CODE

STATE OF WASHINGTON STRUCTURAL SPECIALTY CODE, 2010 EDITION

CONCRETE

- 1. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS FOUNDATIONS 4000 PSI
- SLABS 4000 PSI WALLS 4000 PSI
- 2. CONCRETE TO HAVE MAXIMUM WATER/CEMENT RATIOS PER ACI 318 TABLE 4.2.2 (PROPORTIONING ON THE BASIS OF FIELD EXPERIENCE AND/OR TRIAL MIXTURES). THESE MAXIMUMS MAY BE EXCEEDED IF TEST RECORDS PER SECTION 5.3 OF ACI 318 ARE SUBMITTED TO AND APPROVED BY THE ENGINEER.
- MAXIMUM SLUMP 3" PLUS OR MINUS 1". CONCRETE AND REINFORCING TO HAVE SPECIAL INSPECTION IN ACCORDANCE WITH IBC CHAPTER 17.
- 5. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED.

REINFORCING

- DEFORMED BARS ASTM A615, GRADE 60. WELDED BARS ASTM A706, GRADE 60. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE CLASS 'B' TENSION LAP SPLICES IN ACCORDANCE WITH ACI 318, CHAPTER 12.
- PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF FOOTING AND WALLS. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.
- CLEAR CONCRETE COVERAGE AS FOLLOWS FOR CAST-IN-PLACE
- CAST AGAINST & PERMANENTLY EXPOSED TO EARTH: 3" EXPOSED TO EARTH OR WEATHER & #6 OR LARGER: 2"
- EXPOSED TO EARTH OR WEATHER & #5 OR SMALLER: 1 1/2 ALL OTHERS PER LATEST EDITION OF ACI 318.

METALS

- MISCELLANEOUS STRUCTURAL STEEL TO BE ASTM A36, FY = 36 KSI, UNLESS NOTED OTHERWISE. WELDING TO BE BY CERTIFIED WELDERS USING E70XX ELECTRODES IN ACCORDANCE WITH AWS
- STANDARDS. ALL STEEL TO GALVANIZED.
- STEEL FABRICATOR TO SUBMIT SHOP DRAWINGS TO A/E FOR REVIEW PRIOR TO FABRICATION. LATEST AISC, SJI AND AWS CODES APPLY. ALL CONSTRUCTION PER LATEST AISC HANDBOOK.
- 6. ALL EXPANSION ANCHORS SHALL BE SIMPSON WEDGE-ALL ANCHORS OR APPROVED EQUAL WITH CURRENT I.C.B.O. RATING FOR MATERIAL INTO WHICH INSTALLATION TAKES PLACE.
- ALL ADHESIVE ANCHORS TO BE SIMPSON SET ADHESIVE ANCHORS. 8. ALL REFERENCE TO HEADED STUDS (HWS) SHALL BE INDICATE AUTOMATIC WELDED HEADED STUDS (NELSON OR EQUIVALENT).

LINK-SEAL

- 1. FURNISH AND INSTALL COMPLETE LINK-SEAL MODULAR SEAL ASSEMBLY.
- 2. WALL OPENINGS-THE WALL OPENING SIZE AND/OR TYPE SHALL BE SELECTED ACCORDING TO RECOMMENDATIONS FOUND IN THE MOST RECENT LINK-SEAL MODULAR SEAL CATALOG.
- 3. PROVIDE SUFFICIENT QUANTITY AND TYPE OF LINK-SEAL MODULAR SEALS REQUIRED TO EFFECTIVELY PROVIDE A HYDROSTATIC AND/OR FIRE-RATED SEAL.
- 4. EACH INDIVIDUAL LINK SHALL CONSPICUOUSLY AND PERMANENTLY IDENTIFIED WITH THE NAME OF THE MANUFACTURER AND MODEL NUMBER. MANUFACTURERS OTHER THAN THE ABOVE-NAMED COMPANY WISHING TO QUOTE EQUIPMENT IN THIS SECTION SHALL SUBMIT DETAIL DRAWINGS OF THEIR PROPOSED EQUIPMENT AND SUITABLE EVIDENCE OF A MINIMUM 25 YEARS EXPERIENCE AND RESULTS TO THE ENGINEER TO OBTAIN WRITTEN APPROVAL TO QUOTE AT LEAST (10) DAYS PRIOR TO BID OPENING.

