STRUCTURAL NOTES **BUILDING CODE:** FLORIDA STATE BUILDING CODE (FBC 2023) BASED ON 2021 INTERNATIONAL BUILDING CODE (IBC) **DESIGN LOADS:** 2.1 ROOFS: SUPERIMPOSED DEAD .3.25 PSF .20 PSF* ROOF LIVE .. SNOW: GROUND SNOW LOAD, Pa.. ...0 PSF 2.2 WIND: .119 MPH ULTIMATE NOMINAL BASIC WIND SPEED, Y RISK CATEGORY . IMPORTANCE FACTOR, I_w. EXPOSURE. INTERNAL PRESSURE COEFFICIENT, GCpi COMPONENT DESIGN PRESSURESEE TABLE SEISMIC DATA: 2.3 SITE CLASS RISK CATEGORY OCCUPANCY CATEGORY IMPORTANCE FACTOR, In MAPPED SPECTRAL RESPONSE COEFFICIENT, Ss .0.130 MAPPED SPECTRAL RESPONSE COEFFICIENT, S₁. .0.059 SEISMIC DESIGN CATEGORY PRE-ENGINEERED METAL BUILDINGS: COLLATERAL LOAD: ROOF... .5 PSF (GRIDS 1 – 6) ...10 PSF (GRIDS 6 – 12) * ROOF LIVE LOADS ARE REDUCED IN ACCORDANCE WITH SECTION 1607.12 1607.11 OF THE IBC. **GENERAL NOTES:** CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE SAFETY OF PERSONS 6.6 AND PROPERTY. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING 6.7 THE WORK. THE ENGINEER WILL NOT ADVISE ON NOR ISSUE DIRECTION AS TO SAFETY PRECAUTIONS AND PROGRAMS. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. DURING ERECTION OF THE STRUCTURE, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR TEMPORARY GUYING, SHORING, BRACING, FORMING, ETC. TO HOLD THE STRUCTURE IN PROPER ALIGNMENT AND TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING LATERAL LOADS, TEMPERATURE DIFFERENTIALS, STOCKPILES OF MATERIAL AND EQUIPMENT. SUCH MEASURES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED FOR SAFETY AND UNTIL ALL FRAMING AND CONNECTIONS INCLUDING ROOF DECK ARE IN PLACE. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF SUCH TEMPORARY MEASURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW BY THE ENGINEER.

SHALL NOT INTERFERE WITH REINFORCEMENT LOCATIONS. PROVISIONS FOR FUTURE EXPANSION:

NO PROVISIONS FOR FUTURE EXPANSION HAVE BEEN INCLUDED IN DESIGN.

DRAWINGS. EQUIPMENT DRAWINGS AND RELATED ITEMS ARE BY OTHERS.

THE BID TO ASCERTAIN CONDITIONS WHICH MAY ADVERSELY AFFECT THE BID.

FOOTINGS AND SOIL DATA:

5.3

THE STRUCTURE IS DESIGNED FOR THE FOLLOWING ASSUMED SOIL PROPERITES:	
ASSUMED MAX ALLOWABLE SOIL BEARING CAPACITY (AFTER CORRECTION)	4,500 PSF AT TANK FARM
ASSUMED MAX ALLOWABLE SOIL BEARING CAPACITY (AFTER CORRECTION)	2,000 PSF AT BUILDING
COEFFICIENT OF FRICTION	0.45
MODULUS OF SUBGRADE REACTION	250 PCI
FOOTINGS SHALL BEAR ON GROUND IMPROVED COMPACTED ENGINEERED FILL. ALL	SUBGRADE SHALL BE PREPARED AND COMPACTED
ACCORDING TO THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT	•
ALL TOPSOIL, FILL AND OTHER UNSUITABLE BEARING MATERIAL SHALL BE REMOVED.	. A GEOTECHNICAL ENGINEER SHALL INSPECT THE
EXCAVATED AREA TO ENSURE ALL MATERIALS REQUIRING REMOVAL HAVE BEEN REM	MOVED AND TO VERIFY THE SOIL BEARING
CAPACITY USED FOR DESIGN PRIOR TO CONCRETE PLACEMENT.	
BOTTOM OF FOOTING ELEVATION SHALL BE LOWERED AS REQUIRED TO MEET THIS N	AINIMUM.

ARCHITECTURAL DRAWINGS, MECHANICAL DRAWINGS, ELECTRICAL DRAWINGS, TELECOMMUNICATION DRAWINGS, FIRE PROTECTION

MISCELLANEOUS FASTENERS, CLIPS, ETC. THAT ARE NOT DETAILED ON THE DRAWINGS BUT ARE PART OF THE REQUIREMENTS FOR

FULL INSTALLATION OF ALL STRUCTURAL SYSTEMS ARE TO BE PART OF THE BID. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO

ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONSTRUCTION DRAWINGS AND/OR SPECIFICATIONS

THE CONTRACTOR SHALL COORDINATE ALL DEPRESSIONS, DIMENSIONS, ELEVATIONS, SLEEVES, CHASES, HANGERS, OPENINGS,

AND/OR EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

BLOCK OUTS, INSERTS, ANCHORS, EQUIPMENT SUPPORTS, AND DETAILS WITH THE ENTIRE CONSTRUCTION PACKAGE INCLUDING

DRAWINGS AND EQUIPMENT DRAWINGS. FOR CONCRETE AND MASONRY CONSTRUCTION THE INSERTS, EMBEDDED PLATES, ETC.

ARCHITECTURAL DRAWINGS, MECHANICAL DRAWINGS, ELECTRICAL DRAWINGS, TELECOMMUNICATION DRAWINGS, FIRE PROTECTION

PROVISION GOVERNS, AND THE CONTRACTOR SHALL PERFORM THE WORK AT NO ADDITIONAL COST TO THE OWNER.

DURING THE BIDDING STAGE, CONTRACTOR SHALL REQUEST AN INTERPRETATION OF CONFLICTS PRIOR TO BIDDING. IF NO REQUEST IS

MADE, BOTH PROVISIONS SHALL BE PRESUMED TO BE INCLUDED IN THE BID AND THE ARCHITECT/ENGINEER SHALL DETERMINE WHICH

PROVIDE ADEQUATE BRACING TO SUPPORT AND STABILIZE WALLS UNTIL THE SUPPORTING MEMBERS ARE INSTALLED AND HAVE REACHED SUFFICIENT STRENGTH. ALL MAJOR EQUIPMENT SHALL MAINTAIN A SAFE CLEAR DISTANCE FROM BASEMENT AND RETAINING WALLS. PRIOR TO COMMENCING ANY FOUNDATION WORK, COORDINATE WITH ALL UTILITIES. FOUNDATIONS SHALL BE LOWERED WHERE

BACKFILL SHALL BE PLACED AND COMPACTED AGAINST BOTH SIDES OF FOUNDATION WALLS SIMULTANEOUSLY. CONTRACTOR SHALL

REQUIRED TO AVOID UTILITIES. MUD SLABS, FOOTINGS OR SLABS SHALL NOT BE PLACED ONTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE.

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACING CONCRETE UNTIL SUCH SUBGRADES ARE FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE OR PROPER DEPTH OF BURY.

REINFORCED CONCRETE:

DESIGN CODE: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318), LATEST ADOPTION.

CONCRETE MIXES SHALL BE DESIGNED PER ACI 301 USING THE FOLLOWING: PORTLAND CEMENT CONFORMING TO ASTM C150 OR C595

FLY ASH CONFORMING TO ASTM C618. SLAG CONFORMING TO ASTM C989.

SILICA FUME CONFORMING TO ASTM C1240 AGGREGATE CONFORMING TO ASTM C33. ADMIXTURES CONFORMING TO ASTM C494, C1017, AND C260. DO NOT USE CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE.

