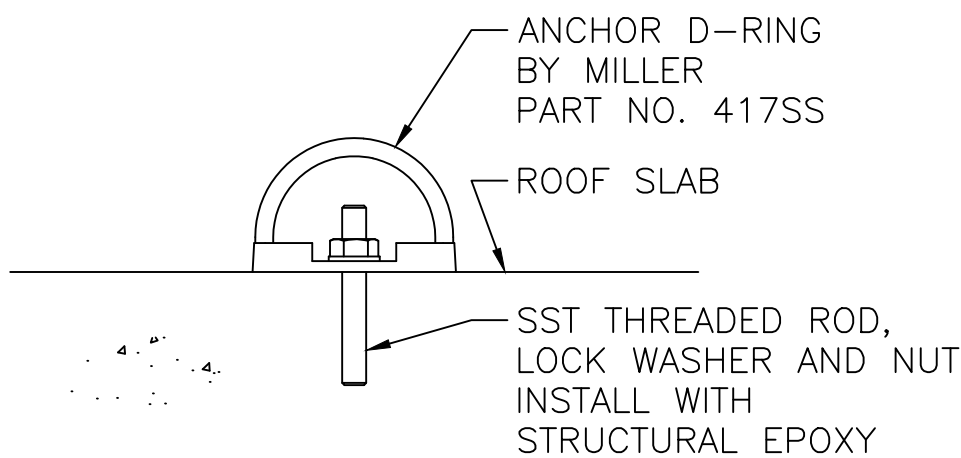
SECTION C

ROOF HATCHES NOTES:

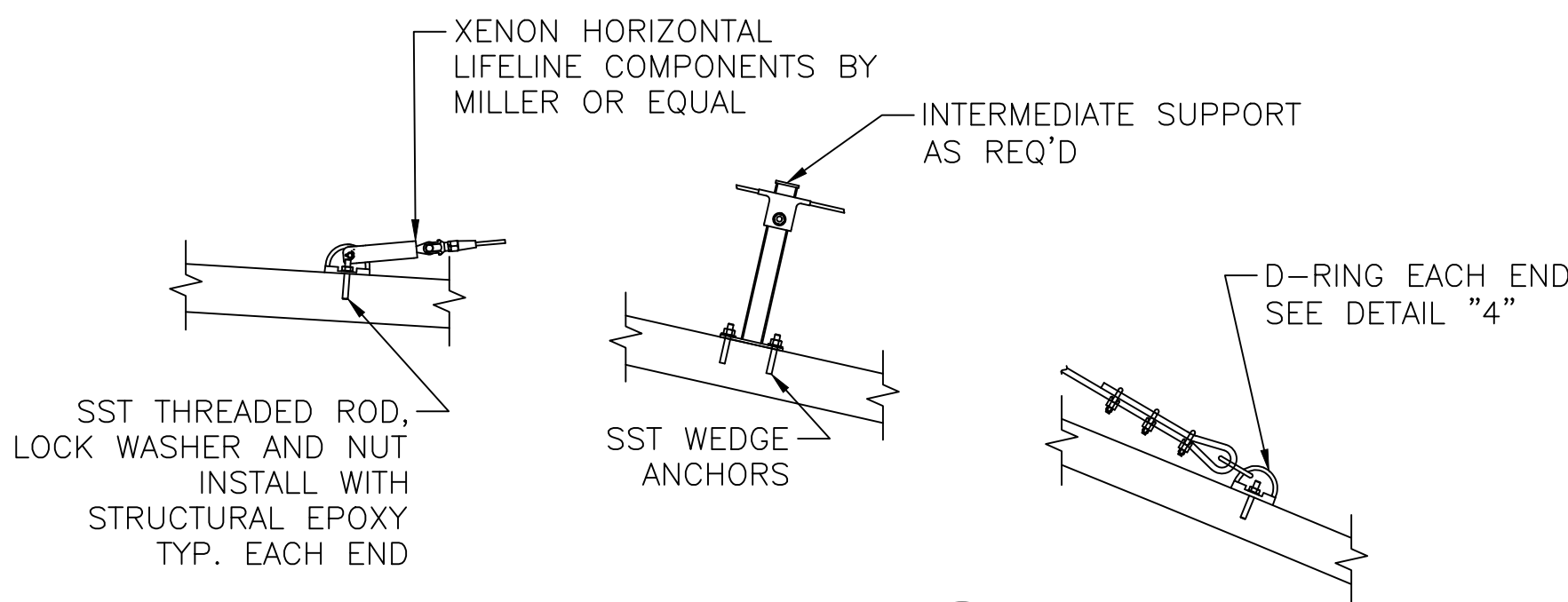
- 1) HATCHES TO BE SINGLE LEAF USF SRRI ALUMINUM HATCHES OR EQUAL.
- 2) ALL ALUMINUM IN CONTACT WITH CONCRETE MUST BE COATED WITH A HEAVY BITUMASTIC COATING, EPOXY PAINT OR SHIMMED USING PVC.
- 3) USE SST WEDGE ANCHORS FOR ALL CONNECTIONS TO CONCRETE UNLESS NOTED OTHERWISE.
- 4) WHERE SST BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.