VAULT LID ACCESS HATCHES

- 1. THE FLOOR ACCESS DOOR SHALL BE MODEL W-AHS AS MANUFACTURED BY ACUDOR PRODUCTS, INC., WITH THE SIZE SPECIFIED ON THE PLANS. 2. DOOR LEAF SHALL BE 1/4" THICK STEEL DIAMOND PLATE REINFORCED FOR AN AASHTO H-20-44
- 3. UPON REQUEST, MANUFACTURER SHALL PROVIDE STRUCTURAL CALCULATIONS SHOWING THE DOOR
- DESIGN MEET THE LOADING REQUIREMENTS OF AASHTO H-20-44. 4. THE FRAME SHALL BE 1/4" THICK STEEL ANGLE WITH ANCHORS WELDED TO THE FRAME FOR CASTING
- INTO CONCRETE. 5. THE COVER SHALL BE ATTACHED TO THE FRAME WITH 316 STAINLESS STEEL BOLTS (THE BOLTS MUST BE SECURELY FASTENED WHENEVER THE COVER IS CLOSED TO INSURE SAFE AND PROPER
- PERFORMANCE OF THE DOOR). 6. THE FLOOR ACCESS DOOR SHALL BE EQUIPPED WITH A FLUSH STEEL LIFTING HANDLE THAT DOES NOT PROTRUDE OVER THE COVER, AND A 316 STAINLESS STEEL HOLD OPEN ARM WITH RED VINYL GRIP THAT AUTOMATICALLY LOCKS THE COVER IN ITS UPRIGHT POSITION. A STEEL SKIRT SHALL BE WELDED TO THE FRAME TO PROVIDE A COMBINED HEIGHT EQUAL TO THE DEPTH OF THE CONCRETE. THE DOOR SHALL HAVE TAMPER RESISTANT HINGES WITH RECESSED STAINLESS STEEL PINS AND LUGS. THE DOOR SHALL HAVE OPEN, STAINLESS STEEL, HORIZONTAL, COMPRESSION SPRINGS TO ASSIST IN OPENING THE COVER AND REDUCING THE FORCE DURING CLOSING. THE FLOOR ACCESS DOOR SHALL
- HAVE A HOT DIPPED GALVANIZED FINISH. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS ATTACHED INSTRUCTIONS.
- THE ENTIRE FRAME, INCLUDING THE SEAT ON WHICH THE REINFORCING RESTS. SHALL BE SUPPORTED BY CONCRETE OR OTHER MATERIAL DESIGNED TO SUPPORT THE SPECIFIED LOAD.
- THE DOOR SHALL BE MANUFACTURED IN THE UNITED STATES.
- 10. MANUFACTURER SHALL GUARANTEE THE DOOR AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR FIVE YEARS.

BEARING PADS

- 1. ALL BEARING PADS ARE TO BE APS SUPPLY CO. BRAND NEOPRENE COMMERCIAL GRADE PADS OR EQUIVALENT.
- 2. PADS USED ARE TO BE COMPOSED OF DENSE NEOPRENE/NITRILE BLEND POLYMERS AVAILABLE IN
- DUROMETERS OF 40-70. 3. PADS USED ARE INTENDED FOR ISOLATION FOR CONCRETE TO CONCRETE INTERFACES ONLY.

MANHOLE STEPS

MANHOLE LADDER RUNGS ARE TO BE BOWCO PRESS FIT TYPE-R STEPS. 2. LADDER RUNGS ARE TO HAVE COPOLYMER POLYPROPYLENE COATING.