CONCRETE SHALL BE READY-MIXED IN ACCORDANCE WITH ASTM C94. MATERIAL STRENGTHS: PROVIDE THE FOLLOWING CONCRETE PROPERTIES:

	COMPRESSIVE	MAX		MAX WATER
DESCRIPTION	STRENGTH (f'c)	AGGREGATE	SLUMP ²	TO CEMENT
	AT 28 DAYS	SIZE		RATIOS (W/C)3
FOOTINGS	3000 PSI	1 ½"	4" ± 1"	0.57
FOUNDATION WALLS & PIERS	4000 PSI	3/4"	4" ± 1"	0.45
NTERIOR SLABS ON GRADE & TANK SUPPORTS	5000 PSI	3/4"	3" ± 1"	0.4
TOLEDANIOE ON AID CONTENT ACRELINEDED OUALL DE	4 50/			·

TOLERANCE ON AIR CONTENT AS DELIVERED SHALL BE ± 1.5%. ² PRIOR TO ADDITION OF PLASTICIZER OR HIGH-RANGE WATER-REDUCER

³ THESE W/C RATIOS MAY BE LOWER THAN NECESSARY TO PROVIDE THE SPECIFIED STRENGTHS.

6.3.2 REINFORCING STEEL:

..ASTM A706, GR. 60 WELDABLE BARS ALL OTHER BARS, STIRRUPS AND TIESASTM A615, GR. 60 WELDED WIRE FABRIC ASTM A1064 PLACEMENT OF CONCRETE AND REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI AND CRSI STANDARDS. (UNLESS OTHERWISE SPECIFIED BY ACI 313.) CLEAN REINFORCEMENT OF LOOSE RUST, MILL SCALE, EARTH, ICE, AND OTHER FOREIGN MATERIALS THAT REDUCE BOND TO CONCRETE PROVIDE 3/4" CHAMFER AT ALL EXPOSED CORNERS. FURNISH THE FOLLOWING CONCRETE COVER ON REINFORCING BARS UNLESS SHOWN OTHERWISE ON DRAWINGS: ...CENTER MESH OR BARS IN SLAB SLABS ON GRADE. .1 1/2" COVER ON TIES **FOOTINGS** ..3" COVER ON BOTTOM AND SIDES ..2" COVER WHERE EXPOSED TO SOIL OR WEATHER AND

3/4" OTHERWISE ALL WELDED WIRE FABRIC SHALL BE TRANSPORTED AND DELIVERED IN FLAT SHEETS. WELDING (INCLUDING TACKING) OF BARS OTHER THAN ASTM A706 SHALL NOT BE ALLOWED. WELDING OF ASTM A706 BARS SHALL CONFORM TO AWS D1.4.

FIBER REINFORCEMENT SHALL BE SYNTHETIC FIBER SHOWN HAVING LONG-TERM RESISTANCE TO DETERIORATION WHEN EXPOSED TO 8.1 MOISTURE AND ALKALIS. MAINTAIN CONCRETE IN A CONTINUOUSLY DAMP AND WET CONDITION FOR NOT LESS THAN 7 DAYS AFTER PLACING. PROTECT FROM MOISTURE LOSS WITH SHEETING OR SPRAY-ON MEMBRANE MEETING ASTM C309 AND COMPATIBLE WITH FLOOR COVERINGS.

FINISHING REQUIREMENTS ARE AS FOLLOWS (REFER TO ACI 301): CONTRACTOR AND SUBCONTRACTORS SHALL THOROUGHLY REVIEW ALL DRAWINGS AND SPECIFICATIONS PRIOR TO SUBMITTING BIDS. 6.12 SMOOTH RUBBED FINISH ON EXPOSED FORM SURFACES. WOOD FLOAT FINISH ON SLABS TO RECEIVE TOPPING.

STEEL TROWEL FINISH ON INTERIOR SLABS AND SLABS TO RECEIVE FINISH FLOORING. BROOM FINISH ON WALKS, STAIRS AND EXTERIOR CONCRETE PEDESTRIAN PAVING. NONSLIP FINISH SHALL BE APPLIED WITH ALUMINUM OXIDE TYPE SURFACE TREATMENT

DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR ACCEPTED BY THE ENGINEER. PROVIDE CORNER BARS EQUAL IN SIZE AND SPACING TO WALL HORIZONTAL REINFORCEMENT UNLESS OTHERWISE DETAILED.

IN SLABS PROVIDE (2) #4x4'-0" DIAGONAL BARS AT 45 DEGREES AT ALL CORNERS OF OPENINGS AND RE-ENTRANT CORNERS. AT WALL OPENINGS, PROVIDE (2) #4 BARS ON ALL SIDES EXTENDING 2'-0" BEYOND THE OPENING AND (2) #4x4'-0" DIAGONAL BARS AT 45 DEGREES AT ALL CORNERS.

COLD WEATHER CONCRETING SHALL FOLLOW PROCEDURES IN ACI 306. HOT WEATHER CONCRETING SHALL FOLLOW PROCEDURES IN ACI 305. PROVIDE CLASS 'B' LAP LENGTHS FOR WALL FOOTINGS UNLESS NOTED OTHERWISE. PROVIDE CLASS B LAP SPLICES IN ACCORDANCE WITH ACI 318.

BAR SUPPORTS AND HOLDING BARS SHALL BE PROVIDED FOR ALL REINFORCING STEEL TO ENSURE COMPLIANCE WITH MINIMUM CONCRETE COVER. BAR SUPPORTS SHALL BE PLASTIC, PLASTIC TIPPED, EPOXY COATED OR STAINLESS STEEL FOR UNCOATED STEEL. BAR SUPPORTS FOR COATED STEEL SHALL BE PLASTIC, PLASTIC COATED OR EPOXY COATED. PLACE CONCRETE SLABS IN ALTERNATING STRIPS PER ACI 302.1. REFER TO CONSTRUCTION JOINT DETAILS IN DRAWINGS.

FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE ALL SHORING. THE CONTRACTOR SHALL ALLOW IN THE BID AN ADDITIONAL ONE TON OF #6x6'-0"x6'-0" BENT BAR REINFORCING STEEL (INSTALLED PRICE) TO BE PLACED IN THE FIELD AT THE DIRECTION OF THE ENGINEER. ANY UNUSED PORTION OF THIS ALLOWANCE SHALL BE CREDITED TO THE OWNER.

SPECIAL ADDITIONAL REQUIREMENTS FOR SLABS ON GRADE: DESIGN STANDARD: GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION (ACI 302.1)

REFER TO GEOTECHNICAL REPORT FOR VAPOR BARRIER, ENGINEERED FILL AND SUBGRADE COMPACTION REQUIREMENTS. LAP ADJOINING WELDED WIRE FABRIC AT LEAST TWO FULL MESHES. SEE DRAWINGS FOR LOCATIONS OF SLAB CONTROL JOINTS. UNLESS OTHERWISE INDICATED, JOINTS SHALL BE PROVIDED AT 14'-0" OC

MAX. FOR 4" SLABS, 20'-0" OC MAX. FOR 6" SLABS, AND 24'-0" OC MAX. FOR 8" SLABS, BUT SHALL IN ALL CASES BE PLACED AT EQUAL INTERVALS BETWEEN BUILDING GRIDS. SAWN CONTROL JOINTS SHALL BE MADE WITHIN 12 HOURS AND AS SOON AS POSSIBLE WITHOUT CAUSING RAVELING OR OTHER DAMAGE. SLAB JOINTS SHALL BE FILLED WITH AN ACCEPTED MATERIAL AS LATE AS POSSIBLE, PREFERABLY AT LEAST 4 TO 6 WEEKS AFTER THE

SLAB HAS BEEN CAST. PRIOR TO FILLING, REMOVE ALL DEBRIS FROM THE SLAB JOINTS. FILL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS FOLLOWS: PRODUCTION AREAS – FILL WITH EPOXY RESIN. OTHER SLABS – FILL WITH FIELD MOLDED OR ELASTOMERIC SEALANT. SEE THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DEPRESSED SLAB AREAS AND DRAINS. SLOPE SLAB TO DRAINS

WHERE SHOWN. CONFIRM REQUIRED RACK STORAGE POST LOADINGS, POST SPACINGS AND BASE PLATES WITH ENGINEER PRIOR TO SLAB SUBGRADE EXCAVATION AND COMPACTION. INFORMATION NOT PROVIDED OR DEVIATIONS FROM INFORMATION PROVIDED MAY LEAD TO

INCREASED SETTLEMENT AND/OR CRACKING. FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 302.1 R.

