STRUCTURAL GENERAL NOTES

1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWINGS, SPECIFICATIONS, AND GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.
2. CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES, PROCEDURES AND SAFETY ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR SHORING AND BRACING OF ALL ELEMENTS UNTIL THE STRUCTURE IS COMPLETE.
3. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH, AND COORDINATED WITH CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION AND OTHER CONTRACT DOCUMENTS.
4. THE CONTRACTOR SHALL COORDINATE THE LOCATION AND SIZES OF ALL OPENINGS AND PENETRATIONS IN THE STRUCTURAL MEMBERS WITH THE APPLICABLE DISCIPLINES.
5. CONTRACTOR SHALL REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO ENGINEER. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.
6. WIND LOADS FOR MECHANICAL ATTACHMENT SHALL BE CALCULATED USING ASCE 7-10 AND INCORPORATED BY APPLICABLE TRADES. ENGINEER OF RECORD SHALL BE CONTACTED IF MANUFACTURER HAS QUESTIONS ABOUT ATTACHING TO THE STRUCTURAL BUILDING ELEMENTS.

DESIGN INFORMATION

CODES	IBC 2012 / ASCE 7-10	
LIVE LOADS	ROOF	20 psf
	TYPICAL GROUND FLOOR	100 psf
	CONTROL BUILDING ELEVATED FLOOR AND EXTERIOR ELEVATED WALKWAYS	80 psf
	MCC BUILDING FLOOR	275 psf
DEAD LOADS	ACTUAL WEIGHT OF MATERIALS AND EQUIPMENT	
RISK CATEGORY	III (ALL STRUCTURES ON SITE)	
WIND LOADS	WINDSPEED (ULTIMATE)	145 mph
	EXPOSURE CATEGORY	C

CONTROL BUILDING:
ENCLOSURE CLASSIFICATION: ENCLOSED
INTERNAL PRESSURE COEFFICIENT: ±0.18
q_h (ULTIMATE) 47 psf
COMPONENTS AND CLADDING PRESSURES BASED ON 10 $ft.^2$ (ULTIMATE)

WALLS	ZONE 4	+51 psf, -55 psf
	ZONE 5	+51 psf, -68 psf
ROOF	ZONE 1	+23 psf, -56 psf
	ZONE 2	+23 psf, -94 psf
	ZONE 3	+23 psf, -141 psf

DEWATERING BUILDING (PEMB):
AT ENCLOSED PORTION:
ENCLOSURE CLASSIFICATION: ENCLOSED
INTERNAL PRESSURE COEFFICIENT: ±0.18
q_h (ULTIMATE) 43 psf
COMPONENTS AND CLADDING PRESSURES BASED ON 10 $ft.^2$ (ULTIMATE)

WALLS	ZONE 4	+51 psf, -55 psf
	ZONE 5	+51 psf, -68 psf
ROOF	ZONE 1	+25 psf, -64 psf
	ZONE 2	+25 psf, -77 psf
	ZONE 3	+25 psf, -133 psf

SLUDGE DEWATERING DRIVE CANOPY:
ENCLOSURE CLASSIFICATION: OPEN
INTERNAL PRESSURE COEFFICIENT: 0.0
q_h (ULTIMATE) 43 psf
COMPONENTS AND CLADDING PRESSURES BASED ON 9 $ft.^2$ (ULTIMATE)

ROOF	ZONE 1	+65 psf, -68 psf
	ZONE 2	+98 psf, -103 psf
	ZONE 3	+131 psf, -142 psf

UV DISINFECTION CANOPY (PEMB):
ENCLOSURE CLASSIFICATION: OPEN
INTERNAL PRESSURE COEFFICIENT: 0.0
q_h (ULTIMATE) 39 psf
COMPONENTS AND CLADDING PRESSURES BASED ON 14 $ft.^2$ (ULTIMATE)

ROOF	ZONE 1	+59 psf, -61 psf
	ZONE 2	+88 psf, -92 psf
	ZONE 3	+117 psf, -127 psf

DISSOLVED OXYGEN CANOPY (PEMB):
ENCLOSURE CLASSIFICATION: OPEN
INTERNAL PRESSURE COEFFICIENT: 0.0
q_h (ULTIMATE) 39 psf
COMPONENTS AND CLADDING PRESSURES BASED ON 9 $ft.^2$ (ULTIMATE)

ROOF	ZONE 1	+59 psf, -61 psf
	ZONE 2	+88 psf, -92 psf
	ZONE 3	+117 psf, -127 psf

SEISMIC LOAD	SITE CLASS	D
	SIESMIC DESIGN CATEGORY	C
	IMPORTANCE FACTOR, I_e	1.25
	S_{DS}	0.314 g
	S_{D1}	0.183 g
	ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE

HEADWORKS PLATFORM
LATERAL FORCE RESISTING SYSEM — STEEL ORDINARY CONCENTRICALLY BRACED FRAMES

CONTROL BUILDING:
LATERAL FORCE RESISTING SYSTEM — SPECIAL REINFORCED CONCRETE SHEARWALLS AND SPECIAL REINFORCED MASONRY SHEARWALLS

EXCAVATION FOR STRUCTURAL ITEMS

1. THE CONTRACTOR SHALL PROVIDE ALL WORK NECESSARY TO PROTECT EXISTING STRUCTURES AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR, TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE OWNER.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BRACING & SUPPORTS NECESSARY FOR EXCAVATION AND CONSTRUCTION AND ALL EXCAVATIONS SHALL COMPLY WITH APPLICABLE OSHA REGULATIONS.

FOUNDATIONS

1. REFER TO THE GEOTECHNICAL REPORT BY TERRACON, DATED MARCH 15, 2018, PROJECT NUMBER ES185011, AND SPECIFICATIONS FOR REQUIREMENTS AND RECOMMENDATIONS FOR EXCAVATION AND SUBGRADE PREPARATION PRIOR TO PILE, GRADE BEAM AND SLAB INSTALLATION.
2. WHERE APPLICABLE, ALL EXCAVATIONS, COMPACTED FILL, AND SUBGRADES SHALL BE OBSERVED AND TESTED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF GEORGIA TO VERIFY SPECIFIED GEOTECHNICAL CONFORMANCE REQUIREMENTS.
3. PILES SHALL BE 12" SQUARE PRESTRESSED PRECAST CONCRETE PILES. SEE TYPICAL DETAILS, SPECIFICATIONS AND NOTES THIS SHEET FOR REQUIREMENTS.
4. FOUNDATIONS, INCLUDING GRADE BEAMS AND PILE SUPPORTED MAT SLABS, SHALL BE SIDE FORMED.

PRE-CAST PRE-STRESSED PILES

1. PRE-CAST PRE-STRESSED CONCRETE (PSC) PILES SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. PILES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THESE GENERAL NOTES, "PRESTRESSED CONCRETE", ACI 543R-74 "RECOMMENDATIONS FOR DESIGN, MANUFACTURE, AND INSTALLATION OF CONCRETE PILES", PCI JR-382 "RECOMMENDED PRACTICE FOR DESIGN, MANUFACTURE, AND INSTALLATION OF PRE-STRESSED CONCRETE PILING", AND THESE DRAWINGS.
2. PSC PILES SHALL BE MANUFACTURED BY A PLANT CERTIFIED BY THE PCI PLANT CERTIFICATION PROGRAM.
3. AT LEAST 30 DAYS PRIOR TO DRIVING FIRST PILE, CONTRACTOR SHALL SUBMIT A PILE INSTALLATION PLAN TO ENGINEER FOR ACCEPTANCE. THE PLAN SHALL INCLUDE THE FOLLOWING INFORMATION:
   A. LIST OF PROPOSED EQUIPMENT INCLUDING CRANES, DRIVING EQUIPMENT, JETTING EQUIPMENT, COMPRESSORS, HAMMERS AND PRE-DRILLING EQUIPMENT. INCLUDE MANUFACTURER'S DATA SHEETS WITH LIST.
   B. METHODS TO DETERMINE HAMMER ENERGY OR STROKE IN THE FIELD FOR DETERMINATION OF PILE CAPACITY. THE SUBMITTAL SHALL INCLUDE NECESSARY CHARTS AND RECENT CALIBRATIONS FOR ANY PRESSURE MEASURING EQUIPMENT. SUBMITTAL SHALL ALSO INCLUDE THE METHOD FOR MONITORING PILE ADVANCEMENT.
   C. DRAWINGS OF ANY TEMPLATES AND PROPOSED FOLLOWERS.
   D. DETAILS OF PROPOSED LOAD TEST EQUIPMENT AND PROCEDURES INCLUDING RECENT CALIBRATIONS OF JACKS AND REQUIRED LOAD CELLS. SEE PILE LOAD TEST SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
   E. SEQUENCE OF DRIVING PILES.
   F. REQUIRED SHOP DRAWINGS FOR PILES.
   G. METHODS AND EQUIPMENT PROPOSED TO PREVENT DISPLACEMENT OF PILES DURING PLACEMENT AND COMPACTION OF FILL WITHIN 20 FEET OF PILES.
4. SUBMIT A PILE DRIVING RECORD FOR EACH PILE, AS INSTRUCTED IN THE PILE SPECIFICATION, WITHIN THREE DAYS OF DRIVING.
5. NO PILE SHALL BE DRIVEN WITHIN 20 FEET OF CONCRETE THAT IS LESS THAN 4 DAYS OLD.
6. THERE ARE EXISTING PILES ON THE JOBSITE. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF NEW PILES AROUND EXISTING PILES. PILES LOCATED OUTSIDE OF THE FOLLOWING TOLERANCES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
   A. LOCATION ALONG THE LENGTH OF A GRADE BEAM: ±1'-0" FROM THE SPECIFIED LOCATION.
   B. LOCATION IN BOTH DIRECTIONS AT MAT SLABS: ±1'-0" FROM THE SPECIFIED LOCATION.
   C. VARIATION IN SPECIFIED BUTT ELEVATION: -1'-0"
7. PILES SHALL BE CAREFULLY LOCATED TO THE LINES AND SPACING INDICATED ON THE DRAWINGS. PILE BUTTS SHALL NOT BE PULLED INTO REQUIRED LOCATION MORE THAN 2 INCHES. EXTREME CARE SHALL BE EXERCISED IN THE LOCATING AND DRIVING OF PILES SO THAT NO OTHER PILES, UTILITIES OR EXISTING STRUCTURES ARE DAMAGED IN THE PROCESS.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL FIELD ENGINEERING REQUIRED FOR CONSTRUCTION, FURNISHING ALL LINES, GRADES AND CONTROL POINTS.
9. A STEEL DRIVING HEAD SUITABLE FOR THE TYPE AND SIZE OF PILE BEING DRIVEN SHALL BE USED. IT SHALL HOLD PILE IN POSITION, PREVENT DAMAGE TO THE PILE AND TRANSMIT THE HAMMER ENERGY ALONG THE PILE AXIS. THE DRIVING HEAD SHALL FIT LOOSELY ENOUGH AROUND THE PILE HEAD TO ENABLE THE PILE TO ROTATE SLIGHTLY WITHOUT BINDING.
10. SUITABLE CUSHION BLOCKS SHALL BE PROVIDED ABOVE THE DRIVING HEAD AS NECESSARY TO PREVENT DAMAGE TO THE PILE. IT SHALL BE MADE OF A MATERIAL WHICH WILL NOT COMPRESS TO THE EXTENT THAT CUSHION EFFECT IS LOST.
11. PILES ARE TO BE DRIVEN CONTINUOUSLY TO THE MINIMUM TIP ELEVATION AND DESIGN BEARING CAPACITY WITHOUT INTERRUPTION.
12. SPECIFIED PILE LENGTH IS AN ESTIMATE BASED UPON GEOTECHNICAL RECOMMENDATIONS. FIRST PRODUCTION PILE SHALL BE TESTED AND PILE CAPACITY VERIFIED PRIOR TO REMAINING PILE INSTALLATIONS.
13. PRACTICAL REFUSAL SHALL BE DEFINED AS 2.5 TIMES THE DESIGN BEARING CAPACITY WITH A MINIMUM PENETRATION OF 40'-0" BELOW EXISTING GRADE.
14. IN THE EVENT THAT HEAVE OF A PREVIOUSLY DRIVEN PILE OCCURS, THE PILE SHALL BE REDRIVEN TO ITS ORIGINAL LOCATION WITH A DRIVING RESISTANCE AT LEAST AS GREAT AS THE ORIGINAL DRIVING RESISTANCE.
15. THE ALLOWABLE DEVIATION FROM THE INDICATED LOCATIONS SHALL BE 3 INCHES FOR ANY ONE PILE. THE SUM OF DEVIATIONS FOR ANY TWO PILES SHALL NOT EXCEED 6 INCHES. THE ALLOWABLE DEVIATION FROM THE INDICATED PILE CUTOFF ELEVATION SHALL BE 4 INCHES. ALLOWABLE DEVIATION FROM VERTICAL PLUMB IS 1 IN 48.
16. IF A PILE IS INSTALLED THAT EXCEEDS THE ALLOWABLE TOLERANCES SPECIFIED HEREIN, ENGINEER SHALL BE CONTACTED IMMEDIATELY. IF IT IS DETERMINED THAT THE OUT OF TOLERANCE IS CAUSED BY CONTRACTOR'S INSTALLATION, CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REDESIGN EFFORTS THAT RESULT.
17. ALL PILES SHALL BE CUT OFF AT THE REQUIRED ELEVATION AT A RIGHT ANGLE TO THE AXIS OF THE PILE. CUTTING SHALL BE PERFORMED IN A MANNER TO AVOID DAMAGE TO THE PILE BELOW THE CUTOFF ELEVATION.
18. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PILE FOUNDATION TO THE ENGINEER BEFORE ANY PILE INSTALLATION.

PILE TESTING PROGRAM

1. ONE PILE SHALL UNDERGO DYNAMIC PILE ANALYSIS DURING INSTALLATION. THIS PILE SHALL BE THE FIRST OF THE PRODUCTION PILES AND SHALL BE DRIVEN AT A LOCATION SELECTED BY THE CONTRACTOR.
2. METHODS AND EQUIPMENT USED FOR INSTALLATION OF TEST PILE SHALL BE SAME METHODS AND EQUIPMENT USED FOR INSTALLATION OF PRODUCTION PILES.
3. ADDITIONAL PILE LOAD TEST REQUIREMENTS ARE PROVIDED IN THE PROJECT SPECIFICATIONS.

REINFORCED CONCRETE

1. UNLESS NOTED OTHERWISE, ALL CONCRETE WORK, DETAILING, FABRICATION, AND PLACING, INCLUDING MIN COVER REQUIREMENTS OF REINFORCING BARS (EXCEPT AS NOTED HEREIN) AND CONCRETE SHALL BE GOVERNED BY THE LATEST REVISIONS OF:
   A. ACI 301, ACI 315, AND ACI 318
   B. CRSI RECOMMENDED PRACTICE OF PLACING REINFORCING BARS
   C. ACI 306 AND ACI 305 FOR COLD AND HOT WEATHER CONCRETING, RESPECTIVELY
2. ALL CONCRETE SHALL BE NORMAL WEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 pcf, AND SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 psi UNLESS NOTED OTHERWISE.
3. ALL CONCRETE FOR ELEVATED FLOORS SHALL BE LIGHTWEIGHT WITH A MAXIMUM UNIT WEIGHT OF 150 pcf, AND SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 psi
4. CONCRETE MIX DESIGNS, IN ACCORDANCE WITH ACI RECOMMENDATIONS, SHALL BE SUBMITTED TO THE ENGINEER AND TESTING AGENCY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE REQUIRED CONCRETE DESIGN STRENGTH.
5. USE OF CALCIUM CHLORIDE, CHLORIDE IONS, OR OTHER SALTS IN CONCRETE IS NOT PERMITTED.
6. THE AIR CONTENT IN ALL CONCRETE EXPOSED TO WEATHER SHALL BE BETWEEN 2% AND 5%.
7. THE TESTING AGENCY SHALL SAMPLE AND TEST EACH 50 CU. YARDS OR FRACTION THEREOF OF EACH CLASS OF CONCRETE PLACED EACH DAY. SAMPLE CONCRETE IN ACCORDANCE WITH ASTM C172. PERFORM THE FOLLOWING TESTS IN ACCORDANCE WITH THE INDICATED STANDARD:
   A. SLUMP: ASTM C143
   B. AIR CONTENT: ASTM C173
   C. COMPRESSIVE STRENGTH: ASTM C39, WITH ONE CYLINDER AT 7 DAYS, 2 CYLINDERS AT 28 DAYS, AND ONE SPECIMEN HELD IN RESERVE.
7. DETAIL CONCRETE REINFORCEMENT AND ACCESSORIES IN ACCORDANCE WITH ACI 315 "DETAILING MANUAL". SUBMIT SHOP DRAWINGS FOR ACCEPTANCE SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING REINFORCING STEEL AND ACCESSORIES. DO NOT BEGIN FABRICATION UNTIL SHOP DRAWINGS ARE COMPLETED AND ACCEPTED.
8. REINFORCING STEEL SHALL CONFORM TO ASTM A615, AND SHALL BE GRADE 60 UNLESS OTHERWISE NOTED.
9. LAP SPLICES SHALL BE AS SHOWN IN THE TABLE PROVIDED IN THESE NOTES, OR DETAILS IN THESE CONSTRUCTION DRAWINGS, AND SHALL CONFORM TO ACI 318. SHOULD CONFLICTS EXIST, THE STRICTEST PROVISION SHALL APPLY.
10. REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS UNLESS NOTED OTHERWISE.
11. WELDING OF REINFORCING STEEL IS NOT PERMITTED.
12. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:

A.	CONCRETE CAST AGAINST EARTH (NOT FORMED)	3"
B.	CONCRETE EXPOSED TO EARTH OR WEATHER #5 & SMALLER	1½"
C.	CONCRETE EXPOSED TO EARTH OR WEATHER #6-18	2"
D.	CONCRETE NOT EXPOSED TO EARTH OR WEATHER, SLABS & WALLS <=#11	1"
E.	CONCRETE NOT EXPOSED TO EARTH OR WEATHER, BEAMS & COLUMNS	1½"

17. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 90 MINUTES AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES. ADDITION OF WATER TO THE MIX AT THE PROJECT SITE WILL NOT BE ALLOWED. ALL WATER MUST BE ADDED AT THE BATCH PLANT.
18. PROVIDE A CONTINUOUS VAPOR BARRIER UNDER ALL CONCRETE SLABS AT INTERIOR SPACES CONFORMING TO ASTM E1745 (15 MIL).
19. REINFORCEMENT SPLICE/LAP LENGTH, HOOK DEVELOPMENT AND HOOK LENGTH TABLE SHOWN IS BASED UPON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4,000 psi AND 60,000 psi REINFORCEMENT (WITH NO EPOXY COATING).
20. THE MINIMUM SPLICE/LAP LENGTH IS BASED UPON A 6" CENTER TO CENTER BAR SPACING AND A 2" BAR COVER. IF THE SPLICE/LAP CONDITION DOES NOT CONFORM TO THESE PARAMETERS, THE REQUIREMENTS OF ACI 318 SHALL BE CALCULATED (BY REINFORCING DESIGNER) FOR THE SPECIFIC CONDITION. THE STRICTER OF THE TWO (VALUES IN TABLE OR THOSE CALCULATED) SHALL CONTROL.
21. ALL LAP SPLICES SHALL BE CLASS B. IF SPLICES ARE INDICATED BETWEEN BARS OF DIFFERENT SIZES, THE SPLICE LENGTH SHALL BE BASED UPON THE SMALLER BAR SIZE. INCREASE BY 1.3 FOR TOP BARS WITH MORE THAN 12" OF CONCRETE BELOW.

REINFORCEMENT LAP SPLICE, HOOK DEVELOPMENT AND LENGTH FOR REINFORCED CONCRETE

BAR SIZE	BAR DIAMETER, in.	SPLICE LAP LENGTH, in.	HOOK DEVELOPMENT, in.	HOOK LENGTH, in.
#3	0.375	19	8	5
#4	0.50	25	10	6
#5	0.625	31	12	8
#6	0.750	37	15	9
#7	0.875	54	17	11
#8	1.0	62	19	12
#9	1.128	70	22	14

METAL DECK

1. UNLESS NOTED OTHERWISE, THE METAL DECK SHALL BE HOT DIP GALVANIZED, CONFORMING TO THE STEEL DECK INSTITUTE (SDI) SPECIFICATIONS, LATEST EDITION.
2. FLOOR DECK AT CONTROL BUILDING SHALL BE 1.5VL x 20 GAUGE METAL DECK, SHALL BE GALVANIZED AND SHALL HAVE THE FOLLOWING MIN SECTION PROPERTIES: S_p = 0.231 in^3/ft. AND I_p = 0.195 in^4/ft. DECK SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM AND SHALL BE ATTACHED TO EACH SUPPORT AT ALTERNATE FLUTES WITH ⅝ INCH DIAMETER PUDDLE WELDS, TO SUPPORTS AT EDGES OF FLOOR PARALLEL TO DECK SPAN WITH ⅝ INCH DIAMETER PUDDLE WELDS AT 6 INCHES ON CENTER, AND AT SIDELAPS WITH 8 NO. 10 SCREWS PER SPAN OF DECK BETWEEN SUPPORTS.
3. ROOF DECK AT CONTROL BUILDING SHALL BE 1.5B x 20 GAUGE METAL DECK, SHALL BE GALVANIZED AND SHALL HAVE THE FOLLOWING MIN SECTION PROPERTIES: S_p = 0.234 in^3/ft. AND I_p = 0.212 in^4/ft. DECK SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM AND SHALL BE ATTACHED TO EACH SUPPORT AT EACH FLUTE WITH #12 SCREWS, TO SUPPORTS AT EDGES OF ROOF PARALLEL TO DECK SPAN WITH #12 SCREWS AT 6 INCHES ON CENTER, AND AT SIDELAPS WITH 8 NO. 10 SCREWS PER SPAN OF DECK BETWEEN SUPPORTS.
4. SHORE ALL SINGLE SPAN FLOOR METAL DECK (AND ANY OTHER DECK SPAN LOCATIONS NOTED ON THE DRAWINGS AS REQUIRING SHORING) UNTIL CONCRETE HAS BEEN POURED AND HAS REACHED 75 PERCENT OF THE REQUIRED 28 DAY COMPRESSIVE STRENGTH.
5. FRAME OPENINGS IN FLOOR OR ATTIC SLAB, NOT DETAILED ELSEWHERE, AND ALL OPENINGS GREATER THAN 12" x 12", WITH L3½ x 3½ x 5/16 AT ALL FOUR SIDES OF OPENING. AT MECHANICAL OR OTHER EQUIPMENT SUPPORTS NOT DETAILED ELSEWHERE, PROVIDE L3½ x 3½ x 5/16 BENEATH ALL UNIT CURBS AND AT ALL EDGES OF OPENINGS FOR DUCTWORK. CONNECT ANGLES TO EACH OTHER AND TO STEEL FRAMING WITH A MINIMUM OF 4 INCHES OF 3/16 INCH FILLET WELD. AT MECHANICAL UNITS SUSPENDED FROM ROOF STRUCTURE, SUPPORT UNITS FROM TRUSS PANEL POINTS ONLY. PROVIDE SUPPLEMENTAL FRAMING AS DESIGNED AND DETAILED BY TRUSS MANUFACTURER TO PROVIDE SUPPORT FOR EQUIPMENT.
6. DECKING SHALL BE ERECTED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. MANUFACTURER SHALL BE A MEMBER OF THE STEEL DECK INSTITUTE.
7. SUBMIT PRODUCT DATA, INCLUDING SPAN TABLES, FOR REVIEW.
8. TOUCH UP AREAS DAMAGED IN HANDLING AND ERECTION WITH COLD GALVANIZING REPAIR PAINT.
9. CHALKLINES OR OTHER METHODS SHALL BE USED TO ENSURE THAT DECK WELDS ARE ALIGNED WITH AND WILL OCCUR OVER THE TOP CHORD OF JOISTS OR TOP FLANGE OF BEAMS. EXCESSIVE BLOWTHROUGH IN THE DECK DUE TO MISALIGNMENT OR EXCESSIVE HEAT WILL NOT BE TOLERATED. IF, IN THE OPINION OF THE ARCHITECT OR HIS REPRESENTATIVE, EXCESSIVE BLOWTHROUGH IN THE DECK HAS OCCURRED, THE CONTRACTOR SHALL REPLACE THE DAMAGED DECK AT HIS EXPENSE.

MASONRY

1. CONCRETE MASONRY DESIGN AND CONSTRUCTION SHALL CONFORM TO THE LATEST EDITIONS OF THE FOLLOWING: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530 /ASTM 5/ TMS 402 AND SPECIFICATIONS FOR MASONRY STRUCTURES, ACI 530.1 / ASTM 6 / TMS 602.
2. UNLESS NOTED OTHERWISE, PROVIDE HOLLOW, LIGHTWEIGHT, LOAD BEARING CONCRETE MASONRY UNITS (CMU) CONFORMING TO ASTM C90, TYPE I, WITH A DENSITY LESS THAN 105 pcf.
3. PROVIDE CONCRETE MASONRY WITH A MINIMUM COMPRESSIVE STRENGTH, f'_m = 1,900 psi.
4. PROVIDE TYPE "S" MORTAR IN ACCORDANCE WITH ASTM C270 WITH A COMPRESSIVE STRENGTH OF 2,000 psi UNLESS NOTED OTHERWISE.
5. PROVIDE GROUT FOR REINFORCED MASONRY IN ACCORDANCE WITH ASTM C476 WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 psi UNLESS NOTED OTHERWISE. GROUT SOLID ALL CELLS CONTAINING REINFORCING.
6. LAP SPLICES SHALL BE AS SHOWN IN THE TABLE PROVIDED IN THESE NOTES AND SHALL CONFORM TO ACI 530. SHOULD CONFLICTS EXIST, THE STRICTEST PROVISION SHALL APPLY:

REINFORCEMENT LAP SPLICE, HOOK DEVELOPMENT AND LENGTH FOR CONCRETE MASONRY UNITS

BAR SIZE	BAR DIAMETER, in.	SPLICE LAP LENGTH, in.	HOOK DEVELOPMENT, in.	HOOK LENGTH, in.
#4	0.50	17	9	6
#5	0.625	27	9	8
#6	0.750	50	10	9
#7	0.875	67	12	11
#8	1.0	88	13	12

7. PROVIDE TRUSS OR LADDER TYPE HORIZONTAL JOINT REINFORCEMENT COMPLYING WITH ASTM A82 AND ZINC COATED, AS SPECIFIED HEREIN.
8. LAY MASONRY UNITS IN RUNNING BOND PATTERN UNLESS NOTED OTHERWISE.
9. BOND BEAMS, CMU LINTELS, MASONRY BENEATH STEEL BEAM AND JOIST BEARINGS, AND OTHER STRUCTURAL ELEMENTS SHALL EXTEND UNINTERRUPTED ACROSS CONTROL JOINTS. PROVIDE RAKED JOINTS IN THESE ELEMENTS TO MATCH THE CONTROL JOINTS.
10. INSTALL MASONRY WALLS IN 4'-0" MAXIMUM LIFTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AND AISC 303 "THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
2. SHOP DRAWINGS PREPARED IN ACCORDANCE WITH THE LATEST "STRUCTURAL STEEL DETAILING MANUAL" OF THE AISC SHALL BE SUBMITTED FOR APPROVAL. NO FABRICATION SHALL BEGIN UNTIL SHOP DRAWINGS ARE COMPLETED AND APPROVED.
3. STRUCTURAL STEEL WIDE FLANGE SECTIONS (WF) SHALL CONFORM TO ASTM A572 GRADE 50.
4. STRUCTURAL STEEL TUBE SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE B.
5. ALL OTHER STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36 UNLESS NOTED OTHERWISE.
6. STRUCTURAL STEEL FRAMING EXPOSED TO THE WEATHER AND EXTERIOR, AND WHERE IN CONTACT WITH MASONRY OR CONCRETE, SHALL BE HOT DIP GALVANIZED. WHERE REQUIRED FOR PAINTING, GALVANIZING SHALL BE NON-QUENCHED. ALL EXTERIOR STEEL SHALL HAVE A 2-COAT PAINT SYSTEM COMPATIBLE WITH GALVANIZED STEEL.
7. WELDING SHALL COMPLY WITH AWS CODE D1.1 AND SHALL BE PERFORMED BY CERTIFIED WELDERS.
8. WHERE WIDE FLANGE FLOOR BEAMS SPAN PARALLEL TO OPEN WEB JOISTS, WIDE FLANGE BEAMS SHALL BE CAMBERED TO MATCH.
9. BOLTS FOR STEEL TO STEEL CONNECTIONS SHALL CONFORM TO ASTM A325 TYPE N AND SHALL BE TIGHTENED TO MEET SNUG TIGHT REQUIREMENTS PER THE AISC MANUAL OF STEEL CONSTRUCTION.
10. ANCHOR RODS FOR COLUMNS SHALL BE PROVIDED WITH A DOUBLE NUT AND WASHER AT THE EMBEDDED END AND SHALL CONFORM TO ASTM F1544 GRADE 36 (MINIMUM).
11. DO NOT USE GAS CUTTING TORCHES FOR CORRECTING FABRICATION ERRORS IN THE STRUCTURAL FRAMING.
12. PACK UNDER BASE PLATES WITH NON-SHRINK, HIGH STRENGTH GROUT (MINIMUM 6,000 psi) AFTER SETTING AND LEVELING.
13. CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING, AND GUYING OF STEEL FRAMING AGAINST WIND LOADS, CONSTRUCTION LOADS, AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAME.

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED No. 26741 PROFESSIONAL ENGINEER FRED SOROKIAN

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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SAVANNAH savannahga.gov

TRAVIS FIELD WATER RECLAMATION FACILITY

STRUCTURAL GENERAL NOTES

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S0.0

STRUCTURAL GENERAL NOTES CONT.

PRE-ENGINEERED METAL BUILDING (PEMB)

1. THE DESIGN OF THE FOLLOWING PRE-ENGINEERED METAL BUILDING SYSTEMS WILL BE THE SOLE RESPONSIBILITY OF THE MANUFACTURER AND SHALL BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE.
   A. CRANE RAIL CANOPY ADJACENT TO THE CONTROL BUILDING
   B. CRANE, GRATING, AND MONORAIL FOR RAS PUMP
   C. DE-WATERING BUILDING
   D. UV DISINFECTION CANOPY
   E. DISSOLVED OXYGEN CANOPY
   F. SLUDGE PUMP CANOPY

   THE DESIGNS SHALL BE IN COMPLIANCE WITH THE IBC 2015 BUILDING CODE IN ADDITION TO THE LOAD AND DEFLECTION REQUIREMENTS SPECIFIED IN THESE DRAWINGS.
2. THE FOUNDATIONS HAVE BEEN DESIGNED BASED ON ASSUMED COLUMN REACTIONS. THE PRE-ENGINEERED METAL BUILDING MANUFACTURER SHALL SUBMIT ACTUAL DESIGN REACTIONS TO THE STRUCTURAL ENGINEER OF RECORD FOR VERIFICATION OF FOUNDATION PRIOR TO CONSTRUCTION.
3. THE ANCHOR ROD SIZES, QUANITITES AND EMBEDMENT DEPTHS SHOWN IN THE DETAILS ARE MINIMUM REQUIREMENTS. FINAL ANCHOR ROD SIZE, TOTAL LENGTH, AND LOCATION TO BE BY METAL BUILDING SUPPLIER.
4. METAL BUILDING SUPPLIER TO VERIFY COLUMN LAYOUTS AND LOCATIONS OF TRANSVERSE LATERAL FORCE RESISTING SYSTEMS (ORTHOGONAL TO METAL BUILDING FRAMES) FOR EACH STRUCTURE. ANY CHANGES MUST BE SUBMITTED FOR REVIEW OF FOUNDATION DESIGN BEFORE CONSTRUCTION STARTS.
5. DEFLECTION LIMITS SHALL BE AS FOLLOWS:

ROOF MEMBERS (PURLINS & FRAMES):	LIVE LOAD DEAD + LIVE LOAD	L/360 L/240
WALL MEMBERS (GIRTS & COLUMNS):	SUPPORTING METAL PANELS	L/240
BUILDING DRIFT:	H/240, WHERE H IS THE BUILDING EAVE HEIGHT	

6. ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE SUBJECT TO THE APPROVAL OF THE PROJECT MANAGER/ARCHITECT AND STRUCTURAL ENGINEER. ALL DEVIATIONS SHALL BE EXPRESSLY LISTED AND DEFINED IN THE SHOP DRAWING SUBMITTAL. PROJECT MANAGER/ARCHITECT AND STRUCTURAL ENGINEER ARE NOT RESPONSIBLE FOR DISCOVERY OF DEVIATIONS NOT LISTED, AND ACCEPTANCE OF UNLISTED DEVIATIONS SHALL NOT BE IMPLIED.

PRE-FABRICATED OPEN WEB STEEL JOISTS (CONTROL BUILDING)

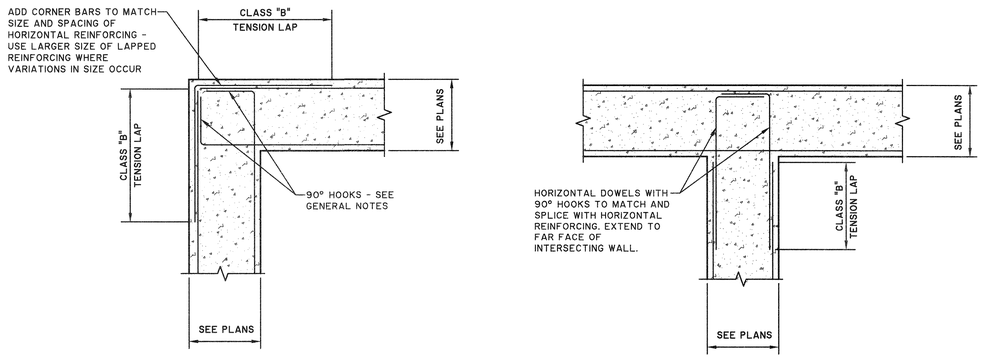
1. JOISTS SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE AISC AND THE STEEL JOIST INSTITUTE.
2. PRIOR TO FABRICATION, SIZES OF ROOF JOISTS SPECIFIED IN THESE STRUCTURAL DRAWINGS MUST BE VERIFIED BY THE JOIST SUPPLIER FOR ACCEPTABILITY WITH THE NET UPLIFT GIVEN IN THE DETAILS.
3. PRIOR TO FABRICATION, SIZES OF JOISTS SPECIFIED IN THESE STRUCTURAL DRAWINGS MUST BE VERIFIED BY THE JOIST SUPPLIER FOR ALL POSSIBLE POINT LOADS NOT SHOWN IN THESE STRUCTURAL DRAWINGS THAT MAY OCCUR FROM MECHANICAL EQUIPMENT. COORDINATE WITH MECHANICAL DRAWINGS. ANY REINFORCING AT POINT LOADS THAT MAY BE REQUIRED MUST BE COORDINATED WITH THE REQUIREMENTS OF THE JOIST SUPPLIER.
4. PRIOR TO FABRICATION, JOIST SUPPLIER SHALL PROVIDE CALCULATIONS, PRODUCT DATA, MATERIAL PROPERTIES AND CONNECTION DETAILS FOR ALL JOISTS THAT SHALL CONFORM TO THE REQUIREMENTS OF THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
5. JOISTS SHALL HAVE THE STANDARD SJI CAMBER FOR THE JOIST SIZE AND SPAN.
6. BAR JOIST BEARINGS SHALL BE DESIGNED AND DETAILED BY THE BAR JOIST MANUFACTURER SO THAT THE BEARING IS CENTERED OVER THE SUPPORT (WALL OR BEAM), UNLESS DETAILED OTHERWISE.
7. LOCATIONS OF JOISTS MAY BE SHIFTED, SUBJECT TO ACCEPTANCE BY THE STRUCTURAL ENGINEER OF RECORD, TO ALLOW FOR PENETRATIONS.

SPECIAL INSPECTIONS

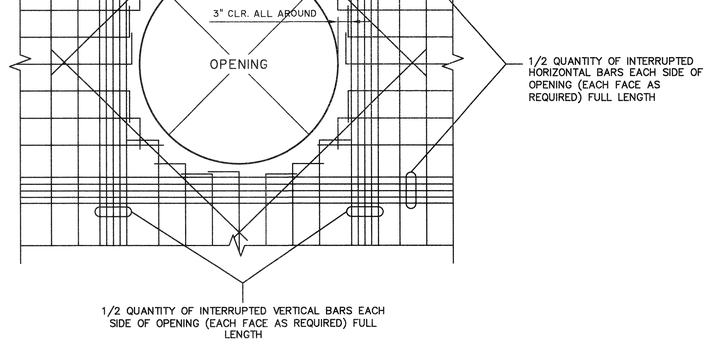
1. THE OWNER SHALL EMPLOY SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION AS NOTED HEREIN.
2. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO DEMONSTRATES COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR THE INSPECTION OF THE ASSIGNED TYPE OF CONSTRUCTION OR OPERATION.
3. SPECIAL INSPECTION PROCEDURES SHALL BE COMPLETED IN ACCORDANCE WITH IBC 2015, CHAPTER 17. AT A MINIMUM, SPECIAL INSPECTIONS SHALL INCLUDE THE ITEMS LISTED ON THIS SHEET. IF CONFLICTS EXIST BETWEEN THE CODE AND THE REQUIREMENTS STATED HEREIN, THE STRICTEST PROVISION SHALL GOVERN.

SCHEDULE OF SPECIAL INSPECTIONS

INSPECTION/TESTING	CODE REFERENCE	FREQUENCY
VISUAL STRUCTURAL OBSERVATION OF STRUCTURAL SYSTEM(S) FOR CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF STRUCTURAL SYSTEM(S)	IBC SECTION 1705.6	PERIODIC
COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS	IBC SECTION 1704	PERIODIC
SUBGRADE PREPARATION	IBC TABLE 1705.6	PER REQUIREMENTS OF TABLE 1705.6
DRIVEN PILES – VERIFY MATERIALS, SIZES AND LENGTHS	IBC TABLE 1705.7	CONTINUOUS
DRIVEN PILES – DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS AS REQUIRED	IBC TABLE 1705.7	CONTINUOUS
DRIVEN PILES – INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	IBC TABLE 1705.7	CONTINUOUS
DRIVEN PILES – VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATIONS TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENT	IBC TABLE 1705.7	CONTINUOUS
DRIVEN PILES – PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS PER IBC INSPECTION REQUIREMENTS FOR CONCRETE ELEMENTS	IBC TABLE 1705.7, IBC SECTION 1705.3	–
CONCRETE REINFORCEMENT	IBC TABLE 1705.3	PERIODIC – PRIOR TO EACH POUR
ANCHORS CAST IN CONCRETE	IBC TABLE 1705.3	PERIODIC – PRIOR TO EACH POUR
CONCRETE CURING	IBC TABLE 1705.3	PERIODIC – AFTER EACH POUR
CONCRETE TESTING	IBC TABLE 1705.3	CONTINUOUS – WITH EACH POUR
VERIFICATION OF THE USE OF REQUIRED MIX DESIGN	IBC TABLE 1705.3	PERIODIC – PRIOR TO EACH POUR
INSPECTION OF CONCRETE PLACEMENT TECHNIQUES	IBC TABLE 1705.3	CONTINUOUS – WITH EACH POUR
INSPECTION OF CONCRETE FORMWORK	IBC TABLE 1705.3	PERIODIC – PRIOR TO EACH POUR
VERIFY COMPLIANCE OF GROUT, MORTAR AND MASONRY SPECIMENS WITH APPROVED SUBMITTALS	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC
MASONRY MORTAR AND CONSTRUCTION OF MORTAR JOINTS	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – PRIOR TO AND DURING CONSTRUCTION
LOCATION OF REINFORCEMENT, CONNECTORS AND ANCHORAGES FOR MASONRY	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – PRIOR TO GROUTING
GRADE, TYPE AND SIZE OF REINFORCEMENT AND ANCHORAGES FOR MASONRY	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – PRIOR TO GROUTING
GROUT SPACE FOR MASONRY	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – PRIOR TO GROUTING
PROPORTIONS OF SITE-PREPARED GROUT FOR MASONRY	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – PRIOR TO GROUTING
PLACEMENT OF GROUT FOR MASONRY	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	CONTINUOUS – DURING CONSTRUCTION
VERIFY SIZE AND LOCATION OF STRUCTURAL ELEMENTS	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – DURING CONSTRUCTION
PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING HOT AND COLD WEATHER	IBC SECTION 1705.4, ACI 530 TABLE 3.1.2	PERIODIC – DURING CONSTRUCTION
STRUCTURAL STEEL MATERIAL	IBC SECTION 1705.2, AISC 360	PERIODIC – DURING CONSTRUCTION
WELDING OF STRUCTURAL STEEL	IBC SECTION 1705.2, AISC 360, AWS D1.1/D1.1M	PERIODIC – DURING CONSTRUCTION
BOLTING OF STRUCTURAL STEEL	IBC SECTION 1705.2, AISC 360	PERIODIC – DURING CONSTRUCTION
STRUCTURAL STEEL CONSTRUCTION, GENERAL	IBC SECTION 1705.2, AISC 360	PERIODIC – DURING CONSTRUCTION
INSTALLATION OF OPEN-WEB STEEL JOISTS – BEARING CONNECTIONS	IBC TABLE 1705.2.3	PERIODIC – DURING CONSTRUCTION
INSTALLATION OF OPEN-WEB STEEL JOISTS – BRIDGING	IBC TABLE 1705.2.3	PERIODIC – DURING CONSTRUCTION
INSTALLATION OF STEEL DECK	IBC SECTION 1705.2.2, SDI QA/QC	PERIODIC – DURING CONSTRUCTION



1 / S0.1 **CONCRETE R/F AT CORNERS & INTERSECTIONS**
3/4" = 1'-0"



2 / S0.1 **REINFORCING AROUND OPENINGS**
3/4" = 1'-0"

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORGNIER

BID SET - NOT FOR CONSTRUCTION

NO.	ISSUED FOR BIDS	BY	DATE
	REVISIONS	COR	5-01-19

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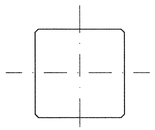
TRAVIS FIELD WATER RECLAMATION FACILITY

STRUCTURAL NOTES AND TYPICAL DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

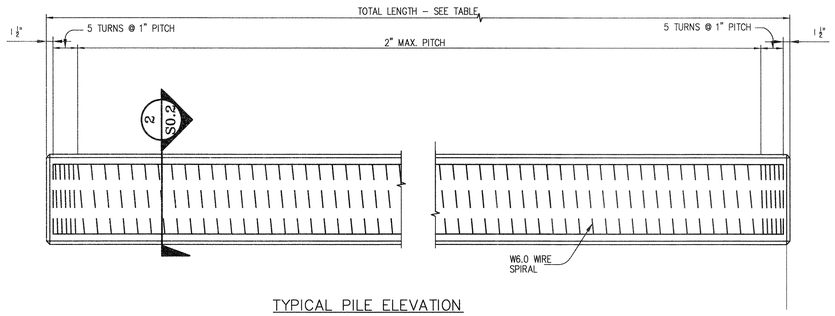
S0.1



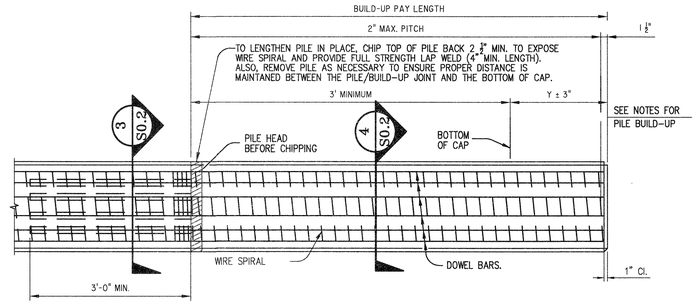
PILE ORIENTATION DETAIL

"TOP SIDE" IS THE TOP SURFACE OF THE PILE WHEN IT WAS POURED IN THE CASTING BED.

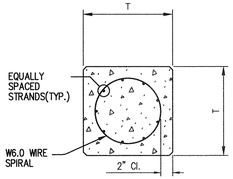
SPECIFIC PILE ORIENTATION NOT APPLICABLE THIS PROJECT



TYPICAL PILE ELEVATION



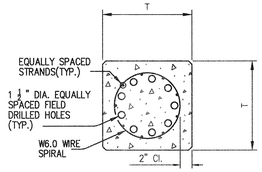
BUILD-UP



2 / S0.2 **PILE CROSS SECTION**

N.T.S

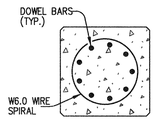
1. SEE TABLE FOR NUMBER OF STRANDS AND DOWELS.



3 / S0.2 **PILE CROSS SECTION – BUILD UP**

N.T.S

1. FIELD DRILL DOWEL HOLES. LOCATE DOWEL HOLES TO PROVIDE 1/2" CL. TO WIRE SPIRAL.
2. SEE TABLE FOR NUMBER OF STRANDS AND DOWELS – THIS DETAIL NOT TO BE USED FOR PROVIDING NUMBER OF STRANDS AND DOWELS.



4 / S0.2 **PILE CROSS SECTION – BUILD UP**

N.T.S

1. SEE TABLE FOR NUMBER OF STRANDS AND DOWELS – THIS DETAIL NOT TO BE USED FOR PROVIDING NUMBER OF STRANDS AND DOWELS.

PILE DATA: VERTICAL

LOCATION	TOTAL LENGTH	PILE SIZE T	PILE EMBEDMENT Y	STRAND	STRESS (ksi)	DOWEL BARS	MAXIMUM L: 1 PICK-UP POINT	MAXIMUM L: 2 PICK-UP POINTS	PILE POINT SIZE
MBR BASINS	55'-0"	12"	6"	8 – .5"	1.734	6 – #6	66'	94'	N/A
MBR BLDG	55'-0"	12"	6"	8 – .5"	1.734	6 – #6	66'	94'	N/A
MCC BLDG	45'-0"	12"	6"	8 – .5"	1.734	6 – #6	66'	94'	N/A
ALL OTHER	45'-0"	12"	6"	8 – .5"	1.734	6 – #6	66'	94'	N/A

STRAND DATA

DIAMETER	AREA (in^2)	TENSIONING LOAD
0.5"	0.153	31 kips

NOTES FOR BUILD–UP

CHIP BACK TOP OF PILES AND FIELD DRILL HOLES AS SHOWN. GROUT DOWEL BARS IN THE HOLES USING AN APPROVED NON–SHRINK GROUT WITH F'C = 5 KSI. TERMINATE DOWEL BARS 1" CLEAR FROM THE TOP OF PILE. SUBMIT DOWEL BAR LENGTHS TO THE RCE FOR APPROVAL. INCLUDE ALL COSTS ASSOCIATED WITH PREPARATION OF THE PILE FOR BUILD–UP IN THE UNIT PRICE BID FOR PILE BUILD–UP PREPARATION.

BUILD UP ALL PILES THAT HAVE AN EMBEDMENT LENGTH LESS THAN THE MINIMUM SHOWN IN THE PLANS. USE THE BUILD–UP DETAILS SHOWN ON THIS SHEET. THE OPTION IS AVAILABLE TO CAST BUILD–UPS WITH BENT CAPS PROVIDED REBAR AND WIRE SPIRAL ARE CONTINUED A DISTANCE EQUAL TO "Y" INTO THE CAP AND THE CAP IS CAST WITH CLASS 5000 CONCRETE. PAY FOR CAP CONCRETE AS CLASS 4000 CONCRETE REGARDLESS OF THE ACTUAL CLASS USED. INCLUDE AN EMBEDMENT LENGTH OF "Y" IN THE PILE BUILD–UP LENGTH MEASURED FOR PAYMENT. PAY FOR THE PILE BUILD–UP, INCLUDING ALL COSTS FOR DOWEL BARS, WIRE SPIRALS, AND BUILD–UP CONCRETE AS AN ADDITIONAL LENGTH OF PRESTRESSED CONCRETE PILING EQUAL TO THE BUILD–UP PAY LENGTH SHOWN IN THE BUILD–UP DETAIL.

GENERAL NOTES

CHAMFER ALL EXPOSED EDGES ¾" UNLESS NOTED OTHERWISE.

ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERS OF BARS (EXCEPT AS NOTED).

RELEASE ALTERNATE STRANDS SIMULTANEOUSLY AT OPPOSITE ENDS WITHOUT SHOCK.

TIE WIRE SPIRAL TO CABLES AND REINFORCING BARS AS REQUIRED TO MAINTAIN PITCH OF THE SPIRAL. SPLICE WIRE SPIRAL USING FULL STRENGTH LAP WELDS.

ANCHOR THE PILES INTO THE BENT CAPS USING THE DETAILS SHOWN ON THIS SHEET. INCLUDE ALL COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE PILING.

MATERIALS

PRESTRESSING STRAND	GRADE 270, LOW RELAXATION AASHTO M 203
WIRE SPIRAL	AASHTO M 32, M 225
REINFORCING STEEL	GRADE 60 ASTM A 706
CONCRETE	CLASS 5000 STANDARD SPEC. SECT. 701
W OR HP PILE POINT	GRADE 50 AASHTO M 270
STUDS	GRADE 1015, 1018, OR 1020 AASHTO M 169

(1) EXTENSION MAY BE ATTACHED TO EMBEDDED PORTION OF PILE POINT PRIOR TO HANDLING, TRANSPORTING, AND ERECTING THE COMPOSITE PILE.

(2) DETERMINE PICK–UP POINTS USING THE FOLLOWING:

1. DETERMINE MAXIMUM LENGTHS FOR PICK–UP OF THE COMPOSITE PILE (AS A UNIT OR IN PARTS) USING THE FOLLOWING LOAD ASSUMPTION AND ALLOWABLE STRESSES.
   - A. LOADING: 1[TIMES THE FULL DEAD LOAD
   - B. ALLOWABLE TENSILE STRESS IN PRECAST, PRESTRESSED CONCRETE PORTION OF THE PILE: 0.158 F'C (KSI)
   - C. ALLOWABLE BENDING STRESS IN PILE POINT SECTION: 20 KSI.
2. STRESS AND LOADING CRITERIA ARE BASED ON NORMAL CARE IN HANDLING THE PILE. IF HANDLING IS SUCH THAT DAMAGE IN THE PILE BECOMES EVIDENT, THE ENGINEER MAY REQUIRE A HIGHER LOAD FACTOR OR LOWER ALLOWABLE STRESS AS NECESSARY TO INSURE NO DAMAGE TO PILES.
3. MARK PILES AT PICK–UP POINTS TO INDICATE PROPER POINTS FOR ATTACHING HANDLING LINES.

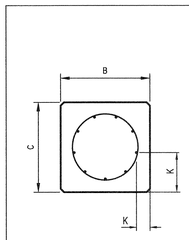
DESIGN DATA

LOW RELAXATION STRANDS

TENSILE STRENGTH (fpu) = 270 ksi
INITIAL PRESTRESS (0.75 fpu) = 202.5 ksi

CLASS 6000 CONCRETE

f'c = 6.0 ksi
f'ci = 4.0 ksi

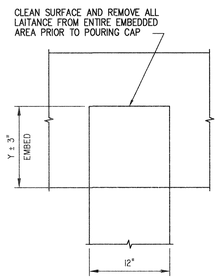


CROSS SECTION

ELEVATION

TOLERANCES

A. LENGTH	± 1"
B. WIDTH OR DIAMETER	± ¼" + ⅛" (INCLUDING FORM DRAFT)
C. DEPTH	± ⅛"
D. VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW	± ¼" PER 12", ± " MAXIMUM
E. VARIATION FROM SPECIFIED ELEVATION END SQUARENESS OR SKEW	± ¼" PER 12", ± " MAXIMUM
F. SWEEP (VARIATION FROM STRAIGHT LINE PARALLEL TO CENTERLINE OF MEMBER) (CONSIDERED TO BE A FORM TOLERANCE)	± ⅛" PER 10'
G. LOCAL SMOOTHNESS OF ANY SURFACE	¼" IN 10'
H. PROJECTION OF STEEL PILE POINT FROM END OF PILE	± 1"
POSITION OF STEEL PILE POINT	± ½"
ALIGNMENT OF STEEL PILE POINT	± ½"
LENGTH OF STEEL PILE POINT	– 3", + 6"
I. LOCATION OF STRAND	± ¼"
J. LOCATION OF HANDLING DEVICE	± 6"
K. LONGITUDINAL SPACING OF STIRRUPS OR SPIRAL REINFORCEMENT	± ½"



PILE ANCHORAGE DETAILS

1 / S0.2 **12" CONCRETE PILING**

N.T.S

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
	ISSUED FOR BIDS	CDR	5-01-19

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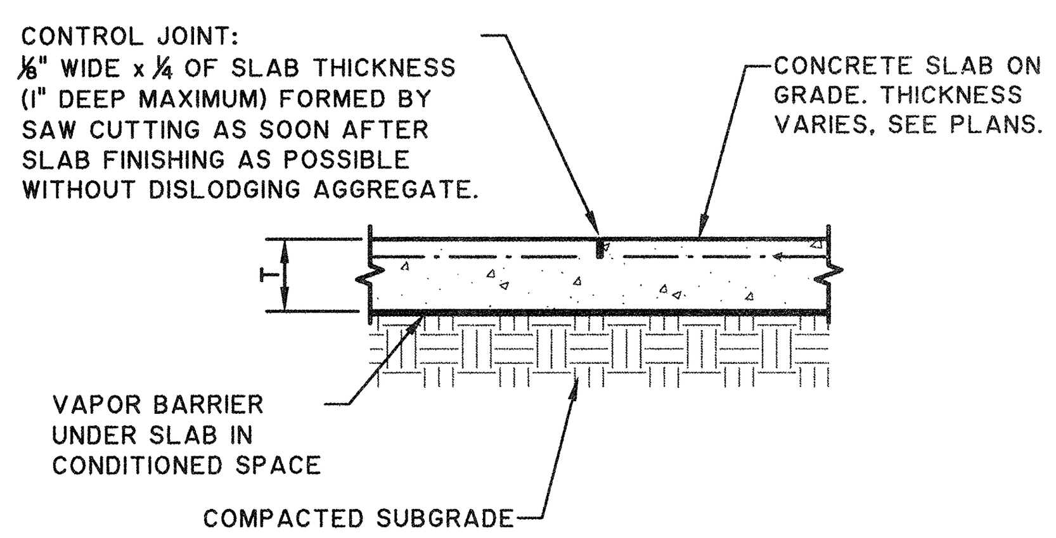
TRAVIS FIELD WATER RECLAMATION FACILITY

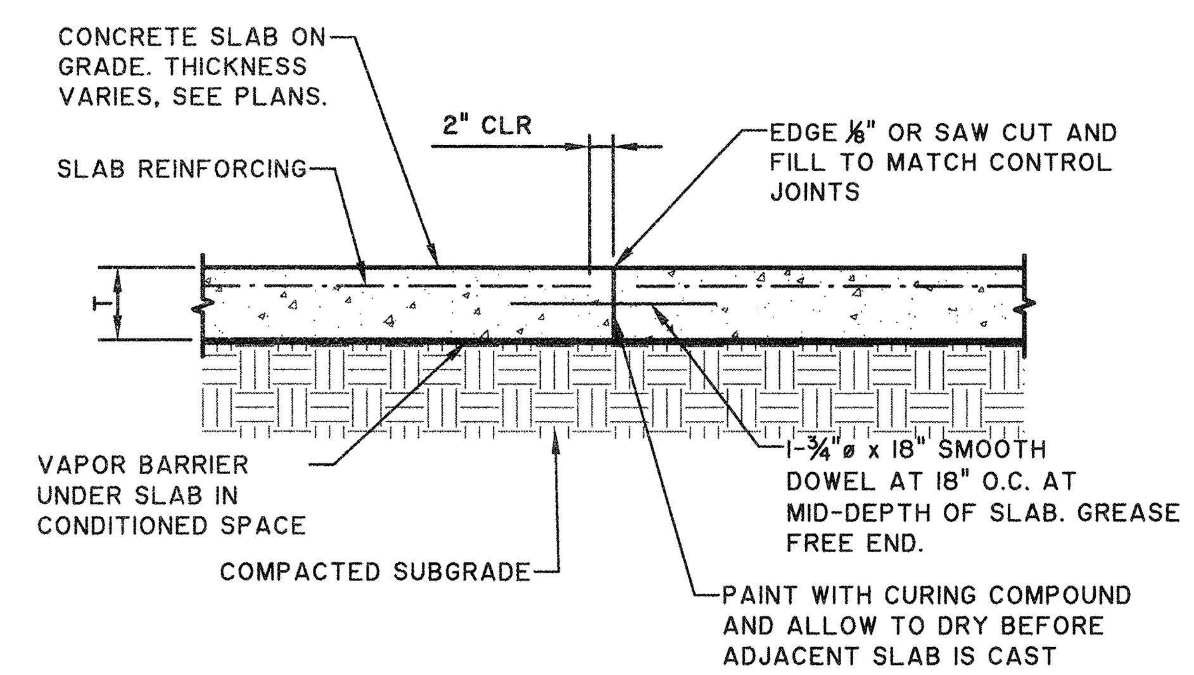
PRECAST CONCRETE PILE DESIGN AND NOTES

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

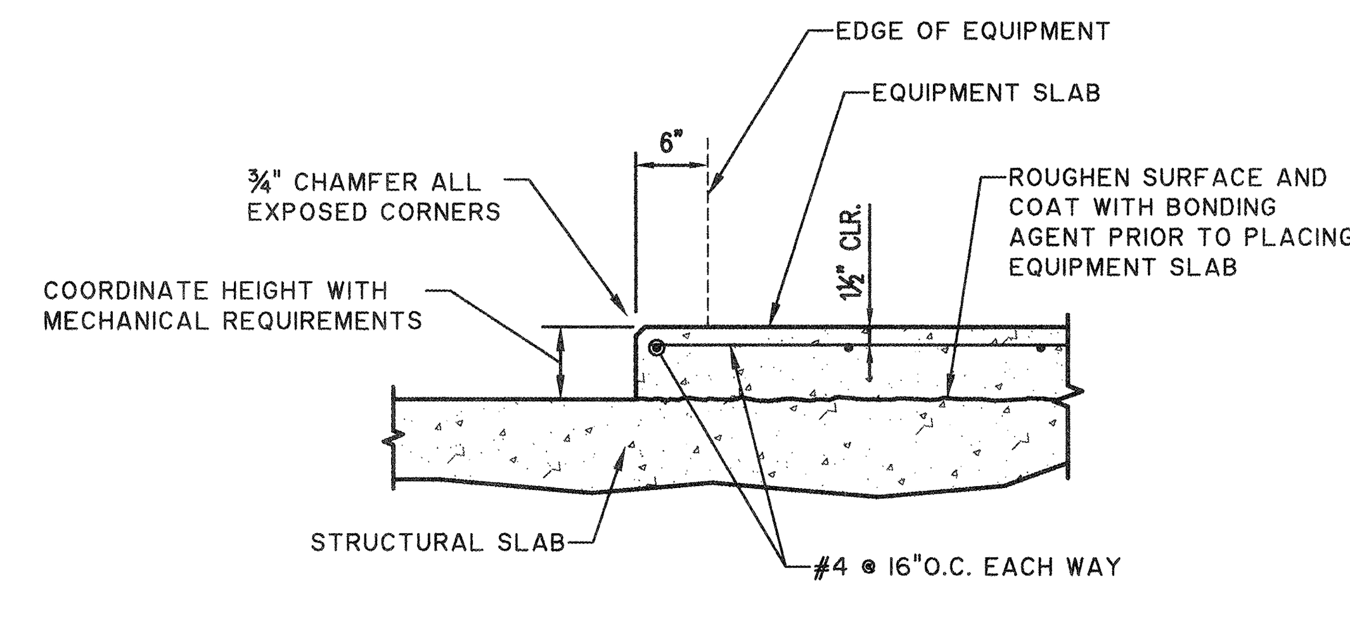
S0.2



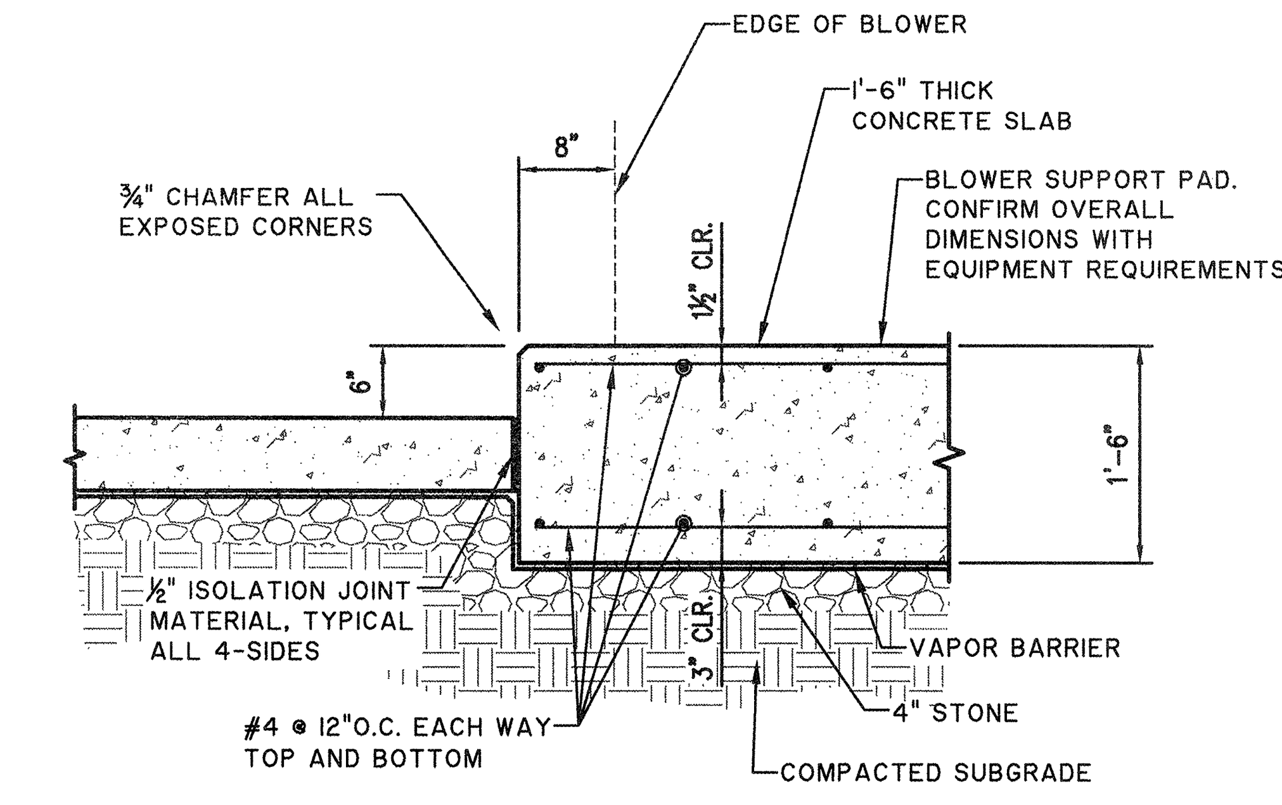
1 S0.3 **CONTROL JOINT DETAIL - SLAB ON GRADE**
3/4" = 1'-0"



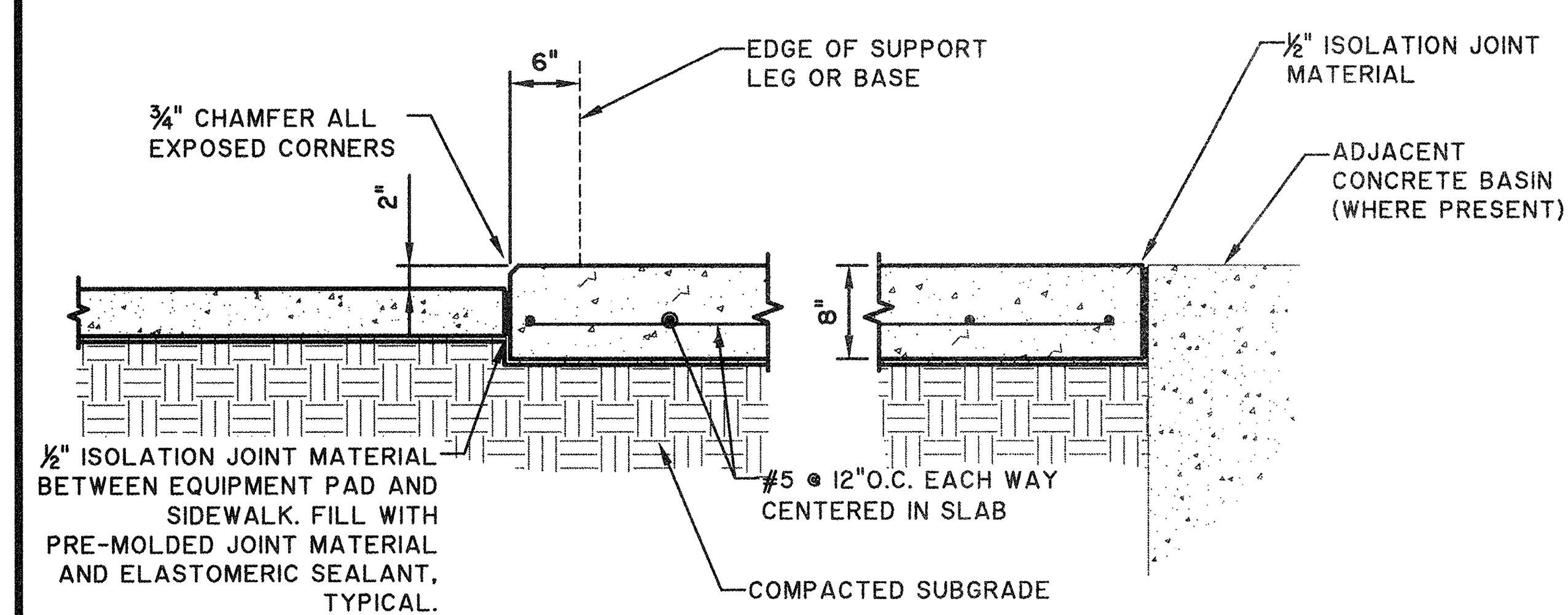
2 S0.3 **CONSTRUCTION JOINT DETAIL - SLAB ON GRADE**
3/4" = 1'-0"



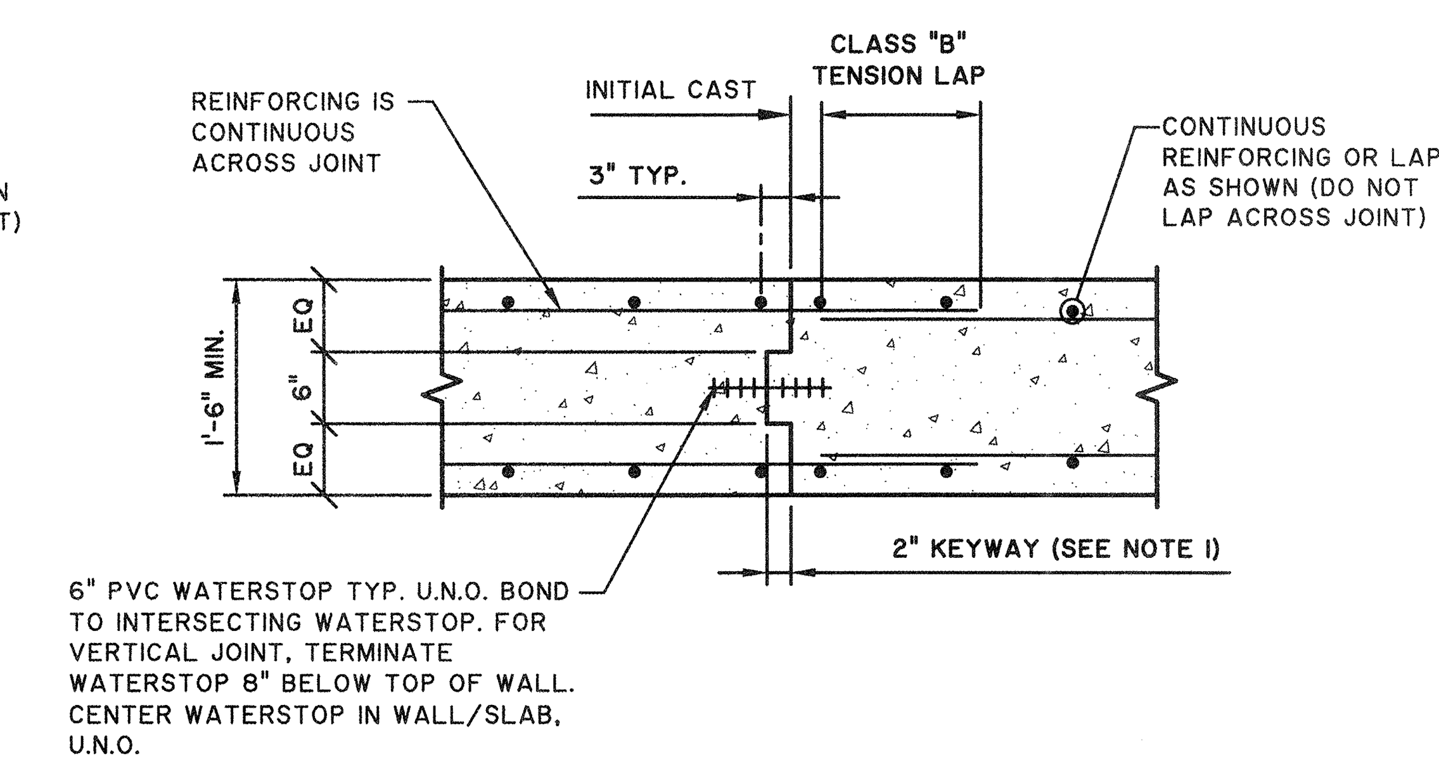
3 S0.3 **HOUSEKEEPING PAD DETAIL**
3/4" = 1'-0"



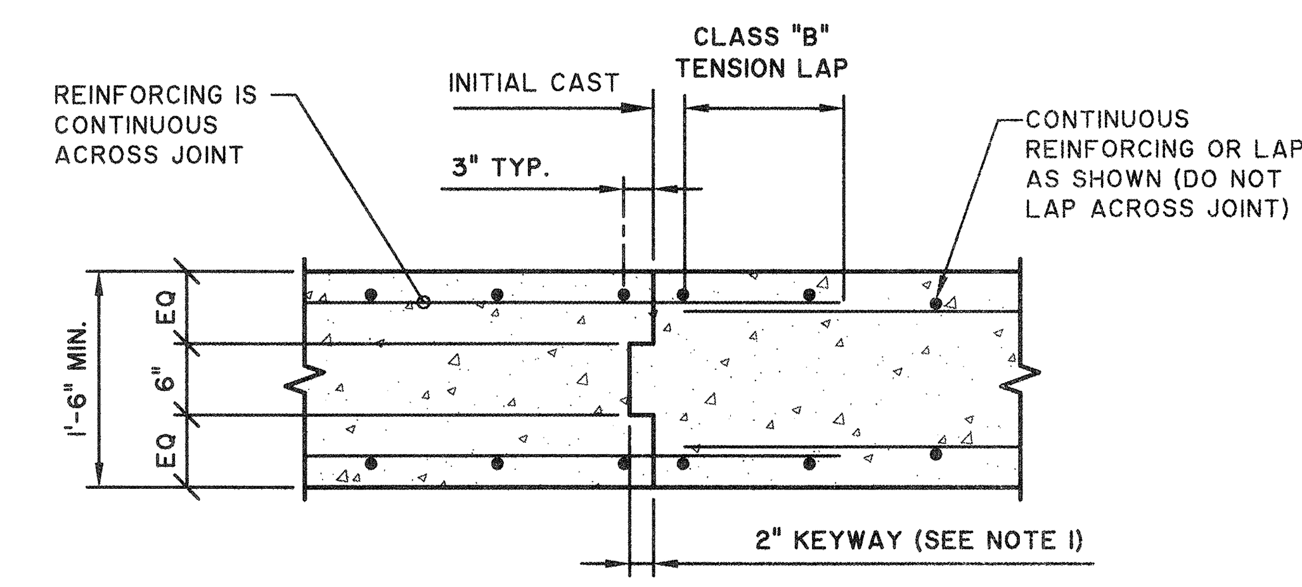
4 S0.3 **BLOWER PAD DETAIL**
3/4" = 1'-0"



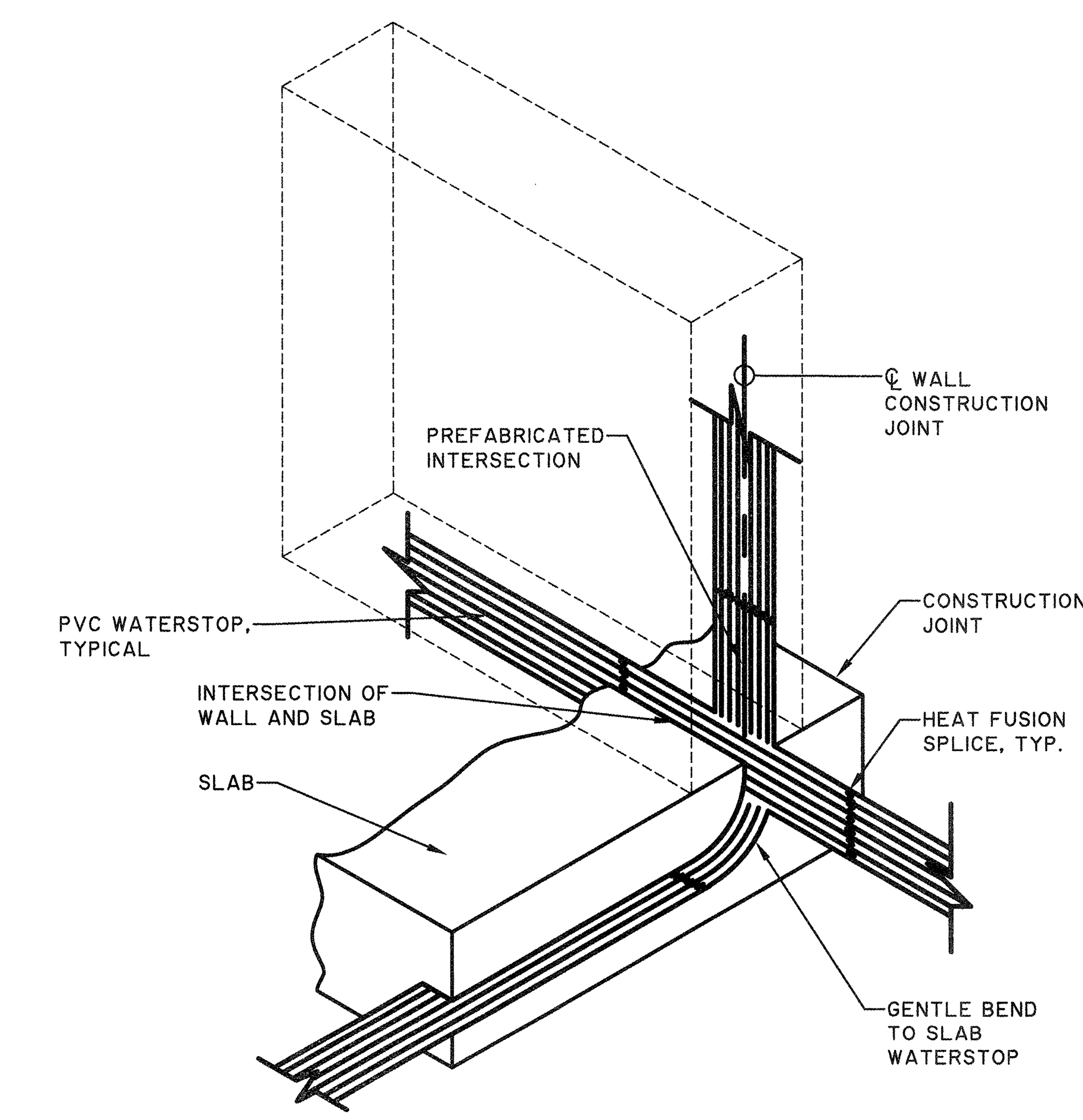
5 S0.3 **EXTERIOR EQUIPMENT PAD DETAIL**
3/4" = 1'-0"



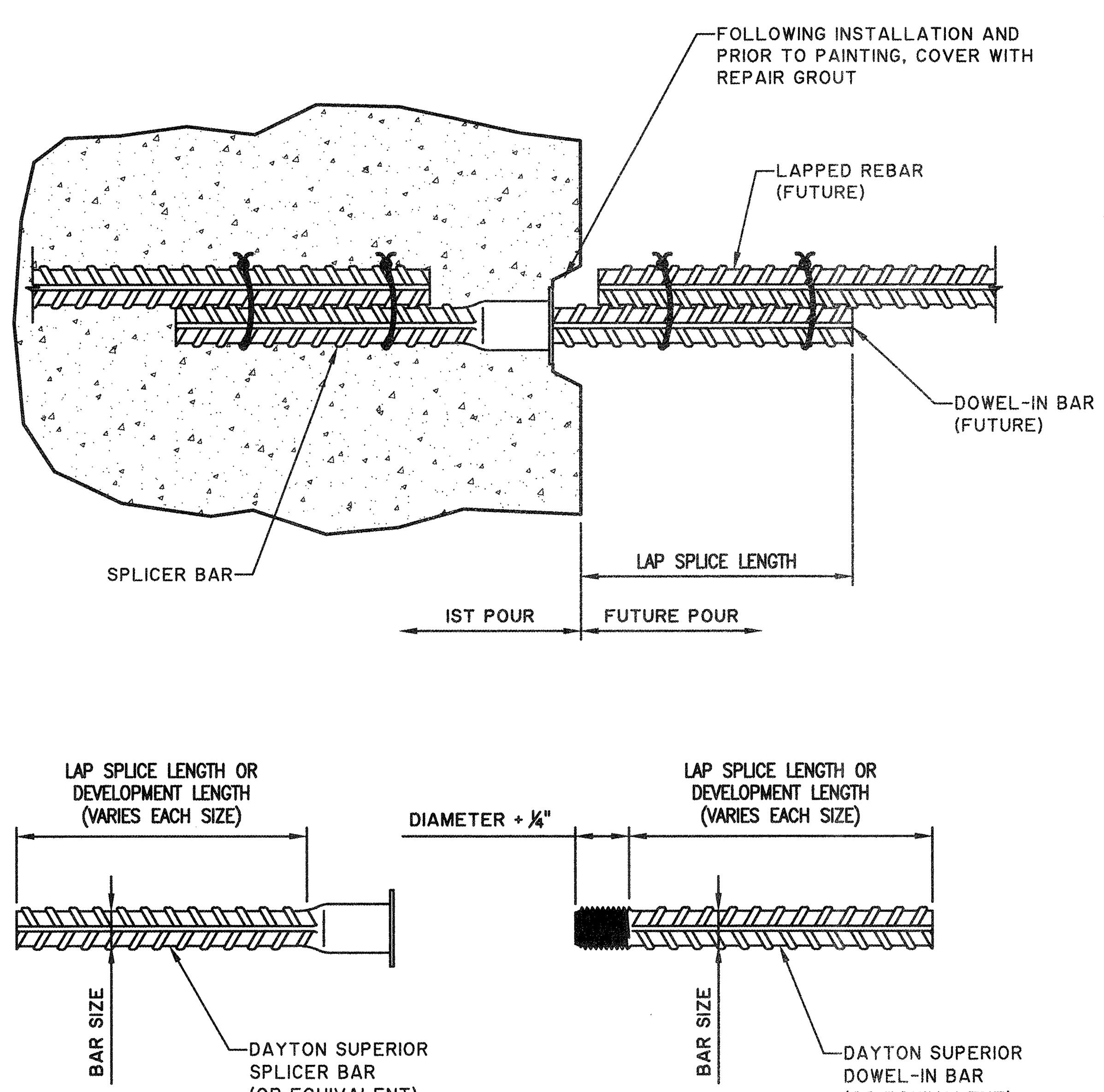
6 S0.3 **CONSTRUCTION JOINT W/ WATERSTOP**
3/4" = 1'-0"



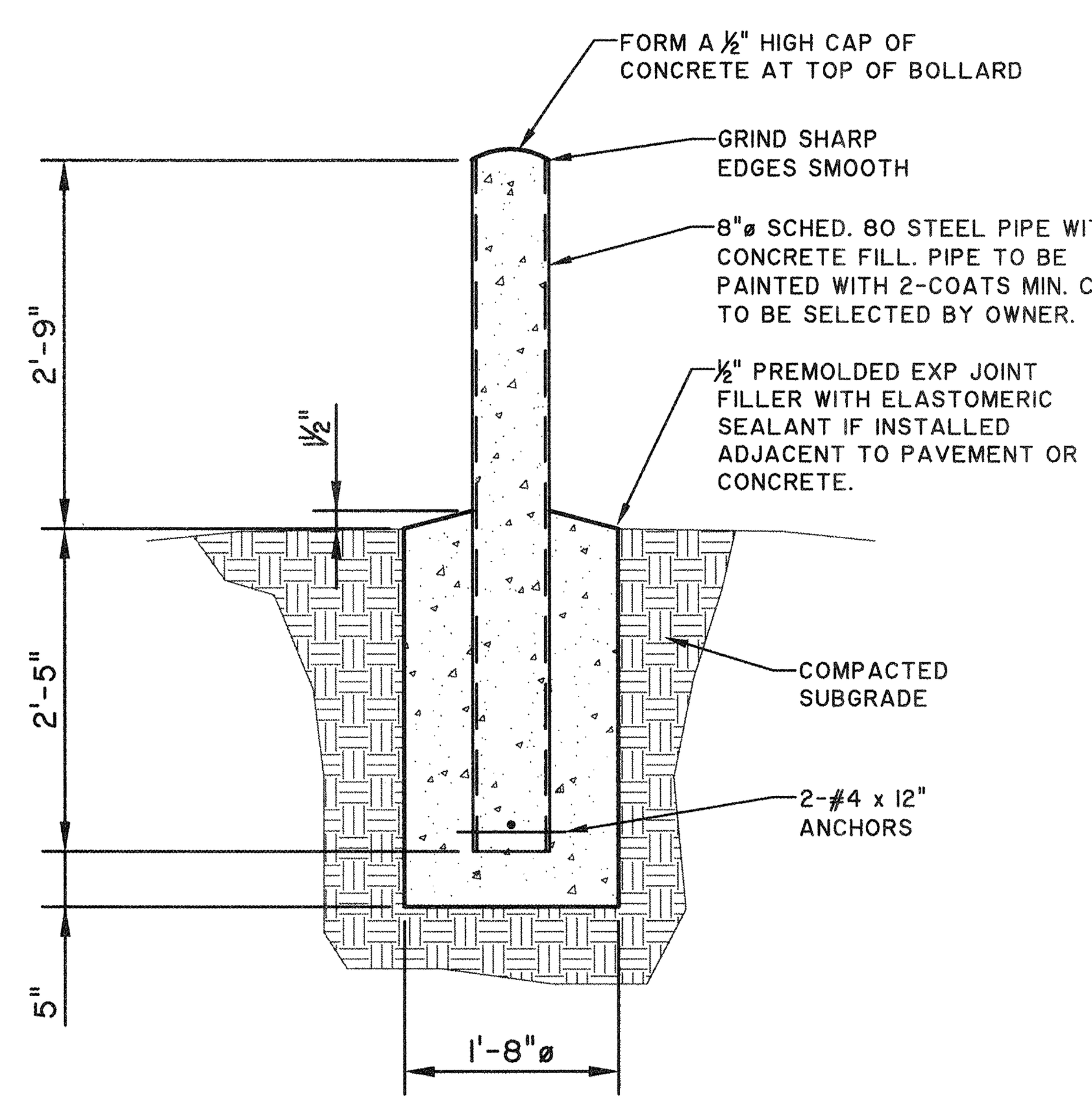
7 S0.3 **CONSTRUCTION JOINT W/O WATERSTOP**
3/4" = 1'-0"



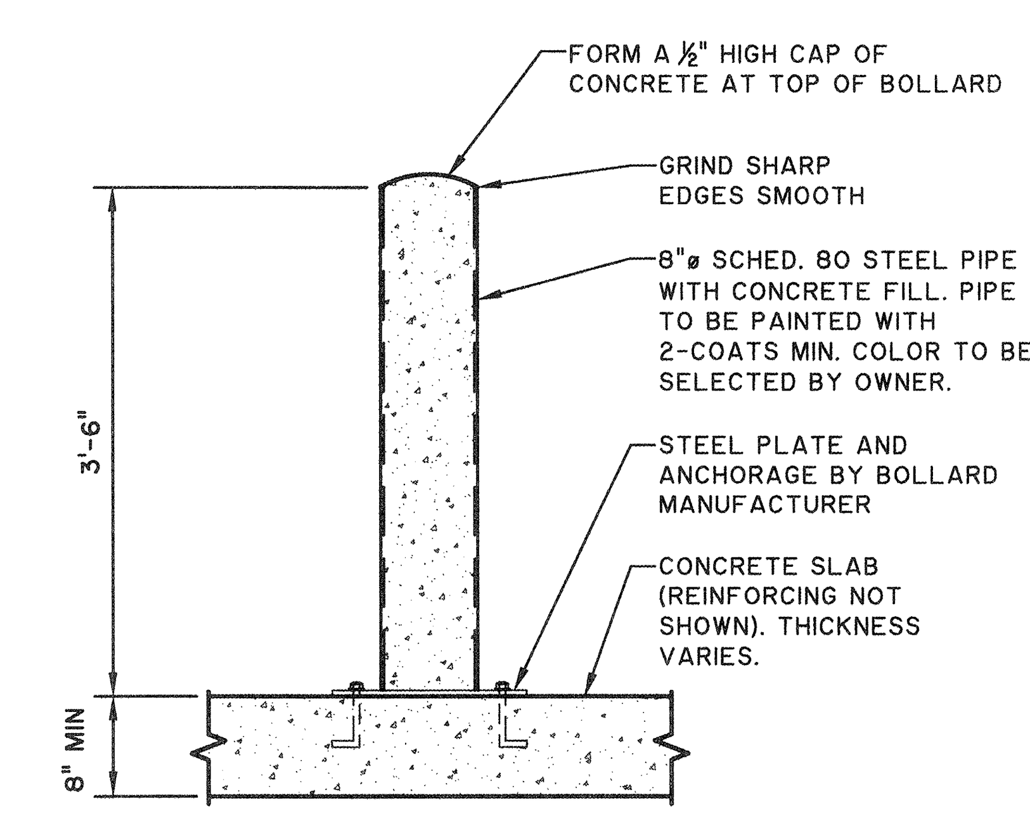
8 S0.3 **WATERSTOP JOINT DETAIL**
3/4" = 1'-0"



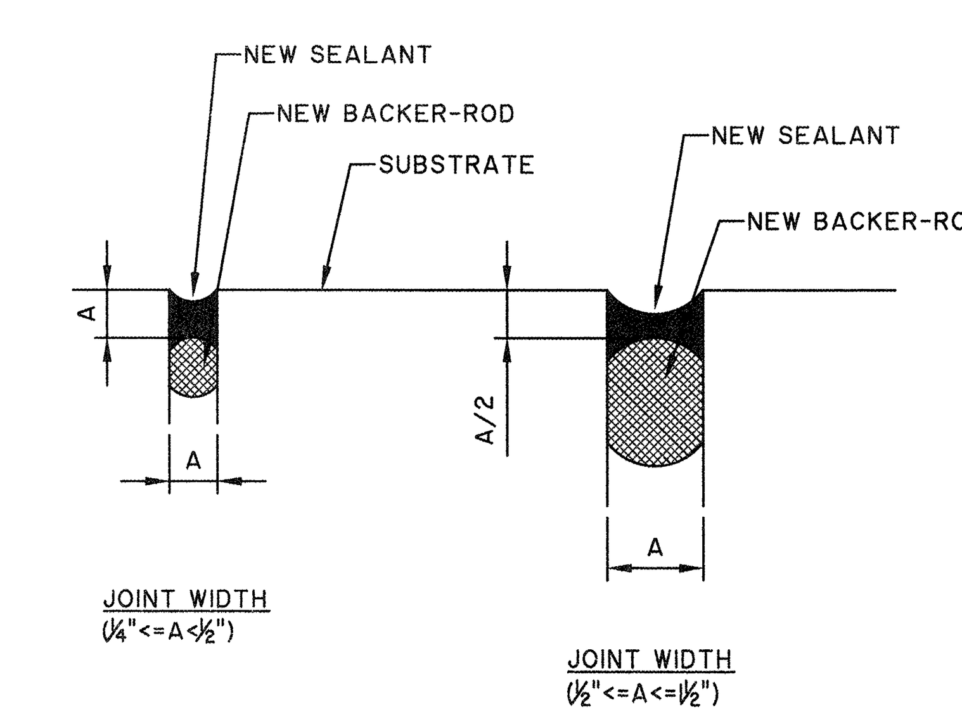
9 S0.3 **SPLICER BAR DETAIL AT FUTURE EXPANSION**
3/4" = 1'-0"



10 S0.3 **SITE BOLLARD DETAIL**
3/4" = 1'-0"



11 S0.3 **BOLLARD ON CONCRETE SLAB DETAIL**
3/4" = 1'-0"



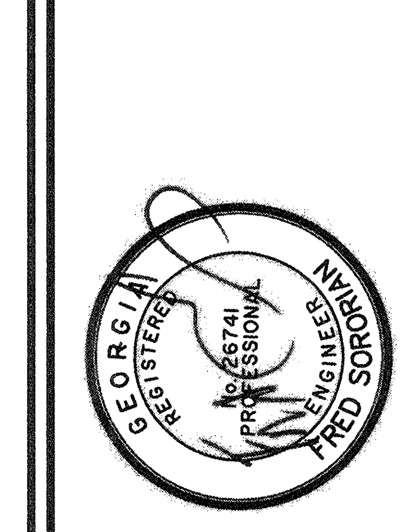
12 S0.3 **TYPICAL JOINT DETAIL**
6" = 1'-0"

BACKER-ROD SIZE TO JOINT WIDTH TABLE

JOINT WIDTH	BACKER-ROD SIZE
¼"	⅜"
⅜"	½"
½"	⅝"
⅝"	¾"
¾"	⅞"
⅞"	1"
1"	1¼"
1½"	2"

JOINT SEALANT REQUIREMENTS:

1. NO JOINT SEALANTS SMALLER THAN ¼".
2. NO JOINT SEALANTS LARGER THAN 1½".
3. SEALANT THICKNESS NO LESS THAN ¼".
4. SEALANT THICKNESS NO GREATER THAN ½".
5. BACKER-ROD = CLOSED-CELL PRE-FORMED JOINT FILLER. SIZE SEE TABLE.
6. JOINTS OVER 1½" CAN BE PREFORMED WITH CLOSED CELL RIGID FOAM ISULATION.
7. BACKER-ROD/JOINT FILLER AND SEALANT PRODUCTS AS DEFINED IN CONCRETE SPECIFICATION.



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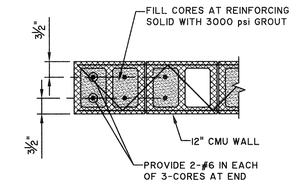
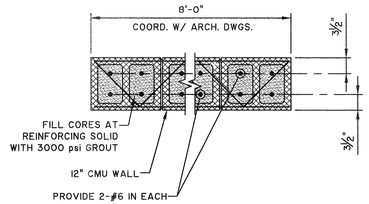
APPROVED:	JAH
SCALE:	AS NOTED

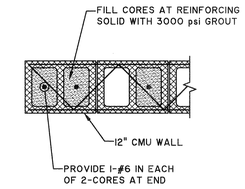
S0.3



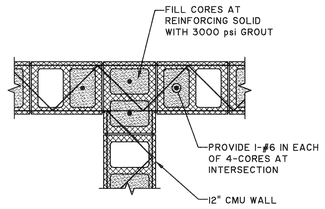
1 S0.4 **CMU REINFORCING AT 10'-0" WIDE ROLL-UP DOOR JAMB**
3/4"=1'-0"



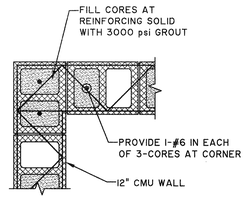
2 S0.4 **CMU REINFORCING BETWEEN 10'-0" WIDE ROLL-UP DOORS**
3/4"=1'-0"



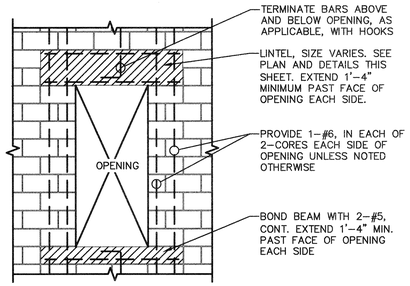
3 S0.4 **CMU REINFORCING AT JAMBS OF OPENINGS LESS THAN 10'-0" WIDE**
3/4"=1'-0"



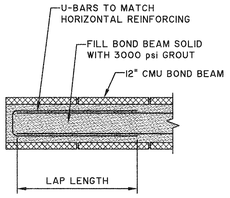
4 S0.4 **CMU REINFORCING AT INTERSECTIONS**
3/4"=1'-0"

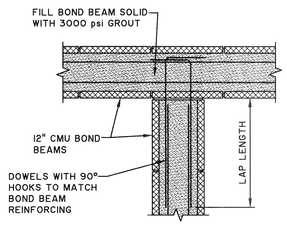


4 S0.4 **CMU REINFORCING AT CORNERS**
3/4"=1'-0"

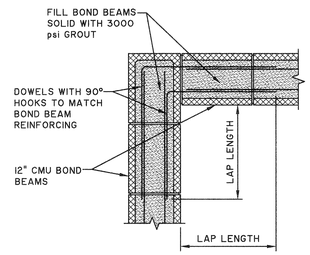


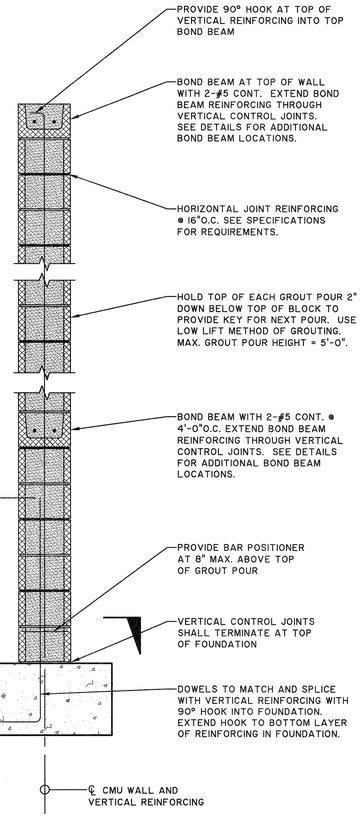
7 S0.4 **CMU R/F AT OPENING**
3/4" = 1'-0"





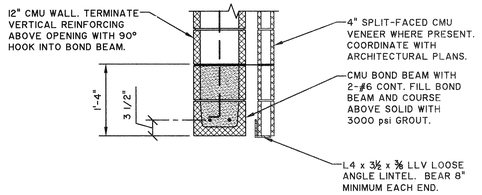
6 S0.4 **CMU BOND BEAM R/F**
3/4" = 1'-0"



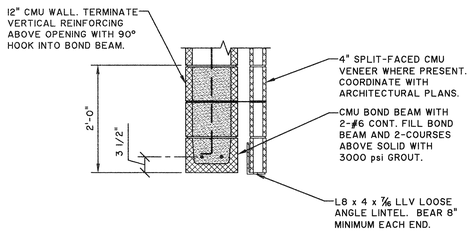


NOTES:
1. THE END OF EACH HORIZ BAR SHALL BE ANCHORED TO VERTICAL BARS WITH HOOKS PER ACI.
2. BOND BEAM FOR INTERIOR 8" CMU WALLS SHALL HAVE (2) #4 CONT. FOR HORIZ. R/F.

9 S0.4 **TYP CMU WALL SECTION - POUR DETAIL**
3/4" = 1'-0"

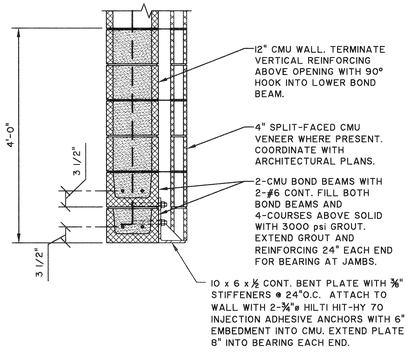


FOR OPENINGS UP TO AND INCLUDING 3'-0" WIDE



FOR OPENINGS UP TO AND INCLUDING 8'-0" WIDE

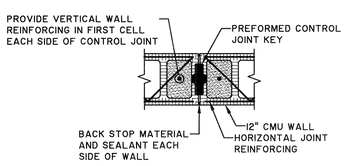
8 S0.4 **CMU LINTEL DETAILS**
3/4" = 1'-0"



FOR OPENINGS UP TO AND INCLUDING 10'-0" WIDE

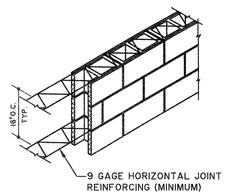
NOTE:

AT ROLL-UP DOORS, MAKE LINTEL CONTINOUS ACROSS THE TOPS OF BOTH OPENINGS - DO NOT BREAK LINTEL AT 8'-0" WIDE WALL PIER..



NOTE:
GROUT, CONCRETE, REINF. BARS, JOINT REINF., AND BOND BEAMS SHALL BE DISCONTINUOUS DOWN TO TOP OF FOOTING AT CONTROL JOINTS EXCEPT AT ROOF AND FLOOR LEVELS AND TOP OF WALLS. SEE PLANS FOR CONTROL JOINT LOCATIONS. DO NOT LOCATE CONTROL JOINTS WITHIN 2'-0" OF OPENINGS.