WATER-TIGHT MANHOLES

- 1. ALL WATER-TIGHT MANHOLES TO BE EAST JORDAN IRONWORKS WATERTIGHT MANHOLES
- (CATALOGUE #V2610-1) OR APPROVED EQIVALENT. 2. ALL MANUFACTURERS SHALL BE APPROVED SUPPLIERS AND BE ABLE TO DEMONSTRATE THAT THERE IS AN ACCEPTABLE QUALITY CONTROL PROGRAM AT THE PRODUCING FOUNDRY, PRIOR TO SUPPLYING
- 3. DUCTILE IRON CASTINGS SHALL CONFORM TO ASTM A536. THE IRON MATERIAL USED IN PRODUCTS PROVIDED SHALL HAVE A MINIMUM RECYCLED MATERIAL CONTENT OF 75%. THE RECYCLED MATERIALS
- SHALL CONSIST OF POST-CONSUMER MATERIAL. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM SAND HOLES, GAS HOLES, SHRINKAGE, CRACKS AND OTHER SURFACE DEFECTS. CASTINGS SHALL BE GROUND SMOOTH AND WELL CLEANED BY SHOT BLASTING. FOR TRAFFIC SERVICE CASTINGS, BEARING SURFACES BETWEEN MANHOLE RINGS AND COVERS OR GRATES AND FRAMES SHALL BE CAST OR MACHINED WITH SUCH PRECISION TO PREVENT
- TRAFFIC SERVICE CASTINGS SHALL HAVE A FIRST ARTICLE PROOF LOAD TEST CONDUCTED AND THE RESULTS OF THAT PROOF LOAD SHALL BE MADE AVAILABLE TO THE PURCHASER UPON REQUEST. THE PROOF LOAD SHALL BE CONDUCTED IN ACCORDANCE AASHTO M306, SECTION 7.0, PROOF LOAD TESTING. THE CASTING SHALL BE TESTED ON A SUITABLE AND CALIBRATED LOAD TESTING MACHINE AND THE CASTING SHALL HOLD A 40 KIP POUND PROOF LOAD FOR ONE MINUTE WITHOUT EXPERIENCING AND CRACKS OR DETRIMENTAL PERMANENT DEFORMATION.
- INSPECTION'S SHALL BE IN ACCORDANCE WITH 9.1.1 OR 9.1.2 OF AASHTO M306. RESULTS SHALL BE FURNISHED TO THE PURCHASER UPON REQUEST. THE HEAT OR PRODUCTION DATE AND PRODUCT NUMBERS, AS CAST ON THE CASTING SHALL BE THE BASIS OF TRACIBILTY AND RECORDING OF THE
- 7. EACH CASTING SHALL BE IDENTIFIED AND SHOW A MINIMUM, THE FOLLOWING:
 - A) NAME OF THE PRODUCING FOUNDRY B) COUNTRY OF MANUFACTURER (SUCH AS MADE IN THE U.S.A.) C) ASTM MATERIAL DESIGNATION
- D) RECYCLE SYMBOL
- E) INDIVIDUAL PART NUMBER F) CAST OR HEAT DATE

GENERAL

- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE BUT NOT BE LIMITED TO BRACING. SHORING OR LOADS DUE TO CONSTRUCTION EQUIPMENT. ETC. OBSERVATIONS VISITS TO THE SITE BY THE ENGINEER OF RECORD SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH DRAWINGS PRIOR TO START OF CONSTRUCTION AND RESOLVE ANY DISCREPANCY WITH THE ENGINEER OF RECORD. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL
- BE THE LATEST EDITION AND/OR ADDENDUM.
- 4. WHERE ANY DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES OR SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.
- OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE/SHE SHALL BE RESPONSIBLE FOR ALL CHANGES NECESSARY. IF HE/SHE CHOOSES AN OPTION, THAN HE/SHE SHALL COORDINATE ALL DETAILS. 6. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL

DEFERRED SUBMITTAL/SHOP DRAWINGS

PURSUANT TO THE IBC, SUBMITTAL DOCUMENTS FOR DEFERRED ITEMS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER OF RECORD FOR REVIEW AND APPROVAL.

	SUBMIT ITEM		
ITEM	A/E OF RECORD BU	JILDING OFFICIAL	NOTE
STRUCTURAL STEEL SHOP DRAWINGS	REQUIRED	,	1
CONCRETE MIX DESIGN	REQUIRED		
STRUCTURAL STEEL MILL CERTS	REQUIRED		
REINF. STEEL SHOP DRAWINGS	REQUIRED		1
WELDING PROCED. SPECS (AWS D1.1)	REQUIRED		

OF A CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF WASHINGTON.

1. CONSTRUCTION DOCUMENTS BY LIVERMORE ASSOCIATES ARE THE SOLE PROPERTY OF LIVERMORE ASSOCIATES AND SHALL NOT BE DUPLICATED FOR THE USE IN SHOP DRAWING SUBMITTALS.

STRUCTURAL OBSERVATIONS

- CONTRACTOR TO NOTIFY STRUCTURAL ENGINEER TO ARRANGE FOR A STRUCTURAL OBSERVATION 48 HOURS PRIOR TO COVERING UP THE FOLLOWING:
- WALL REINFORCING (NOTE, STRUCTURAL OBSERVATIONS ARE NOT IN LIEU OF SPECIAL INSPECTION BY AN INDEPENDENT AGENCY)

MIN. REINF. BAR SPLICE LENGTHS IN CONCRETE

ESTABLISHED PER ACI 318 SECTION 12.2 & 12.3.