PRE-ENGINEERED METAL BUILDING (PEMB):

DESIGN, FABRICATION AND ERECTION OF PRE-ENGINEERED METAL BUILDINGS SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC), LATEST ADOPTION, LOW RISE BUILDING SYSTEMS MANUAL (MBMA), LATEST EDITION, AND SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI). THE BUILDING SHALL BE DESIGNED BY THE MANUFACTURER AS A COMPLETE SYSTEM. ALL COMPONENTS OF THE SYSTEM SHALL BE SUPPLIED OR SPECIFIED BY THE SAME MANUFACTURER.

ALL WELDING SHALL COMPLY WITH THE PROVISIONS OF AWS D1.1 AND AWS D1.3. ALL BOLTED CONNECTIONS SHALL BE DESIGNED AND DETAILED UTILIZING HIGH STRENGTH BOLTS PER ASTM F3125 A325 OR A490. MAXIMUM ALLOWABLE DEFLECTION WITH IMPOSED LOADS FOR EXTERIOR WALL AND ROOF SYSTEM:

MAIN FRAMES VERTICAL DEFLECTION.. LATERAL SWAY. ...H/100 ...H/500 END WALL RACKINGH/500 GIRT HORIZONTAL DEFLECTION . L/240 OR 1 1/2" WHERE SUPPORTING MASONRY

PURLIN VERTICAL DEFLECTION . ELEMENTS SUPPORTING DRYWALL PARTITIONS

...PARTITION HEIGHT/500 LATERAL MOVEMENT . NOTE: L IS THE ELEMENT SPAN BETWEEN SUPPORTS, H IS THE BUILDING EAVE HEIGHT

TORQUED CAST-IN AND POST-INSTALLED.

TORQUE-CONTROLLED ..

DISPLACEMENT CONTROLLED ...

PROVIDE LATERAL LOAD RESISTING SYSTEMS AS REQUIRED TO RESIST THE INDICATED WIND AND SEISMIC LOADS IN ROOF AND SIDE WALLS WHERE INDICATED ON THE DRAWINGS. PROVIDE THE FOLLOWING WHEN ANCHORING TO CONCRETE: MINIMUM SPACING UNTORQUED CAST-IN ANCHORAGE ..

MINIMUM EDGE DISTANCE UNTORQUED CAST IN ANCHORAGE. REFER TO MINIMUM COVER SPECIFIED IN THE CONCRETE SECTION TORQUED CAST-IN HEADED ANCHORS. .NOT LESS THAN TWICE THE AGGREGATE SIZE POST-INSTALLED..

...8 d_a

NOTE: da IS THE ANCHOR DIAMETER FOUNDATION DESIGNS ARE BASED ON METAL BUILDING REACTIONS PROVIDED BY NUCOR BUILDING SYSTEMS, PROJECT NUMBER S24W0262A DATED 10/2/2024. IF THE REACTIONS CHANGE THESE DESIGN LOADS, THE FOUNDATIONS SHALL BE REDESIGNED AND CERTIFIED BY A REGISTERED STRUCTURAL ENGINEER UNDER CONTRACT TO THE CONTRACTOR. A RECORD COPY OF THE REVISED FOUNDATION DESIGN SHALL BE PROVIDED TO ENGINEER. ENGINEER IS NOT RESPONSIBLE TO APPROVE THE REVISED FOUNDATION DESIGN OR FOR ADDITIONAL PROJECT COSTS AND/OR CONSTRUCTION DELAYS INCURRED AS A RESULT OF REVISED FOUNDATION

SUBMITTALS:

8.3.1.1

GENERAL SUBMITTAL REQUIREMENTS CONTRACTOR SHALL REVIEW, STAMP, SIGN AND DATE ALL SUBMITTALS PRIOR TO FORWARDING TO ARCHITECT/ENGINEER. THE ENGINEER'S REVIEW IS FOR CONFORMANCE WITH THE DESIGN CONCEPT AND GENERAL COMPLIANCE WITH THE RELEVANT CONTRACT DOCUMENTS. THE ENGINEER'S REVIEW DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW, CHECK AND COORDINATE THE SUBMITTALS THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS IN THE SUBMITTALS. SHOP DRAWINGS SHALL BE IN THE FORM OF BLACK-LINE PRINTS OR PORTABLE DOCUMENT FORMAT (PDF) FOR REVIEW. DRAWINGS LISTED BELOW AS "CERTIFIED" SHALL BEAR THE SIGNED AND DATED SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. IN NO CASE SHALL REPRODUCTIONS OF THE CONTRACT DRAWINGS BE USED AS SHOP DRAWINGS. DRAWINGS SHALL SHOW ERECTION PLANS, DIMENSIONS, BRACING AND BRIDGING REQUIREMENTS, DETAILS, SUPPORTED MECHANICAL EQUIPMENT AND PIPING. SUBMITTALS ARE REQUIRED. CALCULATIONS FOR SPECIALTY STRUCTURAL AND/OR MANUFACTURED ITEMS SHALL BEAR THE SIGNED AND DATED SEAL OF A

PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. CALCULATIONS SHALL INCLUDE DESIGN CRITERIA, REACTION FORCES, LOAD CAPACITIES, LAYOUTS SHOWING SPAN AND PITCH, AND CONNECTIONS. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED PRIOR TO FABRICATION

CONCRETE MIX DESIGN(S) SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. A SIGNED CERTIFICATION STATING COMPLIANCE WITH ACI 318, CHAPTER 5 SHALL BE SUBMITTED WITH EACH MIX DESIGN.

REINFORCING STEEL SHOP DRAWINGS. PRE-ENGINEERED METAL BUILDING: CERTIFIED SHOP DRAWINGS AND CALCULATIONS.

SUBMIT ANCHOR ROD PLACEMENT PLAN AND FINAL COLUMN REACTIONS AT LEAST 30 DAYS PRIOR TO FOUNDATION DESIGN

STRUCTURAL OBSERVATION

	ABBREVIATIONS								
AA THE ALUMINUM ASSOCIATION CRSI CONCRETE REINFORCING STEEL INSTITUTE									
ACI	AMERICAN CONCRETE INSTITUTE	MBMA	METAL BUILDING MANUFACTURERS ASSOCIATION						
AF&PA	AMERICAN FOREST & PAPER ASSOCIATION	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION						
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	PCI	PRESTRESSED CONCRETE INSTITUTE						
AISI	AMERICAN IRON AND STEEL INSTITUTE	SDI	STEEL DECK INSTITUTE						
APA	ENGINEERED WOOD ASSOCIATION	SJI	STEEL JOIST INSTITUTE						
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	SSMA	STEEL STUD MANUFACTURER ASSOCIATION						
AWPA	AMERICAN WOOD PROTECTION ASSOCIATION	TPI	TRUSS PLATE INSTITUTE						
AWS	AMERICAN WELDING SOCIETY	WTCA	WOOD TRUSS COUNCIL OF AMERICA						
CMAA	CRANE MANUFACTURERS ASSOCIATION OF AMERICA								



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GREYSTONE CONSTRUCTION



AGROLIQUID CHEMICAL WAREHOUSE LAKE CITY, FL

NO.	DATE	ISSUE/REVISION	E
1	11/01/24	ISSUED FOR CONSTRUCTION	D

This item has been digitally signed and sealed by Mark D. Mielke. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

> Digitally signed by Mark Mielke Date: 2024.11.01 11:33:17 -05'00'

MARK D. MIELKE, PE Registration No. 68730

MARK D. MIELKE, P.E.