10 S0.4 **TYP CMU CONTROL JOINT**
3/4" = 1'-0"



11 S0.4 **TYP CMU HORIZ R/F DETAIL**
3/4" = 1'-0"

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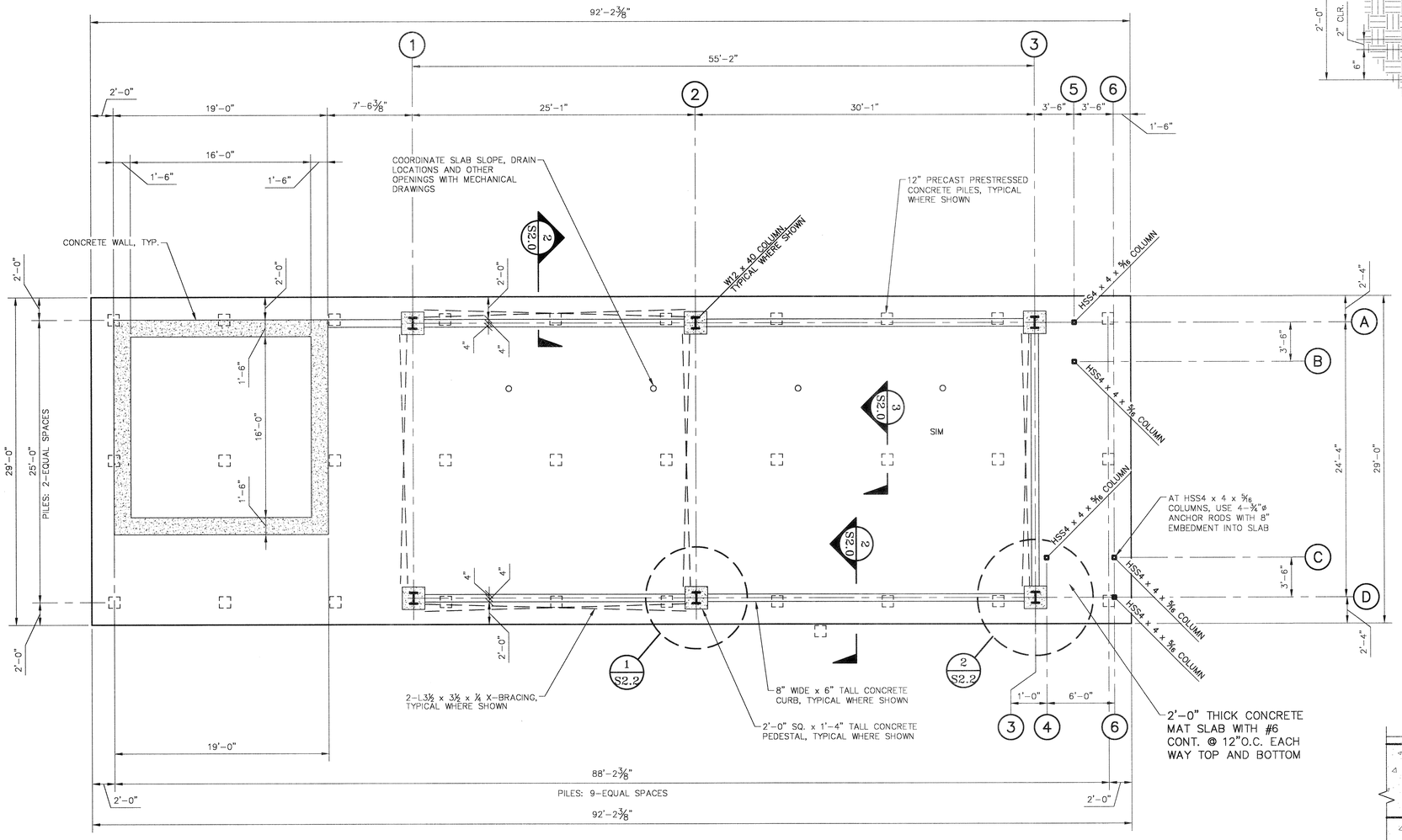
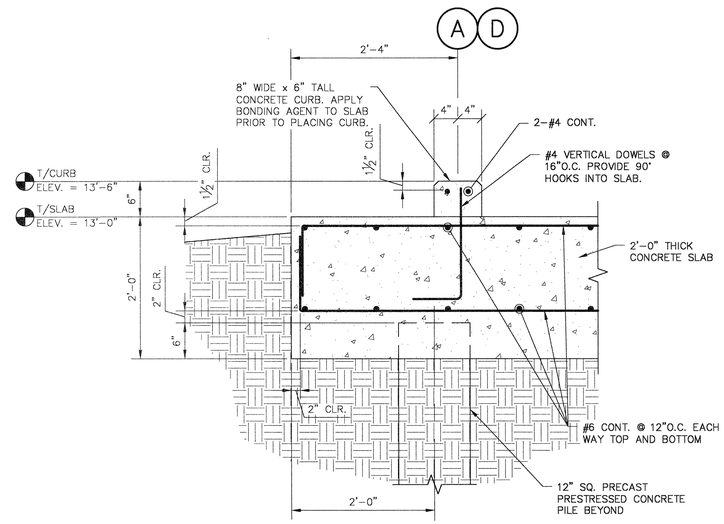
S0.4



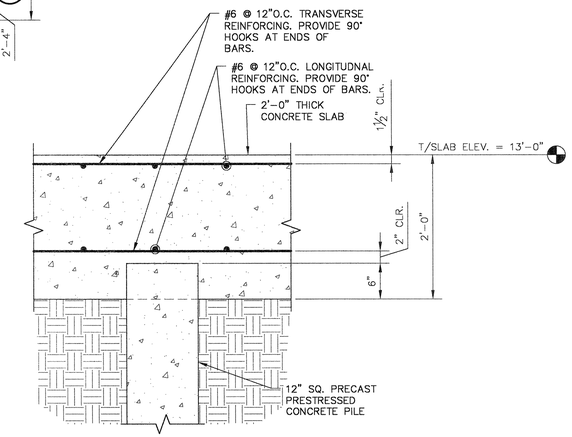
1 / S2.0 FOUNDATION PLAN
3/16" = 1'-0"

NOTES:

1. TOP OF SLAB ELEVATION = 13'-0".
2. COORDINATE ALL DIMENSIONS WITH MECHANICAL DRAWINGS.
3. COORDINATE EQUIPMENT ATTACHMENT REQUIREMENTS AND EXACT LOCATIONS WITH MECHANICAL DRAWINGS.
4. COORDINATE STAIR SUPPORT FRAMING WITH STAIR DESIGNER/SUPPLIER.
5. ALL STRUCTURAL STEEL FRAMING SHALL BE HOT DIP GALVANIZED



2 / S2.0 SECTION AT CONC CURB
1" = 1'-0"



3 / S2.0 SECTION AT PILE
1" = 1'-0"

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HEADWORKS FOUNDATION PLAN

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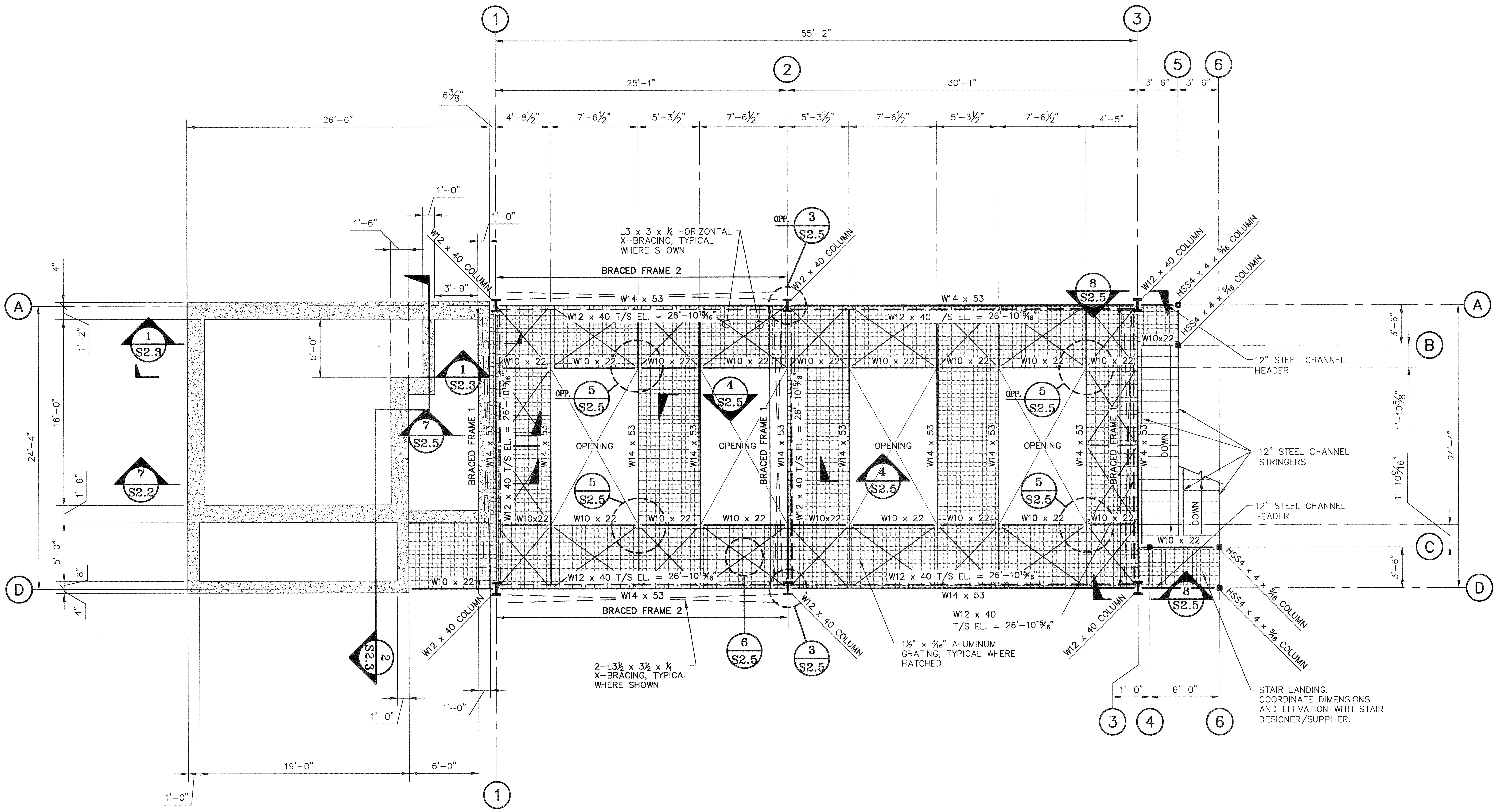
REVIEWED:	FS
APPROVED:	JAH
SCALE:	

S2.0



FRAMING PLAN (1/S2.1)

3/16" = 1'-0"

NOTES:

1. TOP OF STEEL ELEVATION = 38'-10 1/2" UNLESS NOTED OTHERWISE.
2. COORDINATE ALL DIMENSIONS WITH MECHANICAL DRAWINGS.
3. COORDINATE EQUIPMENT ATTACHMENT REQUIREMENTS AND EXACT LOCATIONS WITH MECHANICAL DRAWINGS.
4. COORDINATE STAIR SUPPORT FRAMING WITH STAIR DESIGNER/SUPPLIER.
5. CONTRACTOR TO COORDINATE GRIT SYSTEM CONCRETE WORK WITH MANUFACTURERS SHOP DRAWINGS
5. ALL STRUCTURAL STEEL FRAMING SHALL BE HOT DIP GALVANIZED

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HEADWORKS FRAMING PLAN

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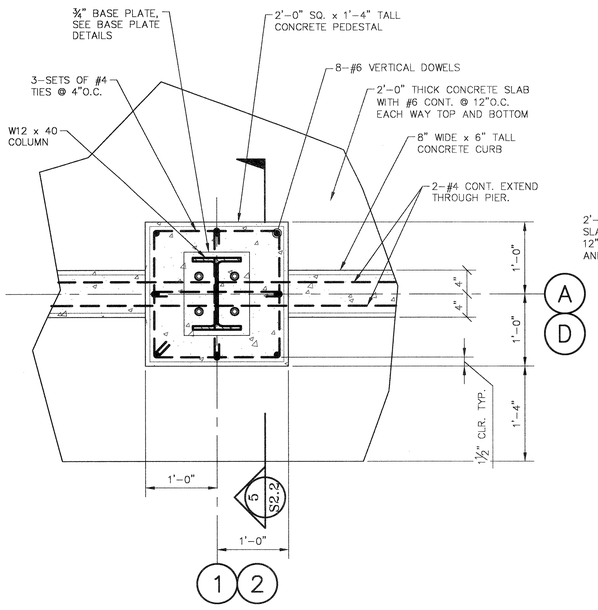
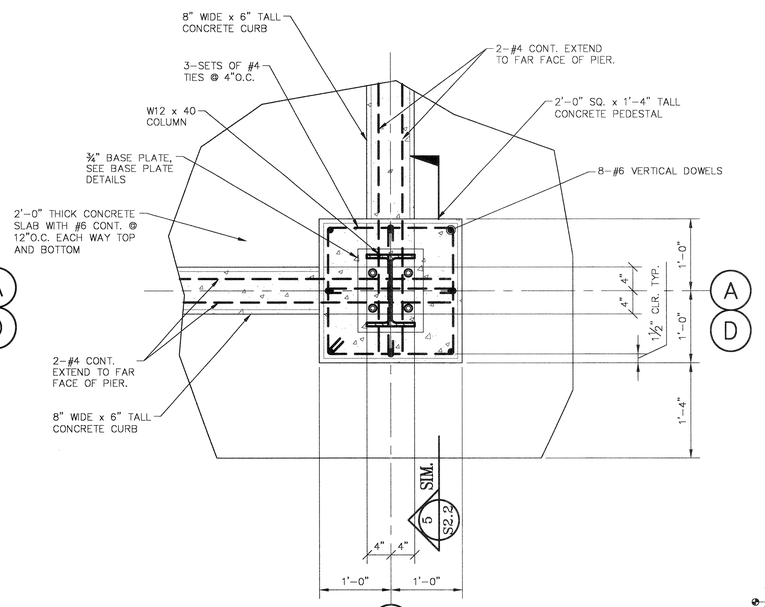
SCALE:	

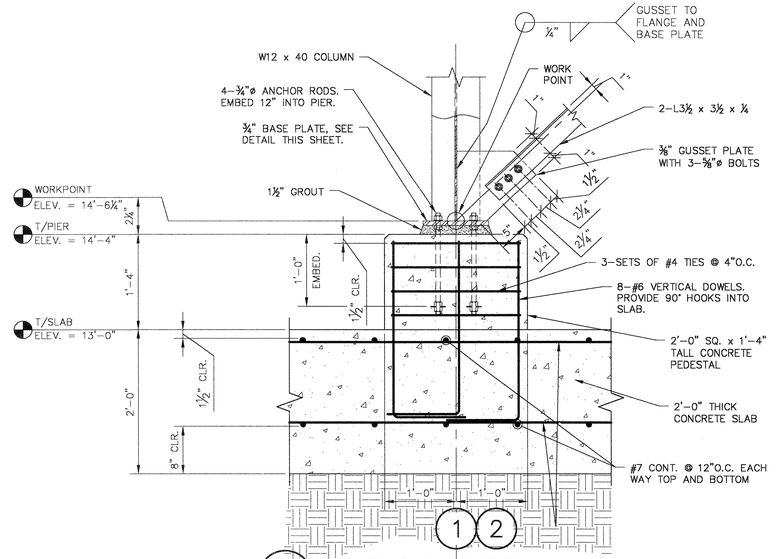
S2.1



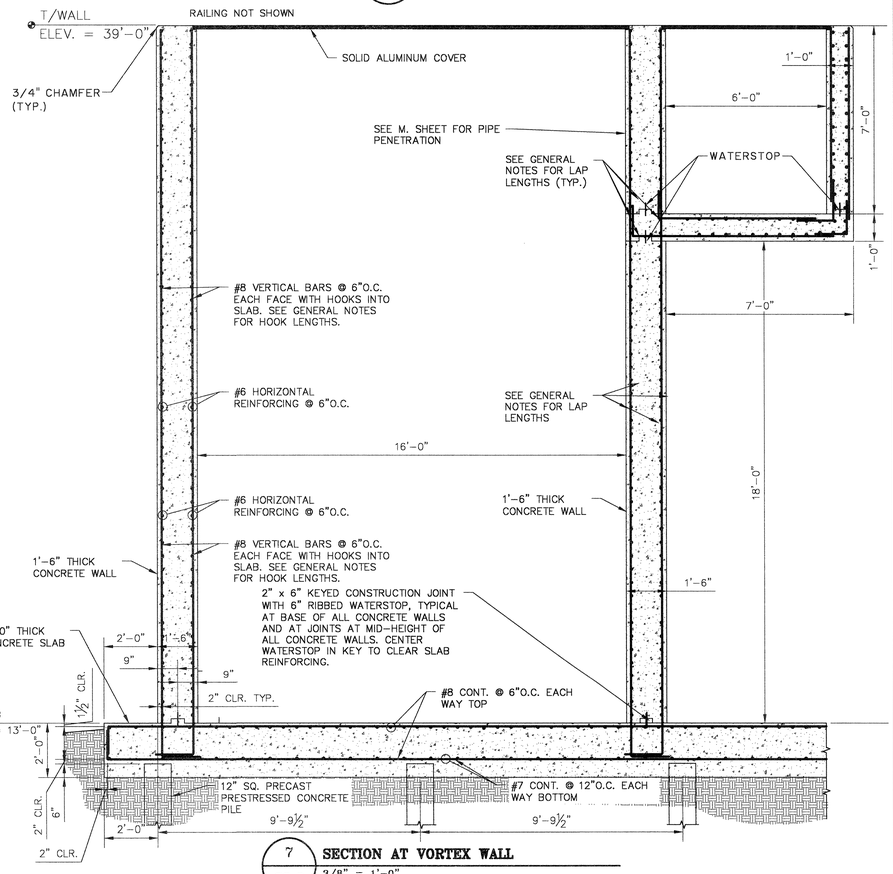
1 / S2.2 **COLUMN BASE DETAIL**
1" = 1'-0"



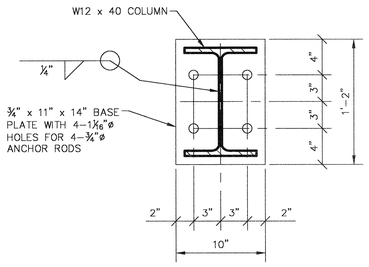
2 / S2.2 **COLUMN BASE DETAIL**
1" = 1'-0"



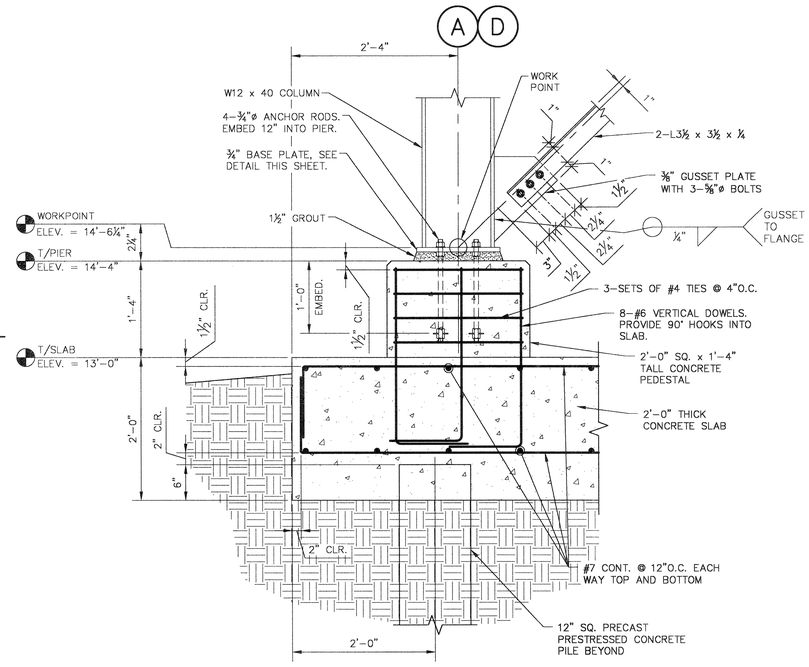
6 / S2.2 **BASE OF COLUMN SECTION**
1" = 1'-0"



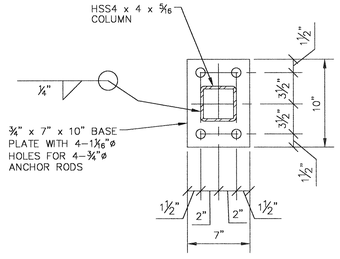
7 / S2.2 **SECTION AT VORTEX WALL**
3/8" = 1'-0"



3 / S2.2 **W12X40 BASE PLATE DETAIL**
1 1/2" = 1'-0"



5 / S2.2 **BASE OF COLUMN SECTION**
1" = 1'-0"



4 / S2.2 **HSS4X4X5/16 BASE PLATE DETAIL**
1 1/2" = 1'-0"

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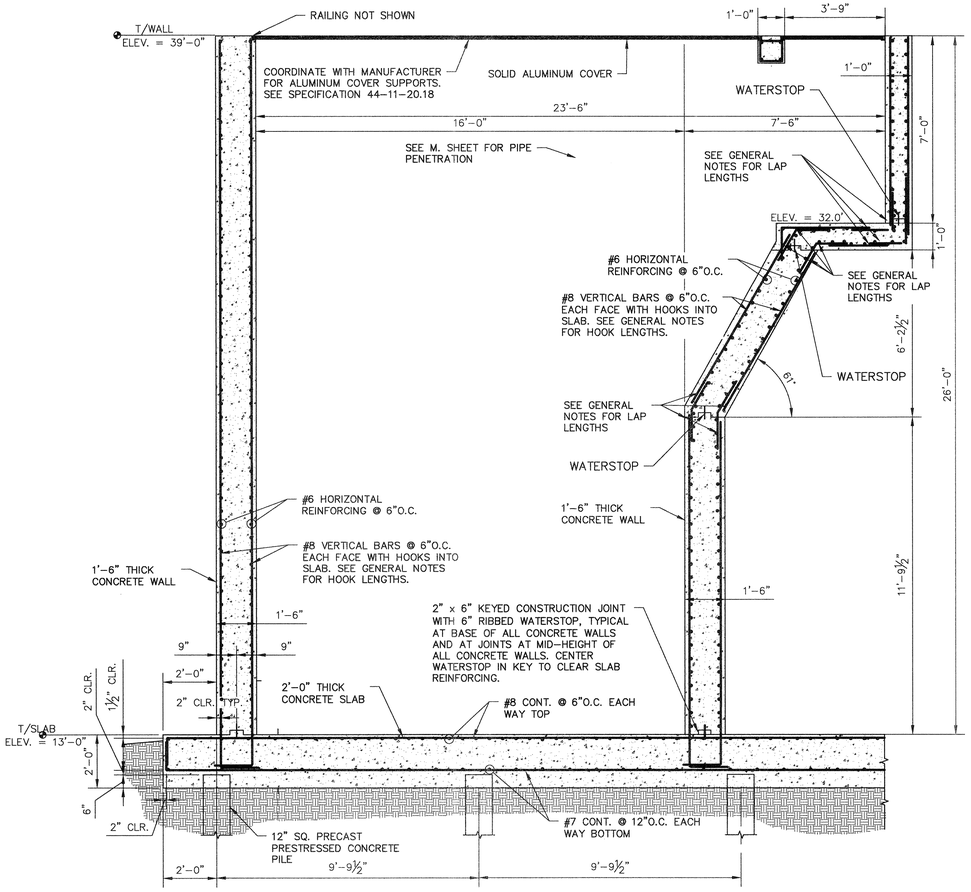
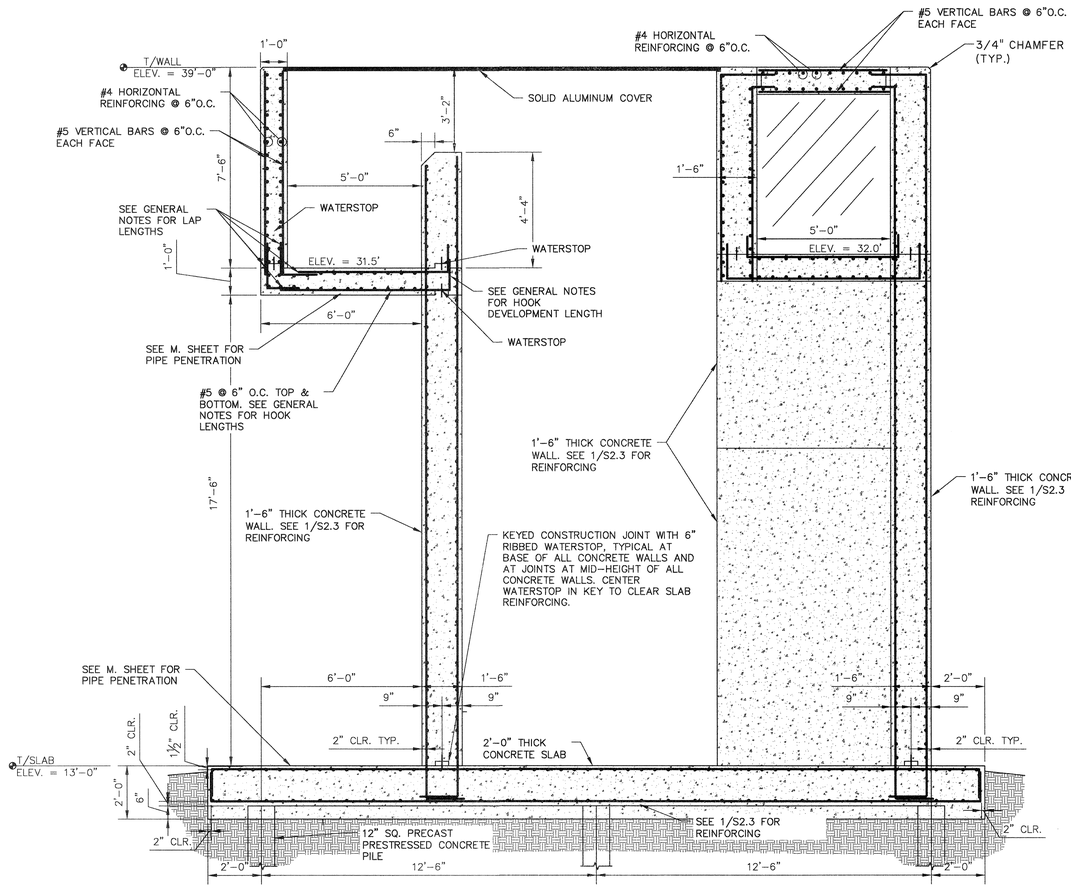
S2.2



1 S2.3 **SECTION AT VORTEX WALL**
3/8" = 1'-0"



2 S2.3 **SECTION AT VORTEX WALL**
3/8" = 1'-0"

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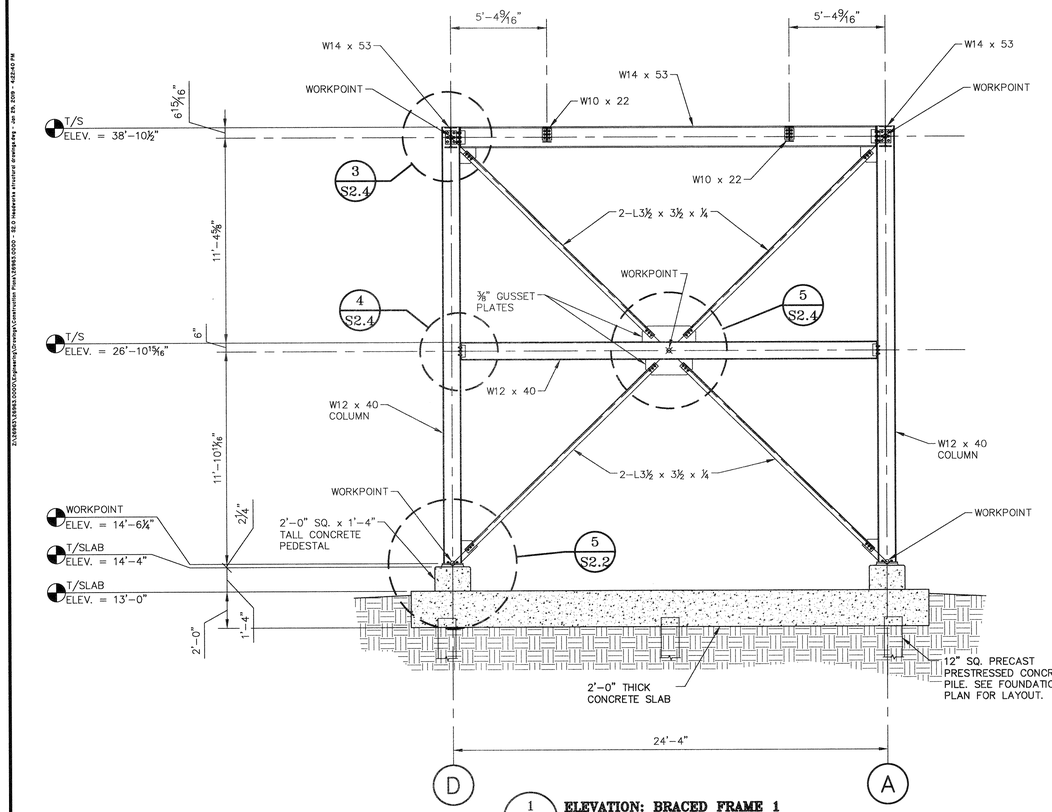
S2.3

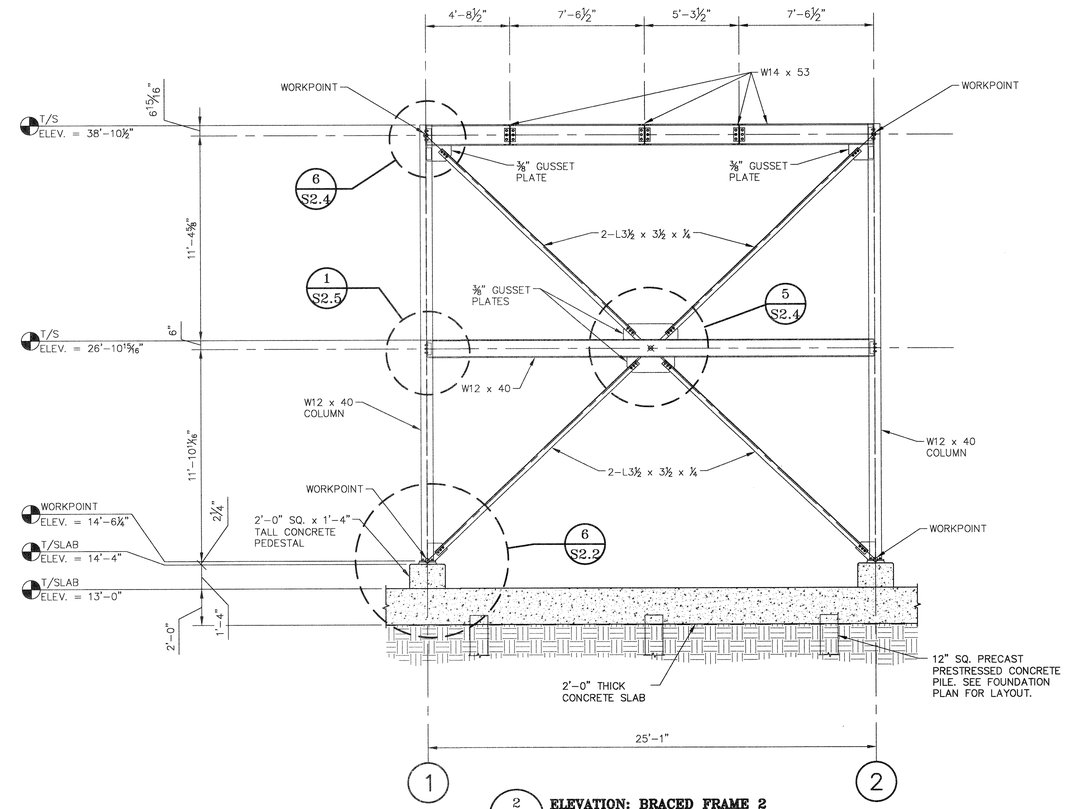


1 S2.4 ELEVATION: BRACED FRAME 1

1/4" = 1'-0"

NOTES:

1. COORDINATE ALL DIMENSIONS WITH MECHANICAL DRAWINGS.
2. ALL STRUCTURAL STEEL FRAMING SHALL BE HOT DIP GALVANIZED

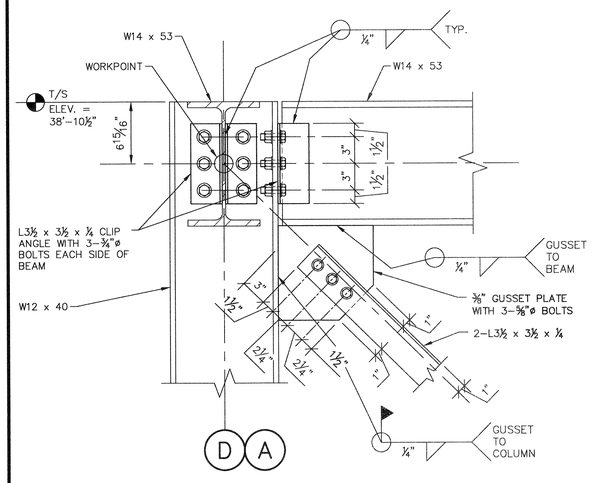


2 S2.4 ELEVATION: BRACED FRAME 2

1/4" = 1'-0"

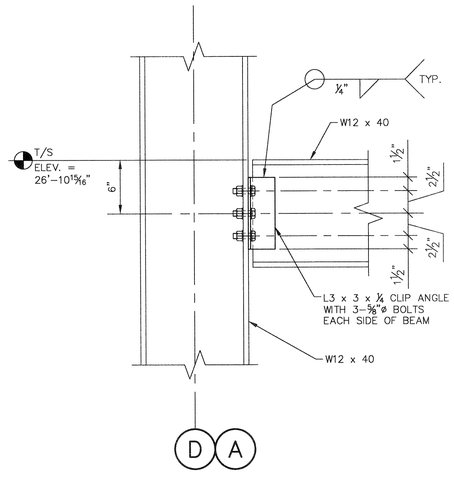
NOTES:

1. COORDINATE ALL DIMENSIONS WITH MECHANICAL DRAWINGS.
2. ALL STRUCTURAL STEEL FRAMING SHALL BE HOT DIP GALVANIZED



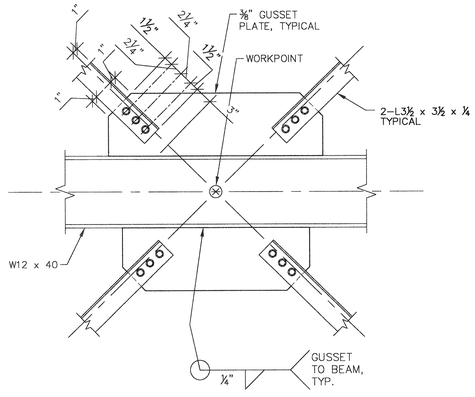
3 S2.4 STEEL DETAIL

1 1/2" = 1'-0"



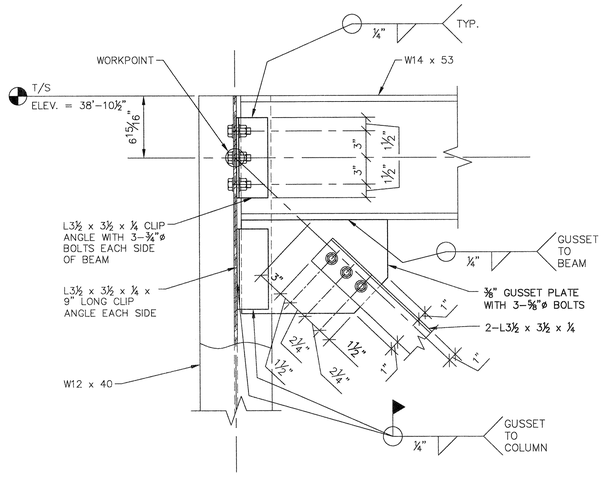
4 S2.4 STEEL DETAIL

1 1/2" = 1'-0"



5 S2.4 STEEL DETAIL

1" = 1'-0"



6 S2.4 STEEL DETAIL

1 1/2" = 1'-0"

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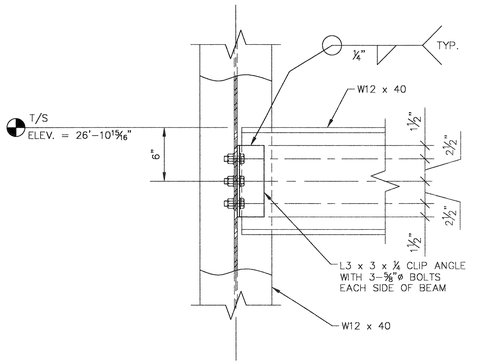
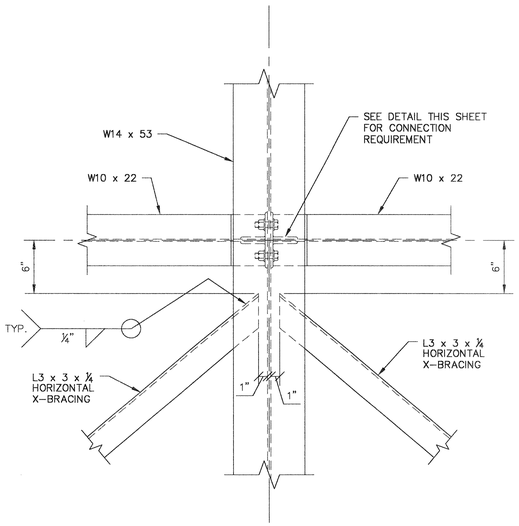
APPROVED:	JAH
SCALE:	

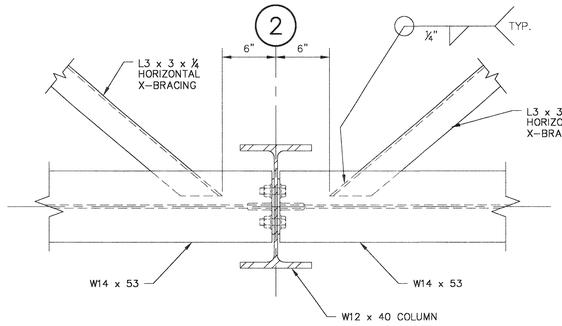
S2.4



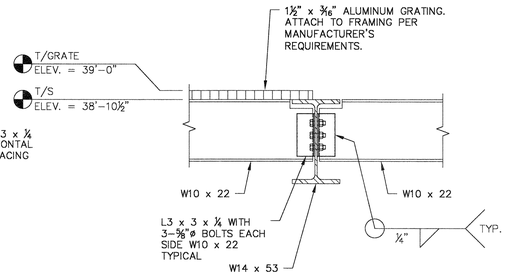
1 S2.5 **STEEL DETAIL**
1 1/2" = 1'-0"



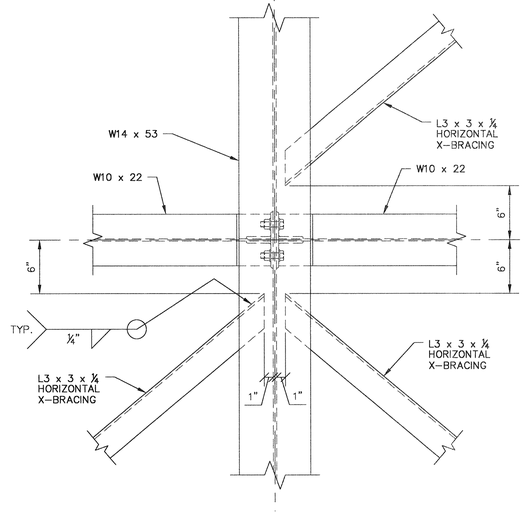
2 S2.5 **STEEL BRACING DETAIL**
1 1/2" = 1'-0"



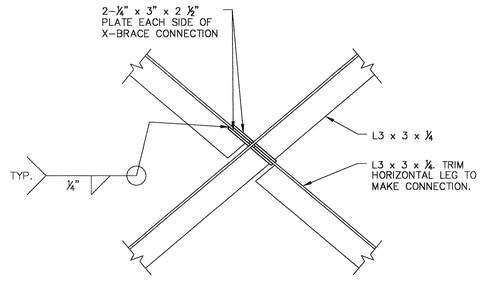
3 S2.5 **STEEL BRACING DETAIL**
1 1/2" = 1'-0"



4 S2.5 **STEEL FRAMING DETAIL**
1 1/2" = 1'-0"



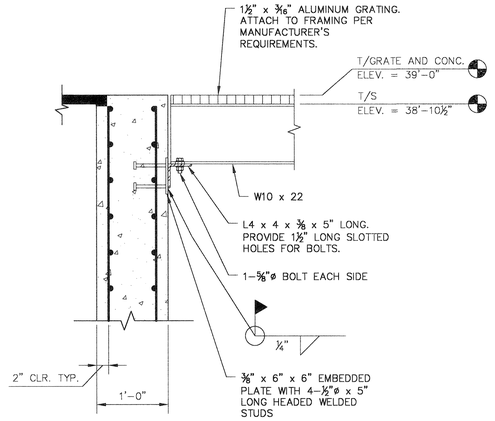
5 S2.5 **STEEL BRACING DETAIL**
1 1/2" = 1'-0"



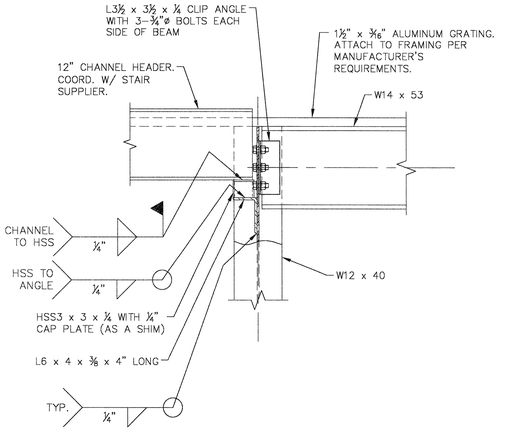
6 S2.5 **STEEL BRACING DETAIL**
1 1/2" = 1'-0"

NOTE:

SECTION SHOWN UPSIDE DOWN FOR CLARITY.



7 S2.5 **FRAMING DETAIL AT VORTEX WALL**
1 1/2" = 1'-0"



8 S2.5 **STEEL FRAMING DETAIL**
1 1/2" = 1'-0"

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0	ISSUED FOR BIDS	CDR	5-01-19

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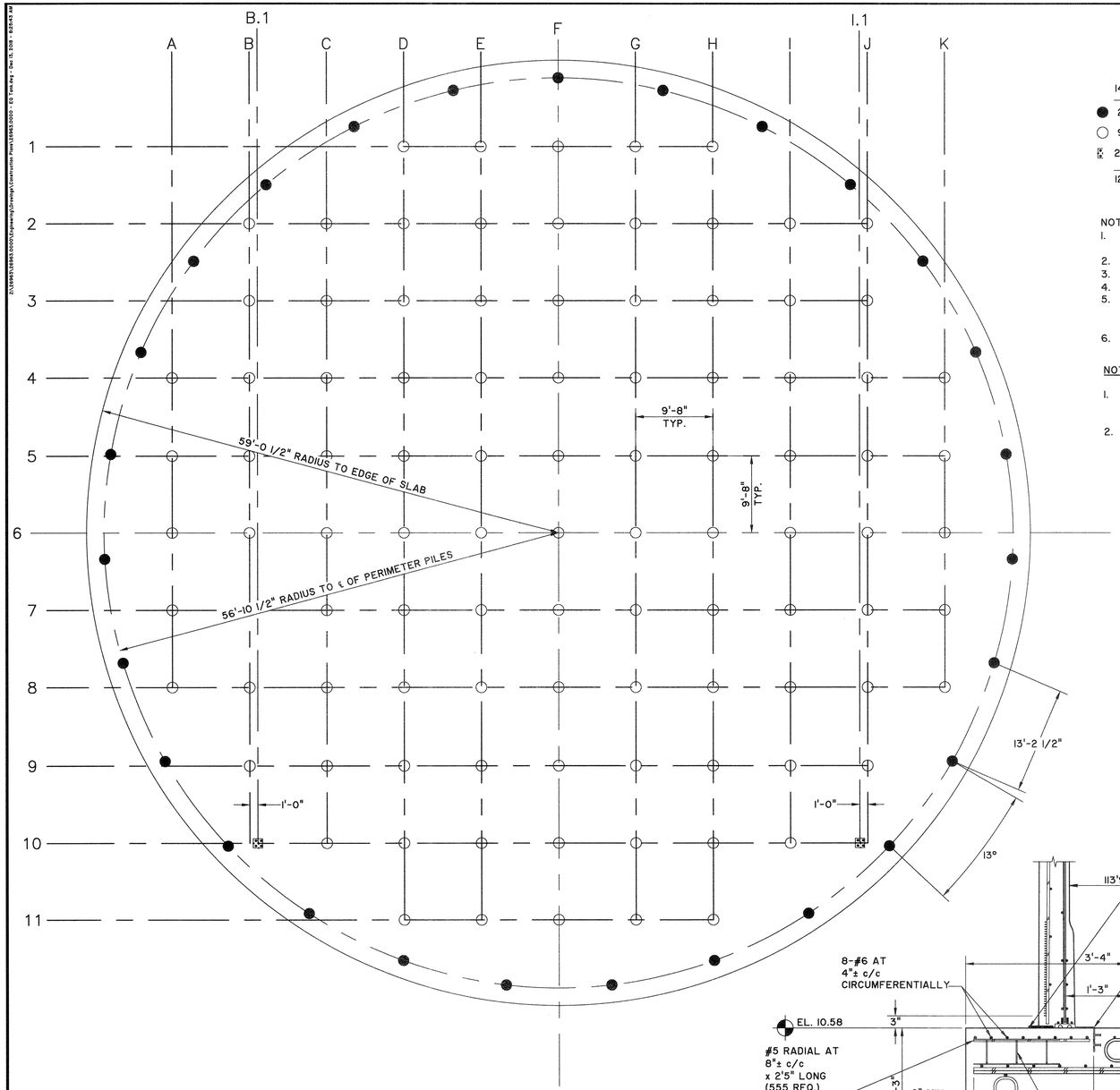
HEADWORKS FRAMING SECTIONS & DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	

S2.5



1 S3.0 **EQUALIZATION TANK PILE PLAN**
SCALE: 1/8"=1'-0"

14" SQUARE 14" SQUARE PRESTRESSED PILES

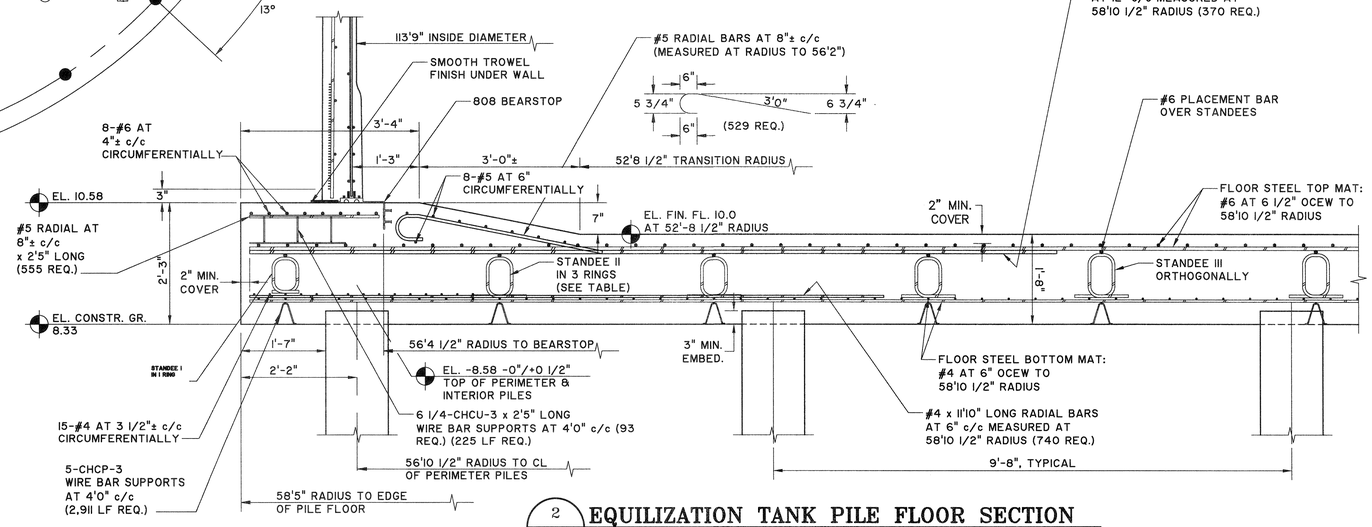
- 27 PERIMETER PILES
- 99 INTERIOR PILES
- 2 RELOCATED INTERIOR PILES

128 TOTAL PILES

NOTES:
1. PILE SPACING IS BASED ON 14" SQUARE, 14" SQUARE PRESTRESSED PILES WITH 25'0" TANK SWD
2. PILE CAPACITY: 85 TONS
3. INTERIOR FLOOR THICKNESS: 1'8"
4. TYPICAL PILE SPACING: 9'8"
5. PILE TOLERANCE:
   A. VERTICAL: -0"/+0 1/2"
   B. HORIZONTAL: 6"
6. PILE EMBEDMENT: 3"

NOTES:

1. DETAILS ARE TYPICAL AND ARE SHOWN FOR BIDDING PURPOSES ONLY.
2. ALL DETAILS ARE BASED UPON CROM TANK SUPPLIER. CONTRACTOR TO COORDINATE WITH TANK MANUFACTURER IF DIFFERENT TANK IS USED.



2 S3.0 **EQUILIZATION TANK PILE FLOOR SECTION**
SCALE: 3/4"=1'-0"

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORCHAN

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EQUALIZATION TANK PILE PLAN & SECTION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S3.0

PDA TEST PILES:

9 PILES UNDER BASINS
4 UNDER MBR BUILDING
3 UNDER SHARED WALL
2 UNDER MCC BUILDING.

LOCATIONS SHALL PRODUCE TEST RESULTS REPRESENTATIVE OF ENTIRE FOOTPRINT AND SHALL BE DETERMINED BY ENGINEER AND CONTRACTOR FOLLOWING CONTRACT AWARD. TEST PILES SHALL BE 5 FT LONGER THAN SPECIFIED LENGTHS OF PRODUCTION PILES.

CONCRETE BASIN WALLS, TYPICAL WHERE SHOWN

CONBCRETE MAT SLAB

12" PRESTRESSED PRECAST CONCRETE PILES, TYPICAL WHERE SHOWN

COLUMN FOR CRANE CANOPY BY METAL BUILDING SUPPLIER

1 S4.0 PILE PLAN 1/8"=1'-0"

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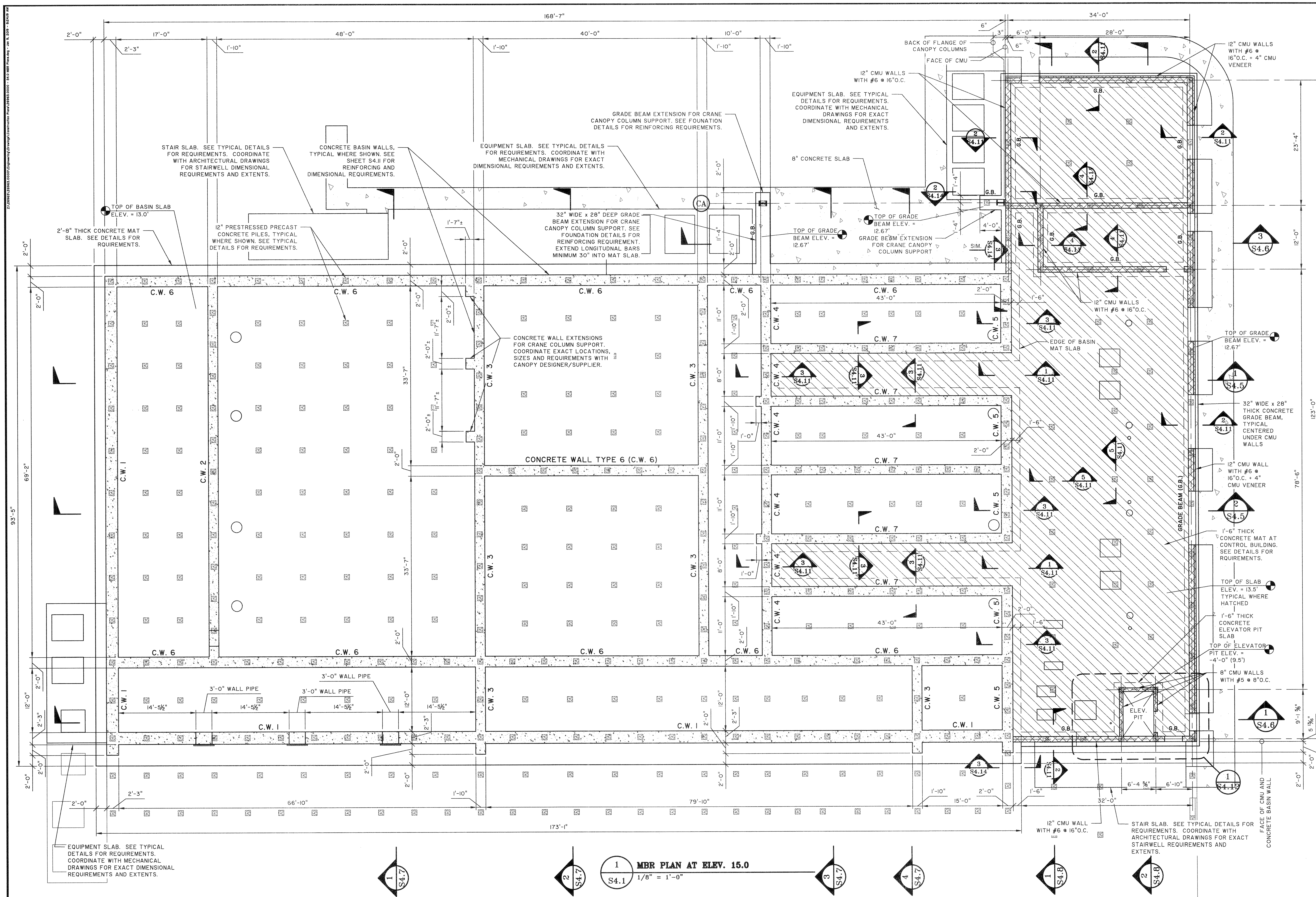
MBR PLAN - PILE LAYOUT

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	1" = 96'

S4.0



1 MBR PLAN AT ELEV. 15.0
S4.1 — 1/8" = 1'-0"

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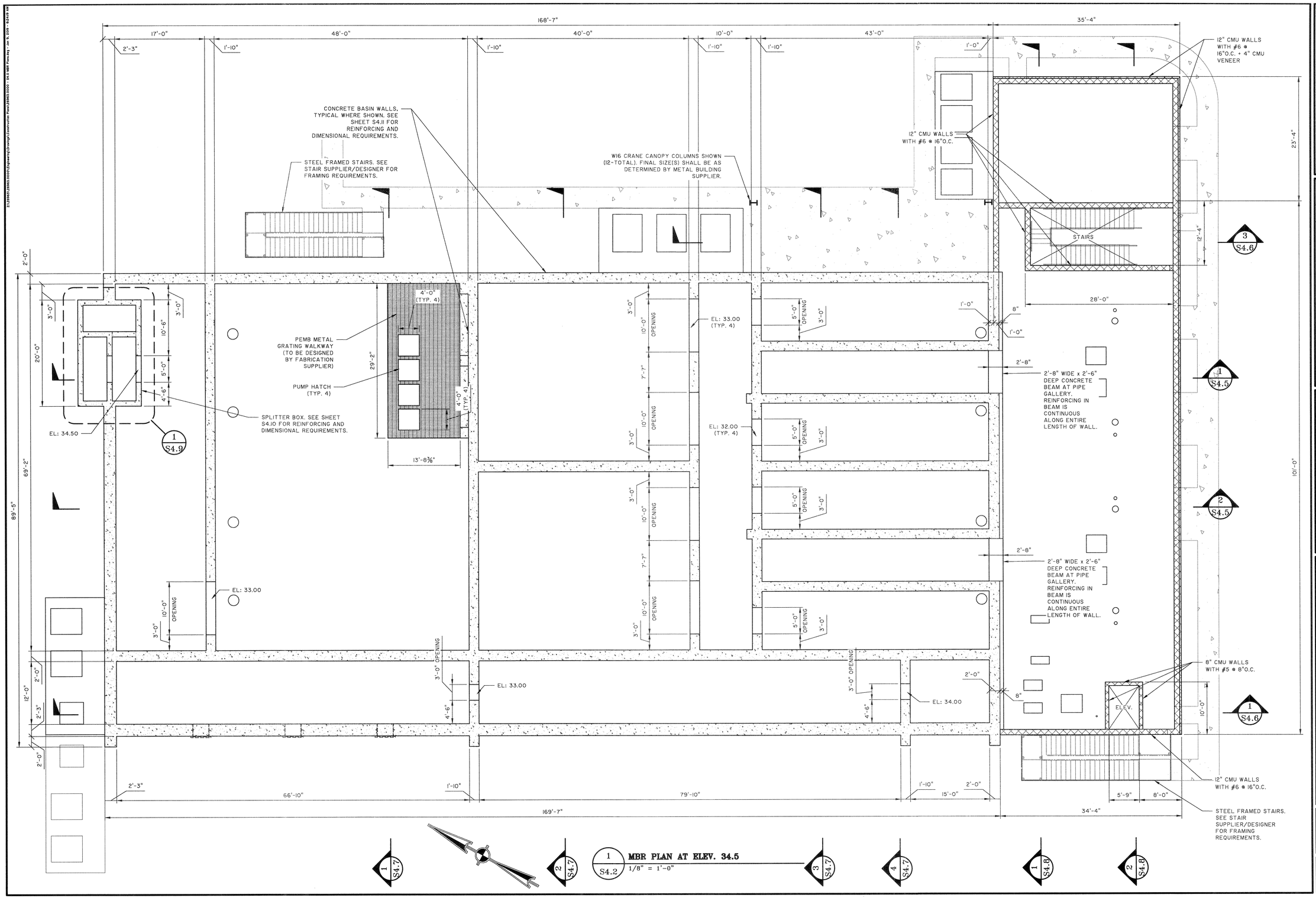
MBR PLAN - FOUNDATION SLAB

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	1" = 96'

S4.1



1 S4.7 | 2 S4.7 | 1 S4.2 **MBR PLAN AT ELEV. 34.5** 1/8" = 1'-0" | 3 S4.7 | 4 S4.7 | 1 S4.8 | 2 S4.8

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORCHMAN

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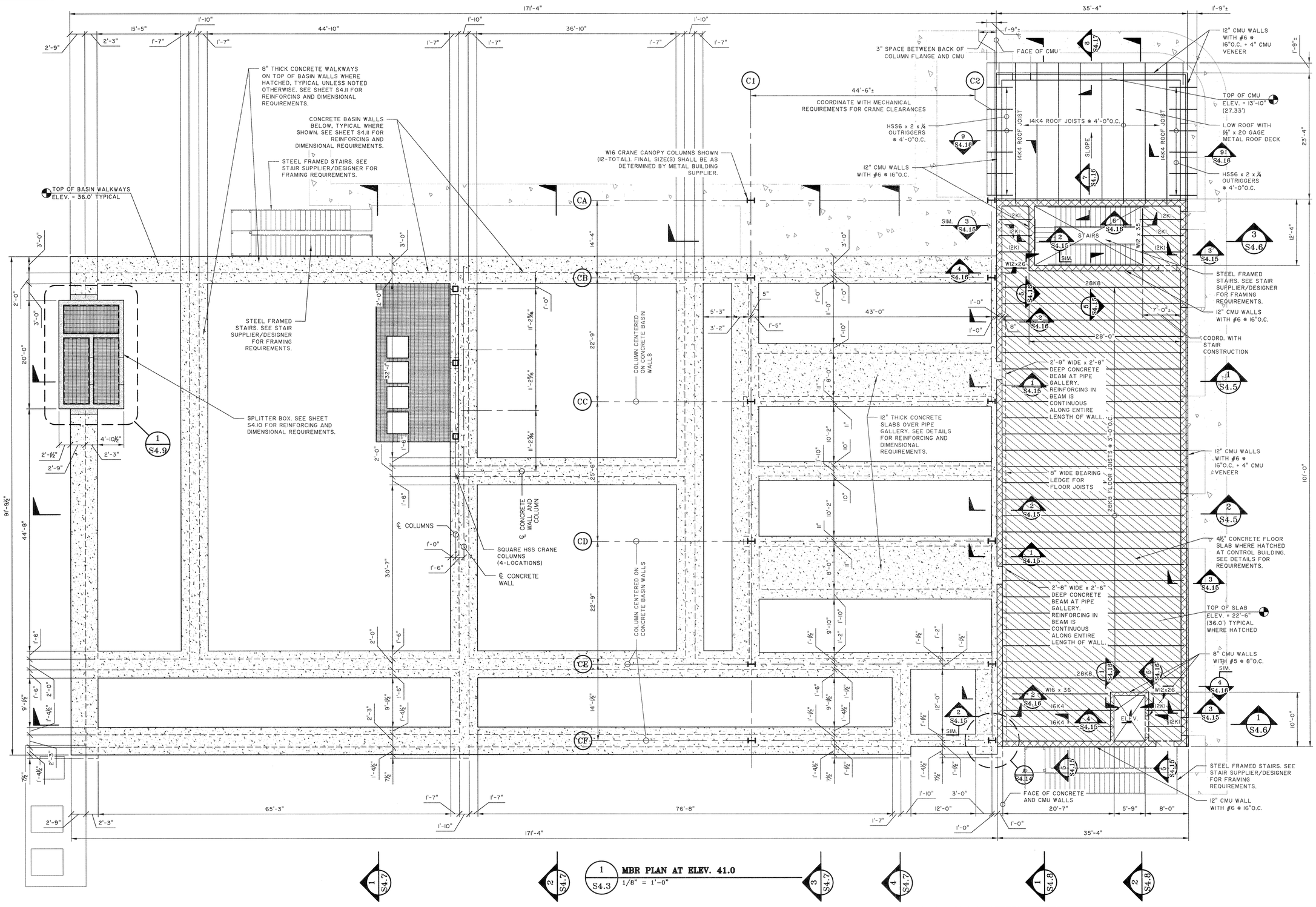
MBR PLAN - BELOW TOP OF BASIN WALLS (SHOWN AT EL. 34.5')

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	1" = 96'

S4.2



1 S4.3 **MBR PLAN AT ELEV. 41.0**
1/8" = 1'-0"

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MBR PLAN-BUILDING FLOOR FRAMING AND TOP OF BASIN WALLS -EL. 36.0'

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	1" = 96'

S4.3

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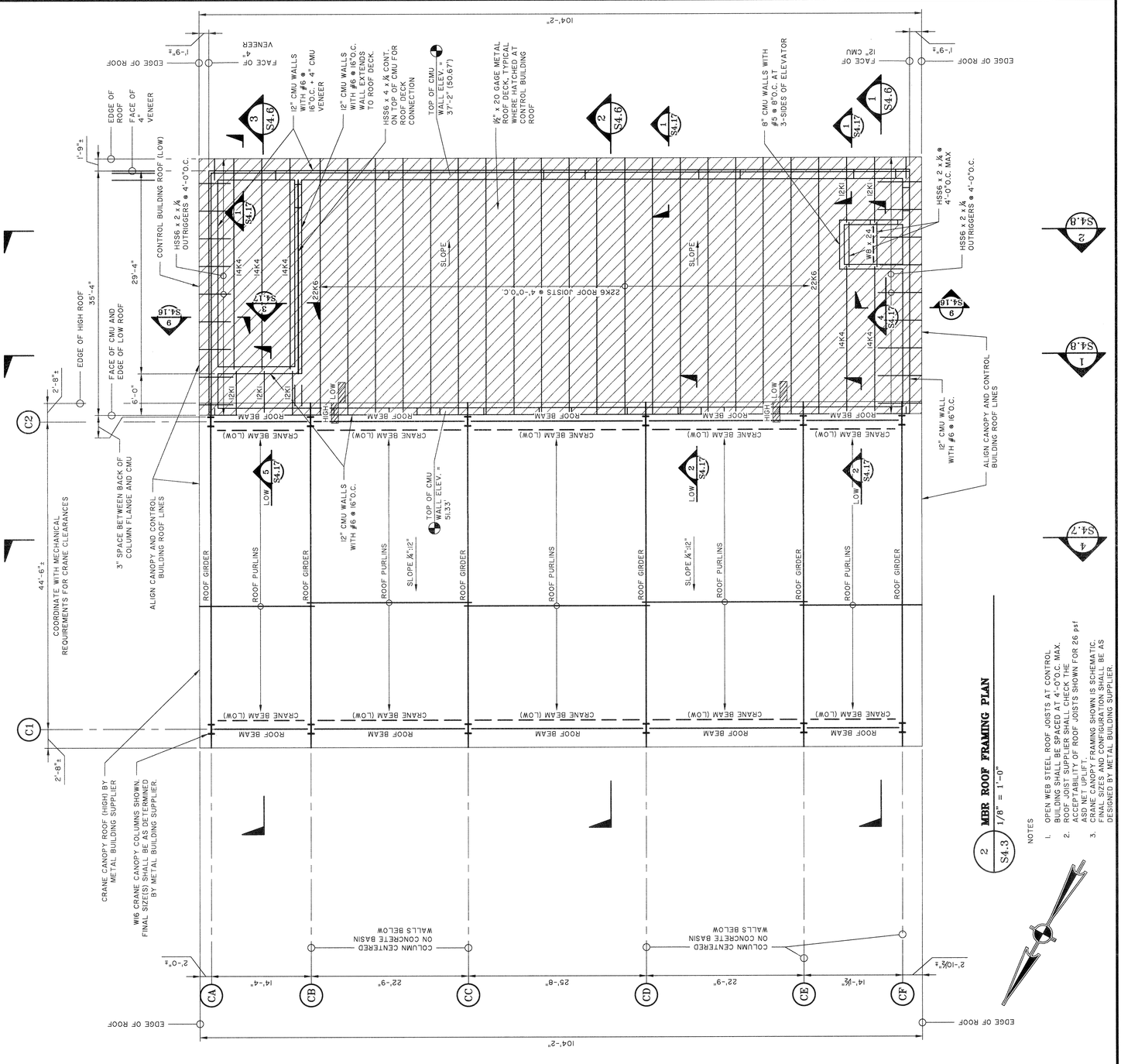
MBR - BUILDING ROOF FRAMING AND CRANE CANOPY

JOB NO:	25863.00000
DATE:	1-16-19
DRAWN:	JEP
CHECKED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	1" = 30'

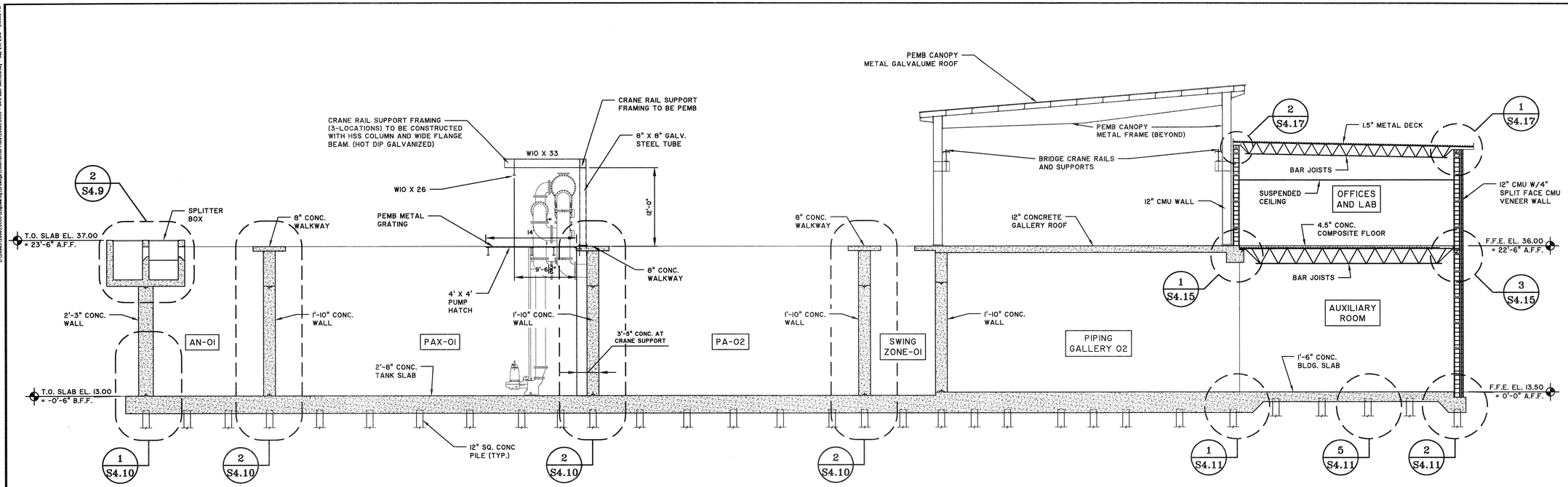
S4.4



2 MBR ROOF FRAMING PLAN (S4.3) 1/8" = 1'-0"

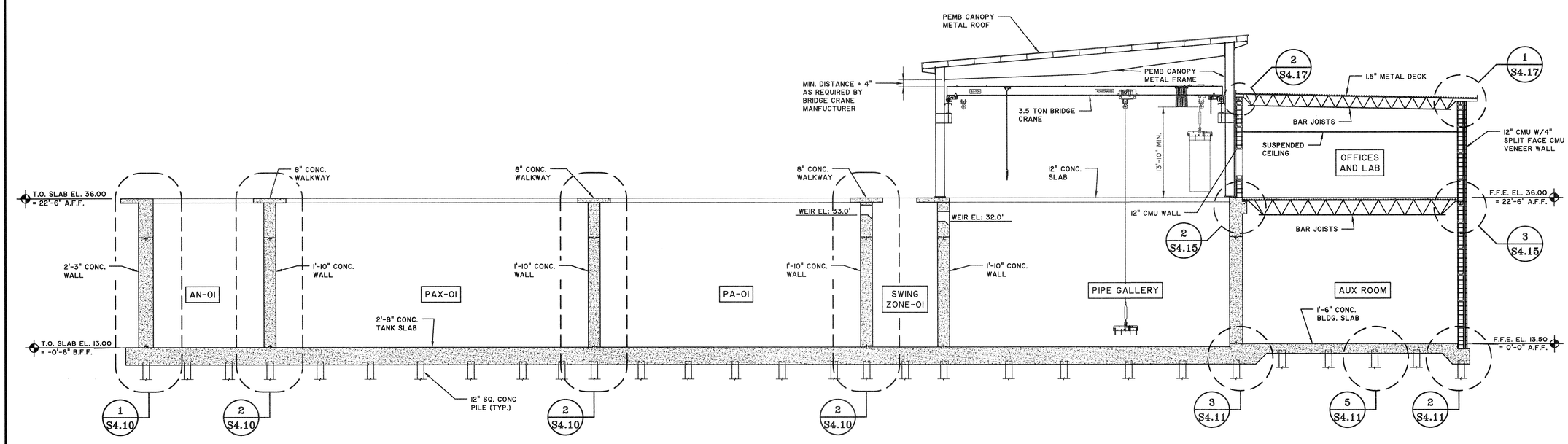
NOTES

1. OPEN WEB STEEL ROOF JOISTS AT CONTROL BUILDING SHALL BE SIZED AT 4'-0" O.C. MAX. BUILDING SUPPLIER SHALL CHECK THE ACCEPTABILITY OF ROOF JOISTS SHOWN FOR 26 psf ASD NET UPLIFT.
2. CRANE CANOPY FRAMING SHOWN IS SCHEMATIC. FINAL SIZES AND CONFIGURATION SHALL BE AS DESIGNED BY METAL BUILDING SUPPLIER.



1 / S4.5 MBR SECTION
1/8" = 1'-0"

NOTE: ALL FRAMING FOR CRANE CANOPY AND CRANE RAIL STRUCTURE SHALL BE HOT DIP GALVANIZED



2 / S4.5 MBR SECTION
1'-5 3/4", 0'-5 9/16", 0'-0"

1/8"=1'-0" 0' 5' 10' 20' 30'

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MBR STRUCTURAL OVERALL SECTIONS

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DESIGNED:	JEP
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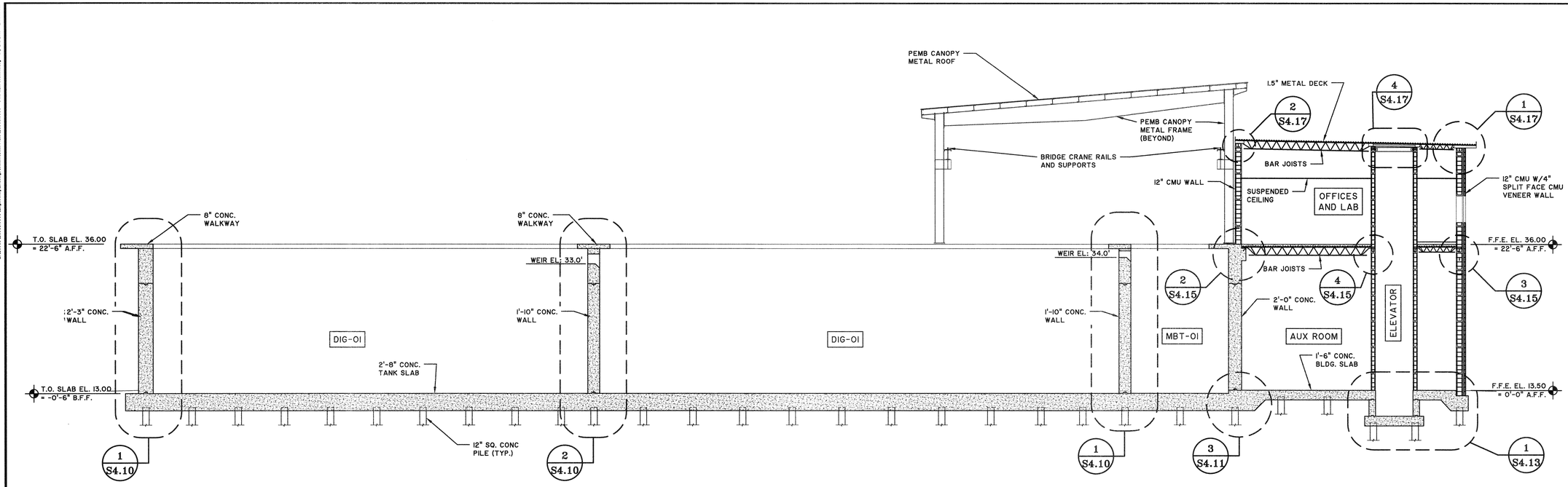
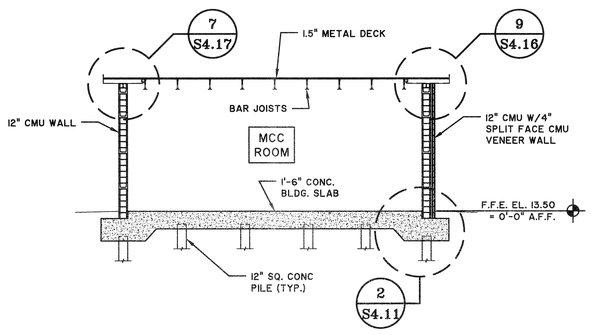
APPROVED:	JAH
SCALE:	AS NOTED

S4.5

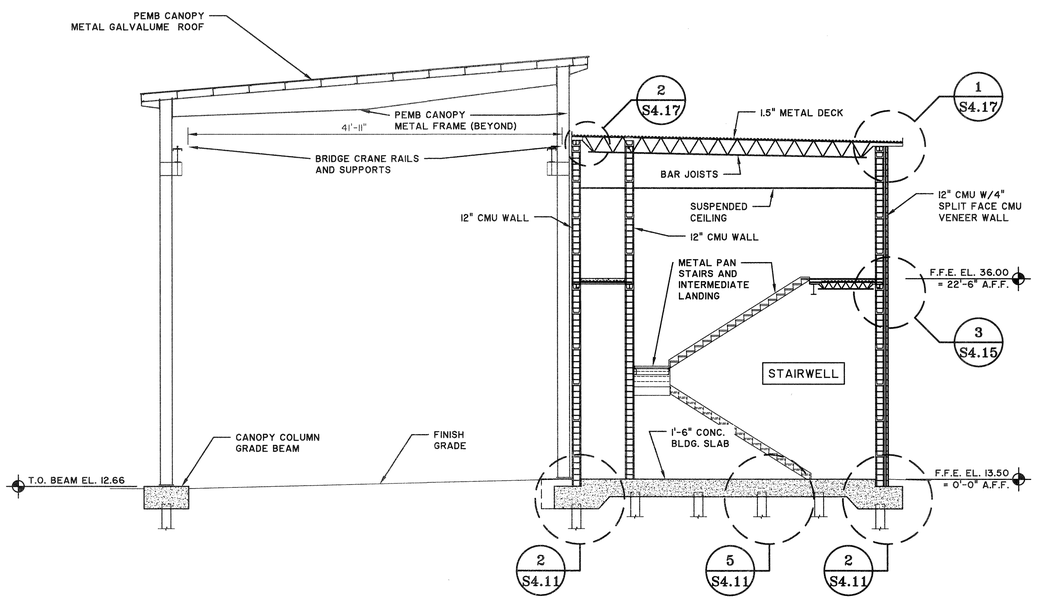


1 / S4.6 MBR SECTION
1/8" = 1'-0"

NOTE: ALL FRAMING FOR CRANE CANOPY AND CRANE RAIL STRUCTURE SHALL BE HOT DIP GALVANIZED



2 / S4.6 MCC SECTION
1/8" = 1'-0"



3 / S4.6 MBR SECTION
1/8" = 1'-0"

1/8"=1'-0" 0' 5' 10' 20' 30'

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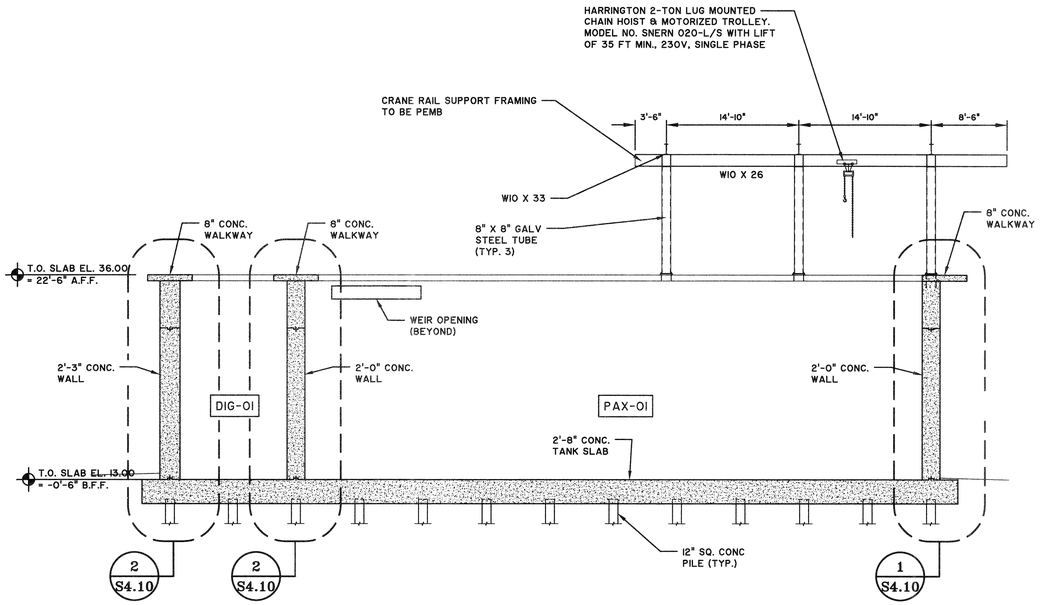
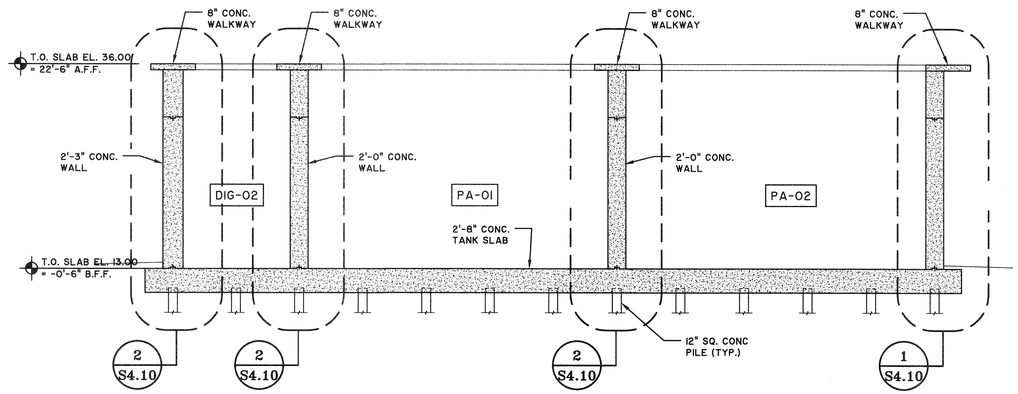
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

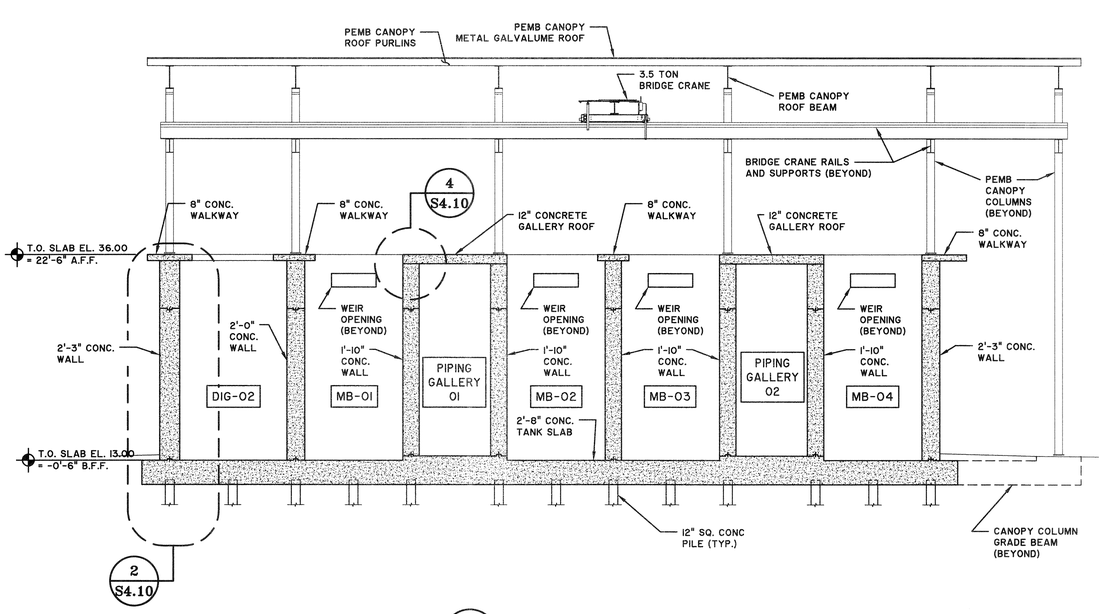
S4.6



1 S4.7 **MBR SECTION** 1/8" = 1'-0"

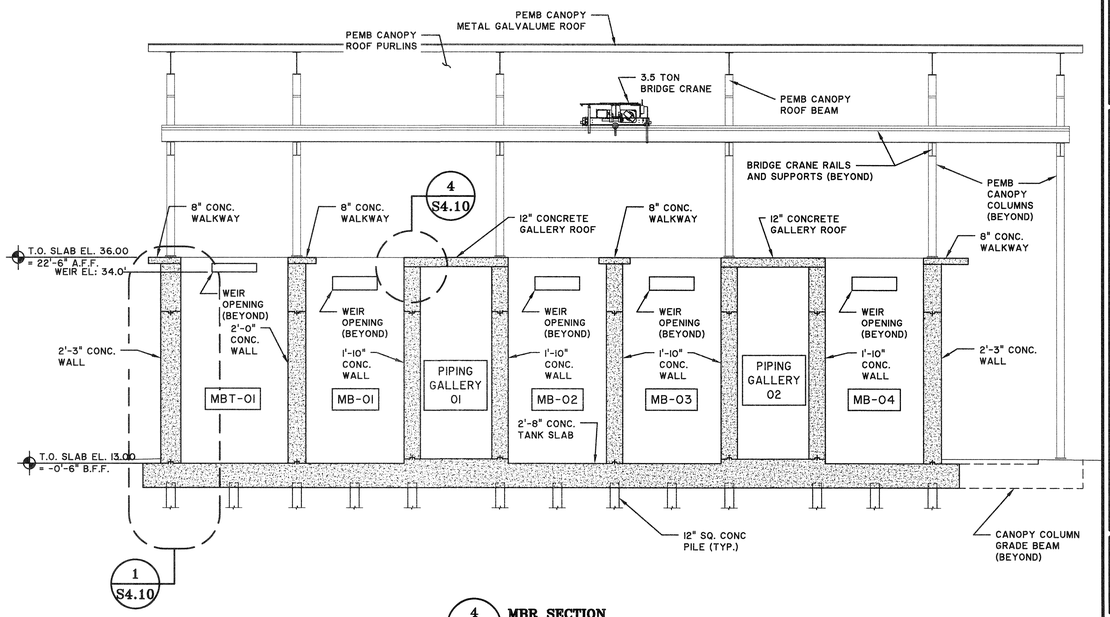


2 S4.7 **MBR SECTION** 1/8" = 1'-0"



3 S4.7 **MBR SECTION** 1/8" = 1'-0"

1/8"=1'-0" 0' 5' 10' 20' 30'



4 S4.7 **MBR SECTION** 1/8" = 1'-0"

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MBR STRUCTURAL OVERALL SECTIONS

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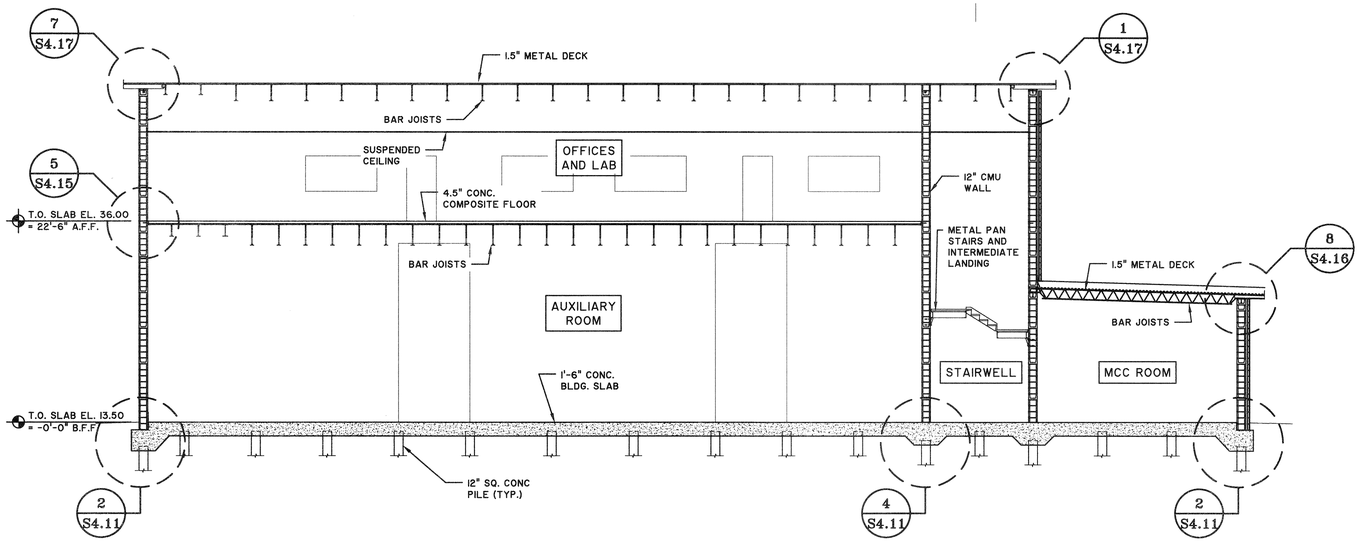
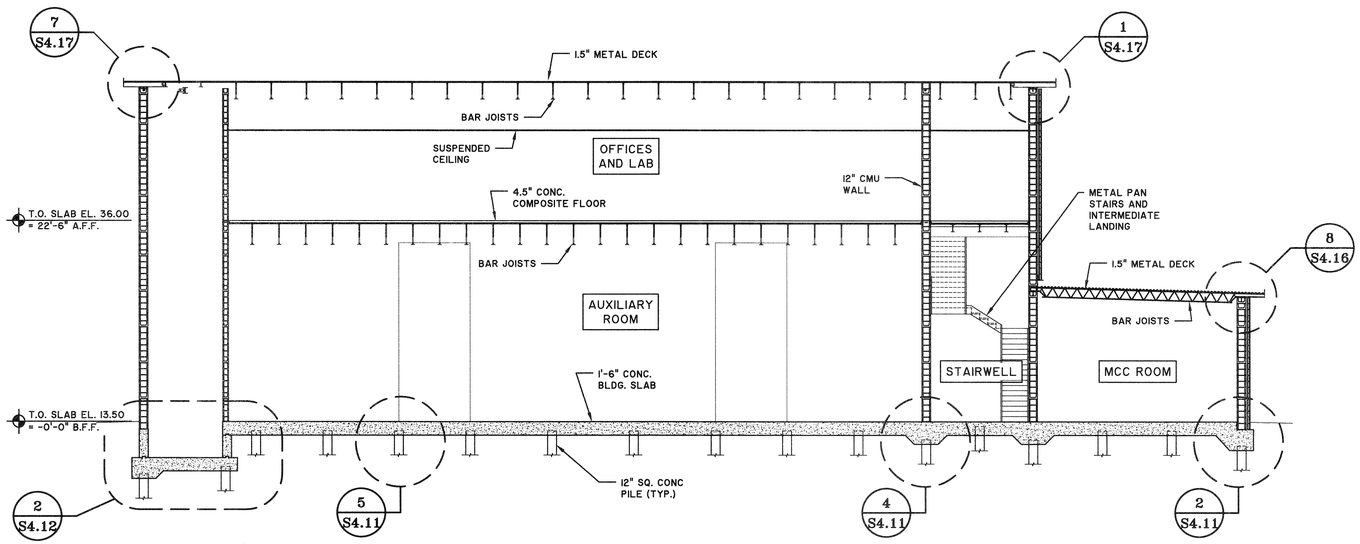
APPROVED:	JAH
SCALE:	AS NOTED

S4.7



1 S4.8 **MBR SECTION**
1/8" = 1'-0"



2 S4.8 **MBR SECTION**
1/8" = 1'-0"

1/8"=1'-0" 0' 5' 10' 20' 30'

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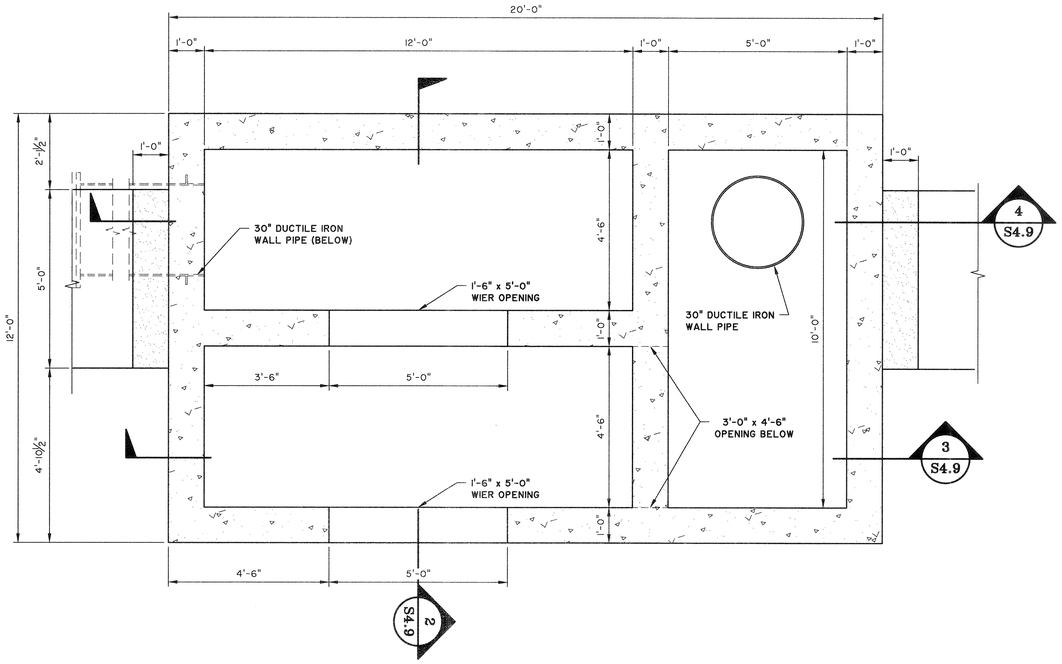
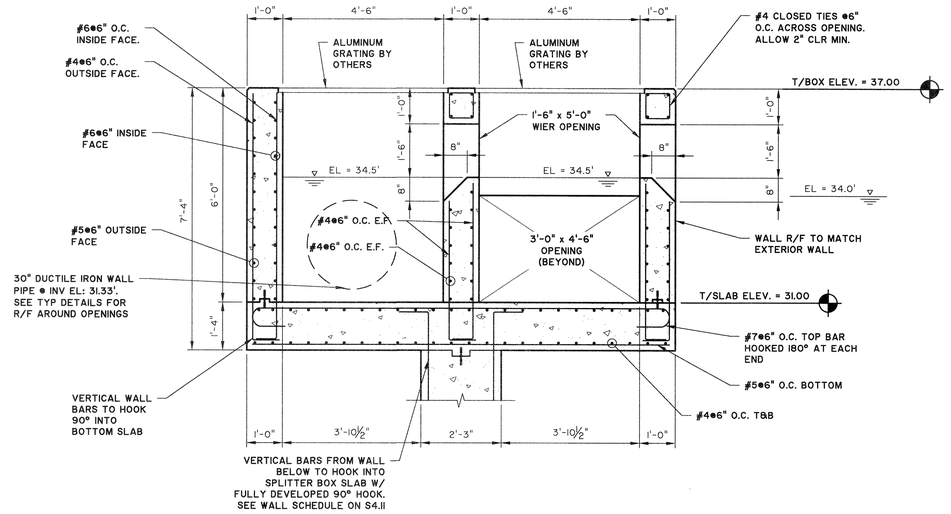
MBR STRUCTURAL OVERALL SECTIONS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

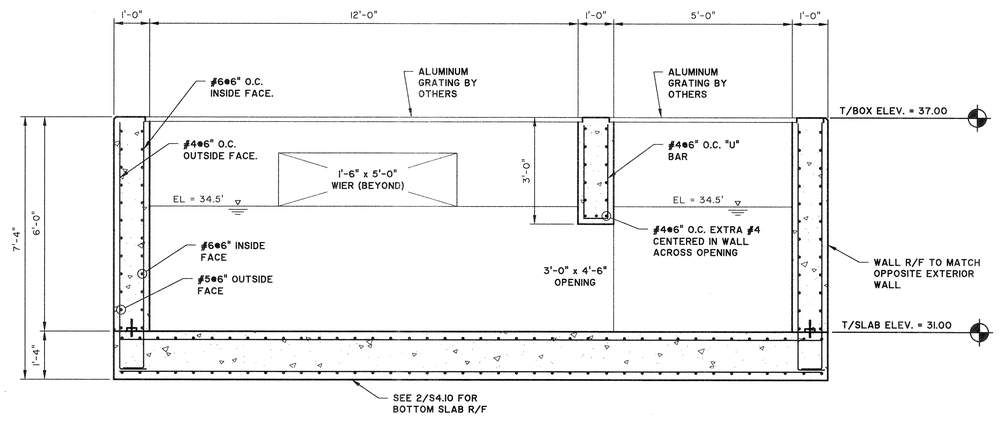
S4.8



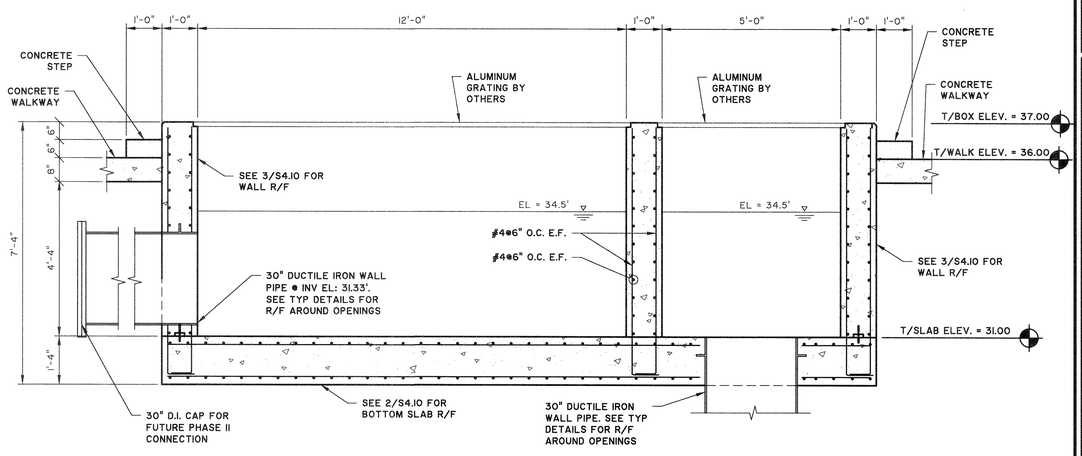
1 / S4.9 **SPLITTER BOX PLAN**
1/2" = 1'-0"



2 / S4.9 **SPLITTER BOX SECTION**
1/2" = 1'-0"



3 / S4.9 **SPLITTER BOX SECTION**
1/2" = 1'-0"



4 / S4.9 **SPLITTER BOX SECTION**
1/2" = 1'-0"

1/2"=1'-0" 1' 0' 1' 2' 3' 4' 5'

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MBR SPLITTER BOX PLAN AND SECTIONS

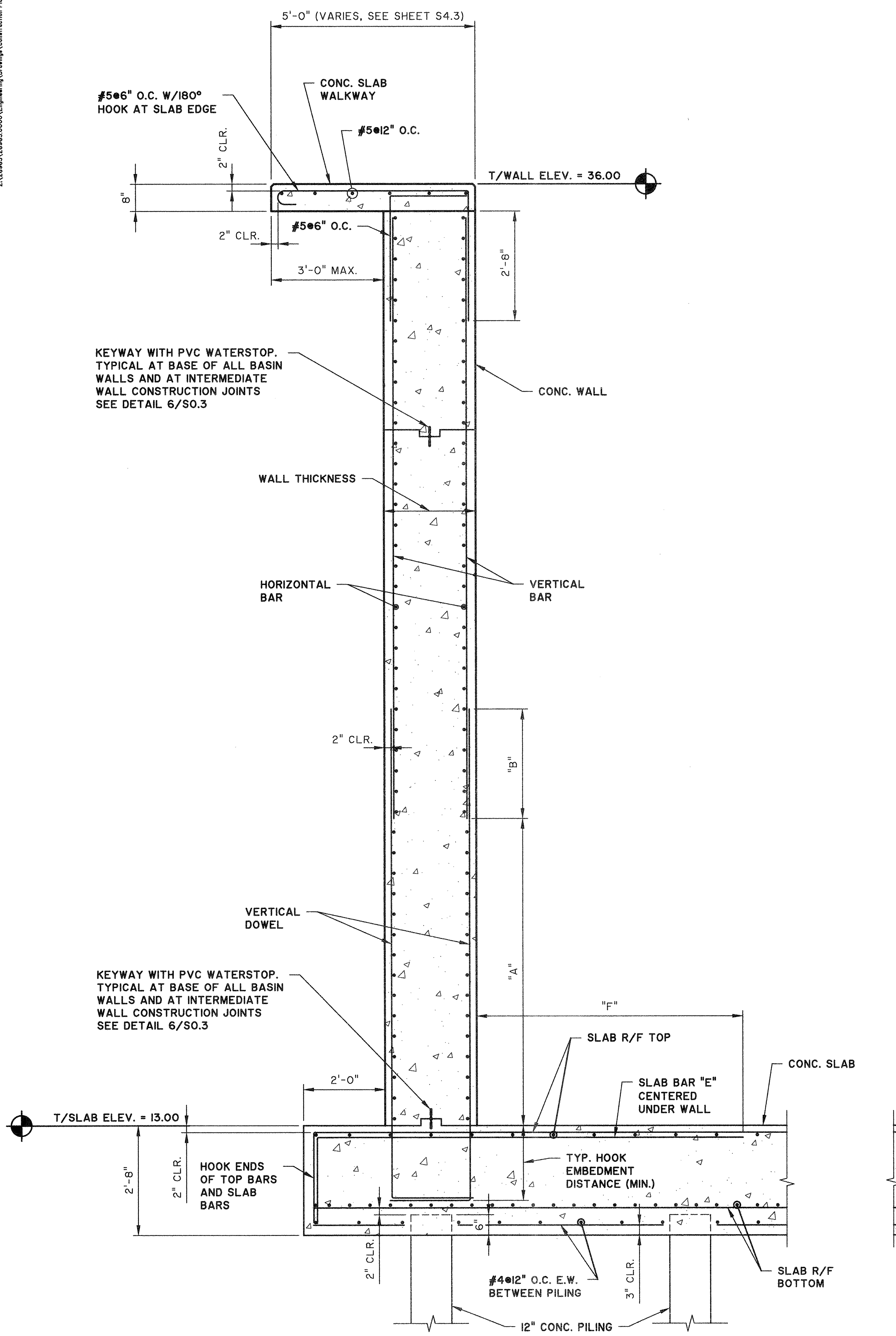
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S4.9

WALL REINFORCING TABLE

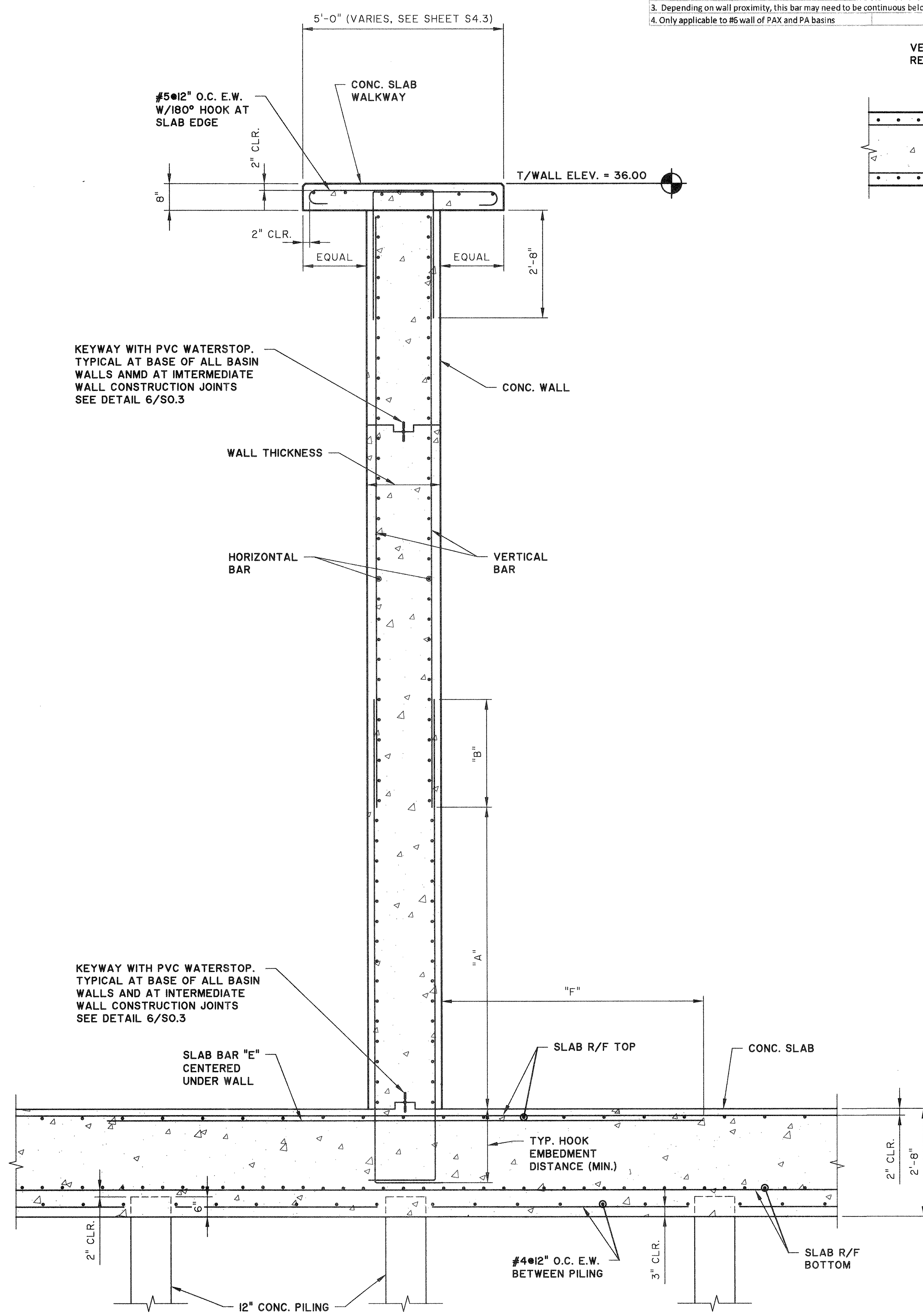
Wall Designation	Wall Thickness	Vertical Dowel	Vertical Bar Typ	Vertical Bar Dist "A"	Vertical Bar Dist "B"	Horizontal at Corner & Intersections[1]	Horizontal Bar Typ	[2]Horizontal Bar Dist "C"	Horizontal Bar Dist "D"	Slab Thickness	[3]Slab Bar "E"	Slab Bar Dist "F"	Slab R/F Top	Slab R/F Bottom	Waterstop at Base & Joints
1	27"	#10 @ 6"	#5 @ 6"	7'-6"	2'-8"	#6 @ 6"	#5 @ 6"	7'-6"	2'-8"	2'-8"	#9 @ 6"	6'-6"	#7 @ 12"	#7 @ 6"	Yes
2	27"	#10 @ 6"	#5 @ 6"	7'-6"	2'-8"	#7 @ 6"	#5 @ 6"	7'-0"	2'-8"	2'-8"	#9 @ 6"	6'-6"	#7 @ 12"	#7 @ 6"	No
3	22"	#8 @ 6"	#5 @ 6"	2'-6"	2'-8"	#7 @ 6"	#5 @ 6"	4'-8"	2'-8"	2'-8"	#9 @ 12"	6'-6"	#7 @ 12"	#7 @ 6"	Yes
4	22"	#6 @ 12"	#6 @ 12"	n/a	3'-2"	#6 @ 6"	n/a	n/a	n/a	2'-8"	not needed	n/a	#7 @ 12"	#7 @ 6"	Yes
5	24"	#6 @ 12"	#6 @ 12"	n/a	3'-2"	#6 @ 6"	n/a	n/a	n/a	2'-8"	not needed	n/a	#7 @ 12"	#7 @ 6"	Yes
6	24"	#9 @ 6"	#5 @ 6"	4'-6"	2'-8"	#7 @ 6"	#5 @ 6"	[4] 7'-4"	2'-8"	2'-8"	#8 @ 6"	5'-10"	#7 @ 12"	#7 @ 6"	Yes
7	22"	#10 @ 6"	#5 @ 6"	4'-6"	2'-8"	#6 @ 6"	#6 @ 6"	6'-6"	3'-2"	2'-8"	#9 @ 6"	6'-6"	#7 @ 12"	#7 @ 6"	Yes

1. Horizontal bars at corners and intersections of different wall designations to be the larger of the two, as specified in table above.
2. Not applicable for walls shorter than 2x distance "D" and/or may be easier to use corner size and not downsize due to short length.
3. Depending on wall proximity, this bar may need to be continuous below multiple walls, extending with development length beyond last wall.
4. Only applicable to #6 wall of PAX and PA basins



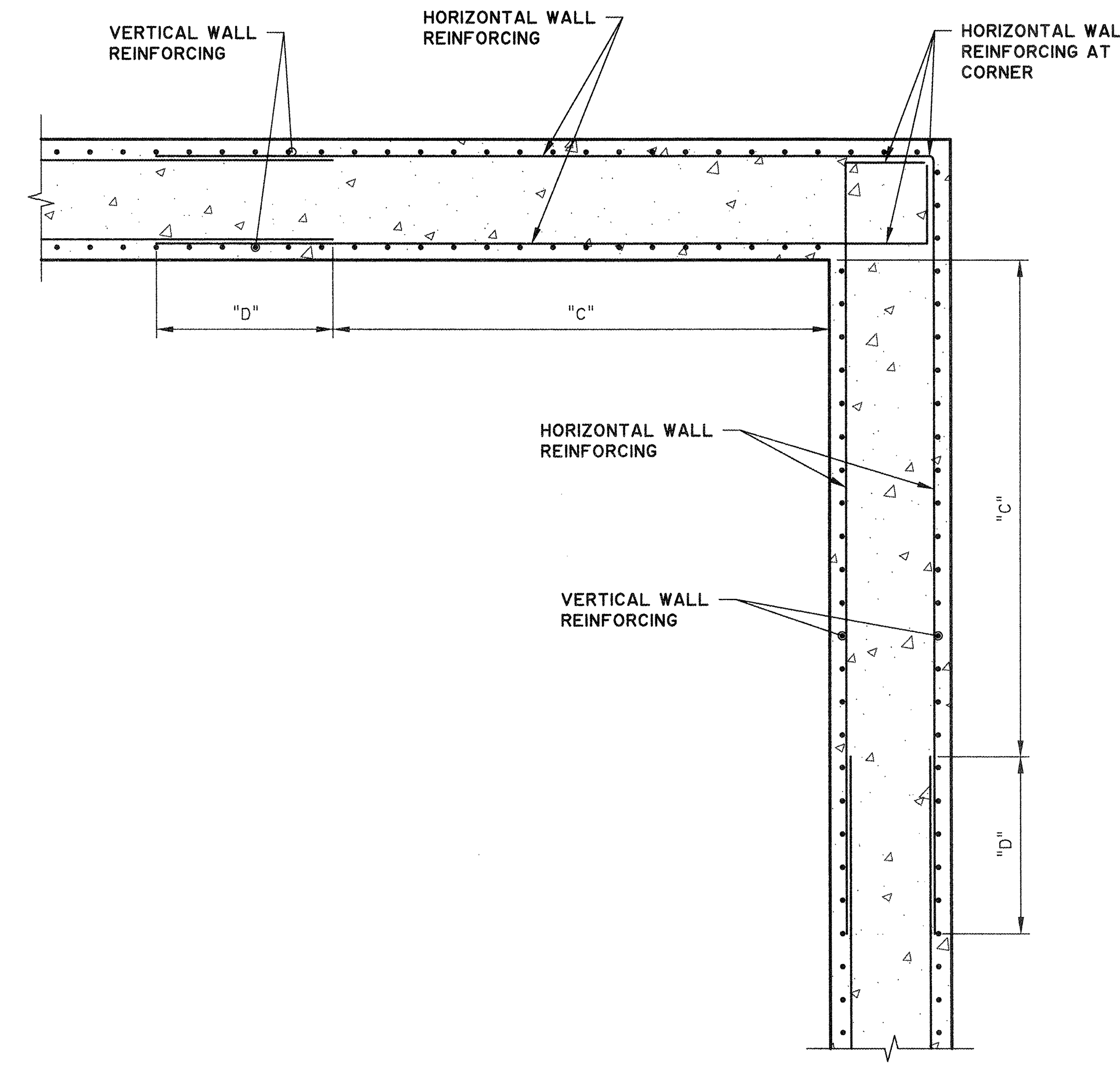
1 TYPICAL MBR TANK EXTERIOR WALL
S4.10 1/2" = 1'-0"

NOTE:
1. THIS DETAIL TO BE USED IN CONJUNCTION WITH WALL DESIGN TABLE PROVIDED ON THIS SHEET



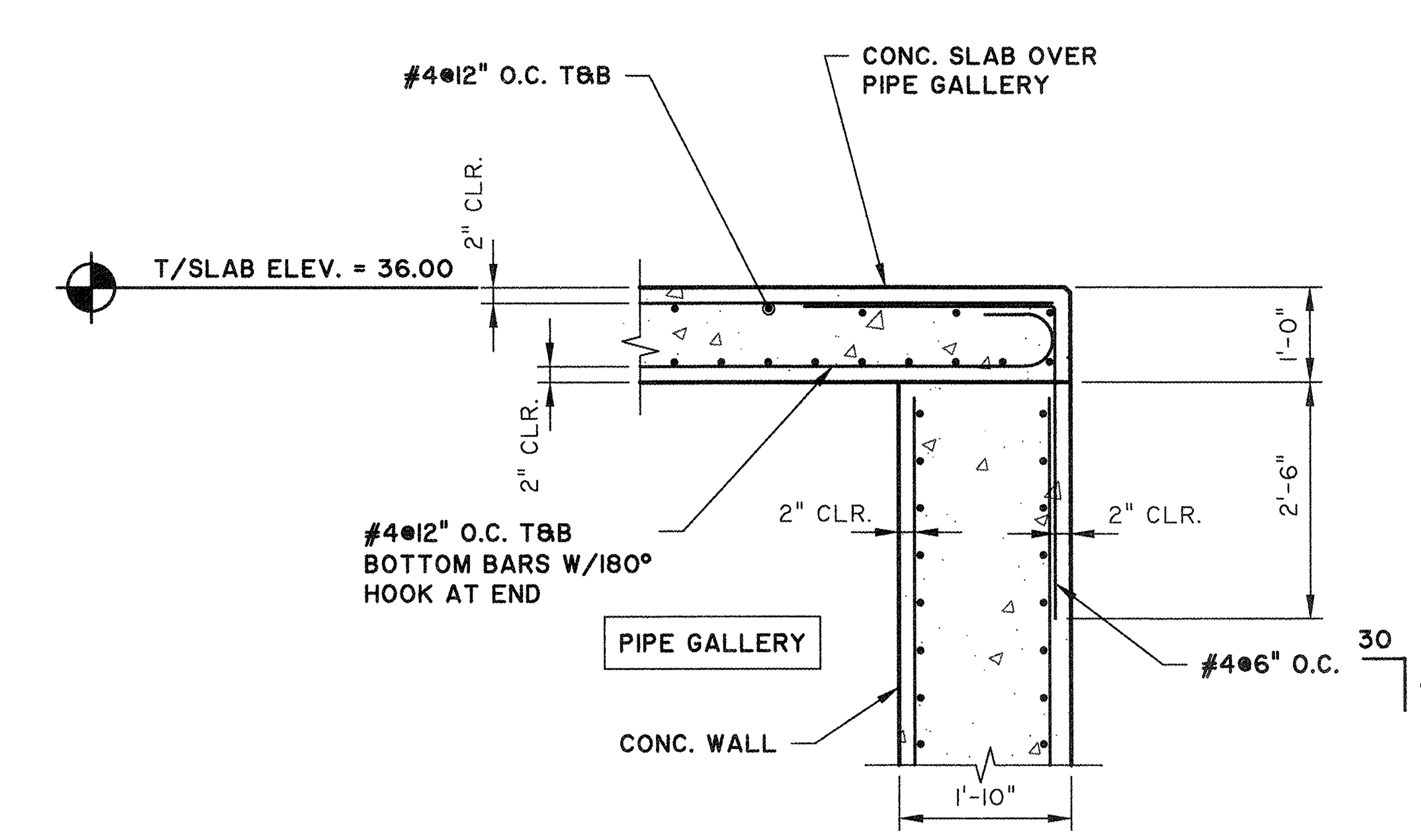
2 TYPICAL MBR TANK INTERIOR WALL
S4.10 1/2" = 1'-0"

NOTE:
1. THIS DETAIL TO BE USED IN CONJUNCTION WITH WALL DESIGN TABLE PROVIDED ON THIS SHEET



3 TYPICAL MBR TANK INTERIOR WALL
S4.10 1/2" = 1'-0"

NOTE:
1. THIS DETAIL TO BE USED IN CONJUNCTION WITH WALL DESIGN TABLE PROVIDED ON THIS SHEET



4 TYPICAL MBR TANK INTERIOR WALL
S4.10 1/2" = 1'-0"

1/2"=1'-0" 1' 0' 1' 2' 3' 4' 5'

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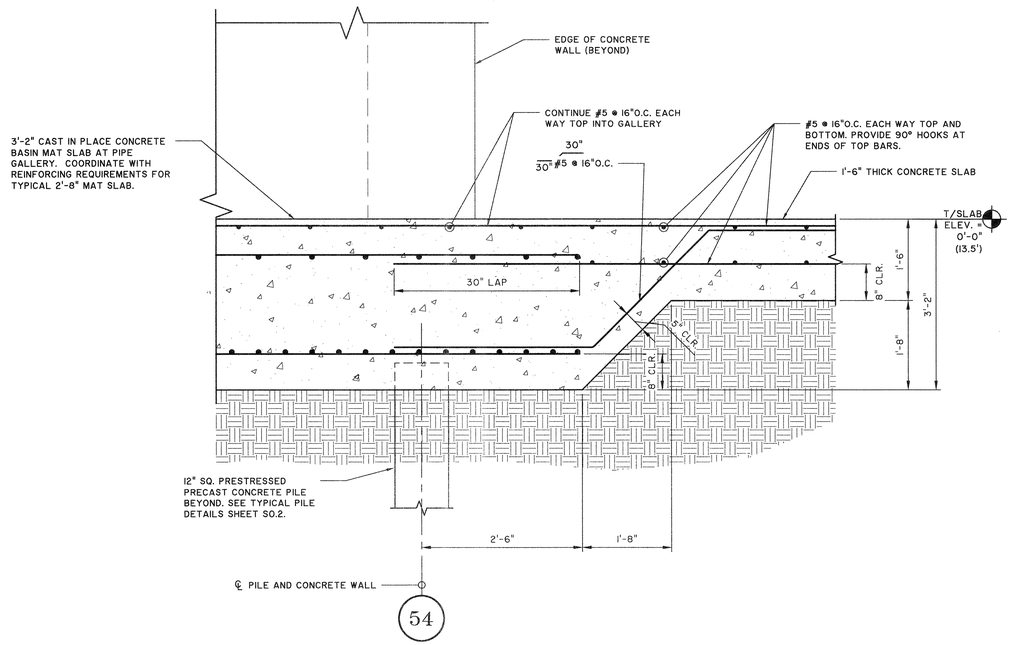
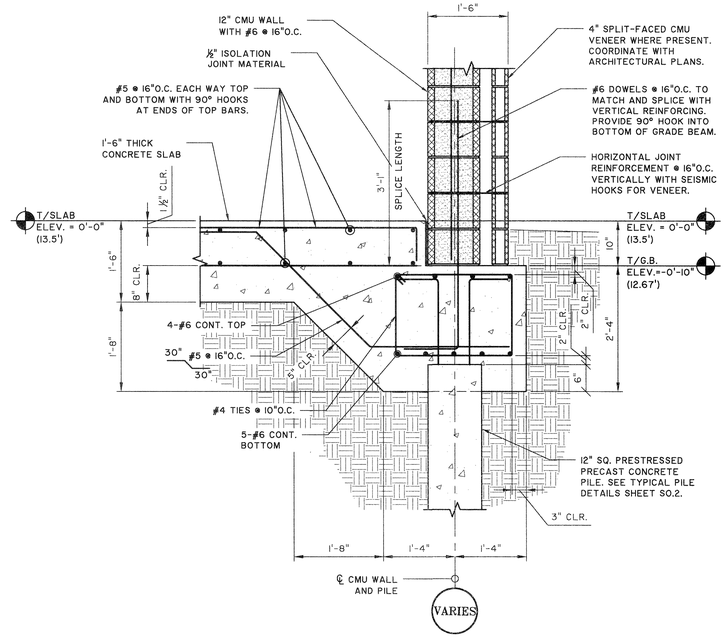
TRAVIS FIELD WATER RECLAMATION FACILITY
MBR CONCRETE TANK TYPICAL DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

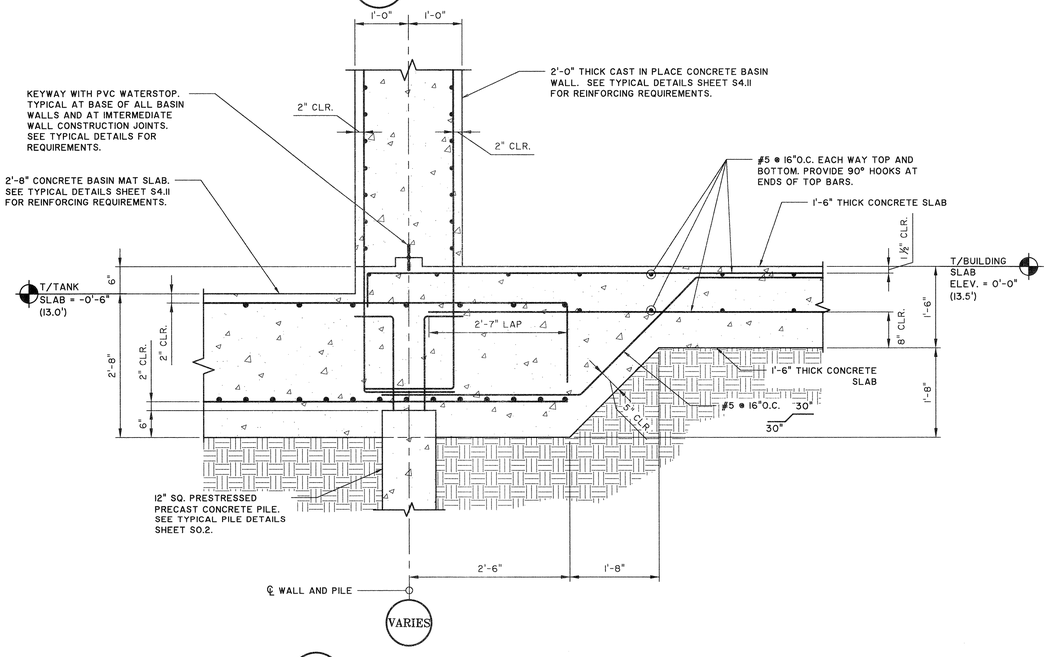
S4.10



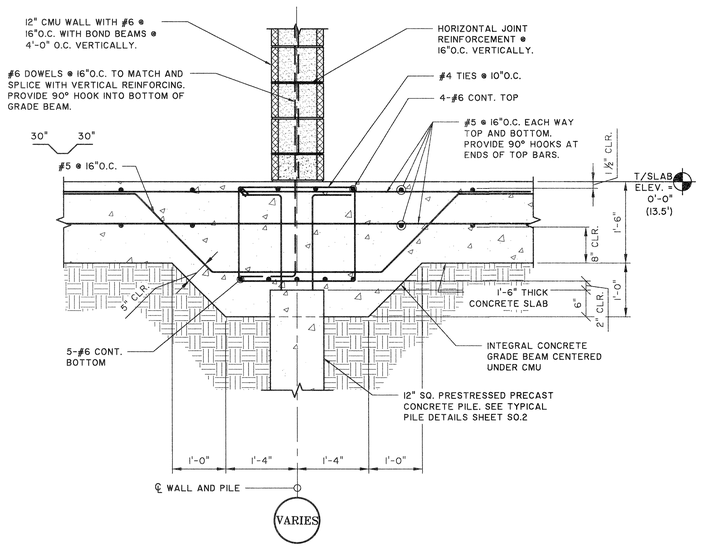
54



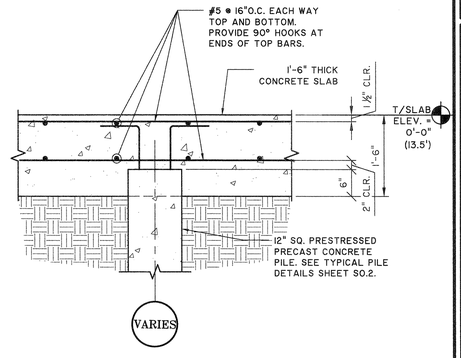
2 **SECTION** S4.11 — 3/4" = 1'-0"