		TENSION BARS				
		f'c = 4,000 PSI				
		REGULAR	TOP			
BAR	SIZE	CLASS	CLASS			
	GR	В	В			
# 3	60	19"	24"			
#4	60	25"	33"			
# 5	60	31"	40"			
# 6	60	37"	48"			
# 7	60	54"	71"			
# 8	60	62"	81"			
#9	60	70"	91"			

- 1. TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST ON THE MEMBER BELOW THE REINFORCEMENT. 2. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, SLABS AND WALLS SHALL BE CLASS 'B' TENSION
- SHALL BE COMPRESSION LAP SPLICES. ALL REINFORCING SHALL BE UNCOATED. 4. VALUES SHOWN ABOVE ARE FOR CLEAR COVER OF 1 BAR DIAMETER MINIMUM AND CLEAR BAR SPACING OF 2 BAR DIAMETERS MINIMUM. WHERE COVER OF BAR SPACING IS LESS THAT THIS INCREASE LAP LENGHT BY 50%.

LAP SPLICES AND LAP SPLICES IN CONCRETE COLUMNS

5. NO BUNDLE BARS. 6. ALL CONCRETE SHALL BE NORMAL WEIGHT AGGREGATE

SPECIAL INSPECTION & TESTING PROGRAM

(ESTABLISHED PER 2006 IBC SECTION 109 & CHAPTER 17)

- THE ITEM CHECKED WITH AND 'X' SHALL BE INSPECTED IN ACCORDANCE WITH THE IBC CHAPTER 17 BY A CERTIFIED SPECIAL INSPECTOR FROM AN ESTABLISHED TESTING AGENCY. FOR MATERIAL SAMPLING AND TESTING REQUIREMENTS, REFER TO THE MATERIAL SAMPLING AND TESTING SECTION. THE PROJECT SPECIFICATIONS AND THE SPECIFIC GENERAL NOTES SECTIONS. THE TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ENGINEER, CONTRACTORS AND BUILDING OFFICIAL ANY MATERIALS WHICH FAIL TO MEET THE PROJECT SPECIFICATIONS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. SPECIAL TESTING REQUIREMENTS APPLY
- EQUALLY TO ALL BIDDER DESIGNED COMPONENTS. CONTINUOUS SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON THE SITE AT ALL TIMES OBSERVING THE WORK REQUIRING SPECIAL INSPECTION (IBC 1702). PERIODIC SPECIAL INSPECTION MEANS THAT THE SPECIAL INSPECTOR IS ON SITE AT TIME INTERVALS NECESSARY TO CONFIRM THAT ALL WORK REQUIRING SPECIAL INSPECTION IS IN COMPLIANCE (IBC 1702).
- SPECIAL INSPECTION IS NOT REQUIRED FOR WORK PERFORMED BY AN APPROVED FABRICATOR PER IBC SECTION 1704.2.2.

LEGEND

- ENGINEER OF RECORD MAGNETIC PARTICLE TESTING
- NON-DESTRUCTIVE TESTING
- ULTRASONIC TESTING WELDING PROCEDURE QUALIFICTIONS

VERIFICATION AND INSPECTION	INS	INSPECTION		TESTING	
	CONTINUOUS	PERIODIC	COMMENTS	TYPE	FREQUENCY
REINFORCING STEEL					
INSPECTION		Х			
PLACEMENT		Х			
MATERIAL VERIFICATION		Х	C1		
BOLTS					
INSPECTION	Х	Χ	C2		
PLACEMENT	X	X	C2		
MIX					
VERIFICATION OF APPROVED MIX DESIGN		Χ			
CONCRETE PLACEMENT					
VERIFICATION OF STRENGTH	X			STRENGTH	C3
VERIFICATION OF SLUMP	Х			SLUMP	C3
VERIFICATION OF AIR CONTENT	X			AIR CONTENT	C3
VERIFICATION OF TEMPERATURE	X			TEMPERATURE	C3
CONCRETE CURING					
MAINTENANCE INSPECTION OF TEMPERATURE		X			
MAINTENANCE INSPECTION OF TECHNIQUE		X			
VERIFICATION OF CONCRETE STRENGTH PRIOR TO REMOVAL OF FORMS		Х			