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DATE: 11/01/24	DRAWN DJH	:
DESIGNED:	CHECKED:	APPROVED:
AMR	AMR	MDM

DRAWING TITLE:

STRUCTURAL NOTES

PROJECT NO:	DRAWING NO:
230828	0004
SCALE:	S001
AS NOTED	



		PIER SCHEDU	JLE
MARK	SIZE	REINFORCING	COMMENTS
P1	24" x 30"	(16) #7 VERT W/ #4 TIES @ 9" OC	PROVIDE 2 ADDITIONAL #7 VERTS AT BP4
P2	30" x 30"	(16) #7 VERT W/ #4 TIES @ 9" OC	
. PROVIDE 3	TIES IN THE TO	P 6" OF PIER	

KEY NOTES: 2'-0"x2'-0"x2'-0" SUMP PIT, SEE 8/S502 CONTROL TOWER PLATFORM COLUMNS, BY SUPPLIER. PROVIDE 9"x9" MINUMUM BASE PLATE AT EACH POST.

COORDINATE EXACT LOCATIONS WITH SUPPLIER.

12'-0" DIA TANK

EXTERIOR TANK SLAB DESIGN NOTES: MAT SLAB DESIGNED FOR (32) 30,000 GALLON TANKS WITH APPROXIMATE DIMENSIONS: HEIGHT=40'-0", DIAMETER=12'-0"

TANK WEIGHTS: TANK DEAD WEIGHT=40 KIPS TANK FLUID WEIGHT=635 KIPS (C1 & C2) TANK FLUID WEIGHT=335 KIPS (OTHERS INCLUDING FUTURE TANKS)

INTERIOR WATER TANK SLAB DESIGN NOTES: MAT SLAB DESIGNED FOR 20,000 GALLON TANKS WITH APPROXIMATE DIMENSIONS: HEIGHT=24'-0", DIAMETER=12'-0"

TANK DEAD WEIGHT=30 KIPS TANK FLUID WEIGHT=170 KIPS **FOUNDATION PLAN NOTES:**

- 1. FOR GENERAL STRUCTURAL NOTES SEE SHEET S-001. 2. TOP OF SLAB ELEVATION (TSE) = 100'-0" UNO. SEE CIVIL FOR USGS DATUM
- ELEVATION.
- 3. TOP OF FOOTING ELEVATION (TFE) = 98'-0" TYP AT EXTERIOR UNO. 4. 'Fx' ON PLAN DENOTES COLUMN FOOTING, SEE SCHEDULE ON THIS SHEET.
- . 'Px' ON PLAN DENOTES CONCRETE PIER, SEE SCHEDULE ON THIS SHEET. 7. 'CJ' ON PLAN DENOTES SLAB CONSTRUCTION JOINT.
- 'SJ' ON PLAN DENOTES SLAB CONTROL JOINT. SEE GENERAL STRUCTURAL NOTES AND 7/S501 & 8/S501. 8. S— —S -DENOTES STEPPED FOOTING, SEE TYPICAL STEPPED

. 'WFx' ON PLAN DENOTES WALL FOOTING, SEE SCHEDULE ON THIS SHEET.

- FOOTING DETAIL 3/S501. 9. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR SLAB SLOPES, DRAINS, CURBS AND HOUSEKEEPING PADS. SLOPE SLABS TO FLOOR DRAINS PER DETAIL 10/S501.
- 10. FOR UTILITIES RUNNING PERPENDICULAR TO FOUNDATIONS, SEE 4/S501 & 5/S501. 11. COLUMN FOOTINGS ARE CENTERED BELOW COLUMNS UNO.

COLUMNS ARE CENTERED ON GRID INTERSECTIONS UNO ON PLAN.

- 12. WALL FOOTINGS ARE CENTERED BELOW FOUNDATION WALLS UNO. 13. DENOTES UNDERGROUND UTILITY - FOR LOCATIONS, SIZES AND INVERTS SEE CIVIL & PLUMBING DRAWINGS.
- 14. FOR TYPICAL BAR BENDING IN REINFORCED CONCRETE SEE 2/S501. 15. FOR OPENINGS IN CONCRETE SLABS ON GRADE, SEE 9/S501. 16. FOR CONCRETE REINF LAP REQUIREMENTS SEE SCHEDULE ON SHEET S501.
- 17. FOR ADDITIONAL SLAB REINFORCING AND CONDITION AT EXTERIOR DOORWAYS, SEE 1/S503
- 18. FOR ADDITIONAL SLAB REINFORCING AND CONDITION AT INTERIOR DOORWAYS, SEE -/---.
- DENOTES SLAB RECESS, SEE 11/S501 & SEE ARCH FOR EXTENTS.
- 20. 'BP_' INDICATES ESTIMATED BEARING PLATE SIZES PROVIDED BY PEMB SUPPLIER, SEE 6/S503. FINAL SIZE AND DESIGN BY PEMB.

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> MARK D. MIELKE, PE Registration No. 68730

MARK D. MIELKE, P.E.

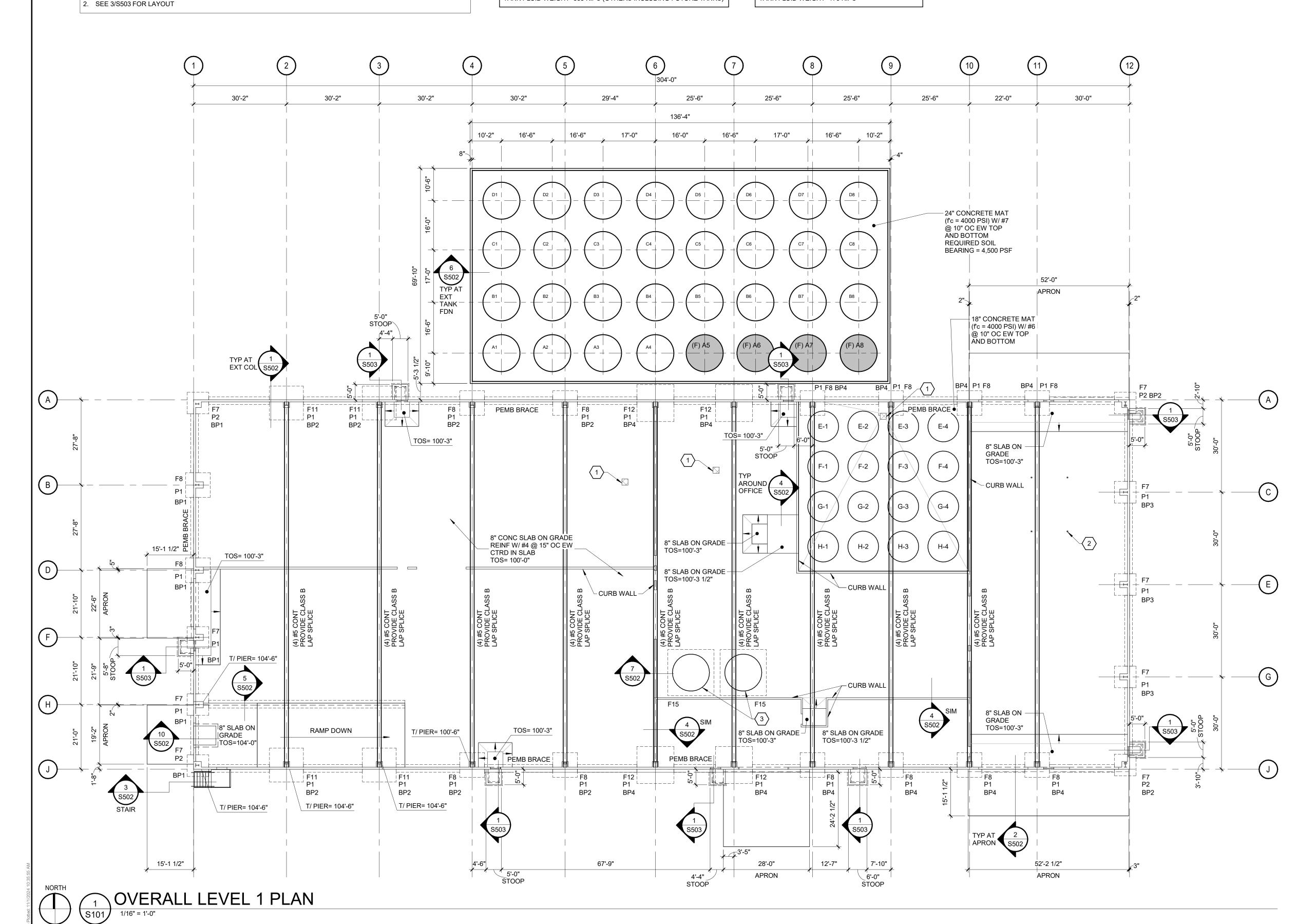
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DATE: 11/01/24	DRAWN DJH	:
DESIGNED:	CHECKED:	APPROVED:
AMR	AMR	MDM