3 **SECTION** S4.11 — 3/4" = 1'-0"



4 **SECTION** S4.11 — 3/4" = 1'-0"



5 **SECTION** S4.11 — 3/4" = 1'-0"

3/4"=1'-0" 1' 6" 0' 1' 2' 3' 4'

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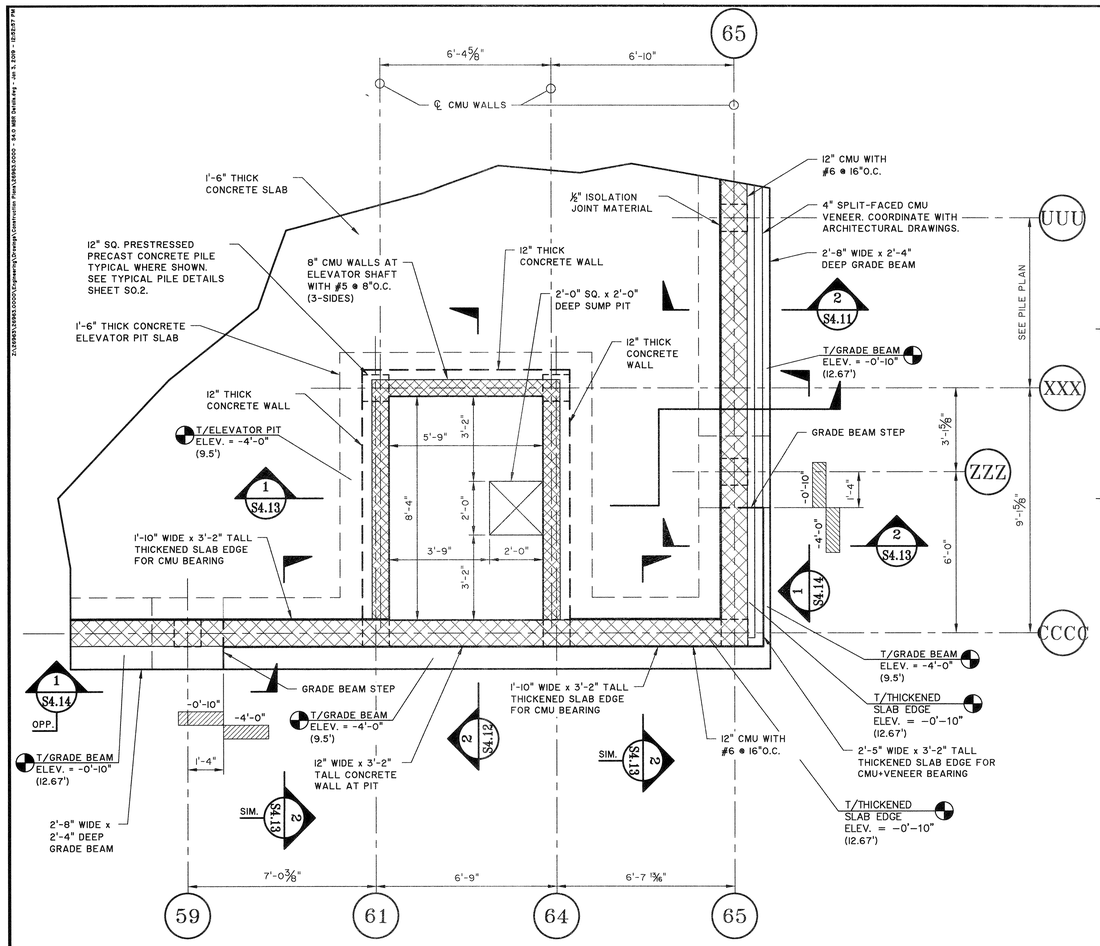
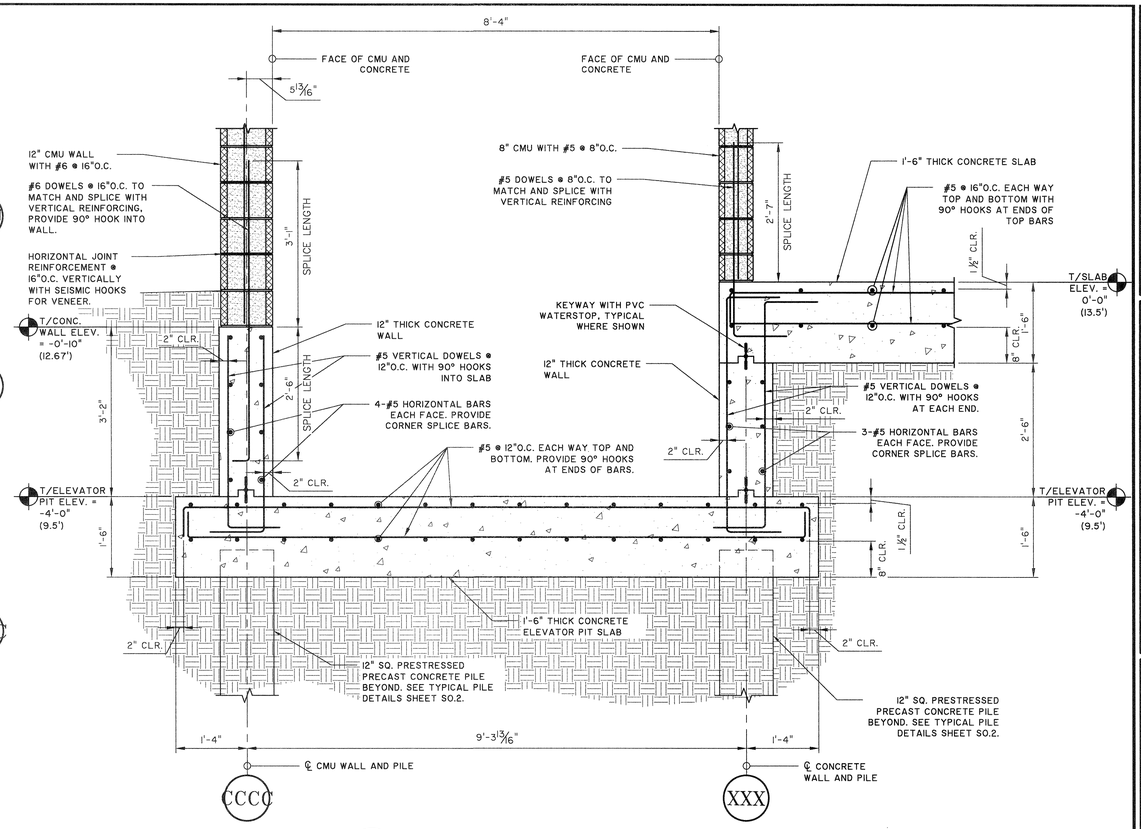
MBR FOUNDATION DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S4.11



1 S4.12 **ENLARGED ELEVATOR PLAN**
3/8" = 1'-0"



2 S4.12 **SECTION**
3/8" = 1'-0"

3/8"=1'-0" 1' 0 1' 5' 10'

3/4"=1'-0" 1' 6" 0' 1' 2' 3' 4'

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SOROKOPUD

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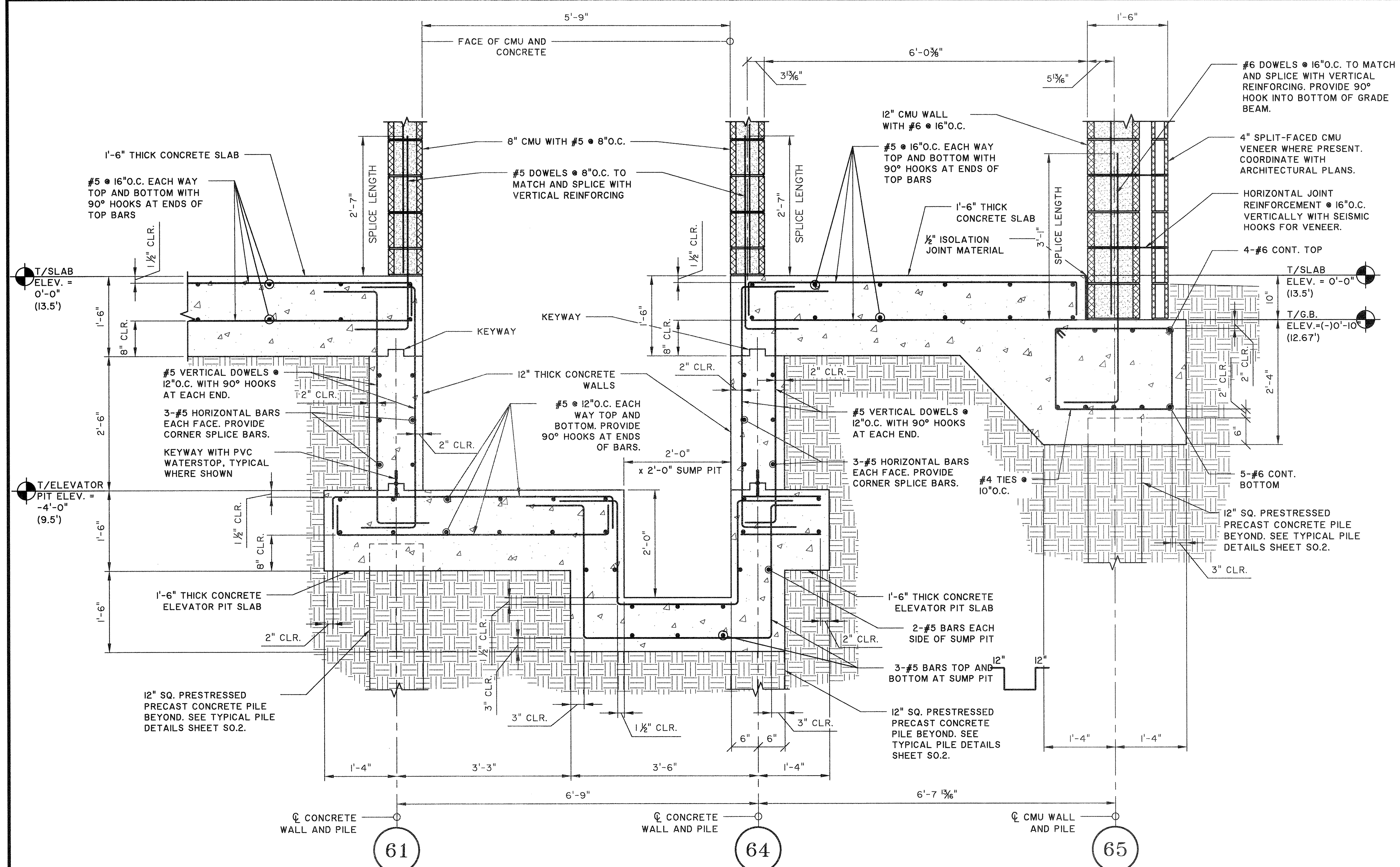
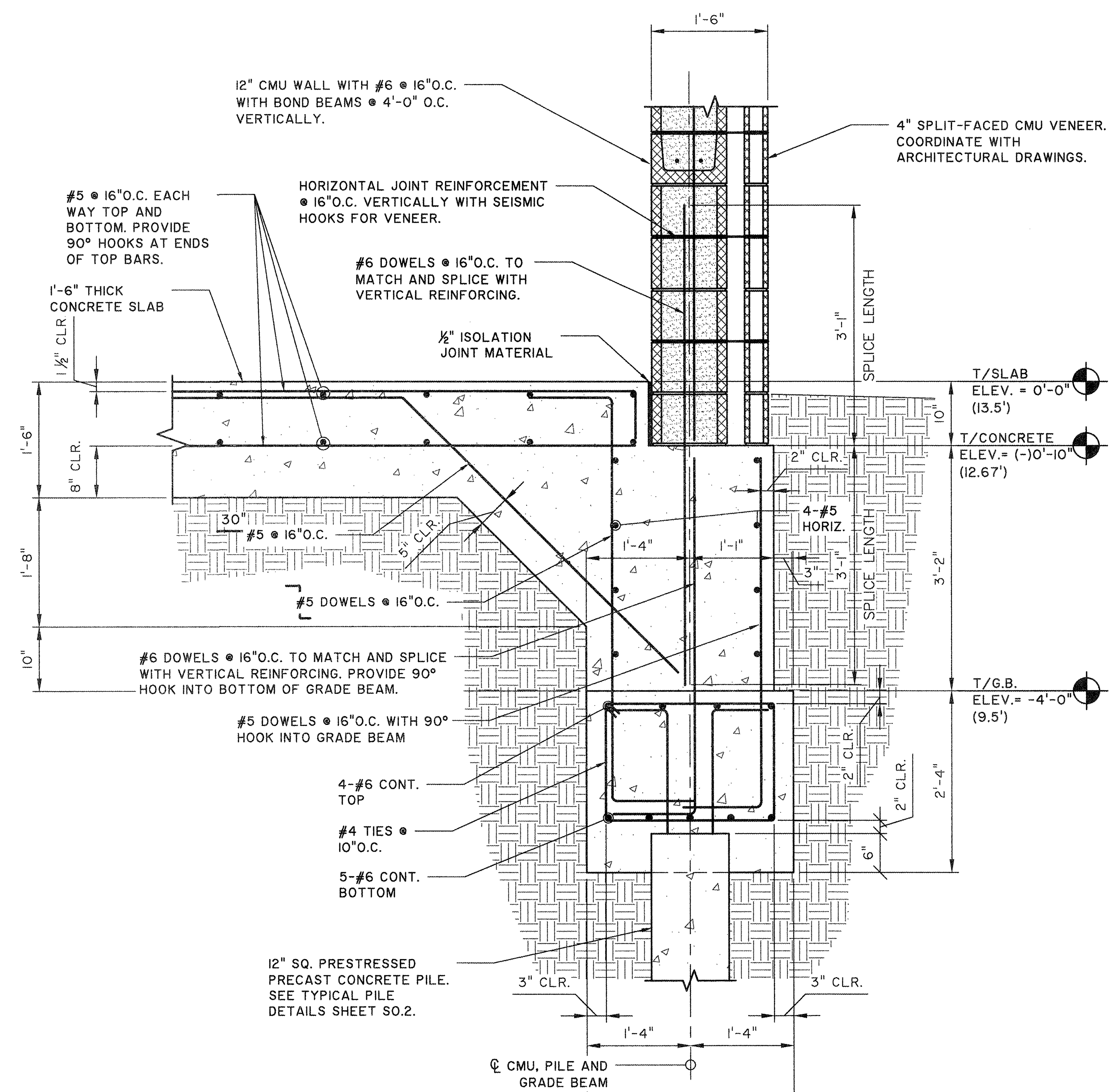
MBR BUILDING ELEVATOR PLAN AND DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S4.12



1 SECTION
S4.13 3/4" = 1'-0"



2 SECTION
S4.13 3/4" = 1'-0"

3/4"=1'-0" 1' 6" 0' 1' 2' 3' 4'

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE026741 FRED SOROORIAN

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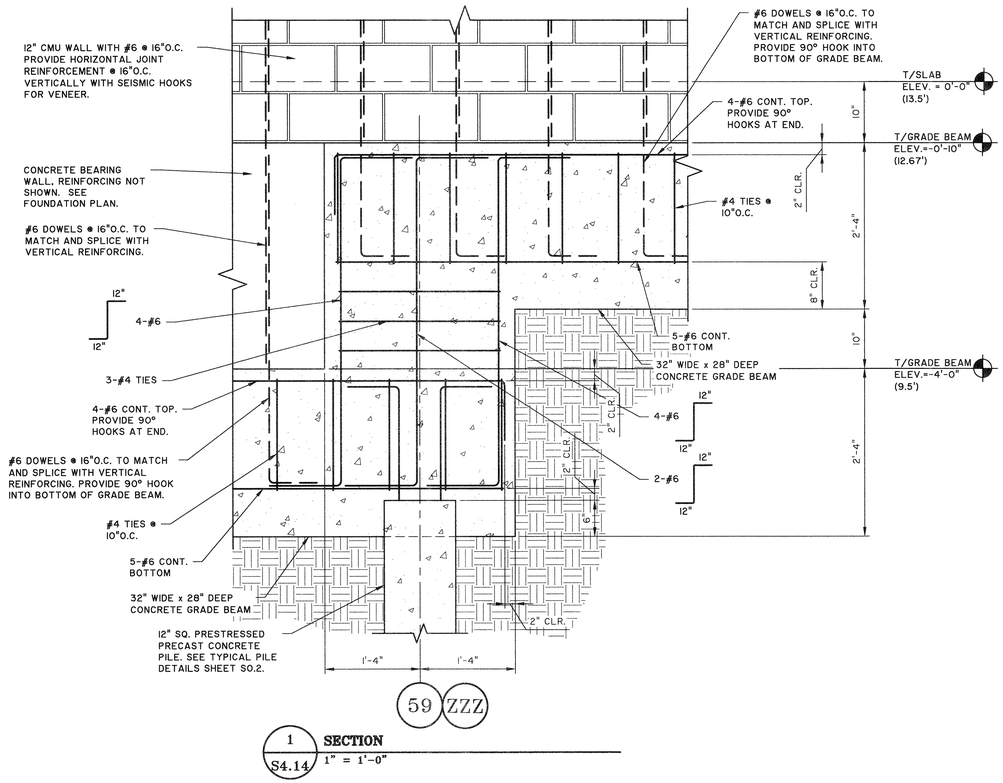
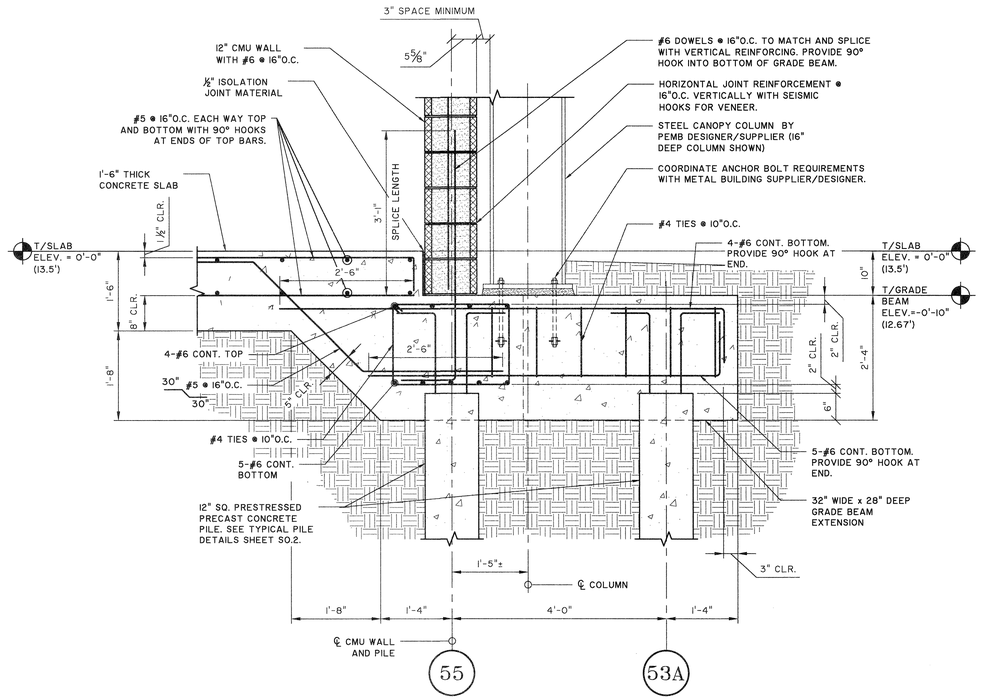
MBR BUILDING ELEVATOR DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

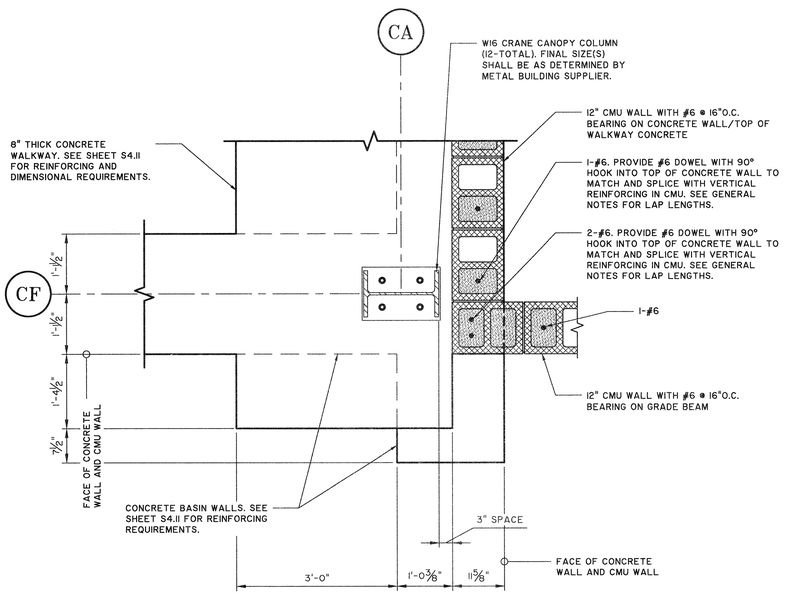
S4.13



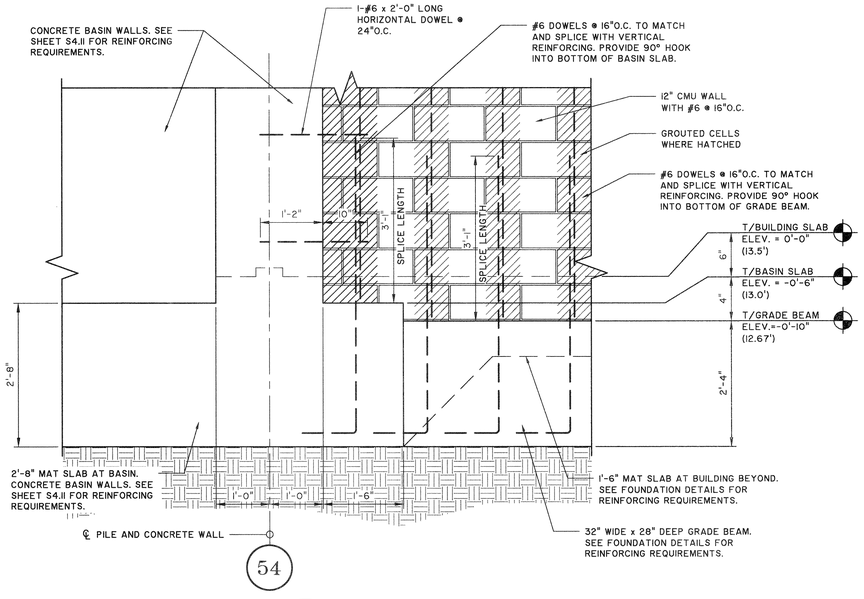
1 / S4.14 **SECTION**
1" = 1'-0"



2 / S4.14 **SECTION**
3/4" = 1'-0"



A / S4.14 **DETAIL**
3/4"=1'-0"



3 / S4.14 **SECTION**
3/4" = 1'-0"

3/4"=1'-0" 1' 6" 0' 1' 2' 3' 4'

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORDONI

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NO.	REVISIONS	BY	DATE
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MBR FOUNDATION DETAILS

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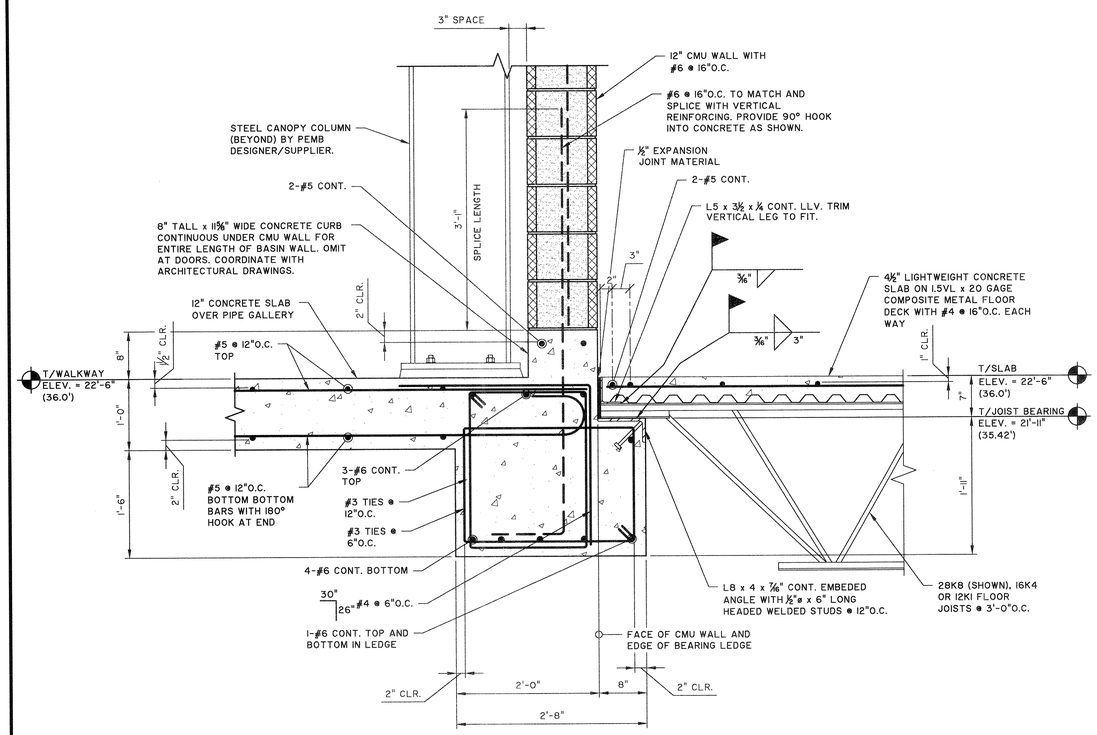
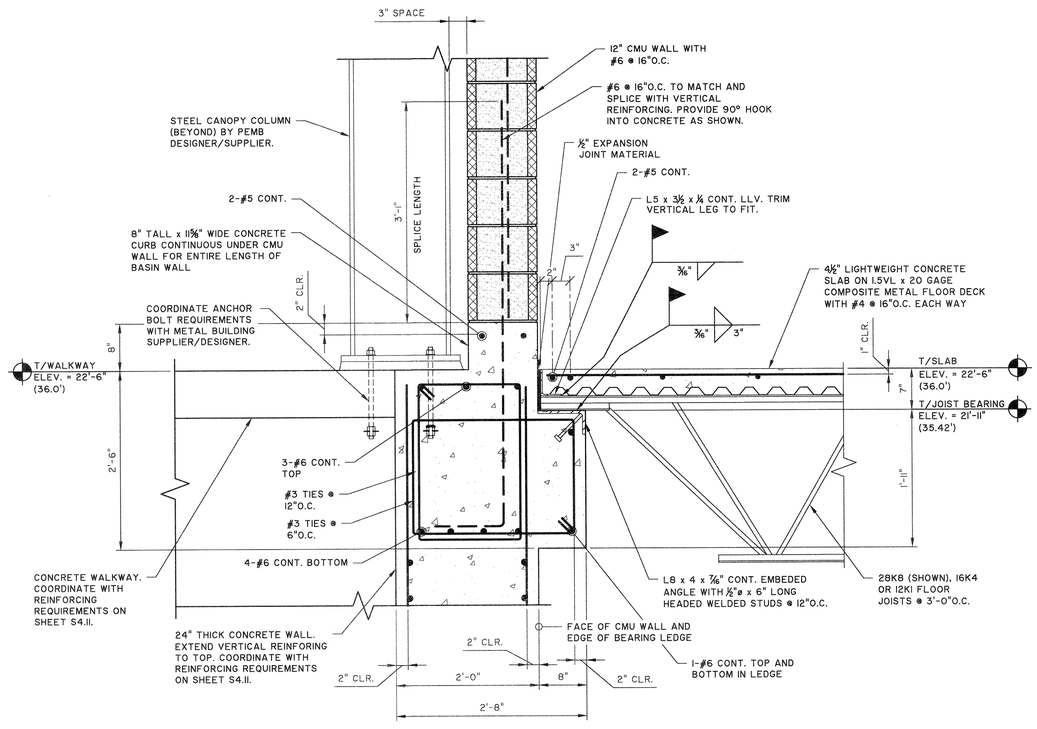
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

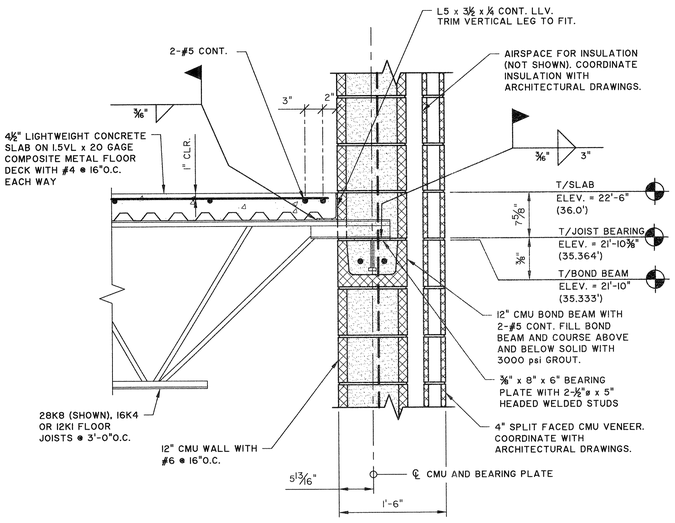
S4.14



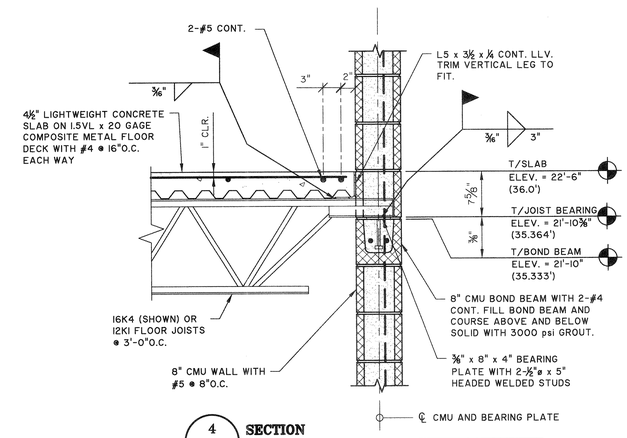
1 S4.15 **SECTION** 1"=1'-0"



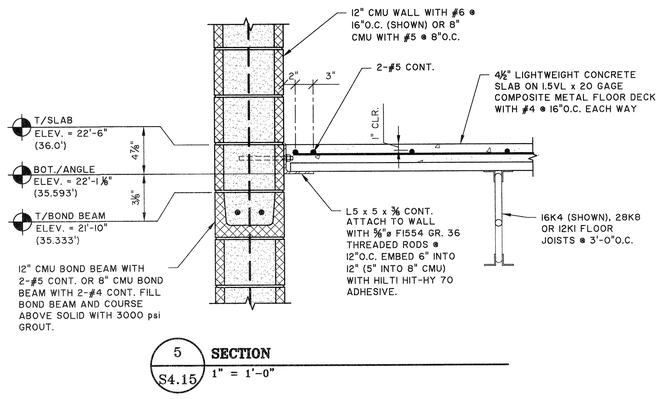
2 S4.15 **SECTION** 1"=1'-0"



3 S4.15 **SECTION** 1" = 1'-0"



4 S4.15 **SECTION** 1" = 1'-0"



5 S4.15 **SECTION** 1" = 1'-0"

1"=1'-0" 1' 6" 0' 1' 2' 3'

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MBR SECOND FLOOR DETAILS

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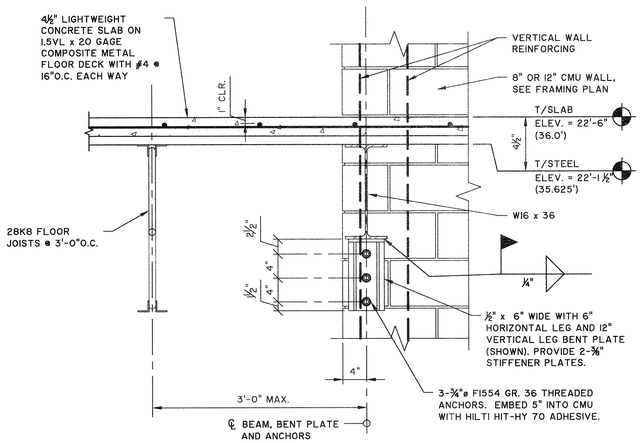
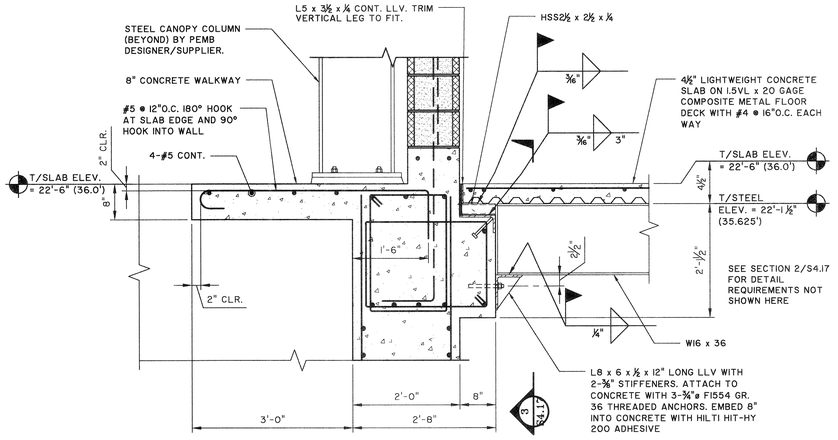
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

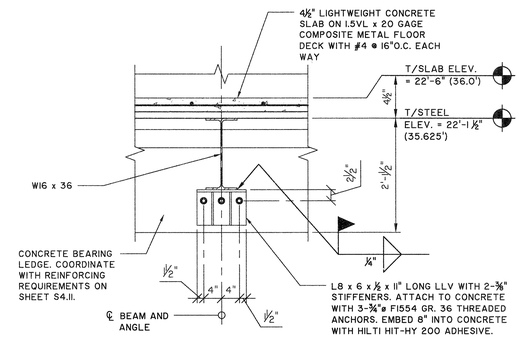
S4.15



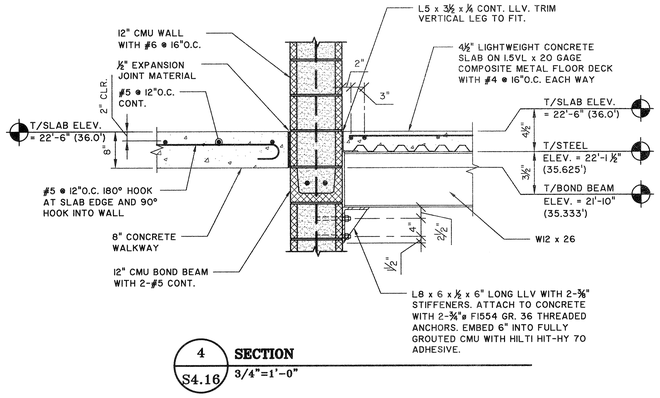
1 S4.16 **SECTION** 1"=1'-0"



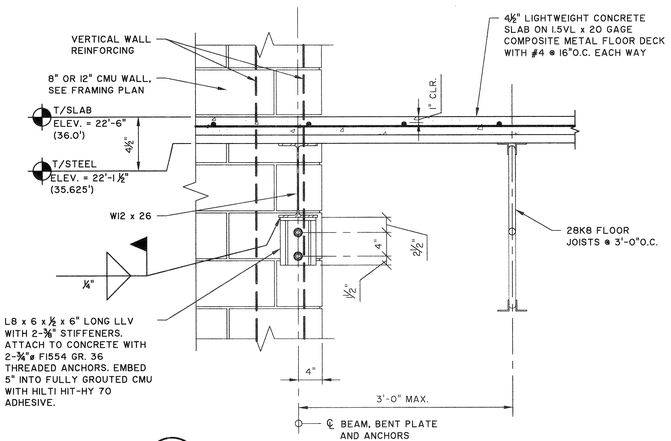
2 S4.16 **SECTION** 3/4"=1'-0"



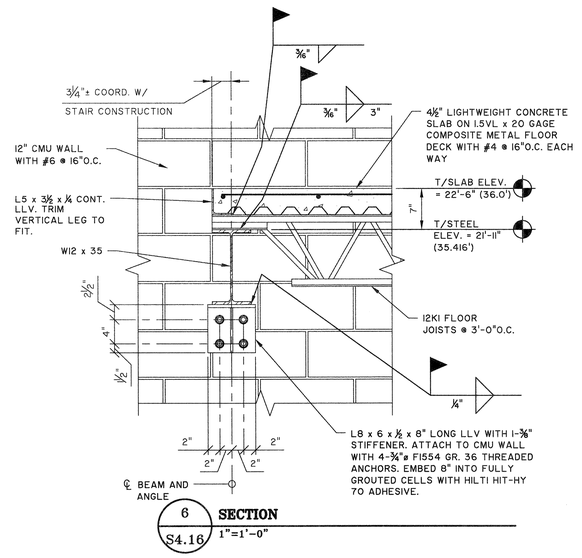
3 S4.16 **SECTION** 3/4"=1'-0"



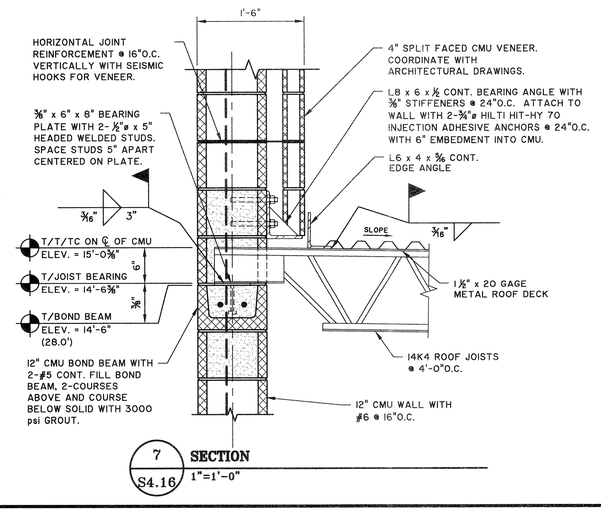
4 S4.16 **SECTION** 3/4"=1'-0"



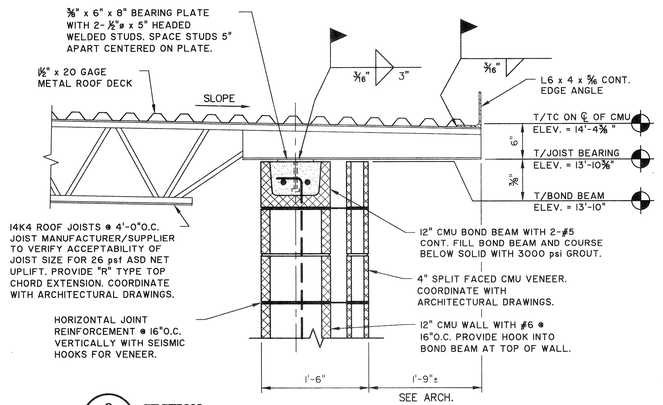
5 S4.16 **SECTION** 1"=1'-0"



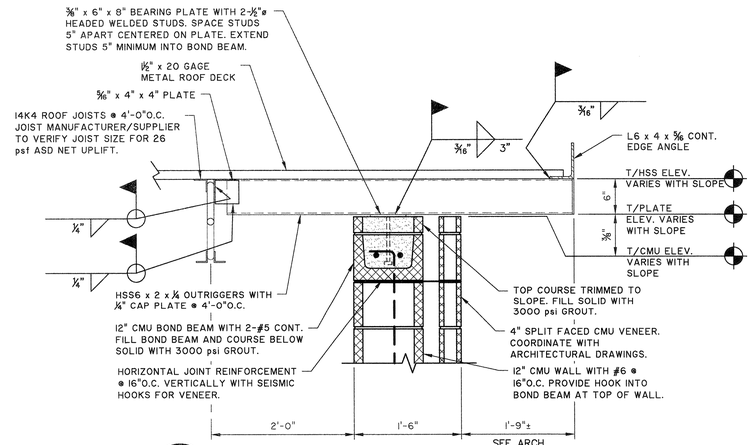
6 S4.16 **SECTION** 1"=1'-0"



7 S4.16 **SECTION** 1"=1'-0"



8 S4.16 **SECTION** 1"=1'-0"



9 S4.16 **SECTION** 1"=1'-0"

1"=1'-0" 1' 6" 0' 1' 2' 3'

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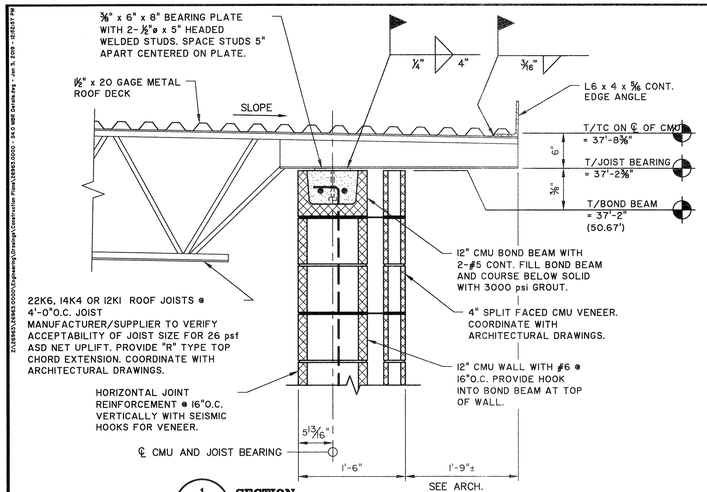
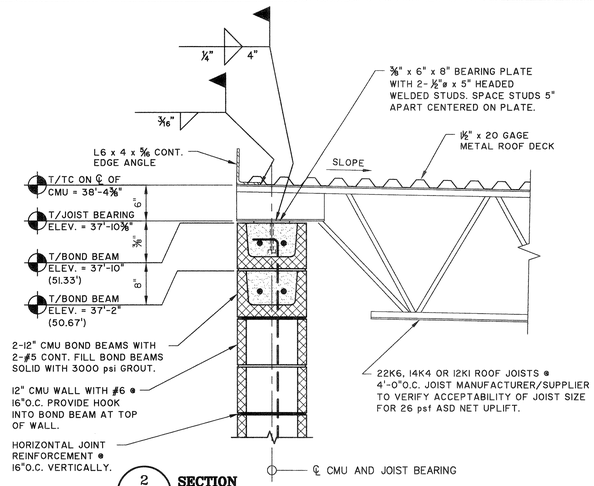
MBR SECOND FLOOR DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

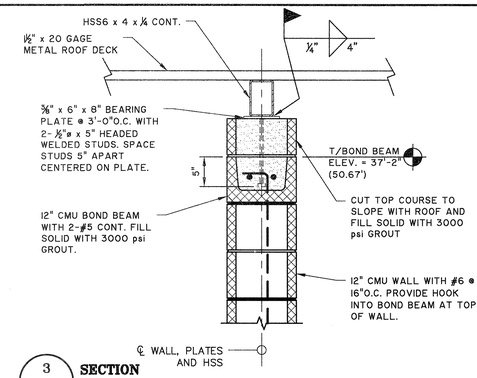
S4.16



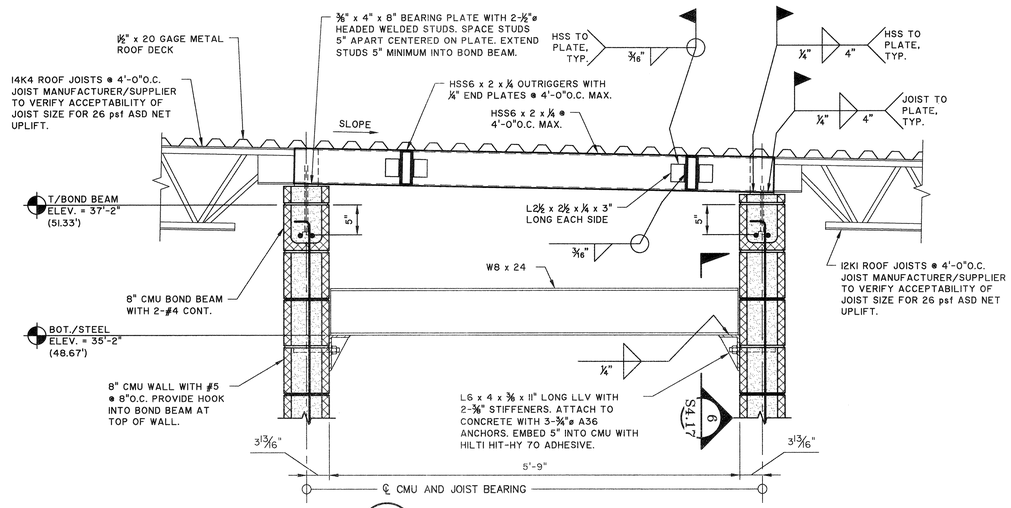
1 S4.17 **SECTION** 1"=1'-0"



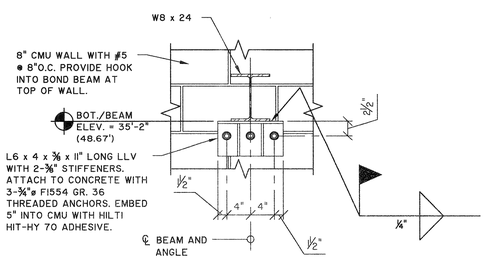
2 S4.17 **SECTION** 1"=1'-0"



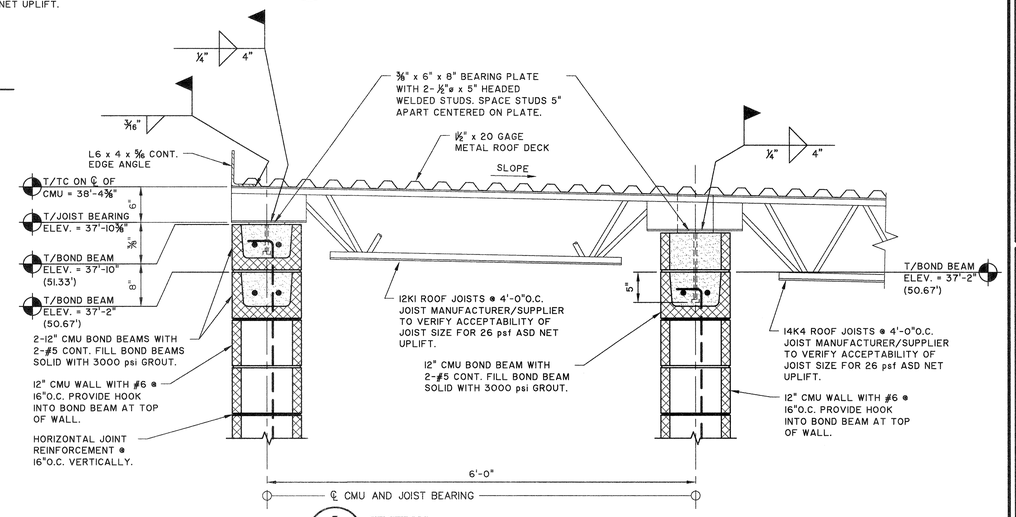
3 S4.17 **SECTION** 1"=1'-0"



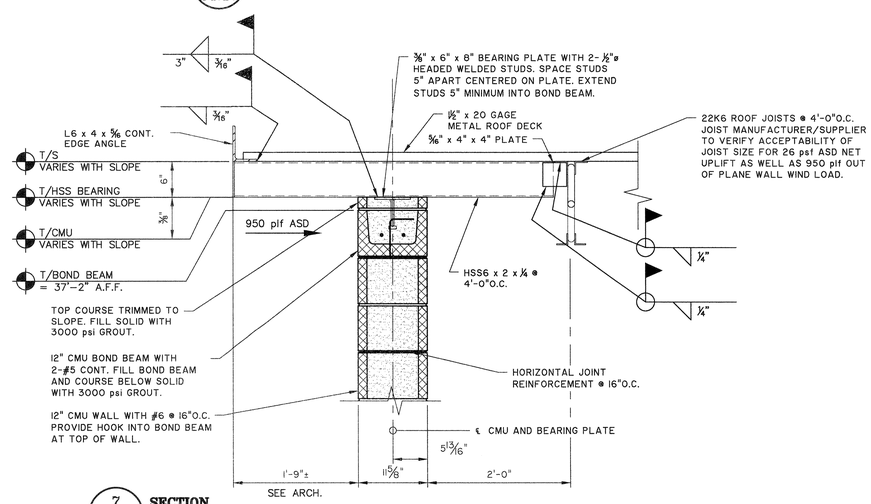
4 S4.17 **SECTION** 1"=1'-0"



6 S4.17 **SECTION** 1"=1'-0"



5 S4.17 **SECTION** 1"=1'-0"



7 S4.17 **SECTION** 1"=1'-0"

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NO	REVISIONS	BY	DATE
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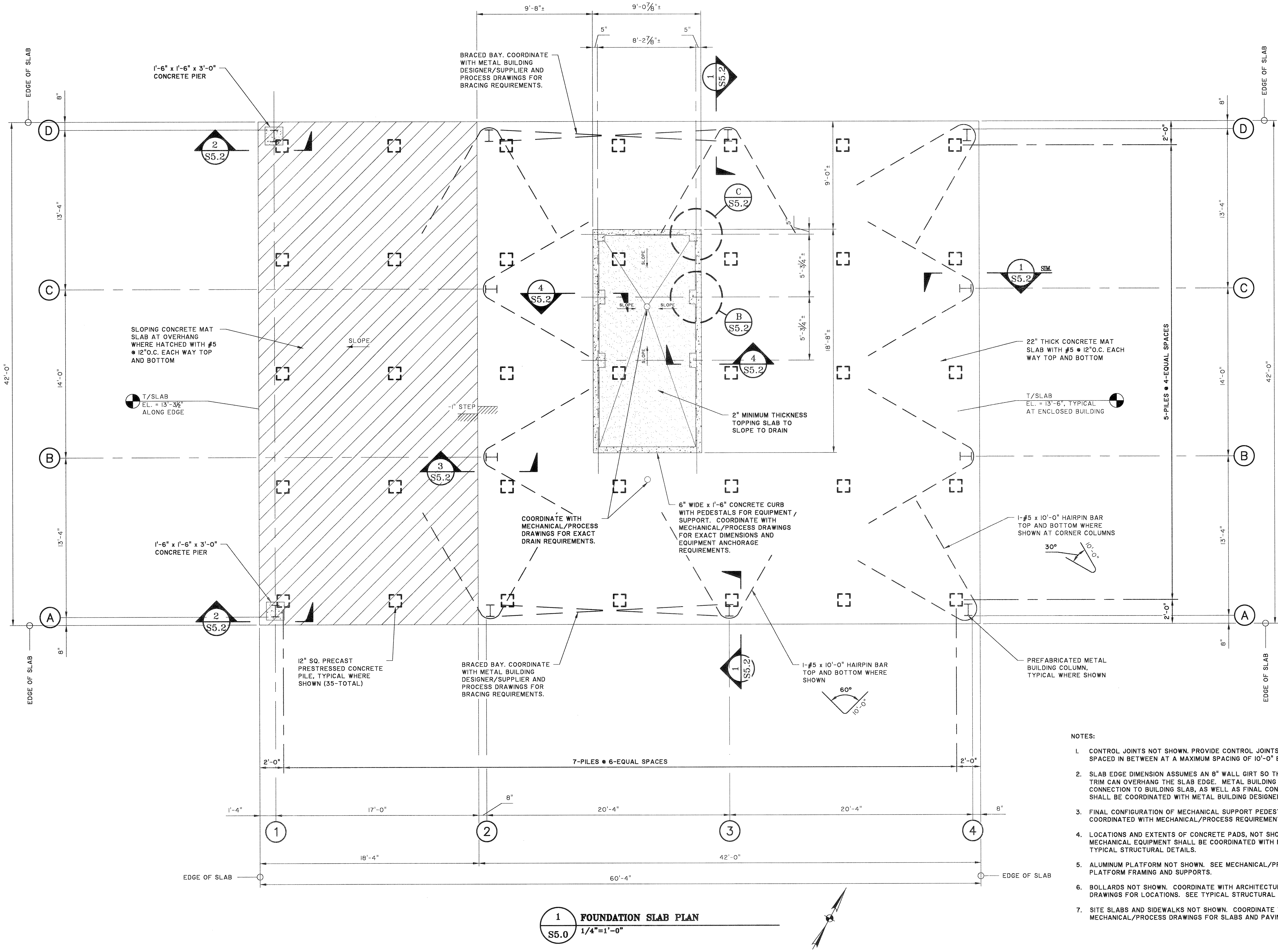
MBR BUILDING ROOF FRAMING DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S4.17



1 FOUNDATION SLAB PLAN
S5.0 1/4"=1'-0"

NOTES:

1. CONTROL JOINTS NOT SHOWN. PROVIDE CONTROL JOINTS ON COLUMN LINES AND EVENLY SPACED IN BETWEEN AT A MAXIMUM SPACING OF 10'-0" EACH WAY.
2. SLAB EDGE DIMENSION ASSUMES AN 8" WALL GIRT SO THAT THE BUILDING SHEATHING AND TRIM CAN OVERHANG THE SLAB EDGE. METAL BUILDING COLUMN LAYOUT AND COLUMN CONNECTION TO BUILDING SLAB, AS WELL AS FINAL CONFIGURATION OF BUILDING SLAB, SHALL BE COORDINATED WITH METAL BUILDING DESIGNER/SUPPLIER.
3. FINAL CONFIGURATION OF MECHANICAL SUPPORT PEDESTALS AND WALLS SHOWN SHALL BE COORDINATED WITH MECHANICAL/PROCESS REQUIREMENTS.
4. LOCATIONS AND EXTENTS OF CONCRETE PADS, NOT SHOWN ON THIS PLAN, FOR ANY OTHER MECHANICAL EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL REQUIREMENTS AND TYPICAL STRUCTURAL DETAILS.
5. ALUMINUM PLATFORM NOT SHOWN. SEE MECHANICAL/PROCESS DRAWINGS FOR ALUMINUM PLATFORM FRAMING AND SUPPORTS.
6. BOLLARDS NOT SHOWN. COORDINATE WITH ARCHITECTURAL AND MECHANICAL/PROCESS DRAWINGS FOR LOCATIONS. SEE TYPICAL STRUCTURAL DETAILS FOR BOLLARD DETAILS.
7. SITE SLABS AND SIDEWALKS NOT SHOWN. COORDINATE WITH CIVIL AND MECHANICAL/PROCESS DRAWINGS FOR SLABS AND PAVING NOT SHOWN.

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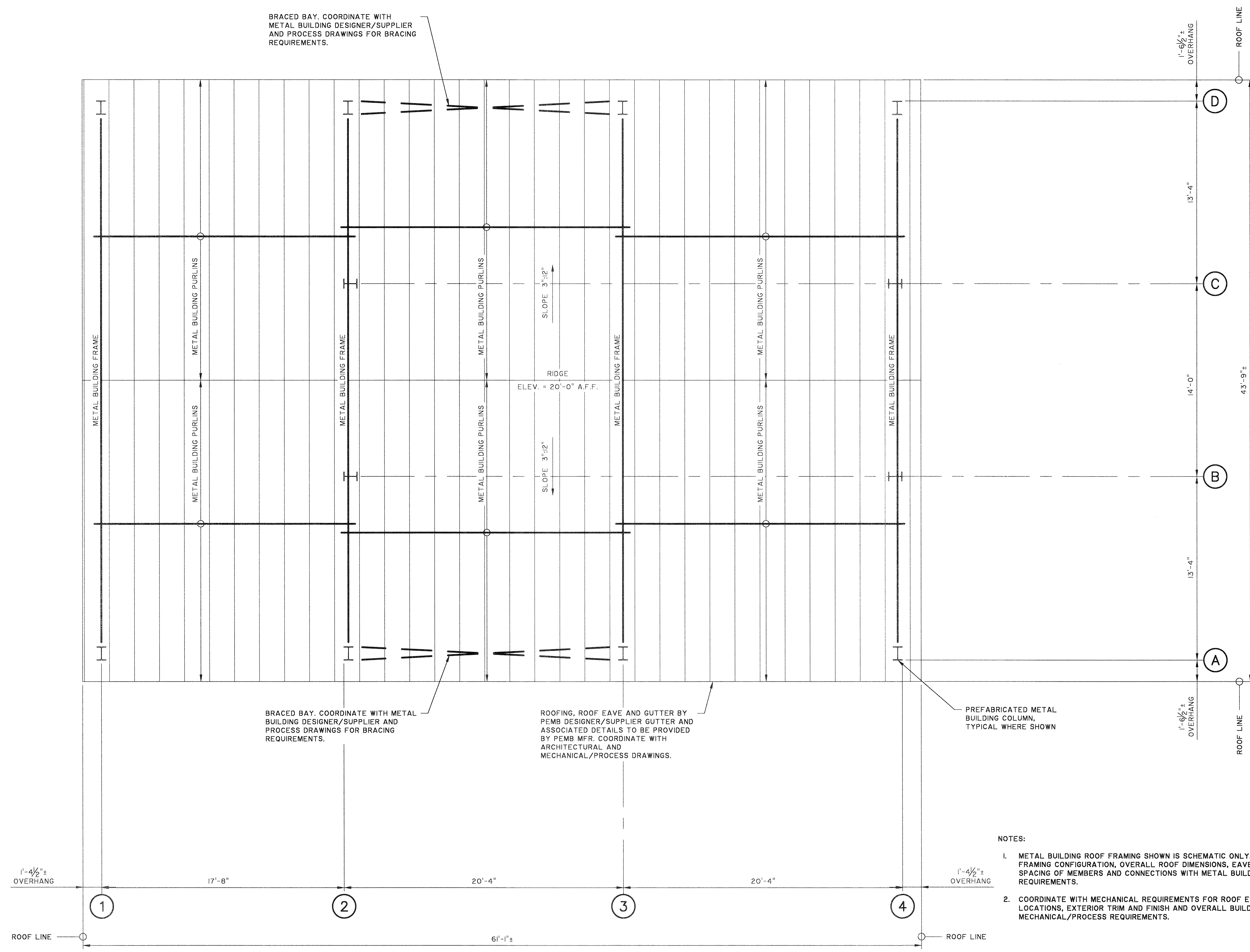
TRAVIS FIELD WATER RECLAMATION FACILITY

DEWATERING BUILDING FOUNDATION SLAB PLAN

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S5.0



1 / S5.1 **SCHEMATIC ROOF FRAMING PLAN**
1/4"=1'-0"

NOTES:

1. METAL BUILDING ROOF FRAMING SHOWN IS SCHEMATIC ONLY. COORDINATE OVERALL FRAMING CONFIGURATION, OVERALL ROOF DIMENSIONS, EAVE DIMENSIONS, SIZES AND SPACING OF MEMBERS AND CONNECTIONS WITH METAL BUILDING SUPPLIER/DESIGNER REQUIREMENTS.
2. COORDINATE WITH MECHANICAL REQUIREMENTS FOR ROOF EAVE, GUTTER DOWNSPOUT LOCATIONS, EXTERIOR TRIM AND FINISH AND OVERALL BUILDING CONFIGURATION WITH MECHANICAL/PROCESS REQUIREMENTS.

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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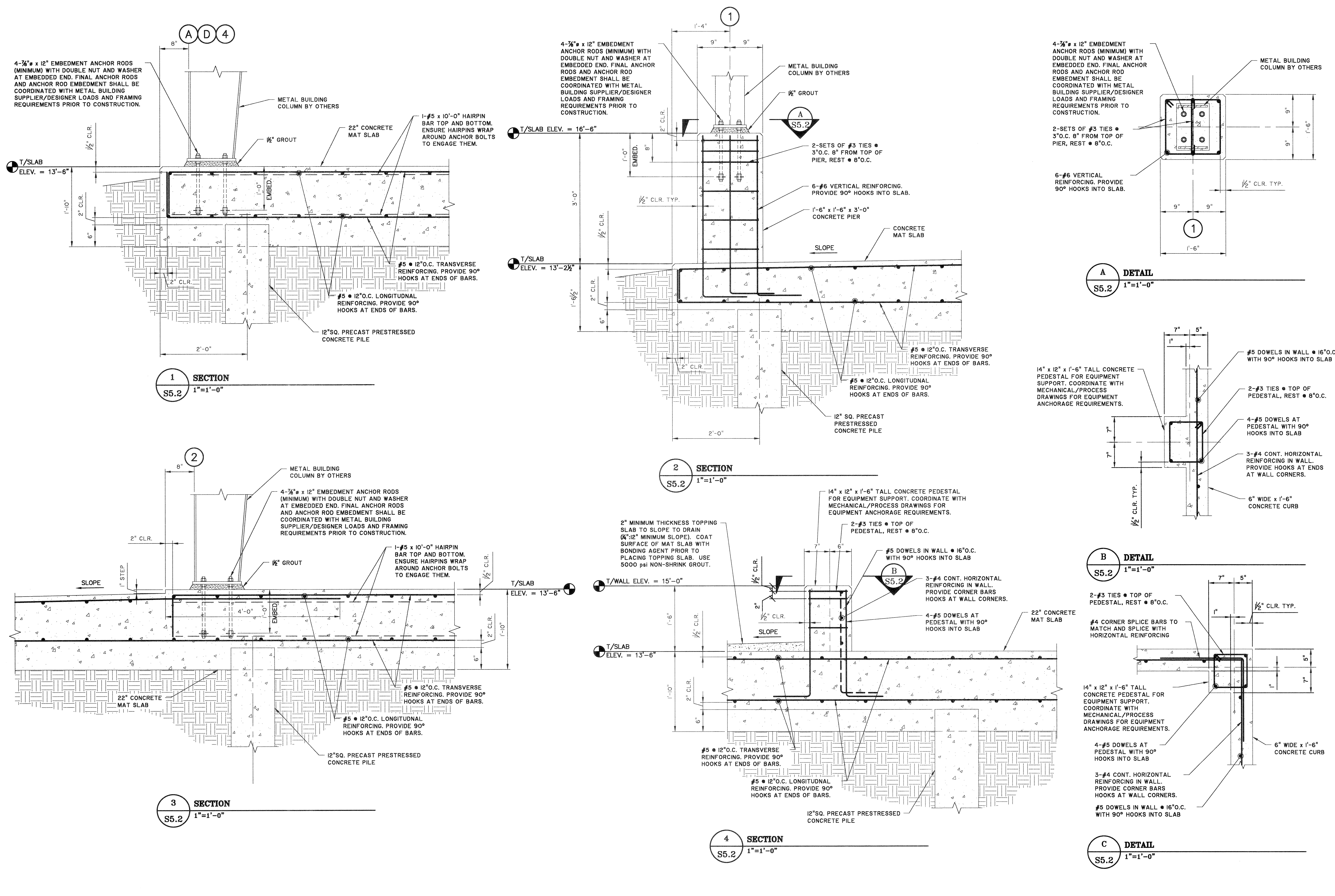
TRAVIS FIELD WATER RECLAMATION FACILITY

DEWATERING BUILDING ROOF FRAMING PLAN

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S5.1



BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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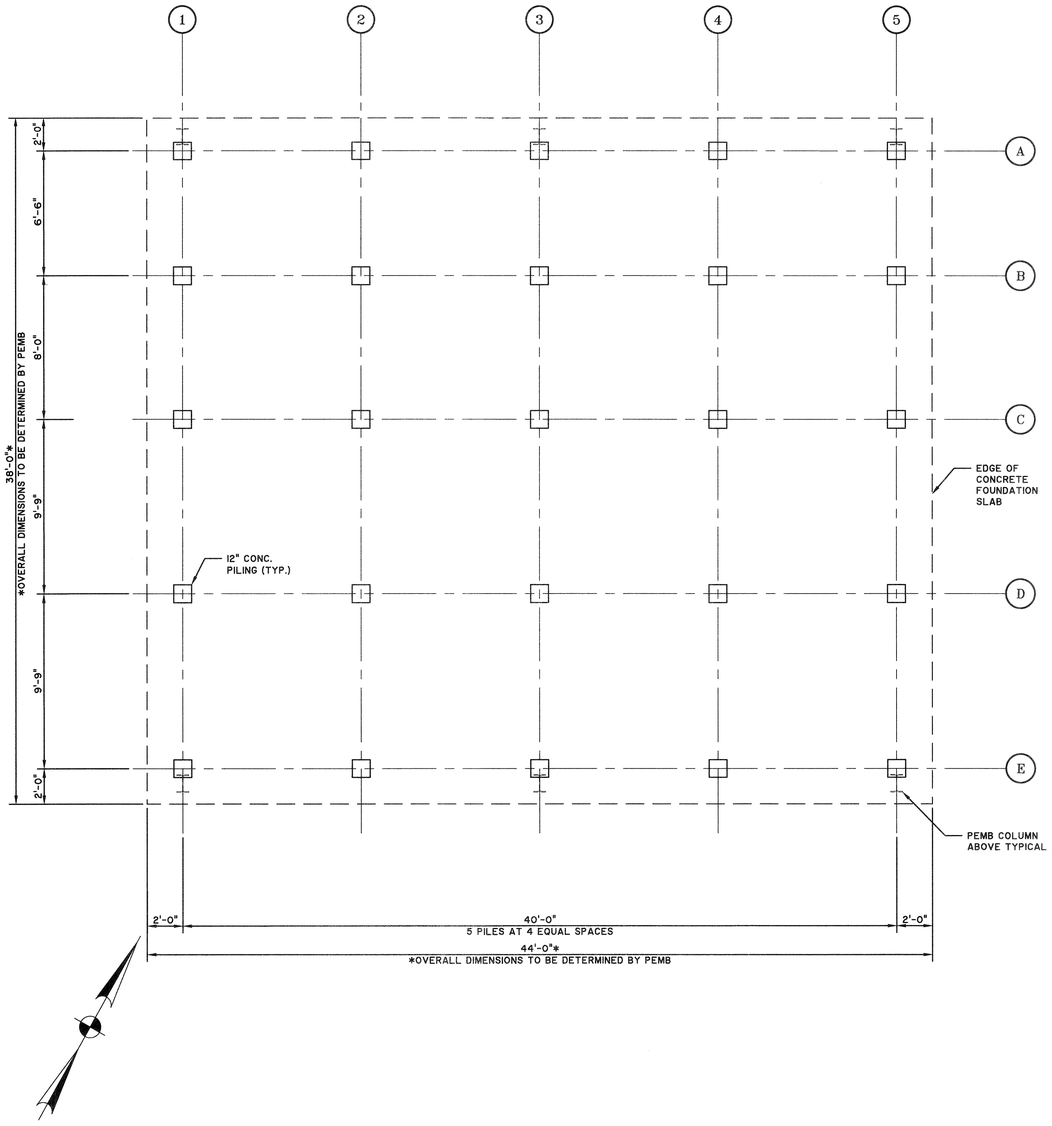
TRAVIS FIELD WATER RECLAMATION FACILITY

DEWATERING BUILDING FOUNDATION DETAILS

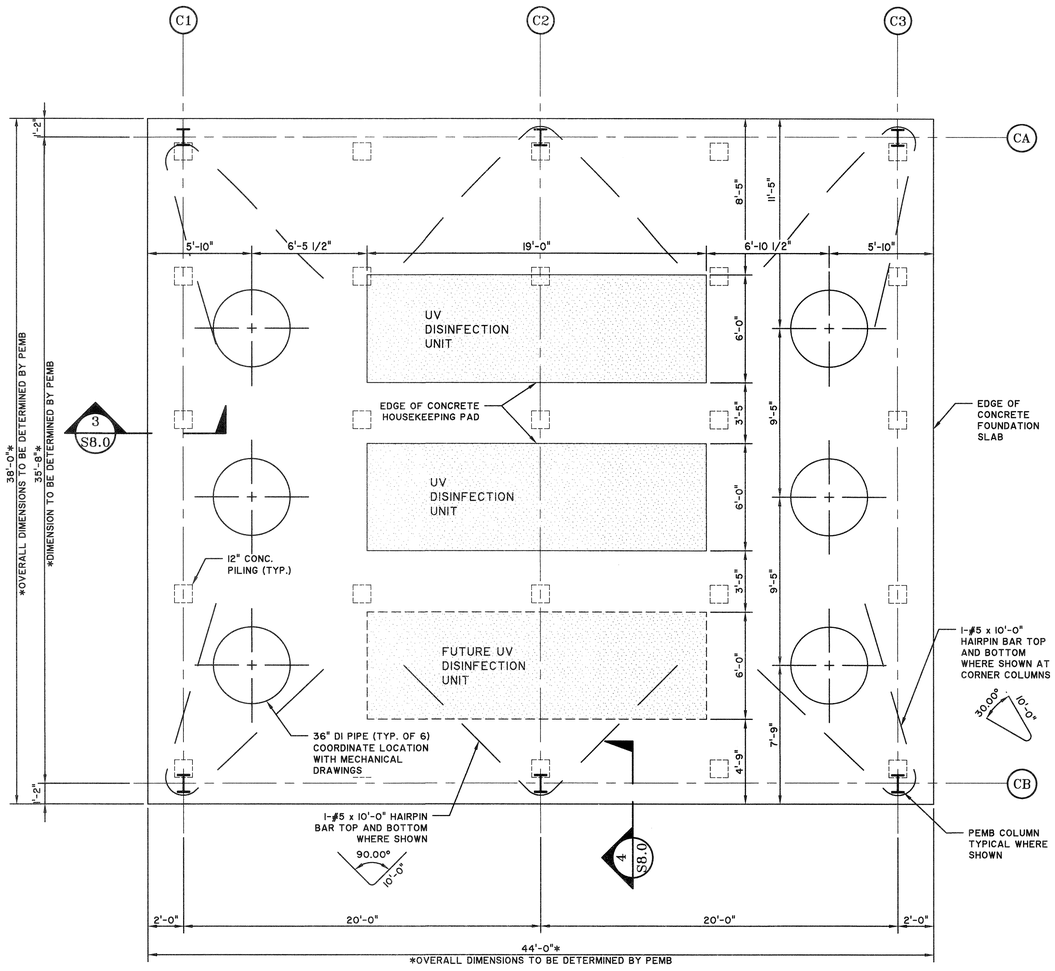
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S5.2



1 S6.0 PILING PLAN

1/4" = 1'-0"_1



2 S6.0 SLAB PLAN

1/4" = 1'-0"_1

NOTES:

1. SLAB CONTROL JOINTS NOT SHOWN. INSTALL CONTROL JOINTS AT COLUMN LINES AND SPACED EVENLY IN BETWEEN AT 10'-0"O.C. MAXIMUM EACH WAY. SEE TYPICAL DETAIL.
2. STRUCTURAL DRAWINGS ARE IN ADDITION TO THE PEMB MFR DRAWINGS.
3. COLUMN LOCATIONS AND BUILDING FRAMING DETAILS TO BE DETERMINED BY PEMB MFR.
4. OVERALL BUILDING DIMENSIONS MAY CHANGE SLIGHTLY TO ACCOMMODATE PEMB MFR DESIGN.
5. EAVE HEIGHT OF THE CANOPY IS TO BE 16' MEASURED TO THE BOTTOM OF THE LOWEST EAVE PURLIN.
6. FINAL CONFIGURATION OF MECHANICAL SUPPORT PEDESTALS AND PIPING PENETRATIONS SHOWN SHALL BE COORDINATED WITH MECHANICAL REQUIREMENTS.
7. LOCATIONS AND EXTENTS OF CONCRETE PADS, NOT SHOWN ON THIS PLAN, FOR ANY OTHER MECHANICAL EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL REQUIREMENTS AND TYPICAL STRUCTURAL DETAILS.

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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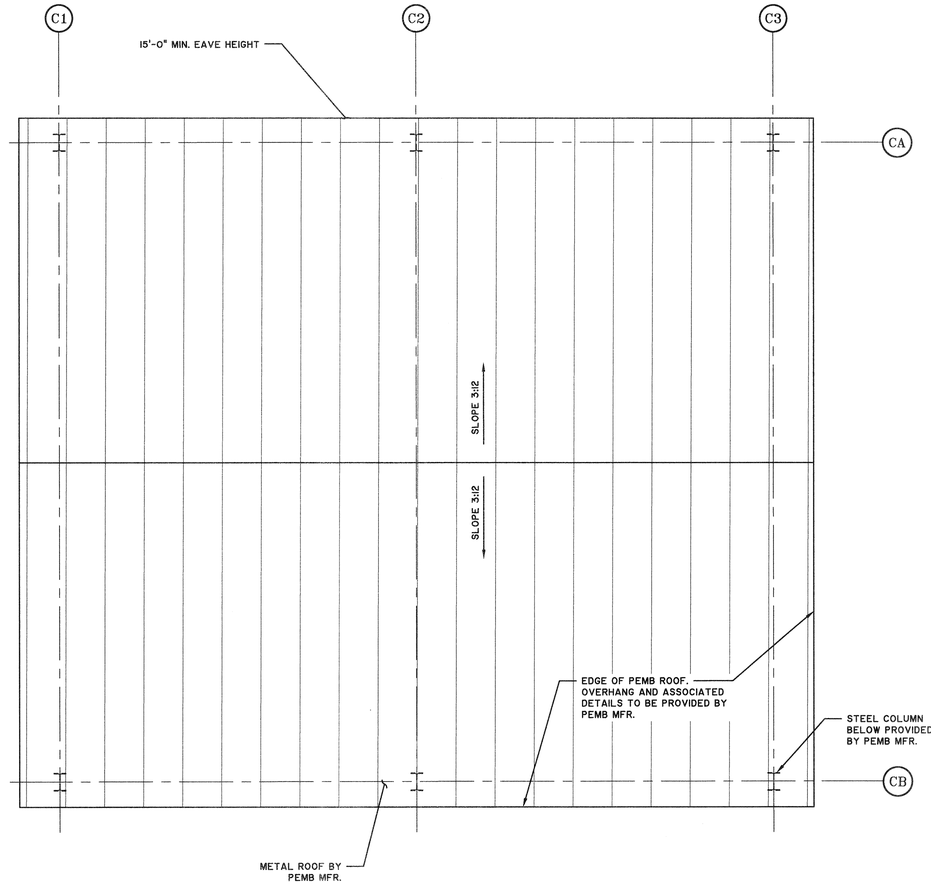
TRAVIS FIELD WATER RECLAMATION FACILITY

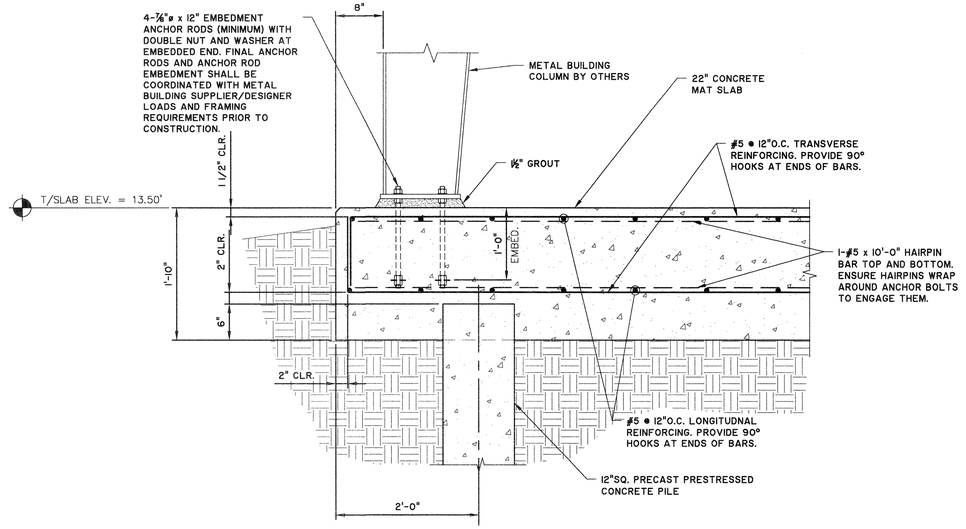
UV DISINFECTION SYSTEM ROOF FRAMING PLAN AND FOUNDATION DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

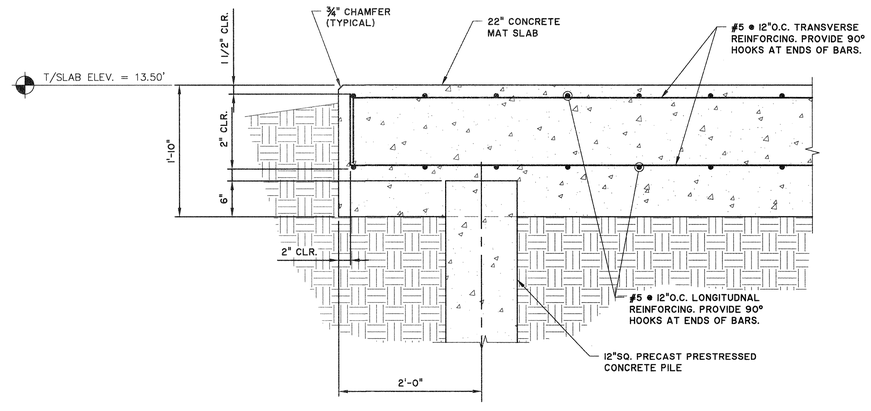
S6.0



1 S6.1 **ROOF PLAN**
1/4" = 1'-0"_1



2 S6.1 **FOOTING DETAIL**
1" = 1'-0"



3 S6.1 **FOOTING DETAIL**
1" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	4-01-19

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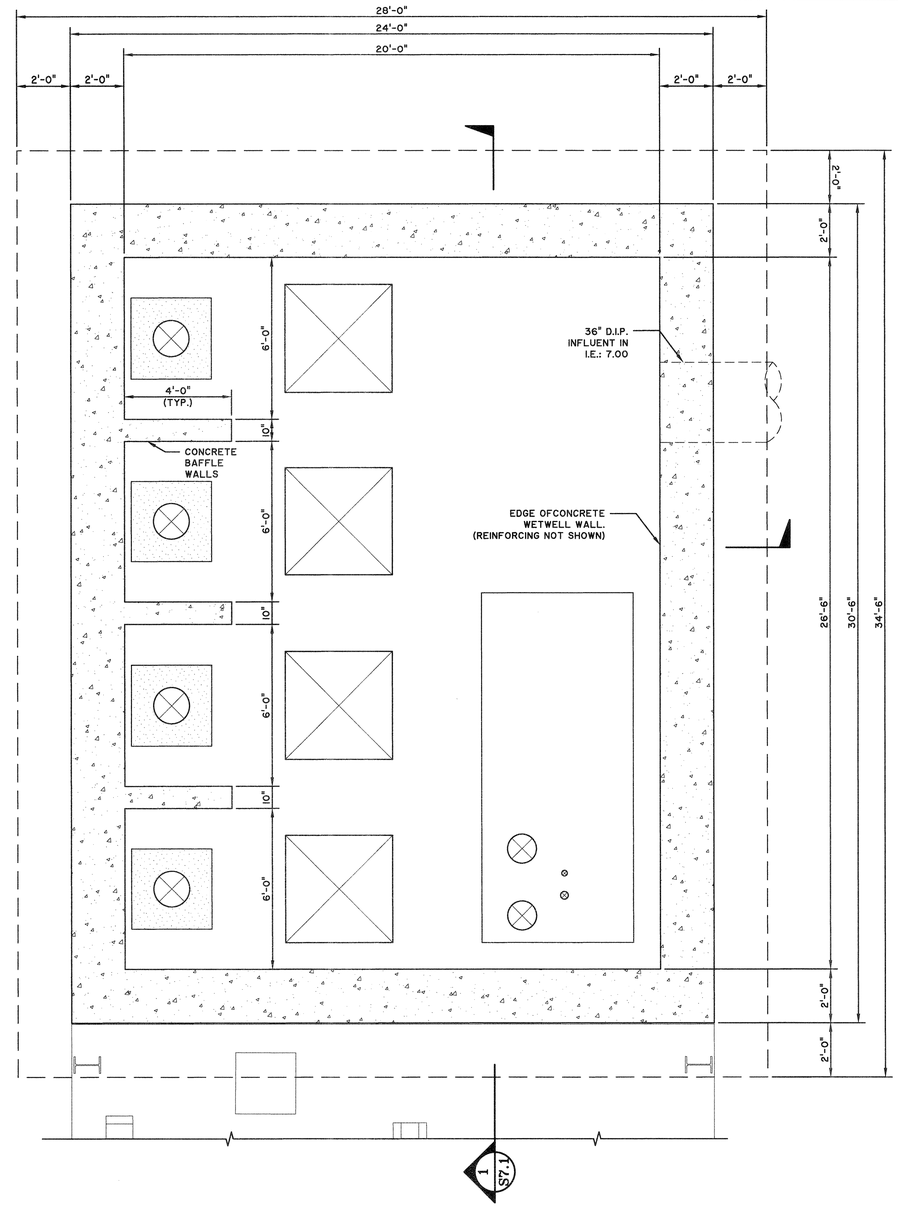
TRAVIS FIELD WATER RECLAMATION FACILITY

UV DISINFECION SYSTEM FOUNDATION PLANS

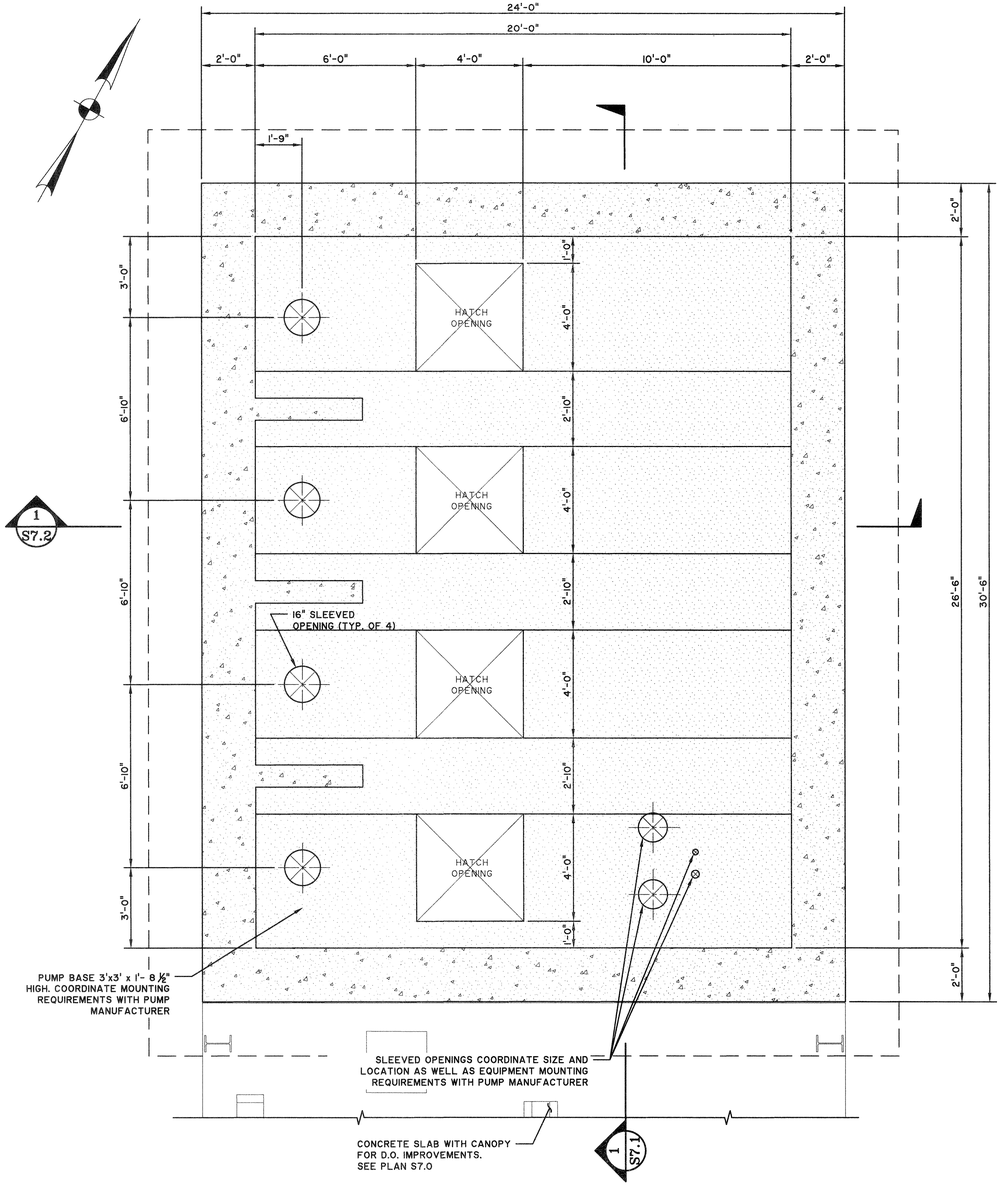
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S6.1



1/S7.0 WETWELL FOUNDATION AND LOWER PLAN

SCALE: 3/8" = 1'-0"



1/S7.2 WETWELL UPPER PLAN

SCALE: 3/8" = 1'-0"

NOTES:

1. WATERSTOPS TO BE INSTALLED AT ALL CONSTRUCTION JOINTS IN THE BASIN WALLS AND BASE SLAB, INCLUDING VERTICAL JOINTS. WATERSTOPS SHALL BE GREENSTREAK PVC RIBBED FLAT, STYLE NO. 784 OR ACCEPTED EQUIVALENT.
2. COORDINATE SIZE, LOCATION AND INSTALLATION OF ACCESS HATCHES W/ CIVIL PLANS AND WITH MANUFACTURER.
3. COORDINATE LOCATIONS OF ALL OPENINGS WITH CIVIL DRAWINGS.

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SOROHAN

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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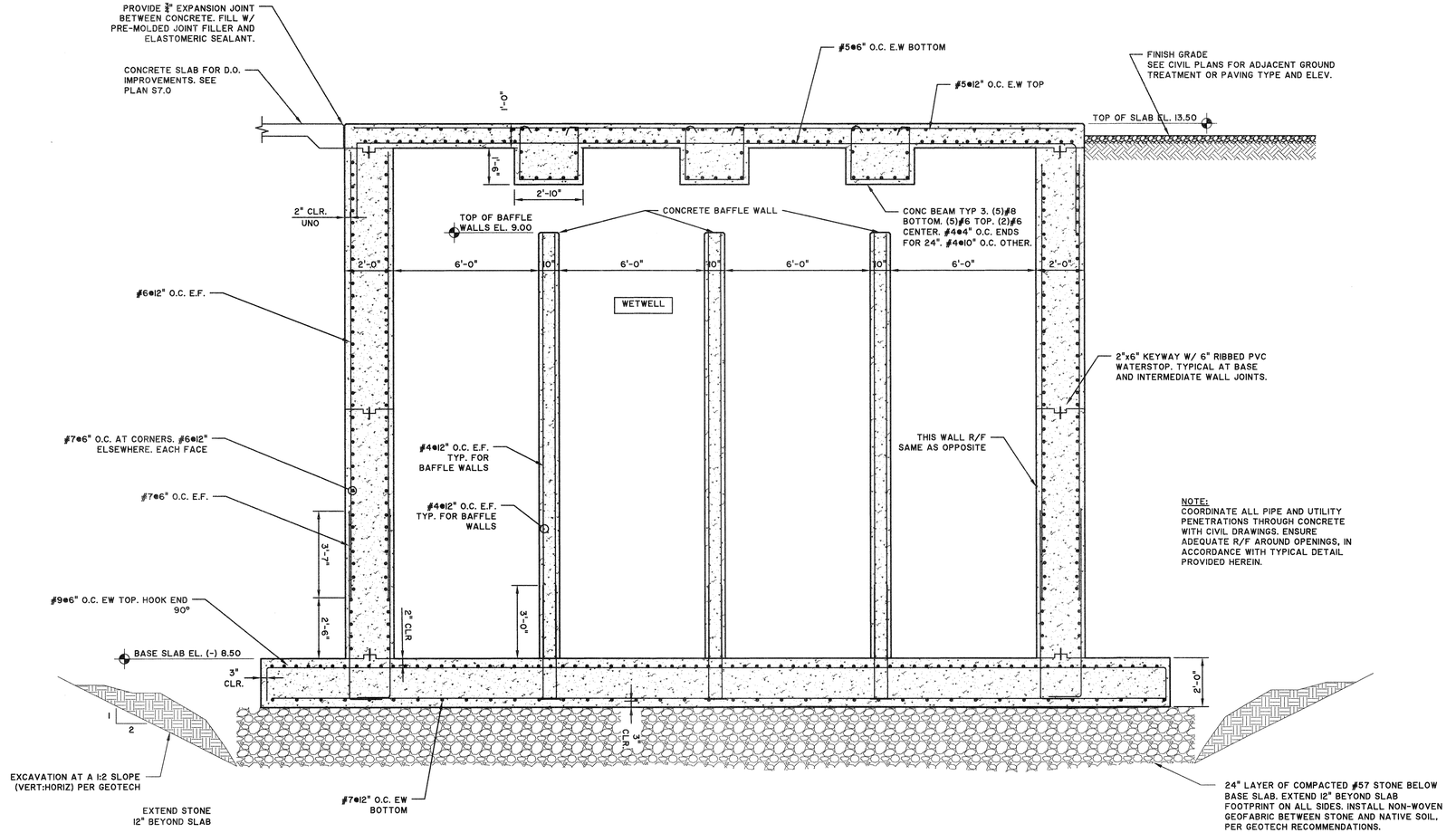
TRAVIS FIELD WATER RECLAMATION FACILITY

EFFLUENT PUMP STATION PLAN

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S7.0



NOTE:
COORDINATE ALL PIPE AND UTILITY PENETRATIONS THROUGH CONCRETE WITH CIVIL DRAWINGS. ENSURE ADEQUATE R/F AROUND OPENINGS, IN ACCORDANCE WITH TYPICAL DETAIL PROVIDED HEREIN.

1 / S7.1 SECTION VIEW

SCALE: 3/8" = 1'-0"

NOTES:
1. WATERSTOPS TO BE INSTALLED AT ALL CONSTRUCTION JOINTS IN THE BASIN WALLS AND BASE SLAB, INCLUDING VERTICAL JOINTS. WATERSTOPS SHALL BE GREENSTREAK PVC RIBBED FLAT, STYLE NO. 784 OR APPROVED EQUAL.
2. COORDINATE SIZE, LOCATION AND INSTALLATION OF ACCESS HATCHES W/ CIVIL PLANS AND WITH MANUFACTURER.
3. COORDINATE LOCATIONS OF ALL OPENINGS WITH CIVIL DRAWINGS.

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
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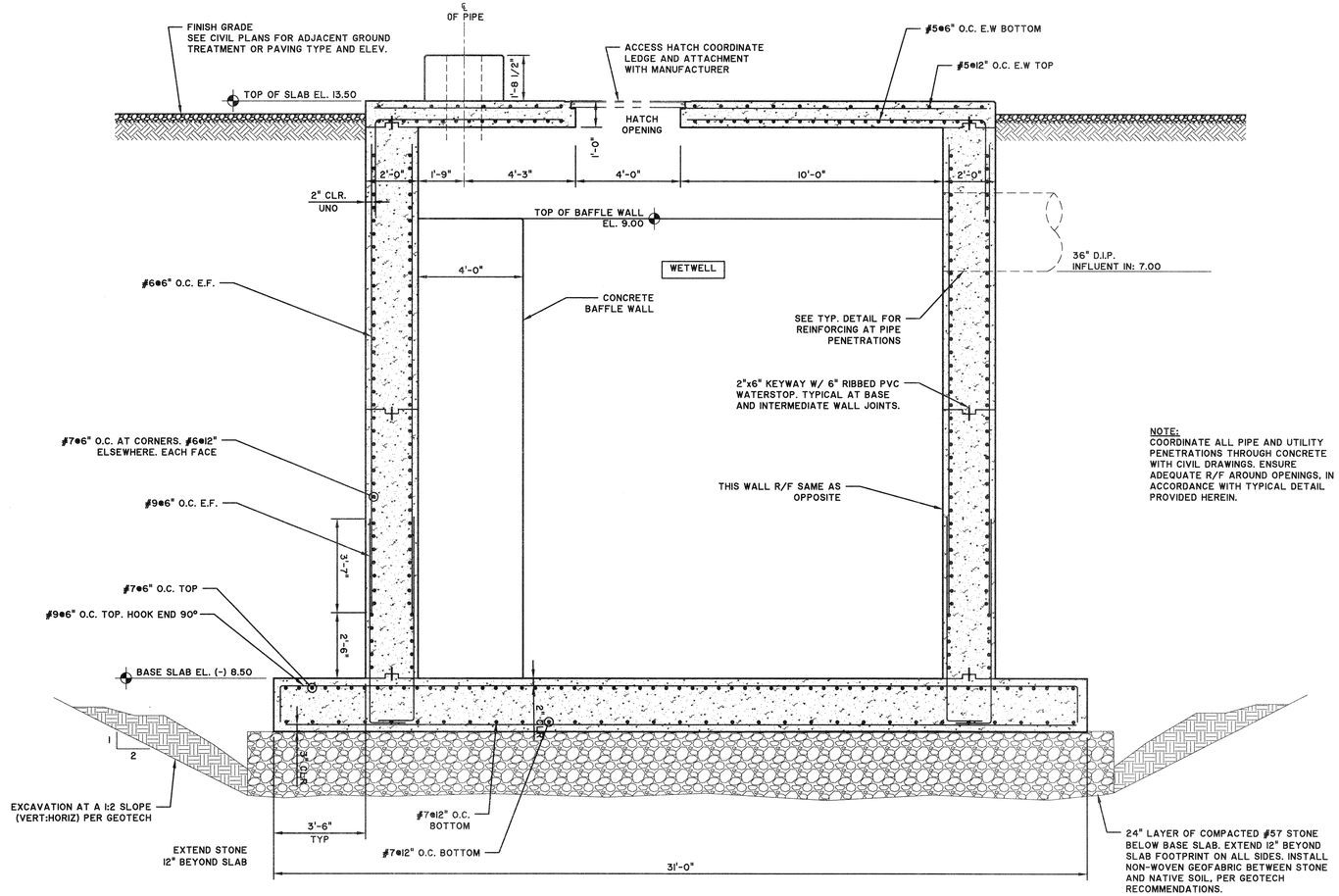
TRAVIS FIELD WATER RECLAMATION FACILITY

EFFLUENT PUMP STATION SECTION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S7.1



NOTE:
COORDINATE ALL PIPE AND UTILITY PENETRATIONS THROUGH CONCRETE WITH CIVIL DRAWINGS. ENSURE ADEQUATE R/F AROUND OPENINGS, IN ACCORDANCE WITH TYPICAL DETAIL PROVIDED HEREIN.

1 / S7.2 SECTION VIEW

SCALE: 3/8" = 1'-0"

NOTES:
1. WATERSTOPS TO BE INSTALLED AT ALL CONSTRUCTION JOINTS IN THE BASIN WALLS AND BASE SLAB, INCLUDING VERTICAL JOINTS. WATERSTOPS SHALL BE GREENSTREAK PVC RIBBED FLAT, STYLE NO. 784 OR ACCEPTED EQUIVALENT.
2. COORDINATE SIZE, LOCATION AND INSTALLATION OF ACCESS HATCHES W/ CIVIL PLANS AND WITH MANUFACTURER.
3. COORDINATE LOCATIONS OF ALL OPENINGS WITH CIVIL DRAWINGS.

REGISTERED PROFESSIONAL ENGINEER FRED SOROKOPUD

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDS	5-01-19

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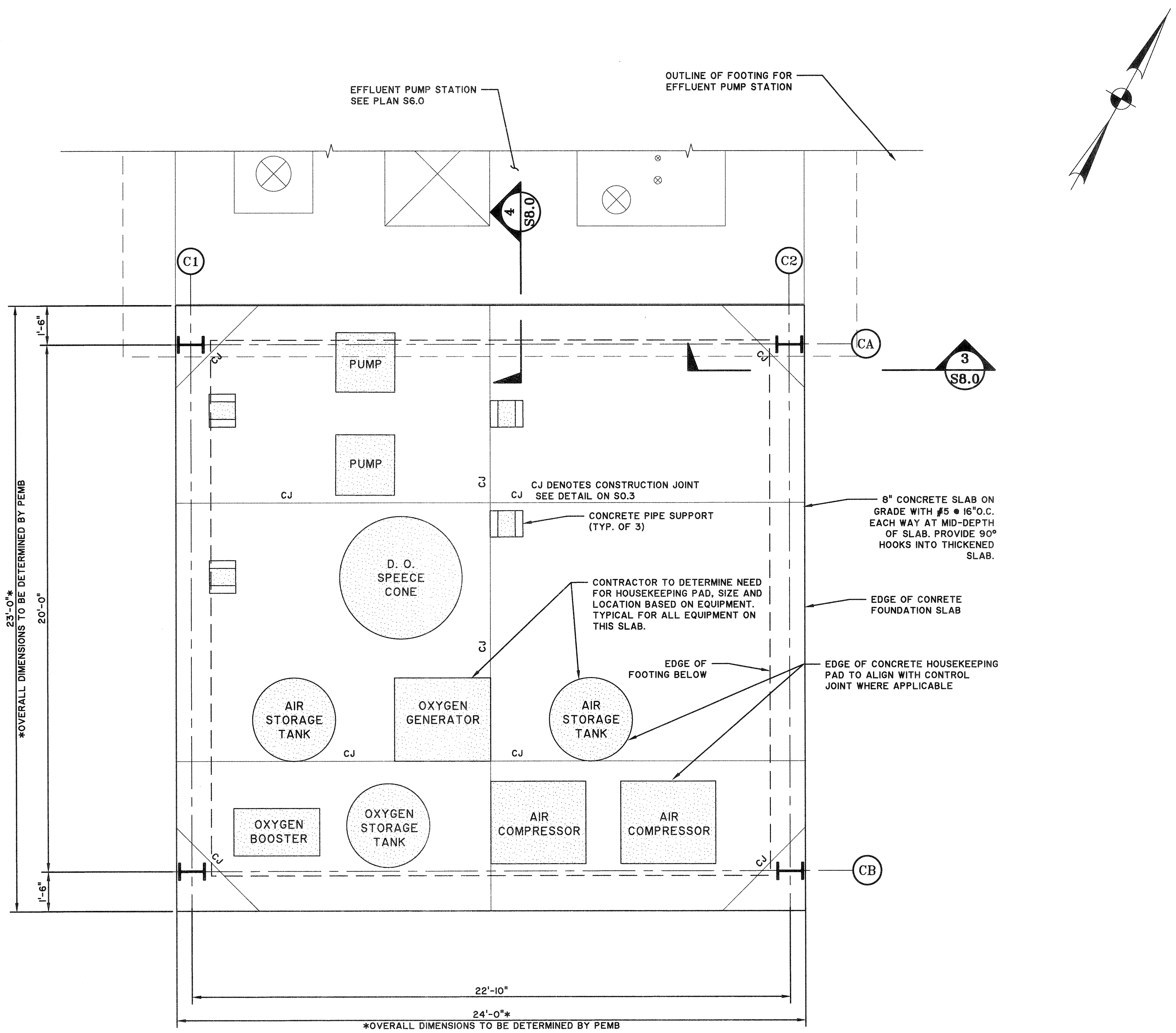
TRAVIS FIELD WATER RECLAMATION FACILITY

EFFLUENT PUMP STATION SECTION

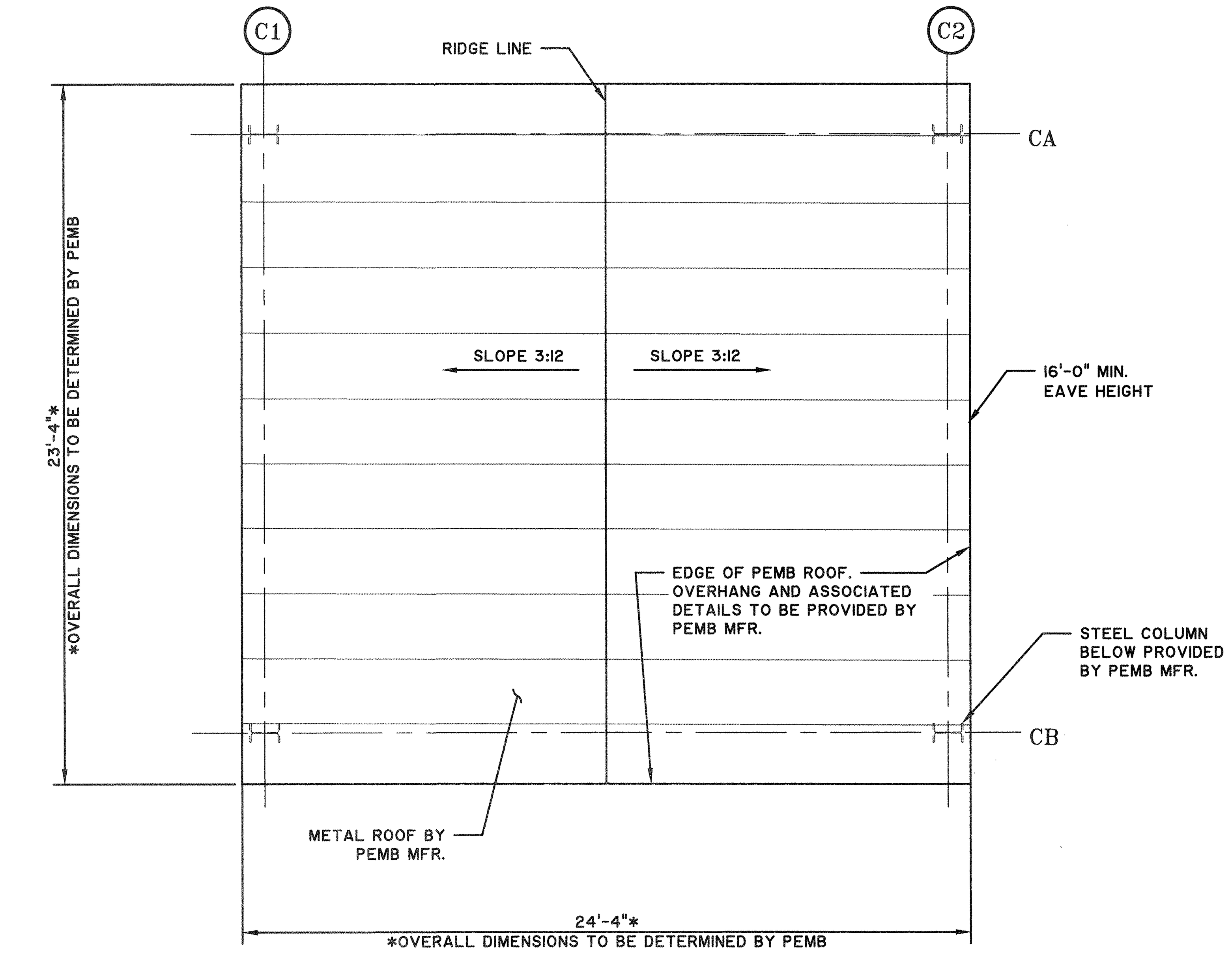
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S7.2

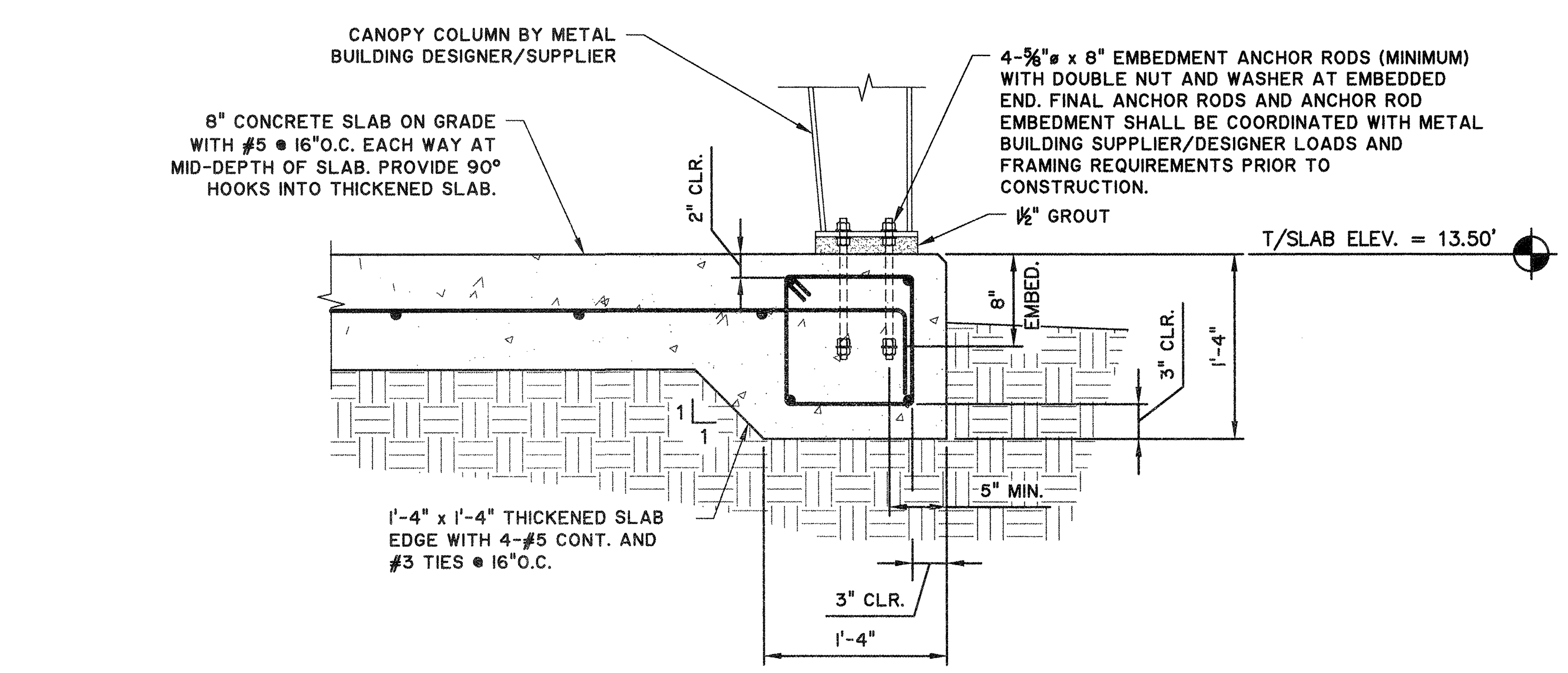


1 FOUNDATION AND SLAB PLAN
S8.0 3/8" = 1'-0"

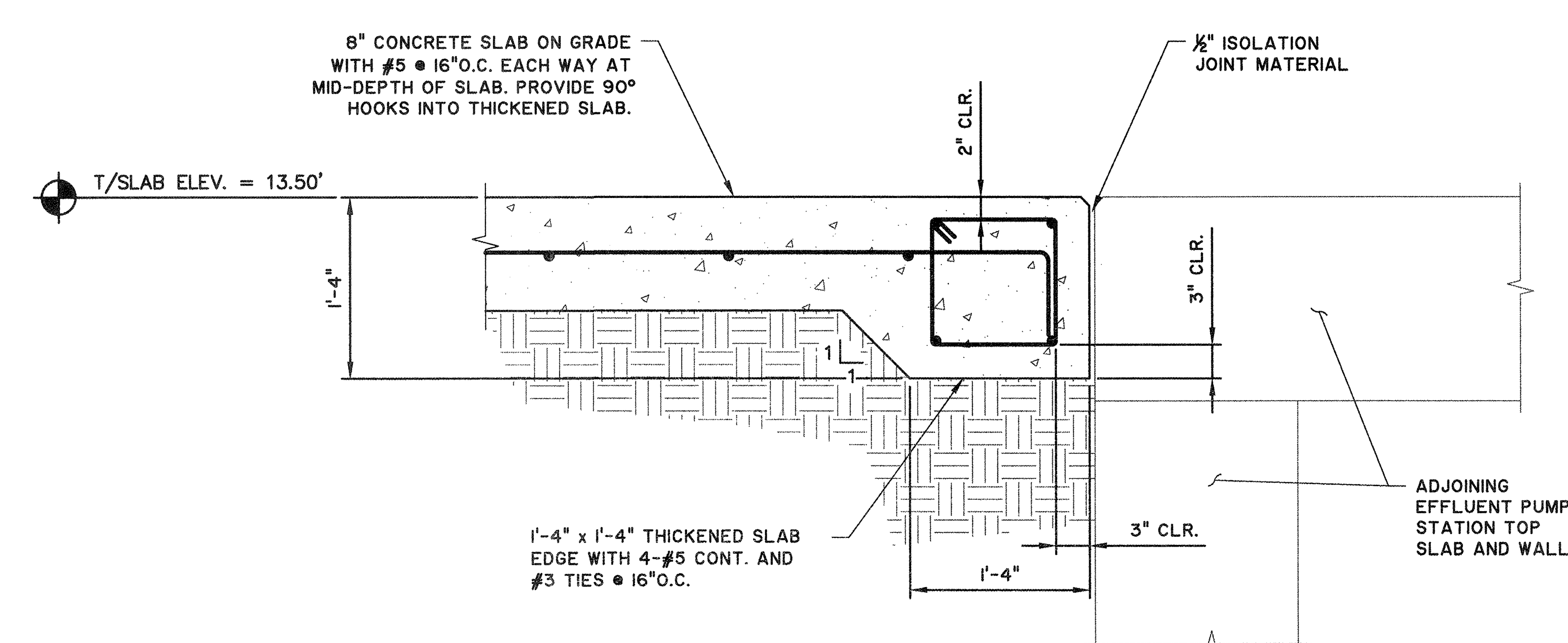
NOTES:
1. STRUCTURAL DRAWINGS ARE IN ADDITION TO THE PEMB MFR DRAWINGS.
2. COLUMN LOCATIONS AND BUILDING FRAMING DETAILS TO BE DETERMINED BY PEMB MFR.
3. OVERALL BUILDING DIMENSIONS MAY CHANGE SLIGHTLY TO ACCOMMODATE PEMB MFR DESIGN.
4. EAVE HEIGHT OF THE CANOPY IS TO BE 16' MEASURED TO THE BOTTOM OF THE LOWEST EAVE PURLIN.
5. FINAL CONFIGURATION OF MECHANICAL SUPPORT PEDESTALS AND PIPING PENETRATIONS SHOWN SHALL BE COORDINATED WITH MECHANICAL REQUIREMENTS.
6. LOCATIONS AND EXTENTS OF CONCRETE PADS, NOT SHOWN ON THIS PLAN, FOR ANY OTHER MECHANICAL EQUIPMENT SHALL BE COORDINATED WITH MECHANICAL REQUIREMENTS AND TYPICAL STRUCTURAL DETAILS.