COMMENTS:

- C1. APPLIES TO REINFORCING STEEL OTHER THAN ASTM A 706.
- C2. CONTINUOUS INSPECTION AT EPOXY ANCHORS AND PERIODIC AT ALL OTHERS. C3. ONCE EACH SHIFT BUT NOT LESS THEN ONE SAMPLE FOR EACH 50 CUBIC YARDS

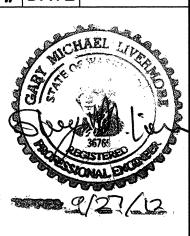
WELDING					
TYPE OF WORK	INS	INSPECTION		TESTING	
	CONTINUOUS	PERIODIC	COMMENTS	TYPE	FREQUENCY
WELDING					
MATERIAL VERIFICATION		Х			
MANUFACTURERS CERTIFIED MILL TEST REPORTS		Х			
VERIFY USE OF PROPER WPS'S		X			
VERIFY WELDER QUALIFICATIONS		Х			
MANUFACTURERS CERTIFIED MILL TEST REPORTS		Х			
PARTIAL PENETRATION GROOVE WELDS	Х				
SINGLE-PASS FILLET WELDS < 5/16		X			
WELDING STUDS	Х	Х	WD1	PRE-PROD. TESTING	WD2

COMMENTS:

WD1. CONTINUOUS INSPECTION REQUIRED AT STRUCTURAL DIAPHRAGM.

WD2. EACH SIZE AND TYPE OF STUD, EACH DAY PER SHIFT.

DATE DESC.