DRAWING TITLE:

FOUNDATION PLAN

Ι.		
	PROJECT NO:	DRAWING NO:
	230828	0404
	SCALE:	S101
	AS NOTED	



CONCRETE REINFORCING LAP REQUIREMENTS EMBEDMENT OF STD HOOKS STANDARD 90 DEG -HOOK BAR SIZE LDH (INCHES) CONCRETE SURFACE 1'-2" 1'-5" 1'-8" 1'-10"

	CLAS	SS 'A' LA	PS		CLA	ASS 'B' LA	APS		
BAR FC (PSI)					BAR		FC	(PSI)	
SIZE	3000	4000	5000		SIZE	3000	4000	5000	
3	1'-5"	1'-3"	1'-1"		3	1'-10"	1'-7"	1'-5"	
4	1'-10"	1'-7"	1'-5"		4	2'-4"	2'-1"	1'-11"	
5	2'-4"	2'-0"	1'-10"		5	3'-0"	2'-7"	2'-4"	
6	2'-9"	2'-5"	2'-2"		6	3'-7"	3'-1"	2'-10"	
7	4'-0"	3'-6"	3'-2"		7	5'-3"	4'-6"	4'-1	
8	4'-7"	4'-0"	3'-7"		8	6'-0"	5'-2"	4'-8"	
9	6'-2"	4'-6"	4'-0"		9	6'-9"	5'-10"	5'-3"	

I. THESE TABLES ARE BASED ON THE FOLLOWING ASSUMPTIONS:

2'-1"

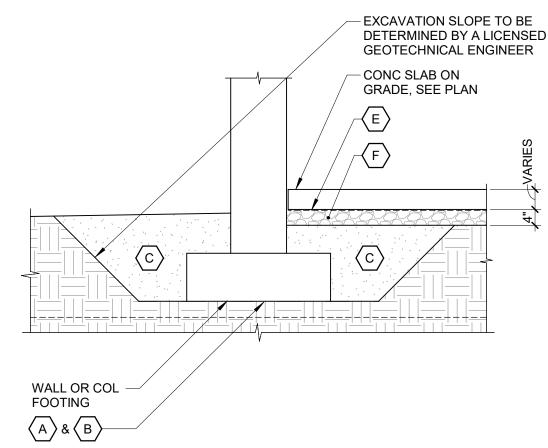
1. THIS TABLE ASSUMES:

Fy=60,000psi

f'c=3,000psi

NOTES:

- A. CLEAR SPACING OF BARS GREATER OR EQUAL TO DB. B. CLEAR COVER GREATER OR EQUAL TO DB.
- C. STIRRUPS OR TIES PROVIDED THROUGHOUT DEVELOPMENT LENGTH GREATER THAN CODE MIN.
- D. CLEAR SPACING OF BARS GREATER OR EQUAL TO 2D_B.
- E. CLEAR COVER GREATER THAN D_B.
- FOR OTHER CASES, MULTIPLY LENGTHS SHOWN BY 1.5. FOR TOP BAR SPLICES, MULTIPLY LENGTHS SHOWN BY 1.3. TOP BARS ARE SUCH THAT 12" OR MORE OF FRESH CONCRETE IS CAST BELOW THE SPLICE OR DEVELOPMENT LENGTH.
- LIGHTWEIGHT CONCRETE, MULTIPLY LENGTHS SHOWN BY 1.3. 5. FOR HIGHER GRADE STEEL MULTIPLY LENGTHS SHOWN BY A RATIO OF HIGHER FY(KSI) OVER 60(KSI). ALL
- OTHER FACTORS LISTED STILL APPLY. FOR COMPRESSION LAP SPLICE USE (0.0009FY-24) D



TYPICAL SITE PREPARATION DETAIL

GENERAL SITE PREPARATION NOTES REFER TO CIVIL DRAWINGS FOR EXISTING AND FINAL GRADES. COMPACT TO THE PERCENTAGE OF ASTM D-1557-MODIFIED PROCTOR, MAXIMUM DRY DENSITY COMPACT ACCEPTABLE FILL AT LEAST FOUR PERCENTAGE POINTS OVER THE OPTIMUM ACCEPTABLE FILL IS DEFINED AS A NON-PLASTIC, INORGANIC, GRANULAR SOIL WITH NO MORE

- \langle A angle SUBGRADE: ALL OPEN FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY A LICENSED GEOTECHNICAL ENGINEER (PRIOR TO POURING CONCRETE) TO ENSURE ALL MATERIALS REQUIRING REMOVAL HAVE BEEN REMOVED AND TO VERIFY THE SOIL BEARING CAPACITY USED FOR DESIGN.
- (B) NATIVE SOIL: FOUNDATIONS SHALL BEAR ON STABLE, COMPACTED IN-SITU SOILS OR STRUCTURAL FILL. REFER TO GENERAL STRUCTURAL NOTES SECTION 6 FOR ADDITIONAL
- \langle C \rangle BACKFILL: STRUCTURAL FILL MATERIAL; COMPACT TO AT LEAST 95% AT FOOTINGS AND SLABS, SEE GENERAL NOTES (1), (2), AND (3) ABOVE. COMPACTION SHALL BE AS DESCRIBED
- (D) FINAL GRADE: SLOPE AWAY FROM BUILDING; MINIMUM 5% GRADE; MAXIMUM 33% GRADE.
- (E) VAPOR BARRIER: 15 MIL POLYETHYLENE, REFER TO SPECIFICATIONS.

THAN 12% FINES OR 4% ORGANICS.

IN GENERAL STRUCTURAL NOTES SECTION 6.

PVC SLEEVE

CONT BOT REINF

WALL FOOTING -

TOP & BOT

ADDL #4x4'-0" EF ——/

LOCATIONS AND ELEVATIONS

 \langle F \rangle CAPILLARY WATER BARRIER: 6" OF FREE DRAINING, CLEAN, POORLY GRADED CRUSHED ROCK PLACED BENEATH THE BUILDING SLAB AND VAPOR BARRIER. FOR CAPILLARY WATER BARRIER MATERIALS AND PLACEMENT, REFER TO SPECIFICATION SECTION 31 00 00.00 06.