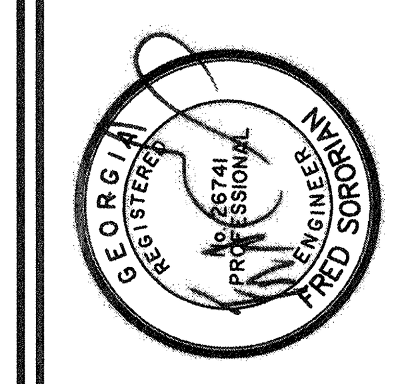
2 ROOF PLAN
S8.0 1/4" = 1'-0"



3 FOOTING DETAIL
S8.0 1" = 1'-0"



4 FOOTING DETAIL
S8.0 1" = 1'-0"



BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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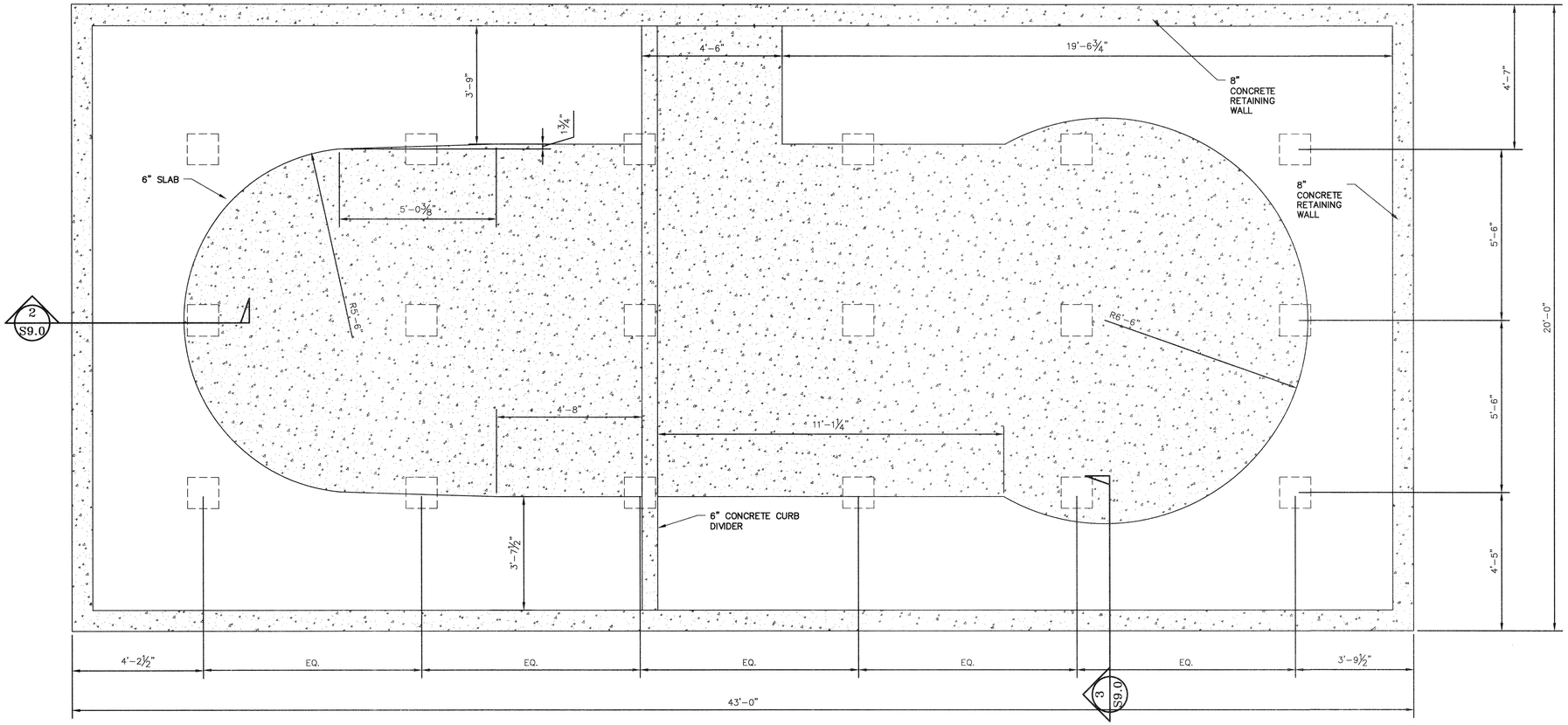
TRAVIS FIELD WATER RECLAMATION FACILITY

D. O. IMPROVEMENT PLAN & DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

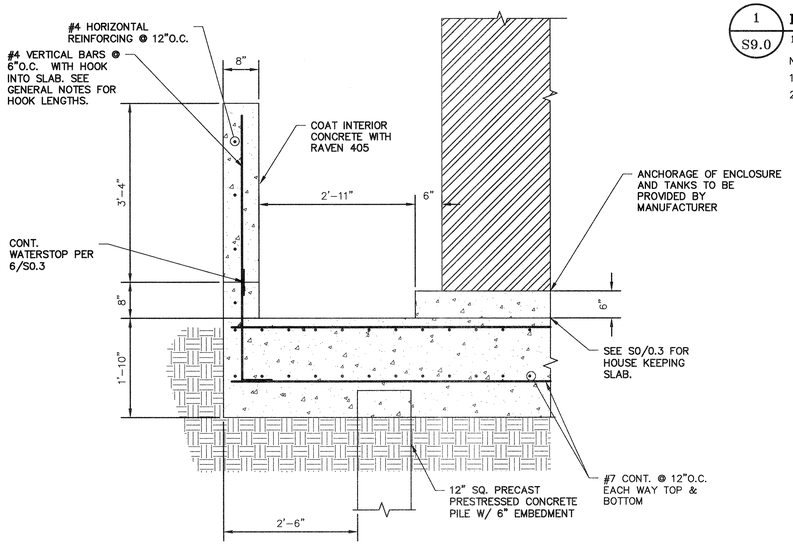
S8.0



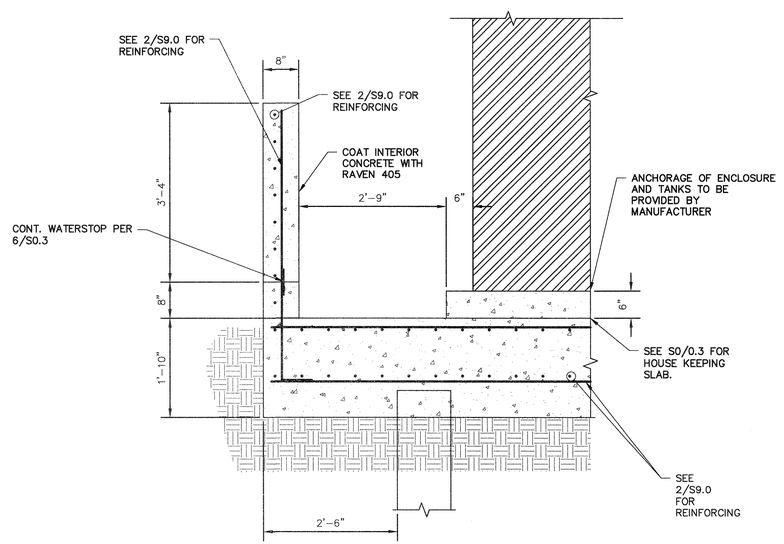
1 S9.0 **FOUNDATION PLAN**
1/2"=1'-0"

NOTES:

1. COORDINATE ALL DIMENSIONS WITH MECHANICAL DRAWINGS.
2. COORDINATE EQUIPMENT ATTACHMENT REQUIREMENTS AND EXACT LOCATIONS WITH MECHANICAL DRAWINGS.



2 S9.0 **SECTION AT WALL**
3/4" = 1'-0"



3 S9.0 **SECTION AT WALL**
3/4" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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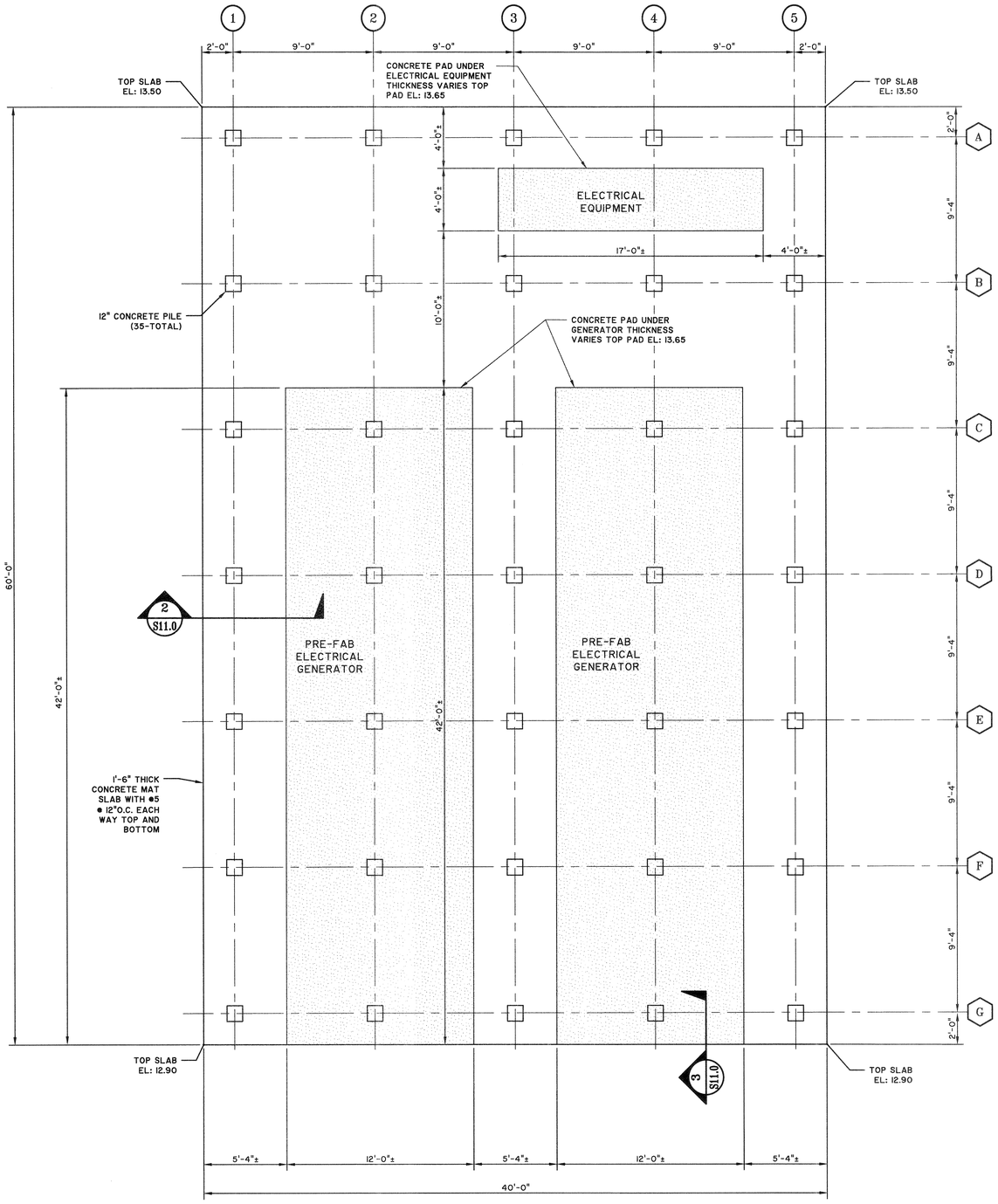
TRAVIS FIELD WATER RECLAMATION FACILITY

CAUSTIC AND ALUM FOUNDATION PLAN

JOB NO:	J-26963.0000
DATE:	10.18.18
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	JAH
APPROVED:	FS
SCALE:	

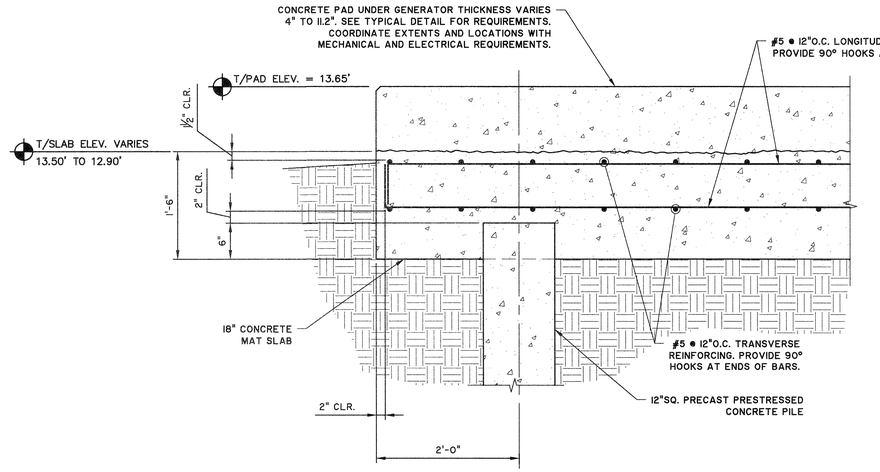
S9.0



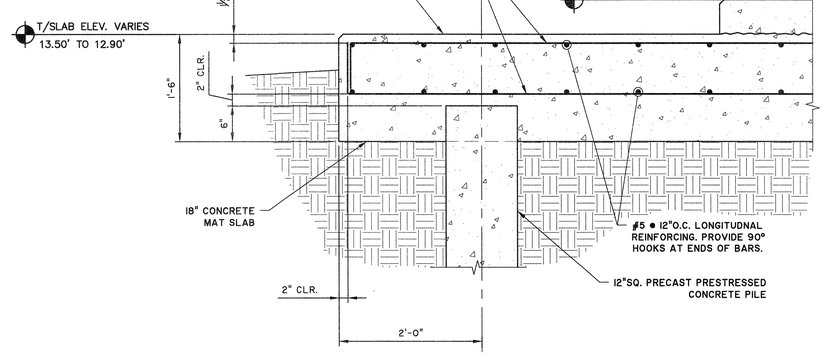
1 S11.0 **SLAB PLAN**
1/4" = 1'-0"

NOTES:

1. COORDINATE ELEVATED HOUSEKEEPING PAD DIMENSIONS AND GENERATOR ANCHORAGE REQUIREMENTS WITH GENERATOR SUPPLIER.
2. SLAB CONTROL JOINTS NOT SHOWN. PROVIDE CONTROL JOINTS AT 10'-0"O.C. MAXIMUM EACH WAY EVENLY SPACED. SEE TYPICAL DETAIL.



2 S11.0 **SECTION**
1" = 1'-0"



3 S11.0 **SECTION**
1" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	COR	5-01-19

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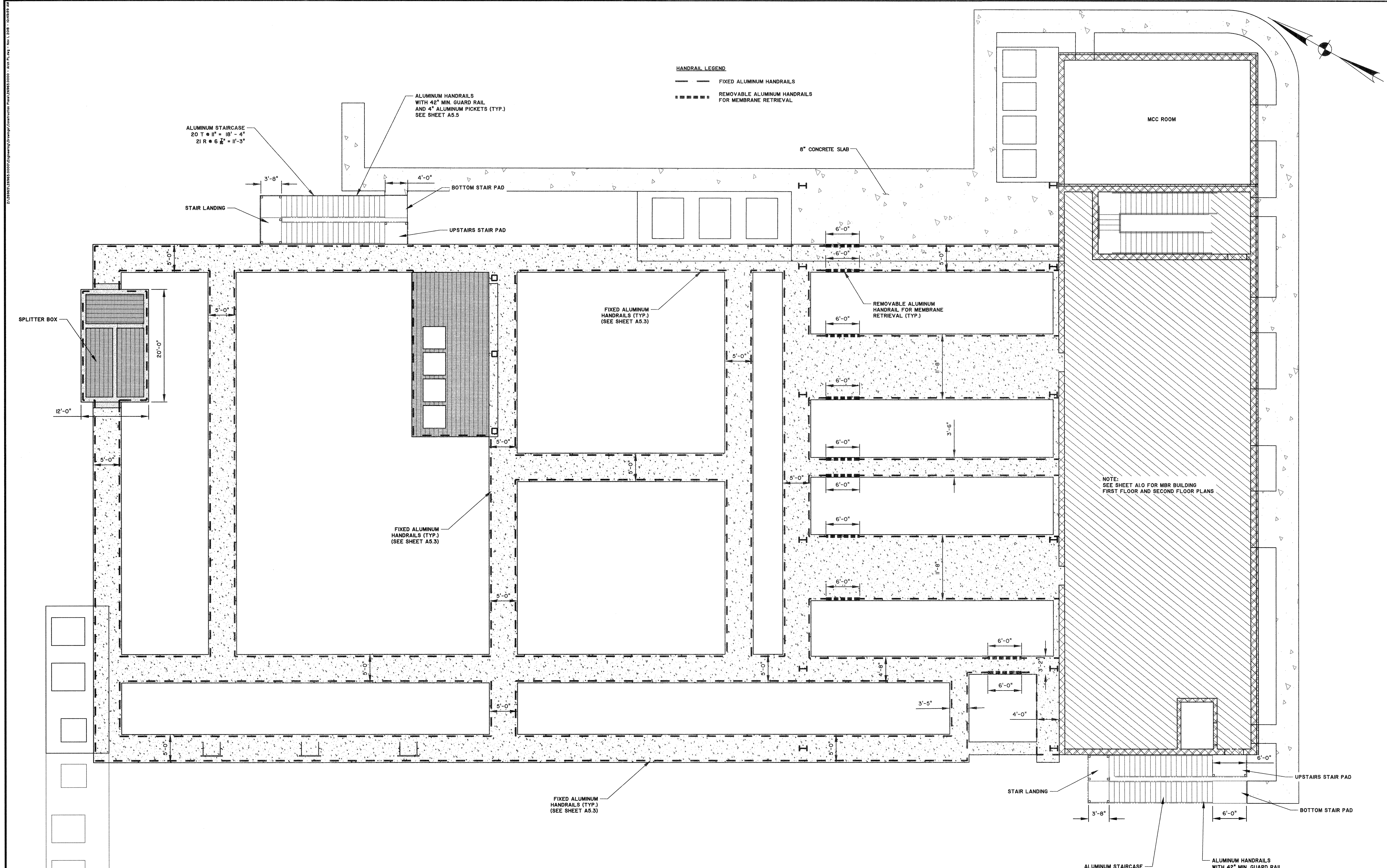
TRAVIS FIELD WATER RECLAMATION FACILITY

GENERATOR PAD & DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	JEP
DESIGNED:	JEP
REVIEWED:	FS
APPROVED:	JAH
SCALE:	AS NOTED

S11.0


HANDRAIL LEGEND
FIXED ALUMINUM HANDRAILS
REMOVABLE ALUMINUM HANDRAILS FOR MEMBRANE RETRIEVAL
ALUMINUM HANDRAILS WITH 42" MIN. GUARD RAIL AND 4" ALUMINUM PICKETS (TYP.) SEE SHEET A5.5
ALUMINUM STAIRCASE 20 T @ 11" = 18' - 4" 21 R @ 6 7/16" = 11'-3"
STAIR LANDING
BOTTOM STAIR PAD
UPSTAIRS STAIR PAD
8" CONCRETE SLAB
MCC ROOM
SPLITTER BOX
FIXED ALUMINUM HANDRAILS (TYP.) (SEE SHEET A5.3)
REMOVABLE ALUMINUM HANDRAIL FOR MEMBRANE RETRIEVAL (TYP.)
NOTE: SEE SHEET A1.0 FOR MBR BUILDING FIRST FLOOR AND SECOND FLOOR PLANS
3'-8"
4'-0"
6'-0"
5'-0"
20'-0"
12'-0"
11'-8"
3'-6"
3'-5"
4'-8"
3'-2"

1 OVERALL ARCHITECTURAL PLAN
A0.1 SCALE : 1/8" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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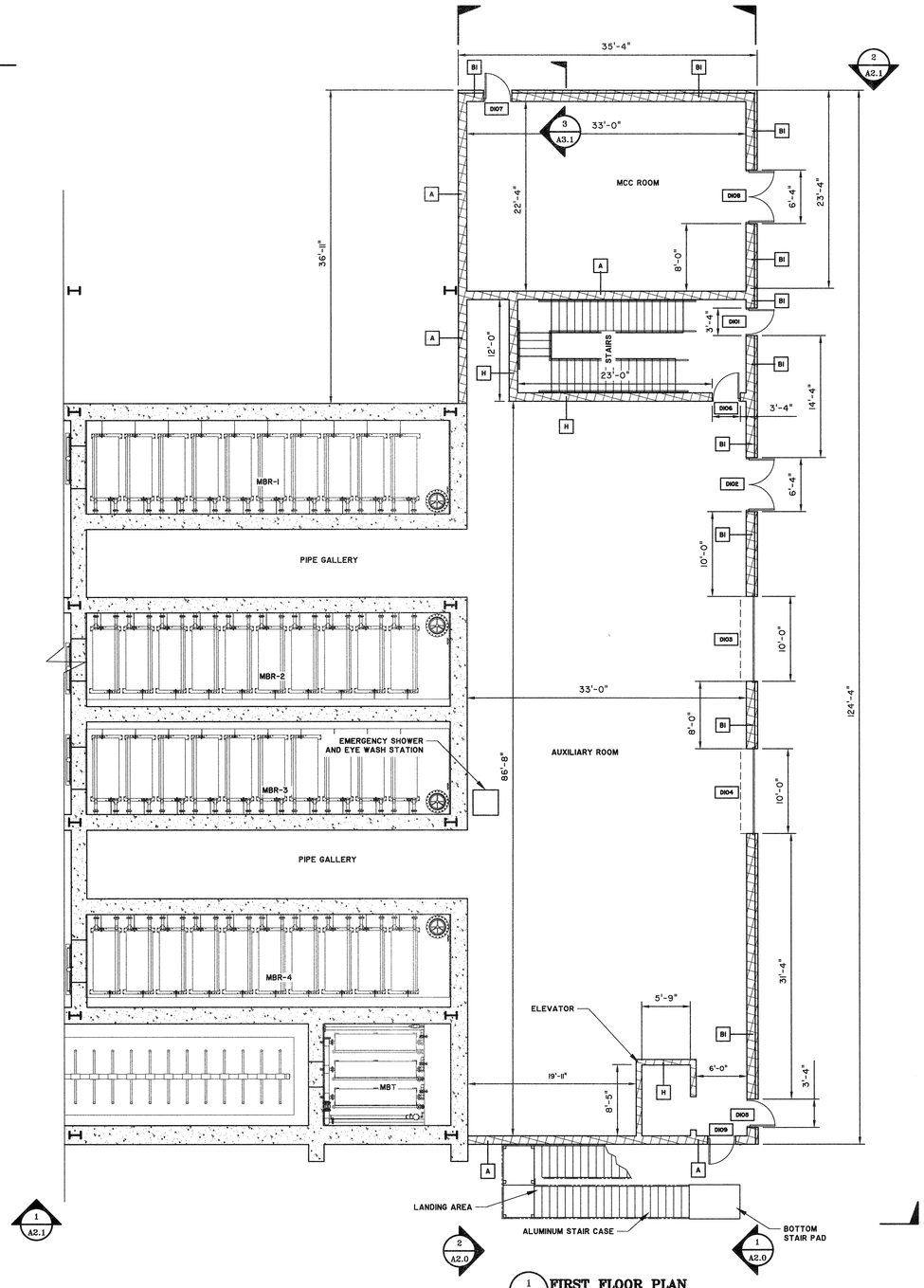
TRAVIS FIELD WATER RECLAMATION FACILITY

OVERALL ARCHITECTURAL PLAN

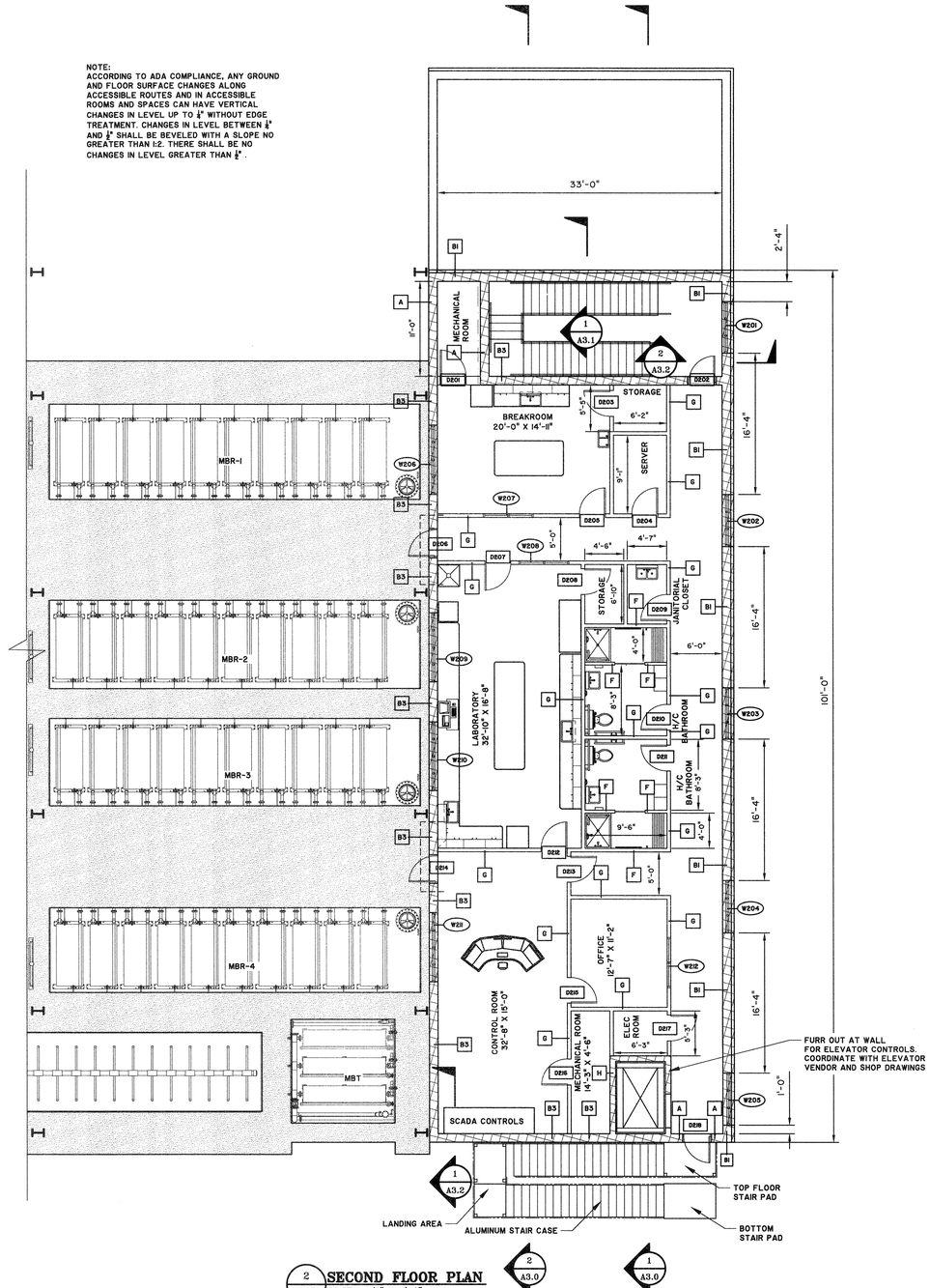
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	FS
APPROVED:	FS
SCALE:	1" = 96'

A0.1



1 A1.0 **FIRST FLOOR PLAN**
SCALE : 1/8" = 1'-0"

NOTE:
ACCORDING TO ADA COMPLIANCE, ANY GROUND AND FLOOR SURFACE CHANGES ALONG ACCESSIBLE ROUTES AND IN ACCESSIBLE ROOMS AND SPACES CAN HAVE VERTICAL CHANGES IN LEVEL UP TO ¼" WITHOUT EDGE TREATMENT. CHANGES IN LEVEL BETWEEN ¼" AND ½" SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2. THERE SHALL BE NO CHANGES IN LEVEL GREATER THAN ½" .



2 A1.0 **SECOND FLOOR PLAN**
SCALE : 1/8" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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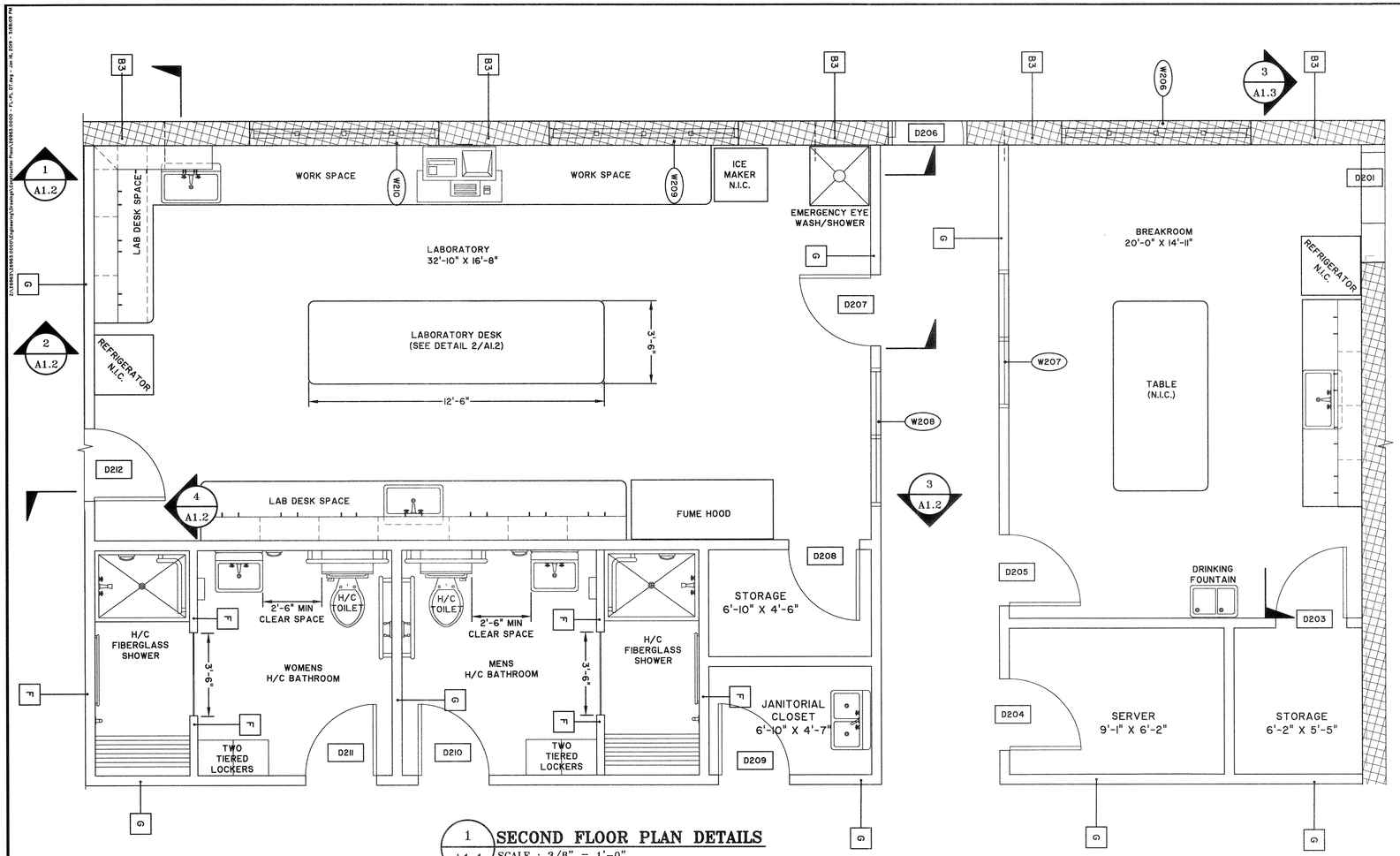
TRAVIS FIELD WATER RECLAMATION FACILITY

FLOOR PLANS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1/8"=1'-0"

A1.0

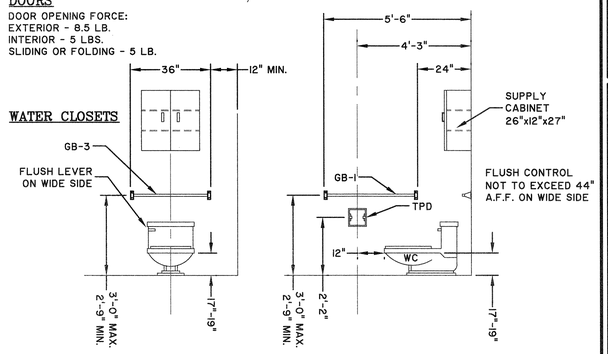


1 A1.1 **SECOND FLOOR PLAN DETAILS**
SCALE : 3/8" = 1'-0"

DOORS

DOOR OPENING FORCE:
EXTERIOR - 8.5 LB.
INTERIOR - 5 LBS.
SLIDING OR FOLDING - 5 LB.

WATER CLOSETS



GRAB BARS AND SEATS

1. GRAB BARS AND SHOWER SEATS ARE TO BE CONSTRUCTED AND INSTALLED TO MEET THE FOLLOWING STRUCTURAL STRENGTHS:

   250 LB. BENDING MOMENT
   250 LB. SHEAR STRESS
   SHEAR FORCE INDUCED ON FASTENER OR MOUNTING DEVICE FROM APPLICATION OF 250 LB. FORCE SHALL BE LESS THAN ALLOWABLE LATERAL LOAD OF FASTENER OR SUPPORT STRUCTURE.

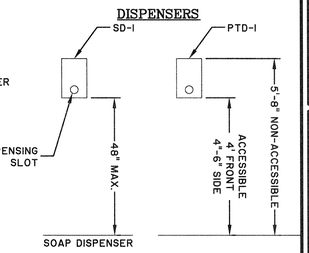
   TENSILE FORCE INDUCED BY DIRECT TENSION FORCE OF 250 LB. PLUS MAXIMUM MOMENT FROM THE APPLICATION OF 250 LB. SHALL BE LESS THAN THE ALLOWABLE WITHDRAWAL LOAD BETWEEN FASTENER AND SUPPORTING STRUCTURE.

2. GRAB BARS SHALL NOT ROTATE WITHIN THEIR FITTINGS.

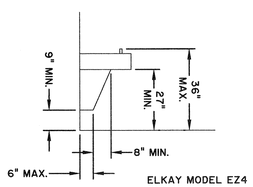
TOILET AND BATH ACCESSORIES

GB-1 = STRAIGHT GRAB BAR 42"
GB-2 = SHOWER GRAB BAR
GB-3 = STRAIGHT GRAB BAR 36"
MIR = MIRROR 24"x36"
PTD-1 = SURFACE MOUNTED PAPER TOWEL DISPENSER
RH = ROBE HOOK
SCR-1 w/ SC-1 = 36" SHOWER CURTAIN ROD w/ SHOWER CURTAIN AND HOOKS
SCR-2 w/ SC-2 = 60" SHOWER CURTAIN ROD w/ SHOWER CURTAIN AND HOOKS
SD/GB = SOAP DISH AND BAR
TB = 36" TOWEL BAR
SD-1 = WALL MOUNTED SOAP DISPENSER
NP = NAPKIN DISPOSAL
SHS = FOLD-UP SHOWER SEAT
TPD = TOILET PAPER DISPENSER
WR = WASTE RECEPTACLE
DRB = DRESSING ROOM BENCH

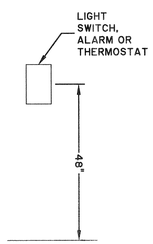
DISPENSERS



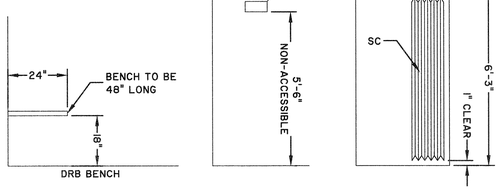
DRINKING FOUNTAINS



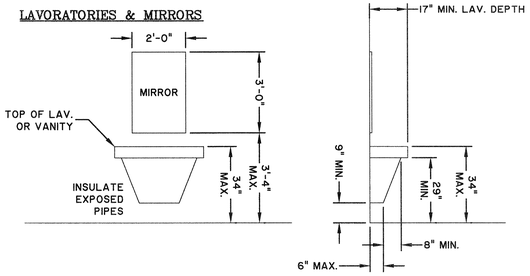
ALARMS



SHOWER STALLS



LAVORATORIES & MIRRORS



BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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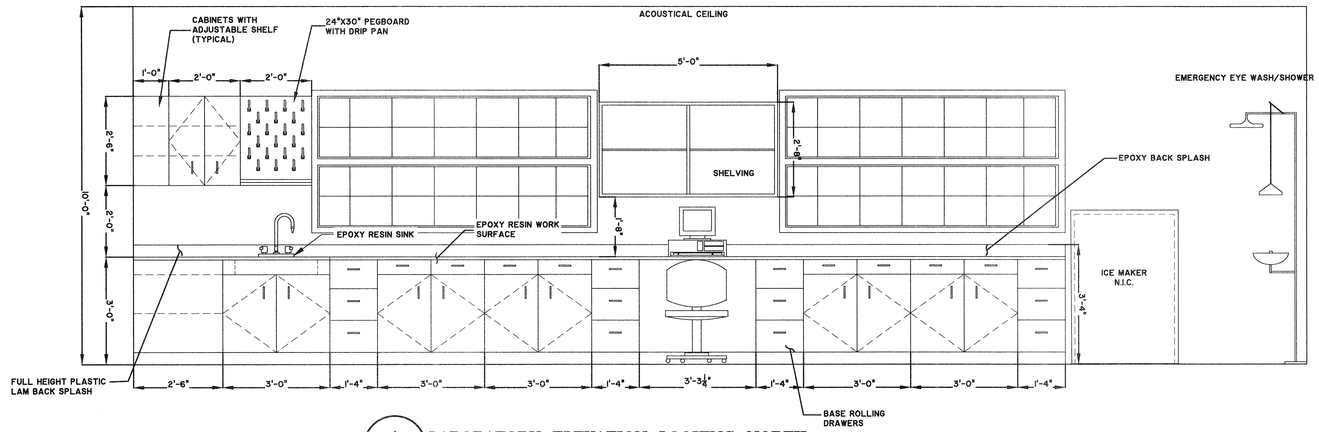
SAVANNAH GEORGIA

TRAVIS FIELD WATER RECLAMATION FACILITY

SECOND FLOOR PLAN DETAILS

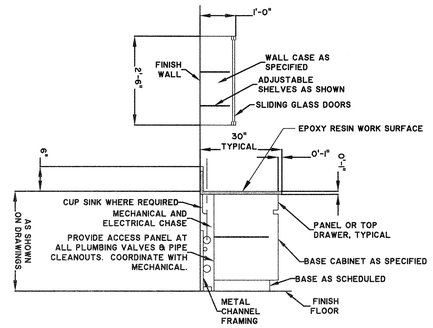
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A1.1

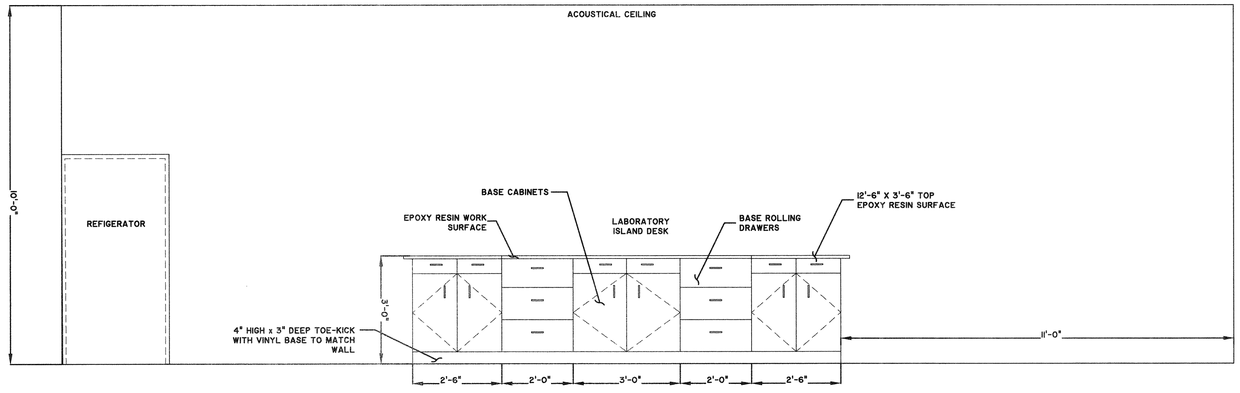


1 / A1.1 | A1.2 **LABORATORY ELEVATION LOOKING NORTH**
SCALE: 1/2"=1'-0"

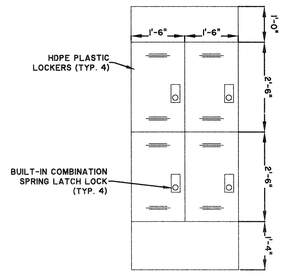
NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL CONSTRUCTION INFORMATION.



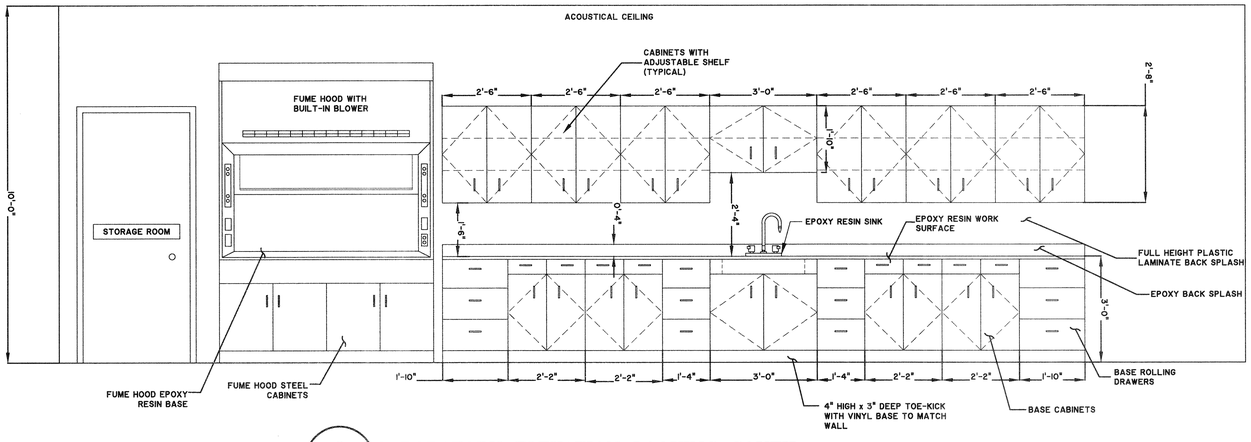
LAB CABINET SECTION
SCALE: N.T.S.



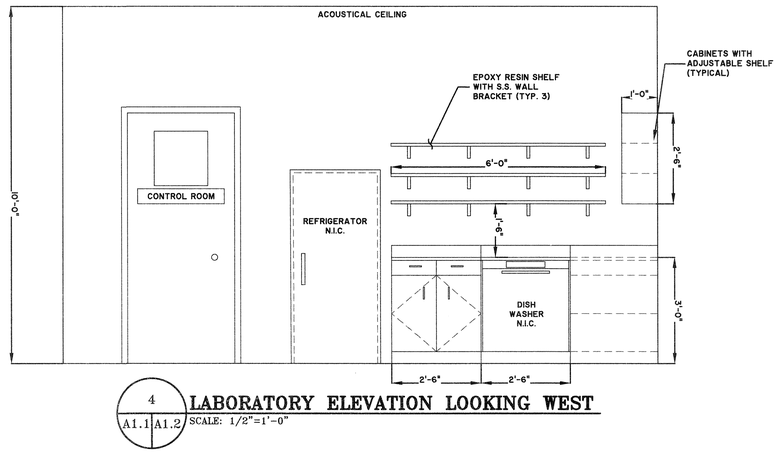
2 / A1.1 | A1.2 **LABORATORY ELEVATION LOOKING NORTH**
SCALE: 1/2"=1'-0"



WALL MOUNTED LOCKER ELEVATION
SCALE: 1/2"=1'-0"



3 / A1.1 | A1.2 **LABORATORY ELEVATION LOOKING SOUTH**
SCALE: 1/2"=1'-0"



4 / A1.1 | A1.2 **LABORATORY ELEVATION LOOKING WEST**
SCALE: 1/2"=1'-0"

BID SET - NOT FOR CONSTRUCTION

NO	ISSUED FOR BIDS	BY	DATE
0	REVISIONS	CDR	5-01-19

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TRAVIS FIELD WATER RECLAMATION FACILITY

SECOND FLOOR ELEVATIONS

JOB NO:	J-26963.0000
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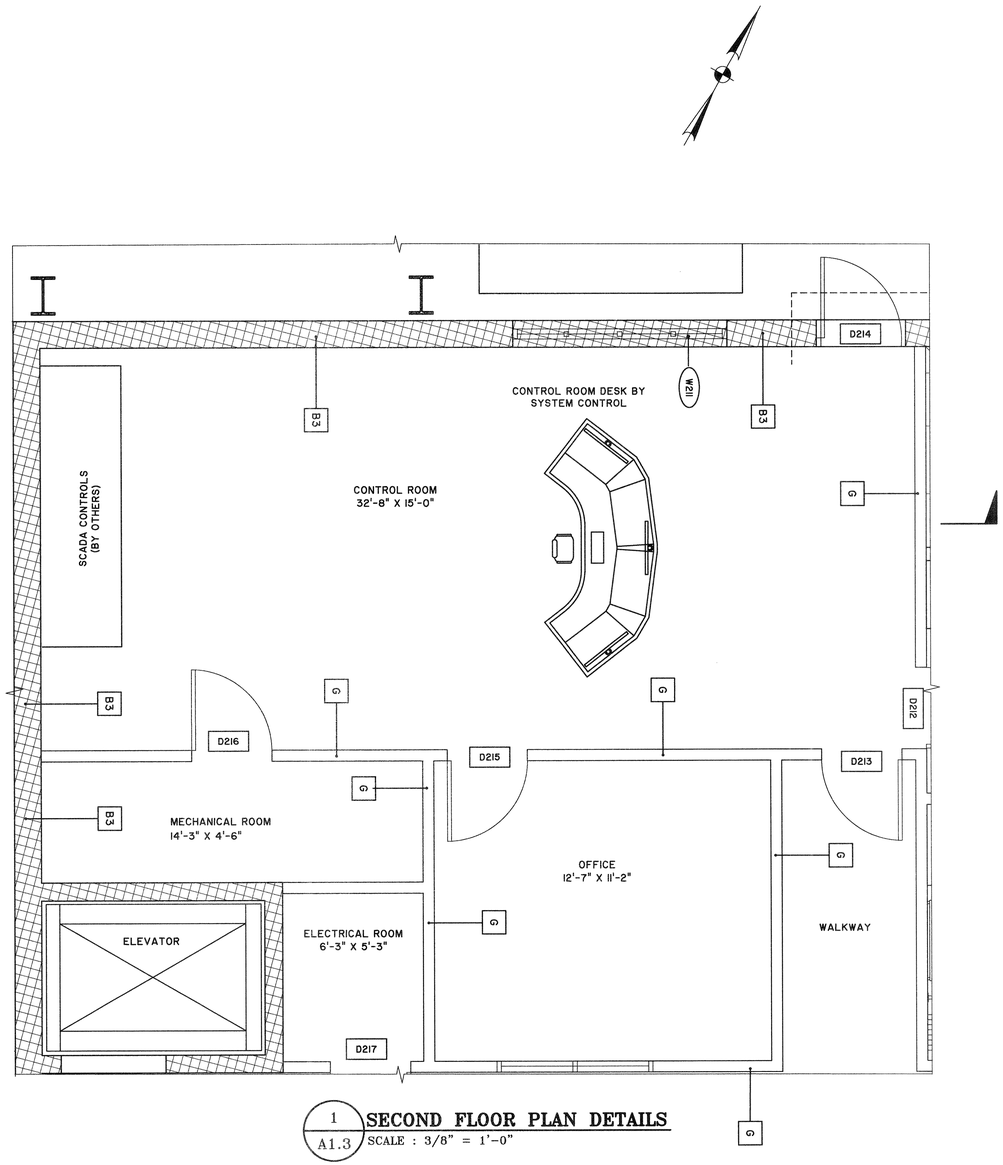
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1/2"=1'-0"

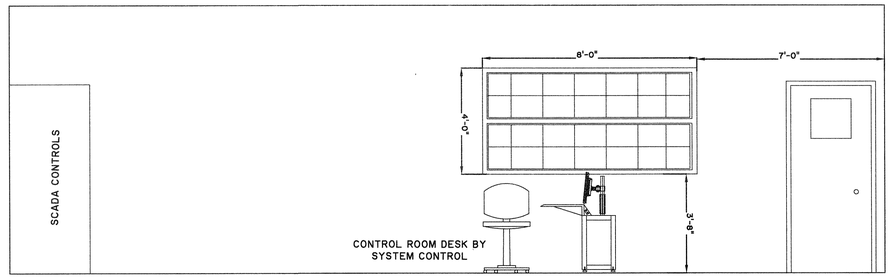
A1.2



2 / A1.3

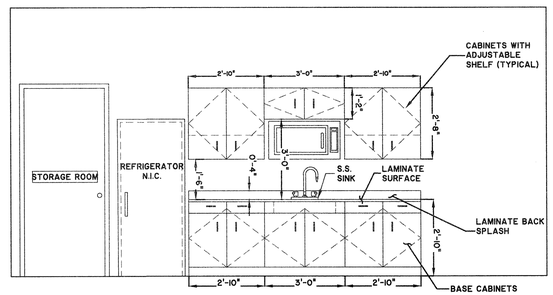
1 / A1.3 SECOND FLOOR PLAN DETAILS

SCALE : 3/8" = 1'-0"



2 / A1.3 SECTION

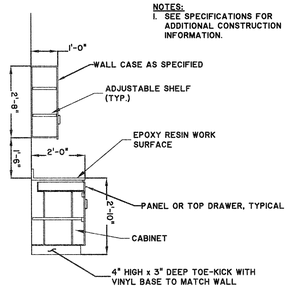
SCALE : 3/8" = 1'-0"



3 / A1.1 A1.3 BREAKROOM ELEVATION LOOKING EAST

SCALE: 3/8"=1'-0"

NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL CONSTRUCTION INFORMATION.



4 / A1.3 BREAKROOM BASE AND WALL CABINET DETAIL

SCALE : 3/8" = 1'-0"

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	REVISIONS	CDR	5-01-19

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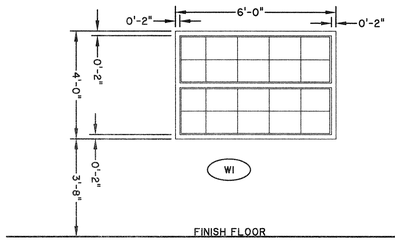
TRAVIS FIELD WATER RECLAMATION FACILITY

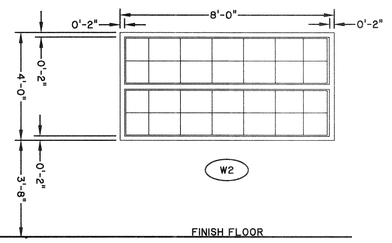
SECOND FLOOR PLAN AND ELEVATIONS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A1.3

WINDOW SCHEDULE	
WINDOW NO.	WINDOW TYPE
W201	W1
W202	W1
W203	W1
W204	W1
W205	W1
W206	W2
W207	W1
W208	W1
W209	W2
W210	W2
W211	W2
W212	W1



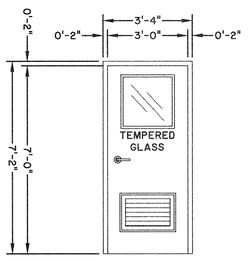


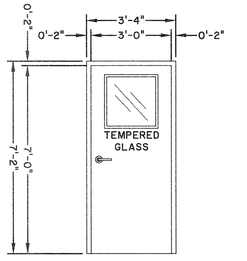
WINDOW									
OPENING						FRAME			
DOOR TYPE	SIZE		WINDOW			DETAIL			
	WIDTH	HEIGHT	TYPE	GLASS	MATERIAL	EXTERIOR FINISH	INTERIOR FINISH	HEAD	SILL
W1	4'-0"	6'-0"	FIXED	INSULATED TINTED IMPACT RATED	FIBERGLASS	FIBERGLASS COMPOSITE	MANUF. STD COLOR	A-WIND-1	A-WIND-1
W2	4'-0"	8'-0"	FIXED	INSULATED TINTED IMPACT RATED	FIBERGLASS	FIBERGLASS COMPOSITE	MANUF. STD COLOR	A-WIND-1	A-WIND-1

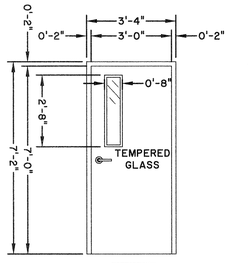
NOTE:
SEE DETAIL SHEET A5.1 FOR FRAME DETAILS

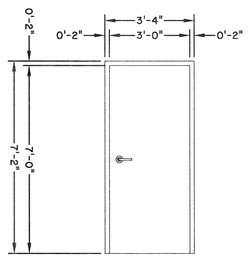
WINDOW NOTES:
1. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ROUGH OPENINGS.
2. MANUFACTURER VERIFY ROUGH OPENING DIMENSIONS PRIOR TO WINDOW FABRICATION
3. ALL INTERIOR GLAZING TO BE TEMPERED.
4. ALL NEW EXTERIOR GLAZING SYSTEMS SHALL COMPLY WITH IBC 1609.1.4 FOR IMPACT RESISTANCE AND IBC 1609.1.2 FOR WIND LOADING CRITERIA, EXPOSURE AS NOTED.
5. GLAZED OPENINGS LOCATED WITHIN 30 FEET OF GRADE SHALL MEET THE REQUIREMENTS OF THE LARGE MISSILE TEST OF ASTM E 1996.
6. CONTRACTOR TO REPORT ANY DISCREPANCIES IN DIMENSIONS TO ARCHITECT PRIOR TO ORDERING OR INSTALLATION.

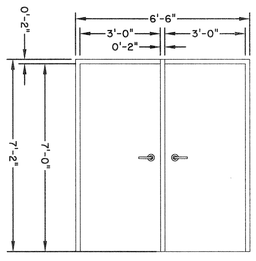
DOOR NOTES:
1. COORDINATE FRAME, JAMB, HEAD, AND SILL WIDTH WITH ACTUAL WALL WIDTH/SIZE.
2. ALL INTERIOR DOOR GLAZING TO BE TEMPERED.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ROUGH OPENINGS.
4. MANUFACTURER TO VERIFY ROUGH OPENING DIMENSIONS PRIOR TO FABRICATION
5. CONTRACTOR TO REPORT ANY DISCREPANCIES IN DIMENSIONS TO ARCHITECT PRIOR TO ORDERING OR INSTALLATION.
6. ALL EXTERIOR THRESHOLDS TO BE ADA COMPLIANT.
7. ALL HARDWARE SHALL BE PROVIDED BY A SINGLE HARDWARE SUPPLIER.
8. THE CONTRACTOR SHALL SUBMIT A HARDWARE SCHEDULE FOR REVIEW BY THE ARCHITECT PRIOR TO INSTALLATION, WHICH INCLUDES LOCKSETS, HINGES, DEADBOLTS, FLOORSTOPS, AND ANY OTHER HARDWARE.
9. COORDINATE KEYING WITH OWNER.
10. INTERIOR WOOD FLUSH DOORS TO HAVE FACTORY APPLIED STAIN AND CLEAR FINISH AS SELECTED BY OWNER.
11. ALL NEW EXTERIOR GLAZING SYSTEMS SHALL COMPLY WITH IBC 1609.1.4 FOR IMPACT RESISTANCE AND IBC 1609.1.2 FOR WIND LOADING CRITERIA, EXPOSURE AS NOTED.
12. GLAZED OPENINGS LOCATED WITHIN 30 FEET OF GRADE SHALL MEET THE REQUIREMENTS OF THE LARGE MISSILE TEST OF ASTM E 1996.

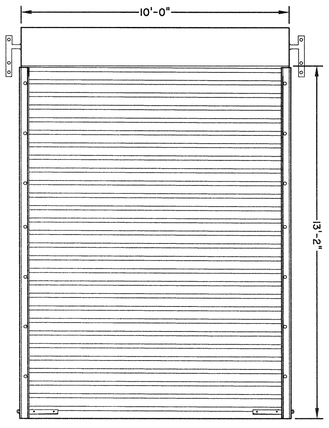












NOTE:
1. ALL DOOR HARDWARE INCLUDING CLOSURES, DOOR STOPS, HINGES, ETC. TO BE STAINLESS STEEL.
2. COLOR SHALL BE SELECTED FROM MANUFACTURES STANDARD COLORS DURING SUBMITTAL PROCESS.
3. SEE MANUFACTURES DETAILS FOR DOOR AND WINDOW TRIM.
4. SEE SHEET A5.1 FOR FRAME DETAILS
5. DOOR D107 AND D108 SHALL BE EQUIPPED WITH PANIC HARDWARE
6. ALL DOORS SHALL BE EQUIPPED WITH S.S. KICK PLATES

DOOR SCHEDULE														
DOOR NO.	DOOR TYPE	DIMENSIONS			DOOR				FRAME		DOOR DETAILS			
		WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	GLASS	FIRE LABEL	MATERIAL	FINISH	HEAD	JAMB	SILL	MISC.
D101	D1	3'-0"	7'-0"	1-3/4"	FIBERGLASS	PAINT	IMPACT RESISTANT	—	FIBERGLASS	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	CLOSER
D102	D4	6'-2"	7'-0"	1-3/4"	FIBERGLASS	PAINT	—	—	FIBERGLASS	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D103	D5	10'-0"	13'-2"	1-3/4"	ALUMINUM	ANODE	—	—	ALUMINUM	SEE SPEC	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D104	D5	10'-0"	13'-2"	1-3/4"	ALUMINUM	ANODE	—	—	ALUMINUM	SEE SPEC	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D105	D1	3'-0"	7'-0"	1-3/4"	FIBERGLASS	PAINT	IMPACT RESISTANT	—	FIBERGLASS	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D106	D2	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	IMPACT RESISTANT	2 HR	HOLLOW METAL	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	CLOSER
D107	D3	3'-0"	7'-0"	1-3/4"	FIBERGLASS	PAINT	—	—	FIBERGLASS	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D108	D4	6'-2"	7'-0"	1-3/4"	FIBERGLASS	PAINT	—	—	FIBERGLASS	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	
D109	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	2 HR	HOLLOW METAL	PAINT	S-DOOR-4	S-DOOR-4	S-DOOR-7	CLOSER

DOOR SCHEDULE														
DOOR NO.	DOOR TYPE	DIMENSIONS			DOOR				FRAME		DOOR DETAILS			
		WIDTH	HEIGHT	THICKNESS	MATERIAL	FINISH	GLASS	FIRE LABEL	MATERIAL	FINISH	HEAD	JAMB	SILL	MISC.
D201	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	60 MIN	HOLLOW METAL	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	CLOSER
D202	D2	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	IMPACT RESISTANT	2 HR	HOLLOW METAL	PAINT	S-DOOR-5	S-DOOR-5	S-DOOR-7	CLOSER
D203	D3	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	—	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D204	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	60 MIN	HOLLOW METAL	PAINT	—	—	S-DOOR-6	CLOSER
D205	D2	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	CERAMIC	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D206	D2	3'-0"	7'-0"	1-3/4"	FIBERGLASS	PAINT	IMPACT RESISTANT	—	FIBERGLASS	PAINT	S-DOOR-4	S-DOOR-4	S-DOOR-7	
D207	D2	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	CERAMIC	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D208	D3	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	—	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D209	D3	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	—	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D210	D3	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	—	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D211	D3	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	—	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D212	D2	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	CERAMIC	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D213	D2	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	CERAMIC	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D214	D2	3'-0"	7'-0"	1-3/4"	FIBERGLASS	PAINT	IMPACT RESISTANT	—	FIBERGLASS	PAINT	S-DOOR-4	S-DOOR-4	S-DOOR-7	
D215	D2-1	3'-0"	7'-0"	1-3/4"	WOOD	PAINT	CERAMIC	—	HOLLOW METAL	PAINT	—	—	S-DOOR-6	
D216	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	60 MIN	HOLLOW METAL	PAINT	—	—	S-DOOR-6	CLOSER
D217	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	60 MIN	HOLLOW METAL	PAINT	—	—	S-DOOR-6	CLOSER
D218	D3	3'-0"	7'-0"	1-3/4"	HOLLOW METAL	PAINT	—	2 HR	HOLLOW METAL	PAINT	S-DOOR-4	S-DOOR-4	S-DOOR-7	CLOSER

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BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY

DOOR AND WINDOW SCHEDULE

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A1.4

INTERIOR FINISH SCHEDULE

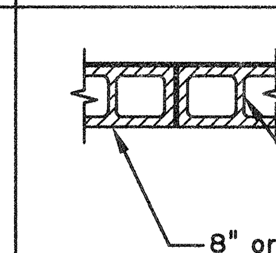
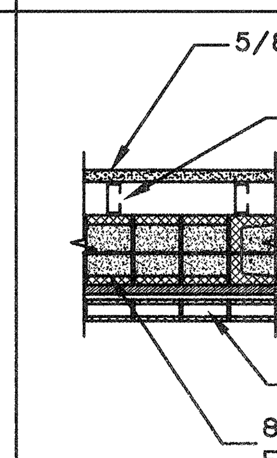
ROOM NAME	FLOORING		WALL FINISH					CEILING	
	FLOOR	BASE	MATERIAL	NORTH	SOUTH	EAST	WEST	MATERIAL	HEIGHT
BATHROOM	QT	QB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
CONTROL ROOM	PST	RB	GYPSUM BOARD	PT-02	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
OFFICE	PST	RB	GYPSUM BOARD	PT-01	PT-02	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
BREAKROOM	PST	RB	GYPSUM BOARD	PT-01	PT-01	PT-02	PT-01	ACOUSTICAL CEILING TILE	10'-0"
LABORATORY	QT	QB	GYPSUM BOARD	PT-02	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
STORAGE ROOM AND JANITOR CLOSET (TYP.)	QT	QB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
SERVER ROOM	PST	RB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
ELECTRICAL/MCC ROOM	FINISHED CONCRETE	—	12" OR 8" CMU	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
MECHANICAL ROOM	PST	RB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
CORRIDOR (TYP.)	PST	RB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
UPSTAIRS LANDING	PST	RB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	10'-0"
STAIR	FINISHED CONCRETE	RB	GYPSUM BOARD	PT-01	PT-01	PT-01	PT-01	ACOUSTICAL CEILING TILE	—
ELEVATOR	PST	—	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	SEE NOTE 1	EXPOSED STRUCTURE	SEE NOTE 1
AUXILIARY ROOM	FINISHED CONCRETE	—	12" OR 8" CMU	—	—	—	—	EXPOSED STRUCTURE	22'-1 1/2"
SLUDGE BUILDING	FINISHED CONCRETE	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2

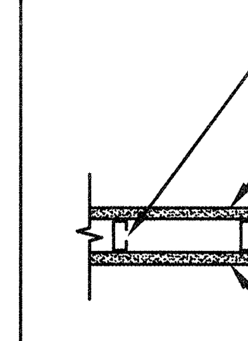
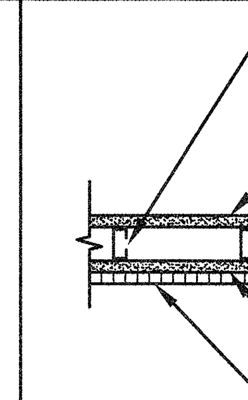
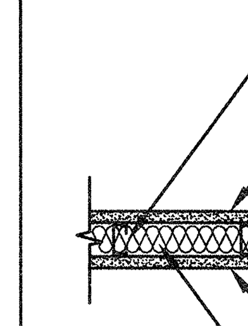
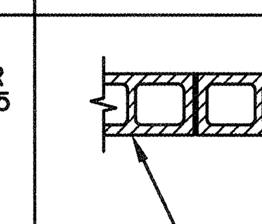
INTERIOR FINISH NOTES:
1. SEE ELEVATOR SPECIFICATIONS FOR FINISHES. COLOR SELECTION SHALL BE MADE DURING SUBMITTALS.
2. SEE METAL BUILDING SPECIFICATIONS FOR SLUDGE BUILDING FINISHES.

FINISH LEGEND

MARKER	MATERIAL	MANUFACTURER	STYLE/FINISH
PST	PORCELAIN STONE TILE	CROSSVILLE	PROTON PO 12X12
QT	QUARRY TILE	DALTILE	ARID FLASH 0Q48 6X6
RF	RESINOUS FLOORING	STONTEC UTF STONHARD, INC	STONTEC - MOJAVE BEIGE
RB	4" RUBBER BASE	JOHNSONITE	28 MEDIUM GREY
QB	QUARRY BASE	DALTILE	Q-1665 BULLNOSE
PT-01	PAINT	SHERWIN-WILLIAMS	SW 9085
PT-02	PAINT	SHERWIN-WILLIAMS	SW 7045

WALL TYPES

TYPE	RATING	DETAIL
A	2 HR U905	 EPOXY PAINT; INSULATION; 8" or 12" CMU
B, B1, B2, B3	2 HR U905	 5/8" GWB; 1-5/8" FURRING @ 16" O.C. w/ FOAM FILL INSULATION; 1 1/2" RIGID INSULATION; BITUMINOUS DAMPROOFING; 1" AIR GAP; 4" CMU SPLIT FACE; 8" OR 12" CMU w/ FOAM FILL INSULATION B1: WITHOUT GWB AND FURRING B2: CAST-IN-PLACE CONCRETE IN PLACE OF CMU B3: WITHOUT SPLIT FACE CMU AND RIGID INSULATION
C		NOT USED
D		NOT USED

TYPE	RATING	DETAIL
E, E1	0 HR, 1 HR	 3-5/8" GALV. STEEL STUDS @ 16" O.C.; 5/8" GWBX @ E1; 5/8" GWBX @ E1 1 HR = UL DESIGN NO U419
F	0 HR	 3-5/8" GALV. STEEL STUDS @ 16" O.C.; 5/8" GWB (NOT REQUIRED AT SHOWER STALL); 5/8" GLASS MESH MORTAR UNIT (GMMU); CERAMIC TILE
G	0 HR	 3-5/8" GALV. STEEL STUDS @ 16" O.C.; 5/8" GWB; 5/8" GWB; MINERAL FIBER BATT, FULL THICK
H	2 HR U905	 12" OR 8" CMU

NOTE:
USE WATER RESISTANT GYPSUM AT ALL BATHROOMS, BREAKROOM, LABORATORY, OR ANY OTHER WET LOCATION AREAS

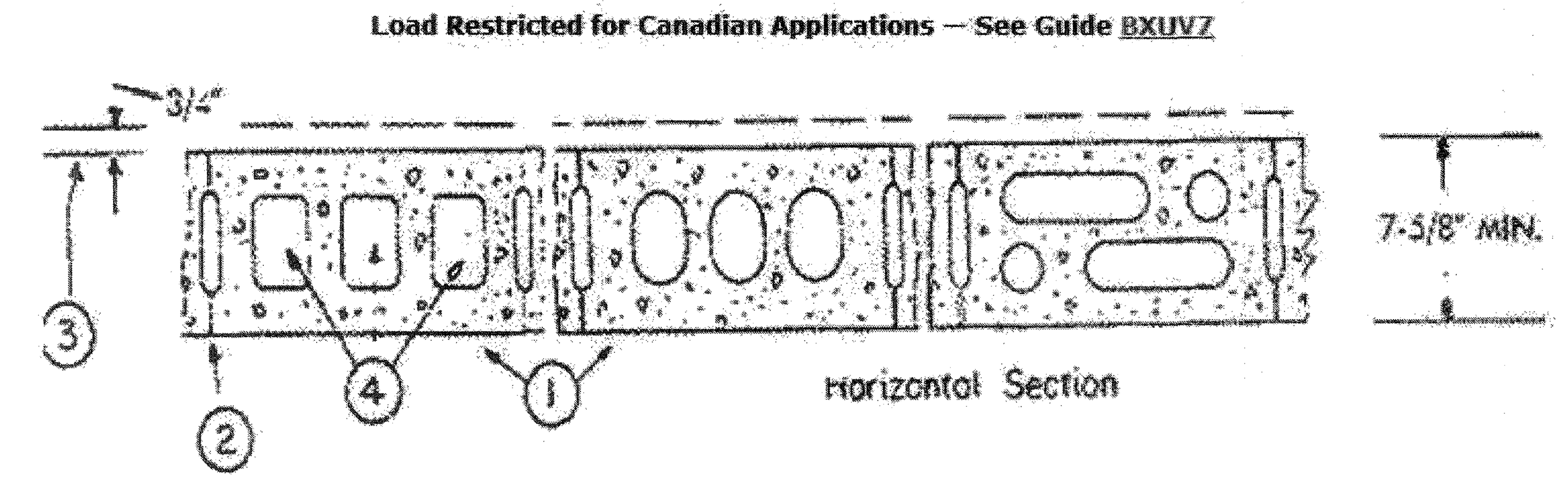
Design No. U905

September 30, 2010

Bearing Wall Rating — 2 HR.

Nonbearing Wall Rating — 2 HR

Load Restricted for Canadian Applications — See Guide BXUV7



1. **Concrete Blocks*** — Various designs. Classification D-2 (2 hr).

See **Concrete Blocks** category for list of eligible manufacturers.

2. **Mortar** — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster** — Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill** — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic*** — (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

THE DOW CHEMICAL CO — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 025741 FRED SOROKIN

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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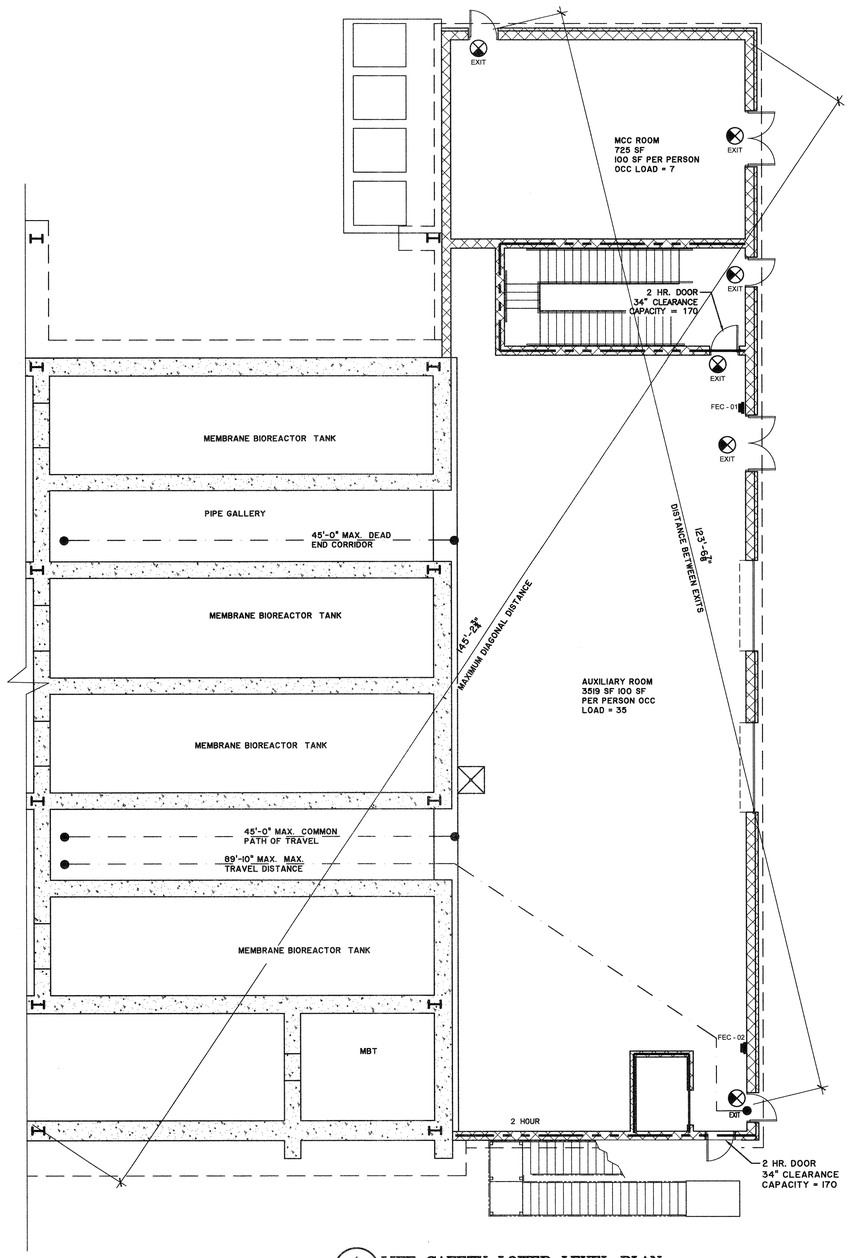
TRAVIS FIELD WATER RECLAMATION FACILITY

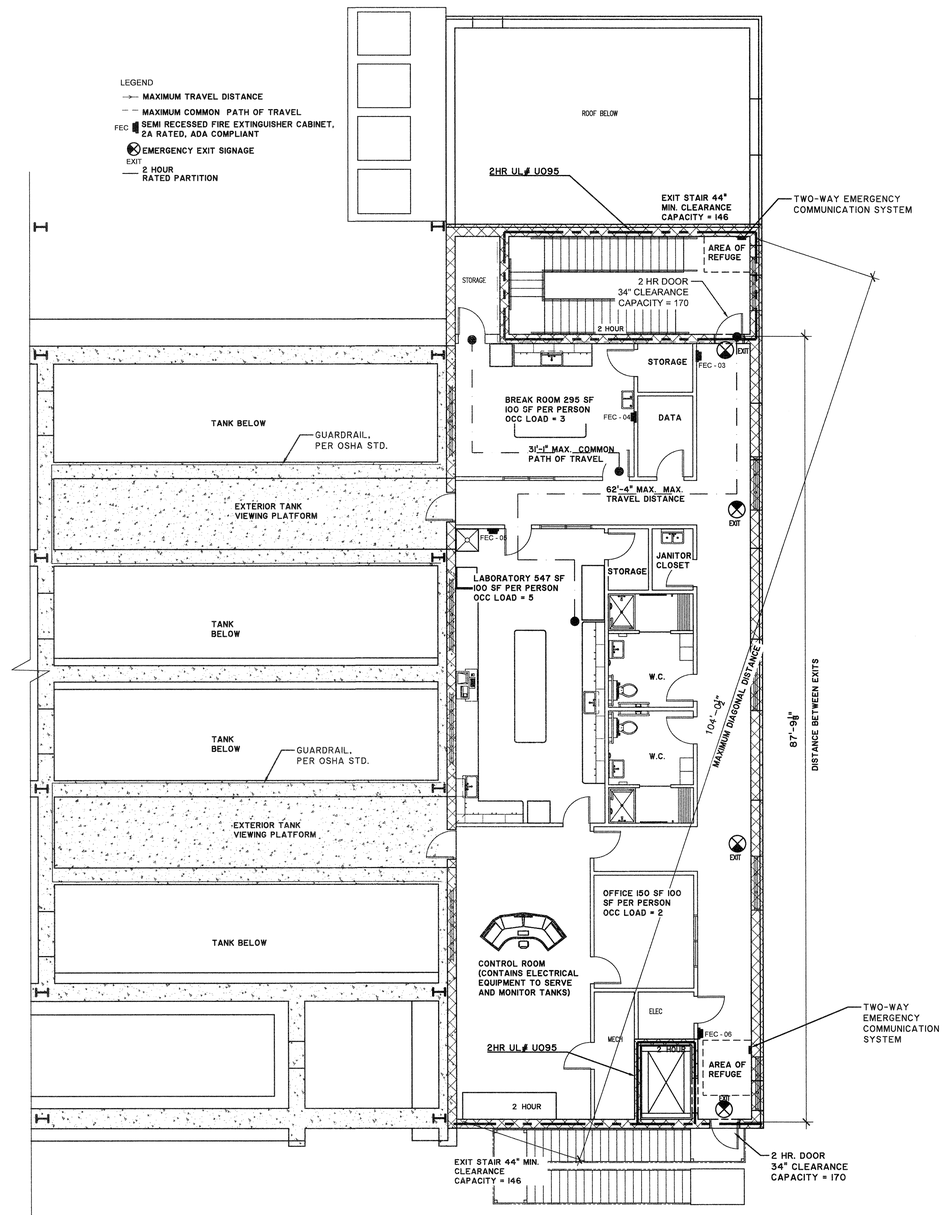
WALL AND FLOOR PLAN SCHEDULES

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 32'

A1.5



1 / A1.6 **LIFE SAFETY LOWER LEVEL PLAN**
SCALE : 1/8" = 1'-0"



2 / A1.6 **LIFE SAFETY UPPER LEVEL PLAN**
SCALE : 1/8" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER FRED SORONEN

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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TRAVIS FIELD WATER RECLAMATION FACILITY

LIFE SAFETY PLAN

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	

A1.6

CODE DATA

I. GENERAL

A. Property Address: 104 Airways Avenue
Savannah, Georgia 31406

B. Property PIN 2-0984-01-001

C. Gross Building Area: (yes tanks) 8470 sf (1st floor)
7612 sf (2nd floor)
16082 sf (TOTAL)

D. Building Height in Stories: 2 Stories

II. Code Requirements:

A. Applicable Codes (with Georgia Amendments):
2012 International Building Code (IBC with 2018 Georgia Amendments)
2012 Life Safety Code (LSC) - NFPA 101
2012 International Mechanical Code
2012 International Plumbing Code
2012 National Electrical Code
2012 International Energy Conservation Code
2012 International Fire Code
2010 Accessibility Code

B. Occupancy Classification:
- Group U 'Utility and Miscellaneous' (IBC 312.2) w/ incidental business uses
General Industrial Occupancy (LSC 40.2.1.1) w/ incidental business uses
- Office use square footage to be 992 sf, which is less than 10% of total project area of 16,082 sf)

C. Construction Type:
Type II B - (IBC Section 602) Unsprinkled, Unprotected
-All materials shall comply with IBC Section 603

D. Height and Area Limitations (IBC Table 503)
Group U - Maximum # of Stories: 2 Story
Actual # of Stories: 2 (Complies)

Allowable Area: 8,500 sf per floor (17,000 TOTAL)
Actual Area: 16,082 sf Gross Area (Complies)

E. Construction protection
1. Fire Protection of Building Elements (IBC Table 601)
Structural Frame: 0 hours Required; 0 hours Provided
Bearing Walls - Exterior: 0 hours Required; 0 hours Provided
Bearing Walls - Interior: 0 hours Required; 0 hours Provided
Non-Bearing Walls: 0 hours Required; 0 hours Provided
Floor/Ceiling construction: 0 hours Required; 0 hours Provided
Roof/Ceiling construction: 0 hours Required; 0 hours Provided

F. Occupancy Load (LSC 7.3.1.2)

Total People:
1st Floor Industrial: 4,244 SF / 100 SF per person = 42 max occupants

2nd Floor Business: 992 SF x 100 SF per person = 10 max occupants
Industrial: N/A (No Regularly Occupied Spaces)

G. Means of Egress
1. Egress Capacity for Level Components and Ramps (LSC Table 7.2.5.2):
1st Floor 42 people x.2"/person = 8.4" required; +34" Provided
2nd Floor 10 people x.2"/person = 2" required; +34" Provided
2. Egress Capacity for Stairs (LSC 7.2.2.1):
1st Floor N/A
2nd Floor 10 people x.3"/person = 3" required; +44" Provided
3. Doors (LSC 7.2.1.2.3):
Required: 34"; Provided: 34" Min.
4. Corridors (LSC 7.3.4.1):
Required: 36"; Provided: 36" Min.
5. Number of Exits per Floor (LSC 40.2.4):
2 required; +2 provided (each level)
6. Travel Distance to Exits (LSC 40.2.6, A.7.6.1):
General Industrial = 200' max. allowed; 89'-10" max. provided
Business = 200' max. allowed; 71'-6" max. provided

7. Common Path of Travel (LSC 40.2.5.3, A.7.6.1):
General Industrial = 50' max. allowed; 45' max. provided
Office = 75' max. allowed; 31'-1" max. provided

8. Dead End Corridor (LSC 40.2.5.2, A.7.6.1):
General Industrial = 50' maximum allowed; 45' max. provided
Office = 75' maximum allowed; N/A

H. Marking Means of Egress:
Means of egress shall have signs in accordance with (LSC 7.10) in all buildings requiring more then one exit.

J. Interior Finishes (LSC 40.3.3)
1. Wall and Ceiling Finish:
Required: Class A, B or C; Provided: Class A
2. Floor Finish: No Requirement

K. Detection, Alarm and Communication:
Fire alarm is not required for occupant load under 100 persons (LSC 38.3.4)

L. Emergency Lighting
Emergency lighting shall be provided in accordance with (LSC 7.9)

M. Extinguishment Requirements:
No fire sprinkler system is proposed

N. Minimum Number of Required Plumbing Fixtures (IBC Section 29.01):
1. Water Closet - 1 per 25 required for the first 50
Required = 1 per M&F; Provided 1 per M&F
2. Lavatories - 1 per 40 required for the first 80
Required = 1 per M&F; Provided 1 per M&F
3. Drinking Fountains - 1 per 1,000
Required = Provided 1 (High-Low)
4. Service Sink - 1 Required;Provided 1

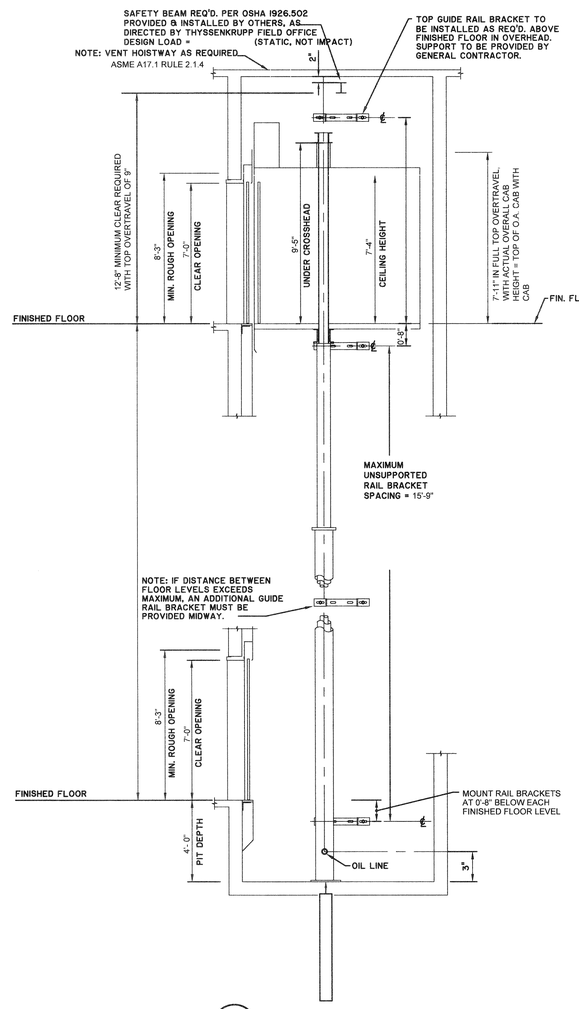
PORTABLE FIRE EXTINGUISHER REQUIREMENTS

1. ALL PORTABLE FIRE EXTINGUISHERS SHALL COMPLY WITH THE LOCAL FIRE DEPARTMENT AND THE NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS.
2. FIRE EXTINGUISHER SIZE AND PLACEMENT SHALL COMPLY WITH TABLE 5.2.1. OF NFPA 10 UNDER ORDINARY HAZARD FOR CLASS A HAZARDS IN ALL TENANT AREAS EXCEPT KITCHEN WHICH IS CLASS K HAZARD.
3. PROVIDE CLASS A MULTIPURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER: UL-RATED 4-A:60-B:C, 10-LB NOMINAL CAPACITY, WITH MONOAMMONIUM PHOSPHATE-BASED DRY CHEMICAL IN ENAMELED-STEEL CONTAINER IN TENANT AREA.
4. PROVIDE CLASS K WET-CHEMICAL TYPE AT KITCHEN: UL-RATED 2-A:I-B:C:K, 2.5-GAL. (9.5-L) NOMINAL CAPACITY, WITH POTASSIUM ACETATE-BASED CHEMICAL IN STAINLESS-STEEL CONTAINER; WITH PRESSURE-INDICATING GAUGE.
5. ALL CLASS K FIRE EXTINGUISHERS SHALL HAVE ADJACENT SIGNAGE MOUNTED ON WALL. SEE IMAGE BELOW.
6. FIRE EXTINGUISHERS SHALL BE CONSPICUOUSLY LOCATED WHERE THEY WILL BE READILY ACCESSIBLE AND IMMEDIATELY AVAILABLE IN THE EVENT OF A FIRE ALONG NORMAL PATHS OF TRAVEL TO EXITS.
7. FIRE EXTINGUISHERS WEIGHING UNDER 40 LBS. SHALL NOT BE MOUNTED HIGHER THAN 5'-0" FROM THE TOP OF THE EXTINGUISHERS. FIRE EXTINGUISHERS WEIGHING OVER 40 LBS. SHALL NOT BE MOUNTED HIGHER THAN 3'-6".
8. ALL FIRE EXTINGUISHERS SHALL BE TESTED AND OPERATIONAL PRIOR TO PROJECT COMPLETION.

K CLASS FIRE EXTINGUISHER TYPICAL SIGNAGE:

NOTES

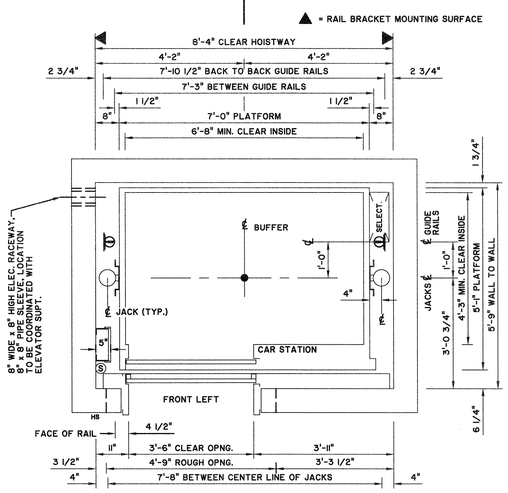
1. ALL PORTABLE FIRE EXTINGUISHERS SHALL COMPLY WITH THE LOCAL FIRE DEPARTMENT AND THE NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS.
2. FIRE EXTINGUISHER SIZE AND PLACEMENT SHALL COMPLY WITH TABLE 5.2.1. OF NFPA 10 UNDER ORDINARY HAZARD.
3. PROVIDE CLASS A MULTIPURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER: UL-RATED 4-A:60-B:C, 10-LB NOMINAL CAPACITY, WITH MONOAMMONIUM PHOSPHATE-BASED DRY CHEMICAL IN ENAMELED-STEEL CONTAINER.
4. FIRE EXTINGUISHERS SHALL BE CONSPICUOUSLY LOCATED WHERE THEY WILL BE READILY ACCESSIBLE AND IMMEDIATELY AVAILABLE IN THE EVENT OF A FIRE ALONG NORMAL PATHS OF TRAVEL TO EXITS.
5. FIRE EXTINGUISHERS WEIGHING UNDER 40 LBS. SHALL NOT BE MOUNTED HIGHER THAN 5'-0" FROM THE TOP OF THE EXTINGUISHERS. FIRE EXTINGUISHERS WEIGHING OVER 40 LBS. SHALL NOT BE MOUNTED HIGHER THAN 3'-6".
6. ALL FIRE EXTINGUISHERS SHALL BE TESTED AND OPERATIONAL PRIOR TO PROJECT COMPLETION.



1 / A1.7 ELEVATOR SECTION VIEW
SCALE : N.T.S.

THE FOLLOWING CONDITIONS MUST BE MET BEFORE INSTALLATION IS COMPLETED, AND ARE NOT INCLUDED IN THE ELEVATOR CONTRACT:

1. A PLUMB, PROPERLY VENTILATED HOISTWAY (ACCORDING TO CODE AND SIZES SHOWN).
2. ADEQUATE SUPPORT FOR JACK, GUIDE RAIL BRACKETS, AND BUFFERS (FOR REACTIONS SHOWN).
3. HOISTWAY BARRICADES AND ALL CUTTING AND PATCHING TO INSTALL HOISTWAY ENTRANCES, SILLS, HALL FIXTURES, OIL AND ELECTRIC LINES.
4. PIT LIGHTS AND SWITCH, CONVENIENCE OUTLETS WITH GFCI PROTECTION PER NEC, PIT LADDER PER CAR (ACCORDING TO CODE). NOTE: MUST BE CLEAR OF ALL ELEVATOR EQUIPMENT.
5. DEDICATED 120 VOLT, 15 AMP. SERVICE, ALONG WITH TELEPHONE CIRCUIT WHEN REQUIRED, TO TERMINALS OF EACH REQUIRED CONTROLLER (AS LOCATED ON PLAN VIEW) FOR THE FOLLOWING: - CAR LIGHT AND ALARM CIRCUIT WITH GFCI PROTECTION PER NEC - GROUP CONTROL WHEN REQUIRED NOTE: IF STANDBY POWER IS SUPPLIED TO ELEVATOR, CAR LIGHT AND ALARM CIRCUIT AND GROUP CONTROL SERVICE MUST BE STANDBY POWER BACKED.
6. BRANCH-CIRCUIT CONDUCTOR SIZING, MATERIALS, AND INSULATION (INCLUDING BRANCH-CIRCUIT OVERCURRENT PROTECTIVE DEVICE) TO COMPLY WITH ALL LOCAL ELECTRICAL CODES (SEE "ELECTRICAL POWER REQUIREMENTS"). NOTE: ALSO, A FOURTH WIRE TO BE SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE IS REQUIRED FOR GROUNDING PURPOSES TO MINIMIZE ELECTRICAL NOISE INTERFERENCE. NOTE: IF STANDBY POWER IS REQUIRED, SEE GEN. CONTRACTOR MUST FORWARD POWER REQUIREMENTS TO ELEC. CONTRACTOR. "ELEVATOR STANDBY POWER OPERATION".
7. AN ENCLOSED MACHINE AREA (ACCORDING TO CODE), WITH ADEQUATE LIGHT, HEAT, AND VENTILATION (MIN. 50°F., MAX. 90°F. WITH NON-CONDENSING HUMIDITY OF 10-90%), AND SEALED CONCRETE FLOOR SLAB SURFACE. NOTE: MUST PROVIDE ADEQUATE DOOR SIZE TO ALLOW INSTALLATION OF EQUIPMENT, OR LEAVE WALL OUT UNTIL EQUIPMENT IS IN PLACE.
8. ENTRANCE WALL WITH LINTELS MUST BE PROVIDED AFTER ENTRANCE FRAMES ARE SET OR LEAVE A ROUGH OPENING WIDER AND HIGHER THAN THE FRAME 15" 15" OPENING. SEE INSTALLATION PROCEDURES FOR FRAME-TO-WALL INTERFACE DETAILS TO ENSURE CONFORMANCE WITH THE LABELED ENTRANCE INTERFACE CONSTRUCTION.
9. POCKETS IN CORRIDOR WALL (PER FIXTURE DRAWINGS) FOR HALL FIXTURES. NOTE: MUST BE LOCATED AS DIRECTED BY ELEVATOR CONTRACTOR
10. SMOKE SENSORS (AS REQUIRED).
11. CONDUIT AND WIRING FROM HOISTWAY TO ELEVATOR MONITORING PANELS (FOR SECURITY, LIFE, SAFETY, OR FIRE REQUIREMENTS).
12. PIPE SLEEVES, TRENCHING, AND BACK FILLING FOR OIL AND/OR CONDUIT LINES AS SHOWN OR LOCATED BY ELEVATOR CONTRACTOR.
13. CONTRACTOR TO OBTAIN AND SUBMIT SHOP DRAWINGS. NO CONSTRUCTION OR LAYOUT SHALL BE PERFORMED BEFORE SUBMITTAL IS REVIEWED AND ACCEPTED BY THE ENGINEER. SUBMITTAL SHALL INCLUDE ALL DIMENSIONS AND LOCATION OF CONTROLS, ELEVATOR SHAFT AND OTHER ACCESSORIES.



1 / A1.7
2 / A1.7 HOISTWAY PLAN
SCALE : N.T.S.

NOTE A: OIL PIPE LINES AND FITTINGS SHALL BE PROPERLY SUPPORTED TO RELIEVE STRAIN.

NOTE B: ALL REACTIONS INCLUDE ALLOWANCE FOR IMPACT.

NOTE C: thyssenkrupp ELEVATOR TO BE NOTIFIED OF ANY CHANGE TO ELEVATOR HOISTWAY OR MACHINE ROOM DESIGN.