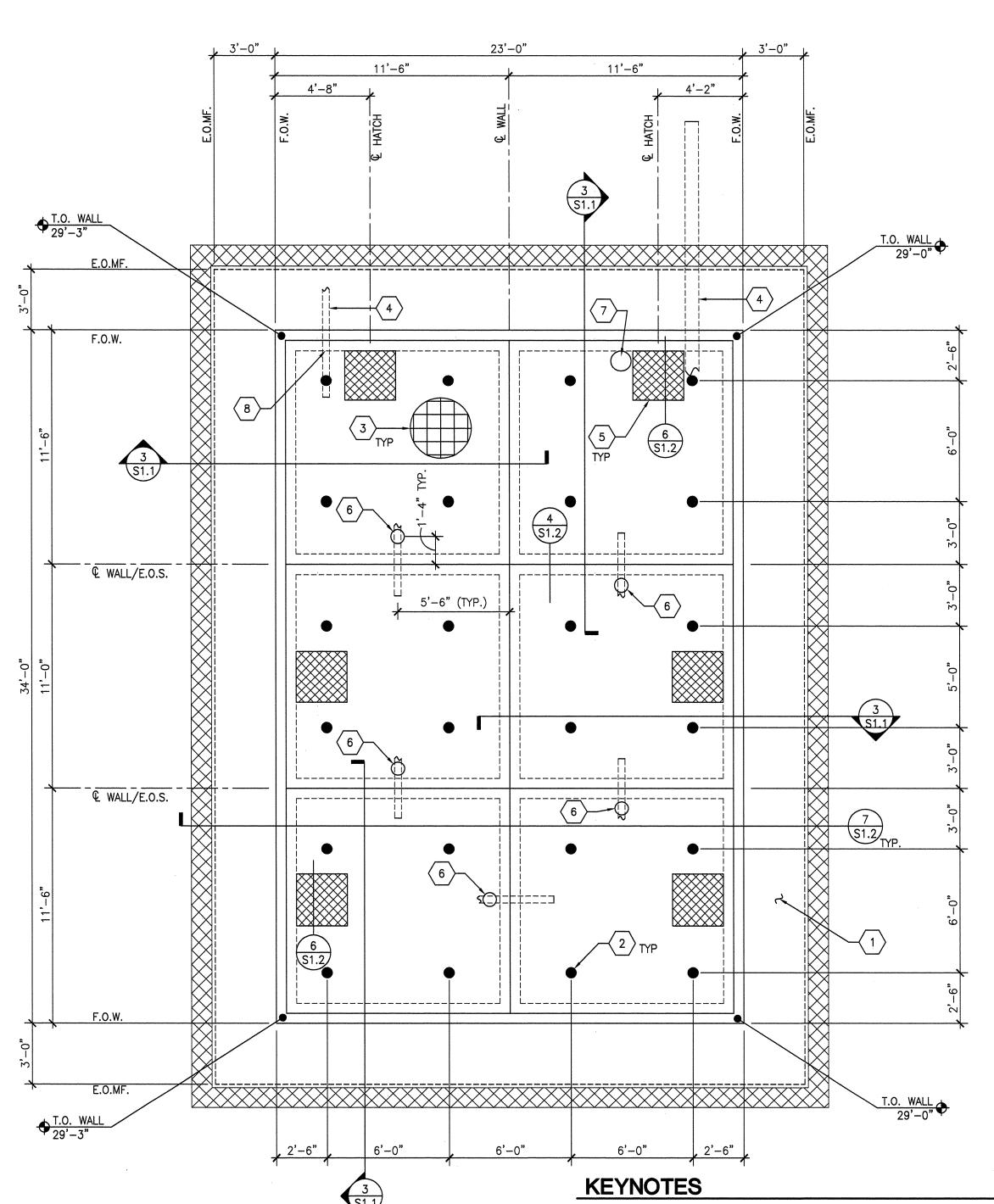
PHASE **ACTION**

Livermore A&E JOB NO: 208009.00

DRAWING TITLE: STRUCTURAL GENERAL NOTES

DRAWN BY: CSN CHECKED BY: GML

S0.1



CONSTRUCTION NOTES

- 1. DEWATERING TO REMAIN BELOW MAT FOUNDATION UNTIL BACKFILL AGAINST
- EXTERIOR WALLS FULLY PLACED & LIDS INSTALLED. 2. VERIFY LOCATIONS OF ALL WALL AND LID PENETRATIONS WITH DRAWING 1-8 BY
- VISTA CONSULTANTS, LLC. 3. ALL ELEVATION INFORMATION PROVIDED BY VISTA CONSULTANTS, LLC. VERIFY ALL
- ELEVATIONS SHOWN. 4. ALL PIPING AND VALVE ANCHORAGE AS PER SPECIFICATIONS BY VISTA CONSULTANTS, LLC.

LEGEND

F.O.W.

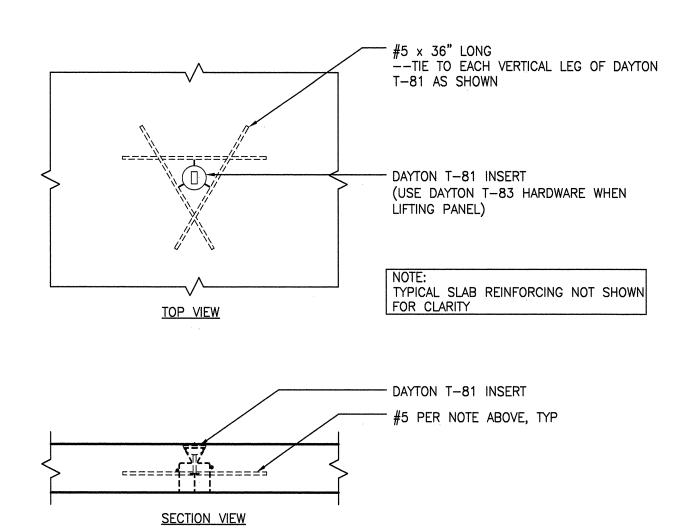
FACE OF WALL

E.O.MF. EDGE OF MAT FOUNDATION

INDICATES WALL SHORING BY OTHERS

- 24" THICK MAT FOUNDATION --BASE MATERIAL UNDER FOUNDATION BY OTHERS --REINFORCE W/ #6 @ 10" O.C. E.W. TOP AND BOTTOM
- INDICATES PICK POINT INSERT (24 TOTAL) --SEE 2/S1.1
- --USE ALL PICK POINTS WHEN LIFTING PANELS
- 12" THICK PRECAST LID (6) TOTAL -- REINFORCE W/ #6 @ 8" O.C. E.W. TOP & BOTTOM
- AT PIPE PENETRATION THROUGH WALL, INSTALL LINK SEAL LS-300-0 AT 4" DIA. PIPE, LS-475-0 AT 8" DIA. PIPE
- VAULT LID ACCESS HATCHES --30"x30" ACUDOR W-AHS ACUDOR CHANNEL FRAME,
- HEAVY DUTY, SINGLE DOOR FLOOR HATCH W/ BOWCO PRESS FIT TYP-R 12" WIDE STEPS (APPROX. 13 TOTAL). --SEE DETAIL 6/S1.2 FOR MORE INFORMATION
- --7 5/8" DIA. (CLR. OPENING) EAST JORDAN IRONWORKS WATERTIGHT MANHOLE (CATALOGUE #V2610-1) WATER-TIGHT MANHOLES
- --12" DIA. (CLR. OPENING) EAST JORDAN IRONWORKS WATERTIGHT MANHOLE