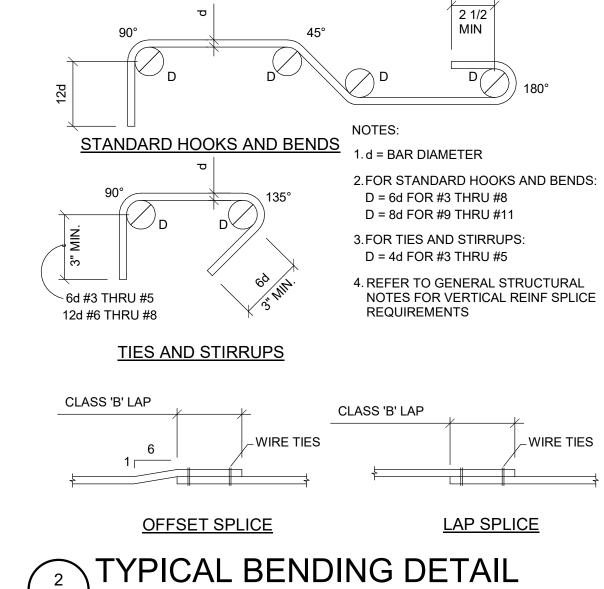
- FOUNDATION WALL

- ADDL (2) #4x6'-0" EF

WHERE CONT BOT

REINF IS INTERRUPTED

- CONT TOP REINF



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WAREHOUSE

LAKE CITY, FL

11/01/24 ISSUED FOR CONSTRUCTION

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MARK D. MIELKE, PE

MARK D. MIELKE, P.E.

11/01/24

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230828

AS NOTED

SCALE:

DRAWING TITLE:

Registration No. 68730

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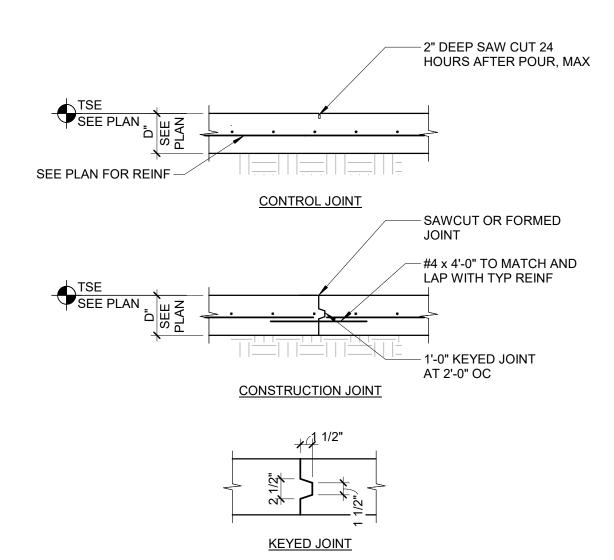
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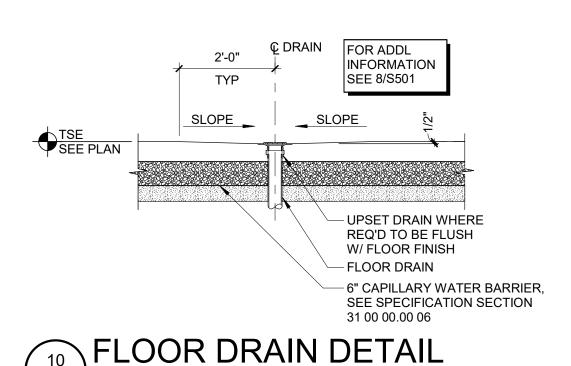
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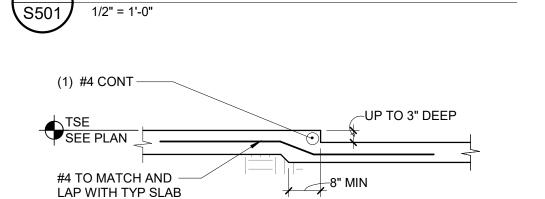
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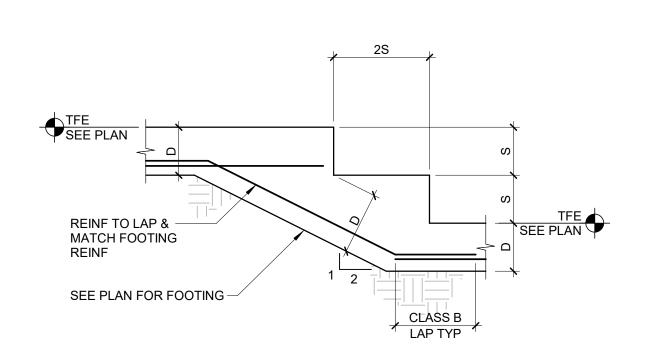




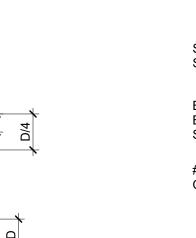
SLAB STEP UP TO 3" DEEP

TYP SLAB RECESS DETAIL

REINF THUS: 2'-6"



TYP STEPPED FOOTING DETAIL



BOND BREAK OR BACKER PER SPECS 1/4" FIBER BOARD 1 1/4" DIAx2'-0" SMOOTH BAR DWLS @ 10" OC GREASE ONE END • 1(•)• • ADDL #4x6'-0" TOP & BOT AT - DISCONTINUE EVERY PERPENDICULAR SJ (WHERE SJ OTHER BAR 4" FROM SJ IS NOT CONTINUOUS ACROSS CJ) CENTERED ON JOINT THUS: - VAPOR BARRIER - 6" CAPILLARY WATER BARRIER SEE SPECIFICATION SECTION ADDL #4 -31 00 00.00 06

- SEALANT PER

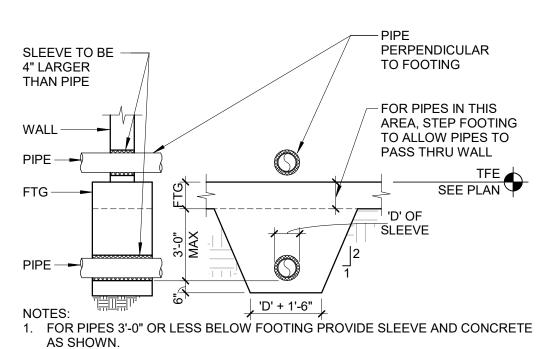
SPECS TYP

CJ OR SJ~ **CONSTRUCTION JOINT (CJ)**

CONTROL JOINT (SJ)

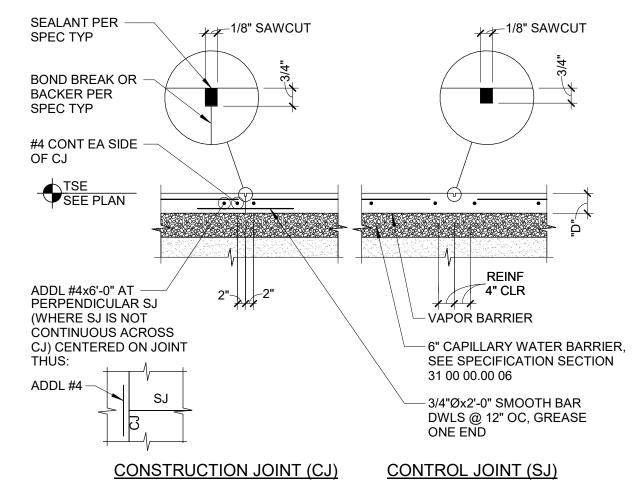
1. SAWCUT CONTROL JOINTS WITHIN 12 HOURS OF THE SLAB POUR OR AS EARLY AS POSSIBLE WITHOUT CAUSING RAVELING. CONTROL AND/OR CONSTRUCTION JOINTS TO BE SPACED AS INDICATED ON PLAN.