REGISTERED PROFESSIONAL ENGINEER FRED SORGMAN GEORGIA

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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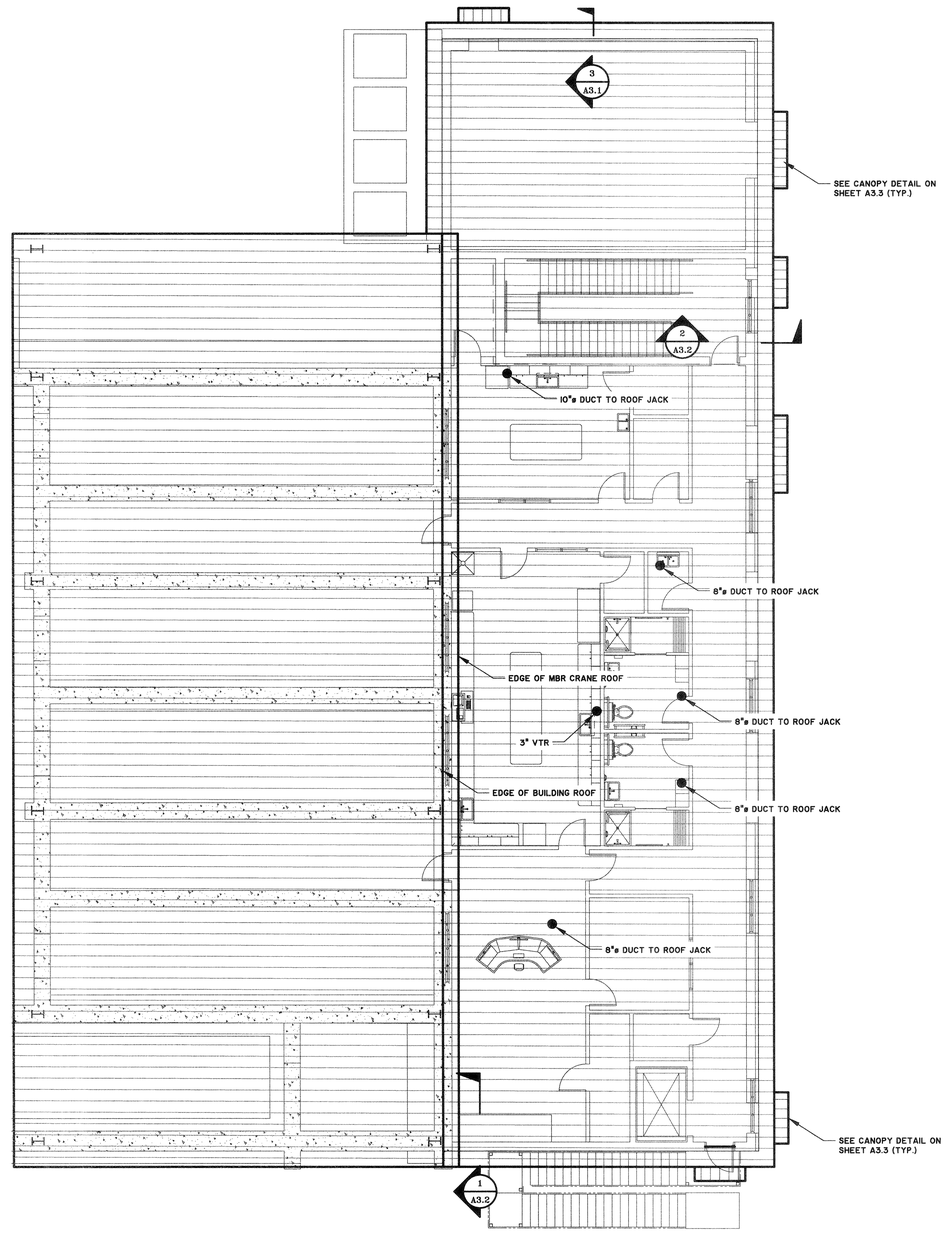
TRAVIS FIELD WATER RECLAMATION FACILITY

LIFE SAFETY PLAN NOTES AND ELEVATOR DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A1.7



1 / A1.8 **ROOF PLAN**
SCALE : 1/8" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORORIO

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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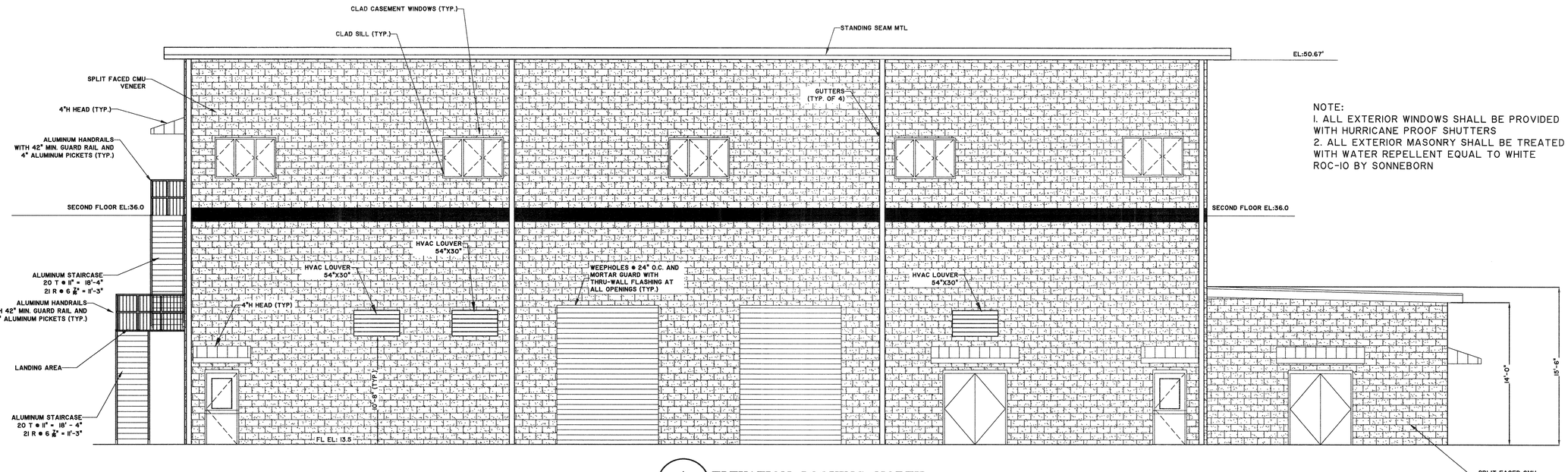
TRAVIS FIELD WATER RECLAMATION FACILITY

ROOF PLAN

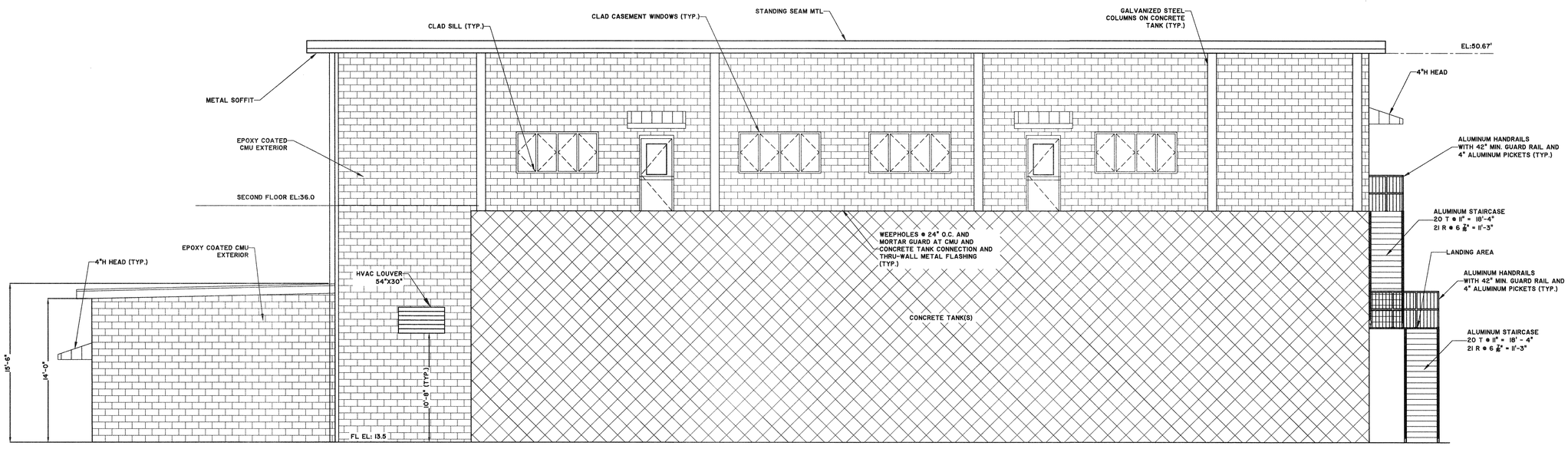
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 96'

A1.8



NOTE:
1. ALL EXTERIOR WINDOWS SHALL BE PROVIDED WITH HURRICANE PROOF SHUTTERS
2. ALL EXTERIOR MASONRY SHALL BE TREATED WITH WATER REPELLENT EQUAL TO WHITE ROC-10 BY SONNEBORN

1 / A1.0 | A2.0 **ELEVATION LOOKING NORTH**
SCALE: 3/16" = 1'-0"



2 / A1.0 | A2.0 **ELEVATION LOOKING SOUTH**
SCALE: 3/16" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	ISSUED FOR BIDS	BY	DATE
0	REVISIONS	CDR	5-01-19

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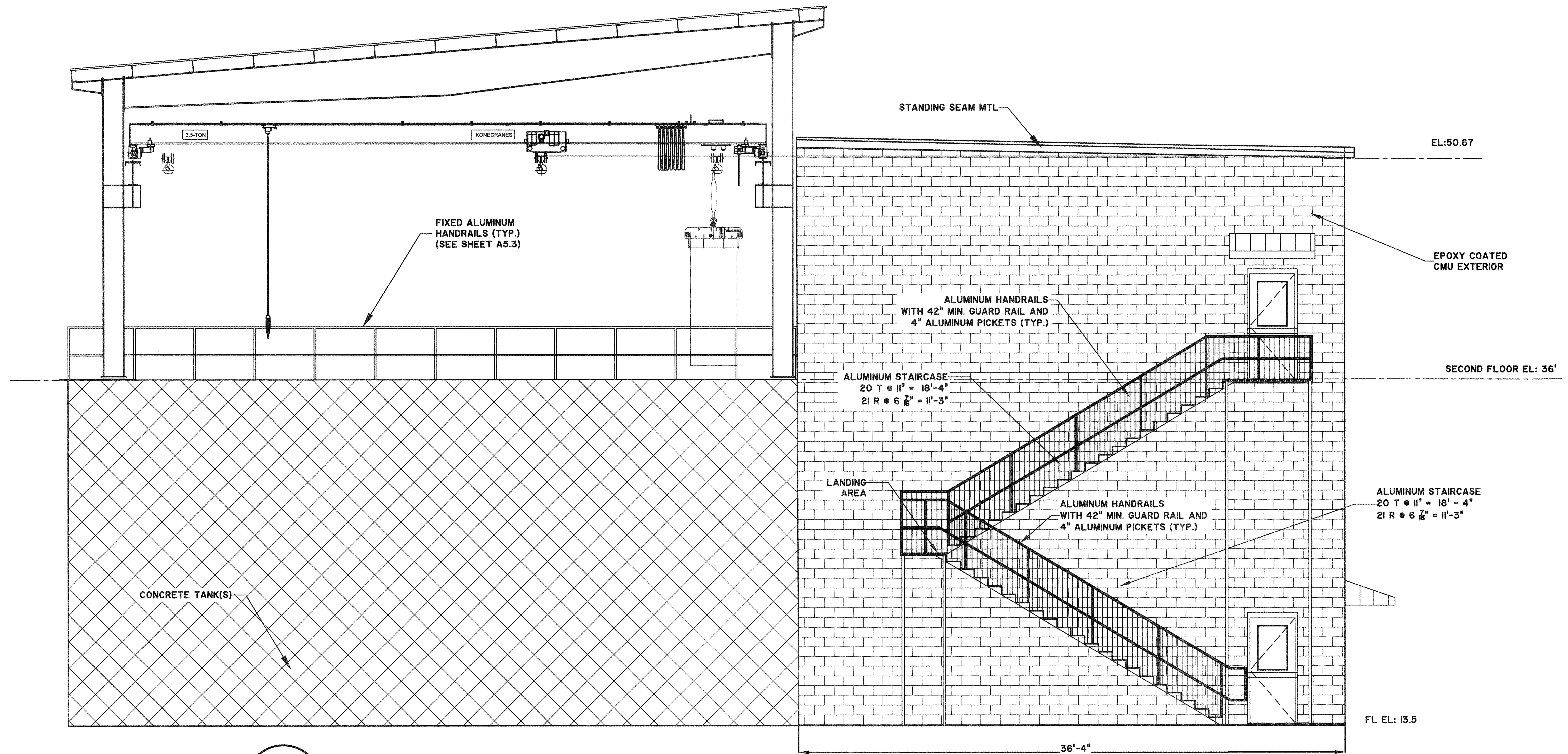
TRAVIS FIELD WATER RECLAMATION FACILITY

EXTERIOR ELEVATIONS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	3/16"=1'-0"

A2.0

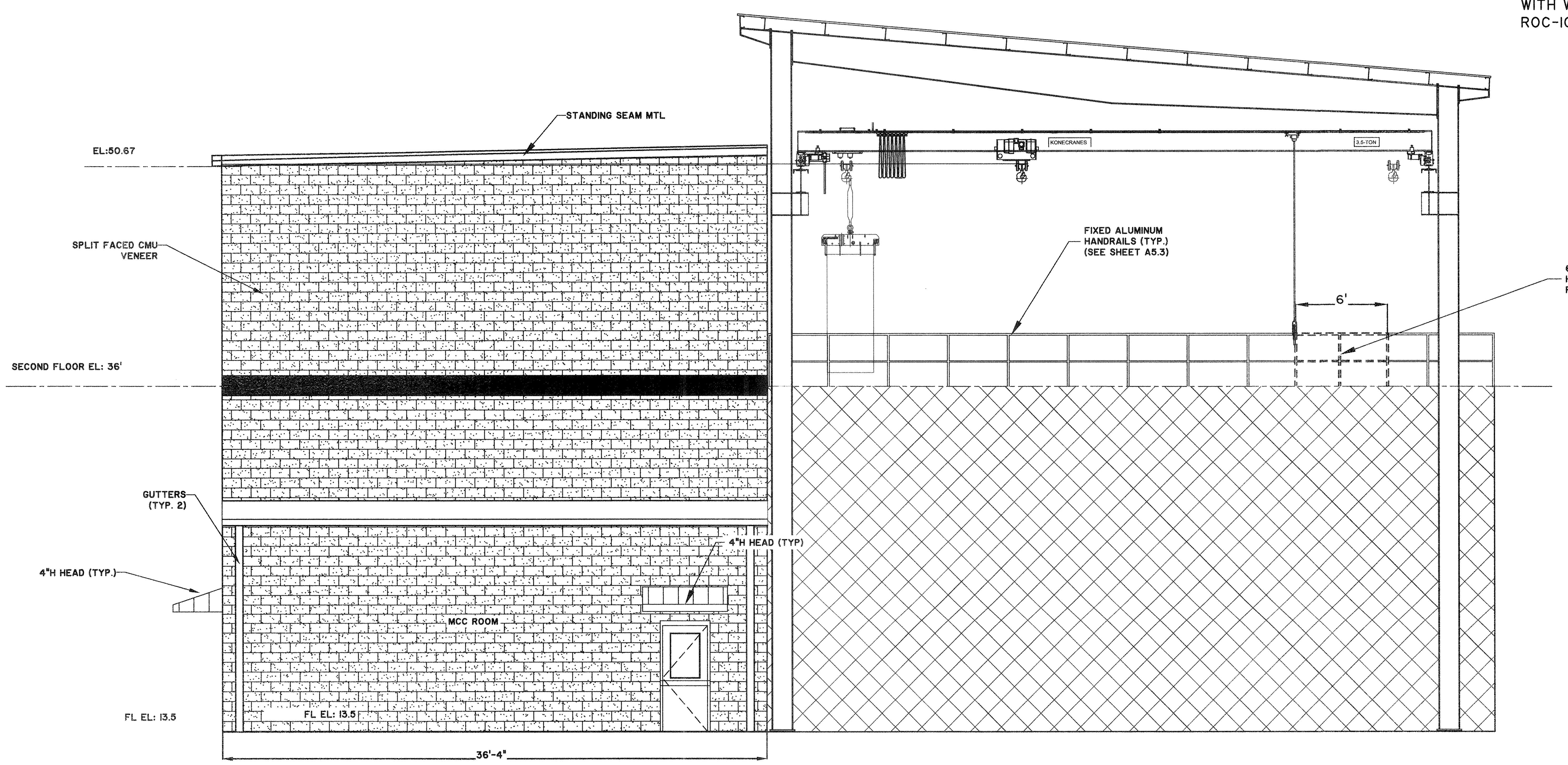


1 | A1.0 | A2.1

ELEVATION LOOKING EAST

SCALE: 3/16" = 1'-0"

NOTE:
1. ALL EXTERIOR WINDOWS SHALL BE PROVIDED WITH HURRICANE PROOF SHUTTERS
2. ALL EXTERIOR MASONRY SHALL BE TREATED WITH WATER REPELLENT EQUAL TO WHITE ROC-10 BY SONNEBORN



2 | A1.0 | A2.1

ELEVATION LOOKING WEST

SCALE: 3/16" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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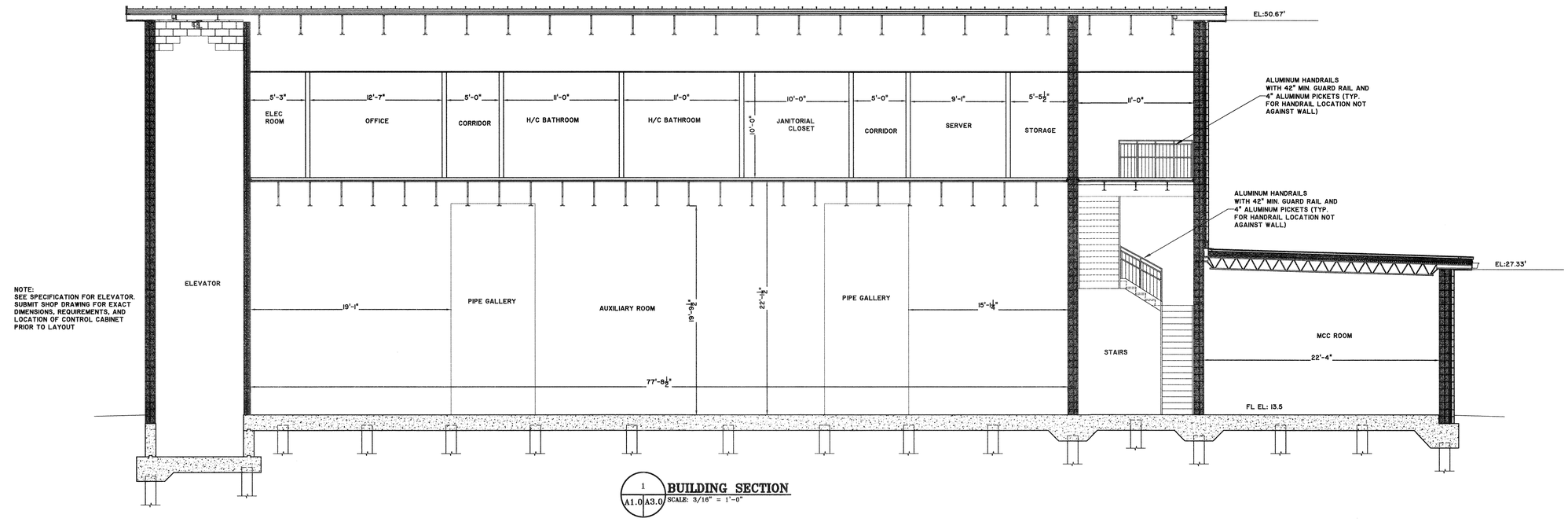
TRAVIS FIELD WATER RECLAMATION FACILITY

EXTERIOR ELEVATIONS

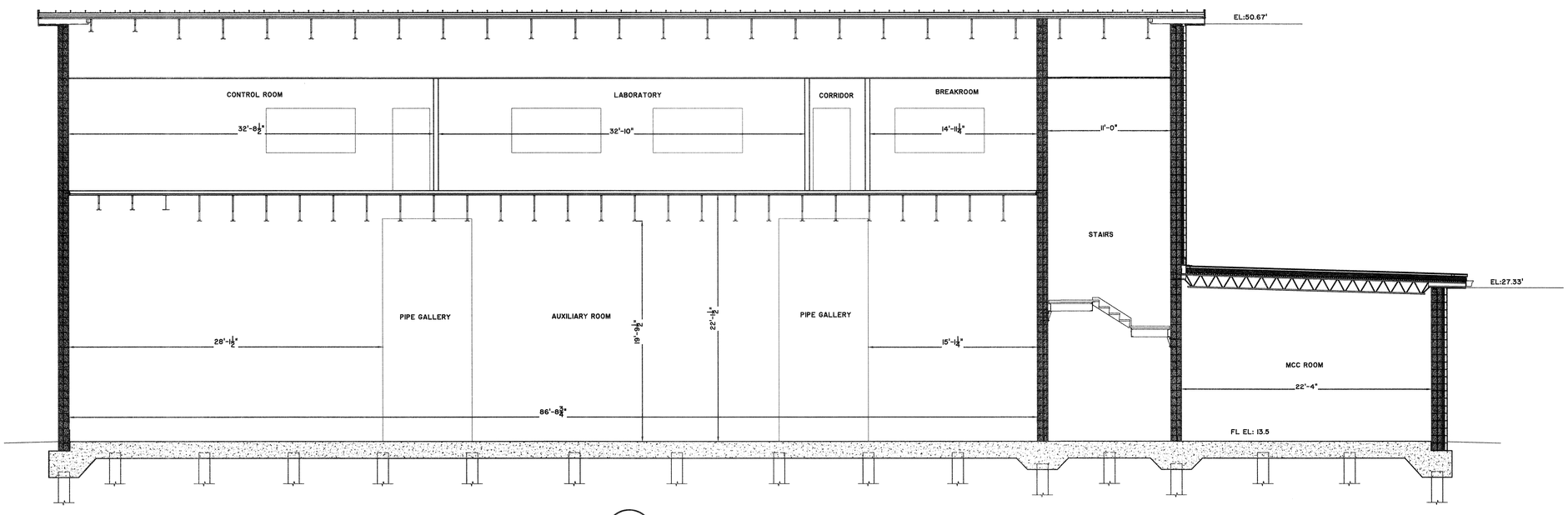
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A2.1



NOTE:
SEE SPECIFICATION FOR ELEVATOR. SUBMIT SHOP DRAWING FOR EXACT DIMENSIONS, REQUIREMENTS, AND LOCATION OF CONTROL CABINET PRIOR TO LAYOUT

1 / A1.0 A3.0 **BUILDING SECTION**
SCALE: 3/16" = 1'-0"



2 / A1.0 A3.0 **BUILDING SECTION**
SCALE: 3/16" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	ISSUED FOR BIDS	REVISIONS	BY	DATE
0			CDR	5-01-19

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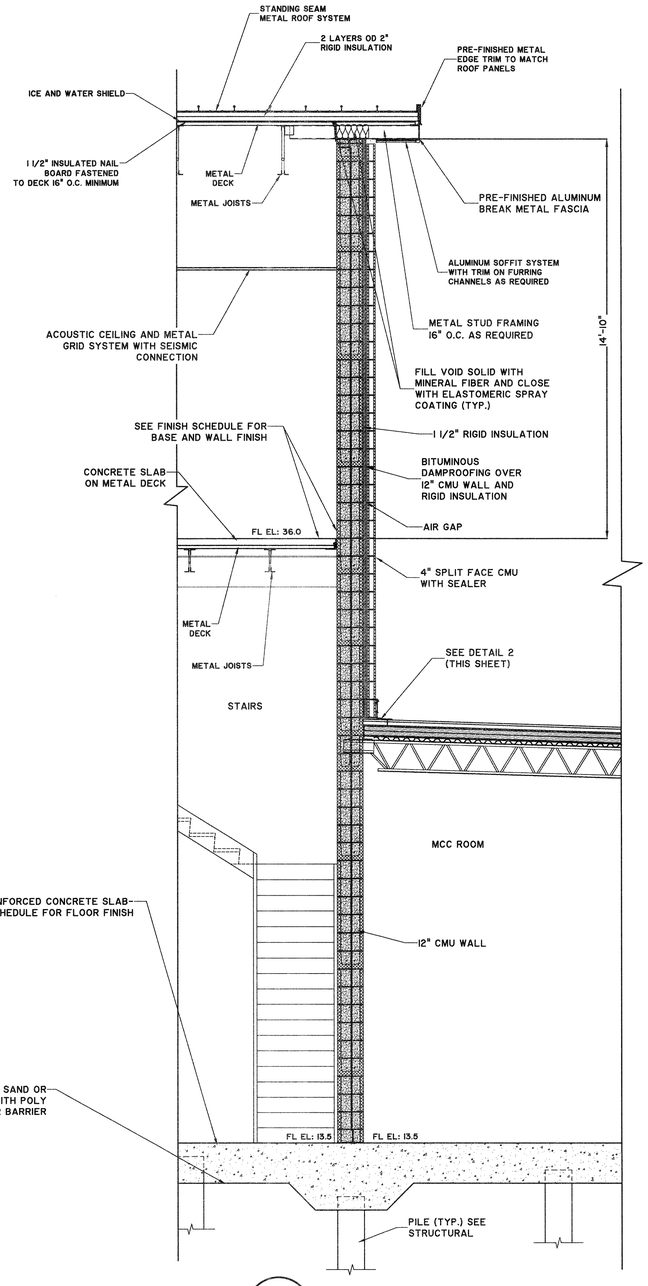
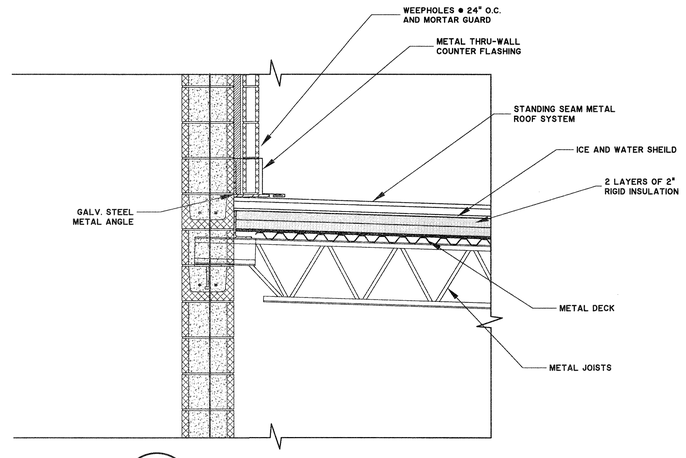
MBR BUILDING SECTION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	3/16"=1'-0"

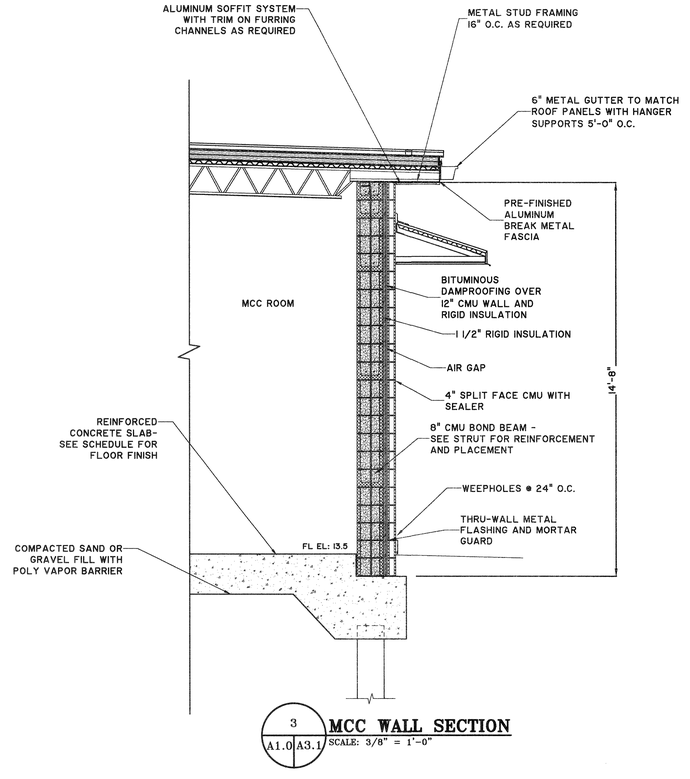
A3.0



1 / A1.0 A3.1 **WALL SECTION**
SCALE: 3/8" = 1'-0"



2 / A1.0 A3.1 **MCC WALL SECTION**
SCALE: 3/4" = 1'-0"



3 / A1.0 A3.1 **MCC WALL SECTION**
SCALE: 3/8" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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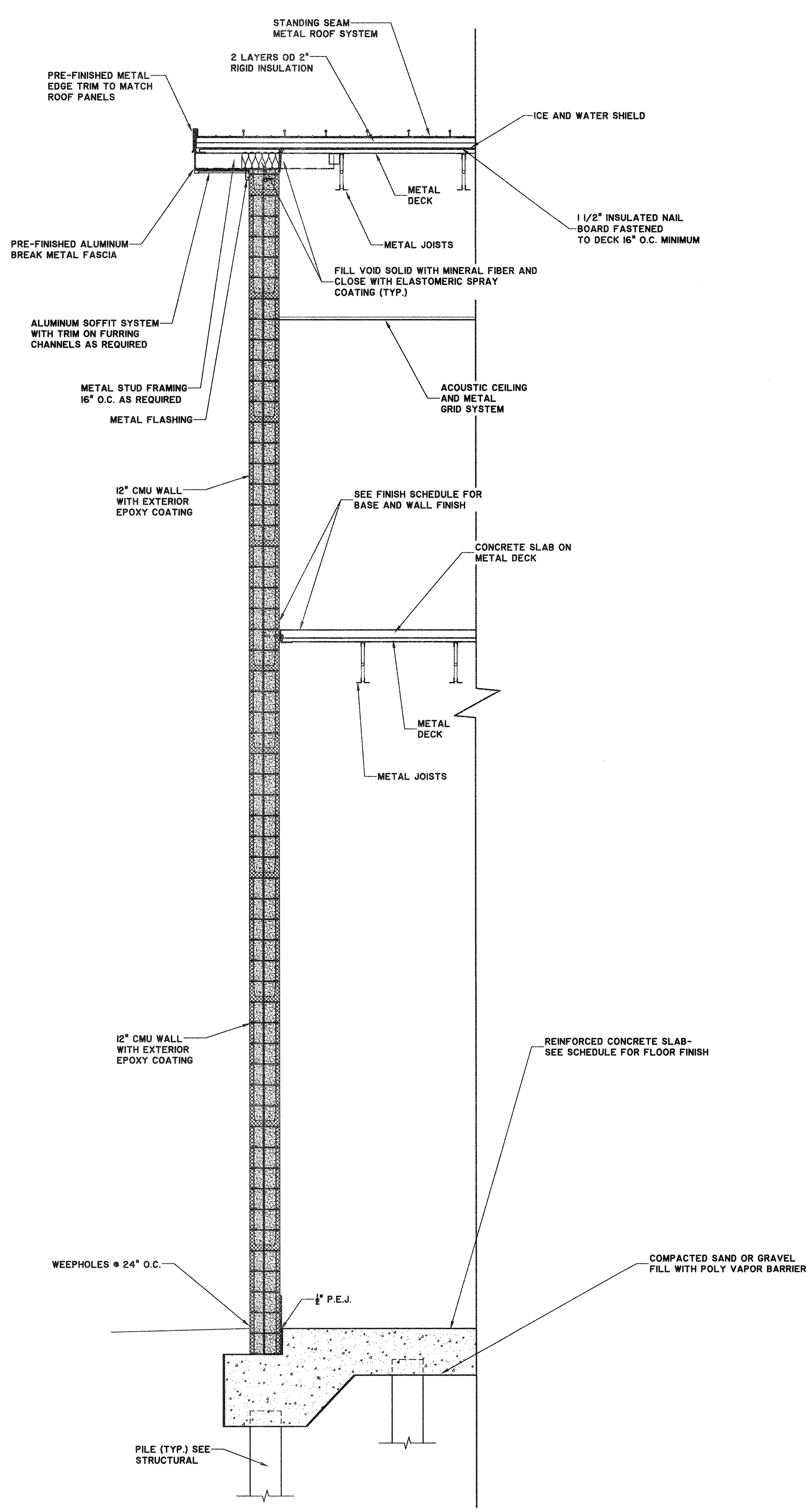
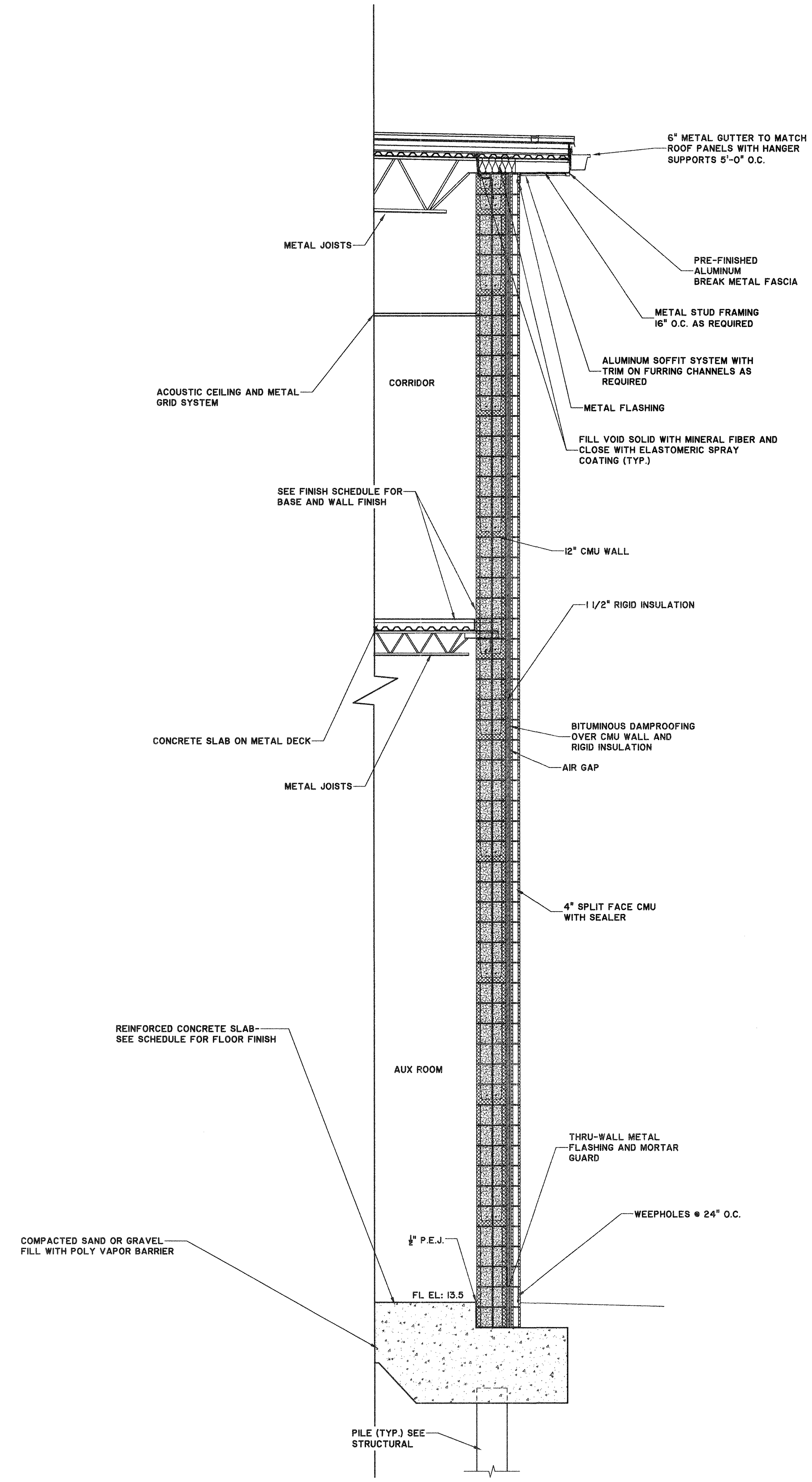
MBR BUILDING WALL SECTIONS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	AS NOTED

A3.1



1 WALL SECTION A1.0 A3.2 SCALE: 3/8" = 1'-0"



2 WALL SECTION A1.0 A3.2 SCALE: 3/8" = 1'-0"

BID SET - NOT FOR CONSTRUCTION

NO	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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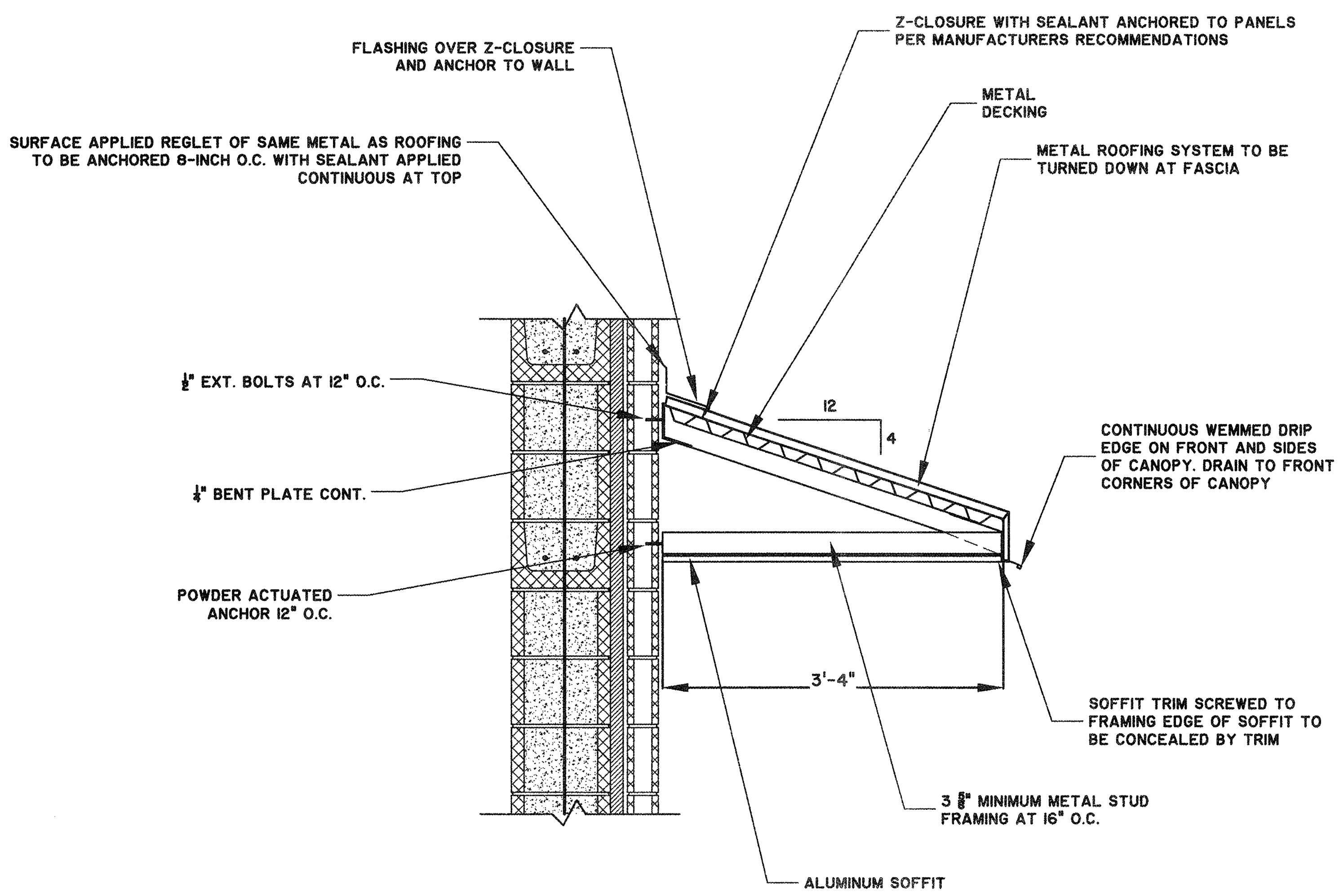
MBR BUILDING WALL SECTIONS

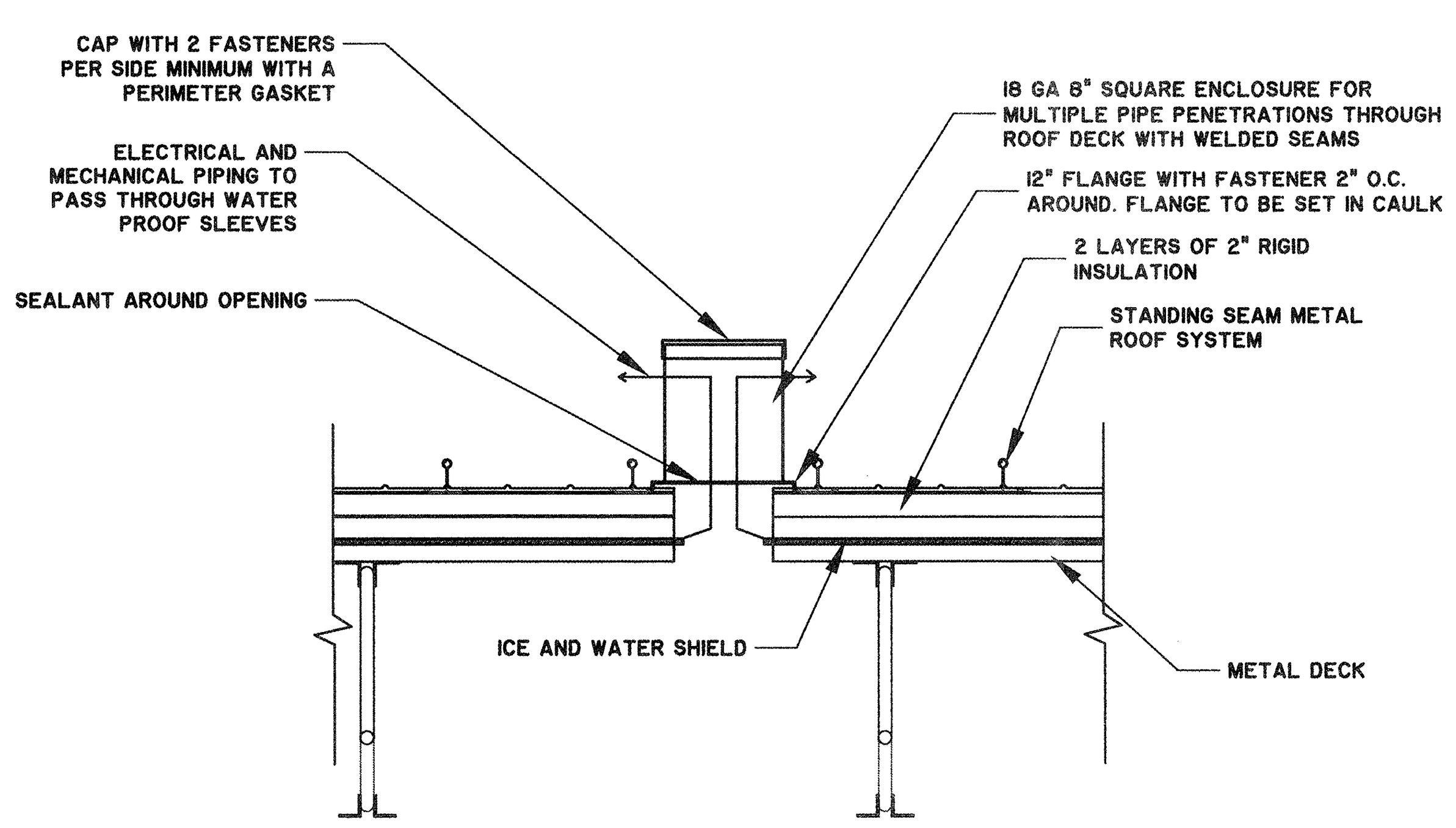
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 32'

A3.2



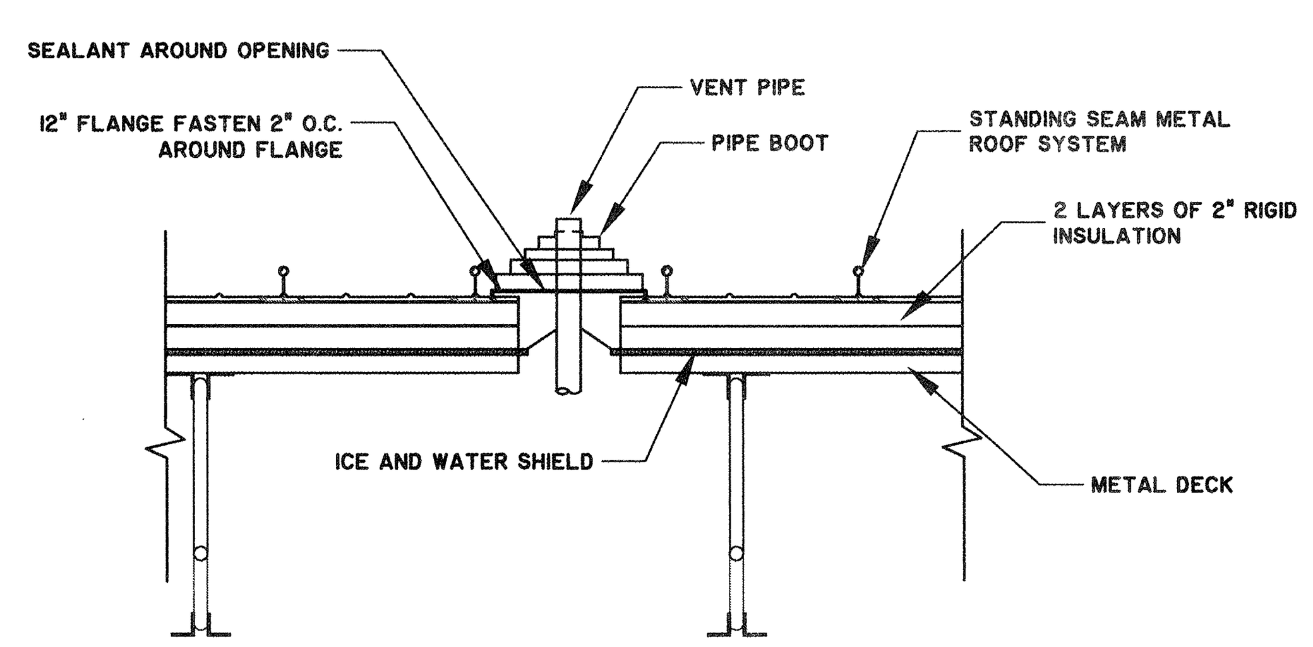
CANOPY SECTION

SCALE: 3/4"=1'-0"



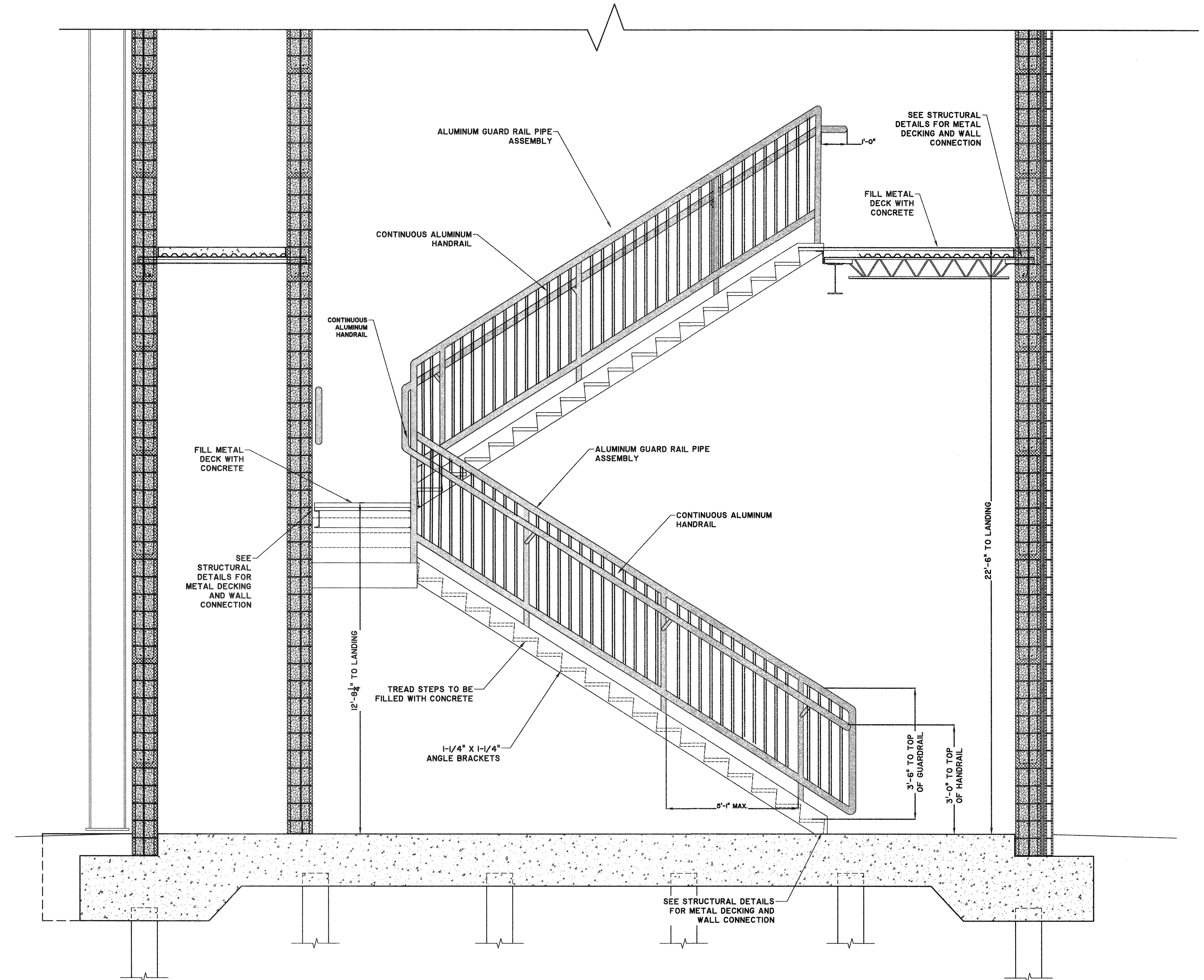
PIPE PENETRATION ROOF DETAIL

SCALE: 3/4"=1'-0"



PIPE PENETRATION ROOF DETAIL

SCALE: 3/4"=1'-0"



MBR BUILDING STAIR DETAIL

SCALE: 3/8"=1'-0"

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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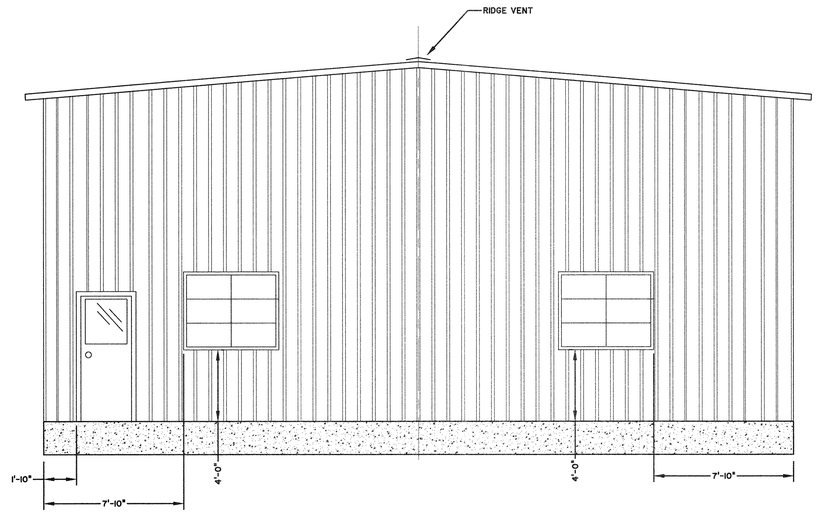
MBR BUILDING DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 16'

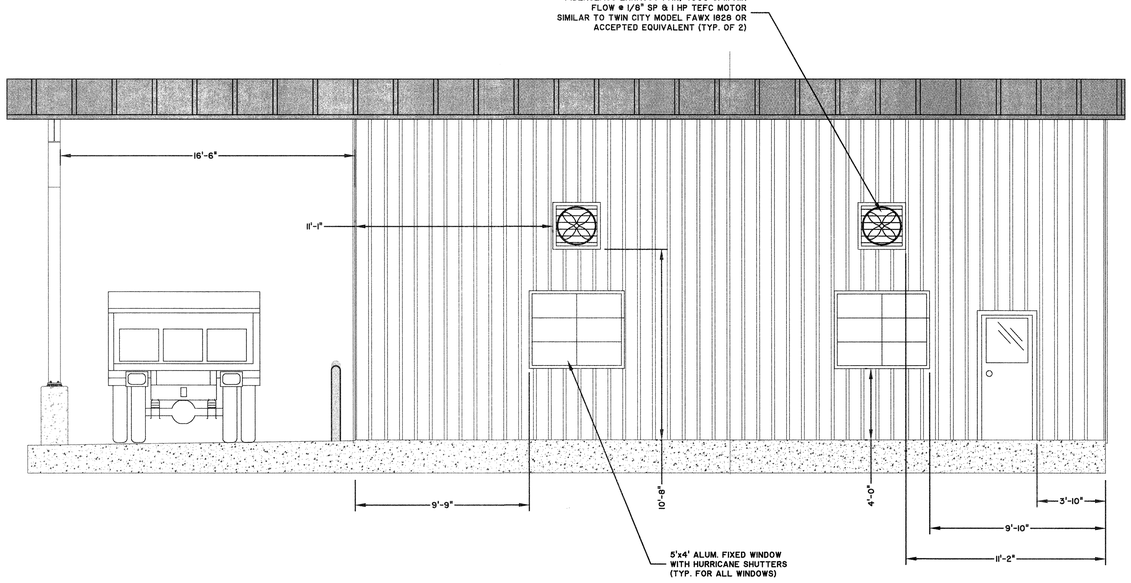
A3.3



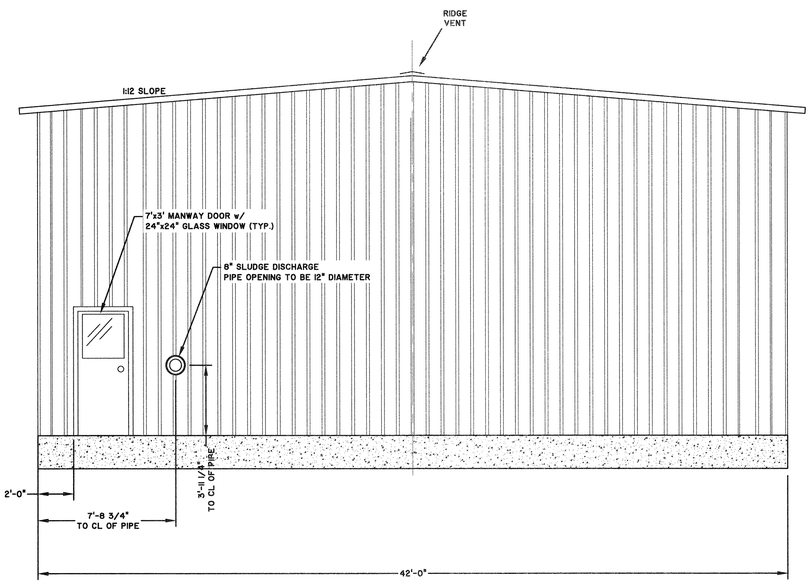
ELEVATION LOOKING WEST
SCALE: 1/4" = 1'-0"

EL. 31.5'

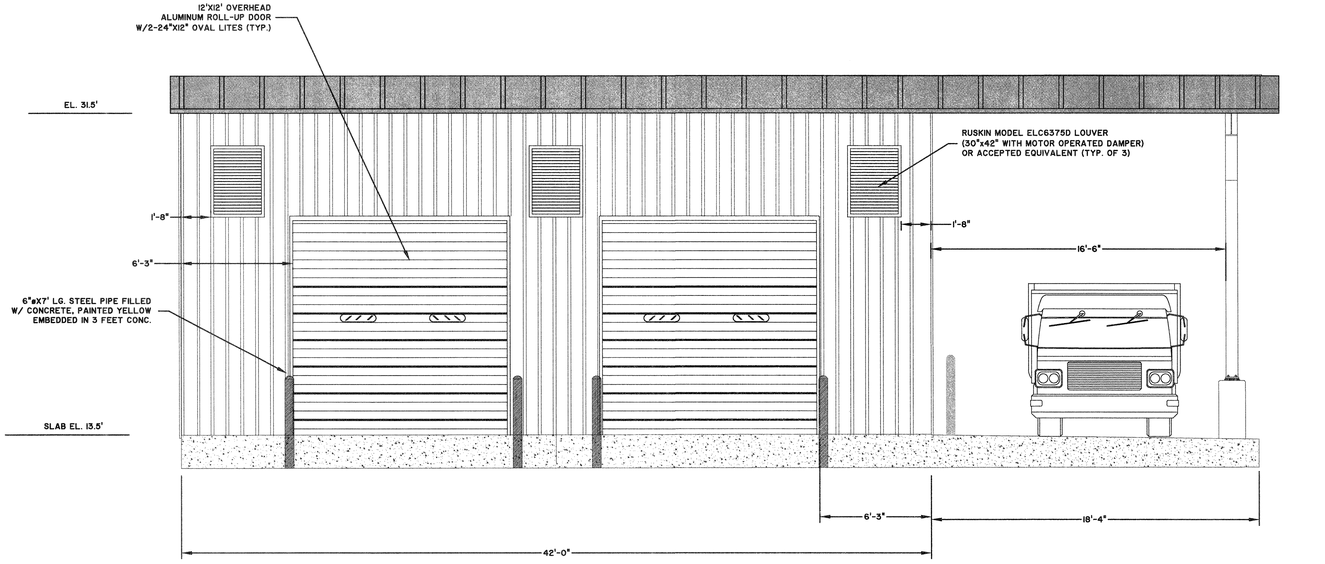
SLAB EL. 13.5'



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



ELEVATION LOOKING EAST
SCALE: 1/4" = 1'-0"



ELEVATION LOOKING SOUTH
SCALE: 1/4" = 1'-0"

GRAPHIC SCALE

-4 0 2 4 8 16

(IN FEET)
1/4 inch = 1 ft.

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-20-19

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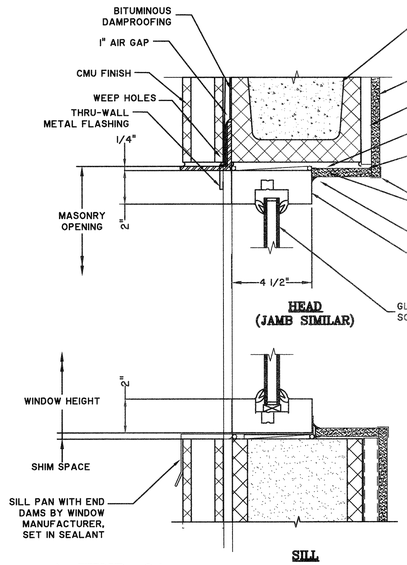
TRAVIS FIELD WATER RECLAMATION FACILITY

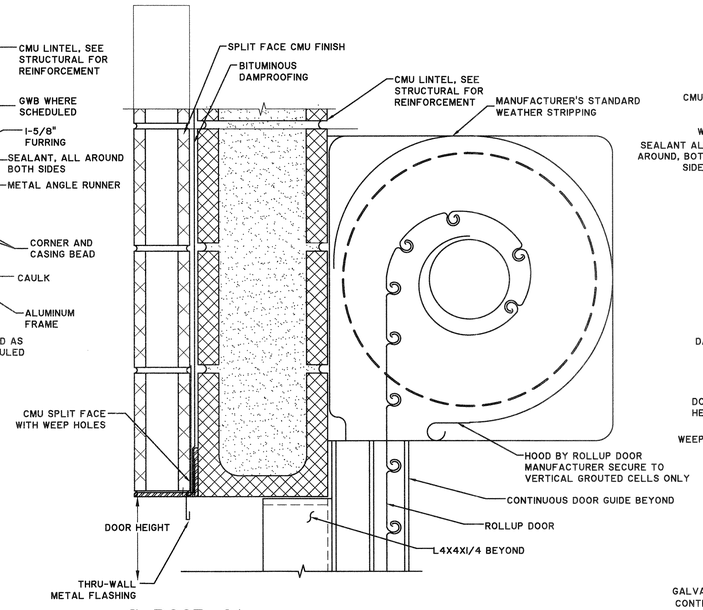
SLUDGE DEWATERING BUILDING ELEVATION PLAN

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1/4"=1'-0"

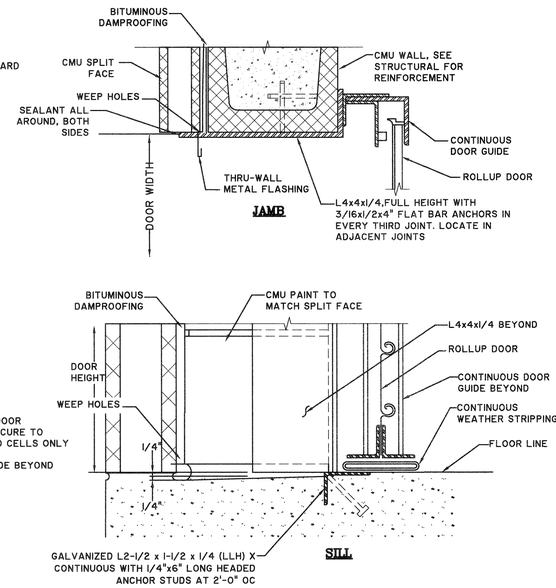
A4.0



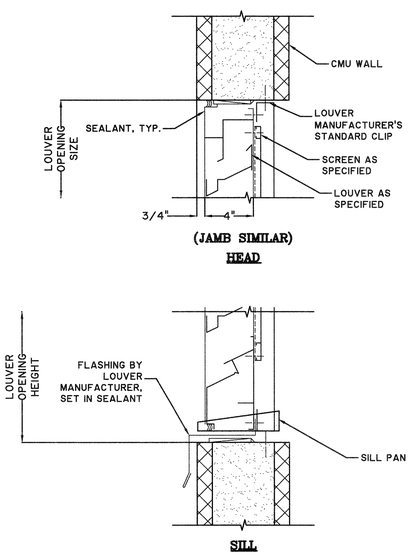
A-WIND-01
WINDOW HEAD AND SILL
SCALE: N.T.S.



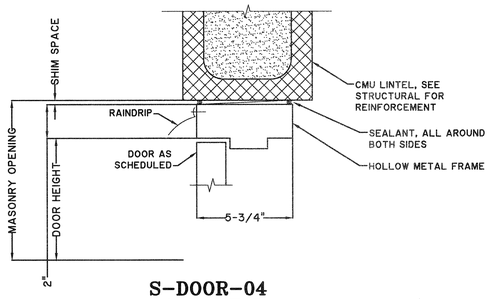
S-DOOR-01
ROLLUP DOOR HEAD
SCALE: N.T.S.



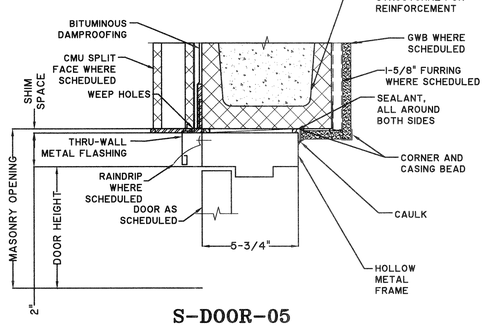
S-DOOR-02
ROLLUP DOOR JAMB AND SILL
SCALE: N.T.S.



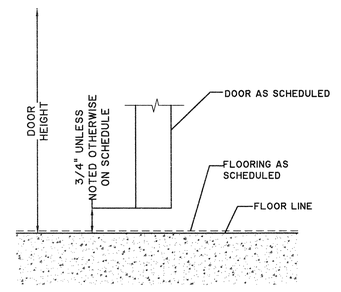
S-DOOR-03
LOUVER HEAD AND SILL
SCALE: N.T.S.



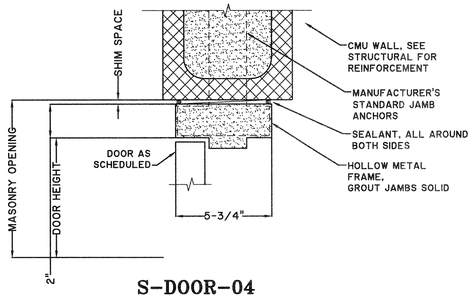
S-DOOR-04
DOOR HEAD
SCALE: N.T.S.



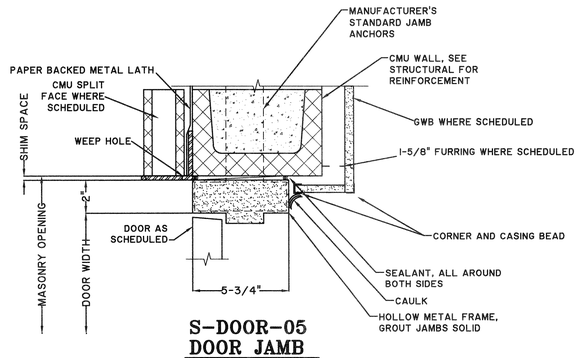
S-DOOR-05
DOOR HEAD
SCALE: N.T.S.



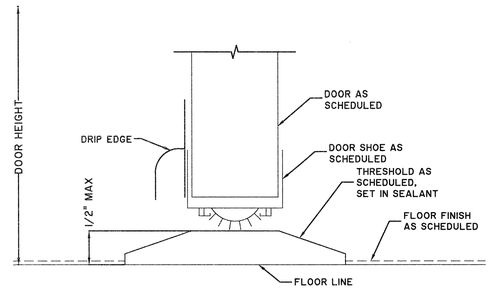
S-DOOR-06
DOOR SILL
SCALE: N.T.S.



S-DOOR-04
DOOR JAMB
SCALE: N.T.S.



S-DOOR-05
DOOR JAMB
SCALE: N.T.S.



S-DOOR-07
DOOR SILL
SCALE: N.T.S.

BID SET - NOT FOR CONSTRUCTION

NO	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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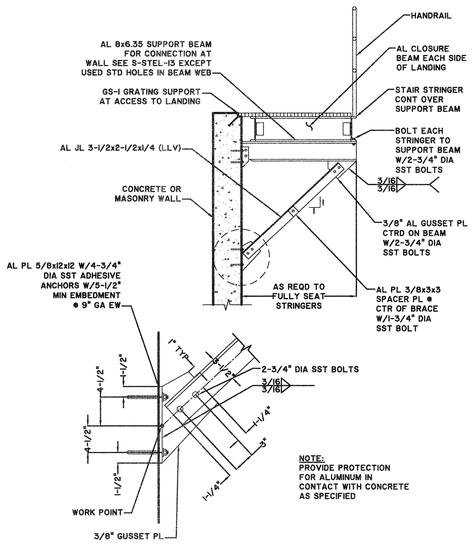
TRAVIS FIELD WATER RECLAMATION FACILITY

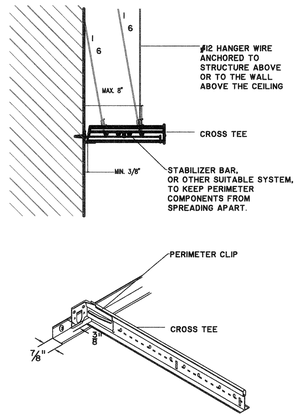
ARCHITECTURAL NOTES AND DETAILS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 30'

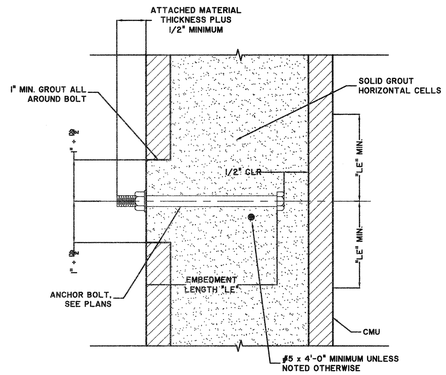
A5.1



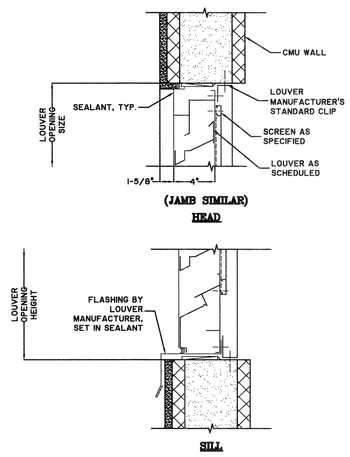
S-STAIR-01
STAIR LANDING SUPPORT -- ALUMINUM
SCALE: N.T.S.



SEISMIC ACOUSTIC DETAIL
SCALE: N.T.S.



S-ANCH-01
MASONRY ANCHOR BOLT
SCALE: N.T.S.



S-DOOR-08
LOUVER HEAD AND SILL
SCALE: N.T.S.

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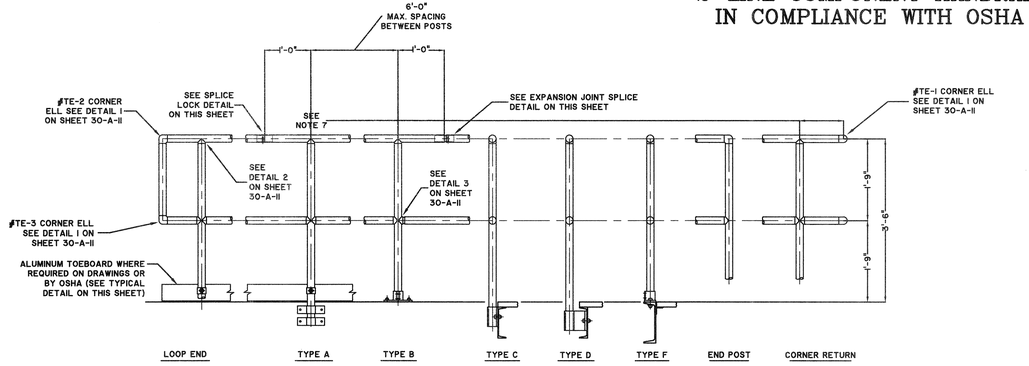
ARCHITECTURAL NOTES AND DETAILS

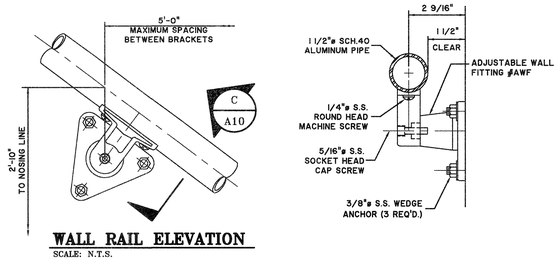
JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	CDR
DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 40'

A5.2

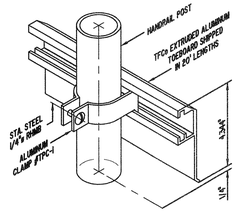
2-LINE COMPONENT HANDRAIL IN COMPLIANCE WITH OSHA



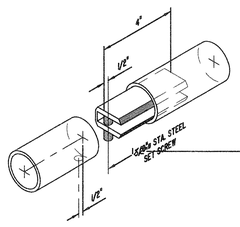
TYPICAL HANDRAIL
SCALE: N.T.S.



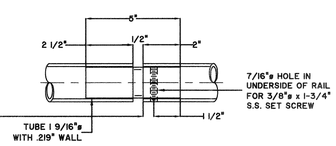
WALL RAIL ELEVATION
SCALE: N.T.S.



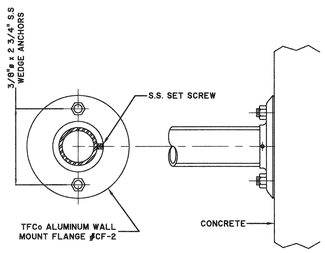
TOEBOARD DETAILS
SCALE: N.T.S.



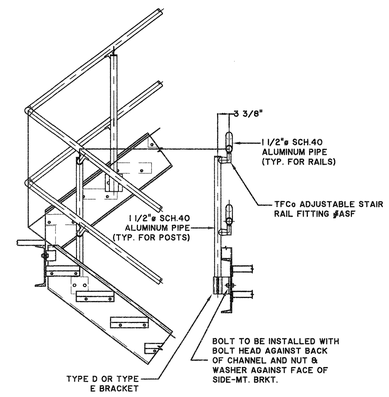
SPLICE LOCK #SL-1
SCALE: N.T.S.



EXPANSION JOINT SPLICE #ES-1 (LOCATED AT 60'-0" MAXIMUM INTERVALS)
SCALE: N.T.S.

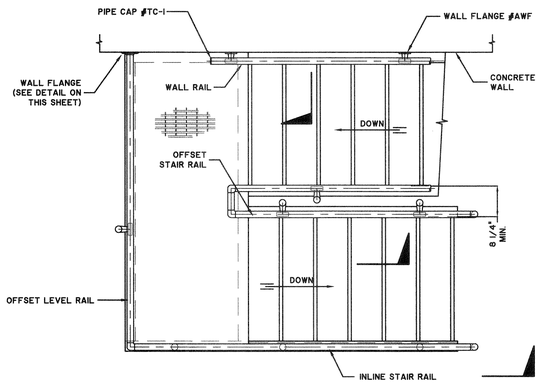


WALL FLANGE DETAIL
SCALE: N.T.S.

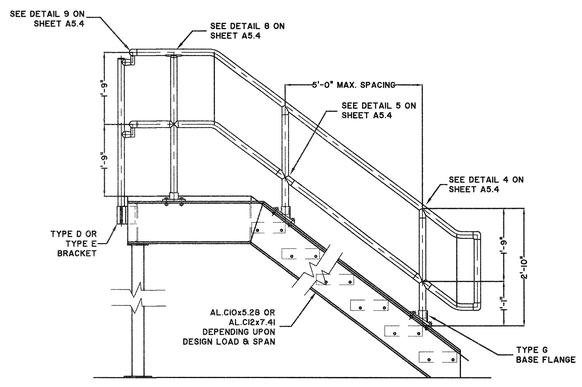


OSHA DESIGN SPECIFICATIONS

1. HANDRAIL SHALL BE THE PRODUCT OF A COMPANY NORMALLY ENGAGED IN THE MANUFACTURE OF PIPE RAILING. RAILING SHALL BE SHOP ASSEMBLED IN LENGTHS NOT TO EXCEED 24 FEET FOR FIELD ERECTION.
2. HANDRAILS SHALL BE DESIGNED TO WITHSTAND 200# CONCENTRATED LOAD APPLIED IN ANY DIRECTION TO THE TOP RAIL.
3. THE MANUFACTURER SHALL SUBMIT CALCULATIONS TO THE ENGINEER FOR APPROVAL. TESTING OF BASE CASTINGS OR BASE EXTRUSIONS BY AN INDEPENDENT LAB OR MANUFACTURER'S LAB (IF MANUFACTURER'S LAB MEETS THE REQUIREMENTS OF THE ALUMINUM ASSOCIATION) WILL BE AN ACCEPTABLE SUBSTITUTE FOR CALCULATIONS. CALCULATIONS WILL BE REQUIRED FOR APPROVAL OF ALL OTHER DESIGN ASPECTS.
4. POST SPACING SHALL BE A MAXIMUM OF 6'-0". POSTS AND RAILINGS SHALL BE A MINIMUM OF 1-1/2" SCHEDULE 40 ALUMINUM PIPE ALLOY 6105-T5, ASTM-B-429 OR ASTM-B-221. THE HANDRAIL MANUFACTURER SHALL SHOW THAT THEIR POSTS ARE OF ADEQUATE STRENGTH TO MEET THE LOADING REQUIREMENTS. IF THE MANUFACTURER'S POSTS ARE NOT OF ADEQUATE STRENGTH, THE MANUFACTURER MAY REDUCE THE POST SPACING OR ADD REINFORCING DOWELS OR MAY DO BOTH IN ORDER TO MEET THE LOADING REQUIREMENTS.
5. THE HANDRAIL SHALL BE MADE OF PIPES JOINED TOGETHER WITH COMPONENT FITTINGS. SAMPLES OF ALL COMPONENTS, BASES, TOE PLATE AND PIPE MUST BE SUBMITTED FOR APPROVAL. COMPONENTS THAT ARE POP-RIVETED OR GLUED AT THE JOINTS WILL NOT BE ACCEPTABLE. ALL COMPONENTS MUST BE MECHANICALLY FASTENED WITH STAINLESS STEEL HARDWARE. HANDRAIL AND COMPONENTS SHALL BE TUF RAIL, AS MANUFACTURED BY THOMPSON FABRICATING COMPANY (BIRMINGHAM, ALABAMA) OR AN APPROVED EQUAL.
6. POSTS SHALL NOT INTERRUPT THE CONTINUATION OF THE TOP RAIL AT ANY POINT ALONG THE RAILING, INCLUDING CORNERS AND END TERMINATIONS (OSHA 1910.23). THE TOP SURFACE OF THE TOP RAILING SHALL BE SMOOTH AND SHALL NOT BE INTERRUPTED BY PROJECTED FITTINGS.
7. THE MIDRAIL AT A CORNER RETURN SHALL BE ABLE TO WITHSTAND A 200# LOAD WITHOUT LOOSENING. THE MANUFACTURER IS TO DETERMINE THIS DIMENSION FOR THEIR SYSTEM. PROVIDE PHYSICAL TESTS FROM A LABORATORY TO CONFIRM COMPLIANCE.
8. EXPANSION BOLTS SHALL BE SPACED 10D APART AND 5D EDGE DISTANCE FOR NO REDUCTION IN PULLOUT STRENGTH. A SAFETY FACTOR OF 4 SHALL BE USED ON EXPANSION BOLT PULLOUT VALUES PUBLISHED BY THE MANUFACTURER. EXPANSION BOLTS SHALL BE STAINLESS STEEL TYPE 18-8 WEDGE BOLTS AND SHALL BE FURNISHED BY THE HANDRAIL MANUFACTURER.
9. TOE PLATE SHALL CONFORM TO OSHA STANDARDS. TOE PLATE SHALL BE A MINIMUM OF 4" HIGH AND SHALL BE AN EXTRUSION THAT ATTACHES TO THE POSTS WITH CLAMPS WHICH WILL ALLOW FOR EXPANSION AND CONTRACTION BETWEEN POSTS. TOE PLATES SHALL BE SET 1/4" ABOVE THE WALKING SURFACE. TOE PLATES SHALL BE PROVIDED ON HANDRAILS AS REQUIRED BY OSHA AND/OR AS SHOWN ON DRAWINGS. TOE PLATES SHALL BE SHIPPED LOOSE IN STOCK LENGTHS WITH PRE-MANUFACTURED CORNERS FOR FIELD INSTALLATION.
10. OPENINGS IN THE RAILING SHALL BE GUARDED BY A SELF-CLOSING GATE (OSHA 1910.23). SAFETY CHAINS SHALL NOT BE USED UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS.
11. FINISH SHALL BE ALUMINUM ASSOCIATION M10-C22-A41 (215-R1). THE PIPE SHALL BE PLASTIC-WRAPPED. THE PLASTIC WRAP IS TO BE REMOVED AFTER ERECTION.
12. ALUMINUM SURFACES IN CONTACT WITH CONCRETE, GROUT OR DISSIMILAR METALS WILL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT, MYLAR ISOLATORS OR OTHER APPROVED MATERIAL.



TYPICAL HANDRAIL AT METAL STAIRS; HANDRAIL AT CONCRETE STEPS SIMILAR PLAN
SCALE: N.T.S.



BID SET - NOT FOR CONSTRUCTION

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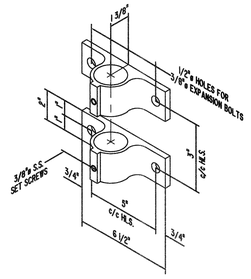
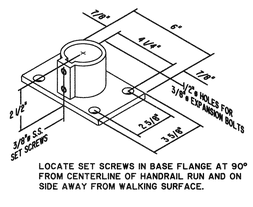
APPROVED:	FS
SCALE:	AS NOTED

A5.3

2-LINE COMPONENT HANDRAIL IN COMPLIANCE WITH OSHA

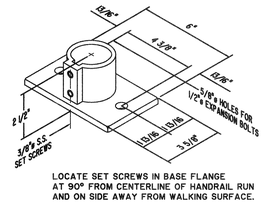


SIDE-MT. BRACKET #TSM-1.50
TYPE A
SCALE: N.T.S.



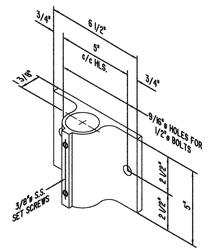
LOCATE SET SCREWS IN BASE FLANGE AT 90° FROM CENTERLINE OF HANDRAIL RUN AND ON SIDE AWAY FROM WALKING SURFACE.

BASE FLANGE #TBF-1.4
TYPE B (4-HOLE)
SCALE: N.T.S.

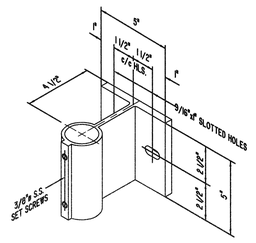


LOCATE SET SCREWS IN BASE FLANGE AT 90° FROM CENTERLINE OF HANDRAIL RUN AND ON SIDE AWAY FROM WALKING SURFACE.

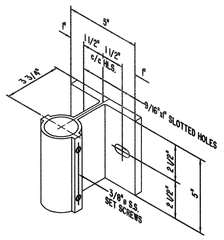
BASE FLANGE #TBF-1.2
TYPE B (2-HOLE)
SCALE: N.T.S.



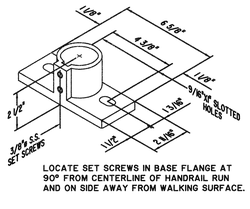
SIDE-MT. BRACKET #TSM-1.50
TYPE C
SCALE: N.T.S.



SIDE-MT. BRACKET #SMB-2
TYPE D
SCALE: N.T.S.

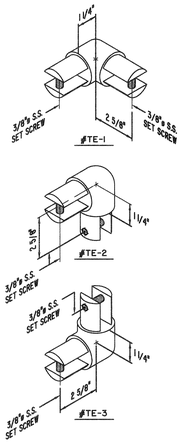


SIDE-MT. BRACKET #SMB-3
TYPE E
SCALE: N.T.S.

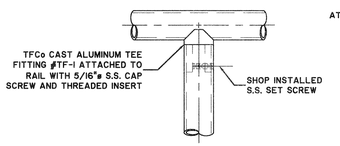


LOCATE SET SCREWS IN BASE FLANGE AT 90° FROM CENTERLINE OF HANDRAIL RUN AND ON SIDE AWAY FROM WALKING SURFACE.

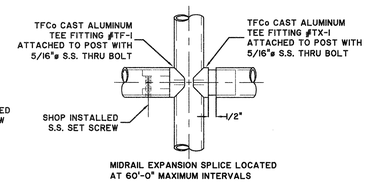
BASE FLANGE #TBF-2
TYPE F
SCALE: N.T.S.



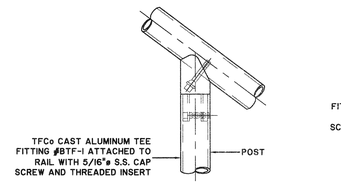
DETAIL 1
SCALE: N.T.S.



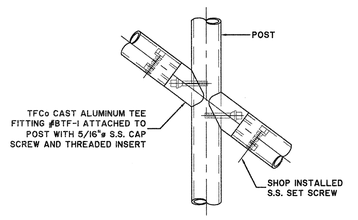
DETAIL 2
SCALE: N.T.S.



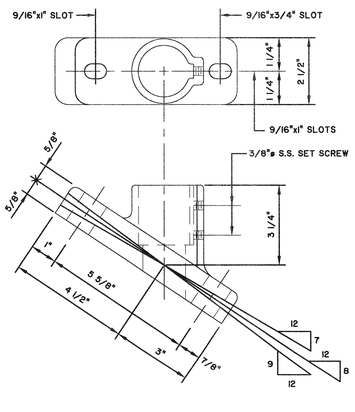
DETAIL 3
SCALE: N.T.S.



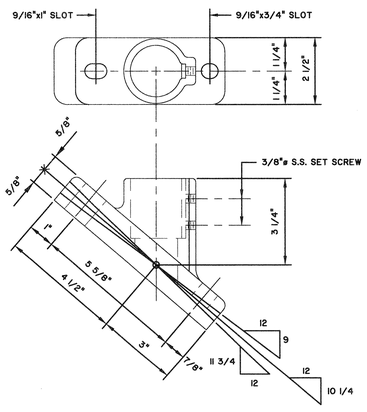
DETAIL 4
SCALE: N.T.S.



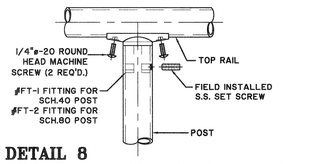
DETAIL 5
SCALE: N.T.S.



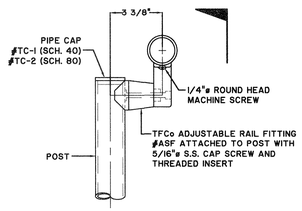
BASE FLANGE #ABF-1
TYPE G
RANGES FROM 30° TO 37°
SCALE: N.T.S.



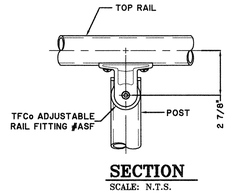
BASE FLANGE #ABF-2
TYPE G
RANGES FROM 37° TO 44°
SCALE: N.T.S.



DETAIL 8
FOR FIELD ASSEMBLED HANDRAIL
SCALE: N.T.S.



DETAIL 9
SCALE: N.T.S.



SECTION
SCALE: N.T.S.

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GEORGIA REGISTERED PROFESSIONAL ENGINEER FRED SORORIAN

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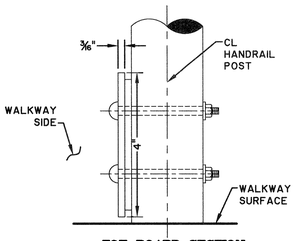
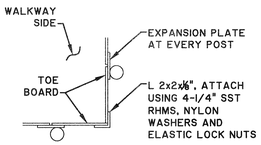
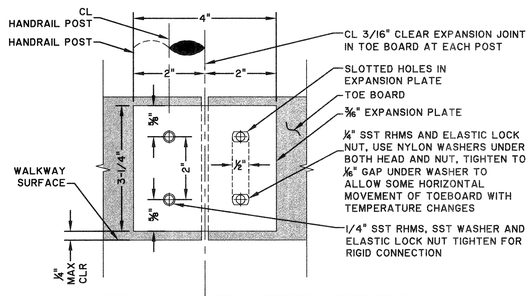
A5.4



TOE BOARD SECTION



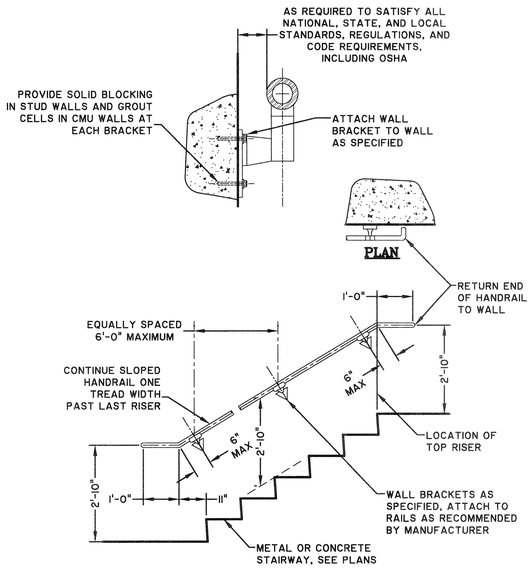
TOE BOARD PLAN
(INSIDE CORNER SHOWN
OUTSIDE CORNER SIMILIAR)



TOE BOARD/EXPANSION PLATE CONNECTION ELEVATION

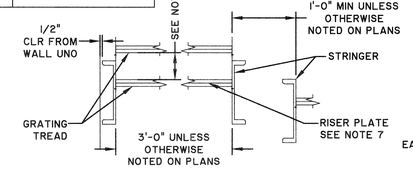
NOTES:
1. WHERE BOLTED BASE PLATE EXTENDS ABOVE WALKWAY SURFACE, NOTCH TOE BOARD TO FIT AROUND BASE PLATE WITH MAXIMUM OF 1/4" GAP.
2. TOE BOARD TO BE MOUNTED ON WALKWAY SIDE OD HANDRAIL.
3. RHMS = ROUND HEAD MACHINE SCREW AS SPECIFIED, STAINLESS STEEL.

S-STAR-13
HANDRAIL TOE BOARD-ALUMINUM
SCALE: N.T.S.

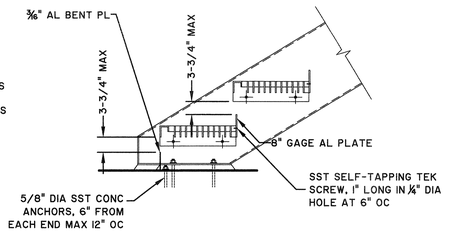


S-STAR-12
WALL HANDRAIL-ALUMINUM
SCALE: N.T.S.

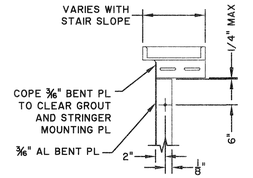
STAIRWAY WIDTH	TREAD BEARING BARS ALUMINUM TREAD
2'-3" OR LESS	1" x 3/16"
2'-9" OR LESS	1-1/4" x 3/16"
3'-3" OR LESS	1-1/2" x 3/16"
4'-7" OR LESS	1-3/4" x 3/16"



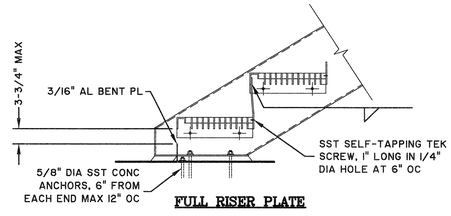
STAIR TREADS



PARTIAL RISER PLATE



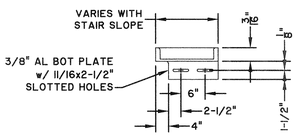
PLAN
BOTTOM CLOSURE PLATE



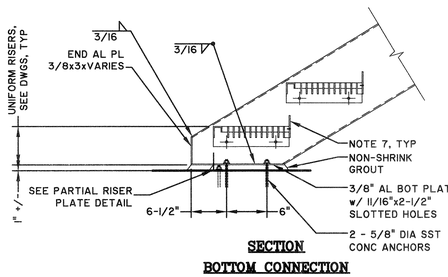
FULL RISER PLATE

S-STAR-02
STAIR DETAILS -- ALUMINUM (2 OF 2)
SCALE: NTS

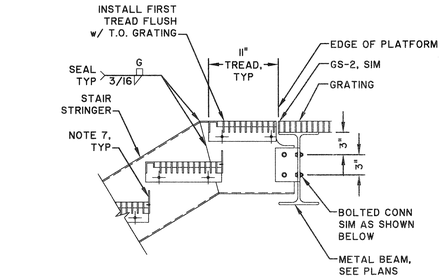
NOTES:
1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE AS SPECIFIED.
2. AMERICAN STANDARD C12x7.41 ALUMINUM STRINGERS TYPICAL EXCEPT WHERE OTHERWISE NOTED ON PLANS.
3. STAIR HANDRAIL NOT SHOWN.
4. STAIR MANUFACTURER TO COORDINATE BOLTED TREADS AND HANDRAIL CONNECTIONS.
5. ALL FASTENERS SHALL BE STAINLESS STEEL.
6. FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.
7. FOR RISER PLATE SEE PARTIAL RISER PLATE DETAIL UNLESS NOTED OTHERWISE. CLEARANCE BETWEEN TOP OF RISER PLATE AND BOTTOM OF TREAD TO BE 3-3/4" MAXIMUM. FOR STAIRS WITH PICKET HANDRAIL EXTEND RISER PLATE PER FULL RISER PLATE DETAIL.



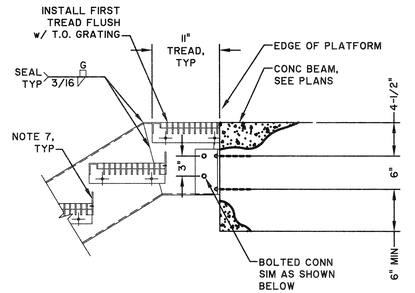
PLAN



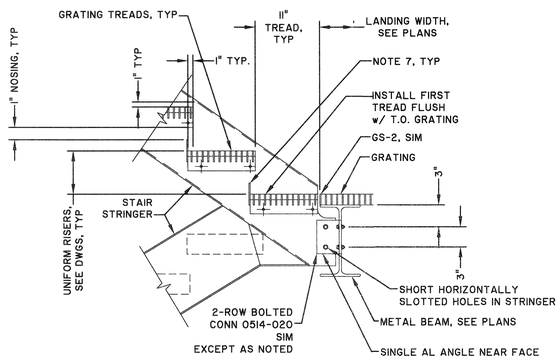
SECTION
BOTTOM CONNECTION



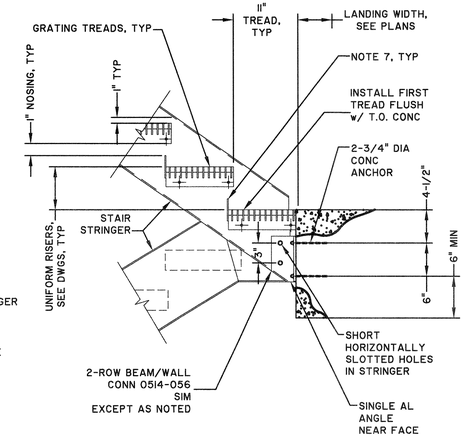
TOP CONNECTION – ALUMINUM



TOP CONNECTION – CONCRETE

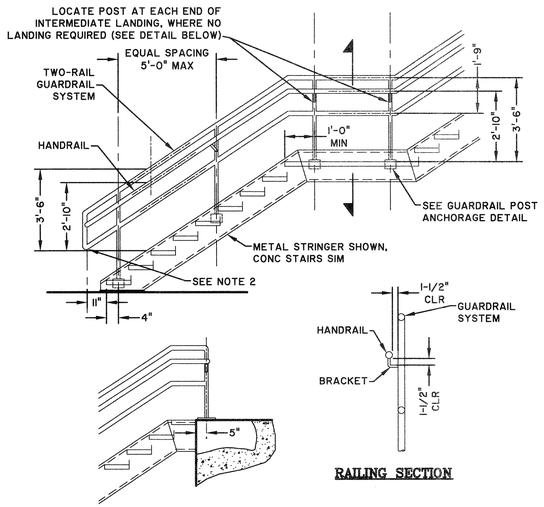


LANDING CONNECTION – ALUMINUM



LANDING CONNECTION – CONCRETE

S-STAR-01
STAIR DETAILS -- ALUMINUM (1 OF 2)
SCALE: NTS



RAILING SECTION

RAILING DETAIL WITHOUT LANDING

NOTES:
1. PROVIDE TOE BOARD AT LANDING WHERE REQUIRED.
2. RETURN END OF HANDRAIL TO GUARDRAIL AT BOTH ENDS.

S-STAR-10
TWO-RAIL STAIR RAILING-ALUMINUM (IBC)
SCALE: N.T.S.

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DESIGNED:	CDR
REVIEWED:	AL
APPROVED:	FS
SCALE:	1" = 1'

A5.5

LEGEND

SYMBOL	DESCRIPTION
A-1,3,5 / B / A-3,5	A-1,3,5 ADJACENT TO ARROW INDICATES HOME-RUN OF CIRCUITS 1,3,5 TO PANEL A. 3,5 OR A-3,5 ADJACENT TO ARROW INDICATES CIRCUIT CONTINUATION. MARKS ACROSS RACEWAY RUNS INDICATE THE NUMBER OF NO. 12 CONDUCTORS. UNLESS NOTED, NO MARKS INDICATES TWO NO. 12 CONDUCTORS. EQUIPMENT GROUNDING CONDUCTORS ARE NOT SHOWN, SEE GENERAL NOTES. IF INDICATED ADJACENT TO OUTLET, NUMERAL AND LOWER CASE LETTER INDICATES CIRCUIT CONNECTION AND SWITCHLEG DESIGNATION RESPECTIVELY. TYPE B OR CAPITAL LETTER B INDICATES LIGHT FIXTURE TYPE. UNLESS NOTED, DIMENSIONS INDICATED IN LEGEND AND ON PLANS ARE TO BOTTOM OF OUTLET OR DEVICE. ALL SYMBOLS INDICATED HEREIN MAY NOT NECESSARILY BE USED ON THE PLANS.
	CEILING OUTLET AND LED FIXTURE
	WALL OUTLET AND LED FIXTURE
	WALL MTD DUAL REMOTE EMERGENCY HEAD - MTD 8' AFF.
XA	OUTLET AND LED EXIT LIGHT - LETTERS INDICATE FIXTURE TYPE. PROVIDE ARROWS INDICATED
	POST TOP LED LUMINAIRE, POLE. SEE E0.2.
	FLOOD LIGHT WITH POLE - SEE E0.2.
	WALL MOUNTED TWO HEAD EMERGENCY FIXTURE, MT. 8' AFF.
PC	PHOTOCELL, EATON/GREENGATE PPS-5, MOUNTED UNDER EAVE OR 10' AFG, NOTE G10.
J	WEATHERPROOF JUNCTION BOX MOUNTED TO STRUCTURE
P C	POLYMER CONCRETE PULL BOX MOUNTED FLUSH IN GRADE, REFER TO DETAIL 4/E-03.
6	DUPLEX RECEPTACLE- MT. 16" AFF, NUMBER DESIGNATES LOCAL BRANCH CIRCUIT SERVING OUTLET
	DUPLEX RECEPTACLE- MT. 48" AFF AND/OR ABOVE COUNTER TOP
WP	WEATHERPROOF DUPLEX RECEPTACLE, MT. 16" ABOVE FLOOR AND 36" ABOVE EARTH W/ IN-USE COVER, TYPE 'WR' RECEPTACLE
GF	GROUND FAULT INTERRUPTER DUPLEX RECEPTACLE- MT. 48" AFF AND/OR ABOVE COUNTER TOP OR AS INDICATED
20A	DUPLEX RECEPTACLE, NEMA 5-20R- MT. 16" AFF
	DUPLEX GFIRECEPTACLE, NEMA 5-20R-GF - MTD. WITHIN WATER COOLER HOUSING.
▽	TELEPHONE/DATA OUTLET- MT. 16" AFF U.N.O. EXTEND 1"C TO NEAREST TELEPHONE CABINET OR BACKBOARD
S	SINGLE POLE TOGGLE SWITCH- MT. 48" UP
S^3	THREE-WAY TOGGLE SWITCH- MT. 48" UP
OS^1	PIR WALL OCCUPANCY SENSOR - MT. 48" UP, EATON/GREENGATE OSW-P-1001-MV
OS^2	ULTRASONIC WALL OCCUPANCY SENSOR - MT. 48" UP, EATON/GREENGATE OSW-U-0721-MV
S_S	MOTOR RATED SWITCH WITH OVERLOAD PROTECTION - MT. 48" UP.
S_M	MOTOR RATED DISCONNECT SWITCH, SINGLE PHASE - MT. 48" UP.
S^D	DOOR SWITCH FOR CHEMICAL ROOM, SQUARE D CLASS 9007 MS/ML WITH LEVER ARM.
EPO	EMERGENCY POWER-OFF PUSHBUTTON STATION
	PANELBOARD, SURFACE MOUNTED
	TELEPHONE OR SIGNAL BACKBOARD, 3/4"X 4'X 8' UNLESS NOTED
T	DRY-TYPE TRANSFORMER - VOLTAGE, PHASE, AND KVA AS INDICATED
	EQUIPMENT AS NOTED
M	ELECTRIC METER
	MOTOR, HORSEPOWER AS INDICATED
	NON-FUSIBLE DISCONNECT SWITCH, RATING/POLES/ENCLOSURE AS INDICATED
	MAGNETIC STARTER
	COMBINATION MAGNETIC STARTER/NON-FUSIBLE DISCONNECT SWITCH
	RACEWAY INSTALLED CONCEALED IN WALLS AND/OR ABOVE CEILING
	RACEWAY INSTALLED CONCEALED IN/OR BELOW FLOOR SLAB OR BELOW GRADE
	RACEWAY INSTALLED EXPOSED
—G—G—	GROUND RING AROUND SITE 4/0 CU BURIED AT 36" BELOW GRADE. NOTE G9.
	FLEXIBLE METALLIC RACEWAY
	CONDUIT STUB-UP AND HOMERUN
	CONDUIT UP/CONDUIT DOWN
	CONDUIT TERMINATION, STUB-OUT
	GROUND
	GROUND ROD LOCATION
FACP	FIRE ALARM CONTROL PANEL - NOTE G13.
F	FIRE ALARM MANUAL PULL STATION - MT. 48" UP
F	FIRE ALARM AUDIBLE AND VISUAL SIGNAL DEVICE. MOUNT 6" BELOW FINISHED CEILING OR 80" AFF, WHICHEVER IS LOWER, TO THE BOTTOM OF THE LENS
TD	HEAT DETECTOR, CEILING MOUNTED.
S	SMOKE DETECTOR, CEILING MOUNTED.
SD	DUCT MOUNTED SMOKE DETECTOR

ABBREVIATIONS

A OR AMP	AMPERES
AFF	ABOVE FINISHED FLOOR
AIC	AMPERE INTERRUPTING CAPACITY
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CNTL	CONTROL
CT	CURRENT TRANSFORMER
D	DEPTH
DISC	DISCONNECT SWITCH
DISC SW	DISCONNECT SWITCH
EXP	EXPLOSION PROOF
F	FUSE
G OR GND	GROUND
H	HEIGHT
HP	HORSEPOWER
JB OR J	JUNCTION BOX
KVA	KILOVOLT - AMPS
KW	KILOWATTS
L	LENGTH
MCB OR MB	MAIN CIRCUIT BREAKER
MH OR MTG	MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
MT OR MTD	MOUNT OR MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NFPA	NATIONAL FIRE PROTECTION ASSOC.
NTS	NOT TO SCALE
P	POLE
PMT	PAD MOUNT TRANSFORMER
PNL	PANELBOARD
RECEPT	RECEPTACLE
RMS	ROOT MEAN SQUARE
SPD	SURGE PROTECTION DEVICE (TVSS)
SW	SWITCH
SYM	SYMMETRICAL
TBB	TELEPHONE BACKBOARD
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS
W	WIDTH
W/	WITH
WP	WEATHER PROOF
XDUCER	TRANSDUCER, ULTRASONIC TYPE
XFMR	TRANSFORMER

AREA OF REFUGE SYSTEM - SEE NOTE G16	
AOR	WALL MOUNTED AREA OF REFUGE LIGHTED SIGN RATH 7050.
AORS	AREA OF REFUGE SIGN WITH RAISED. LETTER AND BRAILLE ENTRY SIGN. 48" AFF RATH 7044.
AORI	AREA OF REFUGE INTERCOM, 48" AFF. FLUSH MOUNT - BATTERY BACKUP RATH 2100-958NSR.
AORM	AREA OF REFUGE MASTER, 48" AFF SURFACE MOUNTED - BATTERY BACKUP RATH 2500-205FM.
AORPS	AREA OF REFUGE POWER SUPPLY RATH 2500-PWR24.

GENERAL NOTES:

G1. WHEN CONDUCTOR SIZE IS INDICATED FOR BRANCH CIRCUIT HOME RUN, THE CONDUCTOR SIZE INDICATED SHALL BE USED FOR THE COMPLETE CIRCUIT.

G2. ALL EQUIPMENT SUPPORTS AND HANGERS SHALL BE COORDINATED WITH STRUCTURAL DRAWINGS TO INSURE THAT LOCATION OF SUPPORTS AND HANGERS OCCUR WITHIN 4" OF PANEL POINT.

G3. HEAT TAPE CONNECTIONS SHALL BE DIRECT CONNECTIONS.

G4. GROUNDING CONDUCTORS SHALL BE PROVIDED FOR ALL BRANCH CIRCUITS. REFER TO SECONDARY GROUNDING SPECIFICATION SECTION.

G5. THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT PROVIDED WITH THE DRAWINGS. ANY DISCREPANCIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ANY REQUIRED ADJUSTMENTS IN BREAKER RATINGS, MOTOR CONTROLLERS, FEEDERS, ETC. SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

G6. THE RECEPTACLE SHALL BE MOUNTED ON THE EQUIPMENT FRAME OR CONCRETE STRUCTURE. PROVIDE WEATHER RESISTANT TYPE 'WR'.

G7. THE AUTOMATIC TRANSFER SWITCH SHALL PROVIDE A PRE-TRANSFER, POST-TRANSFER, NORMAL POWER AND EMERGENCY POWER SIGNAL TO THE IN-PLANT SCADA PANEL AND MBR PROCESS CONTROL PANEL. THE IN-PLANT SCADA PANEL AND MBR PROCESS PANEL SHALL PROVIDE THE LOAD STEP SEQUENCE REQUIRED IN SPECIFICATION SECTION 263213. IT SHALL ALSO PROVIDE LOCK-OUT OF SPECIFIED LOADS DURING EMERGENCY GENERATOR OPERATION.

G8. ITEM PROVIDED WITH EQUIPMENT FURNISHED BY OTHERS. FIELD CONNECTION BY ELECTRICAL CONTRACTOR.

G9. PROVIDE DETECTABLE BARRIER TAPE, 3M SCOTCH SERIES 400, BURIED AT 18" BELOW GRADE. FURNISH 6" WIDE X 5 MIL TAPE WITH ALUMINUM BACKING. INSTALL ABOVE ALL BURIED ELECTRICAL CONDUITS AND CABLES.

G10. AIM PHOTO CELL AWAY FROM ARTIFICIAL LIGHT SOURCES. ADJUST SHIELD FOR PROPER OPERATION AND TO REDUCE FALSE-SWITCHING.

G11. FOR ALL DISCONNECT SWITCHES SERVING MOTORS WITH VFDS, PROVIDE AUXILIARY CONTACTS IN DISCONNECT SWITCH. CONTACTS SHALL BREAK-FIRST/MAKE-LAST. CONNECT TO VFD CONTROL CIRCUIT TO DE-ENERGIZE DRIVE CONTROL SUCH THAT BEFORE SWITCH IS OPENED THE VFD WILL NOT BE UNDER LOAD. COORDINATE WITH DRIVE MANUFACTURER.

G12. PROVIDE SHIELDED CABLES AS SPECIFIED FOR MOTORS SERVED BY VFD AS SPECIFIED. NO SPLICES ALLOWED.

G13. PROVIDE TWO FIRE ALARM SYSTEMS. ONE IS FOR DE-WATERING BUILDING (SEE E15.0) AND ONE FOR LIMITED ELEVATOR SYSTEM IN MAIN BUILDING (SEE E1.2).

G14. REFER TO P+ID DRAWINGS FOR CONDUIT, WIRE AND CONNNECTIONS TO PLANT SCADA AND INSTRUMENTATION. DEVICES ARE NOT SHOWN ON ELECTRICAL DRAWINGS. PROVIDE ALL UTILITIES, INCLUDING POWER AS REQUIRED. EMERSON SCADA SYSTEM IS TO BE PROVIDED UNDER SEPARATE CONTRACT. CONTRACTOR TO COODINATE WITH AND PROVIDE POWER AND CONDUITS AS REQUIRED. PROVIDE CONDUITS AS SPECIFIED.

G15. PROVIDE SERVICE TO ROLL UP DOORS. DESIGN RATED 1/2 HP, 120V. LOCATE 20/1/1 DISCONNECT AT TOP OF DOOR NEAR MOTOR. PROVIDE ALL CONDUITS AND WIRING FOR COMPETE INSTALLATION.

G16. PROVIDE AREA OF REFUGE SYSTEM WITH MASTER STATION ON FIRST FLOOR, TWO REMOTE INTERCOM STATIONS ON SECOND FLOOR FOR COMPLETE SYSTEM. PROVIDE ALL SIGNS AS REQUIRED. ALL WIRING TO BE IN CONDUIT. COORDINATE TELEPHONE CONNECTION AND PROGRAMMING WITH OWNER. DEMONSTRATE OPERATION TO ENGINEER AND OWNER AT FINAL ACCEPTANCE.

ELECTRICAL SYSTEMS SEISMIC REQUIREMENTS

PER IBC-2012/ASCE 7-10

A. PER THE 2012 INTERNATIONAL BUILDING CODE, MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND COMPONENTS, INCLUDING THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED FOR SEISMIC FORCES IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7-10.

B. EXTERIOR EQUIPMENT (INCLUDING ROOF CURBS, RAILS, SUPPORTS) EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH CHAPTER 25 TO 29 OF ASCE 7-10.

C. WHERE DESIGN FOR SEISMIC AND WIND LOADS IS REQUIRED, THE MORE DEMANDING FORCE MUST BE USED.

D. REFERENCE THE STRUCTURAL DRAWINGS FOR SITE SPECIFIC INFORMATION ON SEISMIC DESIGN CATEGORY, WIND SPEEDS, ETC.

E. USE THE TABLE BELOW TO DETERMINE SEISMIC RESTRAINT REQUIREMENTS FOR EACH COMPONTENT.

F. FOR ALL COMPONENTS REQUIRING SEISMIC RESTRAINT, THE COMPONENT SUPPORTS AND ATTACHMENTS SHALL BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL REGISTERED IN THE STATE THE JOB IS LOCATED. SUBMITTALS MUST INCLUDE STAMPED AND SIGNED DRAWINGS AND CALCULATIONS.

G. WHERE SEISMIC RESTRAINT IS REQUIRED, HOUSEKEEPING PADS NEEDED FOR THE INSTALLATION OF EQUIPMENT UNDER THIS CONTRACT MUST BE DESIGNED BY THE SEISMIC ENGINEER. DO NOT POUR ANY HOUSEKEEPING PADS PRIOR TO THE RECEIPT OF THE APPROVED SEISMIC SUBMITTAL.

H. SEISMIC RESTRAINTS FOR CONDUIT, CABLE TRAYS AND BUS DUCT MUST BE SHOWN ON LAYOUT DRAWINGS SHOWING SPECIFIC RESTRAINT LOCATIONS ALONG WITH ACCOMPANYING DETAILS AND CALCULATIONS.

ELECTRICAL COMPONENT IMPORTANCE FACTOR (Ip) DESIGNATION

Ip - 1.0	Ip - 1.5 (LIFE SAFETY COMPONENTS)
● ALL ASSOCIATED ELECTRICAL WORK UNLESS NOTED OTHERWISE	● EMERGENCY LIGHTS ● EXIT LIGHTS ● GENERATOR ● TRANSFER SWITCH ● EMERGENCY DISTRIBUTION EQUIPMENT

SEISMIC DESIGN CATEGORIES C, OCC. RISK III, Ip = 1.0

	COMPONENT IMPORTANCE FACTOR (Ip)		
	1.0		
COMPONENT IDENTIFICATION	SEISMIC RESTRAINT REQUIREMENT	NOTES	
ROOF MOUNTED	RESTRAIN ALL	1	
FLOOR MOUNTED	RESTRAIN ALL	1,2	
WALL MOUNTED	RESTRAIN ALL	1,2	
COMPONENTS SUPPORTS	RESTRAIN ALL	1	
SUSPENDED EQUIPMENT	RESTRAIN ALL	1	
SINGLE CONDUIT	RESTRAIN IF 2.5" AND LARGER	3	
CABLE TRAY/BUS DUCT TRAPEZED CONDUIT	DO NOT DELETE ON TRAPEZE IF LARGER THAN OR EQUAL TO 2.5". RESTRAIN IF TOTAL WEIGHT OF SUSPENDED COMPONENT IS LARGER THAN 10LBS/FT	3	
COMPONENT CERTIFICATION	NOT REQUIRED	5	
PENDANT, LAY-IN AND CAN LIGHTS	REQUIRED	4	

NOTES:

1. EQUIPMENT 20 LBS. OR LESS IS EXEMPT IF THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT.
2. RESTRAINTS ARE NOT REQUIRED IF THE COMPONENT WEIGHS 400 LBS. OR LESS, IS MOUNTED WITH THE CENTER MASS AT 4' OR LESS ABOVE A FLOOR, IS POSITIVELY ATTACHED TO THE STRUCTURE, AND HAS FLEXIBLE CONNECTIONS BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT.
3. RESTRAINT IS NOT REQUIRED IF THE CONDUIT IS SUPPORTED BY HANGERS AND EACH HANGER IN THE RUN IS 12" IN, OR LESS IN LENGTH FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE. WHERE PIPES ARE SUPPORTED ON A TRAPEZE, THE TRAPEZE SHALL BE SUPPORTED BY HANGERS HAVING A LENGTH OF 12" IN, OR LESS. WHERE ROD HANGERS ARE USED, THEY SHALL BE EQUIPPED WITH SWIVELS EYE NUTS OR OTHER DEVICES TO PREVENT BENDING IN THE ROD.
4. THE RESTRAINT OF PENDANT, LAY-IN AND CAN LIGHTS IS ADDRESSED IN ASTM C835 AND E580.
5. COMPONENT CERTIFICATION MUST BE SUPPLIED BY THE EQUIPMENT MANUFACTURER AT TIME OF SUBMITTAL FOR REVIEW BY ENGINEER OR RECORD.

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 11726 PAUL MAMALAKIS

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NO.	REVISIONS	BY	DATE
0	Issued for Bid	P.M.	05-01-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY

LEGEND, ABBREVIATIONS & GEN. NOTES

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E0.1

CADD PLOT 16-APR-2019 15:49 MPEAVLER

LIGHTING FIXTURE SCHEDULE - NOTE LF-4

TYPE	DESCRIPTION	VOLTAGE	LAMP	MOUNTING	NOTES
A	4' VAPORTITE LED - HIGH OUTPUT	UNV	LED INCLUDED	SURFACE	PROVIDE WITH STAINLESS STEEL LATCHES AND
	METALUX 4VT2-LD4-8-DR100-UNV-L840-CD1-WL-		8000L		MOUNTING BRACKET
	ACCESSORIES: SSL/TEH/VT2-SS-MBK				
	OR APPROVED EQUAL				
B	LED WALL PACK	UNV	LED INCLUDED	WALL	COORDINATE ELEVATION WITH ARCHITECTURAL
	LUMARK LD-WP-FC-4A-ED-EMLED-CD		40W		PLAN
	OR APPROVED EQUAL				
C	LED WALL PACK	UNV	LED INCLUDED	WALL	
	CANLET 02-12W-L-W-F-OG-01		1100L - 4000K		
	OR APPROVED EQUAL				
D	4' SURFACE LED	UNV	LED INCLUDED	WALL	PROVIDE WITH 1-1/2" SPACER
	METALUX 4SWLED-LD4-40SL-LW-L840-CD-1-AIB/SPACER-U			7'-6" TO	
	OR APPROVED EQUAL			BOTTOM	
F	2' X 4' RECESSED LED TROFFER	UNV	LED INCLUDED	RECESSED	LF-1
	METALUX 24ALN-G-LD4-55-UNV-L840-CD-1				
	OR APPROVED EQUAL				
G	2' X 2' FLAT PANEL TROFFER	UNV	3560L LED	RECESSED	
	METALUX 22FP3240C		4000L 30W		
	OR APPROVED EQUAL				
H	LED FLOOD LIGHT/POST TOP	UNV	LED INCLUDED	POLE	MOUNT ON 15' POLE.
	LUMARK 2-NFFLD-A25-E-UNV-66-S-BZ				NOTE LF-3 AND 2/E0.2.
	OR APPROVED EQUAL				
K	LED FLOOD LIGHT	UNV	25,000L LED	POLE	LF-2
	LUMARK NFFLDC75DUNV66SBZ		4000K 180W		
	OR APPROVED EQUAL				
K1	SAME AS TYPE K EXCEPT 60 FT POLE				

TYPE	DESCRIPTION	VOLTAGE	LAMP	MOUNTING	NOTES
L	2' X 4' FLAT PANEL TROFFER	UNV	4800L LED	RECESSED	LF-1
	METALUX 24FP4740C		4000K 40W		
	OR APPROVED EQUAL				
M	4' STRIP LED	UNV	4350L LED	SURFACE	
	METALUX 4SNLED-LD5-44SL-L840CDIU		4000K 31W		
	OR APPROVED EQUAL				
N	4' VAPORTITE LED	UNV	4800L LED	SURFACE	
	METALUX 4VT2-LD4-4-DR100-UNV-L840-CD1-WL		4000K 40W		
	ACCESSORIES: SSL/TEH/VT2-SS-MBK				
	OR APPROVED EQUAL				
P	MBR CANOPY LIGHT FIXTURES	277V	5100L LED	SURFACE	
	LUMARK QDCAST1B		4000K 54W		
	OR APPROVED EQUAL				
XA	LED WET LOCATION EMERGENCY LIGHT EXIT W/ REMOTE HEAD	UNV	SUPPLIED WITH FIX.	WALL	PROVIDE ARROWS, MOUNTING & SINGLE FACE OR
	ISOLITE MAC-C-12V-42-R-BB-W-7W			8' AFF	DOUBLE FACE AS INDICATED ON THE DRAWINGS
	REMOTE HEAD: WRH-2-9W				MOUNT REMOTE HEADS 8' AFF WHERE SHOWN.
	OR APPROVED EQUAL				
XB	LED THERMOPLASTIC EXIT W/ DOUBLE REMOTE HEADS	UNV	SUPPLIED W/ FIX.	WALL	PROVIDE ARROWS, MOUNTING & SINGLE FACE OR
	ISOLITE RLCLED-R-WH-SD-RLLEDWP2			8' AFF	DOUBLE FACE AS INDICATED ON THE DRAWINGS
	OR APPROVED EQUAL				MOUNT REMOTE HEADS 8' AFF WHERE SHOWN.
ELU1	NEMA 4X EMERGENCY LIGHT	UNV	LED INCLUDED	WALL	PROVIDE WITH HAND HELD REMOTE TESTER
	ISOLITE HZN-12-42-7W(LED)-SD-NC			8' AFF	ISOLITE TLRT
	OR APPROVED EQUAL				
ELU2	COMPACT LED EMERGENCY LIGHT	UNV	LED INCLUDED	WALL	PROVIDE WITH REMOTE HEADS WHERE INDICATED
	ISOLITE RL2LED-4-WH-SD			8' AFF	
	W/ RLLEDWP2				
	OR APPROVED EQUAL				

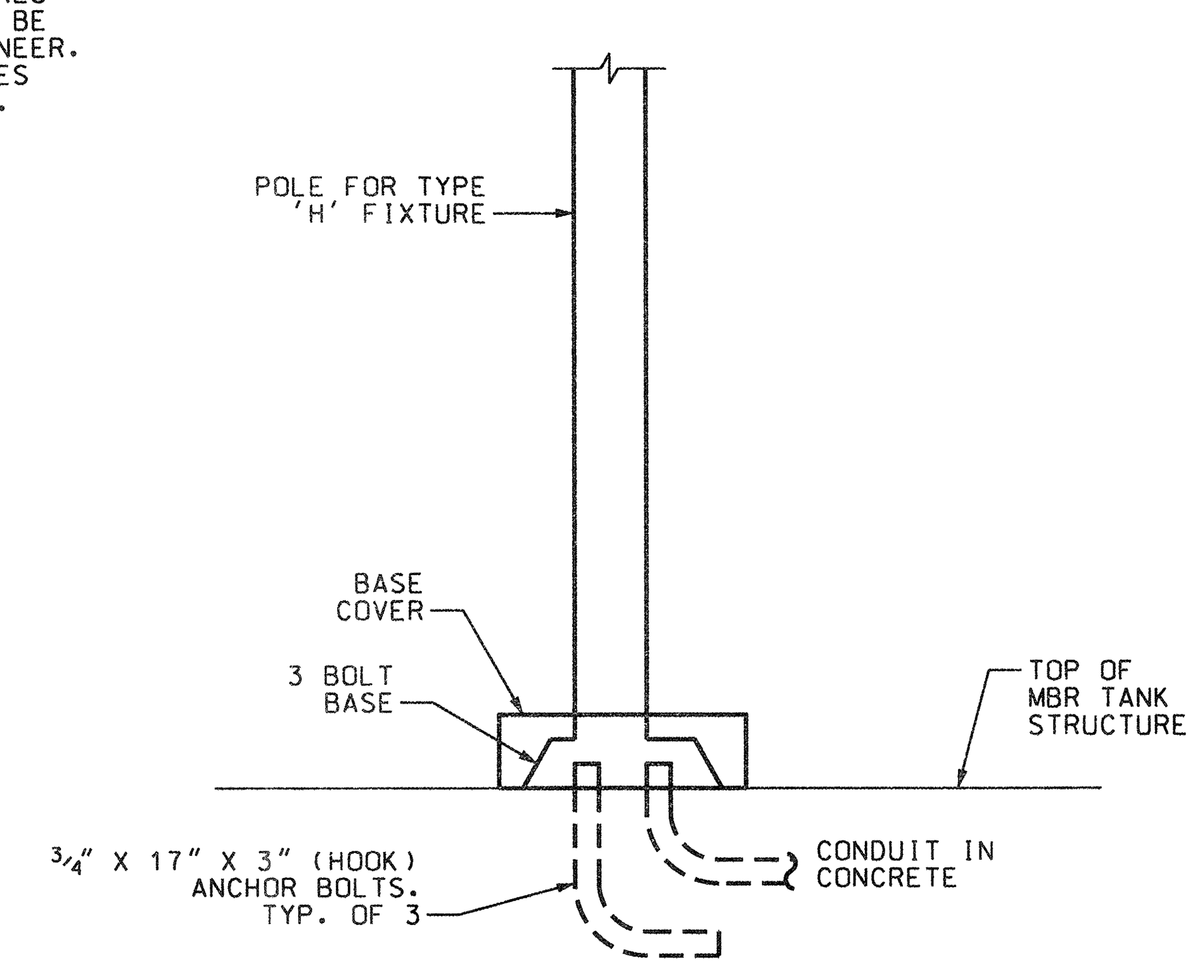
NOTES:

LF-1. PROVIDE CHAIN HANGERS FOR FIXTURES MOUNTED IN DROPPED CEILINGS. EXTEND CHAINS TO STRUCTURE, 2 PER FIXTURE.

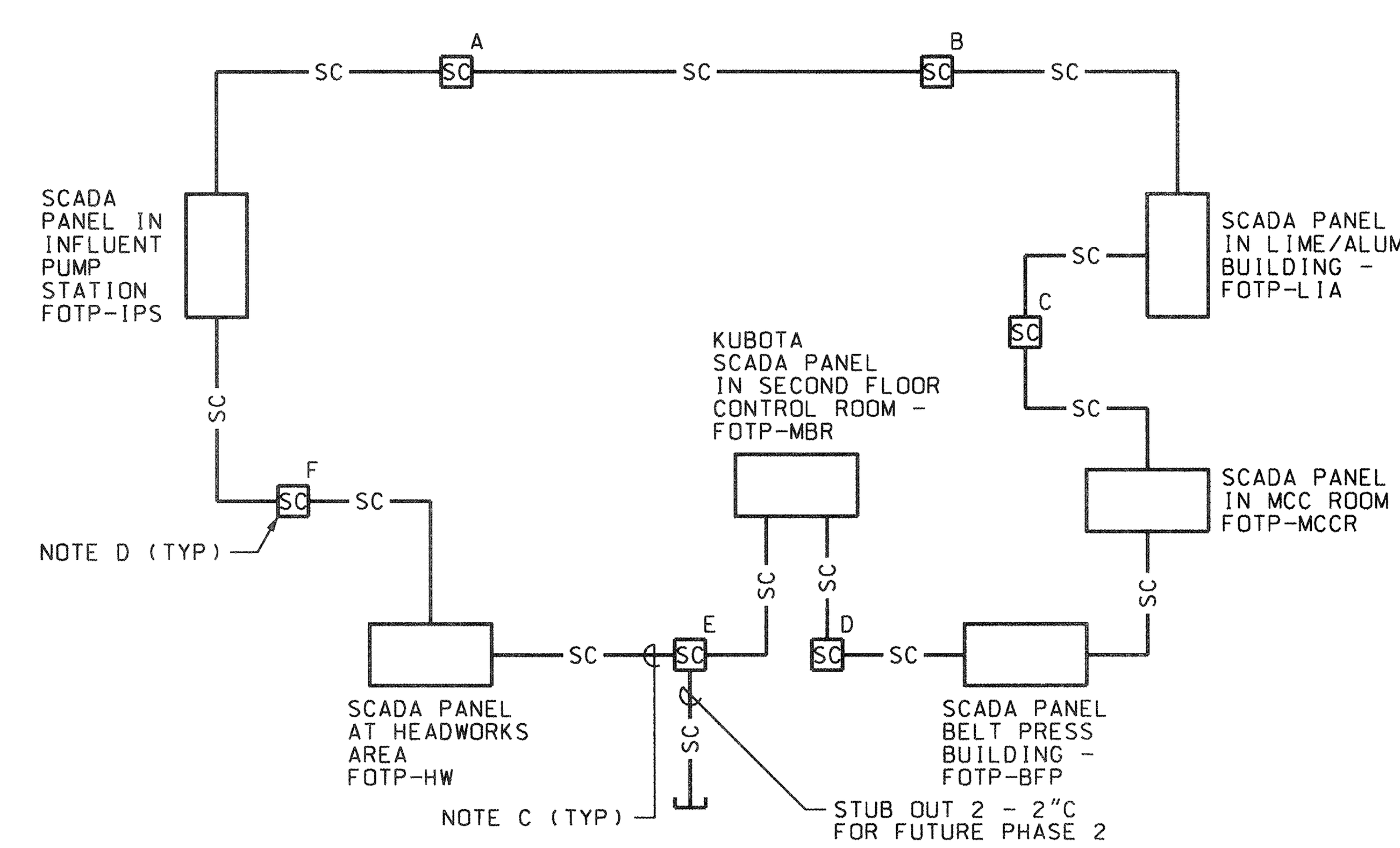
LF-2. PROVIDE 35 FT(60 FT FOR TYPE K1) ROUND TAPERED BRONZE FIBERGLASS POLE SET 6 FT IN GROUND. PROVIDE BULLHORN AT TOP WITH 2 TYPE 'K' FLOODLIGHTS PER POLE. POLE TO BE RATED FOR 130 MPH WITH BULLHORN AND FIXTURES INSTALLED. EXTEND COUNTERPOISE GROUND TO POLE. FINAL AIMING TO BE MADE IN FIELD AT FINAL REVIEW AFTER DARK. HANDHOLE TO BE 24" AFG.