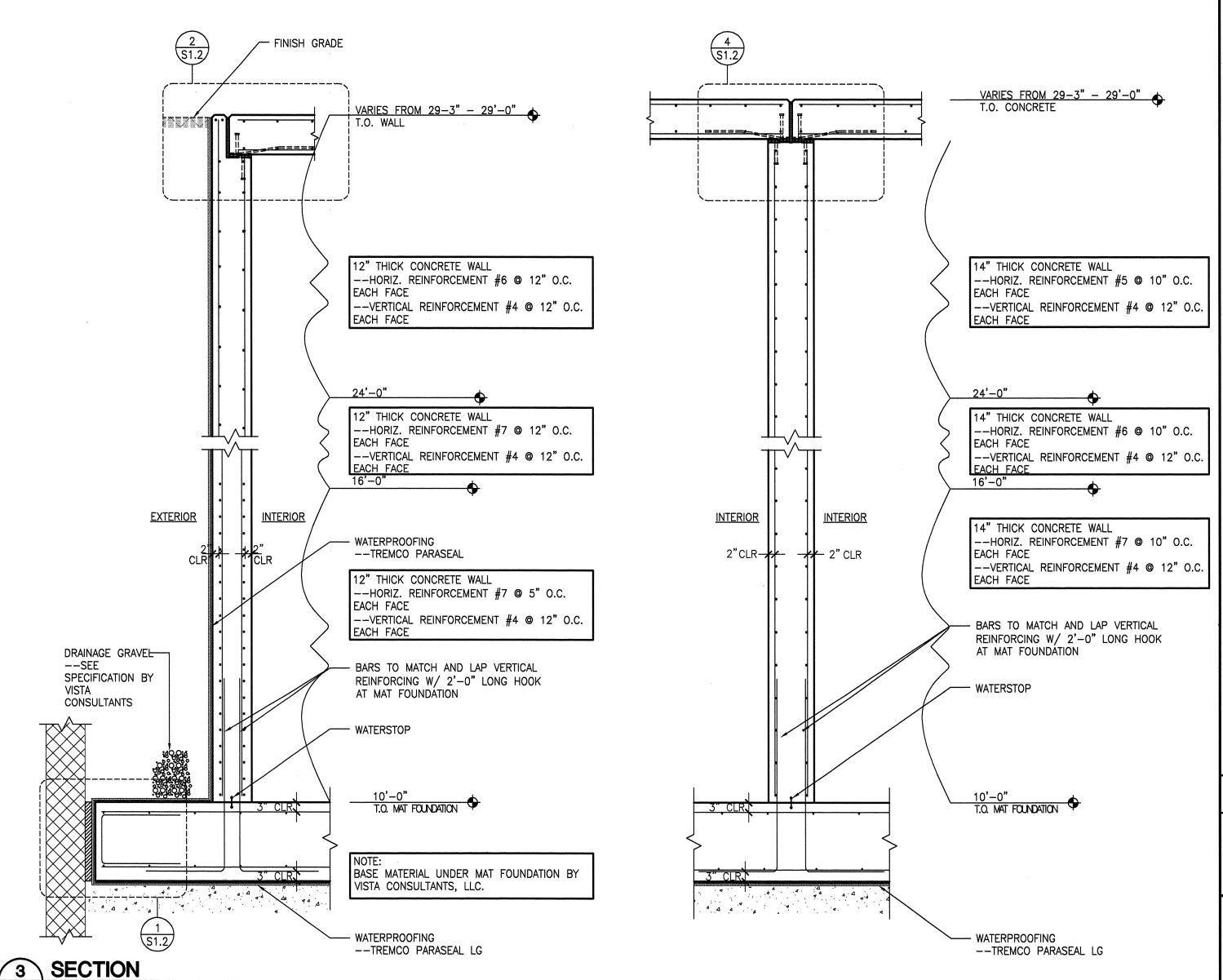
WATER-TIGHT MANHOLES

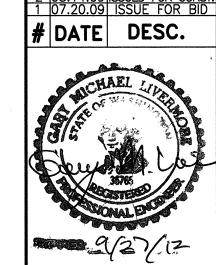


PICK POINT INSERT DETAIL

3/4" = 1'-0"