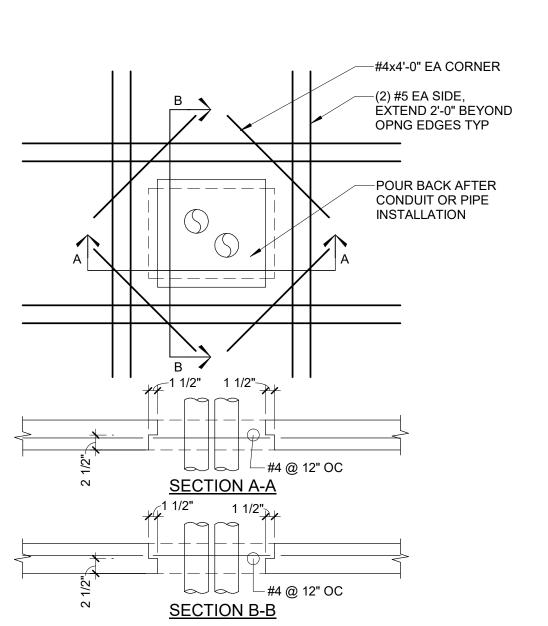


- 2. FOR PIPES MORE THAN 3'-0" BELOW FOOTING BUT LESS THAN 8'-0", USE
- STEPPED FOOTING DETAIL TO GET WITHIN 3'-0" MAX. 3. FOR PIPES DEEPER THAN 8'-0" BELOW FOOTING CONCRETE FILL IS NOT
- REQUIRED. PROVIDE TRENCH COMPACTED PER SPEC REQUIREMENTS. 4. WRAP PIPE AT WALL / FOOTING PENETRATION W/ COMPRESSIBLE MATERIA (MIN 4" LARGER THAN PIPE).
- 5. AT CONTRACTOR'S OPTION, FILL PIPING TRENCH BELOW FOOTING W/ LEAN CONCRETE AND PROVIDE SLEEVE AND COMPRESSIBLE MATERIAL AS NOTED

TYP FTG PERP TO PIPE | S501 | 1/4" = 1'-0"



. SAWCUT CONTROL JOINTS WITHIN 12 HOURS OF THE SLAB POUR OR AS EARLY AS POSSIBLE WITHOUT CAUSING RAVELING. CONTROL AND/OR CONSTRUCTION JOINTS TO BE SPACED AS INDICATED ON PLAN.



NOTES:

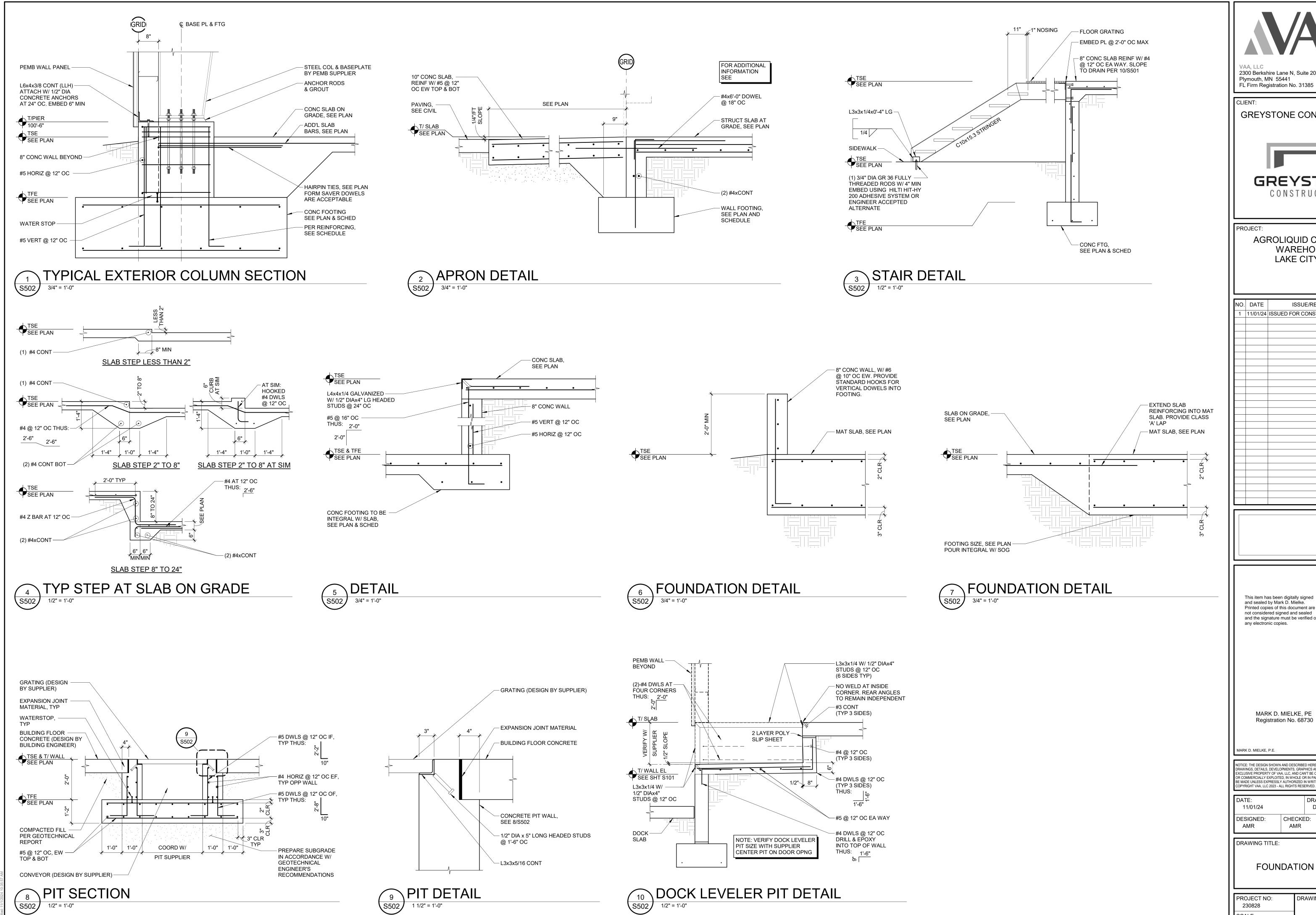
1. SEE M/E/P AND SITE DRAWINGS FOR UTILITY AND MECHANICAL PIPE

4. CONTACT STRUCTURAL ENGINEER FOR SLEEVES GREATER THAN 12" DIA.

TYP PIPE SLEEVES AT FDN WALLS

2. TYPICAL FOOTING AND WALL REINF NOT SHOWN FOR CLARITY

3. SLEEVES TO BE 2" LARGER IN DIA THAN OD OF PIPES



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> MARK D. MIELKE, PE Registration No. 68730