LF-3. FOR EACH POST TOP FIXTURE LOCATION (H) PROVIDE 2 TYPE H FLOODLIGHTS MOUNTED ON BULLHORN ATOP POLE. POLE TO BE 15 FT ROUND STRAIGHT 5" ALUMINUM (0.125" THICKNESS) RATED FOR FIXTURES AND BULLHORN WITH 3 BOLT STANDARD BASE AND ROUND ALUMINUM COVER, HANDHOLE, AND ANCHOR BOLTS. COORDINATE ANCHOR BOLTS WITH MBR TANK STRUCTURE. FINAL AIMING TO BE MADE IN FIELD.

LF-4. FIXTURES SPECIFIED INDICATE LEVEL OF QUALITY OF FIXTURES REQUIRED. SIMILAR FIXTURES BY OTHER MANUFACTURERS MAY BE ACCEPTABLE UPON REVIEW AND APPROVAL BY ARCHITECT/ENGINEER. ALL FIXTURES SHALL BE SUPPLIED BY LOCAL REPRESENTATIVES IE ALESCO/NEXT GEN, ARDD & WINTER, ASI, LAI, OR SESCO.



2 TYPE 'H' FIXTURE MOUNTING DETAIL
E0.2 NOT TO SCALE



1 SCADA RISER DIAGRAM
E0.2 NOT TO SCALE

NOTES:

A. PROVIDE EXTERIOR FIBER RING FOR PLANT SCADA SYSTEM. VERIFY EXACT LAYOUT AND LOCATION IN FIELD. REFER TO SITE PLAN SHEET E1.0 FOR LAYOUT.

B. PROVIDE CONDUIT AND BOXES AS REQUIRED. SCADA VENDOR TO PROVIDE FIBER CABLE. CONTRACTOR TO INSTALL. SCADA VENDOR TO TERMINATE AND TEST.

C. ALL CONDUITS (-SC-) TO BE 2 - 2"C WITH MARKING TAPE ABOVE. INSTALL 24" BELOW GRADE MINIMUM WITH LONG SWEEP ELBOWS. INSTALL FIBER CABLES IN ONE CONDUIT AND PULL STRING IN OTHER.

D. ALL BOXES TO BE QUAZITE PC 17" X 30" X 24"D WITH 'FIBER' LOGO. SEE 4/E0.3

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NO.	REVISIONS	BY	DATE
0	Issued for Bid	P.M.	05-01-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY

LIGHTING FIXTURE SCHEDULE

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E0.2

CADD PLOT 16-APR-2019

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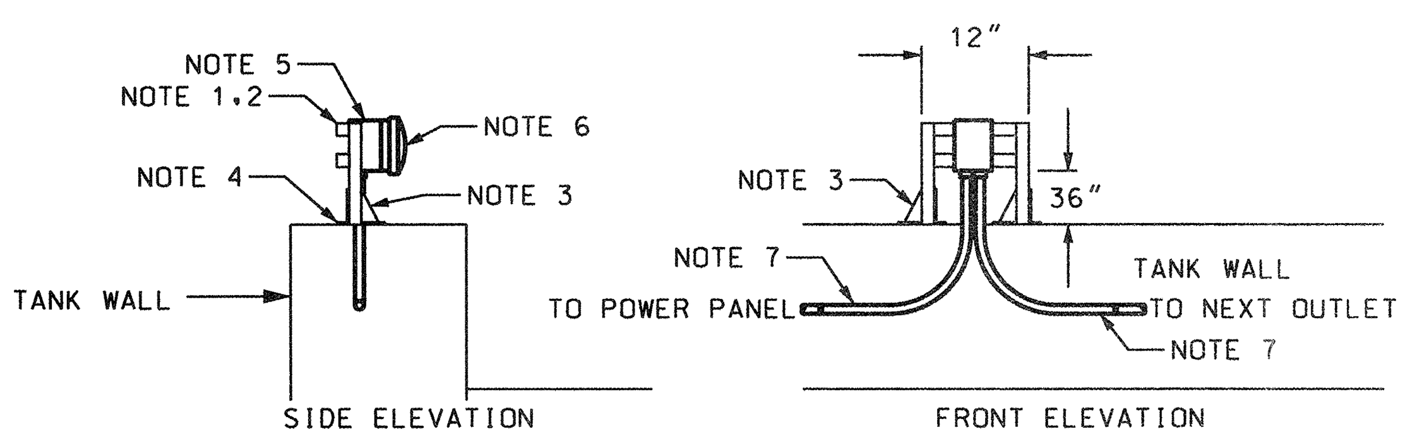
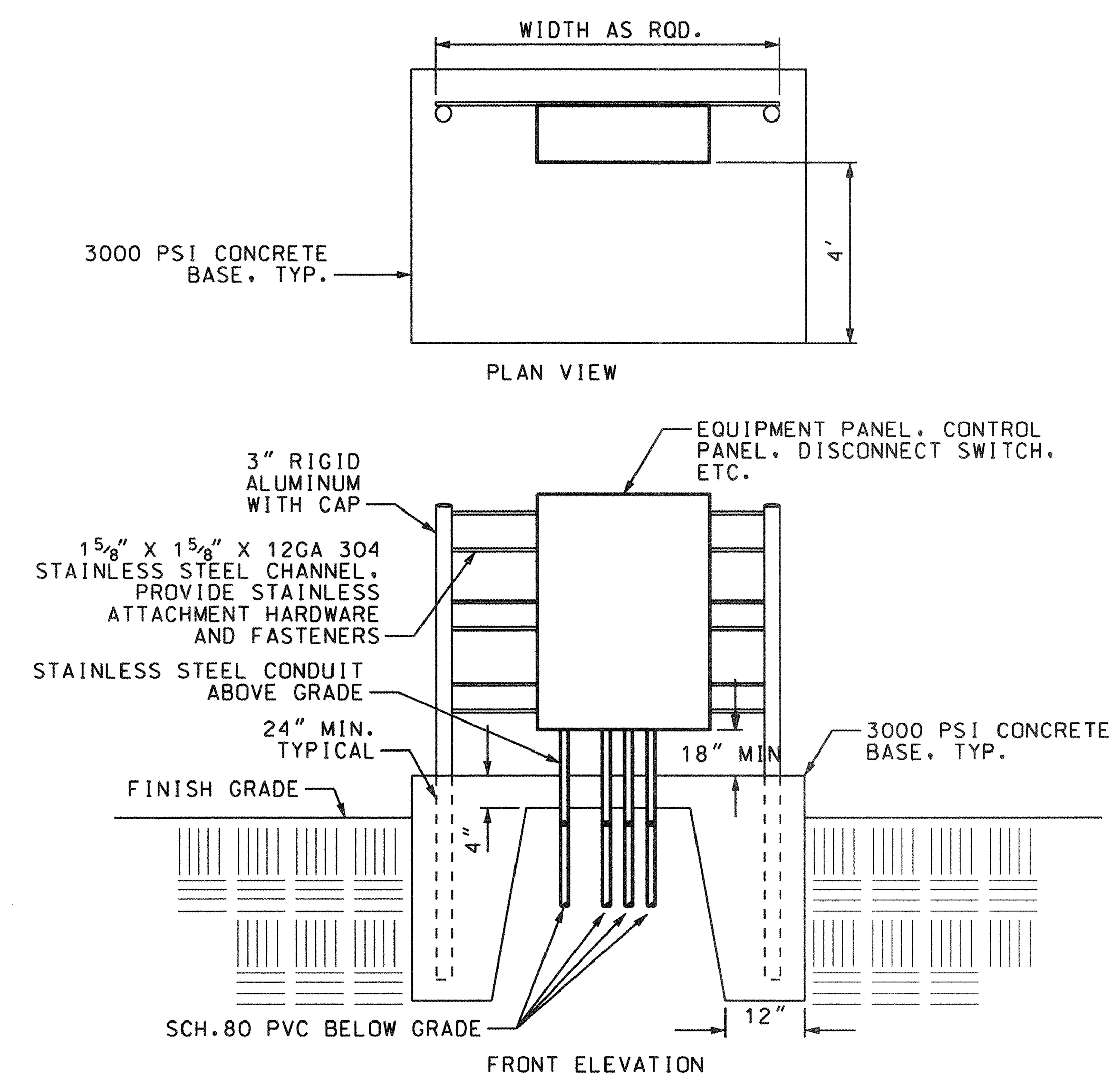


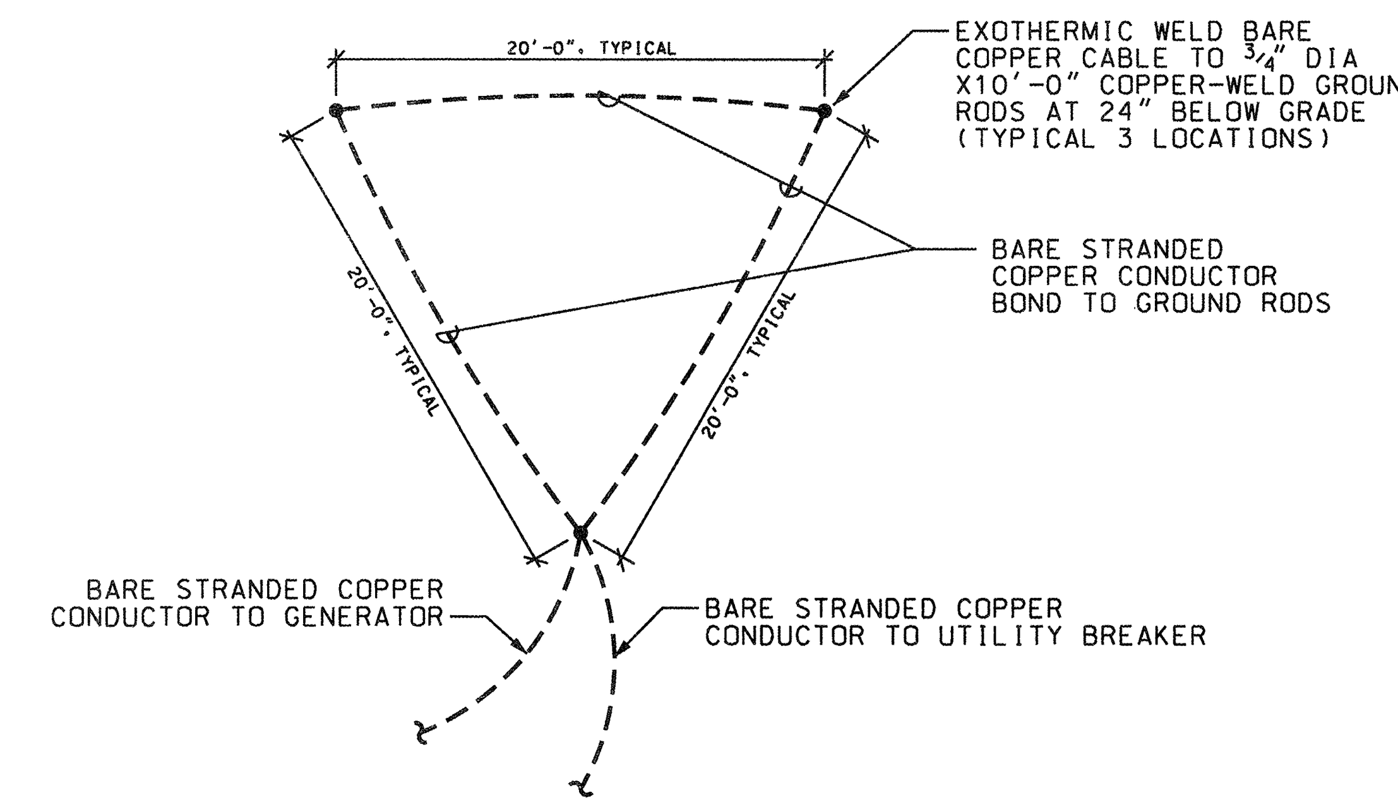
NOTES: MBR TANK RECEPTACLE DETAIL

1. ALL CHANNEL, FASTENERS, ACCESSORIES, ETC. SHALL BE 304 STAINLESS STEEL, MINIMUM. PROVIDE PRODUCTS OF B-LINE, UNISTRUT OR POWERSTRUT.
2. 12GA, 304 STAINLESS STEEL CHANNEL, 1 5/8" X 1 5/8", B-LINE B22 SERIES OR EQUAL.
3. B-LINE B278 STAINLESS STEEL POST BASE FOR B22, TWO PER ASSEMBLY.
4. PROVIDE SIX RED HEAD TRUBOLT TYPE 316 ANCHORS TO SECURE FRAME TO STRUCTURE. PROVIDE SWW1236, 1/2"X3 3/4" ANCHOR.
5. RECEPTACLE OUTLET BOX SHALL BE A CROUSE-HINDS FDS2SS, STAINLESS STEEL DEVICE BOX WITH TWO 3/4" CONDUIT HUBS.
6. RECEPTACLE OUTLET WEATHERPROOF COVER SHALL BE A CALBRITE STAINLESS STEEL 1-GANG DEEP LID WEATHERPROOF COVER, S60000FVCD.
7. STAINLESS STEEL CONDUIT FROM WITHIN CONCRETE TO OUTLET BOX, PVC WITHIN CONCRETE. NO FITTINGS ALLOWED 36" OR LESS ABOVE TANK WALL.

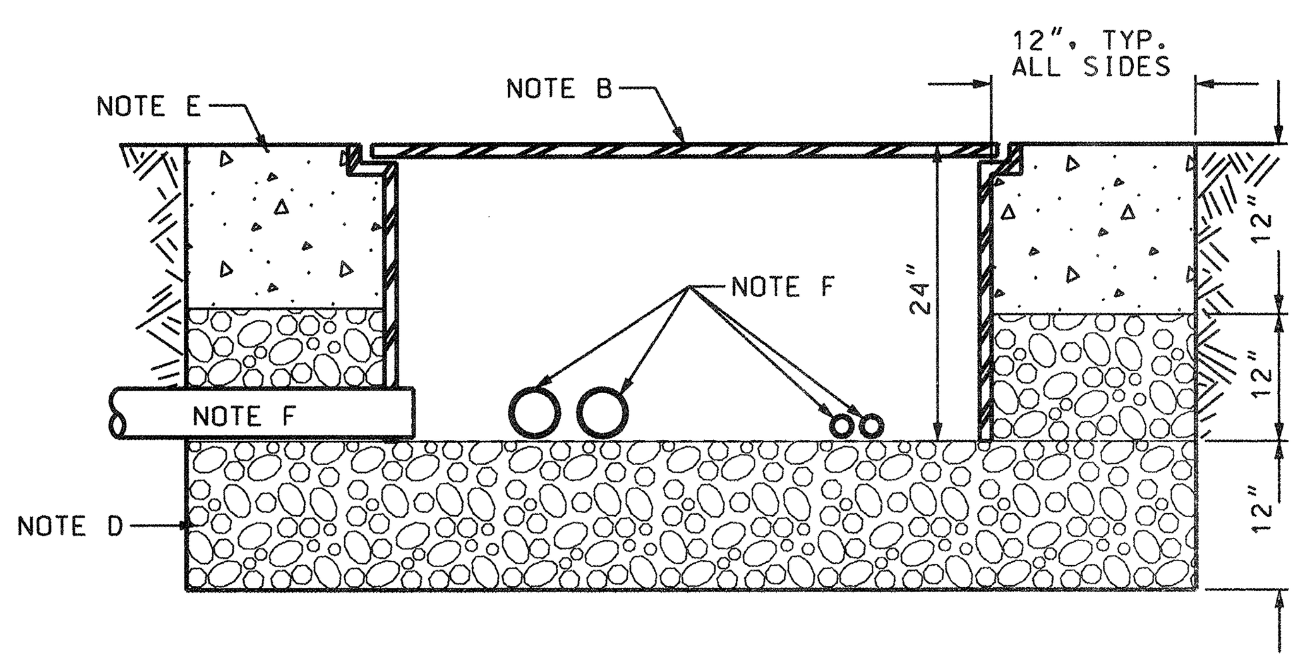
1 / E0.3 MBR TANK RECEPTACLE DETAIL
N.T.S.



2 / E0.3 EQUIPMENT RACK
N.T.S.



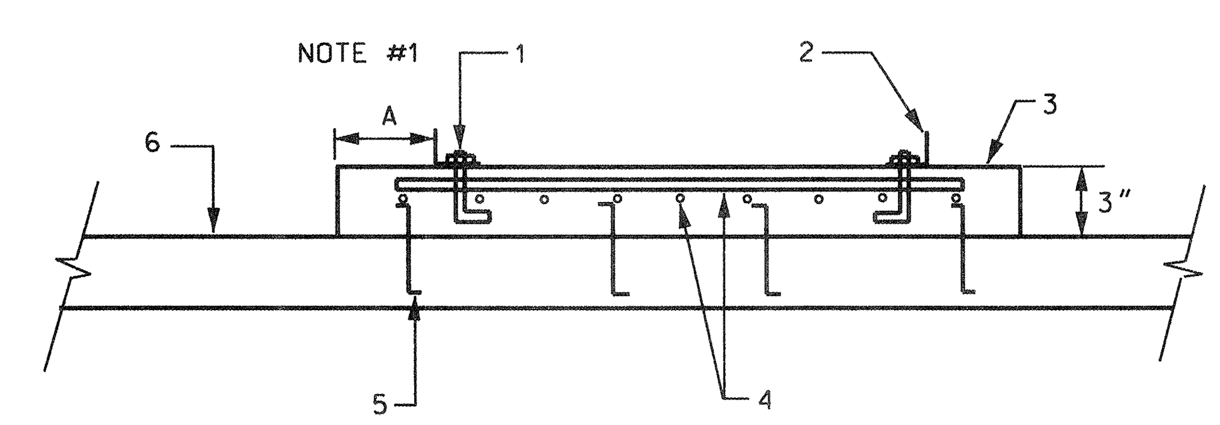
3 / E0.3 SECONDARY ELECTRICAL GROUNDING
N.T.S.



NOTES:

A. JUNCTION BOXES SHALL BE QUAZITE POLYMER CONCRETE TYPE "PG" OPEN BOTTOM, OR EQUIVALENT BY OLD CASTLE.
B. THE COVER SHALL BE TIER 22 RATED. LOGO - "POWER", "TELEPHONE" OR "CONTROLS".
C. BOX DIMENSIONS SHALL BE AS NOTED ON THE DRAWINGS.
D. PROVIDE A BASE OF CRUSHED STONE, 12" DEEP AND EXTENDING 12" BEYOND THE BOX ON ALL SIDES.
E. PROVIDE A CONCRETE SUPPORT AROUND THE BOX, 12" WIDE AND 12" DEEP, ALL SIDES.
F. CONDUIT ENTRY SHALL BE THROUGH THE SIDE WALL AT THE BOTTOM BELOW THE CONCRETE OR UP THROUGH THE BOTTOM.
G. FOR ALL CONDUCTORS: PROVIDE PERMANENT TAGS IDENTIFYING ALL CABLES.

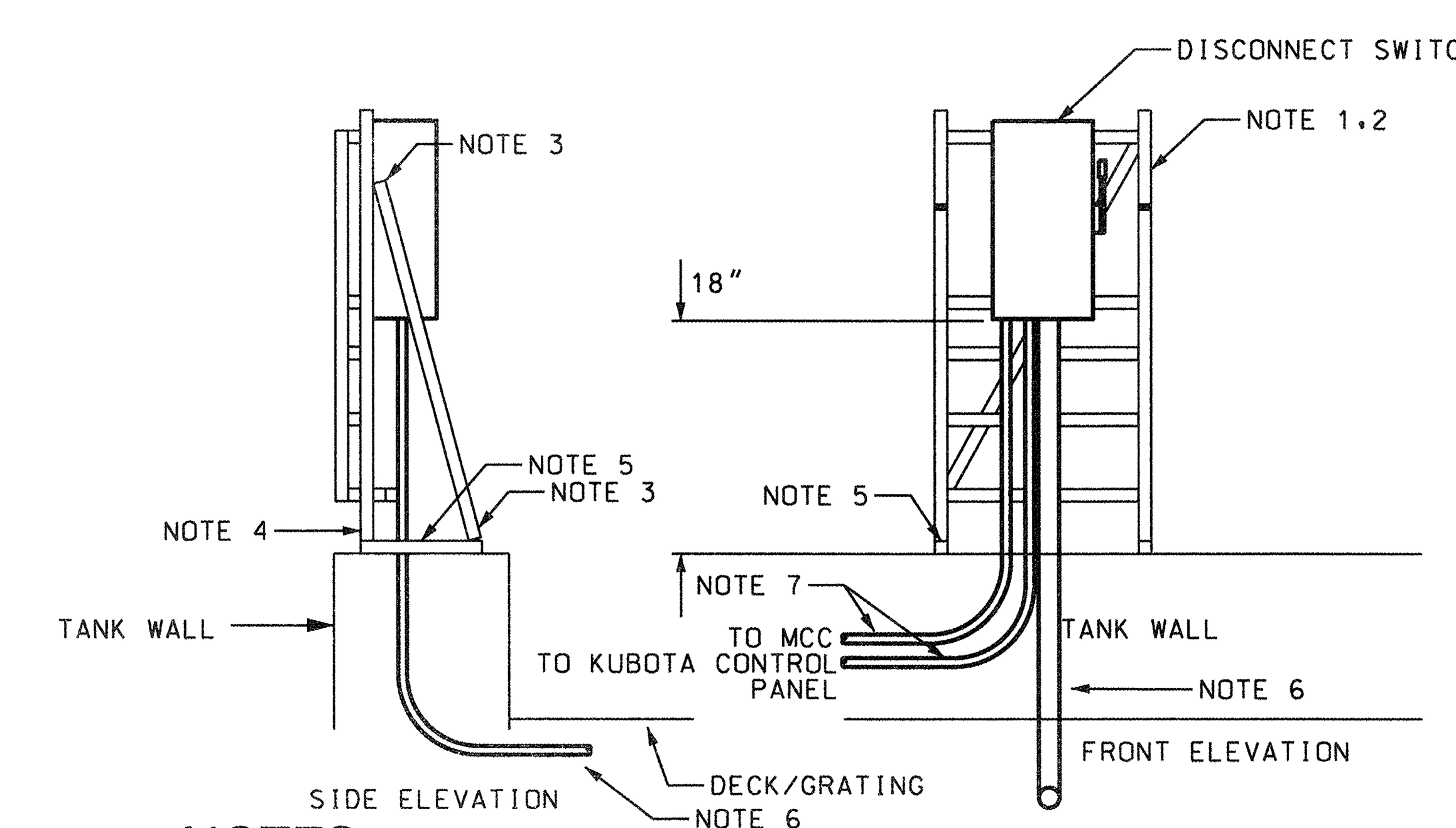
4 / E0.3 PULL BOX - FLUSH WITH FINISHED GRADE
N.T.S.



1. 1/2" GALV. ANCHOR BOLTS - 24" O.C. MIN.
2. ELECTRICAL EQUIPMENT MOUNTING FRAME
3. HOUSEKEEPING BASE
4. REINFORCING #4 BAR 12" O.C. BOTH DIRECTIONS
5. #4 Z BAR DOWELLS - 12" O.C. BOTH DIRECTIONS
6. FLOOR SLAB

1. DIMENSION 'A' SHALL EXCEED DIMENSIONS OF EQUIPMENT BASE BY NOT LESS THAN THREE INCHES IN ALL DIMENSIONS.
2. THIS DETAIL SHALL BE APPLICABLE TO MAIN SWITCHBOARD, FLOOR MOUNTED DRY TYPE TRANSFORMER, FLOOR MOUNTED AUTOMATIC TRANSFER SWITCHES, COMMUNICATIONS EQUIPMENT RACKS AND OTHER FLOOR MOUNTED ELECTRICAL EQUIPMENT EXCEEDING 200 LBS IN WEIGHT.

5 / E0.3 ELECTRICAL EQUIPMENT HOUSEKEEPING BASE
N.T.S.



NOTES: DISCONNECT SWITCH MOUNTING DETAIL

1. ALL CHANNEL, FASTENERS, ACCESSORIES, ETC. SHALL BE 304 STAINLESS STEEL, MINIMUM. PROVIDE PRODUCTS OF B-LINE, UNISTRUT OR POWERSTRUT.
2. 12GA, 304 STAINLESS STEEL CHANNEL, 1 5/8" X 1 5/8", B-LINE B22 SERIES OR EQUAL.
3. B-LINE B335 FOUR-HOLE ADJUSTABLE HINGE, FOUR LOCATIONS.
4. B-LINE B104 FOUR-HOLE CORNER ANGLE.
5. PROVIDE FOUR RED HEAD TRUBOLT TYPE 316 ANCHORS TO SECURE FRAME TO STRUCTURE. PROVIDE SWW1236, 1/2"X3 3/4" ANCHOR.
6. STUB 2" STAINLESS STEEL CONDUIT FROM DISCONNECT SWITCH INTO TANK BELOW DECKING. FIELD COORDINATE LOCATION AND ELEVATION OF STUBOUT WITH STRUCTURAL DRAWINGS. PROVIDE STAINLESS STEEL CABLE SUPPORT BRACKET ADJACENT TO GUIDE RAILS. PROVIDE NONCONDUCTIVE, SINGLE EYE, DOUBLE WEAVE, NON-METALLIC GRIP (ARAMID FIBER) FOR SUPPORT OF MOTOR CABLES. ATTACH TO MOTOR CABLE WITH TWO HEAVY DUTY ZIP TIES. FURNISH PRODUCTS OF HUBBELL - KELLEMS.
7. STAINLESS STEEL CONDUIT FROM WITHIN CONCRETE TO DISCONNECT SWITCH. SCH.80 PVC WITHIN CONCRETE. NO FITTINGS ALLOWED 18" OR LESS ABOVE TANK WALL.
8. THIS DETAIL APPLIES TO INSTALLATION ON OR ABOUT THE TREATMENT BASINS OR INFLUENT SCREENS.

6 / E0.3 DISCONNECT SWITCH MOUNTING DETAIL
N.T.S.

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NO.	REVISIONS	BY	DATE
0	Issued for Bid	P.M.	05-01-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY

ELECTRICAL DETAILS

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E0.3

CADD PLOT 16-APR-2019 15:53 MPEAYLER

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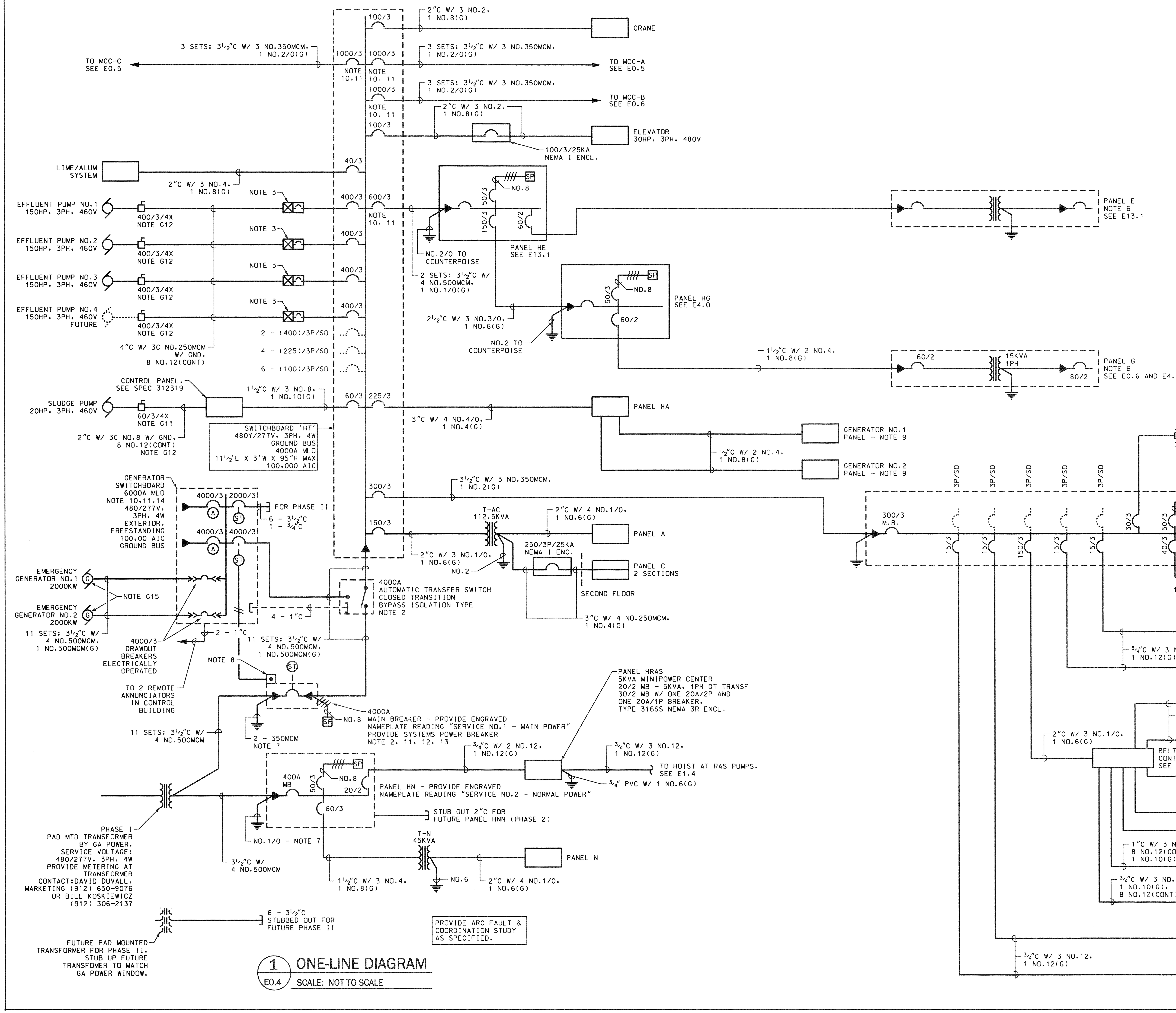

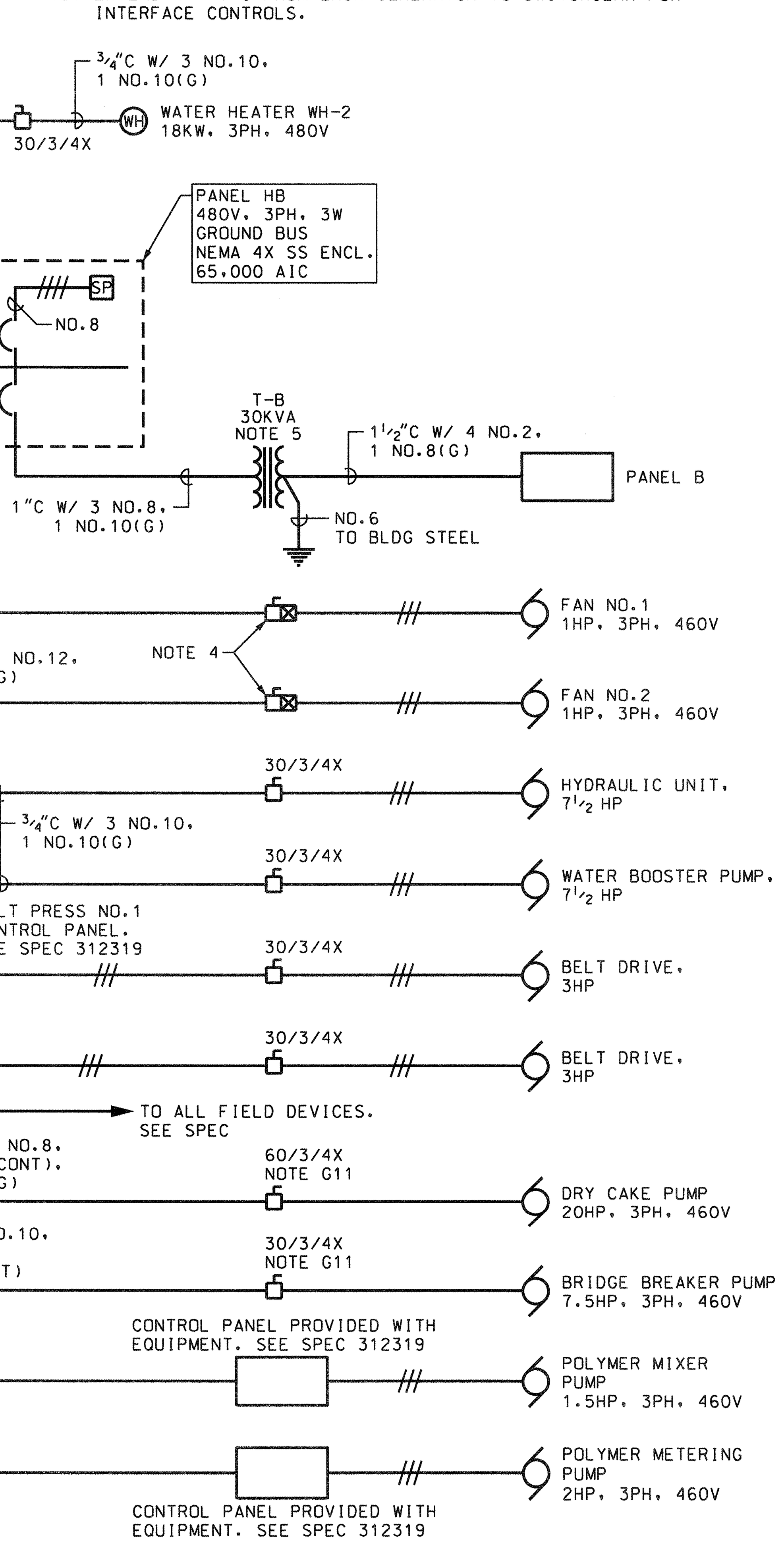

1 ONE-LINE DIAGRAM
E0.4 SCALE: NOT TO SCALE

NOTES:

1. PROVIDE VFD FOR HIGH TORQUE APPLICATION. COORDINATE WITH MOTOR PROVIDED.
2. CONNECT TO SHUNT TRIP IN MAIN BREAKER IF UNIT PARALLELS TOO LONG. COORDINATE WITH GA POWER.
3. PROVIDE COMBINATION VFD WITH RVSS BYPASS STARTER. PROVIDE DV/DT FILTERS ON OUTPUT.
4. PROVIDE NEMA SIZE 0, COMBINATION STARTER IN NEMA 4X ENCLOSURE, ON-OFF SWITCH AND 120V FUSED CPT. PROVIDE 2 NO/NC CONTACTS.
5. TRANSFORMER TO BE NON-VENTILATED, FLOOR MTD, STAINLESS STEEL ENCLOSURE RATED 480V PRIM, 3PH, 208Y/120V SEC.
6. PROVIDE SINGLE PHASE MINI-POWER CENTER WITH INTEGRAL MAIN BREAKER, DT TRANSFORMER AND PANEL. SEE SCHEDULE FOR PANEL. PROVIDE NEMA 3R STAINLESS STEEL ENCLOSURE. EXTEND GROUND TO COUNTERPOISE SYSTEM.
7. EXTEND SERVICE EQUIPMENT GROUND CONDUCTOR TO COUNTERPOISE, CONCRETE ENCASED ELECTRODE AND WATER SERVICE.
8. PROVIDE RED N.O. MOMENTARY PUSHBUTTON TO OPERATE SHUNT TRIP DEVICE IN EMERGENCY SWITCH GEAR. PROVIDE ENGRAVED LABEL "SERVICE NO. 3 DISCONNECT - EMERGENCY POWER".
9. PANELS PROVIDED WITH GENERATOR. SEE SPEC 263213.
10. ALL BREAKERS IN GENERATOR SWITCHBOARD AND WHERE SHOWN TO BE POWER BREAKERS WITH LONG TERM, GROUND FAULT SHORT TERM AND INSTANTEOUS TRIP.
11. PROVIDE TEST SWITCH WITH INDICATOR TO ALLOW LOWER ARC-FAULT DURING SCHEDULED MAINTAINANCE FOR THESE BREAKERS.
12. PROVIDE DRAWOUT BREAKER WITH SHUNT TRIP. MAX DIMENSIONS 72"W X 48"D. FRONT AND SIDE ACCESS ONLY.
13. PROVIDE SHUNT TRIP RESET SWITCH INDICATOR LIGHT AND SIGNAGE AS REQUIRED BY GA. POWER. SEE SPEC 263213.
14. GENERATOR SWITCHBOARD TO CONSIST OF 6 SECTIONS. LOCATE TWO 4000A TYPE (A) BREAKERS IN SECTIONS 1 AND 6. TWO GENERATOR BREAKERS IN SECTIONS 2 AND 5. AND TO FEEDER BREAKERS IN SECTIONS 3 AND 4. BUS IN SECTIONS 1, 2, 5 AND 6 TO BE 4000A. PROVIDE 6000A FOR SECTIONS 3 AND 4.
15. EXTEND 4 - 1"C FROM EACH GENERATOR TO SWITCHGEAR FOR INTERFACE CONTROLS.

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TRAVIS FIELD WATER RECLAMATION FACILITY
ONE-LINE DIAGRAM

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
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SCALE:	N.T.S.

E0.4

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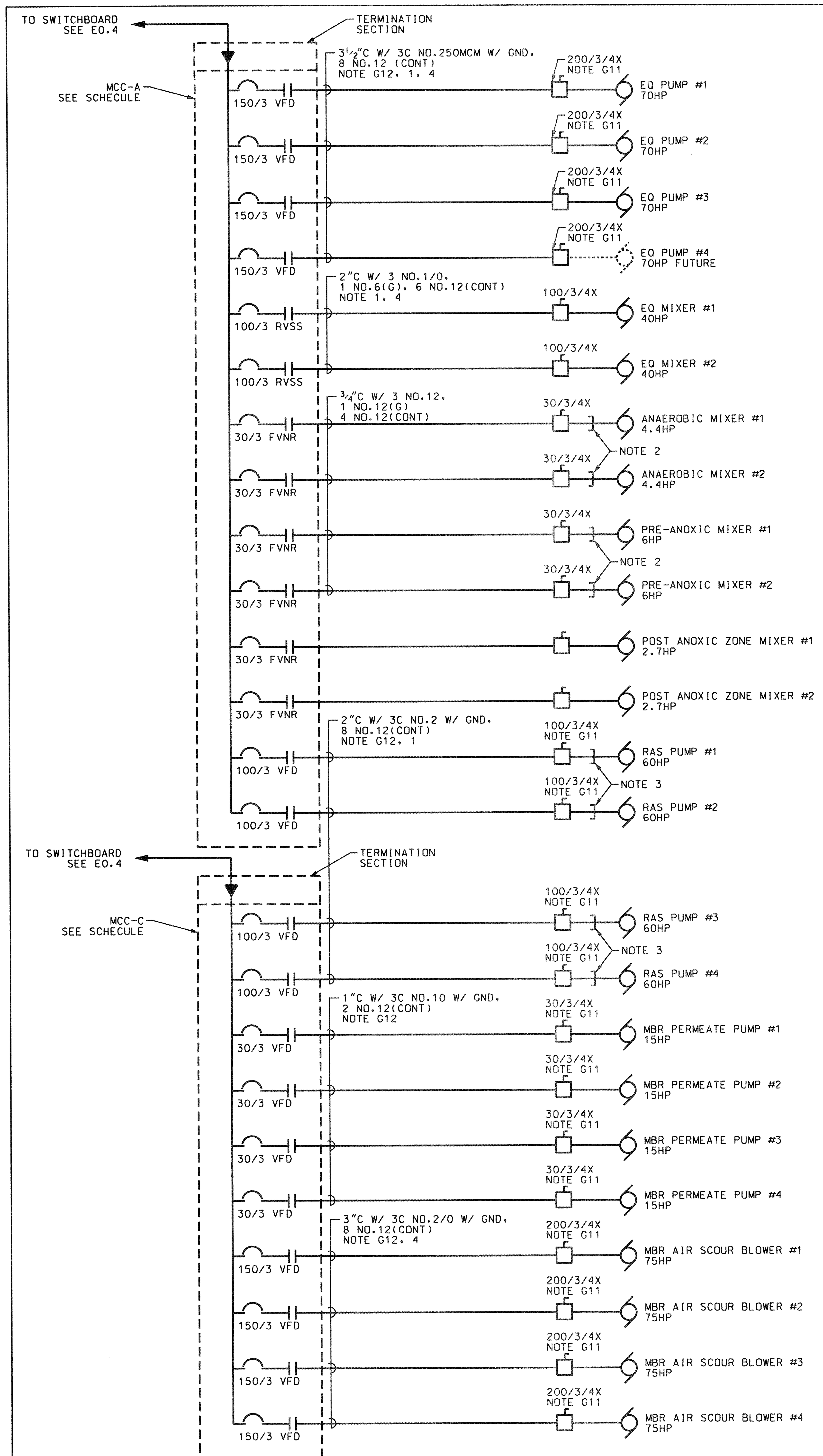

1 ONE-LINE DIAGRAM
E0.5 SCALE: NOT TO SCALE

MOTOR CONTROL CENTER MCC-A - NOTE G

VOLTAGE: 480V			PHASE: 3	WIRE: 3	MAIN BUS: 1000		VERT BUS: 300	
BUS BRACING: 100,000 AIC		MAX. OVERALL LENGTH: 15.5'					DEMAND LOAD: 600A	
UNIT NO.	EQUIPMENT SERVED	HP	STARTER SIZE	CIRCUIT BREAKER FRAME	TRIP	POLES	CONTROLS	NOTES
AA1	TERMINATION SECTION	-	-	-	-	-	-	A
AB1	EQ PUMP #1	70	VFD	MCP	150	3	I	C,F,H,J
AC1	EQ PUMP #2	70	VFD	MCP	150	3	I	C,F,H,J
AD1	EQ PUMP #3	70	VFD	MCP	150	3	I	C,F,H,J
AE1	EQ PUMP #4	70	VFD	MCP	150	3	I	C,F,H,J
AF1	EQ MIXER #1	40	RVSS	MCP	100	3	II	E,J
AG1	EQ MIXER #2	40	RVSS	MCP	100	3	II	E,J
AB2	ANAEROBIC MIXER #1	4.4	1	MCP	30	3	II	C,E
AC2	ANAEROBIC MIXER #2	4.4	1	MCP	30	3	II	C,E
AD2	PRE-ANOXIC MIXER #1	6	1	MCP	30	3	II	C,E
AE2	PRE-ANOXIC MIXER #2	6	1	MCP	30	3	II	C,E
AF2	POST ANOXIC ZONE MIXER #1	2.7	1	MCP	30	3	II	C,E
AG2	POST ANOXIC ZONE MIXER #2	2.7	1	MCP	30	3	II	C,E
AH1	RAS PUMP #1	60	VFD	MCP	100	3	I	C,E,H,J
AI1	RAS PUMP #2	60	VFD	MCP	100	3	I	C,E,H,J
AH2	SPACE	-	(1)	MCP	-	3	–	D
AI2	SPACE	-	(1)	MCP	-	3	–	D

MOTOR CONTROL CENTER MCC-C - NOTE G

VOLTAGE: 480V			PHASE: 3	WIRE: 3	MAIN BUS: 1000		VERT BUS: 300	
BUS BRACING: 100,000 AIC		MAX. OVERALL LENGTH: 15.5'					DEMAND LOAD: 600A	
UNIT NO.	EQUIPMENT SERVED	HP	STARTER SIZE	CIRCUIT BREAKER FRAME	TRIP	POLES	CONTROLS	NOTES
CA1	TERMINATION SECTION	-	-	-	-	-	-	A
CB1	RAS PUMP #3	60	VFD	MCP	100	3	I	C,E,H,J
CC1	RAS PUMP #4	60	VFD	MCP	100	3	I	C,E,H,J
CD1	MBR PERMEATE PUMP #1	15	VFD	MCP	30	3	I	C,F,H,J
CD2	MBR PERMEATE PUMP #2	15	VFD	MCP	30	3	I	C,F,H,J
CD3	MBR PERMEATE PUMP #3	15	VFD	MCP	30	3	I	C,F,H,J
CD4	MBR PERMEATE PUMP #4	15	VFD	MCP	30	3	I	C,F,H,J
CE1	MBR AIR SCOUR BLOWER #1	75	VFD	MCP	150	3	I	C,F,H,J
CF1	MBR AIR SCOUR BLOWER #2	75	VFD	MCP	150	3	I	C,F,H,J
CG1	MBR AIR SCOUR BLOWER #3	75	VFD	MCP	150	3	I	C,F,H,J
CH1	MBR AIR SCOUR BLOWER #4	75	VFD	MCP	150	3	I	C,F,H,J
CB2	SPACE	-	-	MCP	-	3	-	D
CC2	SPACE	-	-	MCP	-	3	-	D
CI1	SPACE	-	-	MCP	-	3	-	D
CI2	SPACE	-	-	MCP	-	3	-	D
CI3	SPACE	-	-	MCP	-	3	-	D
CI4	SPACE	-	-	MCP	-	3	-	D
CI5	SPACE	-	-	MCP	-	3	-	D
CI6	SPACE	-	-	MCP	-	3	-	D

NOTES: MOTOR CONTROL CENTER

A. PROVIDE LUGS FOR FEEDER CONDUCTORS SHOWN IN TERMINATION SECTION.

B. CONTROL DEVICES SHALL BE:
I - FOR VFDS, SEE SPECS.
II - HOA SWITCH, RED 'RUN' PILOT LAMP, BLUE 'OVERLOAD' PILOT LAMP, 2 - NC/NO CONTACTS.

C. FOR VFD SERVING MOTORS OVER 100 FT FROM MCC, PROVIDE OUTPUT DV/DT FILTER.

D. PROVIDE BUCKET FOR FUTURE EQUIPMENT SHOWN.

E. FOR SUBMERSIBLE PUMPS, PROVIDE CONNECTIONS TO LEAK DETECTOR IN WINDINGS AND THERMAL MODULE TO MONITOR MOTOR TEMP AS REQUIRED. PROVIDE 'AMBER' PILOT LAMPS FOR 'LEAK' AND ANOTHER FOR 'HI-TEMP'. IF THESE SAFETIES OCCUR, TURN ON LIGHT AND LOCKOUT PUMP. PROVIDE MANUAL RESET BUTTON IN COVER.

F. FOR MOTOR WITH INTEGRAL THERMAL PROTECTION, PROVIDE THERMAL MODULE AS REQUIRED TO MONITOR MOTOR TEMP. PROVIDE 'AMBER' PILOT LAMP 'HI-TEMP'. IF THIS SAFETY OCCURS, TURN ON LIGHT, LOCK OUT PUMP. PROVIDE MANUAL RESET BUTTON IN COVER.

G. PROVIDE CURRENT LIMITERS FOR ALL BREAKERS IN MCC'S.

H. PROVIDE DV/DT FILTERS ON OUTPUT.

J. EACH RVSS AND VFD SHALL BE PROVIDED WITH A MODBUS TCP/IP ETHERNET CONNECTION, NATIVELY WITHOUT GATEWAY FOR CONNECTION TO SCADA.

NOTES: ONE-LINE DIAGRAM

1. EXTEND CIRCUITS THROUGH EXTERIOR JUNCTION BOXES A, B & C. SEE SITE PLAN.
2. STUB 2"C FOR PUMP CABLES PROVIDED WITH PUMP.
3. STUB 3"C FOR PUMP CABLES PROVIDED WITH PUMP.
4. PROVIDE CONTROL CONDUCTORS IN CONDUITS TO MOTORS FOR CONNECTIONS TO AUX. SWITCH IN DISCONNECT, AND MOTOR THERMAL SENSORS. CONNECT AS REQUIRED.
5. CABLES PROVIDED WITH PUMP.

BID SET - NOT FOR CONSTRUCTION

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TRAVIS FIELD WATER RECLAMATION FACILITY
ONE-LINE DIAGRAM

JOB NO: J-26963.0000
DATE: JANUARY 15, 2019
DRAWN: LC
DESIGNED: PM
REVIEWED: PM
APPROVED: PM
SCALE: N.T.S.

E0.5

E:\Travis Field WWTP - 18000.03\CADD\E0_5.dgn

STANDBY GENERATOR SIZING AND LOADING CRITERIA

THE STANDBY GENERATOR AND TRANSFER SWITCH SHALL BE SIZED TO POWER SELECTED LOADS DURING A POWER OUTAGE. THE LOADS TO BE POWERED ARE BEING PROVIDED IN PHASE I AND OTHERS IN PHASE II. THE SIZING OF THE GENERATOR SYSTEM ASSUMES THAT THERE WILL BE 2 GENERATORS OPERATING IN PARALLEL. LOADS WILL BE STEPPED ON ONCE THE SYSTEM IS BEING POWERED FROM THE GENERATORS THROUGH THE PLANT SCADA SYSTEM.

THE GENERATOR SYSTEM SHALL BE SIZED SO THAT ONE GENERATOR CAN START AND RUN ALL OF THE LOADS SHOWN ON PHASEI.

FOR PHASE II, IF ONLY ONE GENERATOR IS ON LINE, THE SCADA SYSTEM WILL LOCK OUT LOADS TO MATCH THE PHASE I LOADS.

SELECTED LOADS ARE TO BE LOCKED OUT IF THE TRANSFER SWITCH IS IN THE EMERGENCY POSITION. SEE BELOW. THE LOADS CAN BE MANUALLY LOADED BY THE OPERATOR ONLY.

THE SCADA SYSTEM WILL RECEIVE A 'READY TO TRANSFER' SIGNAL FROM THE TRANSFER SWITCH. ONCE THIS OCCURS, THE SCADA SYSTEM WILL DROP OFF ALL STEPPED LOADS AND STEP ON AS SHOWN. LOADS THAT ARE LOCKED OUT DURING EMERGNECY POWER OPERATION ARE TO STEPPED ON AFTER OTHER LOADS ARE ALLOWED TO RUN.

EXTEND THE FOLLOWING POINTS TO SCADA:

POINT	DESCRIPTION	ORIGINATION
DI-1	POWER LOSS	TRANSFER SWITCH
DI-2	READY TO TRANSFER TO EMERGENCY	TRANSFER SWITCH
DI-3	TRANSFER SWITCH IN EMERGENCY POSTION	TRANSFER SWITCH
DI-4	GENERATOR NO 1 ON LINE	GENERATOR SWITCH GEAR
DI-5	GENERATOR NO 2 ON LINE	GENERATOR SWITCH GEAR
DI-6	READY TO TRANSFER TO NORMAL	TRANSFER SWITCH
DI-7	TRANSFER SWITCH IN NORMAL POSITION	TRANSFER SWITCH

PHASE I

WHEN THE SYSTEM IS BEING POWERED FROM THE GENERATORS (TRANSFER SWITCH IS IN EMERGENCY POSTION, LOCKOUT THE FOLLOWING LOADS THRU SCADA:

1. EQ PUMP NO 3
2. EQ PUMP NO 4
3. EQ MIXER NO 1
4. EQ MIXER NO 2
5. PLANT DRAIN PUMP – LAG PUMP
6. DRY CAKE PUMP
7. BELT PRESS
8. POLYMER MIX PUMP
9. POLYMER METERING PUMP
10. SLUDGE PUMP

THESE LOADS CAN BE MANUALLY STARTED THROUGH SCADA BY OPERATOR

THE STANDBY GENERTORS SHALL BE SIZED TO START AND RUN THE FOLLOWING LOADS:

STEP	LOAD	DESIGN HP/KVA	STARTER
1	INITIAL LOAD P PH1	190 KVA	
1	INITIAL LOAD P PH2	50 KVA	
	HEAD WORKS AREA		
1	MOTORIZED GATES (2)	½ (4)	FVR
1	PLUG VALVES (2)	1 (3)	FVR
1	WASHER COMPACTORS (3)	3 (3)	FVNR
1	DRUM SCREENS (3)	2 (3)	FVNR
1	GRIT PUMP	10	FVNR
1	CYCLODRIVE	½	FVR
	UV AREA		
1	UV TRAINS (2)	100 KVA	N/A
	EFFLUENT AREA		
1	AIR COMPRESSOR	20 HP	RVSS
1	TRANSFER PUMP	40 HP	VFD
1	OX GAS COMPRESSOR	5 HP	FVNR
1	REUSE PLANT WATER	40 HP	VFD
1	ELEVATOR	30 HP	RVSS
1	WAS PUMP – PH 1	5 HP	FVNR
1	MBT PERMEATE PUMP – PH 1	2 HP	VFD
1	ANAEROBIC MIXER PH 1	2.7 HP	FVNR
1	PRE-ANOXIC MIXER PH 1	6	FVNR
1	POST ANOXIC ZONE MIXER PH 1	2.7	FVNR
1	MBR PERMEATE PUMPS PH 1 (4)	15 (4)	VFD
1	LIME ALUM SYSTEM	25 KVA	NA
1	PLANT DRAIN PUMP	30 HP	VFD
2	EFFLUENT PUMP	150 HP	VFD
3	EFFLUENT PUMP	150 HP	VFD
4	MBR AERATOR BLOWER – PH 1	100	VFD
4	MBR AIR SCOUR BLOWER PH 1	75	VFD
5	MBR AERATOR BLOWER – PH 1	100	VFD
5	MBR AIR SCOUR BLOWER PH 1	75	VFD
6	DIGESTER BLOWER 1 PH 1	75	VFD
6	DIGESTER BLOWER 2 PH 1	30	VFD
7	RAS PUMP PH 1	60	VFD
8	RAS PUMP PH 1	60	VFD
9	RAS PUMP PH 1	60	VFD
10	EQ PUMP NO 1	70	VFD
11	EQ PUMP NO 2	70	VFD
12	MBT AIR SCOUR BLOWER	25	VFD

FOR PHASE II, THE SCADA SYSTEM WILL BE MODIFIED NEW STEPS. BELOW IS A LIST OF LOADS REQUIRING POWER FOR PHASE II. ASSUME ALL OF PHASE I LOADS ARE OPERATING.

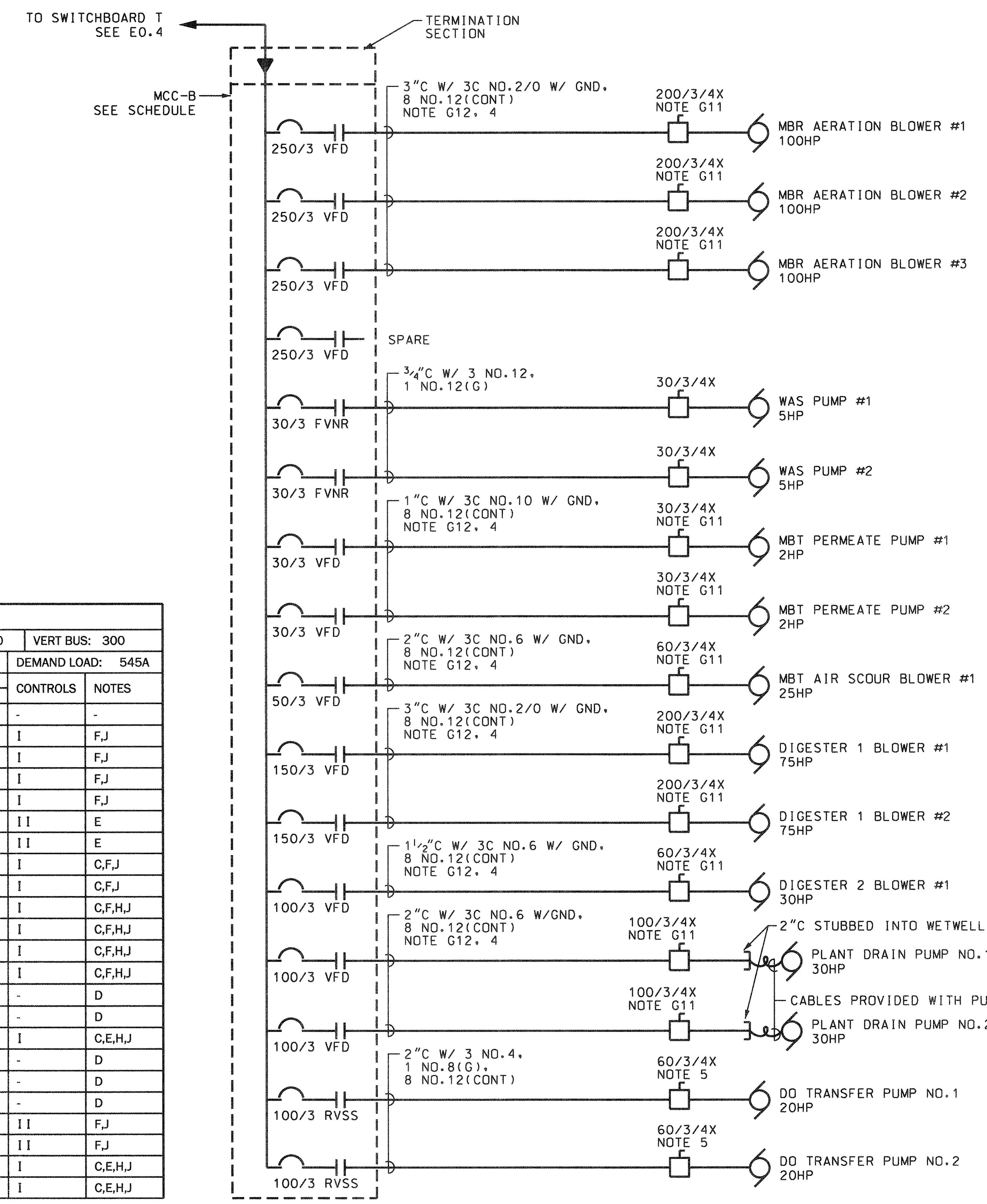
STEP	LOAD	DESIGN HP/KVA	STARTER
	HEAD WORKS AREA		
1	MOTORIZED GATES (1)	½ (1)	FVR
1	PLUG VALVES (1)	1 (1)	FVR
1	WASHER COMPACTORS (1)	3 (1)	FVNR
1	DRUM SCREENS (1)	2 (1)	FVNR
	UV AREA		
1	UV TRAINS (1)	50 KVA	N/A
1	WAS PUMP – PH 2	5 HP	FVNR
1	MBT PERMEATE PUMP – PH 2	2 HP	VFD
1	ANAEROBIC MIXER PH 2	2.7 HP	FVNR
1	PRE-ANOXIC MIXER PH 2	6	FVNR
1	POST ANOXIC ZONE MIXER PH 2	2.7	FVNR
1	MBR PERMEATE PUMPS PH 2 (4)	15 (4)	VFD
13	EFFLUENT PUMP	150 HP	VFD
14	MBR AERATOR BLOWER – PH 2	100	VFD
14	MBR AIR SCOUR BLOWER – PH 2	75	VFD
15	MBR AERATOR BLOWER – PH 2	100	VFD
15	MBR AIR SCOUR BLOWER PH 2	75	VFD
16	MBR AERATOR BLOWER – PH 2	100	VFD
16	MBR AIR SCOUR BLOWER PH 2	75	VFD
17	DIGESTER BLOWER 1 PH 2	75	VFD
17	DIGESTER BLOWER 2 PH 2	30	VFD
18	RAS PUMP PH 2	60	VFD
19	RAS PUMP PH 2	60	VFD
20	RAS PUMP PH 2	60	VFD
21	EQ PUMP NO 3	70	VFD
22	MBT AIR SCOUR BLOWER	25	VFD

MOTOR CONTROL CENTER MCC-B - NOTE G

VOLTAGE: 480V	PHASE: 3	WIRE: 3	MAIN BUS: 1000	VERT BUS: 300
BUS BRACING: 100,000 AIC	MAX. OVERALL LENGTH: 19'			DEMAND LOAD: 545A

UNIT NO.	EQUIPMENT SERVED	HP	STARTER SIZE	CIRCUIT BREAKER FRAME	CIRCUIT BREAKER TRIP	CIRCUIT BREAKER POLES	CONTROLS	NOTES
BA1	TERMINATION SECTION	-	-	-	-	-	-	-
BB1	MBR AERATION BLOWER #1	100	VFD	MCP	250	3	I	F,J
BC1	MBR AERATION BLOWER #2	100	VFD	MCP	250	3	I	F,J
BD1	MBR AERATION BLOWER #3	100	VFD	MCP	250	3	I	F,J
BE1	SPARE	100	VFD	MCP	250	3	I	F,J
BF1	WAS PUMP #1	5	1	MCP	30	3	II	E
BF2	WAS PUMP #2	5	1	MCP	30	3	II	E
BF3	MBT PERMEATE PUMP #1	2	VFD	MCP	30	3	I	C,F,J
BF4	MBT PERMEATE PUMP #2	2	VFD	MCP	30	3	I	C,F,J
BG1	MBT AIR SCOUR BLOWER #1	25	VFD	MCP	50	3	I	C,F,H,J
BH1	DIGESTER 1 BLOWER #1	75	VFD	MCP	150	3	I	C,F,H,J
BI1	DIGESTER 1 BLOWER #2	75	VFD	MCP	150	3	I	C,F,H,J
BG2	DIGESTER 2 BLOWER #1	30	VFD	MCP	100	3	I	C,F,H,J
BH2	SPACE	-	(1)	MCP	-	3	-	D
BI2	SPACE	-	(1)	MCP	-	3	-	D
BJ1	SPARE	20	VFD	MCP	50	3	I	C,E,H,J
BJ2	SPACE	-	(1)	MCP	-	3	-	D
BJ3	SPACE	-	(1)	MCP	-	3	-	D
BJ4	SPACE	-	(1)	MCP	-	3	-	D
BK1	DO TRANSFER PUMP NO.1	20	RVSS	MCP	50	3	II	F,J
BK2	DO TRANSFER PUMP NO.2	20	RVSS	MCP	50	3	II	F,J
BK3	PLANT DRAIN PUMP NO.1	30	VFD	MCP	100	3	I	C,E,H,J
BK4	PLANT DRAIN PUMP NO.2	30	VFD	MCP	100	3	I	C,E,H,J

SEE MCC NOTES ON SHEET E0.5.



SEE SHEET E0.5 FOR NOTES FOR ONE-LINE AND MCC SCHEDULE

1 / E0.6 MCC-B ONE-LINE DIAGRAM

NOT TO SCALE

SCHEDULE PANELBOARD A

MAINS		VOLTAGE	PHASE	WIRE	MOUNTING
150	MB	120/208	3	4	SURFACE

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	CONNECTED LOAD KVA PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
1	20/1	1.00	SUMP PUMP	1.4			RECEPTACLES	0.40	20/1	2
3	20/1	0.10	OIL MONITOR		0.9		RECEPTACLES	0.80	20/1	4
5	20/1	0.50	ELEVATOR LIGHTING			0.7	ACID MIXER	0.20	20/1	6
7	20/1 *	0.50	FIRE ALARM	1.1			DEGAS VALVES (8)	0.60	20/1	8
9	20/1	0.30	ANOXIC FM (3)		0.5		MBR VALVES (2)	0.20	20/1	10
11	20/1	0.20	PRE-A DO (2)			0.4	MBR VALVES (2)	0.20	20/1	12
13	20/1	0.40	MBR FM (4)	0.8			MBR AIR FM	0.40	20/1	14
15	20/1	0.40	MBR TURB (4)		0.7		CIP & WAS FM	0.30	20/1	16
17	20/1	0.40	MBR FM (4)			0.6	CIP, WAS VALVE	0.20	20/1	18
19	20/1	0.10	MBR CC FM (1)	0.4			RESCREEN, DEGAS, MBT VALVE	0.30	20/1	20
21	20/1	0.10	WAS FM (1)		0.1		SPARE		20/1	22
23	20/1	0.10	TANK LEVEL (1)			0.1	SPARE		20/1	24
25	20/1	0.40	DOSING PUMPS (2)	0.4			SPARE		20/1	26
27	20/1	0.10	MBT FM (1)		0.1		SPARE		20/1	28
29	20/1	0.10	MBT FL FM (1)			0.3	AREA OF REFUGE	0.20	20/1	30
31	50/2	3.10	HP-1	5.7			HP-3	2.60	40/2	32
33	-	3.10	HP-1		5.7			2.60	-	34
35	30/2	1.70	HP-2			4.3	HP-5	2.60	40/2	36
37	-	1.70	HP-2	4.3				2.60	-	38
39	20/2	1.50	SCADA PANEL		3.0		UH-4	1.50	20/2	40
41	-	1.50	SCADA PANEL			3.0		1.50	-	42
MIN. BREAKER AIC:			25,000 AIC	14.1	11.0	9.4	TOTAL CONNECTED LOAD	34.5		
NOTES: * TRIP FREE LOCK TAB, RED				13.8	10.8	9.1	TOTAL DEMAND LOAD	33.7		

SCHEDULE PANELBOARD C (SECTION 1)

MAINS		VOLTAGE	PHASE	WIRE	MOUNTING
250A	MLO	120/208	3	4	SURFACE

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	CONNECTED LOAD KVA PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
1	20/1	1.00	FUME HOOD	2.2			REFRIGERATOR	1.20	20/1/GF	2
3	20/1	0.40	RECEPTACLES		1.0		RECEPTACLES	0.60	20/1	4
5	20/1	0.60	RECEPTACLES			1.0	RECEPTACLES	0.40	20/1	6
7	20/1/GF	1.20	REFRIGERTOR	2.2			RECEPTACLES	1.00	20/1	8
9	20/1	0.60	RECEPTACLES		1.2		RECEPTACLES	0.60	20/1	10
11	20/1	0.60	RECEPTACLES			1.2	RECEPTACLES	0.60	20/1	12
13	20/1	0.60	RECEPTACLES	1.4			FIXTURE RECEPTACLE	0.80	20/1	14
15	20/1	0.60	RECEPTACLES		1.4		HWC-1, RECEPTACLE	0.80	20/1	16
17	20/1	0.40	RECEPTACLES			1.6	MICROWAVE	1.20	20/1	18
19	20/1	0.40	RECEPTACLES	0.4			SPARE		20/1	20
21	20/1	1.20	RECEPTACLES		1.2		SPARE		20/1	22
23	20/1	1.20	RECEPTACLES			1.2	SPARE		20/1	24
25	20/1		SPARE	0.0			SPARE		20/1	26
27	20/1		SPARE		0.0		SPARE		20/1	28
29	20/1		SPARE			0.0	SPARE		20/1	30
31	20/2	1.50	SCADA PANEL	1.5			SPARE		20/1	32
33	-	1.50	SCADA PANEL		1.5		SPARE		20/1	34
35	20/2	1.50	SCADA PANEL			1.5	SPARE		20/1	36
37	-	1.50	SCADA PANEL	1.5			SPARE		20/1	38
39	20/2	1.50	SCADA PANEL		1.5		SPARE		20/1	40
41	-	1.50	SCADA PANEL			1.5	SPARE		20/1	42
MIN. BREAKER AIC:			22,000 AIC	9.2	7.8	8.0	TOTAL CONNECTED LOAD	25.0		
NOTES :				9.2	7.8	8.0	TOTAL DEMAND LOAD	25.0		

SCHEDULE PANELBOARD C (SECTION 2)

MAINS		VOLTAGE	PHASE	WIRE	MOUNTING
250	MLO	120/208	3	4	SURFACE

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	CONNECTED LOAD KVA PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
43	20/1	0.40	RECEPTACLE	0.4			SPARE		20/1	44
45	20/1		SPARE		0.0		SPARE		20/1	46
47	20/1		SPARE			0.0	SPARE		20/1	48
49	20/1		SPARE	0.0			SPARE		20/1	50
51	20/1		SPARE		0.0		SPARE		20/1	52
53	20/1		SPARE			0.0	SPARE		20/1	54
55	20/1		SPARE	0.0			SPARE		20/1	56
57	20/1		SPARE		0.0		SPARE		20/1	58
59	20/1		SPARE			1.6	EF-6	1.60	30/1	60
61	/1		SPACE	4.9			AHU-1	4.90	60/2	62
63	/1		SPACE		4.9		AHU-1	4.90	-	64
65	/1		SPACE			2.4	AHU-2	2.40	25/2	66
67	/1		SPACE	2.4			AHU-2	2.40	-	68
69	/1		SPACE		0.0		SPARE		60/2	70
71	/1		SPACE			0.0			-	72
73	/1		SPACE	0.0			SPACE		/1	74
75	/1		SPACE		0.0		SPACE		/1	76
77	/1		SPACE			0.0	SPACE		/1	78
79	/1		SPACE	0.0			SPACE		/1	80
81	/1		SPACE		0.0		SPACE		/1	82
83	/1		SPACE			0.0	SPACE		/1	84
MIN. BREAKER AIC:			22,000 AIC	16.9	12.7	12.0	TOTAL CONNECTED LOAD	41.6		
NOTES :				16.9	12.7	12.0	TOTAL DEMAND LOAD	41.6		

SCHEDULE PANELBOARD G

MAINS		VOLTAGE	PHASE	WIRE	MOUNTING
80A	MB	120/240	1	3	MINI-POWER CENTER - SS NEMA 3R

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	CONNECTED LOAD KVA PH. A	PH. B	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
1	20/1	1.50	SCADA PANEL	1.6		FLOWMETER	0.10	20/1	2
3	20/1	0.40	RECEPTACLES		0.5	EQ TANK LEVEL TR	0.10	20/1	4
5	20/1	0.70	RECEPTACLES, LIGHTING	0.9		SAMPLER	0.20	20/1	6
7	20/1	0.20	RECEPTACLES, LIGHTING		0.3	FLOWMETER	0.10	20/1	8
9	20/1	0.20	RECEPTACLES, LIGHTING	0.3		DO METER	0.10	20/1	10
11	20/1		SPARE		0.0	SPARE		20/1	12
13	20/1		SPARE	0.0		SPARE		20/1	14
15	20/1		SPARE		0.0	SPARE		20/1	16
17	20/1		SPARE	0.0		SPARE		20/1	18
19	20/1		SPARE		0.0	SPARE		20/1	20
21	20/1		SPARE	0.0		SPARE		20/1	22
23	20/1		SPARE		0.0	SPARE		20/1	24
25	20/1		SPARE	0.0		SPARE		20/1	26
27	20/2	0.50	GATE		0.5	SPARE		20/1	28
29	-	0.50	GATE	0.5					30
31					0.0				32
33				0.0					34
35					0.0				36
37				0.0					38
39					0.0				40
41				0.0					42
MIN. BREAKER AIC:			10,000 AIC	3.3	1.3	TOTAL CONNECTED LOAD	4.6		
NOTES:				3.3	1.3	TOTAL DEMAND LOAD	4.6		

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TRAVIS FIELD WATER RECLAMATION FACILITY

GENERATOR LOADING SCHEDULE

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E0.6

CADD PLOT 16-APR-2019 15:57 MPFAYLER

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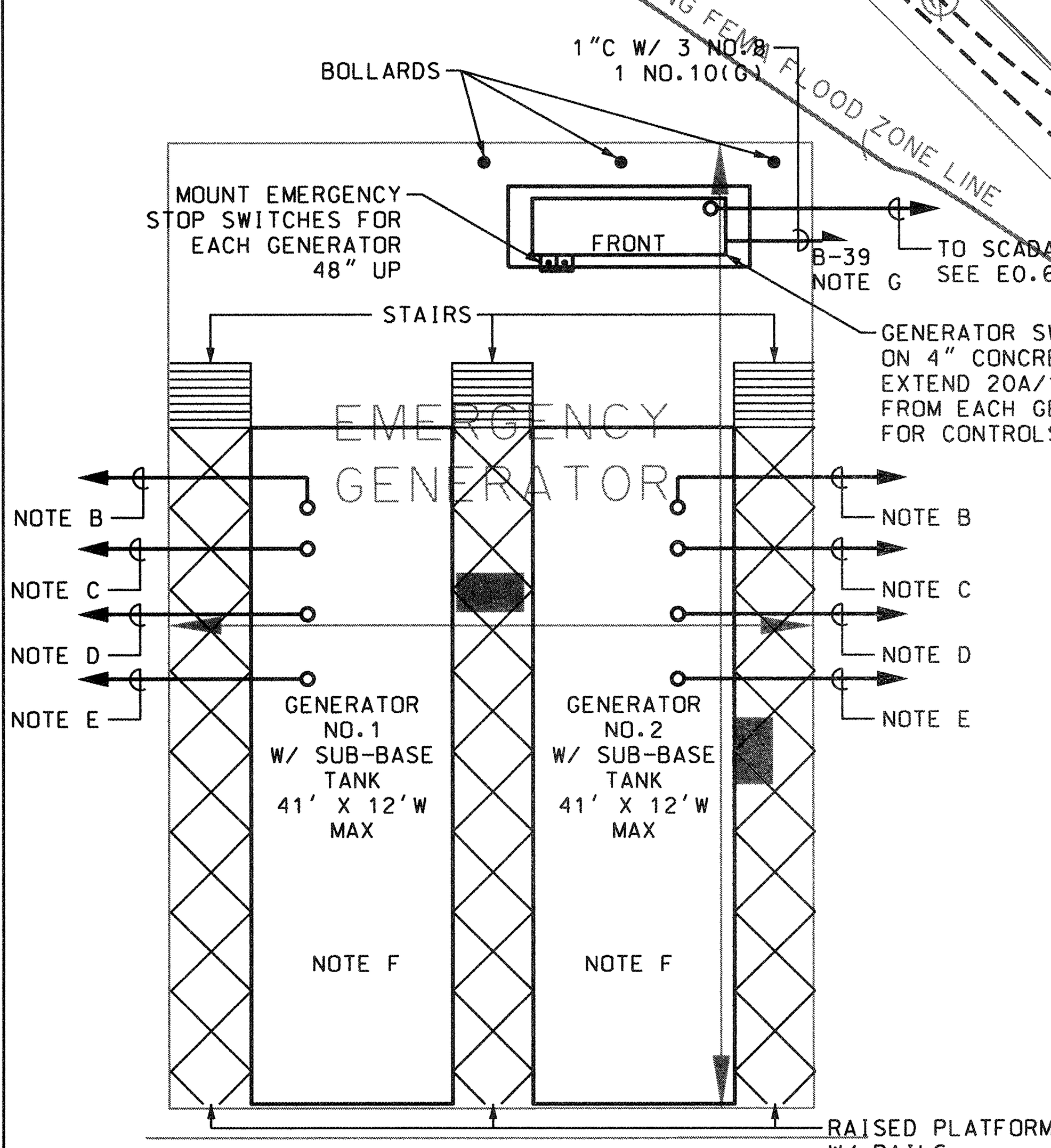
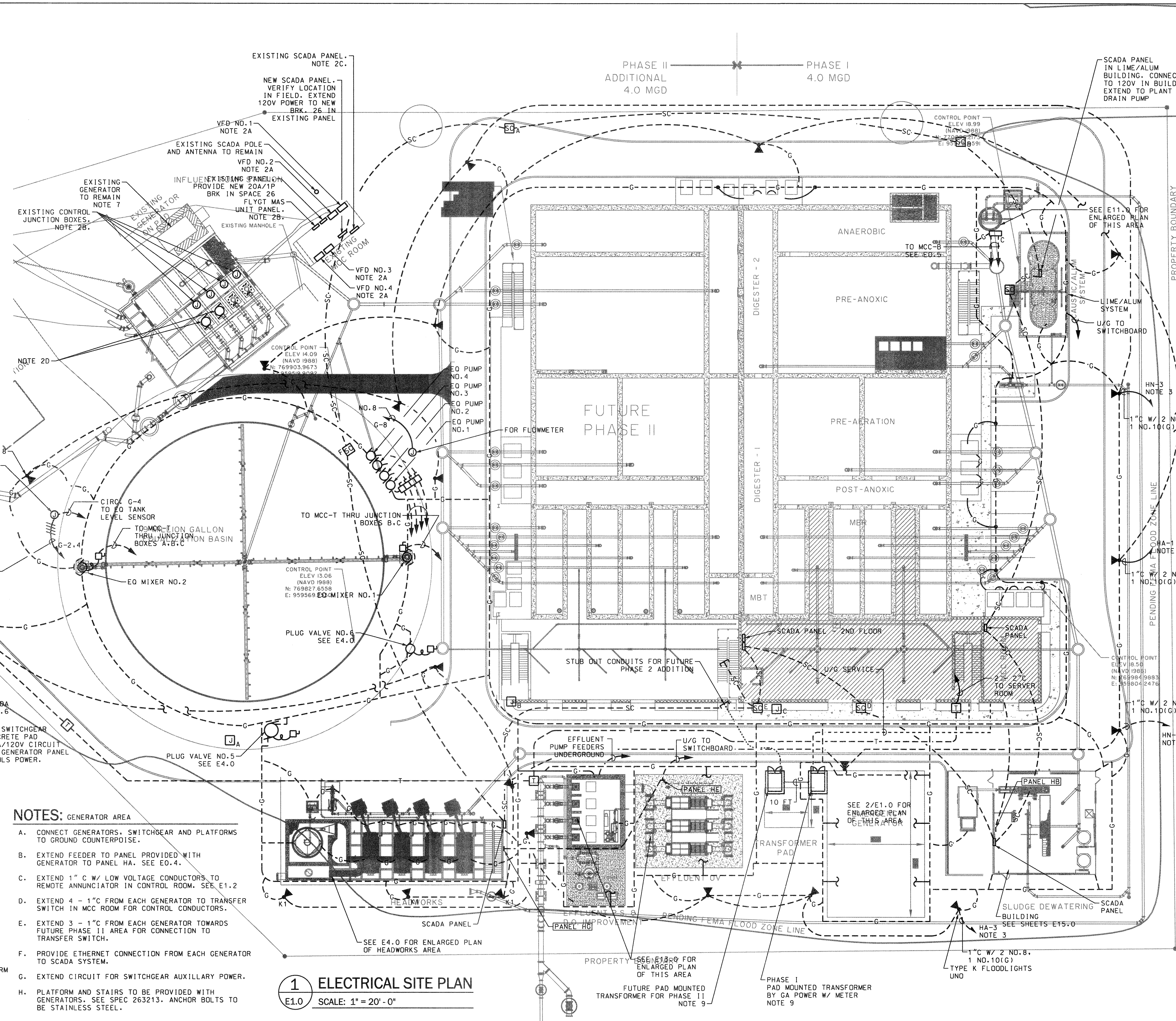
NOTES:

1. PROVIDE 4/0 CU COUNTERPOISE GROUND WHERE SHOWN AROUND PLANT (--G--) INSTALL 12" BELOW GRADE MINIMUM. PROVIDE 3/4" X 10 FT COPPERCLAD GROUND ROD 100 FT O.C. CADWELD TO COUNTERPOISE. EXTEND 4/0 CU AND BOND TO METAL EQUIPMENT AND STRUCTURES ON SITE. WHERE GROUNDING CONNECTS EQUIPMENT MOUNTED ON CONCRETE SLABS. EXTEND 1 1/2" PVC UNDER SLAB TO INSTALL COUNTERPOISE.
2. MODIFY EXISTING PUMP STATION TO CONVERT TO AN INFLUENT PUMP STATION.
   - A. FOR EACH OF FOUR STARTERS FOR EXISTING 100 HP SUBMERSIBLE PUMPS. REPLACE EXISTING SQUARE D ALTIVAR 71 VFDS WITH NEW VFDS TO MATCH EXISTING. CONNECT TO EXISTING CONTROLS AS REQUIRED. RETURN EXISTING VFDS TO CITY. SET VFD TO MATCH MOTOR INSTALLED. PROVIDE FACTORY STARTUP.
   - B. REMOVE EXISTING CONDUITS AND CONTROL CONDUCTORS FROM EXISTING FLYGT MAS UNITS TO EXISTING CONTROL BOXES ON WETWELL STRUCTURE. FOR EACH OF 4 MAS UNITS. EXTEND NEW 1"C WITH 12 C/NO. 14 CONTROL CONDUCTORS AND TERMINATE ON EXISTING TERMINAL BLOCK. LABEL EACH CONDUCTOR AND TERMINAL STRIP. VERIFY OPERATOR WITH PUMPS.
   - C. EXISTING. EMERSON SCADA PANEL.
   - D. CONNECT TWO NEW PUMPS TO EXISTING DISCONNECT SWITCHES.
3. EXTEND CIRCUIT THRU EXTERIOR LIGHTING CONTROL PANEL IN MAIN ELECTRICAL ROOM. SEE NOTE 1. SHEET E1.3.
4. PROVIDE IN GROUND JUNCTION BOXES [T] FOR TELEPHONE/DATA SERVICE BOXES TO BE QUAZITE PC 17" X 30" X 24" DEEP WITH "TELEPHONE" LOGO. SEE 4/E0.3. TELEPHONE CONDUITS (-T-) TO BE 3 - 2" PVC W/ PULL STRINGS.
5. PROVIDE U/G SCADA FIBER LOOP (-SC-) WITH HANDHOLES ([SC]) AS SHOWN FOR SCADA SYSTEM. PROVIDE LONG SWEEP ELBOWS. COORDINATE EXACT LAYOUT IN FIELD. SEE RISER DIAGRAM 1/E0.2.
6. SEE ONE-LINE DIAGRAMS SHEETS E0.4 AND E0.5 AND EXTEND CIRCUITS THROUGH JUNCTION BOXES. JUNCTION BOXES [J] A, B AND C SHALL BE QUAZITE PG STYLE, 24" DEEP, OPEN BOTTOM WITH 'ELECTRIC' LOGO. A TO BE 36" X 48". B & C TO BE 36" X 72". SEE 4/E0.3.
7. REFER TO SPEC 263213 FOR MODIFICATIONS TO EXISTING GENSET. EXTEND ETHERNET CONNECTION TO NEW SCADA PANEL.
8. AIM ONE LIGHT TOWARDS MIXER AND SECOND LIGHT TOWARDS MANUAL GATE.
9. PAD MOUNTED TRANSFORMER AND CONCRETE PAD BY GA POWER. PROVIDE 10 FT MIN. CLEARANCE FROM ALL EQUIPMENT AND 10 FT BETWEEN TRANSFORMERS. PROVIDE METERING CONDUITS TO TOTALIZE METERS. PADS TO BE 92"W X 112"D TYP.



2 / E1.0 ENLARGED PLAN - GENERATOR AREA
SCALE: 1" = 10' - 0"



NOTES: GENERATOR AREA

- A. CONNECT GENERATORS, SWITCHGEAR AND PLATFORMS TO GROUND COUNTERPOISE.
- B. EXTEND FEEDER TO PANEL PROVIDED WITH GENERATOR TO PANEL HA. SEE E0.4.
- C. EXTEND 1" C W/ LOW VOLTAGE CONDUCTORS TO REMOTE ANNUNCIATOR IN CONTROL ROOM. SEE E1.2
- D. EXTEND 4 - 1"C FROM EACH GENERATOR TO TRANSFER SWITCH IN MCC ROOM FOR CONTROL CONDUCTORS.
- E. EXTEND 3 - 1"C FROM EACH GENERATOR TOWARDS FUTURE PHASE II AREA FOR CONNECTION TO TRANSFER SWITCH.
- F. PROVIDE ETHERNET CONNECTION FROM EACH GENERATOR TO SCADA SYSTEM.
- G. EXTEND CIRCUIT FOR SWITCHGEAR AUXILLARY POWER.
- H. PLATFORM AND STAIRS TO BE PROVIDED WITH GENERATORS. SEE SPEC 263213. ANCHOR BOLTS TO BE STAINLESS STEEL.

1 / E1.0 ELECTRICAL SITE PLAN
SCALE: 1" = 20' - 0"

CADD PLOT 16-APR-2019 15:59 MPEARCER

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GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 11726 PAUL MANALO

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TRAVIS FIELD WATER RECLAMATION FACILITY

ELECTRICAL SITE PLAN

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1" =20'-0"

E1.0

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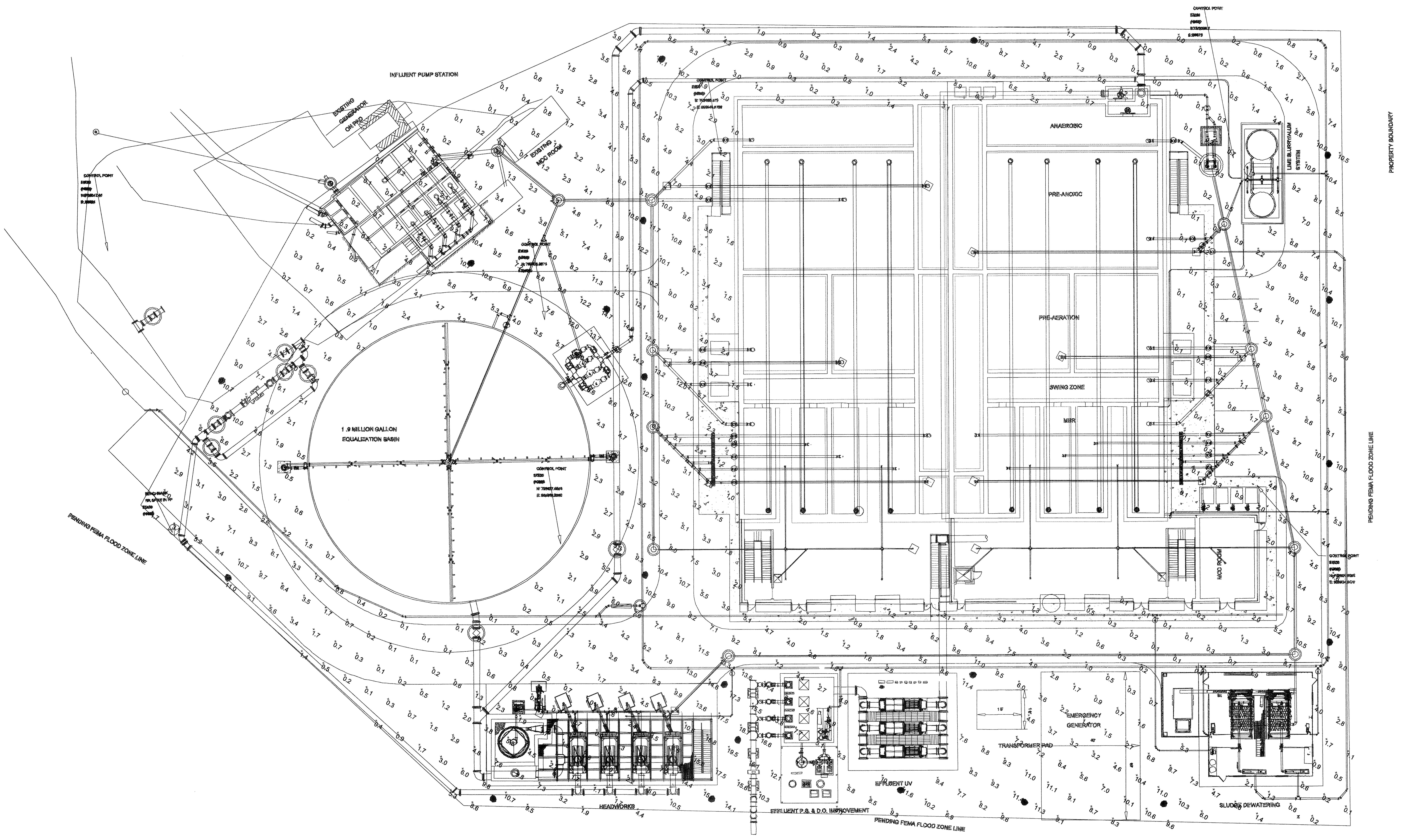

1 SITE LIGHTING INFORMATION

E1.0A SCALE: 1" = 20' - 0"

HORIZONTAL FOOTCANDLES ARE SHOWN FOR INFORMATION ONLY. PROVIDE LIGHTING INFORMATION FOR FLOODLIGHTS PROVIDED. SEE PLANS FOR SHELTER LIGHTING AND LIGHTING ON TOP OF MBR TANKS.

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TRAVIS FIELD WATER RECLAMATION FACILITY

SITE LIGHTING INFORMATION

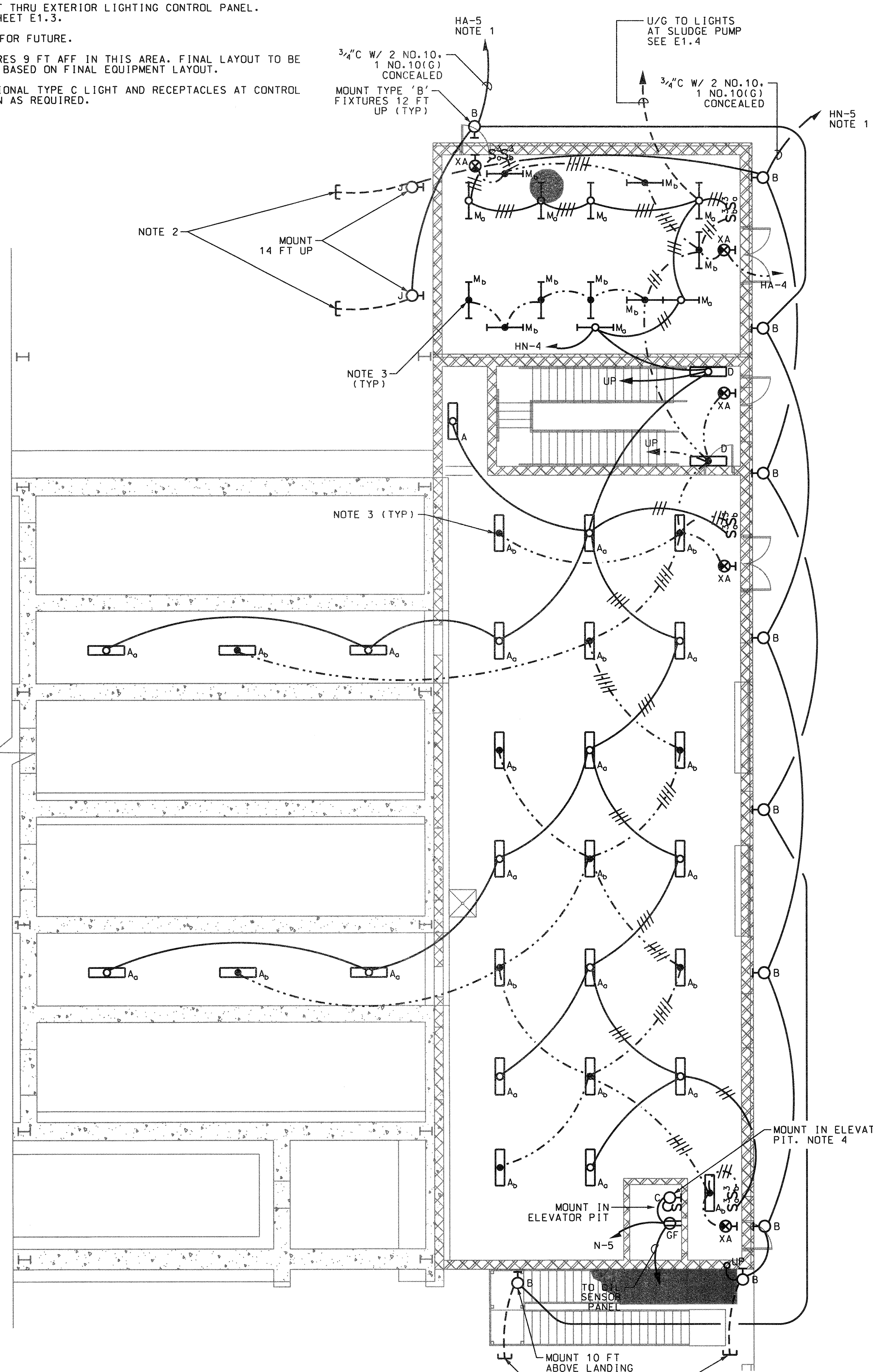
JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1" =20'-0"

E1.0A

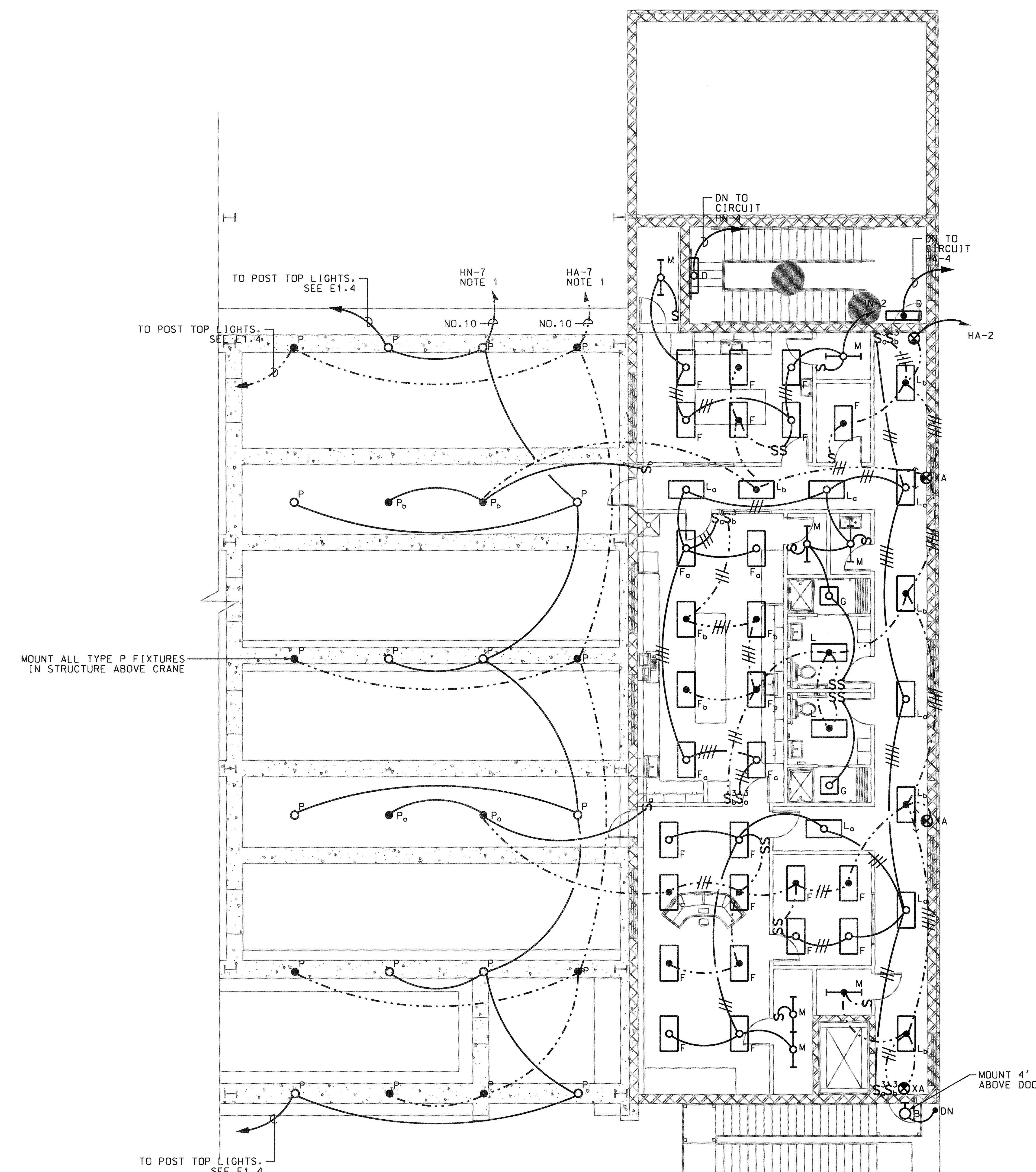
E:\Travis Field WWTP - 18000.03\CADD\E1_0A.dgn

NOTES:

1. EXTEND CIRCUIT THRU EXTERIOR LIGHTING CONTROL PANEL. SEE NOTE 1, SHEET E1.3.
2. STUB OUT 3/4"C FOR FUTURE.
3. PENDANT FIXTURES 9 FT AFF IN THIS AREA. FINAL LAYOUT TO BE MADE IN FIELD BASED ON FINAL EQUIPMENT LAYOUT.
4. PROVIDE ADDITIONAL TYPE C LIGHT AND RECEPTACLES AT CONTROL PANEL LOCATION AS REQUIRED.



1 FIRST FLOOR LIGHTING PLAN
E1.1 SCALE: 1/8" = 1'-0"



2 SECOND FLOOR LIGHTING PLAN
E1.1 SCALE: 1/8" = 1'-0"

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TRAVIS FIELD WATER RECLAMATION FACILITY

LIGHTING PLANS

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/8" = 1'-0"

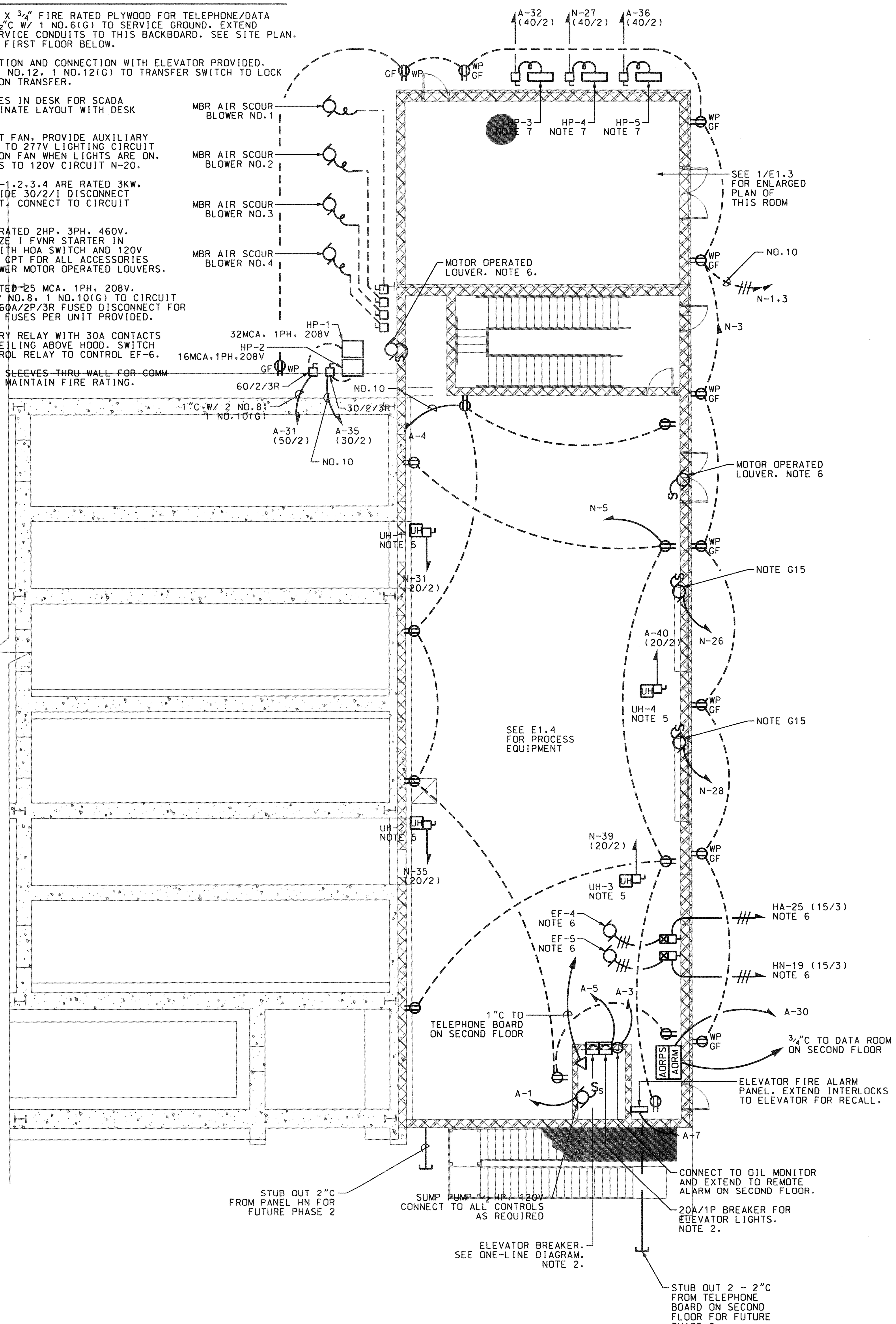
E1.1

E:\Travis Field WWTP - 18000.03\CADD\E1_1.dgn

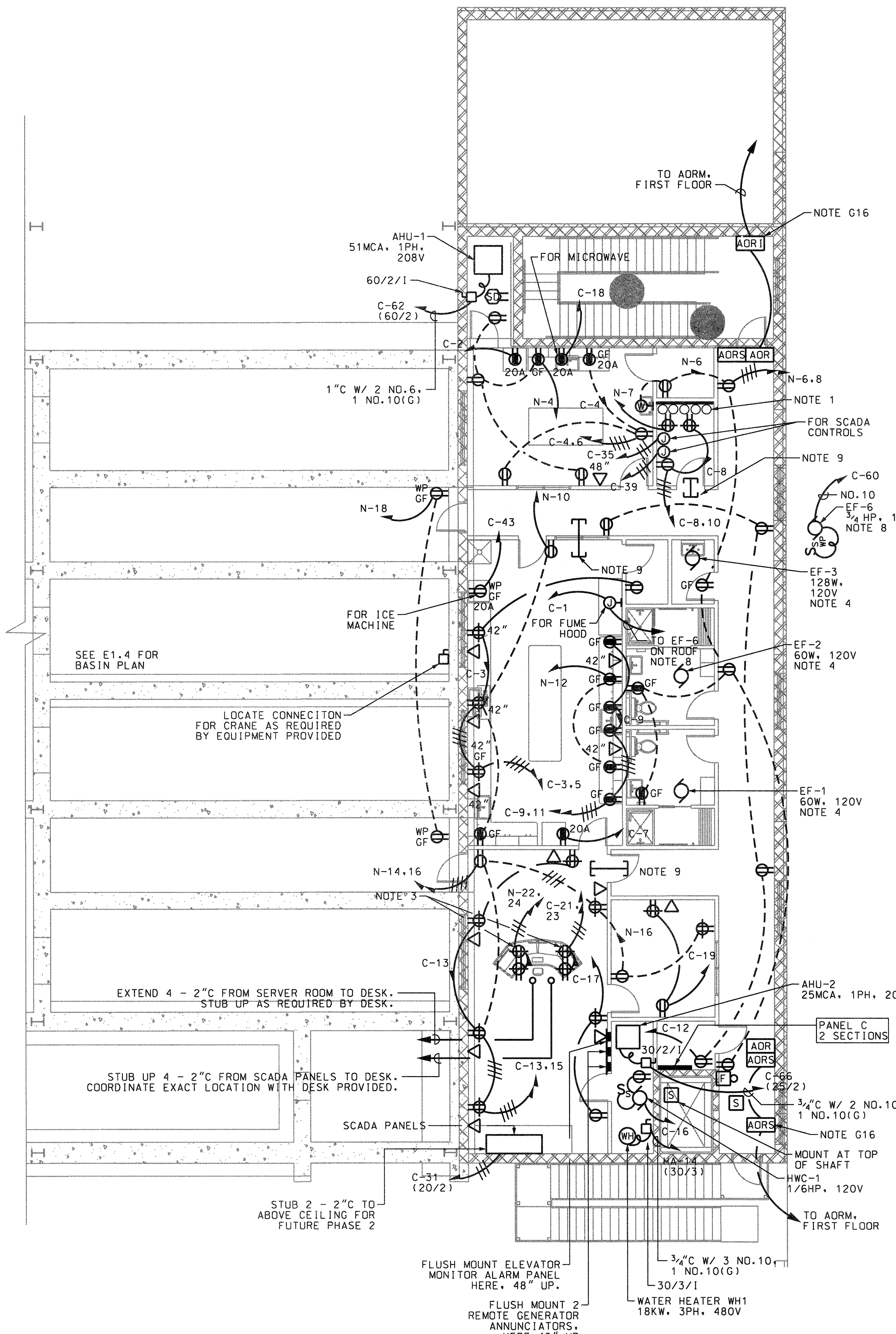
CADD PLOT 16-APR-2019 16:04 MPEYLER

NOTES:

1. MOUNT 4'W X 8'H X 3/4" FIRE RATED PLYWOOD FOR TELEPHONE/DATA BOARD. EXTEND 1/2"C W/ 1 NO.6(G) TO SERVICE GROUND. EXTEND TELECOM DATA SERVICE CONDUITS TO THIS BACKBOARD. SEE SITE PLAN. STUD 2 - 2"C TO FIRST FLOOR BELOW.
2. COORDINATE LOCATION AND CONNECTION WITH ELEVATOR PROVIDED. EXTEND 1/2"C W/ 4 NO.12, 1 NO.12(G) TO TRANSFER SWITCH TO LOCK OUT ELEVATOR UPON TRANSFER.
3. MOUNT RECEPTACLES IN DESK FOR SCADA MONITORS. COORDINATE LAYOUT WITH DESK AND EQUIPMENT.
4. FOR EACH EXHAUST FAN, PROVIDE AUXILIARY RELAY CONNECTED TO 277V LIGHTING CIRCUIT IN ROOM TO CUT ON FAN WHEN LIGHTS ARE ON. CONNECT ALL FANS TO 120V CIRCUIT N-20.
5. UNIT HEATERS UH-1,2,3,4 ARE RATED 3KW, 1PH, 208V. PROVIDE 30/2/I DISCONNECT ADJACENT TO UNIT. CONNECT TO CIRCUIT SHOWN.
6. EF-4 AND 5 ARE RATED 2HP, 3PH, 460V. PROVIDE NEMA SIZE I FVNR STARTER IN NEMA 4X ENCL. WITH HOA SWITCH AND 120V FUSED CPT. SIZE CPT FOR ALL ACCESSORIES INCLUDING TO POWER MOTOR OPERATED LOUVERS.
7. HP-3,4,5 ARE RATED 25 MCA, 1PH, 208V. EXTEND 3/4"C W/ 2 NO.8, 1 NO.10(G) TO CIRCUIT SHOWN. PROVIDE 60A/2P/3R FUSED DISCONNECT FOR EACH UNIT. SIZE FUSES PER UNIT PROVIDED.
8. PROVIDE AUXILIARY RELAY WITH 30A CONTACTS MOUNTED ABOVE CEILING ABOVE HOOD. SWITCH IN HOOD TO CONTROL RELAY TO CONTROL EF-6.
9. PROVIDE 2 - 4"C SLEEVES THRU WALL FOR COMM CABLES. SEAL TO MAINTAIN FIRE RATING.



1 E1.2 FIRST FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"



2 E1.2 SECOND FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"

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TRAVIS FIELD WATER RECLAMATION FACILITY

POWER PLANS

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/8" = 1'-0"

E1.2

E:\Travis Field WWTP - 18000.03\CADD\E1_2.dgn

NOTES:

1. PROVIDE EXTERIOR LIGHTING CONTROL PANEL IN NEMA I ENCLOSURE WITH HINGED COVER. PROVIDE ELECTRONIC ASTRONOMICAL TIME CLOCK WITH BATTERY BACKUP INSIDE SIMILAR TO PARAGON EC72ST/277V. EACH CHANNEL TO CONTROL EOEH CONTACTOR AS NOTED BELOW. PROVIDE HOA SWITCH FOR EACH CONTACTOR IN COVER OF PANEL. CONNECT TIME CLOCK TO AUTO POSITION. LABEL HOA SWITCHES.