3'-6" SQ. ACCESS HATCH
2 REQ'D
S-001



SAFETY D-RING
AS REQ'D
4



SAFETY CABLE
D

0.35 MG WATER STORAGE TANK

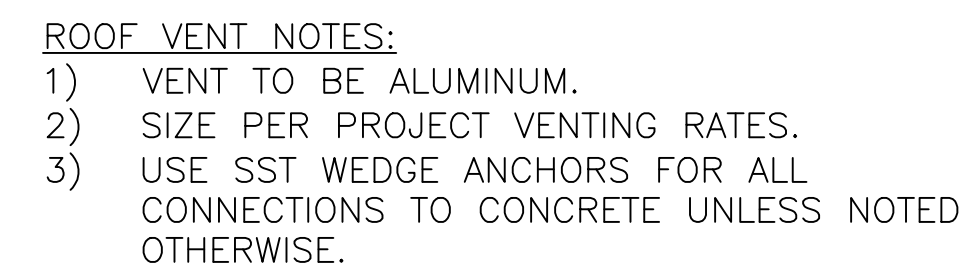
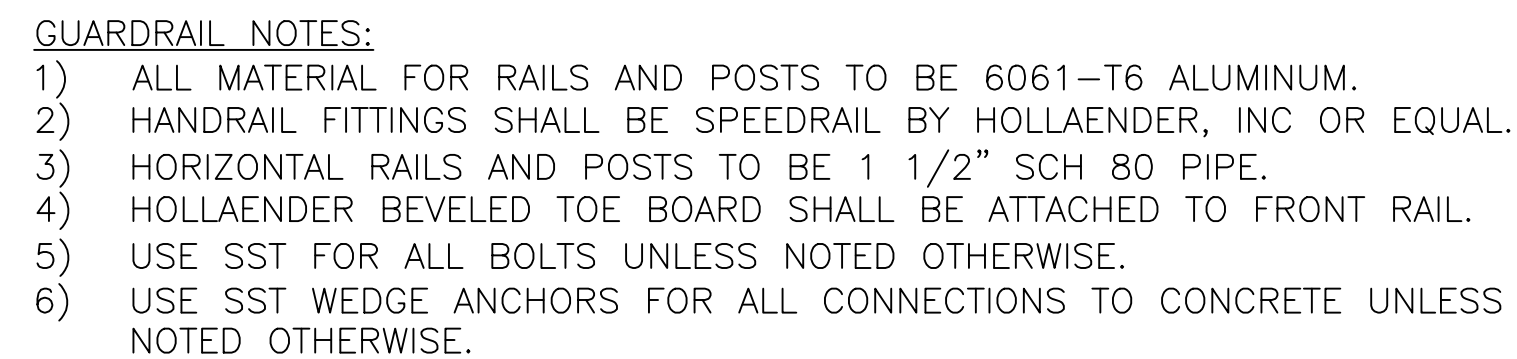
MISSOULA, MT
ENGR.: CUSHING TERRELL
MISSOULA, MT

DWN: CYATES	CHK: YLUO	DATE: 09/14/23	DESCRIPTION
REV	DESIGNER		

**AWWA D110
TYPE III
PRECAST
CONCRETE
STORAGE
TANK**

TANK LADDERS
AND HATCHES

DRAWING NUMBER
S-004



0.35 MG WATER STORAGE TANK

MISSOULA, MT
ENGR.: CUSHING TERRELL
MISSOULA, MT

[illegible]

**AWWA D110
TYPE III
PRECAST
CONCRETE
STORAGE
TANK**

MISCELLANEOUS APPURTENANCES

DRAWING NUMBER
S-005