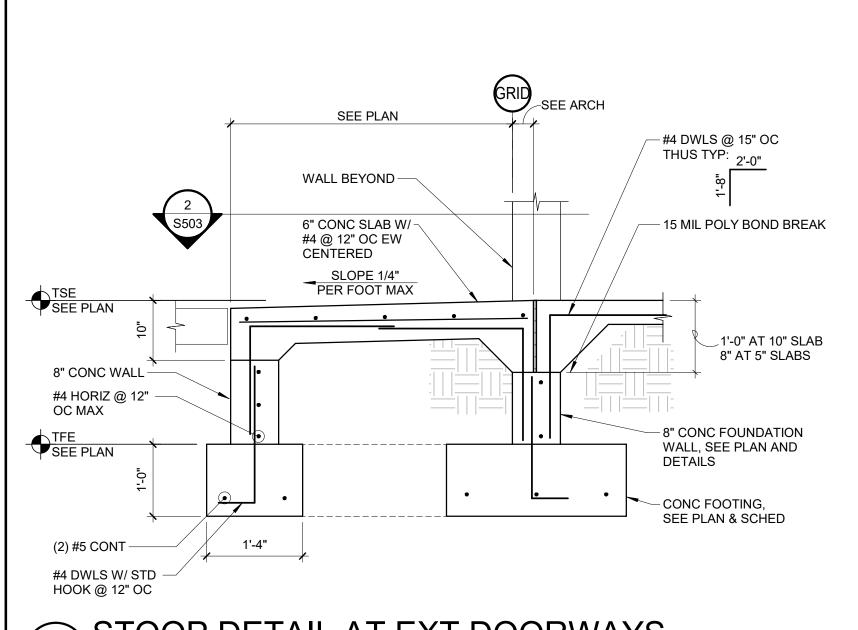
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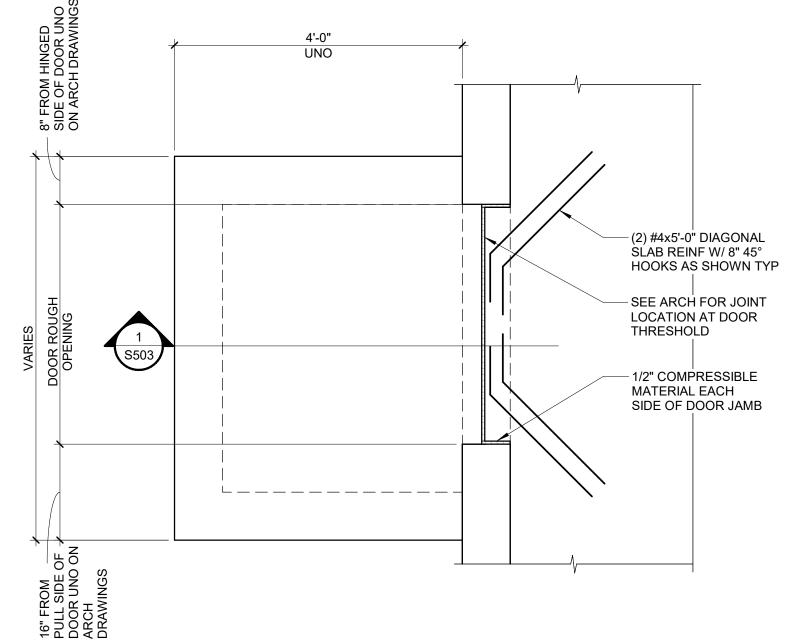
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DESIGNED: AMR	CHECKE AMR	ED:	APPROVED: MDM

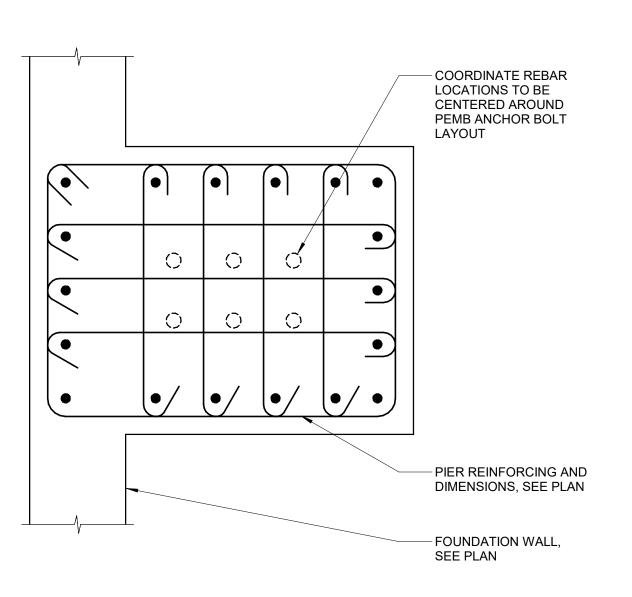
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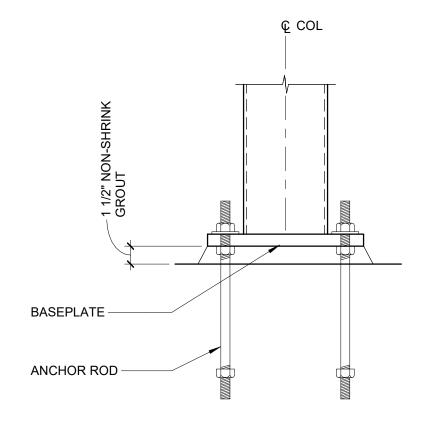
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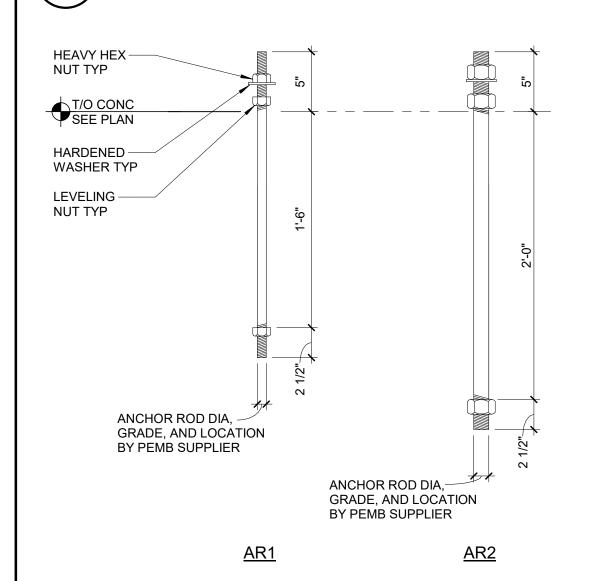








STOOP DETAIL AT EXT DOORWAYS 3/4" = 1'-0"

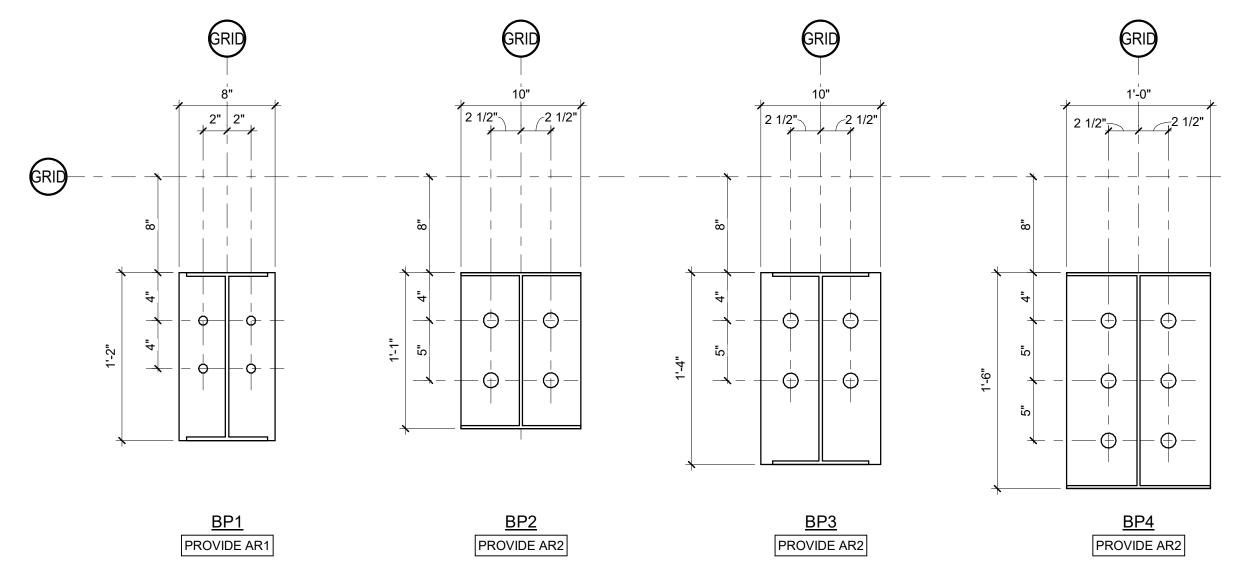


PLAN DETAIL AT EXTERIOR DOORWAYS

3/4" = 1'-0"







S503 ANCHOR ROD DETAIL

1 1/2" = 1'-0"

BASEPLATE TYPES

1 1/2" = 1'-0"

VAA, LLC
2300 Berkshire Lane N, Suite 200
Plymouth, MN 55441
FL Firm Registration No. 31385

CLIENT:
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GREYSTONE CONSTRUCTION



JECT:
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LAKE CITY, FL

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MARK D. MIELKE, P.E.

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