   CONTACTOR A

CONTACT	CIRCUIT
A-1	HA-1
A-2	HA-3
A-3	HA-5
A-4	HA-7
A-5	SPARE
A-6	SPARE

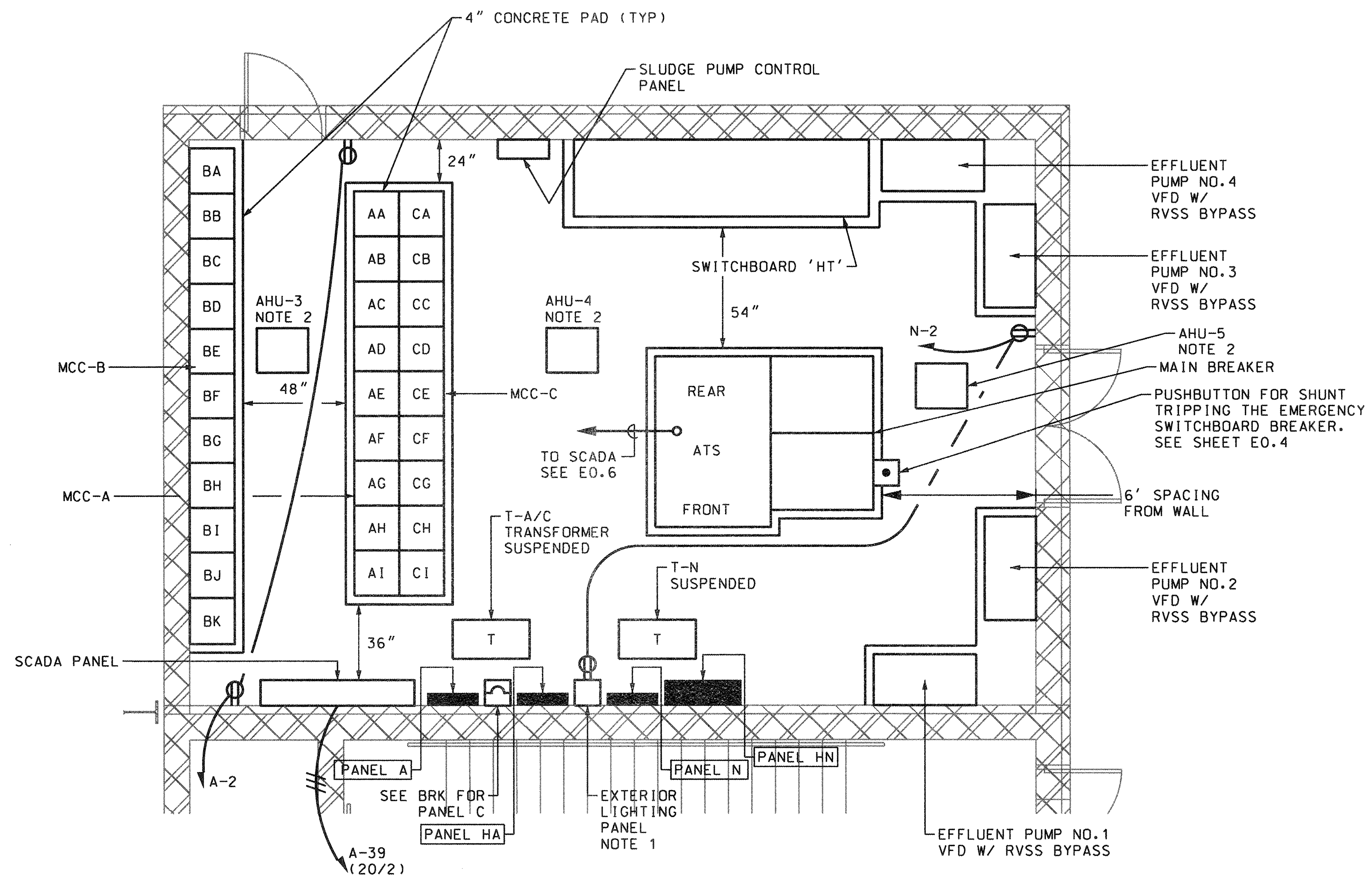
   CONTACTOR B

CONTACT	CIRCUIT
B-1	HN-1
B-2	HN-3
B-3	HN-5
B-4	HN-7
B-5	SPARE
B-6	SPARE

   CONNECT TO SCADA SYSTEM FOR MASTER 'OFF' CONTROL FOR BOTH SETS OF CONTACTORS.

2. EXTEND POWER TO INTERIOR AHU-3,4,5 FROM EXTERIOR HP UNIT AS REQUIRED. DO NOT LOCATE UNITS ABOVE ELECTRICAL EQUIPMENT.

3. PROVIDE NEC REQUIRED CLEARANCES BASED ON EQUIPMENT PROVIDED. CONTRACTOR TO PROVIDE LAYOUT FOR REVIEW PRIOR TO ROUGH-IN.



1 — E1.3 — MAIN ELECTRICAL ROOM - ENLARGED PLAN

SCALE: 1/4" = 1'-0"

SCHEDULE PANELBOARD HA

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
MAINS	225A	MLO	VOLTAGE 480Y/277	PHASE 3	WIRE 4		MOUNTING SURFACE			
				CONNECTED LOAD KVA						
1	20/1	2.20	EXTERIOR LIGHTING	3.2			LIGHTING	1.00	20/1	2
3	20/1	1.80	EXTERIOR LIGHTING		3.0		LIGHTING	1.20	20/1	4
5	20/1	0.40	EXTERIOR LIGHTING			0.4	SPARE		20/1	6
7	20/1	0.80	EXTERIOR LIGHTING	0.8			SPARE		20/1	8
9	20/1		SPARE		0.0		SPARE		20/1	10
11	20/1		SPARE			0.0	SPARE		20/1	12
13	60/2	7.50	GENERATOR NO.1 PANEL	13.5			WATER HEATER	6.00	30/3	14
15	-	7.50	GENERATOR NO.1 PANEL		13.5			6.00	-	16
17	60/2	7.50	GENERATOR NO.2 PANEL			13.5		6.00	-	18
19	-	7.50	GENERATOR NO.2 PANEL	8.1			ANOXIC VALVES	0.60	20/3	20
21	60/2		SPARE		0.6			0.60	-	22
23	-					0.6		0.60	-	24
25	15/3	0.70	EF-4	0.7			SPACE		/1	26
27	-	0.80			0.8		SPACE		/1	28
29	-	0.70				0.7	SPACE		/1	30
31	/1		SPACE	0.0			SPACE		/1	32
33	/1		SPACE		0.0		SPACE		/1	34
35	/1		SPACE			0.0	SPACE		/1	36
37	/1		SPACE	0.0			SPACE		/1	38
39	/1		SPACE		0.0		SPACE		/1	40
41	/1		SPACE			0.0	SPACE		/1	42
MIN. BREAKER AIC:			65,000 AIC	26.3	17.9	15.2	TOTAL CONNECTED LOAD	59.4		
NOTES:				26.3	17.9	15.2	TOTAL DEMAND LOAD	59.4		

SCHEDULE PANELBOARD HN

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
MAINS	400A	M.B	VOLTAGE 480Y/277	PHASE 3	WIRE 4		MOUNTING SURFACE			
				CONNECTED LOAD KVA						
1	20/1	2.20	EXTERIOR FLOODLIGHTS	3.8			LIGHTING	1.60	20/1	2
3	20/1	1.80	EXTERIOR FLOODLIGHTS		3.2		LIGHTING	1.40	20/1	4
5	20/1	0.40	EXTERIOR LIGHTING			0.4	SPARE		20/1	6
7	20/1	1.40	EXTERIOR LIGHTING	1.4			SPARE		20/1	8
9	20/1		SPARE		0.0		SPARE		20/1	10
11	20/1		SPARE			0.0	SPARE		20/1	12
13	20/1		SPARE	0.0			SPARE		20/1	14
15	20/1		SPARE		0.0		SPARE		20/1	16
17	20/1		SPARE			0.0	SPARE		20/1	18
19	15/3	0.70	EF-5	15.7			PANEL N	15.00	60/3	20
21	-	0.70			15.7			15.00	-	22
23	-	0.70				15.7		15.00	-	24
25	100/3	20.00	FUTURE PANEL HNN	20.0			SPACE		/3	26
27	-	20.00	FUTURE PANEL HNN		20.0				-	28
29	-	20.00	FUTURE PANEL HNN			20.0			-	30
31	20/2		PANEL HRAS	0.0			SPACE		/3	32
33	-		PANEL HRAS		0.0				-	34
35	20/2		PANEL PDH			0.0			-	36
37	-		PANEL PDH	0.0			SPACE		/3	38
39	/2		SPACE		0.0				-	40
41	-					0.0			-	42
MIN. BREAKER AIC:			65,000 AIC	40.9	38.9	36.1	TOTAL CONNECTED LOAD	115.9		
NOTES:				40.9	38.9	36.1	TOTAL DEMAND LOAD	115.9		

SCHEDULE PANELBOARD N

CIR. #	TRIP/ POLE	KVA	DESCRIPTION	PH. A	PH. B	PH. C	DESCRIPTION	KVA	TRIP/ POLE	CIR. #
MAINS	150A	MB	VOLTAGE 208/120	PHASE 3	WIRE 4		MOUNTING SURFACE			
				CONNECTED LOAD KVA						
1	20/1	0.80	RECEPTACLES	1.2			RECEPTACLES	0.40	20/1	2
3	20/1	0.90	RECEPTACLES		1.5		RECEPTACLES	0.60	20/1	4
5	20/1	1.10	RECEPTACLES			1.9	RECEPTACLES	0.80	20/1	6
7	20/1	1.00	RECEPTACLES	2.1			RECEPTACLES	1.10	20/1	8
9	20/1	0.80	EXTERIOR RECEPTACLES		1.4		RECEPTACLES	0.60	20/1	10
11	20/1	0.90	EXTERIOR RECEPTACLES			1.5	RECEPTACLES	0.60	20/1	12
13	20/1		SPARE	0.6			RECEPTACLES	0.60	20/1	14
15	20/1		SPARE		0.4		RECEPTACLES	0.40	20/1	16
17	20/1		SPARE			0.4	RECEPTACLES	0.40	20/1	18
19	20/1		SPARE	0.3			FANS	0.30	20/1	20
21	20/1		SPARE		1.2		RECPETACLES - DESK	1.20	20/1	22
23	20/1		SPARE			1.2	RECPETACLES - DESK	1.20	20/1	24
25	20/1		SPARE	1.0			ROLL UP DOOR	1.00	20/1	26
27	40/2	2.60	HP-4		3.6		ROLL UP DOOR	1.00	20/1	28
29	-	2.60	HP-4			2.6	SPARE		20/1	30
31	20/2	1.50	UH-1	1.5			SPARE		20/1	32
33	-	1.50	UH-1		1.5		SPARE		20/1	34
35	20/2	1.50	UH-2			1.5	SPARE		20/1	36
37	-	1.50	UH-2	1.5			SPARE		20/1	38
39	20/2	1.50	UH-3		1.5		SPARE		20/1	40
41	-	1.50	UH-3			1.5	SPARE		20/1	42
MIN. BREAKER AIC:			25,000 AIC	8.2	11.1	10.6	TOTAL CONNECTED LOAD	29.9		
NOTES:				8.2	11.1	10.6	TOTAL DEMAND LOAD	29.9		

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 11726 PAUL MAMALIS

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY

MAIN ELECTRICAL ROOM - ENLARGED PLAN

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/4" = 1'-0"

E1.3

E:\Travis Field WWTP - 18000.03\CADD\E1_3.dgn

CADD PLOT 16-APR-2019 16:06 MPFAYLER

NOTES:

1. MOUNT DISCONNECTS ON FREE STANDING RACK. CONNECT TO MOTOR WITH SELTITE FLEX. LOCATE SWITCH TO MAINTAIN ALL CLEARANCES AND ACCESS TO EQUIPMENT.
2. PROVIDE NON-METALLIC STRAIN RELIEF AS SPECIFIED FOR MIXER CABLES PROVIDED.
3. ALL CONDUITS THAT EXTEND TO TOP OF BASINS SHALL BE RUN INTO GROUND FLOOR EQUIPMENT ROOM TO WIRING TROUGH. EXIT TROUGH TO EXTEND CONDUIT TO MCC OR PANEL OUT OF TOP OF TROUGH TO PREVENT CONDENSATION FROM ENTERING DISTRIBUTION EQUIPMENT.
4. CIRCUIT TO BE CONTROLLED THRU EXTERIOR LIGHTING CONTACTORS. SEE E1.3.
5. PROVIDE POWER FOR FIELD DEVICES AS REQUIRED. COORDINATE LOCATIONS WITH MBR EQUIPMENT VENDOR.

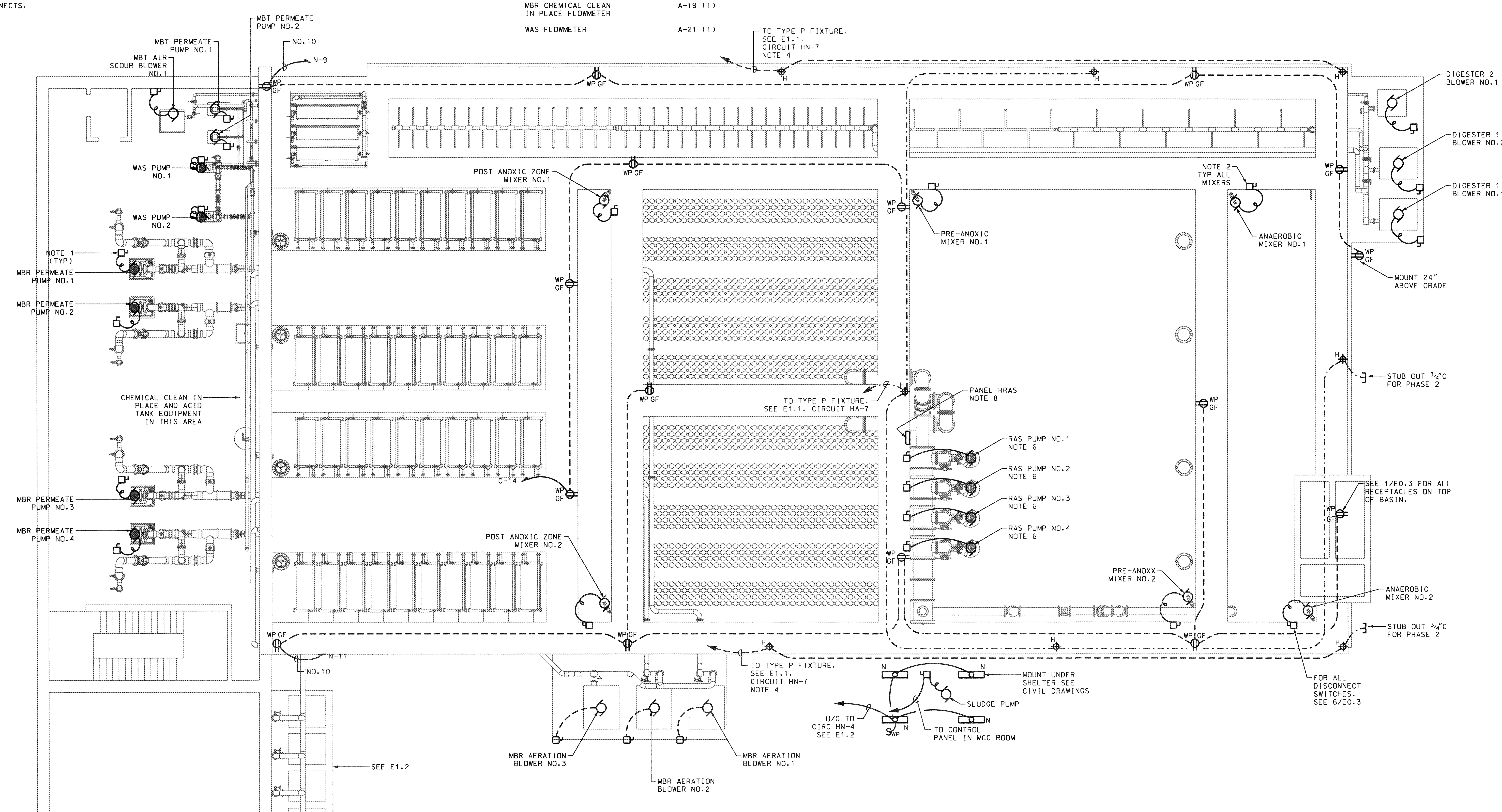
   FOR EACH 480V VALVE, PROVIDE 30/3/4X DISCONNECT. FOR EACH 120V VALVE AND DOSING PUMPS AND MIXER, PROVIDE 30/1/4X DISCONNECTS.

LOAD	CIRCUIT
ANOXIC MOTORIZED VALVES (3) 480V, 3PH	HA-20 (3)
ANOXIC FLOWMETERS (3)	A-9 (3)
PRE-AERATION BASIN DO MTR (2)	A-11 (2)
MRB BASIN MOTORIZED VALVES 2 PER BASIN, 4 BASINS - 120V EA 8 TOTAL	A-8(8)

LOAD	CIRCUIT
MBR PERMEATE MOTORIZED VALVES (4) 120V	A-10,12 - NOTE 7
MBR PERMEATE FLOWMETERS (4)	A-13 (4)
MBR TURBIDITY MTR (4)	A-15 (4)
MBR AERATION SYSTEM FLOWMETERS (4)	A-17 (4)
MBR AIR FLOWMETERS(4)	A-14(4)
CIP(2) AND WAS FLOWMETER	A-16(3)
MBR CHEMICAL CLEAN-IN PLACE AND WAS MOTORIZED VALVE(2) 120V	A-18(2)
MBR CHEMICAL CLEAN IN PLACE FLOWMETER	A-19 (1)
WAS FLOWMETER	A-21 (1)

LOAD	CIRCUIT
CHLORINE TANK LEVEL SENSOR	A-23 (1)
CHLORINE TANK DOSING PUMPS (2)	A-25 (2)
MEMBRANE THICKENER, RESCREEN MOTORIZED VALVES (2) 120V	A-20(3)
MBT PERMEATE FLOWMETER	A-27 (1)
MBT AIR SCOUR BLOWER FLOWMETER	A-29 (1)
ACID TANK MIXER	A-6

6. PROVIDE CIRCUIT AND DISCONNECT FOR 4 MOTORIZED VALVES AT EACH RAS PUMP. SEE NOTE 5.
7. EACH CIRCUIT SHALL POWER 2 VALVES EACH. PROVIDE TWO 1500VA, 120 UPS (ONE FOR EACH CIRCUIT) MOUNTED ABOVE SCADA PANEL TO PROVIDE UPS POWER TO 4 VALVES.
8. PROVIDE FESTOON CABLE SYSTEM AS REQUIRED WITH STAINLESS STEEL HARDWARE FOR RAS HOIST, RATED 1HP, 1PH, 230V.



NOTE 3,5

1 MBR BASIN ELECTRICAL PLAN
E1.4 SCALE: 1/8" = 1'-0"

CADD PLOT 16-APR-2019 16:07 MPFEVLER

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TRAVIS FIELD WATER RECLAMATION FACILITY
MBR BASIN ELECTRICAL PLAN

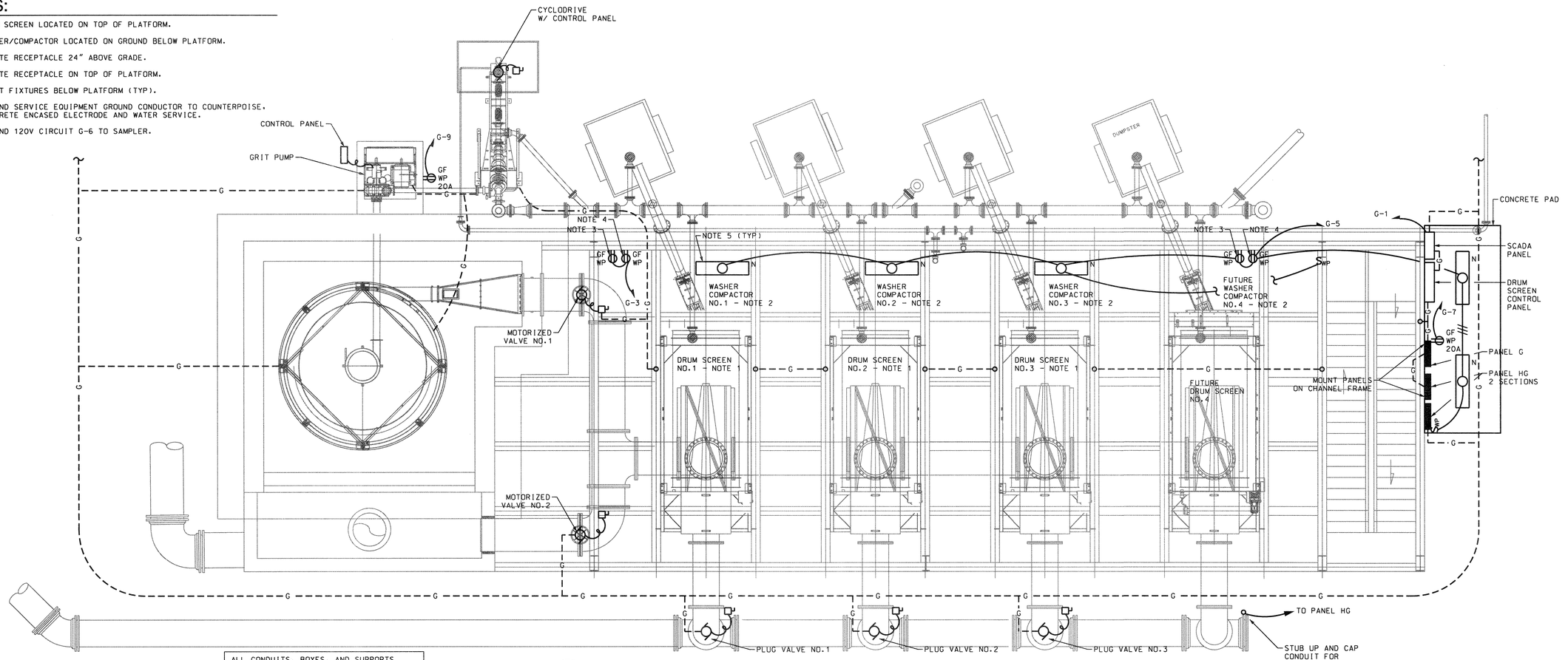
JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/8" = 1'-0"

E1.4

E:\Travis Field WWTP - 18000.03\CADD\E1_4.dgn

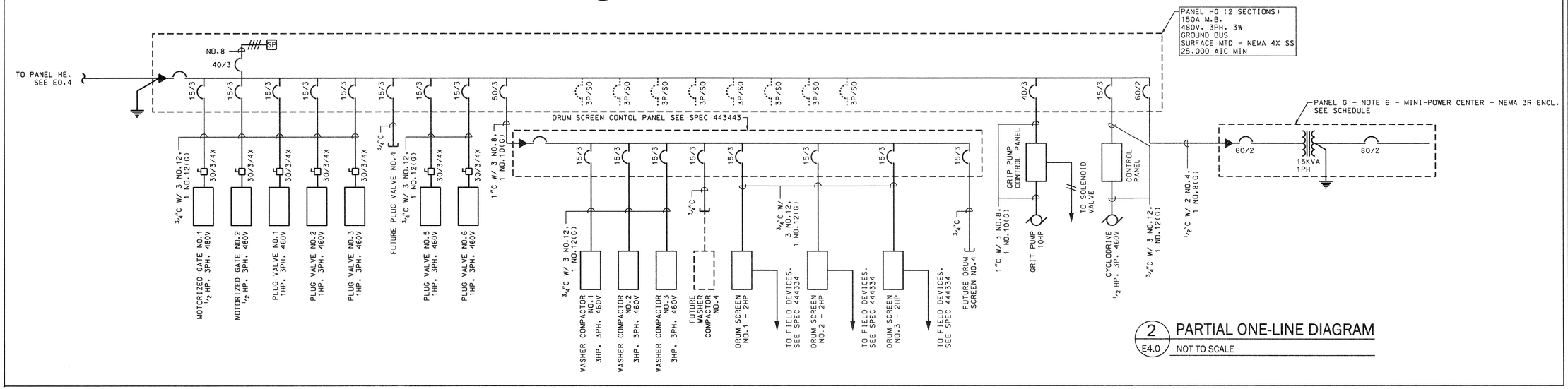
NOTES:

1. DRUM SCREEN LOCATED ON TOP OF PLATFORM.
2. WASHER/COMPACTOR LOCATED ON GROUND BELOW PLATFORM.
3. LOCATE RECEPTACLE 24" ABOVE GRADE.
4. LOCATE RECEPTACLE ON TOP OF PLATFORM.
5. MOUNT FIXTURES BELOW PLATFORM (TYP).
6. EXTEND SERVICE EQUIPMENT GROUND CONDUCTOR TO COUNTERPOISE. CONCRETE ENCASED ELECTRODE AND WATER SERVICE.
7. EXTEND 120V CIRCUIT G-6 TO SAMPLER.



ALL CONDUITS, BOXES, AND SUPPORTS IN THIS AREA SHALL BE STAINLESS STEEL.

1 HEADWORKS ELECTRICAL PLAN
E4.0 SCALE: 1/4" = 1'-0"



2 PARTIAL ONE-LINE DIAGRAM
E4.0 NOT TO SCALE

CADD PLOT 16-APR-2019 10:08 MPEAVLER

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TRAVIS FIELD WATER RECLAMATION FACILITY

PLANT HEADWORK ELECTRICAL PLAN

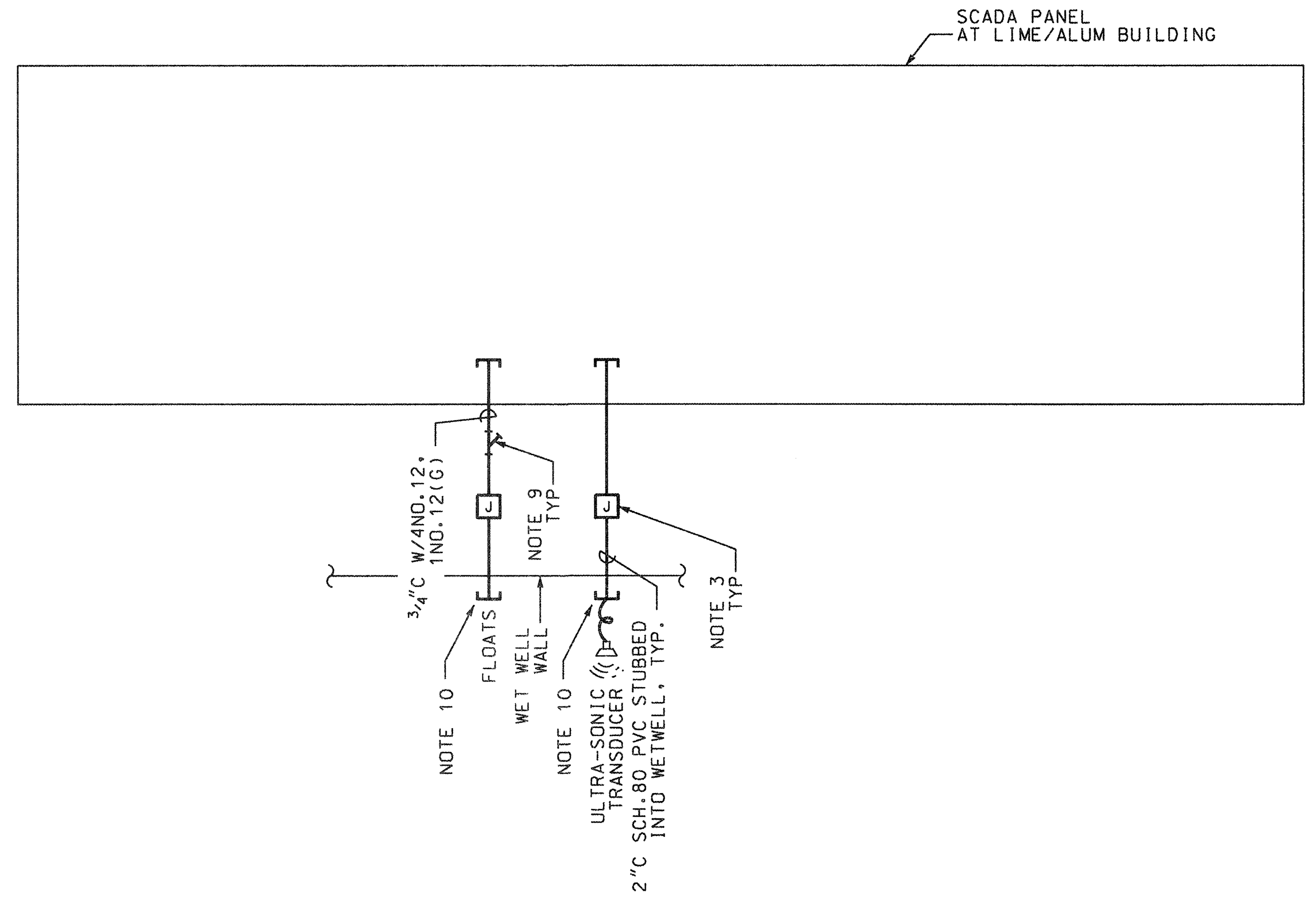
JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/4" = 1'-0"

E4.0

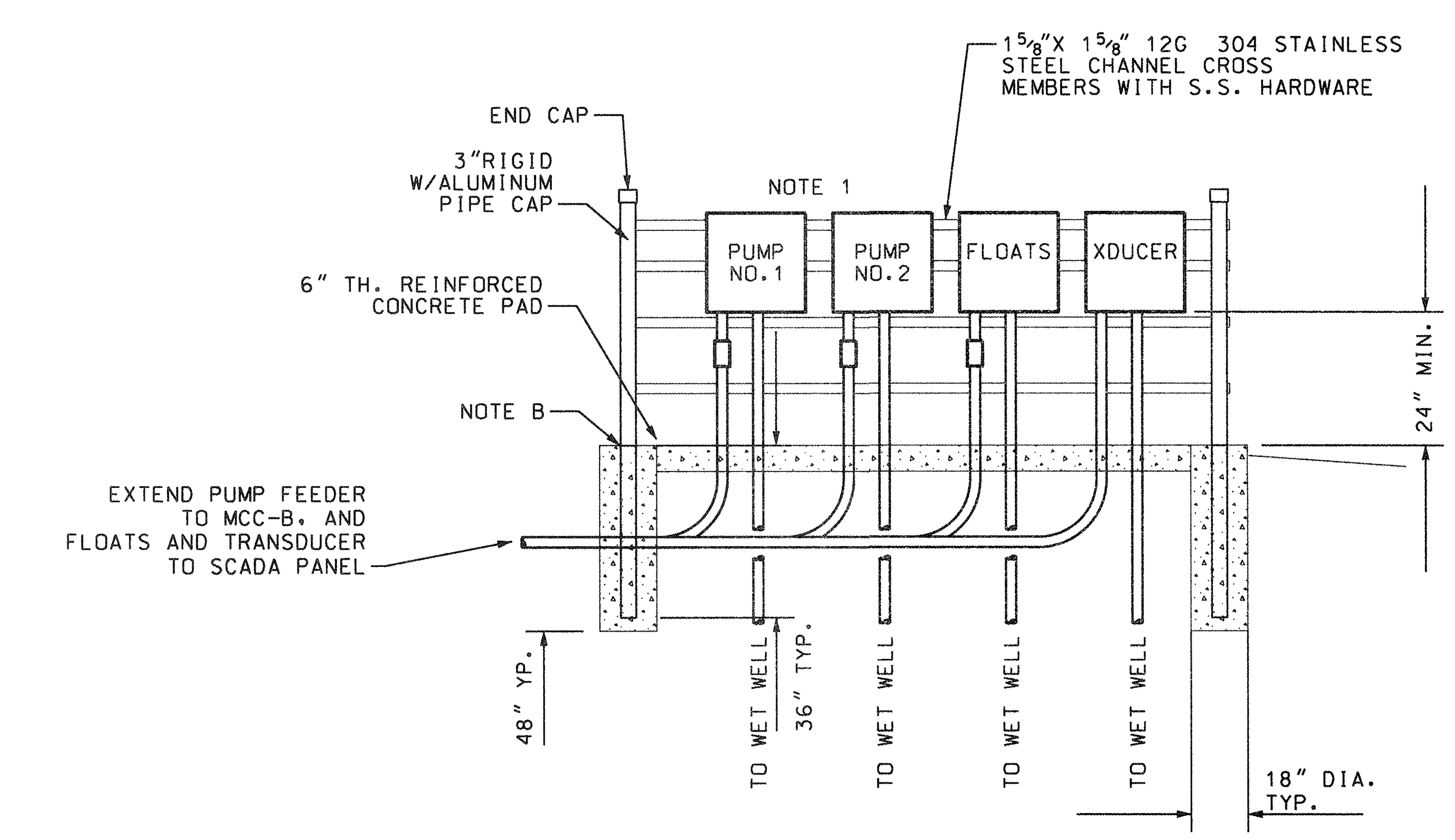
E:\Travis Field WWTP - 18000.03\CADD\E4_0.dgn

NOTES: PLANT DRAIN PS ONE-LINE DIAGRAM

1. ALL CONDUITS INSTALLED EXPOSED TO ATMOSPHERE SHALL BE RIGID ALUMINUM UNLESS OTHERWISE NOTED. ALL CONDUITS INSTALLED BELOW GRADE SHALL BE SCH.80 PVC.
2. CIRCUIT BRAKER AND SWITCH OPERATING HANDLES SHALL BE A MAXIMUM OF 66" ABOVE FINISHED GRADE OR SERVICE PLATFORM. REFER TO EQUIPMENT FRAME & POLE DETAILS 3/E11.0; THIS SHEET.
3. NEMA 4X STAINLESS STEEL JUNCITON BOX. 12" X 12" X 6" WITH ALUMINUM BACKPLATE AND QUARTER-TURN LATCHES. HAMMOND MANUFACTURING CAT. NO. EJ12126SS. PROVIDE POWER TERMINAL BLOCK AND/OR TERMINAL STRIP AS REQUIRED.
4. ALL BOLTS, NUTS, WASHERS, ETC. SHALL BE STAINLESS STEEL. PROVIDE FIBER WASHER BETWEEN DIS-SIMILAR METAL COMPONENTS AND ENCLOSURES.
5. THE EQUIPMENT FRAME SHALL BE FIELD FABRICATED. ALL CONNECTIONS SHALL BE BOLTED.
6. SEAL OFF FITTING. PROVIDE FIBER AND EPOXY SEALANT AFTER CONDUCTOR INSTALLATION.
7. SEAL ENDS OF EACH CONDUIT RUN TO THE WET WELL WITH ELECTRICAL DUCT SEAL.
8. PROVIDE STAINLESS STEEL SUPPORT HOOK AND CABLE GRIPS FOR ALL CABLES IN THE WET WELL. GRIPS SHALL BE CLOSED MECH, NON-CONDUCTIVE, DOUBLE WEAVE, ARAMID FIBER TYPE PULLING GRIPS. COORDINATE GRIP SIZE WITH CABLES SUPPORTED, ATTACH GRIP TO CABLE WITH TWO HEAVY-DUTY PLASTIC ZIP TIES. PROVIDE PRODUCTS OF HUBBELL, NO SUBSTITUTIONS PERMITTED.
9. EXTEND 20A/2P CIRCUIT FROM PANEL PDH AND CONNECT TO ELECTRIC HOIST, RATED 1.2HP, 1PH, 230V. PROVIDE FESTOON CABLE ASSEMBLY TO ALLOW HOIST TO BE LOCATED AT EACH LOCATION ON MONORAIL.
10. STUB 2"C INTO WETWELL FOR FLOAT AND TRANSDUCER CABLES. SUPPORT CABLES PER NOTE 8. SEAL CONDUIT WITH DUCTSEAL, BOTH ENDS.



2 PLANT DRAIN PS ONE-LINE DIAGRAM
E11.0 SCALE: NOT TO SCALE

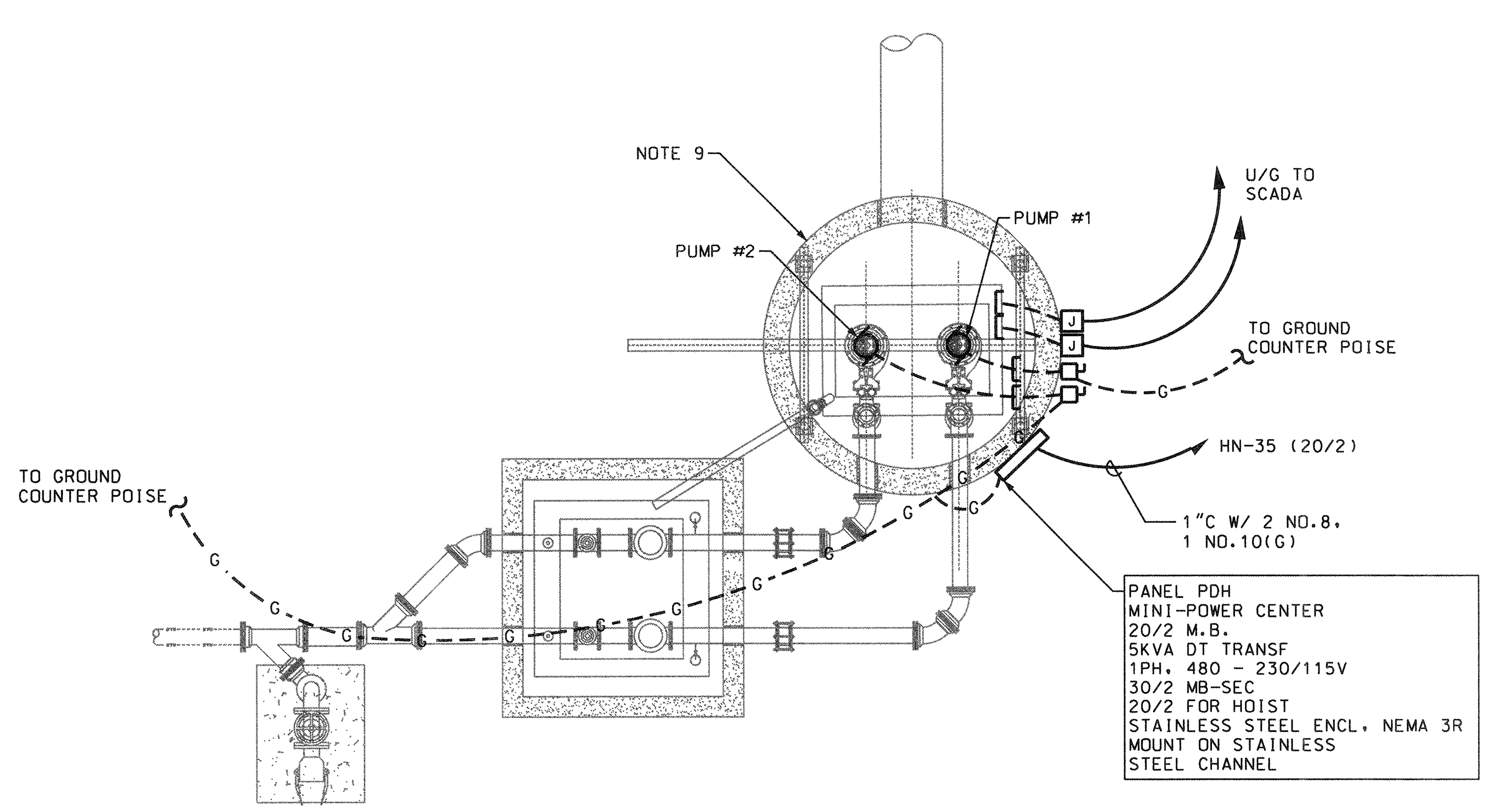


3 PLANT DRAIN PS ELEVATION DETAIL
E11.0 SCALE: NOT TO SCALE

NOTES: PLANT DRAIN PS ELEVATION DETAIL

A. PROVIDE A CONDUIT WINDOW BENEATH THE PANELS THROUGH THE CONCRETE PADS. THE WINDOW SHALL BE 12" DEEP AND EXTEND THE FULL WIDTH OF THE PANEL, EXCEPT FOR FREE-STANDING ENCLOSURES, THE WINDOW SHALL EXTEND THE WIDTH OF THE PANEL BETWEEN THE SUPPORT LEGS. AFTER CONDUIT INSTALLTION, FILL THE WINDOW WITH CRUSHED GRAVEL.

B. COAT ALL RIGID ALUMINUM STRUCTURAL SUPPORTS ENCASED IN CONCRETE WITH TWO COATS OF SCOTCH WRAP PRIMER AND TWO OVERLAPPING LAYERS OF SCOTCHRAP 51(20 MIL) TAPE. APPLY FROM 6" ABOVE GRADE TO BOTTOM OF STRUCTURAL MEMBER. CORROSION PROTECTION METHODS DESCRIBED ABOVE SHALL ALSO BE APPLIED TO ALL RIGID ALUMINUM CONDUIT THROUGH CONCRETE AND SOILS.



1 DRAIN PUMP STATION ELECTRICAL PLAN
E11.0 SCALE: NOT TO SCALE

CADD PLOT 16-APR-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY
PLANT DRAIN PUMP STATION ELEC PLAN

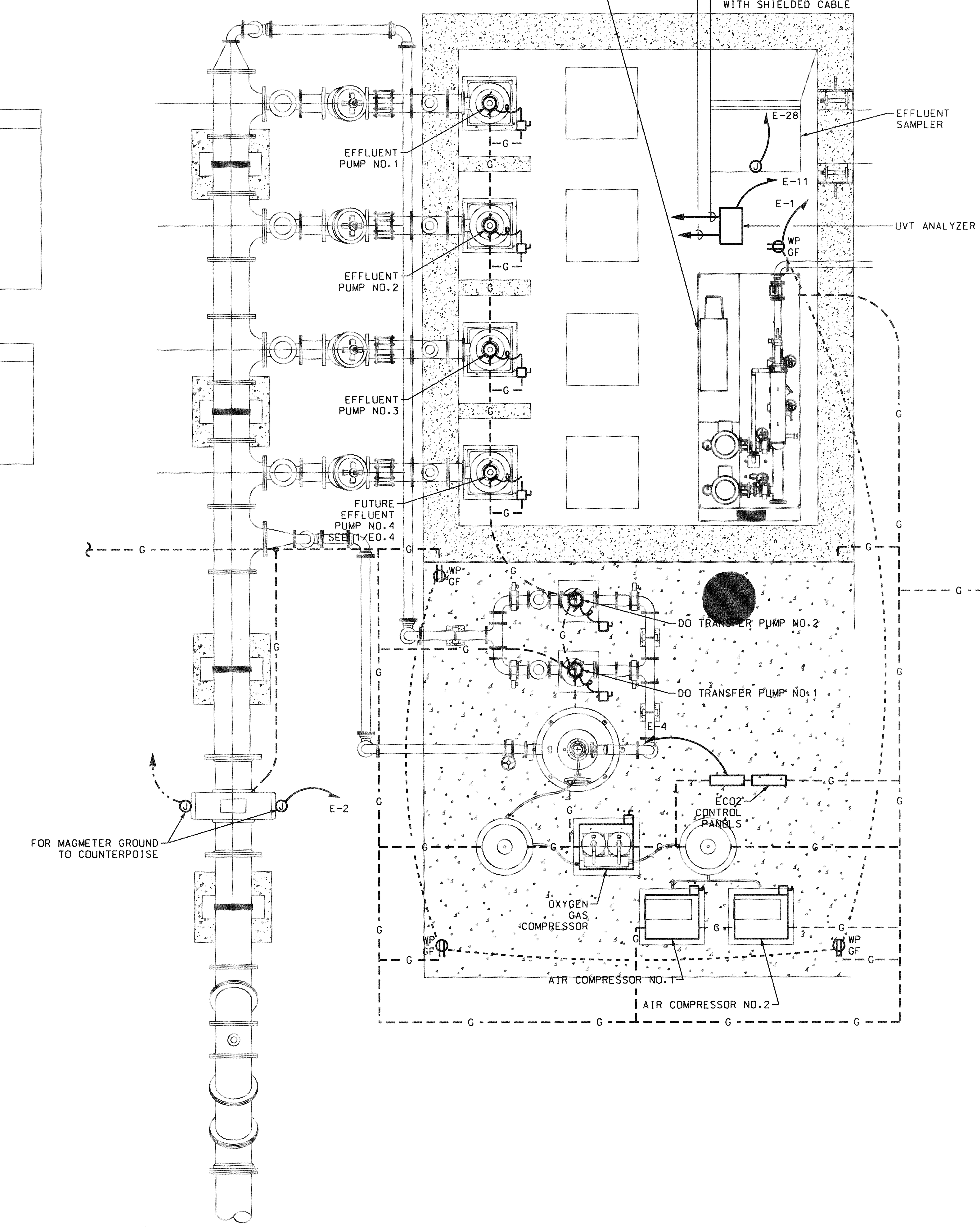
JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E11.0

E:\Travis Field WWTP - 18000.03\CADD\E11.0.dgn

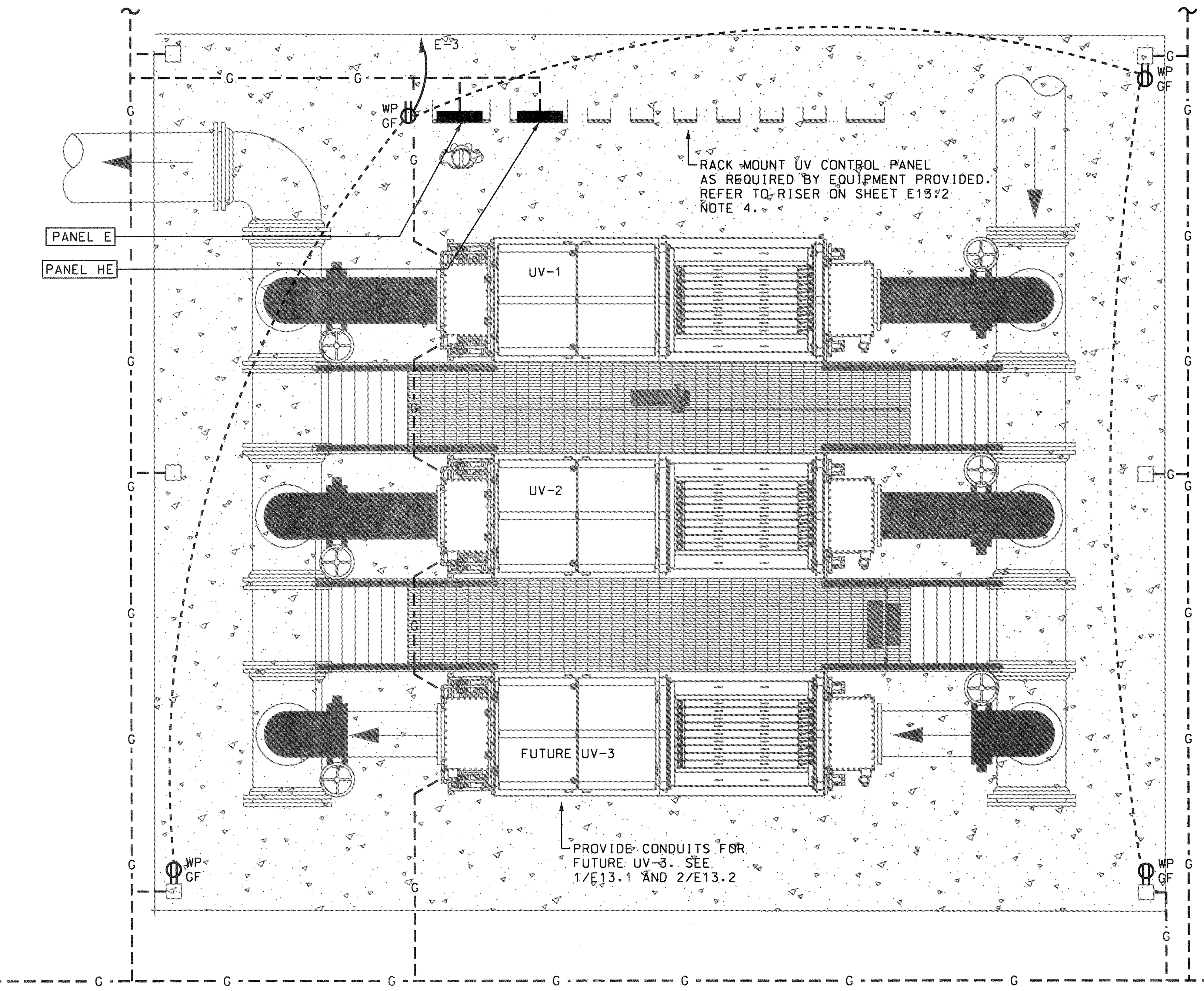
NOTES:

1. EXTEND CIRCUIT E-6 FOR LEVEL SENSOR AT EFFLUENT PUMPS. VERIFY LOCATION IN FIELD.
2. EXTEND CIRCUIT E-8 FOR REUSE FLOW METER. VERIFY LOCATION IN FIELD.
3. EXTEND CIRCUIT E-10 FOR DO METER. VERIFY LOCATION IN FIELD.
4. PROVIDE SPARE CONDUITS FOR FUTURE UV-3 TO UV CONTROL PANEL PER RISER DIAGRAM 2/E13.2.



1 E13.0 EFFLUENT REUSE PS AND DO SYSTEM ELECTRICAL PLAN

SCALE: 1/4" = 1'-0"



2 E13.0 UV DISINFECTION POWER PLAN

SCALE: 1/4" = 1'-0"

CADD PLOT 16-APR-2019 16:18 MPFAYLER

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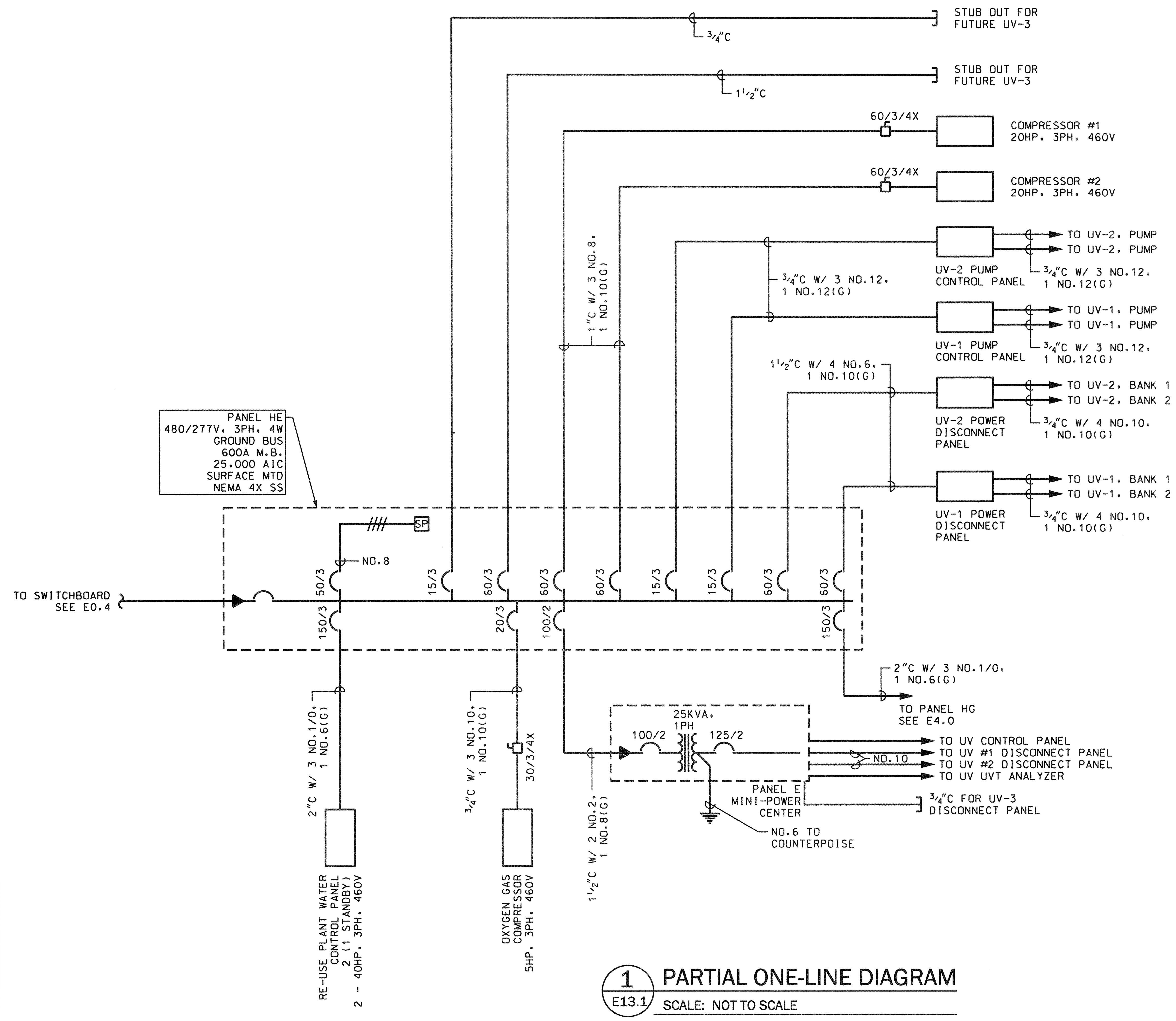
TRAVIS FIELD WATER RECLAMATION FACILITY

EFFLUENT PUMP STATION ELEC PLAN

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	1/4" = 1'-0"

E13.0

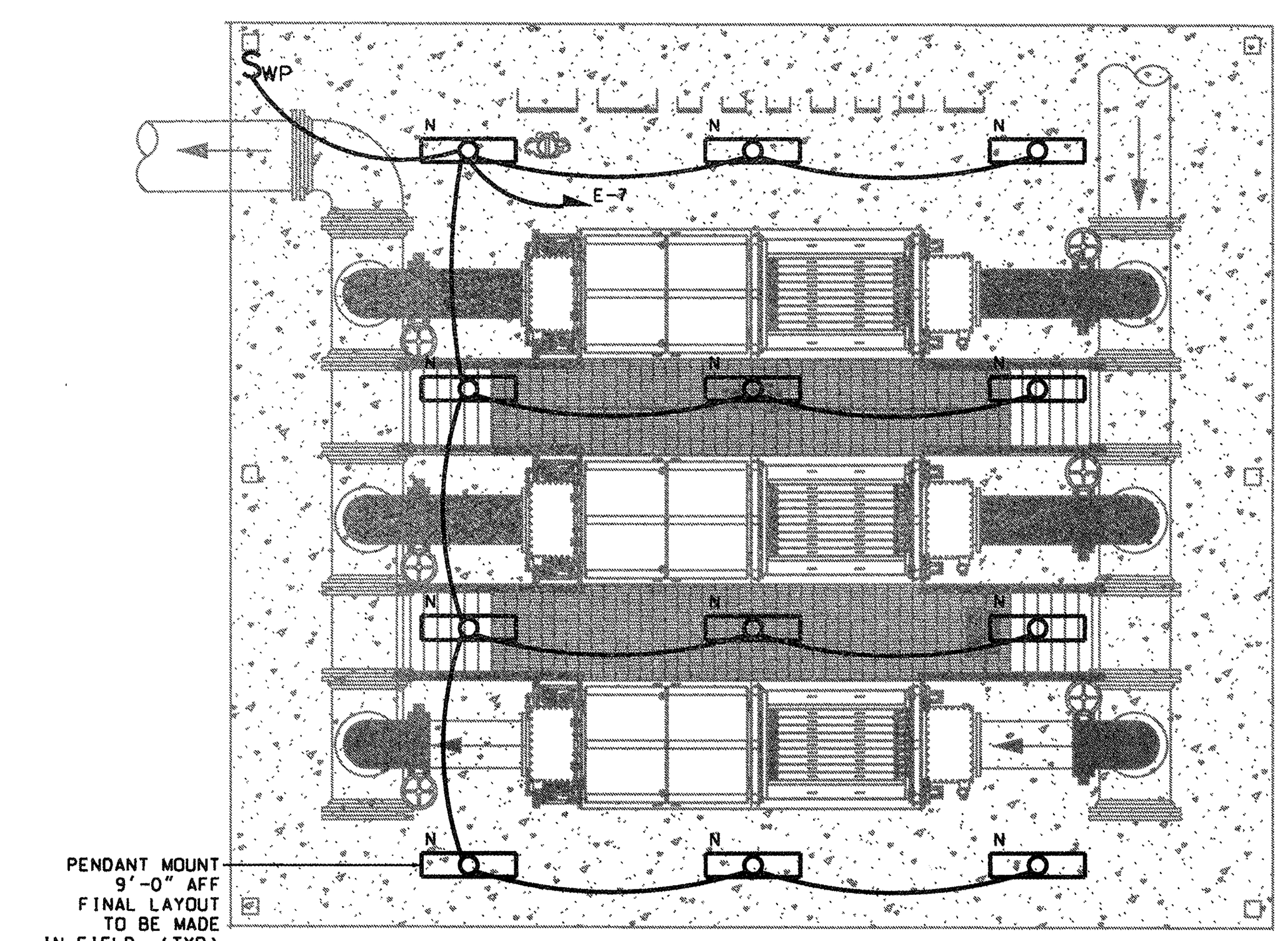


1 E13.1 PARTIAL ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

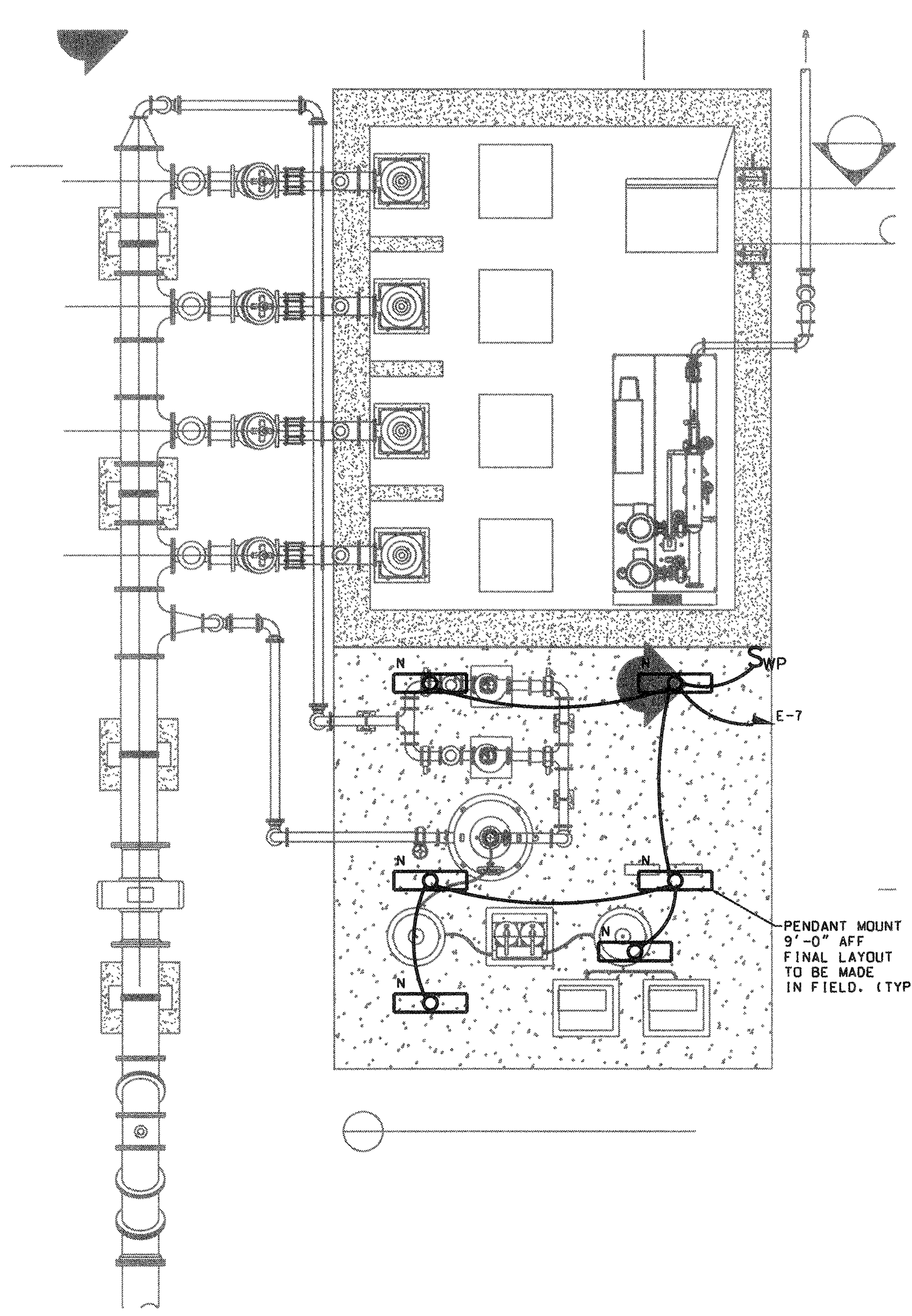
SCHEDULE PANELBOARD E

	MAINS		VOLTAGE	PHASE	WIRE	MOUNTING			
	125A	MB	120/240	1	3	SURFACE - SS			
						NEMA 3R ENCL			
CIR.	TRIP/			CONNECTED LOAD KVA				TRIP/	CIR.
#	POLE	KVA	DESCRIPTION	PH. A	PH. B	DESCRIPTION	KVA	POLE	#
1	20/1	0.80	RECEPTACLES	0.9		MAG METER	0.10	20/1	2
3	20/1	0.80	RECEPTACLES		1.8	ECO2 PANEL	1.00	20/1	4
5	20/1	0.30	LIGHTING	0.4		LEVEL SENSOR	0.10	20/1	6
7	20/1	0.60	LIGHTING		0.7	REUSE FM	0.10	20/1	8
9	20/1	1.00	UV CONTROL PANEL	1.1		DO SENSOR	0.10	20/1	10
11	20/1	0.50	UVT ANALYZER		0.5	SPARE		20/1	12
13	20/1		SPARE	0.0		SPARE		20/1	14
15	20/1		SPARE		0.0	SPARE		20/1	16
17	20/1		SPARE	0.0		SPARE		20/1	18
19	20/1		SPARE		0.0	SPARE		20/1	20
21	20/1		SPARE	0.0		SPARE		20/1	22
23	30/1	1.80	UV #1 DISCONNECT PANEL		1.8	SPARE		20/1	24
25	30/1	1.80	UV #2 DISCONNECT PANEL	1.8		SPARE		20/1	26
27	30/1	1.80	UV #3 DISCONNECT PANEL		2.3	EFFLUENT SAMPLER	0.50	20/1	28
29				0.0					30
31					0.0				32
33				0.0					34
35					0.0				36
37				0.0					38
39					0.0				40
41				0.0					42
MIN. BREAKER AIC:			10,000 AIC	4.2	7.1	TOTAL CONNECTED LOAD	11.3		
NOTES: MINI-POWER CTR				4.2	7.1	TOTAL DEMAND LOAD	11.3		



3 E13.1 UV DISINFECTION LIGHTING PLAN

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



2 E13.1 EFFLUENT AND REUSE LIGHTING PLAN

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

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TRAVIS FIELD WATER RECLAMATION FACILITY

ONE-LINE DIAGRAM

JOB NO: J-26963.0000
DATE: JANUARY 15, 2019
DRAWN: LC
DESIGNED: PM
REVIEWED: PM
APPROVED: PM
SCALE: N.T.S.

E13.1

CADD PLOT 16-APR-2019

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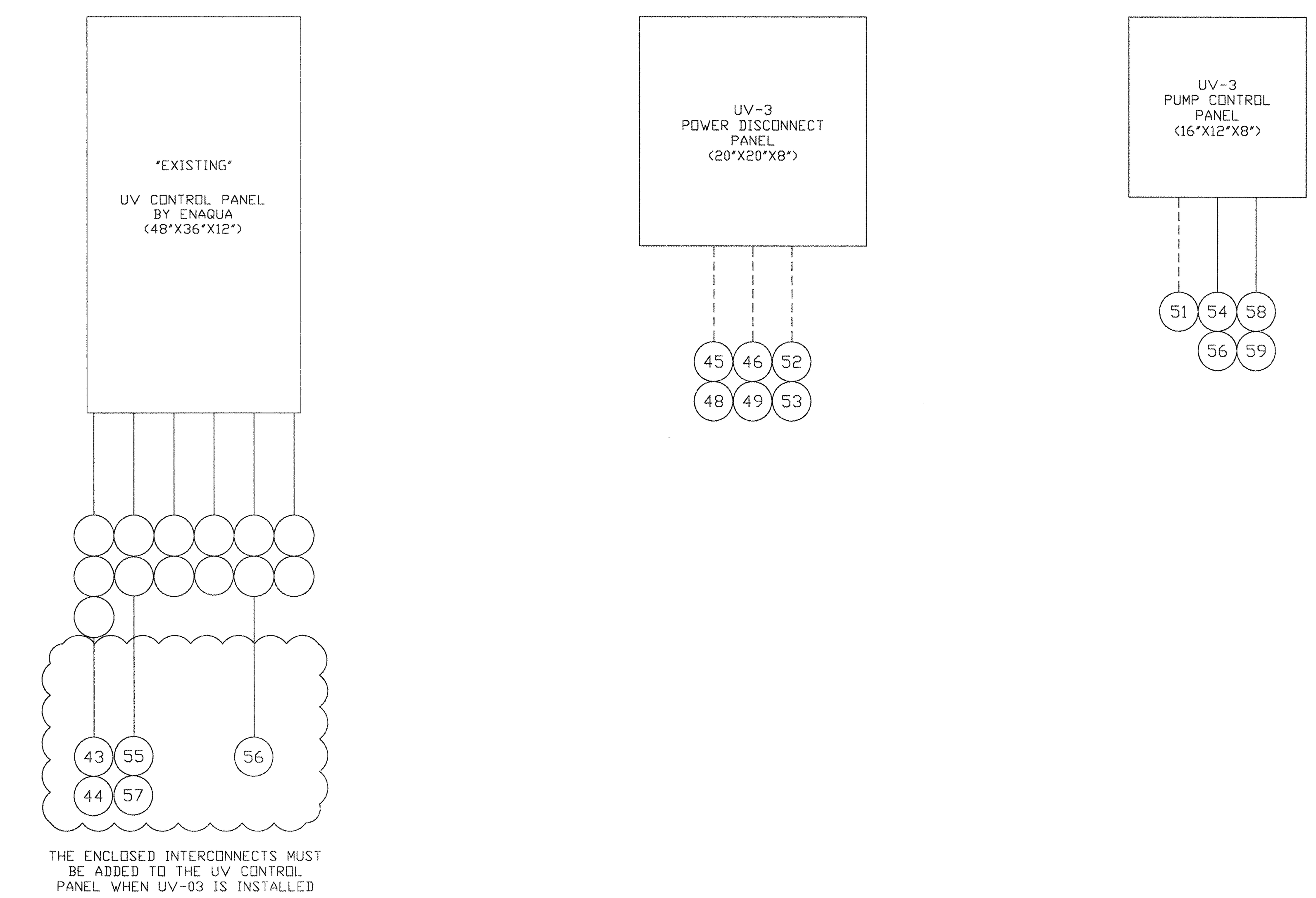
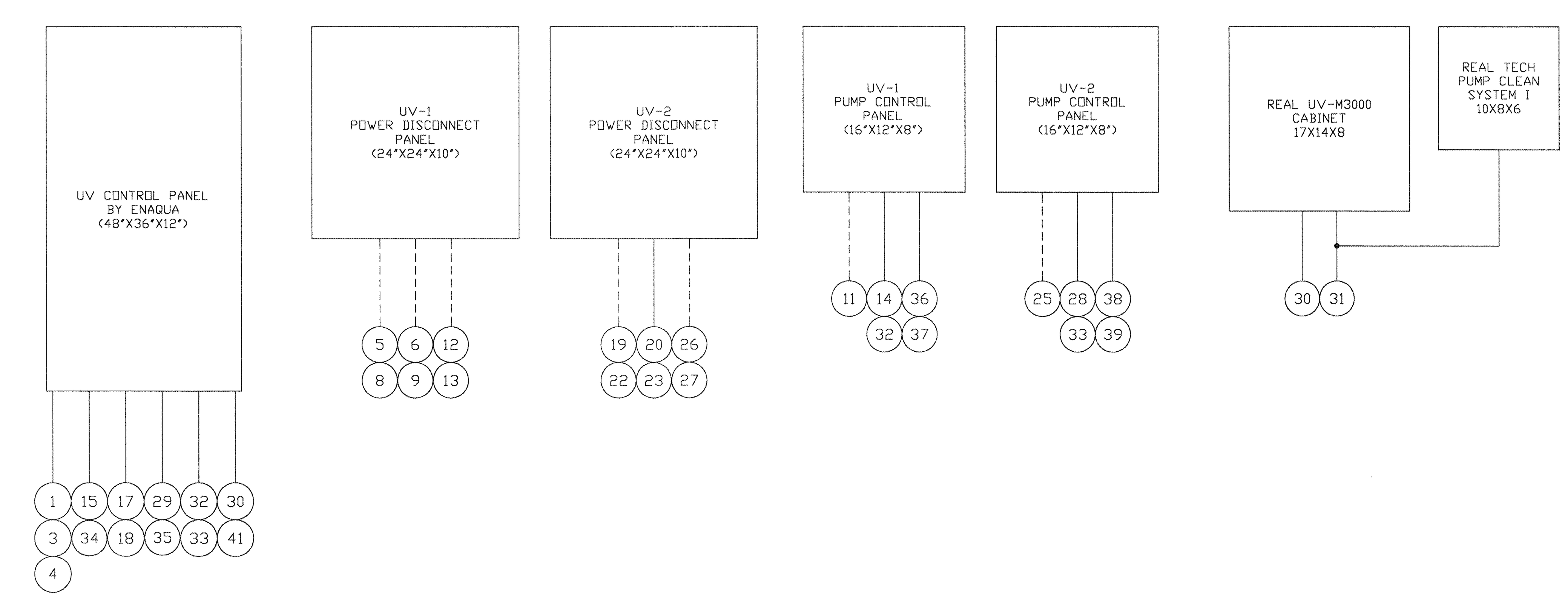
ENAQUA UV REACTOR INTERCONNECT TABLE			
NO	DESCRIPTION	FROM	TO
1	REMOTE START SIGNALS 3-SETS OF DRY CONTACTS	PLANT DCS/SCADA	UV CONTROL PANEL
2	NOT USED		
3	UV-1 LEVEL SENSOR SIGNAL 4-20mA, SHIELDED TWISTED PAIR	LEVEL SENSOR 1	UV CONTROL PANEL
4	COMMUNICATION AND CONTROL CAT6	UV-1 BANK 1	UV CONTROL PANEL
5	UV-1 BANK 1 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-1 POWER DISCONNECT	UV-1 BANK 1
6	UV-1 BANK 1 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-1 POWER DISCONNECT	UV-1 BANK 1
7	NOT USED		
8	UV-1 BANK 2 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-1 POWER DISCONNECT	UV-1 BANK 2
9	UV-1 BANK 2 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-1 POWER DISCONNECT	UV-1 BANK 2
10	NOT USED		
11	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-1 PUMP CONTROL PANEL	UV-1 BANK 2
12	UV-1 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV MCC PANEL	UV-1 POWER DISCONNECT
13	UV-1 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-1 POWER DISCONNECT
14	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV-1 PUMP CONTROL PANEL	UV-1 COOLING PUMPS
15	PRESSURE SWITCH CONTROL WIRE DRY CONTACT 2-WIRE 18AWG	UV-1 FLOW SWITCH	UV CONTROL PANEL
16	NOT USED		
17	UV-2 LEVEL SENSOR SIGNAL 4-20mA, SHIELDED TWISTED PAIR	LEVEL SENSOR 2	UV CONTROL PANEL
18	COMMUNICATION AND CONTROL CAT6	UV-2 BANK 1	UV CONTROL PANEL
19	UV-2 BANK 1 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-2 POWER DISCONNECT	UV-2 BANK 1
20	UV-2 BANK 1 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-2 POWER DISCONNECT	UV-2 BANK 1
21	NOT USED		
22	UV-2 BANK 2 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-2 POWER DISCONNECT	UV-2 BANK 2
23	UV-2 BANK 2 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-2 POWER DISCONNECT	UV-2 BANK 2
24	NOT USED		
25	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-2 PUMP CONTROL PANEL	UV-2 BANK 2
26	UV-2 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV MCC PANEL	UV-2 POWER DISCONNECT
27	UV-2 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-2 POWER DISCONNECT
28	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV-2 PUMP CONTROL PANEL	UV-2 COOLING PUMPS
29	PRESSURE SWITCH CONTROL WIRE DRY CONTACT 2-WIRE 18AWG	UV-2 FLOW SWITCH	UV CONTROL PANEL
30	UVT SIGNAL 4-20mA SHIELDED TWISTED PAIR	UVT ANALYZER PANEL	UV CONTROL PANEL
31	UVT ANALYZER POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UVT ANALYZER PANEL
32	UV COOLING PUMP CONTROL POWER 120VAC 1P 2-WIRE EACH, 4-WIRES TOTAL	UV CONTROL PANEL	UV-1 PUMP CONTROL PANEL
33	UV COOLING PUMP CONTROL POWER 120VAC 1P 2-WIRE EACH, 4-WIRES TOTAL	UV CONTROL PANEL	UV-2 PUMP CONTROL PANEL
34	UPS CONTROL POWER 120VAC 1P 2-WIRE PLUS GROUND	UV CONTROL PANEL	UV-1 BANK 1
35	UPS CONTROL POWER 120VAC 1P 2-WIRE PLUS GROUND	UV CONTROL PANEL	UV-2 BANK 1
36	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV MCC PANEL	UV-1 PUMP CONTROL PANEL
37	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-1 PUMP CONTROL PANEL
38	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV MCC PANEL	UV-2 PUMP CONTROL PANEL
39	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-2 PUMP CONTROL PANEL
40	NOT USED		
41	PLANT FLOW SIGNAL 4-20mA TWISTED SHIELDED PAIR	PLANT DCS/SCADA	UV CONTROL PANEL

ENAQUA UV REACTOR INTERCONNECT TABLE			
NO	DESCRIPTION	FROM	TO
42	NOT USED	VALVE 3	UV PLC PANEL
43	UV-3 LEVEL SENSOR SIGNAL 4-20mA, SHIELDED TWISTED PAIR	LEVEL SENSOR 3	UV CONTROL PANEL
44	COMMUNICATION AND CONTROL CAT6	UV-3 BANK 1	UV CONTROL PANEL
45	UV-3 BANK 1 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-3 POWER DISCONNECT	UV-3 BANK 1
46	UV-3 BANK 1 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-3 POWER DISCONNECT	UV-3 BANK 1
47	NOT USED		
48	UV-3 BANK 2 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV-3 POWER DISCONNECT	UV-3 BANK 2
49	UV-3 BANK 2 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-3 POWER DISCONNECT	UV-3 BANK 2
50	NOT USED	UV-3 POWER DISCONNECT	UV-3 BANK 2
51	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV-3 PUMP CONTROL PANEL	UV-3 BANK 2
52	UV-3 LAMP POWER 480VAC 3P 4-WIRE PLUS GROUND	UV MCC PANEL	UV-3 POWER DISCONNECT
53	UV-3 LAMP RACK COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-3 POWER DISCONNECT
54	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV-3 PUMP CONTROL PANEL	UV-3 COOLING PUMPS
55	PRESSURE SWITCH CONTROL WIRE DRY CONTACT 2-WIRE 18AWG	UV-3 FLOW SWITCH	UV CONTROL PANEL
56	UV COOLING PUMP CONTROL POWER 120VAC 1P 2-WIRE EACH, 4-WIRES TOTAL	UV CONTROL PANEL	UV-3 PUMP CONTROL PANEL
57	UPS CONTROL POWER 120VAC 1P 2-WIRE PLUS GROUND	UV CONTROL PANEL	UV-3 BANK 1
58	PUMP POWER 2-SETS, 480VAC 3P 3-WIRE	UV MCC PANEL	UV-3 PUMP CONTROL PANEL
59	HEAT EXCHANGER COOLING POWER 120VAC 1P 2-WIRE PLUS GROUND	UV MCC PANEL	UV-3 PUMP CONTROL PANEL



2 / E13.2 FUTURE UV SYSTEM RISER DIAGRAM

NOT TO SCALE



1 / E13.2 UV SYSTEM RISER DIAGRAM

NOT TO SCALE

NOTES:

U1. COORDINATE LOCATION OF ALL DEVICES WITH UV VENDOR.

U2. SEE UV RISER DIAGRAM AND ONE-LINE DIAGRAM FOR FIELD WIRING.

U3. EQUIPMENT PROVIDED BY UV EQUIPMENT SUPPLIER. CONNECTIONS BY CONTRACTORS.

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	Issued for Bid	P.M.	05-0?-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY

UV RISER DIAGRAM

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	LC
DESIGNED:	PM
REVIEWED:	PM
APPROVED:	PM
SCALE:	N.T.S.

E13.2

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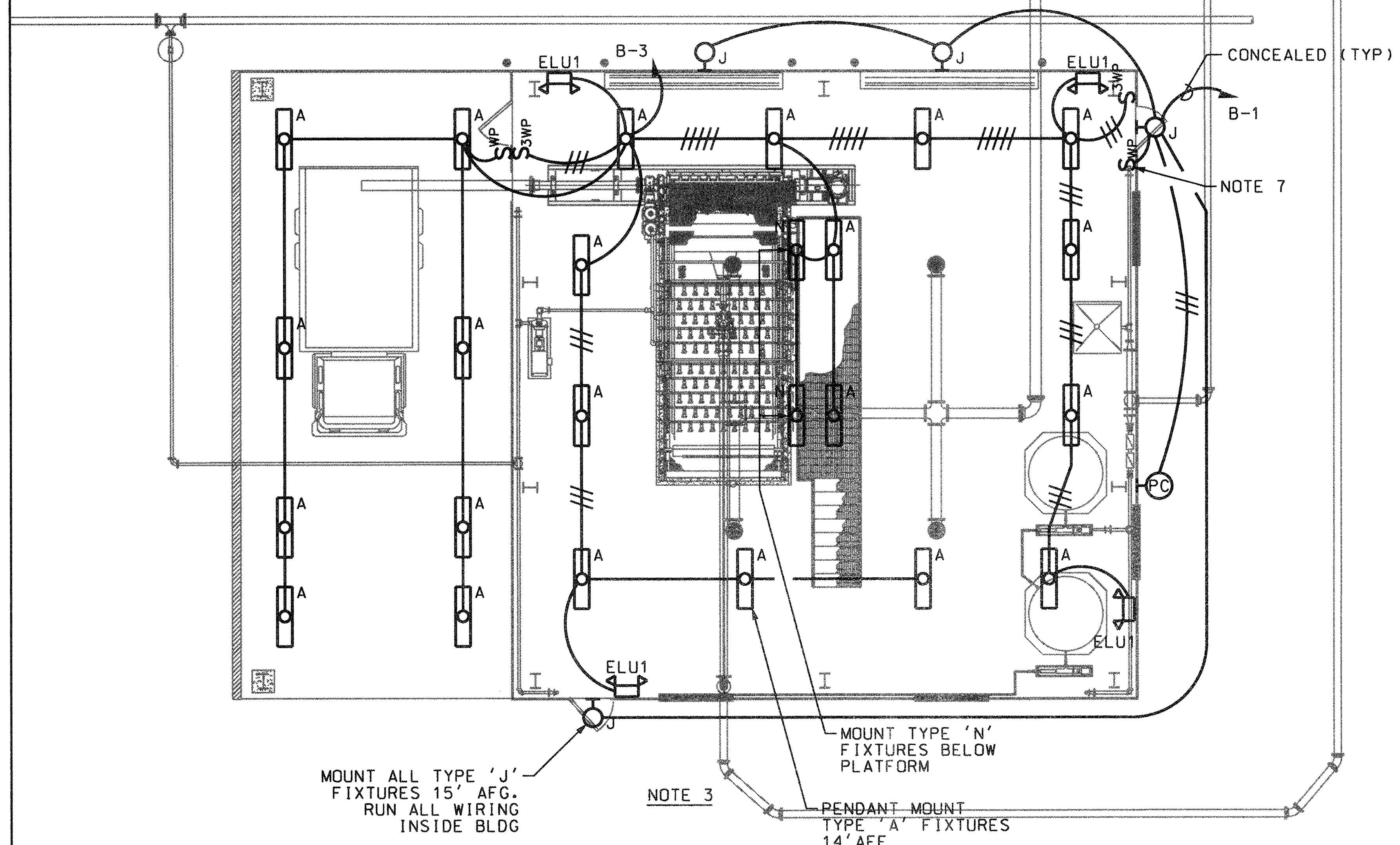
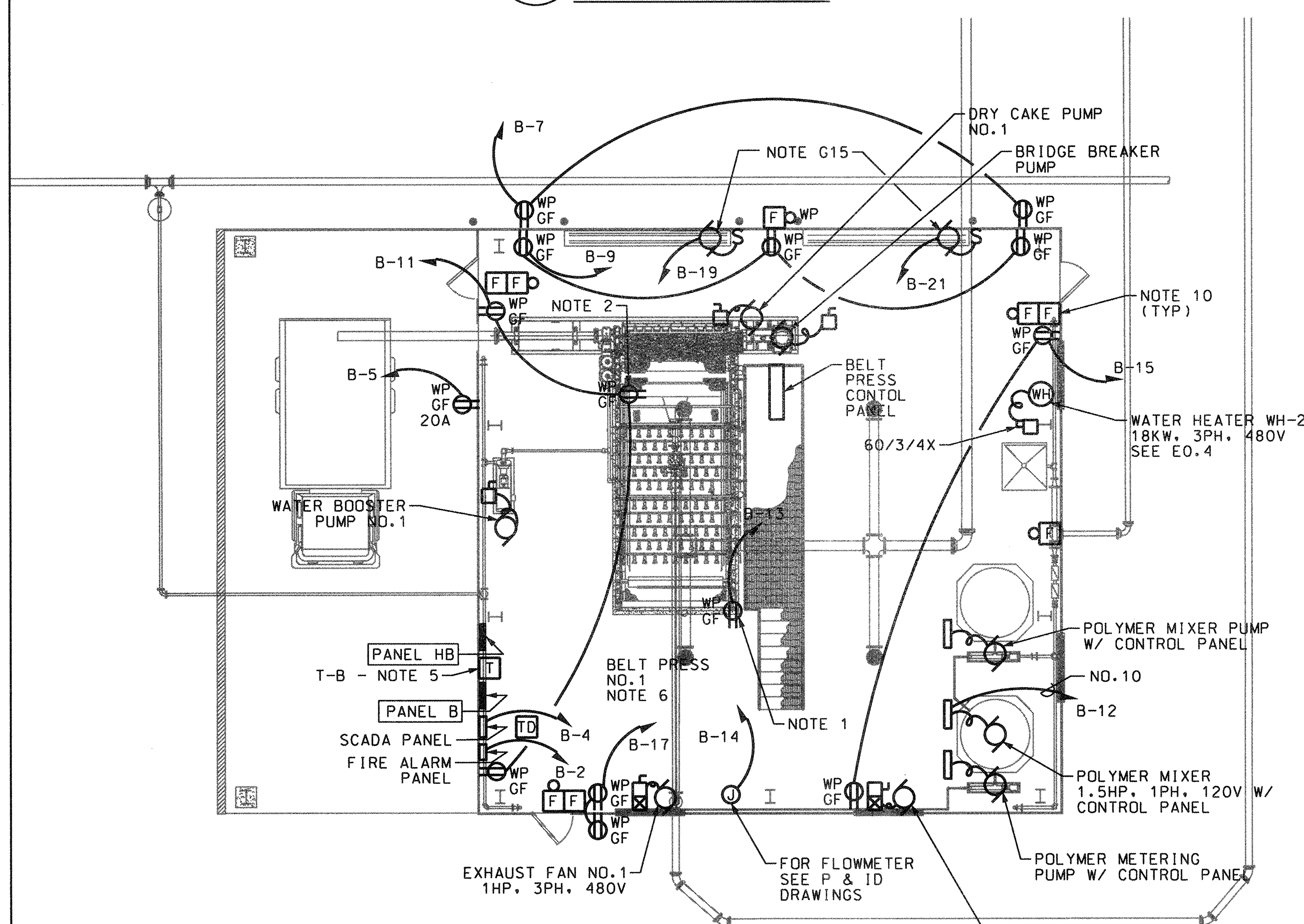


1 LIGHTING PLAN
E15.0 SCALE: 1/8" = 1'-0"



2 POWER PLAN
E15.0 SCALE: 1/8" = 1'-0"

NOTES:

1. MOUNT RECEPTACLES IN FS BOXES ON TOP OF PLATFORM.
2. MOUNT RECEPTACLES IN FS BOXES BELOW PLATFORM 24" AFF.
3. ALL CONDUITS IN THIS BUILDING 10 FT AND BELOW AND SUBJECT TO BE DAMAGE RIGID GALVANIZED. CONDUITS ABOVE 10 FT MAY BE EMT. SEE NOTE 4.
4. ALL CONDUITS AND BOXES IN POLYMER AREA TO BE PVC.
5. FLOOR MOUNT TRANSFORMER ON 4" CONCRETE PAD.
6. EXTEND CONDUIT AND WIRING TO ALL FIELD MOUNTED DEVICES. COORDINATE WITH EQUIPMENT PROVIDED.
7. PROVIDE 3 POSITION MAINTAINED CENTER OFF 20A SWITCH TO CONTROL EXTERIOR LIGHTING CIRCUIT B-1. UP IS ON. CENTER OFF. DOWN THRU PHOTOCELL. LABEL EACH POSITION.
8. MOUNT STARTERS 48" UP BELOW FAN IN ACCESSIBLE LOCATION.
9. INTERLOCK CHEMICAL PUMPS AS REQUIRED.
10. ALL FIRE ALARM DEVICES IN THIS BUILDING TO BE RATED NEMA 4X.

SCHEDULE PANELBOARD B

	MAINS		VOLTAGE	PHASE	WIRE		MOUNTING				
	100	MB	120/208	3	4		SURFACE				
							NEMA 4X-SS				
CIR.	TRIP/			CONNECTED LOAD KVA					TRIP/		CIR.
#	POLE	KVA	DESCRIPTION	PH. A	PH. B	PH. C	DESCRIPTION	KVA	POLE		#
1	20/1	0.30	EXTERIOR LIGHTING	0.8			FIRE ALARM	0.50	20/1	*	2
3	20/1	1.40	LIGHTING		2.4		SCADA PANEL	1.00	20/1		4
5	20/1	0.20	RECEPTACLE			0.2	SPARE		20/1		6
7	20/1	0.40	RECEPTACLE	1.9			POLYMER SYSTEM	1.50	20/1		8
9	20/1	0.60	RECEPTACLE		2.1		POLYMER SYSTEM	1.50	20/1		10
11	20/1	0.60	RECEPTACLE			2.6	POLYMER MIXER	2.00	30/1		12
13	20/1	0.40	RECEPTACLE	0.5			FLOWMETER	0.10	20/1		14
15	20/1	0.60	RECEPTACLE		0.6		SPARE		20/1		16
17	20/1	0.40	RECEPTACLE			0.4	SPARE		20/1		18
19	20/1	1.00	ROLL UP DOOR	1.0			SPARE		20/1		20
21	20/1	1.00	ROLL UP DOOR		1.0		SPARE		20/1		22
23	20/1		SPARE			0.0	SPARE		20/1		24
25	20/1		SPARE	0.0			SPARE		20/1		26
27	20/1		SPARE		0.0		SPARE		20/1		28
29	20/1		SPARE			0.0	SPARE		20/1		30
31	/1		SPACE	0.0			SPACE		/1		32
33	/1		SPACE		0.0		SPACE		/1		34
35	/1		SPACE			0.0	SPACE		/1		36
37	/1		SPACE	0.0			SPACE		/1		38
39	20/2		GENERATOR SWITCHGEAR		0.0		SPACE		/1		40
41	-		GENERATOR SWITCHGEAR			0.0	SPACE		/1		42
MIN. BREAKER AIC:			10,000 AIC	4.2	6.1	3.2	TOTAL CONNECTED LOAD	13.5			
NOTES: * TRIP FREE LOCK TAB, RED				4.0	5.7	2.8	TOTAL DEMAND LOAD	12.5			

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED No. 11726 PROFESSIONAL ENGINEER PAUL MARTIN

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TRAVIS FIELD WATER RECLAMATION FACILITY
SLUDGE DEWATERING BUILDING ELEC PLAN

JOB NO: J-26963.0000
DATE: JANUARY 15, 2019
DRAWN: LC
DESIGNED: PM
REVIEWED: PM
APPROVED: PM
SCALE: 1/8" = 1'-0"

E15.0

CADD PLOT 16-APR-2019 16:21 MPSAYLOR

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LEGEND & ABBREVIATIONS

ABBREVIATION	SYMBOL	DESCRIPTION
	Ⓢ	SWITCH
GV		GATE VALVE
CV		CHECK VALVE
		UNION
	M	MOTOR OPERATED LOUVER
	Φ	ROUND
	→	DIRECTION OF FLOW
T'STAT	Ⓣ	THERMOSTAT
	———	SINGLE LINE DUCT

ABBREVIATION	DESCRIPTION
AB	ABOVE
A/C	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
B/F	BELOW FLOOR
DN	DOWN
DWGS	DRAWINGS
ELEC	ELECTRICAL
LV	LOUVER
TYP	TYPICAL
U/G	UNDERGROUND
ETR	EXISTING TO REMAIN
A/S	AT STRUCTURE
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
EF	EXHAUST FAN
HVAC	HEATING VENTILATING & AIR CONDITIONING
EXH	EXHAUST
UH	ELECTRIC UNIT HEATER
AHU	AIR HANDLER UNIT
HP	HEAT PUMP

GENERAL NOTES:

A. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
B. UNLESS OTHERWISE INDICATED, INSTALL ALL SPACE THERMOSTATS AND CONTROLLERS 48 INCHES ABOVE FINISHED FLOOR.
C. DUCT SIZES SHOWN ARE ACTUAL INSIDE DIMENSIONS.
D. FLEXIBLE OR ROUND DUCT SHALL BE CONNECTED TO RECTANGULAR OR SQUARE DUCT WITH A SPIN-IN COLLAR WITH SCOOP AND DAMPER.
E. INSTALL TURNING VANES IN ALL 45 AND 90 DEGREE MITERED ELBOWS.

GENERAL HVAC:

A. THE MECHANICAL EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE FOLLOWING CODES:
1. THE INTERNATIONAL BUILDING CODE 2012 EDITION WITH GEORGIA AMENDMENTS.
2. THE INTERNATIONAL MECHANICAL CODE 2012 EDITION WITH GEORGIA AMENDMENTS.
3. THE INTERNATIONAL ENERGY CONSERVATION CODE 2009 EDITION WITH GEORGIA AMENDMENTS.
4. THE INTERNATIONAL PLUMBING CODE, 2012 EDITION WITH GEORGIA AMENDMENTS.

B. THE MECHANICAL EQUIPMENT AND INSTALLATION SHALL CONFORM TO THE FOLLOWING STANDARDS:
1. NFPA STANDARD 70, NATIONAL ELECTRIC CODE
2. NFPA STANDARD 90A, INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS.
3. NFPA STANDARD 101, CODE FOR SAFETY OF LIFE FROM FIRE IN BUILDINGS AND STRUCTURES.

TESTING PIPE SYSTEMS:

A. GENERAL, CONCEALED PIPING AND INSULATED PIPING SHALL BE TESTED IN PLACE BEFORE CONCEALING OR COVERING. TEST SHALL BE CONDUCTED IN THE PRESENCE OF THE ARCHITECT OR HIS DESIGNATED REPRESENTATIVE. PIPING LOCATED UNDERGROUND SHALL BE TESTED BEFORE BACKFILLING. EQUIPMENT, MATERIALS, AND INSTRUMENTS FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.

TEST AND BALANCE:

THE CONTRACTOR SHALL PERFORM TEST AND BALANCE ON THE AIR AND WATER DISTRIBUTION SYSTEMS.
A. INSTRUMENTS USED FOR BALANCING SHALL HAVE BEEN CALIBRATED WITHIN 6 MONTHS PRIOR TO THE BALANCING OF THE SYSTEMS.
B. ALL INSTRUMENTS REQUIRED TO BALANCE THE SYSTEM SHALL BE PROVIDED AT THE CONTRACTOR'S EXPENSE.
C. FINAL READINGS SHALL BE SET WITH -5% TO +10% OF DESIGN CONDITIONS.
D. ANY DEVIATIONS FROM DESIGN DATA SHALL BE EXPLAINED IN THE REPORT - POSSIBLE REASONS FOR AND SOLUTIONS TO.
E. REPORT SHALL BE SIGNED AND DATED BY BALANCE ENGINEER.
F. TEST AND BALANCE SHALL NOT BE PERFORMED UNTIL SYSTEM INSTALLATION IS COMPLETE.

INSULATION FOR HVAC SYSTEMS:

A. FIBERGLASS BLANKET INSULATION ON SUPPLY, RETURN, AND OUTSIDE AIR DUCTS SHALL BE FIBROUS GLASS BLANKET TYPE DESIGNED FOR USE ON SURFACES UP TO 250 F WITH A FACTORY APPLIED ALUMINUM FOIL AND KRAFT VAPOR BARRIER JACKET. INSULATION SHALL HAVE A MINIMUM DENSITY OF 1.0 LB/CU. FT. AND A MAXIMUM CONDUCTIVITY OF 0.26 BTU/IN. PER SQ.FT. PER DEGREE F PER HOUR AT 75°F MEAN TEMPERATURE. INSULATION SHALL BE KNAUF DUCTWRAP OR APPROVED EQUAL. INSULATION THICKNESS SHALL BE 2".

B. INSULATION FOR REFRIGERANT LINES AND CONDENSATE DRAINS SHALL BE SELF SEALING, FLEXIBLE CELLULAR, ELASTOMERIC TYPE CONFORMING TO ASTM C534, DESIGNED FOR USE ON PIPES FROM -40°F TO 220°F (-40°C TO 105°C). INSULATION SHALL HAVE A MINIMUM DENSITY OF 6 LB/CU FT AND A MAXIMUM CONDUCTIVITY OF 0.28 BTU/IN/SQ FT/°F/HR AT 75°F MEAN TEMPERATURE, AND A MAXIMUM PERMANENCE OF 0.17 LB/SQ FT. ADHESIVES USED FOR CONNECTIONS SHALL BE MANUFACTURER'S STANDARD UV-PROTECTION. INSULATION SHALL BE ARMACELL AP/SS ARMAFLEX.

AIR DISTRIBUTION:

A. GENERAL
1. DUCTWORK SHALL BE CONSTRUCTED OF LOCK FORMING QUALITY GALVANIZED STEEL SHEETS. GALVANIZED COATING SHALL BE NOT LESS THAN 0.90 OUNCES (TOTAL FOR BOTH SIDES) PER SQUARE FOOT OF SHEET.
2. DUCTWORK SHALL BE SQUARE, RECTANGULAR, ROUND, OR FLAT OVAL, AS INDICATED ON THE DRAWINGS.
3. TURNING VANES SHALL BE INSTALLED IN ALL 90 DEGREE SQUARE AND RECTANGULAR ELBOWS AND AT OTHER LOCATIONS SHOWN ON THE DRAWINGS. IN ANY SUPPLY, RETURN OR EXHAUST AIR DUCTWORK WITH VELOCITIES OF 1800 FPM OR HIGHER, THE TURNING VANES SHALL BE THE DOUBLE THICKNESS TYPE, WITH VANES WELDED TO THE RUNNERS AND RUNNERS WELDED TO THE DUCT.
4. DUCTWORK SHALL BE CLASSIFIED AND CONSTRUCTED IN THE FOLLOWING SMACNA PRESSURE CLASSES, OR 150% OF THE SCHEDULED FAN S.P., WHICHEVER IS GREATER:

SYSTEM OR ZONE	PRESSURE CLASS
SUPPLY AIR DUCTWORK (GENERAL BUILDING)	+ 2
RETURN DUCTWORK (GENERAL BUILDING)	- 2
EXHAUST DUCTWORK (GENERAL BUILDING)	- 2

B. GALVANIZED STEEL DUCTWORK
1. EXCEPT WHERE INDICATED OTHERWISE DUCT CONSTRUCTION SHALL CONFORM TO THE RECOMMENDATIONS OF THE SMACNA HVAC DUCT CONSTRUCTION MANUAL FOR PRESSURE CLASSES SPECIFIED HEREIN BEFORE.

C. FLEXIBLE DUCTWORK
1. INSULATED FLEXIBLE DUCT SHALL BE CLASS 1 AIR DUCT IN ACCORDANCE WITH UL 181 AND SHALL COMPLY WITH NFPA 90A AND 90B. INSULATED FLEXIBLE DUCT SHALL CONSIST OF AN INNER FILM LAYER FOR MINIMUM WORKING PRESSURE OF 6" WG. BONDED TO A STEEL OR ALUMINUM SPRING WIRE HELIX, FIBERGLASS INSULATION, AND A VAPOR BARRIER JACKET. INSULATION SHALL HAVE A MAXIMUM C-VALUE OF 0.23 BTU/HR/SQ. FT./DEGREE F. AT 75 DEGREES F. MEAN TEMPERATURE. VAPOR BARRIER JACKET SHALL HAVE A MAXIMUM VAPOR TRANSMISSION RATE OF 0.1 GRAINS/SQ. FT./HR/INCH HG (PERM). THE ASSEMBLY SHALL HAVE A MAXIMUM FLAME AND SMOKE RATING OF 25/50 PER ASTM E84 AND NFPA 255. MINIMUM WORKING PRESSURE FOR DUCT PRESSURE CLASS 4" AND BELOW SHALL BE 6" WG. INSULATED FLEXIBLE DUCT SHALL BE THERMOFLEX OR APPROVED EQUAL.

D. STAINLESS STEEL DUCTWORK
1. LAB HOOD EXHAUST DUCTWORK SHALL BE CONSTRUCTED OF 18 GAUGE (1.3MM), TYPE 316 STAINLESS STEEL WITH NO. 4 FINISH ON EXPOSED SURFACES. ALL FASTENERS SHALL BE TYLE 316 STAINLESS STEEL. PROVIDE A 2" (50MM) WIDE STAINLESS STEEL CEILING COLLAR AROUND THE DUCT PENETRATION THROUGH THE CEILING.

AIR DEVICES:

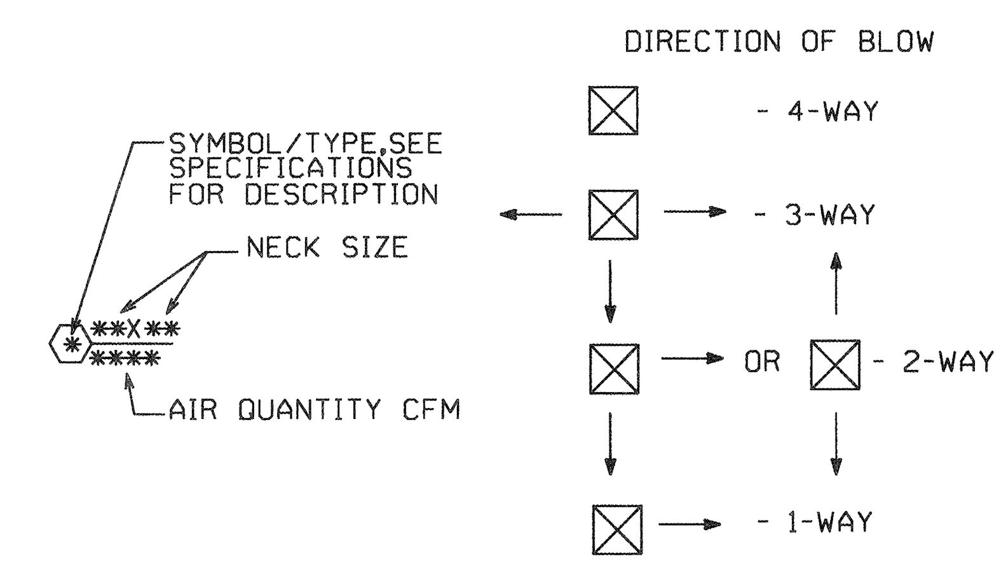
A. TYPE 'A' SUPPLY AIR DIFFUSER SHALL BE TITUS OMNI-AA OR APPROVED EQUAL. PROVIDE WITH OPPOSED BLADE DAMPER. PRICE IS AN APPROVED EQUAL.
B. TYPE 'B' RETURN AIR REGISTER SHALL BE TITUS PAR-AA OR APPROVED EQUAL. PROVIDE WITH OPPOSED BLADE DAMPER. PRICE IS AN APPROVED EQUAL.
C. TYPE 'C' RETURN AIR GRILLE SHALL BE TITUS 350FL OR APPROVED EQUAL. PROVIDE WITH OPPOSED BLADE DAMPER. PRICE IS AN APPROVED EQUAL.
D. TYPE 'D' SUPPLY AIR DIFFUSER SHALL BE TITUS 300FL OR APPROVED EQUAL. PROVIDE WITH OPPOSED BLADE DAMPER. PRICE IS AN APPROVED EQUAL.

DESIGN CONDITIONS

UNIT	AREA SERVED	INSIDE HEATING DB °F	INSIDE COOLING DB °F	INSIDE COOLING WB °F	OUTSIDE HEATING DB °F	OUTSIDE COOLING DB °F	OUTSIDE COOLING WB °F
AHU-1,2,3,4,5	2ND FLOOR, MCC ROOM	70.0	73.0	61.0	27.1	95.5	77.3
UNIT HEATERS	1ST FLOOR	55.0	---	---	27.1	---	---

AIR DISTRIBUTION DEVICES

SYMBOL	LOCATION	FUNCTION	TYPE	SURFACE TYPE
A	CEILING	SUPPLY	PLAQUE FACE	LAY-IN
B	CEILING	RETURN/ EXHAUST	PERFORATED REGISTER	LAY-IN
C	CEILING/ WALL	RETURN/ EXHAUST	LOUVERED FACE	SURFACE MOUNT
D	CEILING	SUPPLY	LOUVERED FACE	SURFACE MOUNT



SPLIT SYSTEM UNITS

	SYMBOL	AHU-1/HP-1	AHU-2/HP-2
	TYPE	VERTICAL	VERTICAL
	TOTAL CFM	1,920	1,060
	MINIMUM OUTSIDE AIR, CFM	230	125
	EXTERNAL STATIC PRESSURE, IN. H2O	0.500	0.500
COOLING	TOTAL CAPACITY BTU/HR	55,300	30,900
COOLING	SENSIBLE CAPACITY BTU/HR	46,700	25,800
COOLING	ENT. AIR DB. °F	77.2	77.4
COOLING	ENT. AIR WB. °F	64.5	64.7
COOLING	COND. AMBIENT TEMP., °F	95.5	95.5
COOLING	MINIMUM (SEASONAL) EER	14.0	14.0
HEATING	TOTAL CAPACITY BTU/HR	41,800	23,000
HEATING	ENT. AIR DB. °F	64.9	64.9
HEATING	LVG. AIR DB. °F	85.0	85.0
HEATING	AMBIENT AIR TEMP., °F	27.1	27.1
HEATING	MINIMUM COP AT 17°F	2.3	2.3
AUX. HEAT	CAPACITY, KW AT 208 VOLT DERATE	7.2	3.6
AUX. HEAT	NO. OF STAGES	1	1
	LOCATION	MECH ROOM 201	MECH ROOM 216
	ELECTRICAL CHARACTERISTICS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS
	REMARKS	①②③	①②

① HEAT PUMP SHALL BE TRANE MODEL: 4TWR4/TEM4 OR APPROVED EQUAL SPLIT SYSTEM HEAT PUMP. PROVIDE UNIT WITH 7-DAY AUTO-CHANGEOVER THERMOSTAT AND FACTORY APPLIED SALT SPRAY COIL COATING. CARRIER AND DAIKIN ARE APPROVED EQUALS.

② SPLIT SYSTEMS FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS AND CYCLE AS REQUIRED DURING UNOCCUPIED HOURS. THE UNIT SHALL CYCLE THE REVERSING VALVE, COMPRESSOR, AND AUX. STRIP HEAT AS REQUIRED TO MAINTAIN SET POINTS.

③ UPON ACTIVATION OF THE SMOKE ALARM, THE UNIT SHALL DENERGIZE AND THE ANNUNCIATOR SHALL ACTIVATE.

DUCTLESS SPLIT SYSTEMS

	SYMBOL	AHU-3/HP-3	AHU-4/HP-4	AHU-5/HP-5
	TYPE	CEILING CASSETTE	CEILING CASSETTE	CEILING CASSETTE
	NOMINAL SIZE, TONS	3.0	3.0	3.0
	TOTAL CFM	1,060	1,060	1,060
	MINIMUM OUTSIDE AIR, CFM	0	0	0
	EXTERNAL STATIC PRESSURE, IN. H2O	---	---	---
COOLING	TOTAL CAPACITY BTU/HR	24,600	24,600	24,600
COOLING	SENSIBLE CAPACITY BTU/HR	24,600	24,600	24,600
COOLING	ENT. AIR DB. °F	73.0	73.0	73.0
COOLING	ENT. AIR WB. °F	61.0	61.0	61.0
COOLING	COND. AMBIENT TEMP., °F	95.5	95.5	95.5
COOLING	MINIMUM (SEASONAL) EER	14.2	14.2	14.2
HEATING	TOTAL CAPACITY BTU/HR	17,200	17,200	17,200
HEATING	ENT. AIR DB. °F	70.0	70.0	70.0
HEATING	LVG. AIR DB. °F	85.0	85.0	85.0
HEATING	AMBIENT AIR TEMP., °F	27.1	27.1	27.1
HEATING	MINIMUM COP AT 17°F	2.37	2.37	2.37
	LOCATION	MCC ROOM	MCC ROOM	MCC ROOM
	ELECTRICAL CHARACTERISTICS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS
	REMARKS	①②	①②	①②

① HEAT PUMP SHALL BE MITSUBISHI MODEL: PLA/PUZ OR APPROVED EQUAL 4-WAY BLOW CEILING CASSETTE DUCTLESS SPLIT SYSTEM HEAT PUMP. PROVIDE UNIT WITH 7-DAY PROGRAMMABLE AUTO-CHANGEOVER THERMOSTAT, FACTORY APPLIED SALT SPRAY COIL COATING, AND LOW AMBIENT CONTROLS. TRANE, CARRIER, AND DAIKIN ARE APPROVED EQUALS. UNITS ARE SIZED TO RUN A PART LOAD DURING NORMAL OPERATION, OR WITH TWO UNITS AT FULL LOAD IN EVENT OF UNIT FAILURE. VERIFY INDIVIDUAL UNITS MEET THE SENSIBLE LOAD SCHEDULED.

② SPLIT SYSTEM SHALL CYCLE THE FAN, REVERSING VALVE, AND COMPRESSOR AS REQUIRED TO MAINTAIN SET POINTS.

UNIT HEATER

SYMBOL	UH-1	UH-2	UH-3	UH-4
TYPE	HORIZONTAL	HORIZONTAL	HORIZONTAL	HORIZONTAL
CAPACITY, KW DERATED AT 208 VOLTS	3.00	3.00	3.00	3.00
MOUNTING HEIGHT TO BOTTOM, FT.	8'-0"	8'-0"	8'-0"	8'-0"
LOCATION	AUXILARY ROOM	AUXILARY ROOM	AUXILARY ROOM	AUXILARY ROOM
ELECTRICAL CHARACTERISTICS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS
REMARKS	①②	①②	①②	①②

① HEATER SHALL BE Q-MARK MODEL: MUH OR APPROVED EQUAL HORIZONTAL DISCHARGE UNIT HEATER. UNIT HEATER SHALL BE PROVIDED WITH BUILT-IN THERMOSTAT AND MOUNTING BRACKETS.

② UNIT HEATERS SHALL CYCLE AS REQUIRED TO MAINTAIN 55.0°F (ADJ.) SET POINT IN AREA SERVED.

LOUVER

SYMBOL	LV-1	LV-2	LV-3	LV-4
TYPE	INTAKE	INTAKE	EXHAUST	EXHAUST
AIRFLOW, CFM	3,500	3,500	3,500	3,500
FREE AREA, SQ FT	4.12	4.12	4.12	4.12
APPROXIMATE SIZE, WIDTH X HEIGHT, INCH	54 X 30	54 X 30	54 X 30	54 X 30
PRESSURE DROP, IN. H2O	0.090	0.090	0.120	0.120
MOUNTING HEIGHT AFF TO BOTTOM OF LOUVER	8'-0"	8'-0"	15'-0"	15'-0"
LOCATION	AUXILIARY ROOM	AUXILIARY ROOM	AUXILIARY ROOM	AUXILIARY ROOM
REMARKS	①②	①③	①②	①③

① LOUVER SHALL BE GREENHECK MODEL: EAC-601 OR APPROVED EQUAL 6" THICK CONCEALED LINKAGE J-BLADE COMBINATION ALUMINUM LOUVER AND DAMPER. PROVIDE DAMPER WITH 24VAC MOTOR OPERATED ACTUATOR AND BIRD SCREEN. RUSKIN IS AN APPROVED EQUAL. COORDINATE LOUVER COLOR AND FINISH WITH ARCHITECT.

② LV-1 AND LV-3 SHALL INTERLOCK WITH EF-4.

③ LV-2 AND LV-4 SHALL INTERLOCK WITH EF-5.

EXHAUST FANS

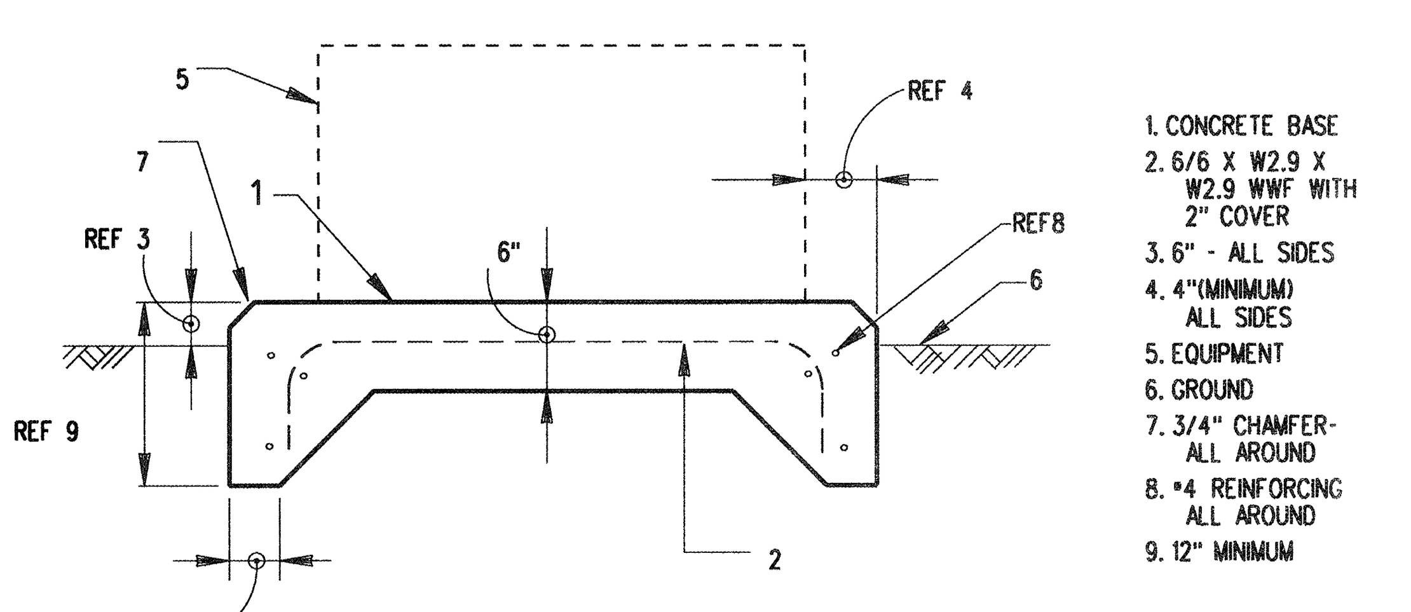
SYMBOL	EF-1	EF-2	EF-3	EF-4	EF-5	EF-6
TYPE	IN-LINE	IN-LINE	CEILING CENTRIFUGAL	IN-LINE	IN-LINE	UTILITY, UP BLAST
CFM	100	100	100	3,500	3,500	1,180
EXTERNAL STATIC PRESSURE, IN. H2O	0.375	0.375	0.375	0.375	0.375	0.450
MAXIMUM SONES	1.0	1.0	1.5	15.6	15.6	5.7
MAXIMUM FAN SPEED, RPM	775	775	750	1,350	1,350	750
MAXIMUM OUTLET VELOCITY, FPM	---	---	---	---	---	---
MAXIMUM MOTOR POWER	60 W	60 W	130 W	2 HP	2 HP	3/4 HP
DRIVE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
LOCATION	BATHROOM 211	BATHROOM 210	JANITOR'S CLOSET 209	AUXILIARY ROOM	AUXILIARY ROOM	2ND FLOOR EXTERIOR
ELECTRICAL CHARACTERISTICS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS	SEE ELEC DRAWINGS
REMARKS	②	②	①	③	③	④

① FAN SHALL BE GREENHECK MODEL SP OR APPROVED EQUAL CEILING MOUNT CENTRIFUGAL EXHAUST FAN. PROVIDE FAN WITH DISCONNECT, GRILLE, AND ROOF CAP. FAN SHALL INTERLOCK WITH LIGHTS. COORDINATE WITH ELECTRICAL CONTRACTOR. COOK IS AN APPROVED EQUAL.