S1.1 1/2" = 1'-0"





ACTION 2

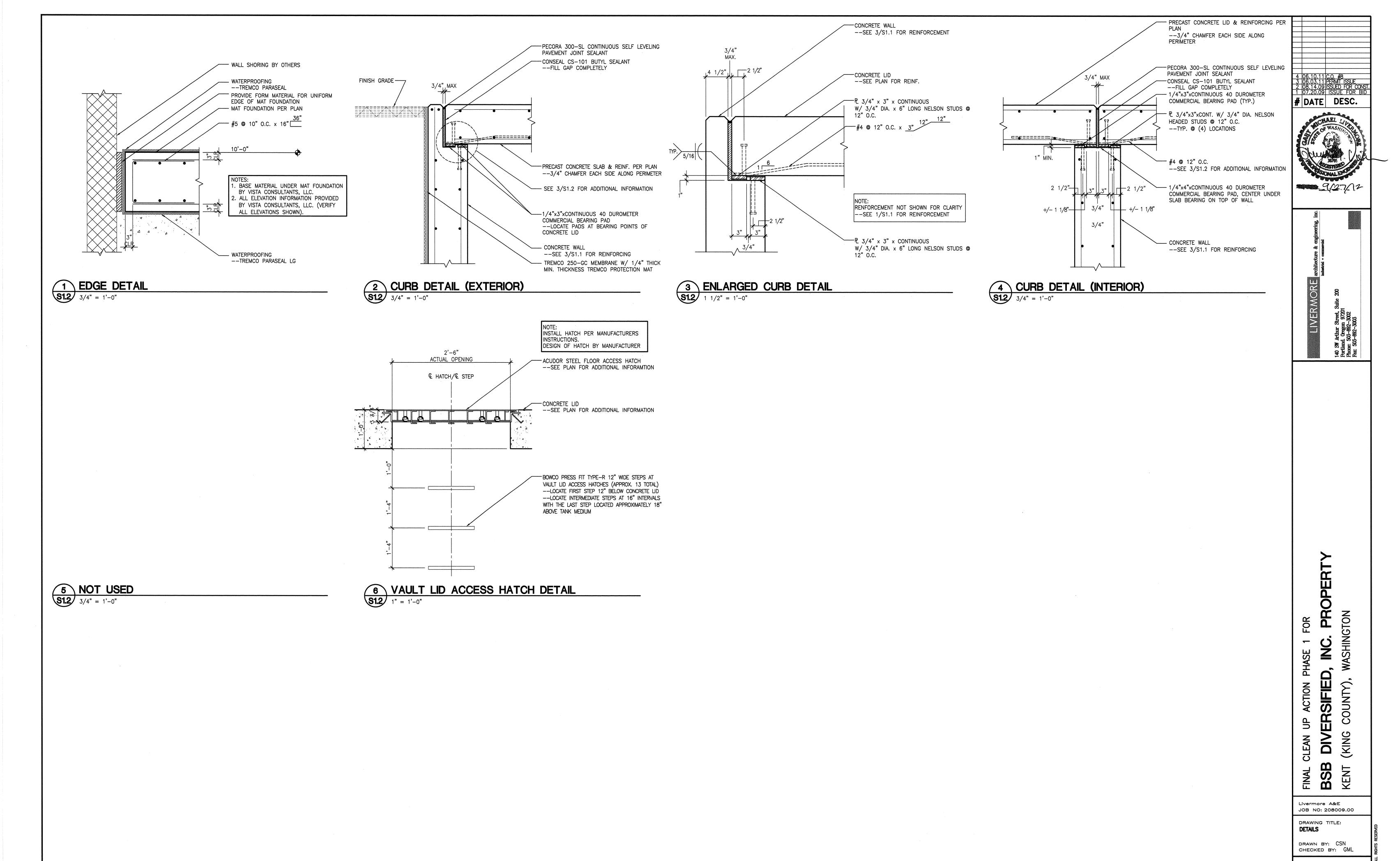
 $\mathbf{\Omega}$ Livermore A&E JOB NO: 208009.00

FOUNDATION PLAN AND DETAILS DRAWN BY: CSN CHECKED BY: GML

DRAWING TITLE:

S1.1





S1.2