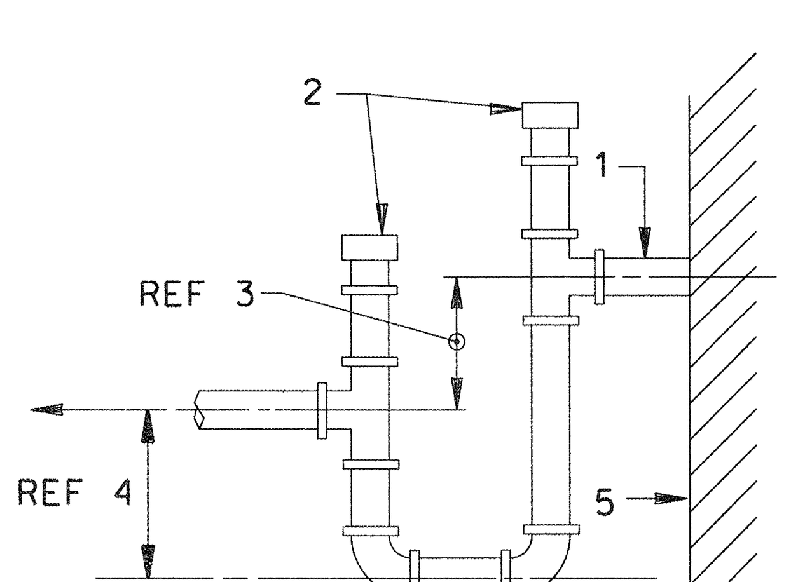
② FAN SHALL BE GREENHECK MODEL CSP OR APPROVED EQUAL IN-LINE EXHAUST FAN. PROVIDE FAN WITH DISCONNECT AND ROOF CAP. FAN SHALL BE INTERLOCKED WITH LIGHTS. COORDINATE WITH ELECTRICAL CONTRACTOR. COOK IS AN APPROVED EQUAL.

③ FAN SHALL BE GREENHECK MODEL SQ OR APPROVED EQUAL IN-LINE EXHAUST FAN. PROVIDE FAN WITH WALL MOUNTED COOLING THERMOSTAT. COOK IS AN APPROVED EQUAL.

④ FAN SHALL BE GREENHECK MODEL SWD OR APPROVED EQUAL BACKWARD INCLINED CENTRIFUGAL UTILITY FAN. PROVIDE FAN WITH DISCONNECT, SIDE WALL MOUNTING SUPPORT, AND WEATHER CAP DISCHARGE ACCESSORY. FAN SHALL BE CONTROLLED BY THE FUME HOOD. COOK IS AN APPROVED EQUAL.

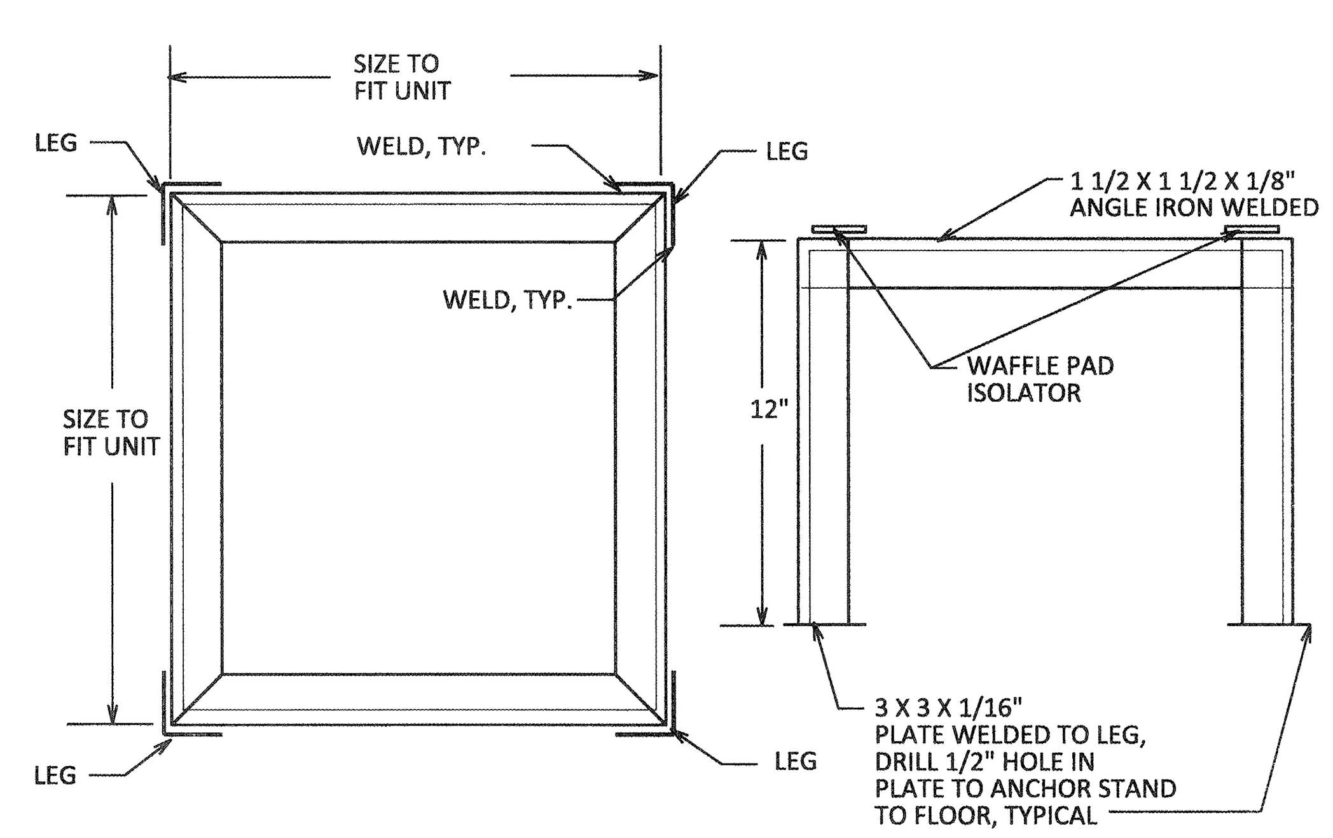


1 EXTERIOR CONCRETE BASE
H001 SCALE: NOT TO SCALE



1. PIPE FULL SIZE OF AIR UNIT DRAIN CONNECTION.
2. CAPS
3. MINIMUM HEIGHT SHALL BE EQUAL TO FAN PLENUM NEGATIVE PRESSURE PLUS 1.0 INCH.
4. MINIMUM HEIGHT SHALL BE EQUAL TO HEIGHT OF REF 3 TIMES 0.5 PLUS 1 INCH.
5. AIR UNIT CASING

2 CONDENSATE DRAIN TRAP - DRAW THROUGH
H001 SCALE: NOT TO SCALE



3 AIR HANDLER STAND DETAIL
H001 SCALE: NOT TO SCALE

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 42090 JEFFREY SHANE MITCHELL
1/11/19

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY
HVAC - LEGENDS, DETAILS, AND SCHEDULES

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	JM
DESIGNED:	JM
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

H001

CADD PLOT 16-APR-2019 16:25 MPFEILER

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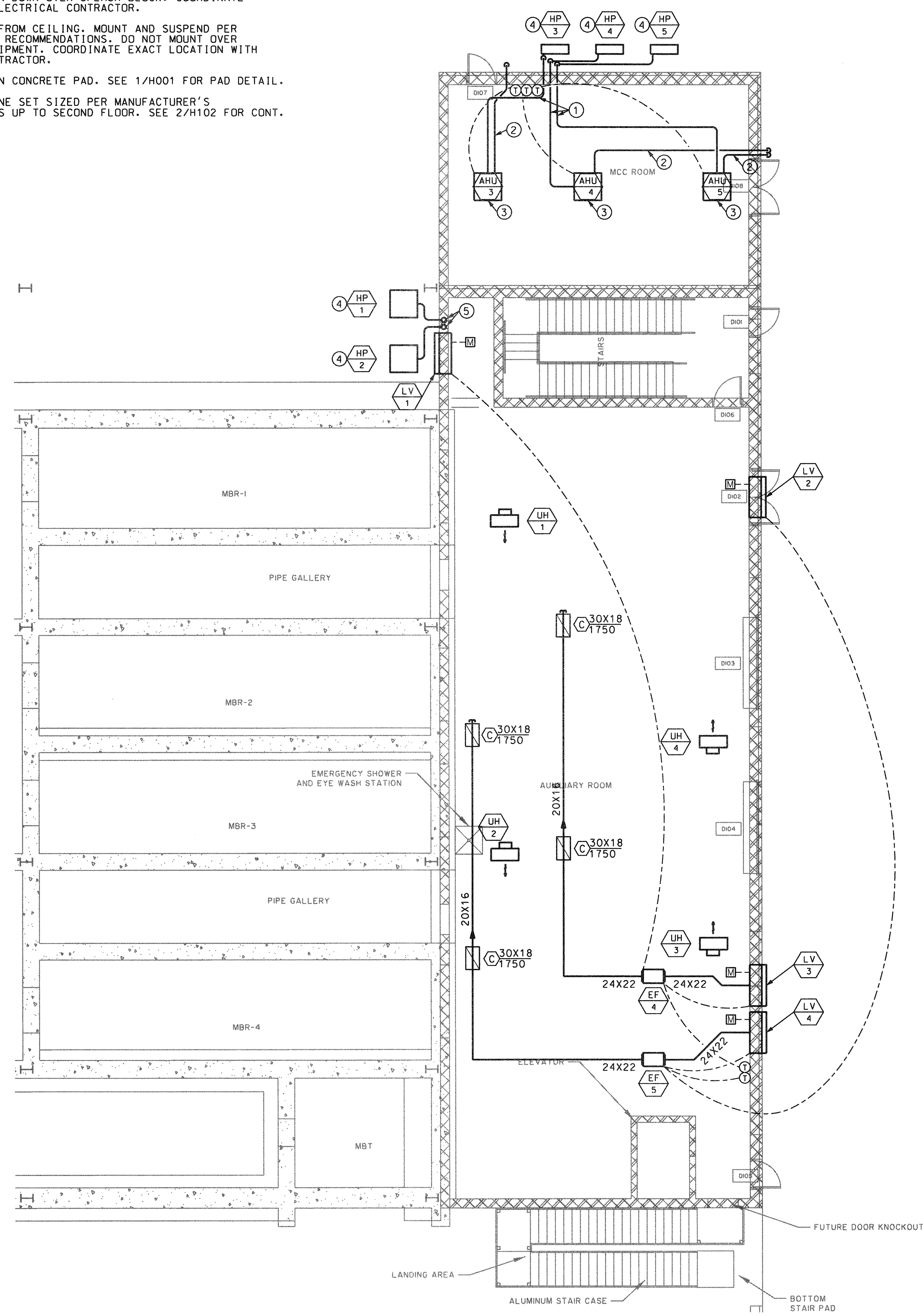
NOTES (1/H102):

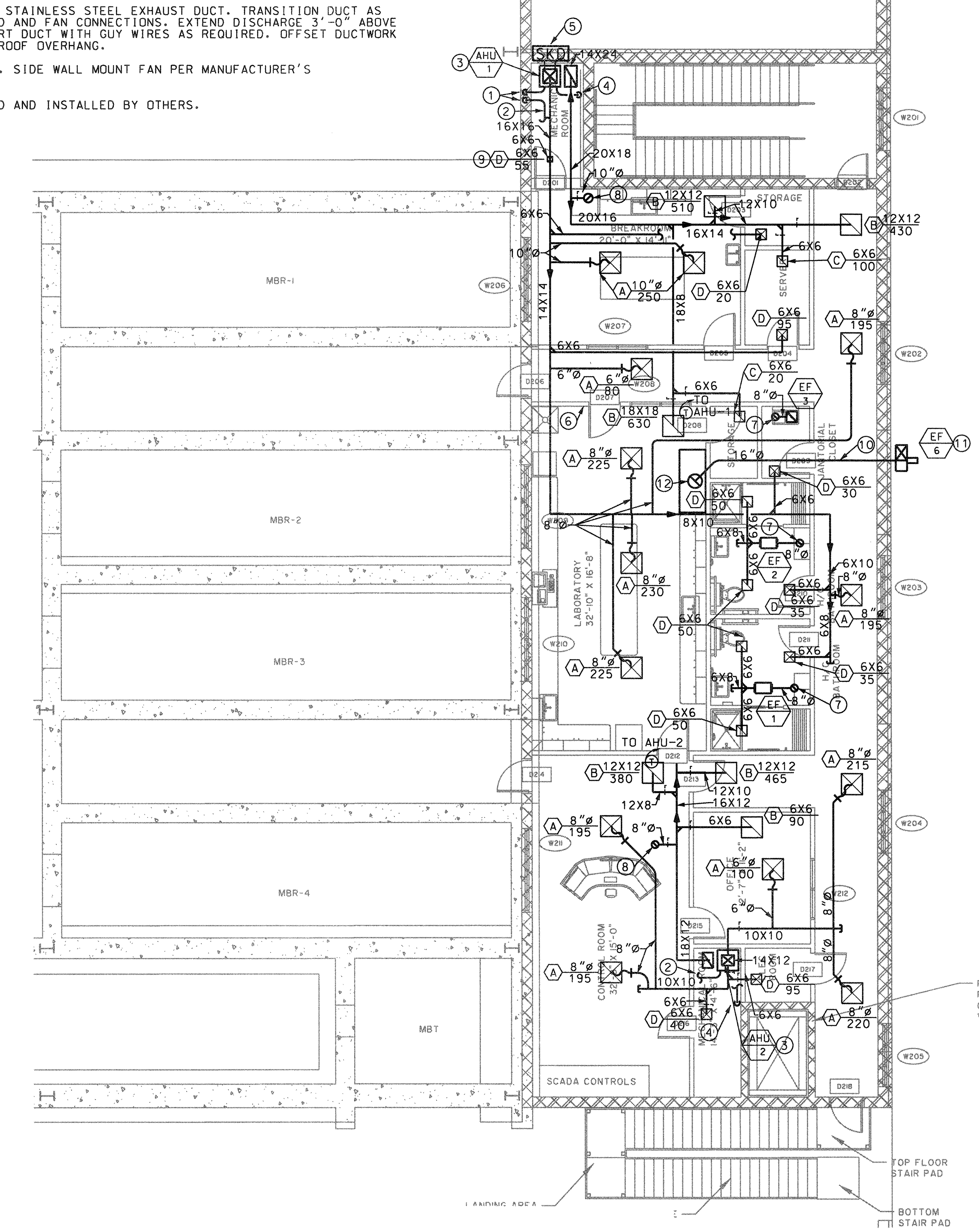
1. REFRIGERANT LINE SET. SIZE PER MANUFACTURER'S RECOMMENDATIONS. ROUTE HIGH IN MCC ROOM. DO NOT ROUTE OVER ELECTRICAL EQUIPMENT. COORDINATE ROUTING WITH ELECTRICAL CONTRACTOR.
2. CONDENSATE LINE SET FULL SIZE OF UNIT CONNECTION. ROUTE HIGH IN MCC ROOM. DO NOT ROUTE OVER ELECTRICAL EQUIPMENT. TURN DOWN OVER SPLASH BLOCK. COORDINATE ROUTING WITH ELECTRICAL CONTRACTOR.
3. AHU SUSPENDED FROM CEILING. MOUNT AND SUSPEND PER MANUFACTURER'S RECOMMENDATIONS. DO NOT MOUNT OVER ELECTRICAL EQUIPMENT. COORDINATE EXACT LOCATION WITH ELECTRICAL CONTRACTOR.
4. UNIT MOUNTED ON CONCRETE PAD. SEE 1/H001 FOR PAD DETAIL.
5. REFRIGERANT LINE SET SIZED PER MANUFACTURER'S RECOMMENDATIONS UP TO SECOND FLOOR. SEE 2/H102 FOR CONT.



1 H102 FIRST FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

NOTES (2/H102):

1. REFRIGERANT LINE SET SIZED PER MANUFACTURER'S RECOMMENDATIONS DOWN TO FIRST FLOOR. SEE 1/H102 FOR CONT.
2. ROUTE REFRIGERANT LINE SET IN CEILING SPACE AS REQUIRED. COORDINATE REFRIGERANT LINE LENGTH WITH MANUFACTURER FOR REQUIRED REFRIGERANT ACCESSORIES AND UNIT CAPACITY DERATE DUE TO LINE LENGTH.
3. MOUNT UNIT ON EQUIPMENT STAND. DUCT RETURN TO UNDERSIDE OF UNIT. TRANSITION FOR CONNECTION AS REQUIRED. SEE 3/H001 FOR EQUIPMENT STAND DETAIL.
4. PROVIDE P-TRAP FULL SIZE OF UNIT CONNECTION. EXTEND AND TURN DOWN CONDENSATE DRAIN LINE OVER FLOOR DRAIN. COORDINATE FLOOR DRAIN LOCATION WITH PLUMBING DRAWINGS. SEE 2/H001 FOR P-TRAP DETAIL.
5. PROVIDE AND INSTALL SMOKE DETECTOR IN SUPPLY DUCT PRIOR TO FIRST TAKE-OFF IN LOCATION ACCESSIBLE IN MECHANICAL ROOM. SMOKE DETECTOR SHALL BE 115VAC PHOTOELECTRIC DUCT MOUNTED TYPE AND PROVIDE REMOTE STATION WITH AUDIBLE HORN AND RED ALARM LED IN LOCATION SHOWN.
6. LOCATE FIRE ALARM REMOTE STATION HERE.
7. DUCT UP TO EXHAUST ROOF CAP PROVIDED WITH EXHAUST FAN.
8. DUCT UP TO IN-TAKE ROOF CAP. ROOF CAP SHALL BE GREENHECK MODEL: RJ-6X9 OR APPROVED EQUAL ROOF CAP WITH BIRD SCREEN. REMOVE BACKDRAFT DAMPER IN FIELD TO ALLOW FOR INTAKE OPERATIONS. TRANSITION DUCT AS REQUIRED FOR CONNECTION TO ROOF CAP.
9. AIR DEVICE ON UNDER SIDE OF DUCT. PROVIDE TAKE-OFF FULL SIZE OF AIR DEVICE NECK AND PROVIDE BALANCING DAMPER IN DROP.
10. FUME HOOD WELDED STAINLESS STEEL EXHAUST DUCT. TRANSITION DUCT AS REQUIRED FOR HOOD AND FAN CONNECTIONS. EXTEND DISCHARGE 3'-0" ABOVE ROOF LINE. SUPPORT DUCT WITH GUY WIRES AS REQUIRED. OFFSET DUCTWORK AS REQUIRED FOR ROOF OVERHANG.
11. HOOD EXHAUST FAN. SIDE WALL MOUNT FAN PER MANUFACTURER'S RECOMMENDATIONS.
12. LAB HOOD PROVIDED AND INSTALLED BY OTHERS.



2 H102 SECOND FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 42090 JEFFREY SHANE MITCHELL
1/21/19

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TRAVIS FIELD WATER RECLAMATION FACILITY
HVAC - FLOOR PLANS

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	JM
DESIGNED:	JM
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

H102

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LEGEND & ABBREVIATIONS

ABBREVIATION	SYMBOL	DESCRIPTION
W, S, D	S	SANITARY WASTE, SOIL & DRAIN
V		VENT - SANITARY
CW		DOMESTIC COLD WATER
HW		DOMESTIC HOT WATER (110 °F)
HWR		DOMESTIC HOT WATER RETURN
GV		GATE VALVE
GLV		GLOBE VALVE
BV		BALL VALVE
CV		CHECK VALVE
BLV		BUTTERFLY VALVE
STR		STRAINER
		THERMOMETER
		PRESSURE GAUGE
		UNION
WHA		WATER HAMMER ARRESTOR 'SIZE'
RV		PRESSURE OR TEMPERATURE RELIEF VALVE
CO		CLEANOUT
FCO		FLOOR CLEANOUT
GCO		GRADE CLEANOUT
WCO		WALL CLEANOUT
		P-TRAP
FD		FLOOR DRAIN 'TYPE'
RD		ROOF DRAIN 'TYPE'
AD		AREA DRAIN 'TYPE'

ABBREVIATION	DESCRIPTION
AB	ABOVE
A/C	ABOVE CEILING
AFF	ABOVE FINISHED FLOOR
A/S	AT STRUCTURE
BFP	BACKFLOW PREVENTER
B/F	BELOW FLOOR
CLG	CEILING
℄	CENTER LINE
CONN	CONNECT(ION)
CONT	CONTINUATION
DN	DOWN
DWGS	DRAWINGS
ELEC	ELECTRICAL
EL	ELEVATION
EXP	EXPANSION
FIN	FINISHED
FU	FIXTURE UNITS
FL	FLOOR
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HB	HOSE BIBB
IE	INVERT ELEVATION
L	LEADER
MTD	MOUNTED
SAN	SANITARY
S	SOIL
TYP	TYPICAL
U/G	UNDERGROUND
VTR	VENT THRU ROOF
NFWH	NON-FREEZE WALL HYDRANT
W	WASTE

PLUMBING FIXTURES

SPEC. TYPE	FIXTURE	MINIMUM INDIVIDUAL CONNECTION				REMARKS
		COLD	HOT	VENT	WASTE	
P-1	WATER CLOSET	1/2"	---	---	4"	18" TO RIM ①
P-3	LAVATORY	1/2"	1/2"	---	1 1/4"	34" TO RIM ①
P-4	MOP SINK	3/4"	3/4"	---	3"	FLOOR MOUNT
P-4A	LAUNDRY MOP SINK	1/2"	1/2"	---	1 1/2"	FREESTANDING
P-5	ELECTRIC WATER COOLER	1/2"	---	---	1 1/2"	34" TO BUBBLER ①
P-6	SINK	1/2"	1/2"	---	1 1/2"	COUNTERTOP ①
P-6*	LAB SINK	1/2"	1/2"	---	1 1/2"	②
P-7	SHOWER	1/2"	1/2"	---	2"	①③
P-8	EMERGENCY SHOWER	1 1/2"	1"	---	---	④
P-9	ICE MAKER CONNECTION BOX	1/2"	---	---	---	36" AFF

① FIXTURE, TRIM AND INSTALLATION SHALL COMPLY TO ADA REQUIREMENTS.

② FIXTURE AND TRIM PROVIDED BY OTHERS. CONNECT AS REQUIRED.

③ SHOWER STALL BY OTHERS. PROVIDE FLOOR DRAIN AND TRIM.

④ EMERGENCY SHOWER BY OTHERS. PROVIDE TEMPERING VALVE AND CONNECT AS REQUIRED.

GENERAL NOTES:

1. ALL UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS ONLY. VERIFY EXACT LOCATION AND INVERT ELEVATION IN FIELD BEFORE BEGINNING WORK.
2. WALL HYDRANTS SHALL BE MOUNTED 1'-6" ABOVE GRADE, UNLESS NOTED OTHERWISE.
3. HOSE BIBBS SHALL BE MOUNTED 1'-6" ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE.
4. COORDINATE ALL WORK WITH OTHER TRADES.

PUMPS

PUMP NUMBER	HWC-1	SP-1
SPEC. TYPE	---	---
SERVICE	DOM. HOT WATER	SUMP PUMP
LOCATION	MECH. ROOM	ELEV. PIT
CAPACITY, GPM	2	30
DISCHARGE HEAD, FT.	10	25
SUCTION PRESS., FT.	---	---
FLUID TEMP.,°F.	120	---
RPM	---	---
HP	1/12	1/2
CONTROLLER	AQUASTAT	FLOAT SWITCH
ELECTRICAL CHARACTERISTICS	SEE ELEC. DWGS.	SEE ELEC. DWGS.
REMARKS		①

① SUMP PUMP SHALL BE LIBERTY PUMPS SUMP PUMP WITH OIL MONITOR AND ALARM MODEL ELV280 OR EQUAL.

WATER HEATERS - ELECTRIC

HEATER NUMBER	WH-1	WH-2
SPEC. TYPE	---	---
LOCATION	MECH ROOM	BELT PRESS BLD
STORAGE, GALLONS	119	119
RECOVERY, GPH ①	105	105
ENTERING WATER TEMPERATURE, °F.	50	50
LEAVING WATER TEMPERATURE, °F.	120	120
INPUT, KW	18	18
ELECTRICAL CHARACTERISTICS	480V, 3PH	480V, 3PH
REMARKS	②	②

① AT 70 DEGREE RISE

② WATER HEATER SHALL BE A.O. SMITH DRE-120-18 OR EQUAL.

CADD PLOT 16-APR-2019 16:27 MPEAVLER

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED No. 25438 PROFESSIONAL ENGINEER MICHELLE PEAVLER 1-11-19

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY

PLUMBING LEGENDS AND SCHEDULE

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	JPG
DESIGNED:	JPG
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

P00.1

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PLUMBING SPECIFICATIONS

CODES

A. THE PLUMBING INSTALLATION AND EQUIPMENT SHALL CONFORM TO THE FOLLOWING:
   1. INTERNATIONAL PLUMBING CODE, 2012 EDITION WITH GEORGIA AMENDMENTS.

TESTING PIPE SYSTEMS

A. GENERAL, CONCEALED PIPING AND INSULATED PIPING SHALL BE TESTED IN PLACE BEFORE CONCEALING OR COVERING. TEST SHALL BE CONDUCTED IN THE PRESENCE OF THE ARCHITECT OR HIS DESIGNATED REPRESENTATIVE. PIPING LOCATED UNDERGROUND SHALL BE TESTED BEFORE BACKFILLING. EQUIPMENT, MATERIALS AND INSTRUMENTS FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL COST TO THE OWNER.

B. PLUMBING SYSTEMS
   1. SANITARY WASTE AND VENT PIPING. THE PIPING SHALL BE TESTED WITH WATER BEFORE INSTALLING FIXTURES. WATER TESTS SHALL BE APPLIED TO THE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. IF THE TEST IS APPLIED TO THE ENTIRE SYSTEM, ALL OPENINGS IN THE PIPING SHALL BE CLOSED EXCEPT THE HIGHEST OPENING, AND THE SYSTEM SHALL BE FILLED WITH WATER AND TESTED WITH AT LEAST A 10 FT. HEAD OF WATER. IN TESTING SUCCESSIVE SECTIONS, AT LEAST THE UPPER 10 FT. OF THE NEXT PRECEDING SECTION SHALL BE TESTED SO THAT EACH JOINT OR PIPE IN THE BUILDING EXCEPT THE UPPERMOST 10 FT. OF THE SYSTEM HAS BEEN SUBMITTED TO A TEST OF AT LEAST 10 FT. HEAD OF WATER. THE WATER SHALL BE KEPT IN THE SYSTEM, OR IN THE PORTION UNDER TEST FOR AT LEAST 2 HOURS BEFORE THE INSPECTION STARTS. THE SYSTEM SHALL BE TIGHT AT ALL JOINTS.
   2. WATER PIPING. UPON COMPLETION OF THE ROUGH-IN AND BEFORE SETTING FIXTURES, THE ENTIRE DOMESTIC COLD WATER, HOT WATER, AND HOT WATER CIRCULATION PIPING SYSTEMS SHALL BE TESTED AT HYDROSTATIC PRESSURE OF 100 PSIG AND PROVED TIGHT AT THIS PRESSURE FOR A PERIOD OF NOT LESS THAN 2 HOURS IN ORDER TO PERMIT INSPECTION OF ALL JOINTS. WHERE A PORTION OF THE WATER PIPING SYSTEM IS TO BE CONCEALED BEFORE COMPLETION, THIS PORTION SHALL BE TESTED SEPARATELY IN A MANNER DESCRIBED FOR THE ENTIRE SYSTEM.

DOMESTIC WATER SYSTEM

A. PROVIDE COMPLETE SYSTEMS OF COLD AND HOT WATER PIPING AND ACCESSORIES SO THAT EVERY FIXTURE AND PIECE OF WATER USING EQUIPMENT IN THIS AREA OF THE BUILDING WILL BE FURNISHED WITH A WATER SUPPLY.

B. EXTEND THE DOMESTIC COLD AND HOT WATER PIPING AND CONNECT TO THE EXISTING PIPING, AS SHOWN ON THE DRAWINGS.

C. PIPING FITTINGS AND JOINTS
   1. PIPE AND FITTINGS SHALL BE AS LISTED HEREIN AND SHALL BE USED ON THE SERVICES INDICATED.
   2. TYPE "L" HARD COPPER TUBING, FED. SPEC. NO. WW-T-799, WITH SOLDERED JOINTS AND WROUGHT COPPER SOCKET FITTINGS FOR ALL WATER PIPING.
   3. SOLDER JOINTS (FOR TYPE 'L' COPPER TUBING) SHALL BE MADE USING A 95-5 TIN-ANTIMONY SOLDER WITH A COMPATIBLE FLUX.
   4. PROPRESS SYSTEM IS APPROVED FOR USE.

D. DISINFECTION
   1. ALL DOMESTIC WATER SERVICE AND SUPPLY PIPING INSTALLED UNDER THIS DIVISION SHALL BE DISINFECTED WITH CHLORINE BEFORE IT IS PLACED INTO OPERATION. THE CHLORINATING MATERIAL SHALL BE LIQUID CHLORINE CONFORMING TO FEDERAL SPECIFICATION BB-C-120 AND SHALL BE INTRODUCED TO THE SYSTEM BY EXPERIENCED OPERATORS ONLY. THE CHLORINE SOLUTION APPLIED TO THE PIPING SECTIONS OR SYSTEM SHALL CONTAIN AT LEAST FIFTY PARTS PER MILLION OF AVAILABLE CHLORINE AND SHALL REMAIN IN THE SECTIONS OR SYSTEM FOR A PERIOD OF NOT LESS THAN SIXTEEN (16) HOURS. DURING THE DISINFECTION PERIOD ALL VALVES SHALL BE OPENED AND CLOSED AT LEAST FOUR TIMES. AFTER THE DISINFECTION PERIOD THE CHLORINATED WATER SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAR WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN TWO-TENTHS - (0.2) - PARTS PER MILLION. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT CERTIFICATION THAT THE SYSTEM WAS DISINFECTED.

SANITARY, WASTE, AND VENT SYSTEM

A. PROVIDE A COMPLETE SYSTEM OF SANITARY, WASTE, AND VENT PIPING AS SHOWN ON THE DRAWINGS.

B. PIPE FITTINGS AND JOINTS
   1. PIPE FITTINGS SHALL BE AS LISTED HEREIN AND SHALL BE USED FOR THE SERVICES INDICATED.
   2. SCHEDULE 40 PRESSURE RATED PVC PIPE AND DWV FITTINGS WITH SOLVENT GLUED JOINTS FOR ALL SANITARY, WASTE AND VENT PIPING.
   3. SOLVENT GLUED JOINTS SHALL BE MADE WITH PRIMER AND GLUE ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.

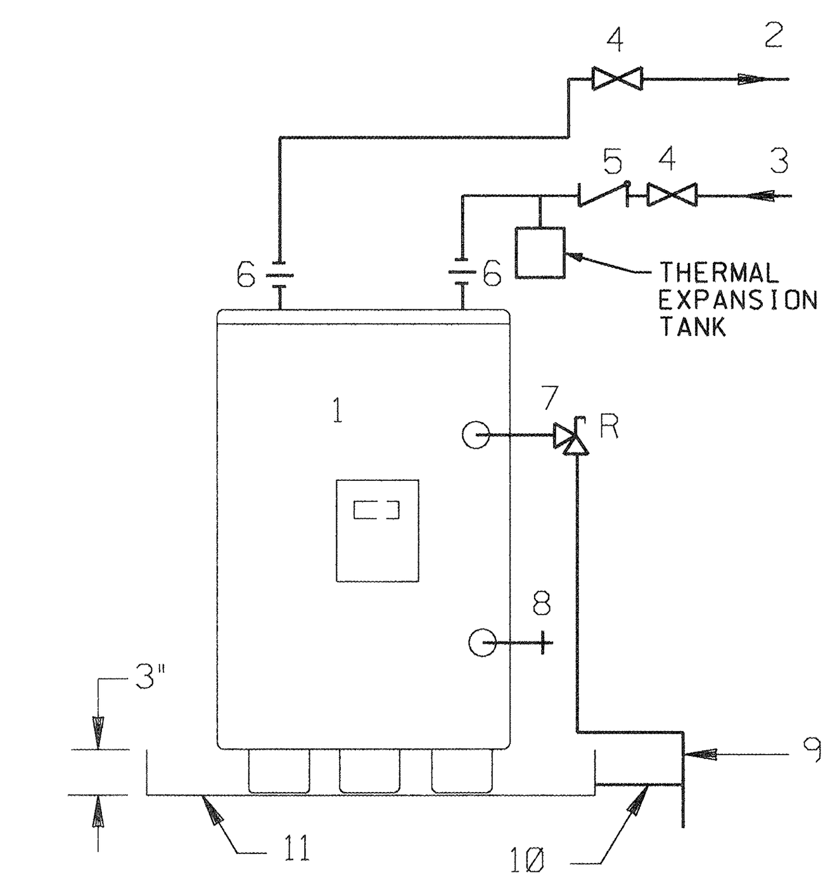
C. INSTALLATION
   1. HORIZONTAL SOIL AND WASTE PIPING 2-1/2 INCHES IN SIZE AND SMALLER SHALL BE SLOPED AT A MINIMUM OF 1/4 INCH PER FOOT. HORIZONTAL SOIL AND WASTE PIPING 3 INCHES IN SIZE AND LARGER SHALL BE SLOPED AT A MINIMUM OF 1/8 INCH PER FOOT.
   2. HORIZONTAL VENT BRANCHES SHALL BE KEPT ABOVE THE HIGHEST FIXTURE SERVED BY THE VENT BRANCH IN ORDER TO PRECLUDE THE POSSIBILITY OF VENTS BEING USED AS WASTE PIPES. HORIZONTAL VENT BRANCHES SHALL BE SLOPED TO PREVENT THE ACCUMULATION OF WATER OR SCALE THEREIN.
   3. ON SOIL, WASTE AND VENT PIPING CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCING FITTINGS AND CHANGES IN PIPE DIRECTION SHALL BE MADE WITH FITTINGS. NO BUSHINGS WILL BE ALLOWED.
   4. DURING CONSTRUCTION ALL PIPE OPENINGS, NOT BEING WORKED ON, SHALL BE PLUGGED OR CAPPED TO PREVENT FOREIGN OBJECTS FROM ENTERING SYSTEM.

INSULATION

A. ALL WATER PIPING SHALL BE INSULATED WITH FIBERGLASS JACKETED PIPE INSULATION.

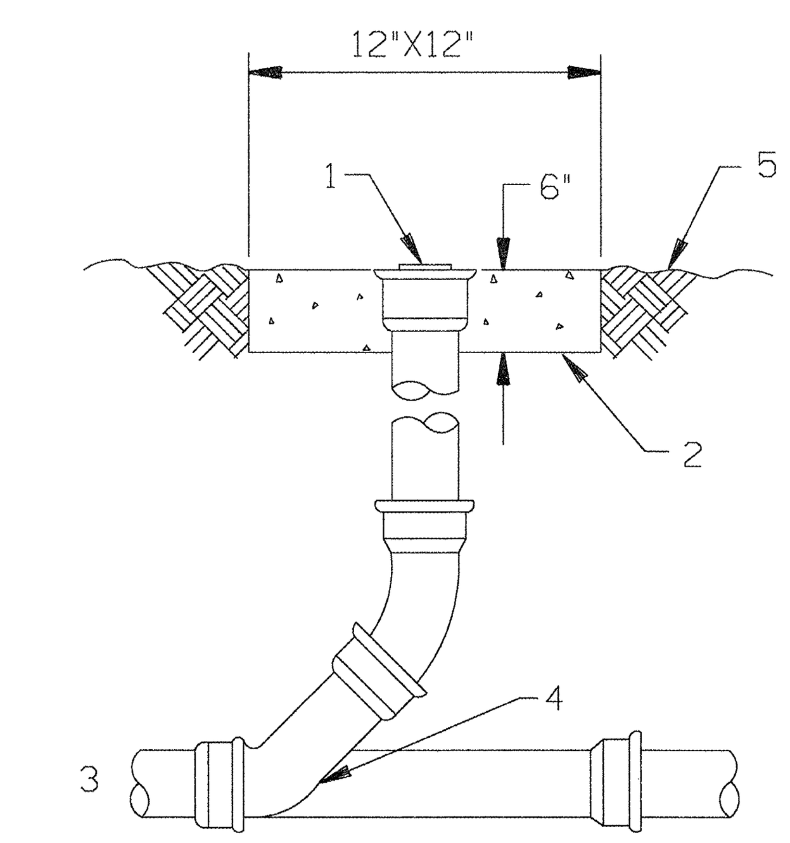
PLUMBING FIXTURES

A. WATER CLOSET P-1
   FIXTURE KOHLER K-3713-0
   SEAT BEMIS B1655SSC000
B. LAVATORY P-3
   FIXTURE KOHLER K-2030
   FAUCET KOHLER K-15199
   DRAIN PROFLO PFHGD
   P-TRAP PROFLO PF8872
   SUPPLY VALVES AND RISERS BRASSCRAFT
   P-TRAP INSULATION KIT PROFLO PF203WH
   CHAIR CARRIER J.R.SMITH
C. MOP SINK P-4
   FIXTURE FIAT MSB3624
   FAUCET FIAT 830-AA
   HOSE FIAT 832-AA
D. LAUNDRY SINK P-4A
   FIXTURE FIAT TAT1
E. ELECTRIC WATER COOLER P-5
   FIXTURE ELKAY EZS8C
   P-TRAP PROFLO PF39400B
   SUPPLY VALVES AND RISERS BRASSCRAFT
   CHAIR CARRIER J.R. SMITH
F. SINK P-6
   FIXTURE ELKAY LRAD222265
   FAUCET ELKAY LK1001CR
   DRAIN ELKAY CRUMB CUP
   P-TRAP PROFLO
   SUPPLIERS BRASSCRAFT
G. SHOWER P-7
   DRAIN - TYPE 'A' FLOOR DRAIN
   SHOWER VALVE AND TRIM SPEAKMAN SM-3040
H. EMERGENCY SHOWER
   FIXTURE BY OTHERS
   MIXING VALVE SPEAKMAN SE-350
I. ICE MAKER BOX P-9
   FIXTURE SIOUX CHIEF 696-1010MF
J. FLOOR DRAIN FD'A'
   J.R. SMITH 2010
K. FLOOR DRAIN FD'B'
   J.R. SMITH 2010-A-B W/3591
L. NFWH
   J.R. SMITH S5509QTSAP
M. WATER HEATER WH-1
   A.O. SMITH DRE-120-18
N. SUMP PUMP SP-1
   LIBERTY PUMP ELV-280
O. CIRCULATION PUMP HWC-1
   TACO "00" SERIES



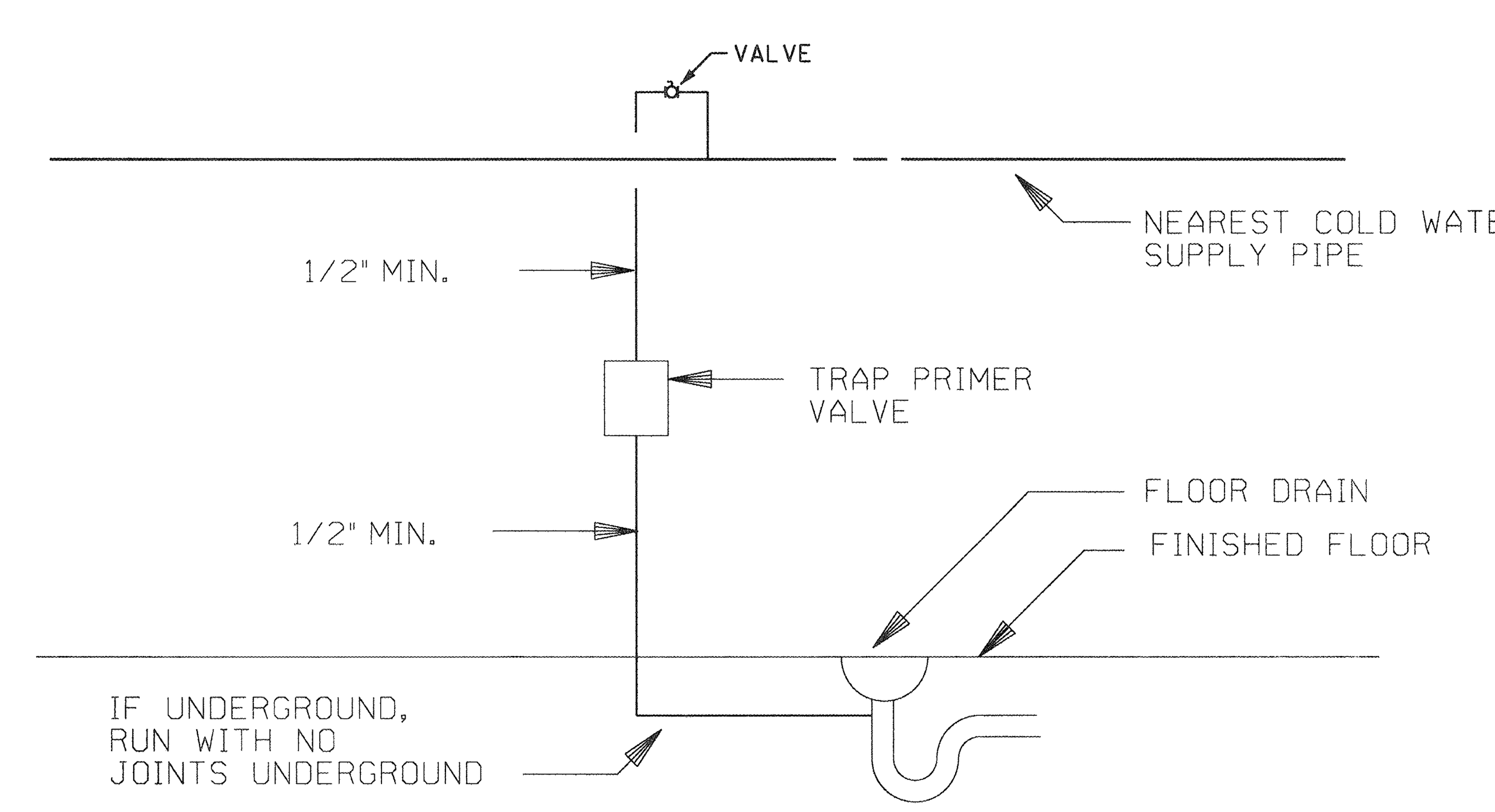
1. WATER HEATER
2. HOT WATER TO SYSTEM
3. COLD WATER SUPPLY
4. SHUT-OFF VALVE
5. CHECK VALVE
6. UNION
7. PRESSURE & TEMPERATURE RELIEF VALVE
8. DRAIN VALVE
9. RELIEF VALVE DISCHARGE PIPED FULL SIZE TO FLOOR DRAIN
10. DRIP PAN DRAIN
11. DRIP PAN (22 GAUGE GALVANIZED STEEL)

1 / P00.2 ELECTRIC WATER HEATER PIPING
SCHEMATIC ONLY

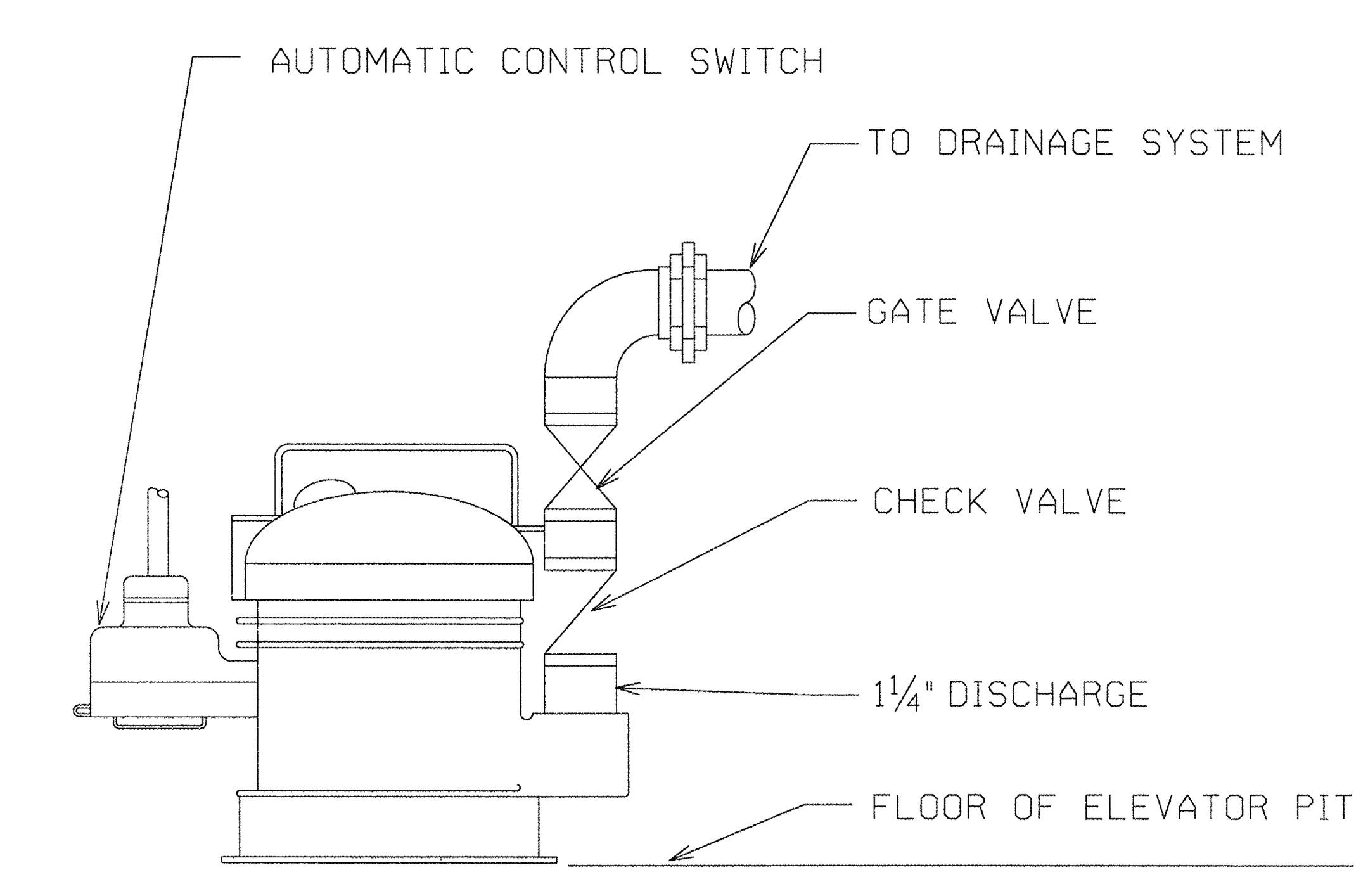


1. CLEANOUT
2. CONCRETE PAD
3. SANITARY OR STORM PIPE
4. 1/8 BEND IF C.O. OCCURS AT END OF LINE
5. FINISHED GRADE

2 / P00.2 GRADE CLEANOUT
NOT TO SCALE



3 / P00.2 FLOOR DRAIN TRAP PRIMER
NOT TO SCALE



4 / P00.2 SUMP PUMP DETAIL
SCHEMATIC ONLY

GEORGIA REGISTERED No. 25438 PROFESSIONAL ENGINEER S. MICHELLE PEAVLER 1-11-19

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY

PLUMBING SPECIFICATIONS AND DETAILS

JOB NO:	J-26963.0000
DATE:	JANUARY 15, 2019
DRAWN:	JPG
DESIGNED:	JPG
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

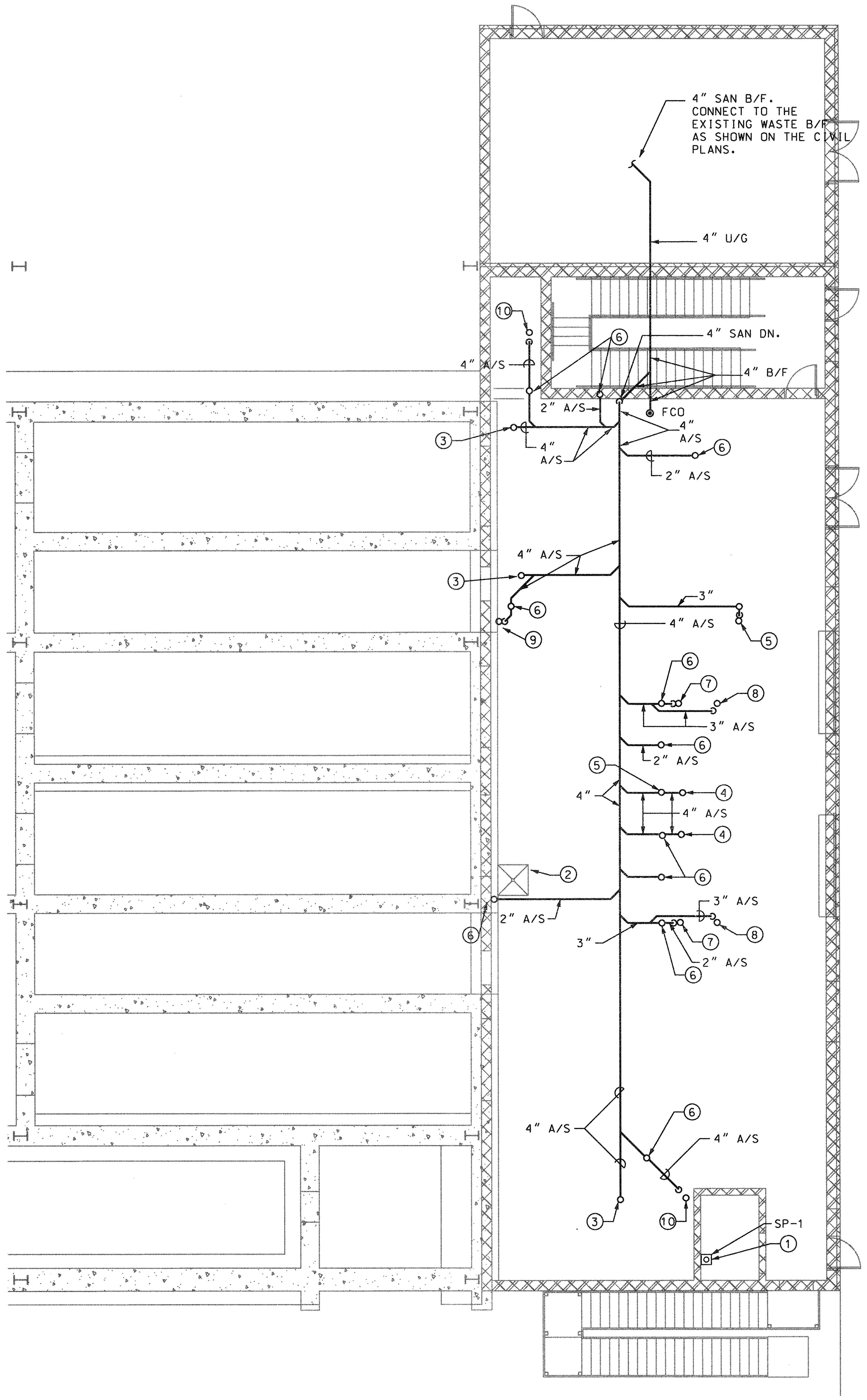
P00.2

CADD PLOT 16-APR-2019 16:28 MPEAVLER

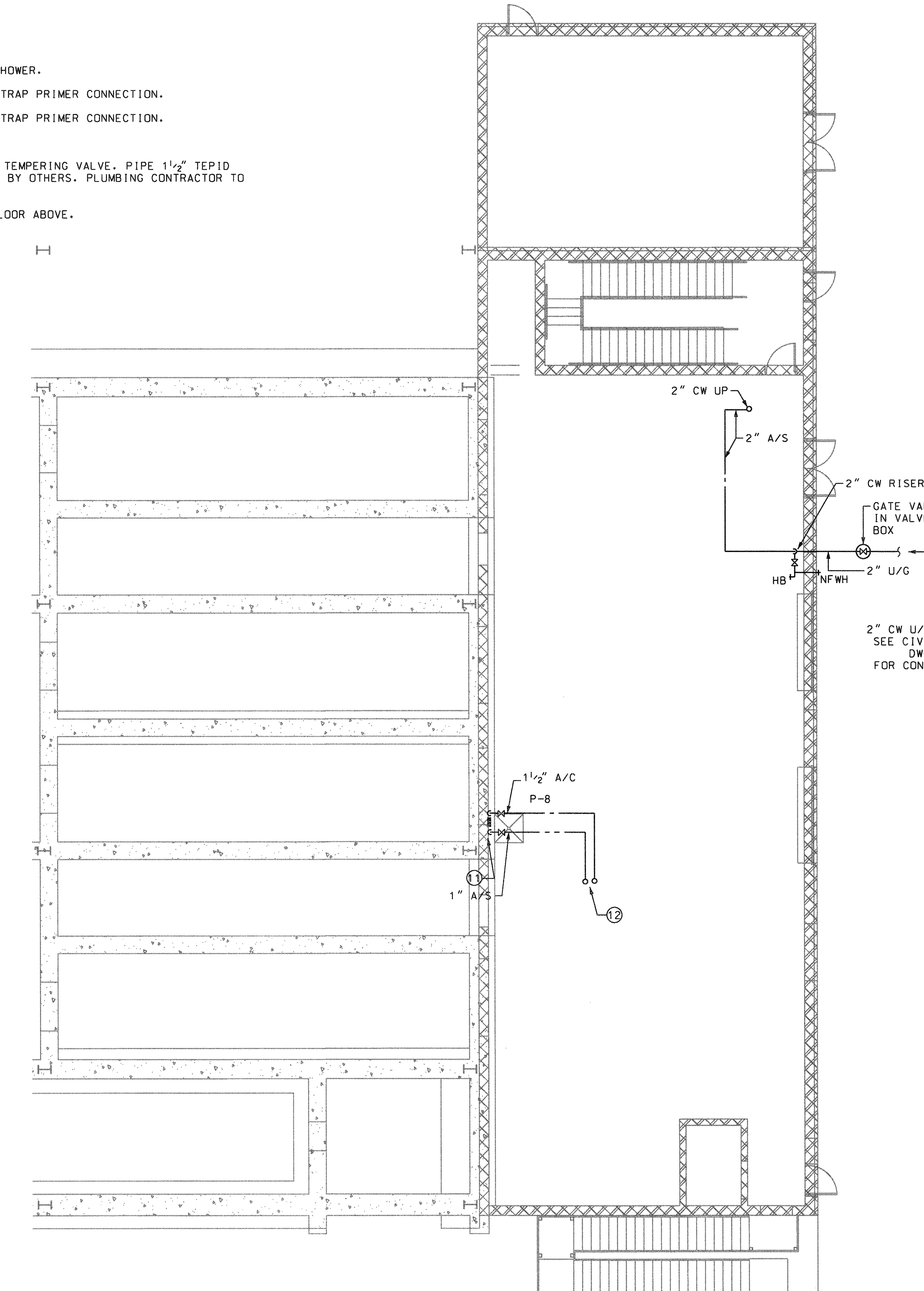
E:\Travis Field WWTP - 18000.03\CADD\P002.dgn

NOTES:

1. INSTALL SUMP PUMP SP-1 IN SUMP IN ELEVATOR PIT. PIPE DISCHARGE FROM PUMP TO WASTE CONNECTION PROVIDE ON CIVIL DRAWINGS.
2. EMERGENCY SHOWER BY OTHERS. SEE CIVIL DWGS FOR WASTE CONNECTIONS.
3. 4" SAN UP TO FCO.
4. 4" SAN UP.
5. 3" W. UP.
6. 2" W. UP.
7. 2" W. UP TO 2" FD'A' AT SHOWER.
8. 3" W UP TO 3" FD'A' WITH TRAP PRIMER CONNECTION.
9. 4" W UP TO 4" FD'A' WITH TRAP PRIMER CONNECTION.
10. 4" W UP TO 4" FD'B'.
11. 1 1/2" CW AND 1" HW DROP TO TEMPERING VALVE. PIPE 1 1/2" TEPID WATER TO EMERGENCY SHOWER BY OTHERS. PLUMBING CONTRACTOR TO PROVIDE TEMPERING VALVE.
12. 1 1/2" CW AND 1" HW UP TO FLOOR ABOVE.



1 FIRST FLOOR PLAN - SANITARY
P10.3 SCALE: 1/8" = 1'-0"



2 FIRST FLOOR PLAN - WATER
P10.3 SCALE: 1/8" = 1'-0"

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. 25438 MICHELLE PEAVLER 1-11-19

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	Issued for Bid	S.M.P.	05-01-2019

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TRAVIS FIELD WATER RECLAMATION FACILITY

PLUMBING FIRST FLOOR PLANS

JOB NO:	J-26963.0000
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DRAWN:	JPG
DESIGNED:	JPG
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

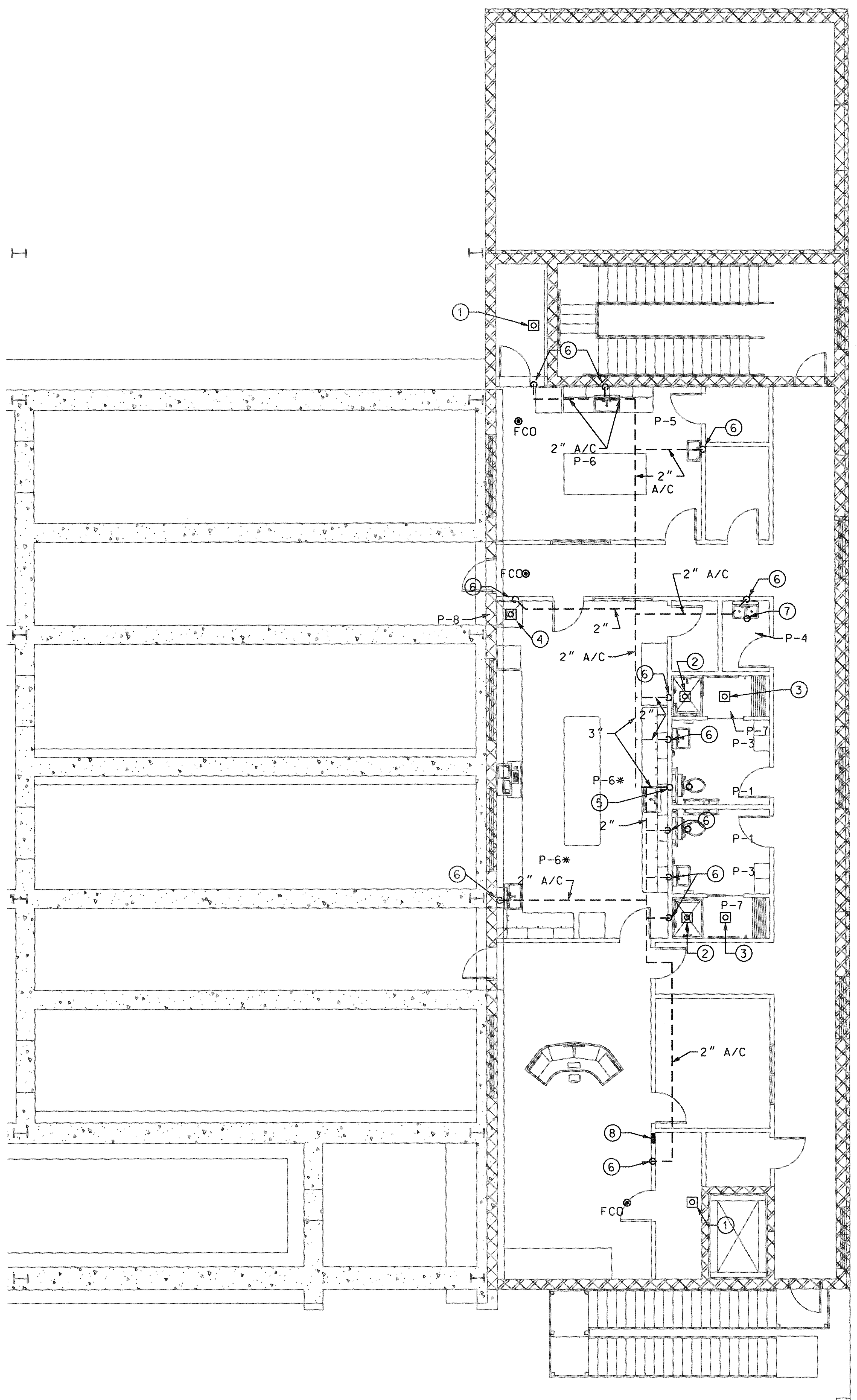
P10.3

CADD PLOT 16-APR-2019 8:29 MPEAVLER

E:\Travis Field WWTP - 18000.03\CADD\P103.dgn

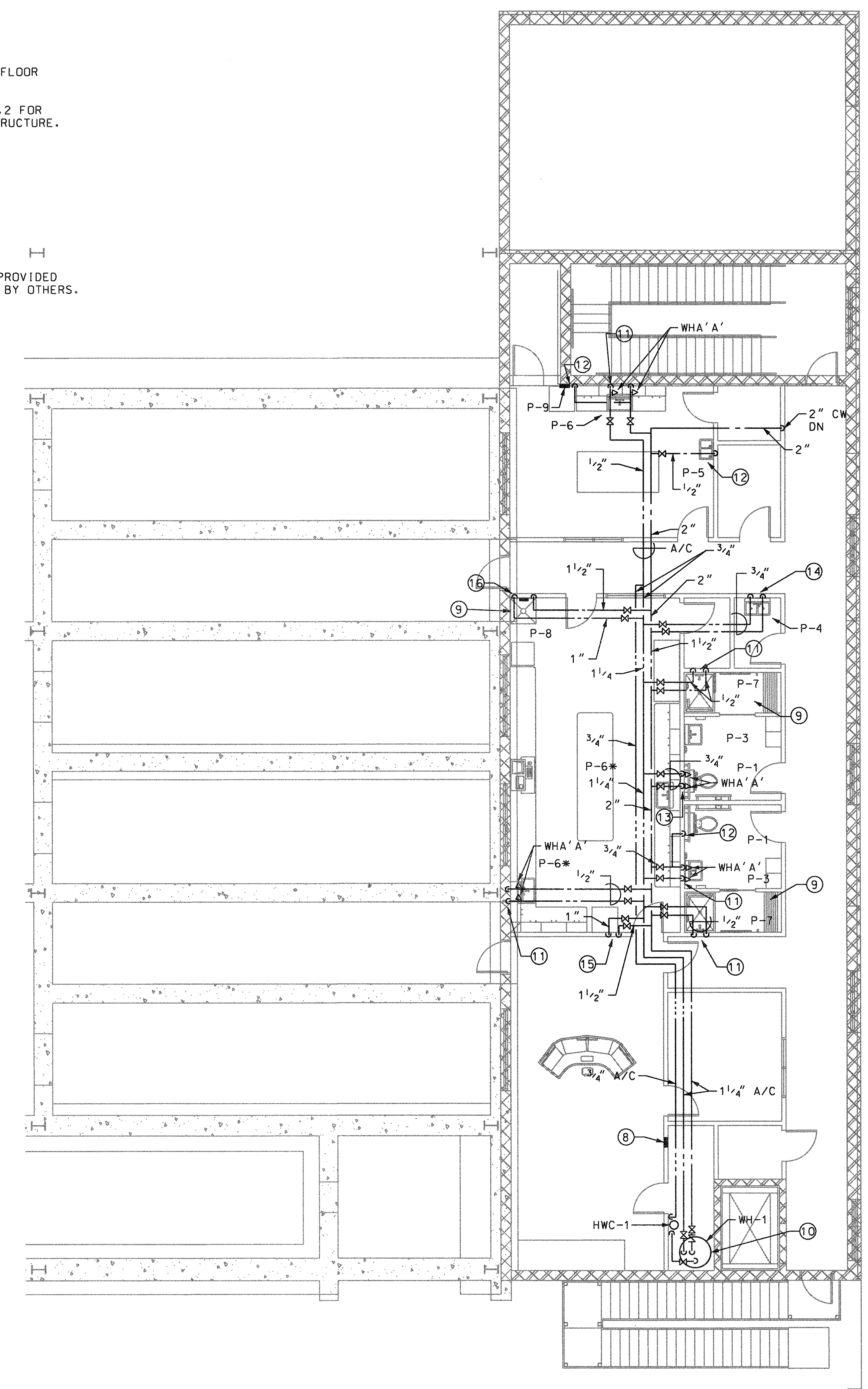
NOTES:

1. 4" FD'B' WITH SURE SEAL TRAP GUARD.
2. 2" FD'A'.
3. 3" FD'A' WITH TRAP PRIMER CONNECTION.
4. 4" FD'A' WITH TRAP PRIMER CONNECTION.
5. 3" V DN., 3" VTR.
6. 2" V. DN.
7. 3" W. DN.
8. SUMP PUMP OIL MONITOR ALARM.
9. PROVIDE TRAP PRIMER VALVE AND PIPE TO CONNECTION AT FLOOR DRAIN.
10. 1 1/4" HW, 1 1/4" CW AND 3/4" HWR DROPS TO WH-1. SEE 1/P00.2 FOR PIPING SCHEMATIC. MOUNT THERMAL EXPANSION TANK AT STRUCTURE.
11. 1/2" HW AND CW DROPS.
12. 1/2"CW DROP.
13. 3/4" HW AND CW DROPS TO P-1, P-3, AND P-6*.
14. 3/4" HW AND CW DROPS.
15. 1 1/2" CW AND 1 HW DN TO FLOOR BELOW.
16. 1 1/2" CW AND 1" HW DROPS TO TEMPERATURE MIXING VALVE PROVIDED BY PLUMBER. EXTEND 1 1/2" TO EMERGENCY SHOWER PROVIDED BY OTHERS.



1 / P10.6 SECOND FLOOR PLAN - SANITARY

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



2 / P10.6 SECOND FLOOR PLAN - WATER

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

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GEORGIA REGISTERED No. 25438 PROFESSIONAL ENGINEER S. MICHELLE PEAVLER 1-11-19

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TRAVIS FIELD WATER RECLAMATION FACILITY

PLUMBING SECOND FLOOR PLANS

JOB NO:	J-26963.0000
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DRAWN:	JPG
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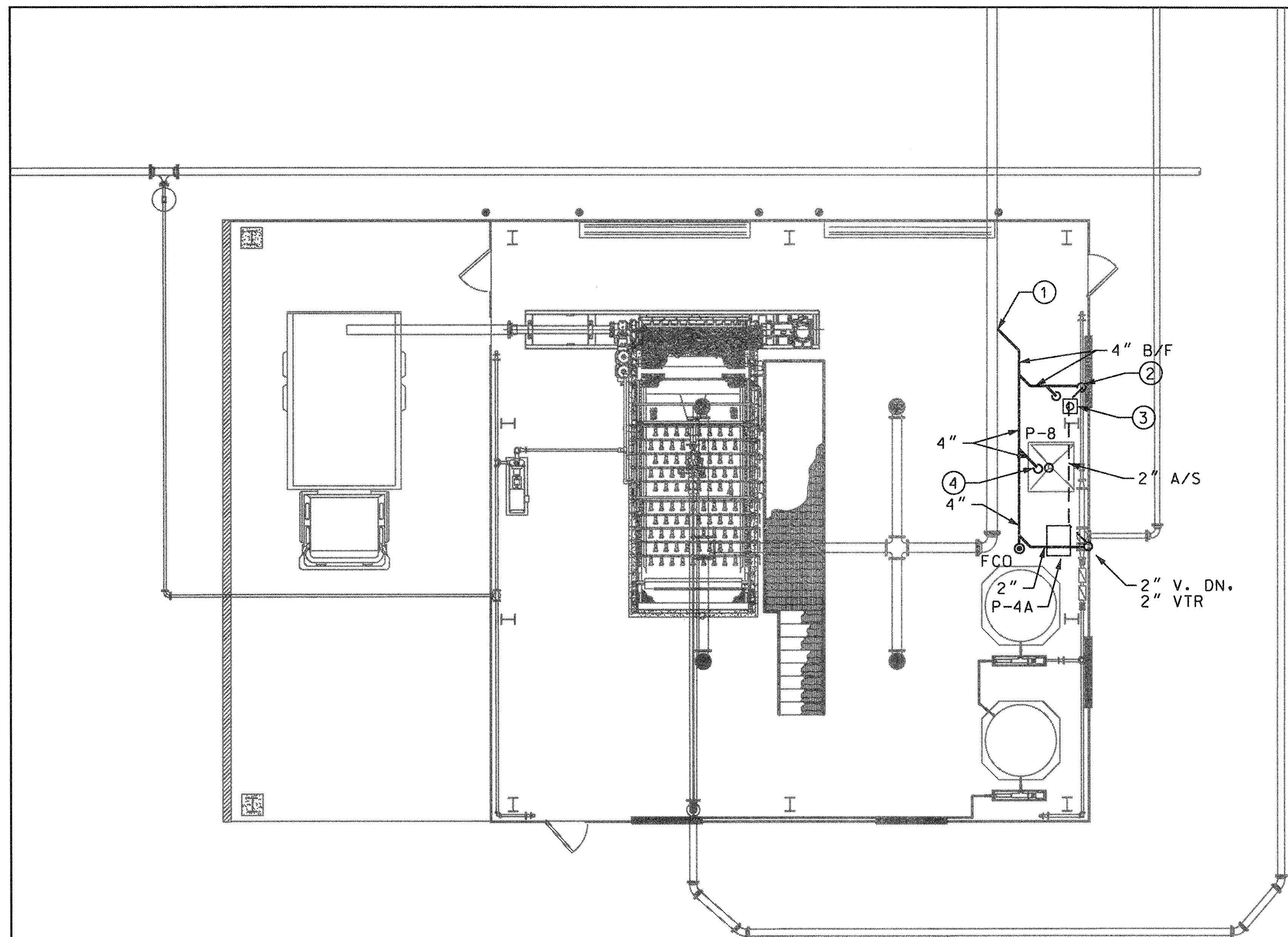
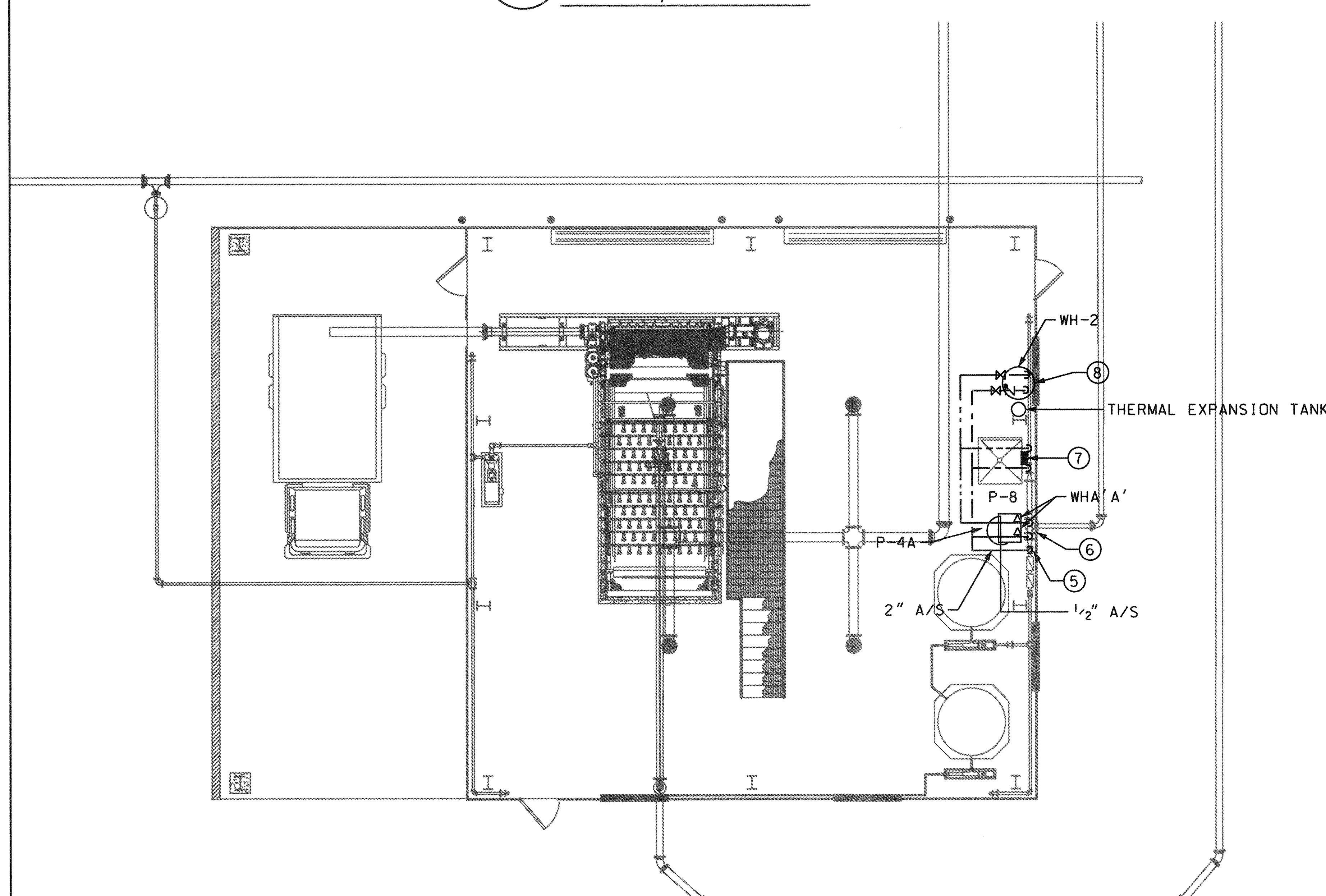
REVIEWED:	MP
APPROVED:	JM
SCALE:	1/8" = 1'-0"

P10.6

E:\Travis Field WWTP - 18000.03\CADD\P106.dgn



1 SANITARY PLAN
P15.0 SCALE: 1/8" = 1'-0"



2 WATER PLAN
P15.0 SCALE: 1/8" = 1'-0"

NOTES:

1. CONNECT TO EXISTING WASTE PIPING B/F. SEE CIVIL DWGS.
2. 2" V. DN.
3. 4" FD'B' WITH SURESEAL TRAP GUARD.
4. 4" WASTE UP TO CONNECTION AT P-8.
5. 2" CW DN. CONNECT TO WATER PIPING SHOWN ON CIVIL DWGS.
6. 1/2" HW AND CW DROPS.
7. 1 1/2" CW AND 1" HW DROPS TO TEMPERING VALVE AT P-8. EXTEND 1 1/2" TEPID WATER TO EMERGENCY SHOWER BY OTHERS.
8. 1" HW AND CW DROPS TO WH-2. SEE 1/P00.2 FOR PIPING SCHEMATIC.

BID SET - NOT FOR CONSTRUCTION

GEORGIA REGISTERED No. 25438 PROFESSIONAL ENGINEER MICHELLE PEAVLER
1-11-19

NO.	REVISIONS	BY	DATE
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TRAVIS FIELD WATER RECLAMATION FACILITY

SLUDGE DEWATERING BUILDING PLUMB PLAN

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DESIGNED:	JPG
REVIEWED:	MP
APPROVED:	MP
SCALE:	1/8" = 1'-0"

P15.0

E:\Travis Field WWTP - 18000.03\CADD\P150.dgn

CADD PLOT 16-APR-2019 16:31 MPEAVLER

SCADA (EMERSON)

WET WELL LEVEL

LEVEL INDICATION	HIGH HIGH LEVEL ALARM	LOW LOW LEVEL ALARM
LI 101	LAHH 101	LALL 101

INFLUENT PUMP NO.1
(TYPICAL FOR 4)
TYPICAL FOR LOOPS 101, 104 & 105

RUN STATUS	FAULT	H-O-R	SPEED INDICATION	SPEED CONTROL	RUN TIME
XI 102	XA 102	HS 102	SI 102	SC 102	KQI 102

GENERATOR

RUN	FAULT
XI 106	XA 106

PLANT INFLUENT FLOW

TO HEAD WORKS		TO CROSS ROADS WRF	
FC 108	FI 108	FI 107	FQI 107
	FQI 108		

INTERLOCK TO DRUM SCREEN/COMPACTOR #1 (TYPICAL FOR 4)

FIBER OPTIC NETWORK TO SCADA SYSTEM

FOTP-IPS
(MR SYSTEMS)

ETHERNET CAT6
(MODBUS TCP/IP)

RTU-IPS

NEW EMERSON CONTROLWAVE RTU
TO BE EXPANDED AND/OR MODIFIED BY
SCADA SYSTEM INTEGRATOR

(EMERSON)

FSP 101
LIT 101
120VAC

NEW VFD EXIST. SS NO.1 102
NEW VFD EXIST. SS NO.2 103
NEW VFD EXIST. SS NO.3 104
FUTURE VFD EXIST. SS NO.4 105

LOOP 106

EXISTING CUMMINS GENERATOR WITH EXISTING MODBUS TCP/IP PROTOCOL CONVERTER

FSP 107
NEW SURGE PROTECTOR
FIT 107
EXISTING FLOW TRANSMITTER
120VAC

FSP 108
FIT 108
120VAC

LSHH 101
LE 101
LSLL 101

PLANT INFLUENT

EXISTING INFLUENT PUMP NO.1 102
EXISTING INFLUENT PUMP NO.2 103
NEW INFLUENT PUMP NO.3 104
FUTURE INFLUENT PUMP NO.4 105

TO DRUM SCREEN #1
TO DRUM SCREEN #2
TO DRUM SCREEN #3
TO FUTURE DRUM SCREEN #4

FE 107
EXISTING FLOW METER

FE 108
NEW 24" MAGNETIC FLOW METER

TO CROSSROADS WRF
TO HEAD WORKS

EXISTING PLANT INFLUENT PUMP STATION

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EXISTING INFLUENT PUMP STATION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

E-1

SCADA (EMERSON)

FLOW PACING SIGNAL
FC 201

DRUM SCREEN NO.1 (TYPICAL FOR 4)
RUN STATUS XI 202
FAULT XA 202

COMPACTOR NO.1 (TYPICAL FOR 4)
RUN STATUS XI 203
FAULT XA 203

MOTORIZED KNIFE GATE TO VORTEX GRIT SEPARATOR
OPEN XIO 210
CLOSED XIC 210
CONTROL XC 210

MOTORIZED KNIFE GATE TO EQ TANK OR SPLITTER BOX
OPEN XIO 211
CLOSED XIC 211
CONTROL XC 211

INTERLOCK FROM INFLUENT PUMP #1 (TYPICAL FOR 4)
INTERLOCK FROM INFLUENT PUMP #1 (TYPICAL FOR 4)

LCP–HW (EMERSON)

HARDWIRED I/O

2 DI, 2 DO

2 DI, 2 DO

1 AO, 4–20 mA ISOLATED OUTPUT

FCP–HW *

LOCAL CONTROL PANEL (NO SCADA CONTROL)

(PARKSON)

FSP 201

INFLUENT SAMPLER 201

120VAC

DRUM SCREEN NO.1 202

DRUM SCREEN NO.2 204

DRUM SCREEN NO.3 206

FUTURE DRUM SCREEN NO.4 208

COMPACTOR NO.1 203

COMPACTOR NO.2 205

COMPACTOR NO.3 207

COMPACTOR NO.4 209 (FUTURE)

30" MOTORIZED KNIFE GATE
MOG 210
480VAC 3ϕ

TO VORTEX GRIT SEPARATOR

30" MOTORIZED KNIFE GATE
MOG 211
480VAC 3ϕ

BYPASS TO EQ TANK OR ANAEROBIC BASIN

M MOV–202 480VAC 3ϕ

M MOV–204 480VAC 3ϕ

M MOV–206 480VAC 3ϕ

M (FUTURE) MOV–208 480VAC 3ϕ

24" INFLUENT FORCE MAIN

NOTES:

* SUPPLIED BY EQUIP. VENDOR

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HEADWORKS

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SCALE:	1" = 1'

I-2

SCADA (EMERSON)

VORTEX GRIT REMOVAL

RUN XI 301 | FAULT XA 301

GRIT CLASSIFIER

RUN XI 305 | FAULT XA 305

30" MOTORIZED VALVE TO EQ TANK

OPEN XIO 303 | CLOSED XIC 303 | CONTROL XC 303

30" MOTORIZED VALVE TO ANAEROBIC BASIN

OPEN XIO 304 | CLOSED XIC 304 | CONTROL XC 304

LCP-HW (EMERSON)

HARDWIRED I/O

HARDWIRED I/O

HARDWIRED I/O

HARDWIRED I/O

FCP-VGR *

120VAC

LOOP 301

(HYDRO)

PLANT WATER

FLUSH WATER

FROM DRUM SCREENS

VORTEX GRIT REMOVAL (HYDRO)

M

GRIT PUMP

GRIT CLASSIFIER LOOP 305 (WEMCO)

MOV 304

480VAC 3φ

TO ANAEROBIC BASIN

MOV 305

480VAC 3φ

TO EQ TANK

NOTES:

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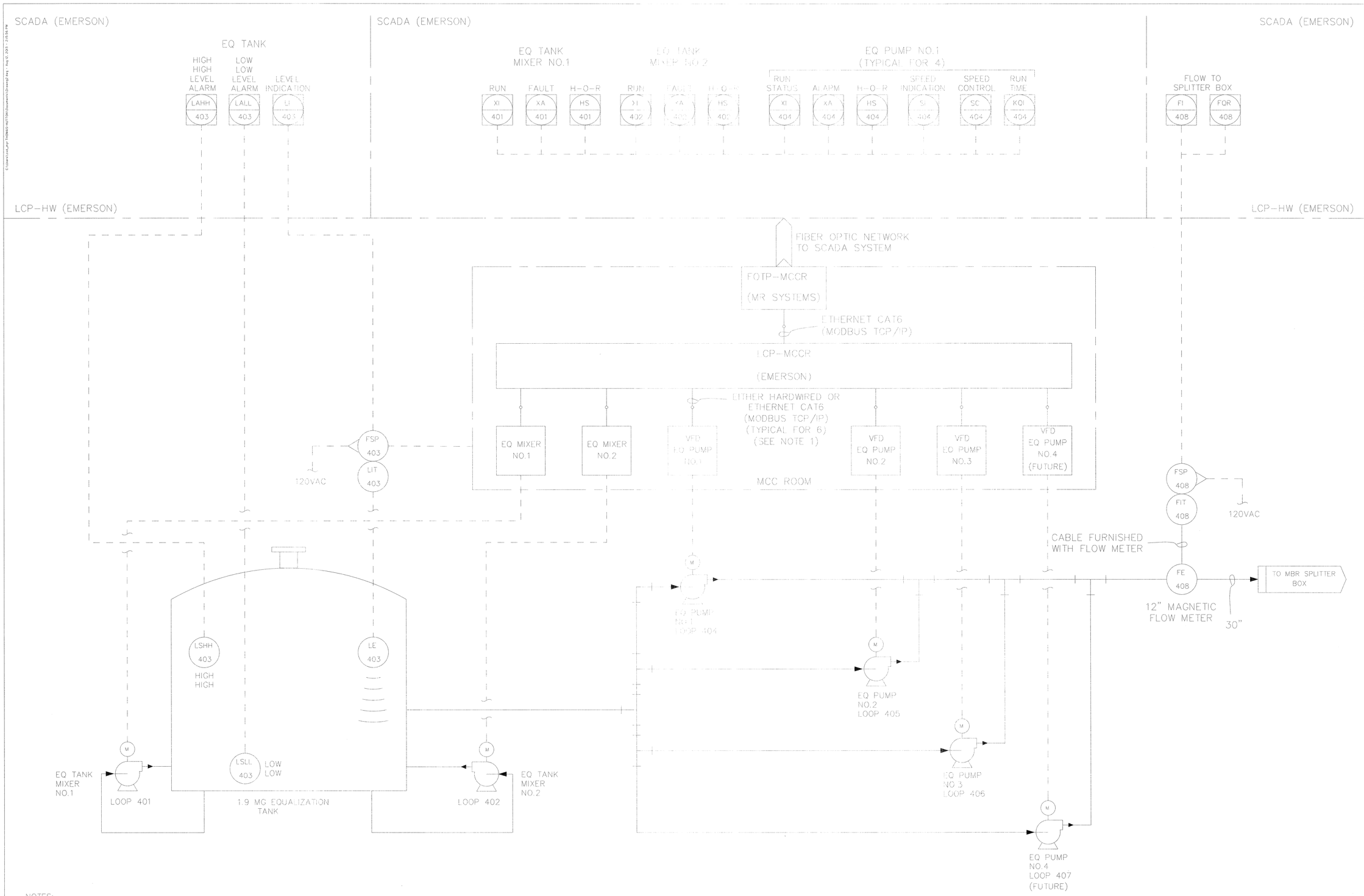
HEADWORKS

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-3



NOTES:

1. TO BE DETERMINED BASED ON ACTUAL EQUIPMENT SUPPLIED

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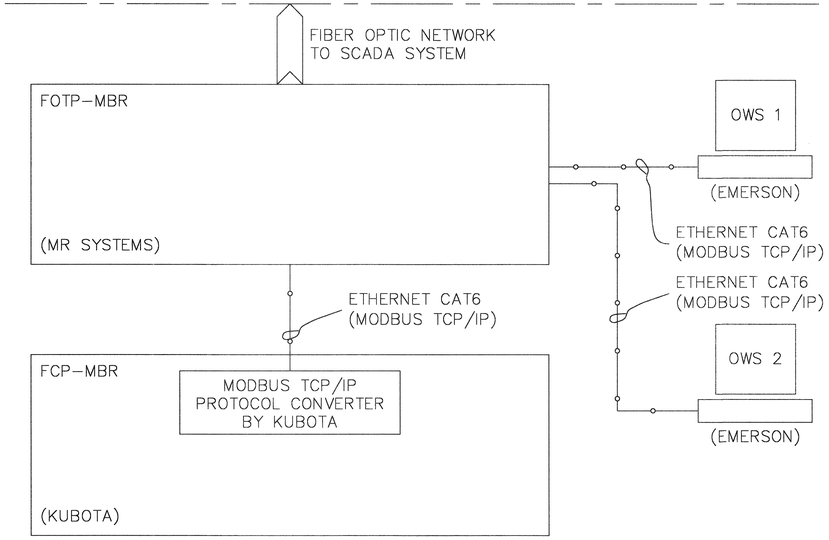
TRAVIS FIELD WATER RECLAMATION FACILITY

EQUALIZATION TANK & PUMP STATION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-4

SCADA (EMERSON)



NOTE: SEE KUBOTA P&ID DRAWINGS.

MEMBRANE SYSTEM

BID SET - NOT FOR CONSTRUCTION

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TRAVIS FIELD WATER RECLAMATION FACILITY

MEMBRANE SYSTEM

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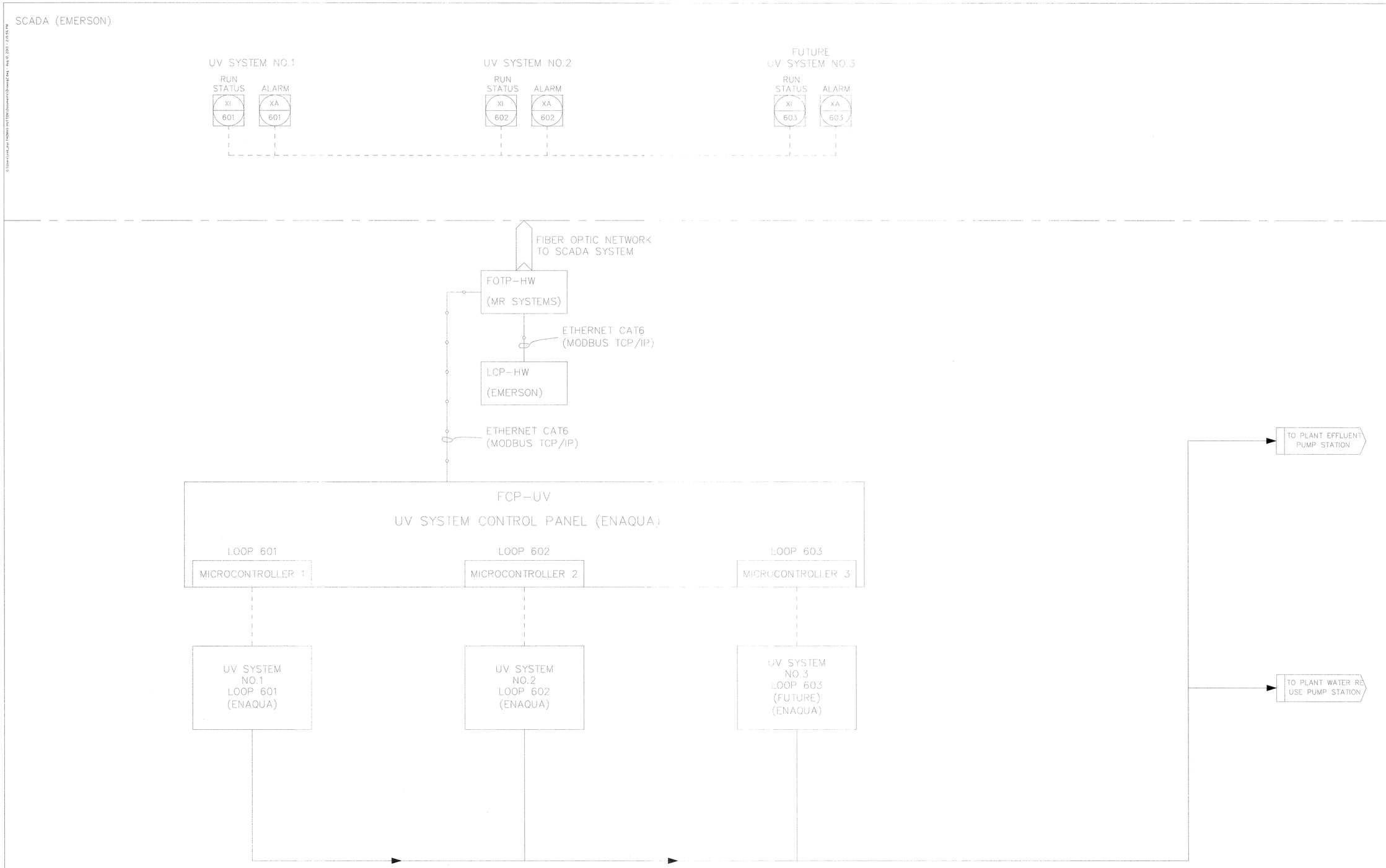
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-5



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TRAVIS FIELD WATER RECLAMATION FACILITY

UV DISINFECTION

JOB NO:	J-26963.0000
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DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-6

WET WELL

LEVEL INDICATION	HIGH HIGH LEVEL ALARM	LOW LOW LEVEL ALARM
LE 701	LAHH 701	LALL 701

PLANT EFFLUENT PUMP NO.1
(TYPICAL FOR 4)

RUN STATUS	FAULT	H-O-R	SPEED INDICATION	SPEED CONTROL	PUMP DRIVE
XI 702	XA 702	HS 702	SI 702	SC 702	PUMP DRIVE 702

SAMPLER FLOW PACING FQ 706

PLANT EFFLUENT DISSOLVED OXYGEN AI 707

PLANT EFFLUENT FLOW FI 708, FQI 708

I

I-9 A PLANT EFFLUENT FLOW

LCP-HW (EMERSON)

SCADA (EMERSON)

LCP-HW (EMERSON)

FIBER OPTIC NETWORK TO SCADA SYSTEM

FOTP-MCCR
(MR SYSTEMS)

ETHERNET CAT6
(MODBUS TCP/IP)

LCP-MCCR
(EMERSON)

HARDWIRED AND ETHERNET CONNECTIONS
(MODBUS TCP/IP)
(TYPICAL FOR 4)

NEW VFD NO.1 WITH RVSS BYPASS LOOP 702

NEW VFD NO.2 WITH RVSS BYPASS LOOP 703

NEW VFD NO.3 WITH RVSS BYPASS LOOP 704

FUTURE VFD NO.4 WITH RVSS BYPASS LOOP 705

MCC ROOM

120VAC

FSP 701

LIT 701

12FT

LE 701

LSHH 701

LSLL 701

FROM UV SYSTEMS

NO.1

NO.2

NO.3

FUTURE NO.4

PLANT EFFLUENT PUMPS

0FT

PLANT EFFLUENT AND REUSE WATER WET WELL

EFFLUENT FLOW SAMPLER LOOP 706

TO I-8

FSP 707

AIT 707

120VAC

D.O. AE 707

24" DIP

120VAC

FSP 708

FIT 708

CABLE FURNISHED WITH FLOW METER

FE 708

24" MAGNETIC FLOW METER BODY

TO D.O. IMPROVEMENT SYSTEM

PLANT EFFLUENT TO SAVANNAH RIVER

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PLANT EFFLUENT PUMP STATION

JOB NO:	J-26963.0000
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DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-7

SCADA (EMERSON)

PLANT REUSE WATER PUMP NO.1
(TYPICAL FOR 2)

RUN STATUS	FAULT	RUN TIME	SEAL FAILURE	SPEED INDICATION	SPEED CONTROL	PLANT REUSE WATER FLOW	
XI 801	XA 801	KQI 801	XA 801	SI 801	SC 801	FI 803	FQI 803

LCP–HW
(EMERSON)

ETHERNET CAT6
(MODBUS TCP/IP)

HARDWIRED I/O

FCP–RWPS *

NEW VFD NO.1
WITH
RVSS BYPASS
LOOP 801

NEW VFD NO.2
WITH
RVSS BYPASS
LOOP 802

(SYNCROFLO)

FSP 803

120VAC

FT 803

FE 803

SIEMENS
4" FLOW METER*
(SKID MOUNTED)

PLANT
REUSE WATER

FROM
I–7

REUSE
PUMP NO.1

REUSE
PUMP NO.2

PLANT EFFLUENT AND REUSE WATER WET WELL

NOTES:

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PLANT REUSE WATER PUMP STATION

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I-8

SCADA (EMERSON)

DUTY FEED PUMP

RUN	FAULT	H-O-A
XI 901	XA 901	HS 901

STANDBY FEED PUMP

RUN	FAULT	H-O-A
XI 902	XA 902	HS 902

PLANT EFFLUENT FLOW

FIT 7 A

AO

LCP-HW (EMERSON)

SCADA (EMERSON)

EFFLUENT DO IMPROVEMENT

NOTE: EXACT I/O TO BE DETERMINED DURING SUBMITTAL PHASE BY SCADA SYSTEM INTEGRATOR.

X- 905	X- 905	X- 905	X- 905	X- 905	X- 905

FIBER OPTIC NETWORK TO SCADA SYSTEM

FOTP-MCCR (MR SYSTEMS)

ETHERNET CAT6 (MODBUS TCP/IP)

LCP-MCCR (EMERSON)

HARDWIRED I/O

HARDWIRED I/O

NEW MCC DUTY FEED PUMP

NEW MCC STANDBY FEED PUMP

MCC ROOM

DUTY COMPRESSOR LOOP 903

DUTY COMPRESSOR LOOP 904

HARDWIRED I/O

FCP-SC * A-B PLC LOOP 905 (SPEECE CONE)

FROM PLANT EFFLUENT PUMP STATION

M

DUTY FEED PUMP LOOP 901

M

STANDBY FEED PUMP LOOP 902

SPEECE CONE

TO EFFLUENT FORCE MAIN

NOTES:

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0	ISSUED FOR BIDS		5-0-19

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TRAVIS FIELD WATER RECLAMATION FACILITY

DO IMPROVEMENT SYSTEM

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APPROVED:	TH
SCALE:	1" = 1'

I-9

SCADA (EMERSON)

PLANT DRAIN PS WET WELL

HIGH LEVEL ALARM	LEVEL INDICATION	LOW LEVEL ALARM
LAH 1001	LI 1001	LAL 1001

PLANT DRAIN PUMP NO.1

RUN STATUS	FAULT	H-O-A	SPEED INDICATION	SPEED CONTROL	RUN TIME
XI 1002	XA 1002	HS 1002	SI 1002	SC 1002	KQI 1002

PLANT DRAIN PUMP NO.2

RUN STATUS	FAULT	H-O-A	SPEED INDICATION	SPEED CONTROL	RUN TIME
XI 1003	XA 1003	HS 1003	SI 1003	SC 1003	KQI 1003

PLANT DRAIN WET WELL

HIGH HIGH LEVEL ALARM	LOW LOW LEVEL ALARM
LAHH 1001	LALL 1001

FIBER OPTIC NETWORK TO SCADA SYSTEM

FCTP-MCCR (MP SYSTEMS)

ETHERNET CAT6 (MODBUS TCP/IP)

LCP-MCCR (EMERSON)

HARDWIRED AND ETHERNET CAT6 (MODBUS TCP/IP) (SEE NOTE 1)

HARDWIRED AND ETHERNET CAT6 (MODBUS TCP/IP) (SEE NOTE 1)

NEW VFD PLANT DRAIN PUMP NO.1 1002

NEW VFD PLANT DRAIN PUMP NO.2 1003

MCC ROOM

FSP 1001

120VAC

LIT 1001

LSHH 1001

LE 1001

NO.1 1002

NO.2 1003

LSLL 1001

PLANT DRAIN PUMP STATION

NOTES:

1. TO BE DETERMINED BASED ON ACTUAL EQUIPMENT SUPPLIED

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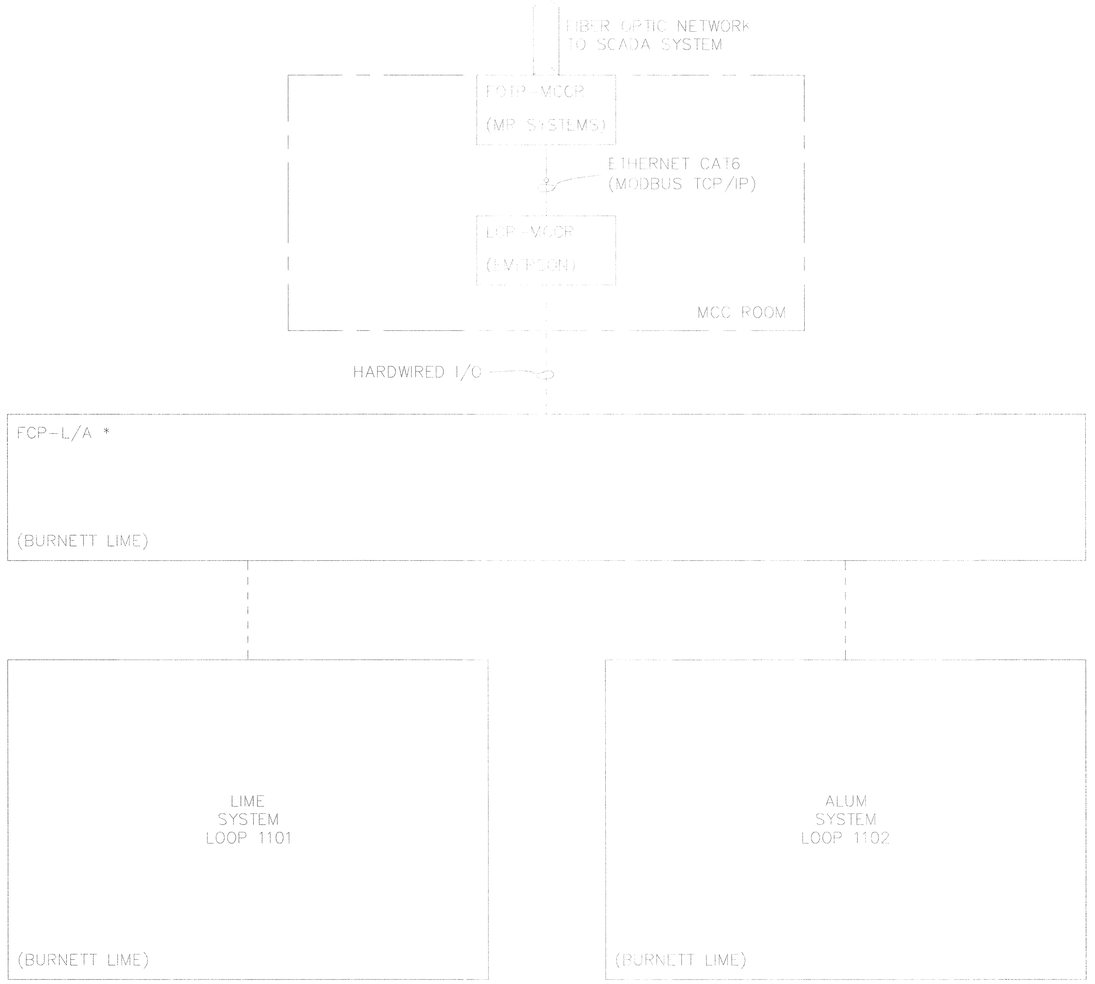
TRAVIS FIELD WATER RECLAMATION FACILITY

PLANT DRAIN PUMP STATION

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-10

SCADA (EMERSON)



NOTES:

* SUPPLIED BY EQUIP. VENDOR

BID SET - NOT FOR CONSTRUCTION

NO.	REVISIONS	BY	DATE
0	ISSUED FOR BIDS	CDR	5-01-19

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TRAVIS FIELD WATER RECLAMATION FACILITY

LIME SLURRY / ALUM SYSTEM

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-11

SCADA (EMERSON)

SLUDGE FEED PUMP

RUN STATUS	FAULT	H-O-A	SPEED INDICATION	SPEED CONTROL	RUN TIME
XI 1201	XA 1201	HS 1201	SI 1201	SC 1201	KQI 1201

SCADA (EMERSON)

WATER BOOSTER PUMP			BELT FILTER PRESS					POLYMER FEED PUMP			DRY SLUDGE FEED PUMP			BRIDGE BREAKER PUMP			POLYMER MIXER PUMP			POLYMER MIXER			POLYMER METERING PUMP		
RUN	FAULT	H-O-A			RUN	FAULT		RUN	FAULT	H-O-A	RUN	FAULT	H-O-A	RUN	FAULT	H-O-A	RUN	FAULT	H-O-A	RUN	FAULT	H-O-A	RUN	FAULT	H-O-A
XI 1202	XA 1202	HS 1202	XA 1203	XA 1203	XI 1203	XA 1203	XA 1203	XI 1204	XA 1204	HS 1204	XI 1205	XA 1205	HS 1205	XI 1206	XA 1206	HS 1206	XI 1207	XA 1207	HS 1207	XI 1208	XA 1208	HS 1208	XI 1209	XA 1209	HS 1209

LCP-MCCR (EMERSON)

SLUDGE FEED FLOW FI 1201

FIBER OPTIC NETWORK TO SCADA SYSTEM

FOTP-BFP (MR SYSTEMS)

ETHERNET CAT6 (MODBUS TCP/IP)

SLUDGE FEED PUMP LOOP 1201

WATER BOOSTER PUMP LOOP 1202

POLYMER FEED PUMP LOOP 1204

DRY SLUDGE FEED PUMP LOOP 1205

HARDWIRED I/O

LCP-BFP (EMERSON)

HARDWIRED I/O

BRIDGE BREAKER PUMP LOOP 1206

VFD MCC LOOP 1201

MCC ROOM

120VAC

FSP 1201

FIT 1201

FE 1201

6" DIP

M

SLUDGE FEED PUMP LOOP 1201

6" MAGNETIC FLOW METER (SLUDGE FEED TO BELT FILTER PRESS)

HARDWIRED I/O

FCP-BFP * (EXISTING)

POLYMER MIXER PUMP LOOP 1207

POLYMER MIXER LOOP 1208

POLYMER METERING PUMP LOOP 1209

EXISTING BELT FILTER PRESS (RELOCATED) LOOPS 1205 A THRU Z

NOTES:

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TRAVIS FIELD WATER RECLAMATION FACILITY

BELT FILTER PRESS

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APPROVED:	TH
SCALE:	1" = 1'

I-12

SCADA (EMERSON)

AUTOMATIC TRANSFER SWITCH

XI 1301 | XI 1302 | XA 1303 | XI 1304 | XI 1305 | XI 1306 | XI 1307

SCADA (EMERSON)

EMERGENCY GENERATOR NO.1

RUN STATUS: XI 1301 | ALARM: XA 1301 | ATS SWITCH IN NORMAL: XI 1301

EMERGENCY GENERATOR NO.2

RUN STATUS: XI 1302 | ALARM: XA 1302 | ATS SWITCH IN NORMAL: XI 1302

LCP-MCCR (EMERSON)

FIBER OPTIC NETWORK TO SCADA SYSTEM

FACP-BFP — ALARM / TROUBLE — LCP-BFP (EMERSON) — FOTP-BFP (MR SYSTEMS)

ETHERNET CAT6 (MODBUS TCP/IP)

HARDWIRED I/O

EITHER HARDWIRED OR ETHERNET CAT6 (MODBUS TCP/IP) (SEE NOTE 1)

EITHER HARDWIRED OR ETHERNET CAT6 (MODBUS TCP/IP) (SEE NOTE 1)

FCP-EG1 (FIELD CONTROL PANEL)

FCP-EG2 (FIELD CONTROL PANEL)

ATS

LOOP 1301 = POWER LOSS
LOOP 1302 = READY TO TRANSFER TO EMERGENCY
LOOP 1303 = TRANSFER SWITCH IN EMERGENCY POSITION
LOOP 1304 = GENERATOR NO.1 ONLINE
LOOP 1305 = GENERATOR NO.2 ONLINE
LOOP 1306 = READY TO TRANSFER TO NORMAL
LOOP 1307 = TRANSFER SWITCH NORMAL POSITION

AUTOMATIC TRANSFER SWITCH

EMERGENCY GENERATOR NO.1 LOOP 1301

EMERGENCY GENERATOR NO.2 LOOP 1302

NOTES:

1. TO BE DETERMINED BASED ON ACTUAL EQUIPMENT SUPPLIED

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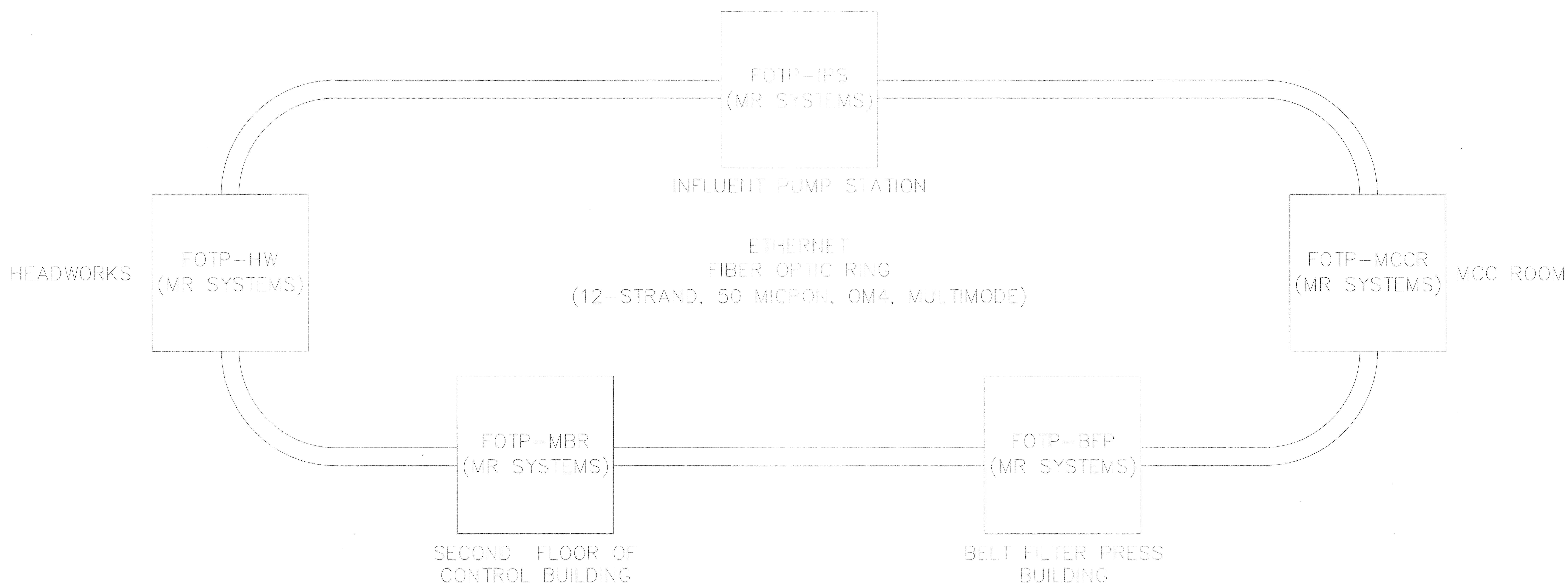
TRAVIS FIELD WATER RECLAMATION FACILITY

GENERATORS

JOB NO:	J-GENERATORS
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-13



NOTE: ALL ETHERNET COMMUNICATIONS TO BE MODBUS TCP/IP. NO EXCEPTIONS.

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TRAVIS FIELD WATER RECLAMATION FACILITY

SCADA NETWORK DIAGRAM

JOB NO:	J-26963 0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-14

SCADA (EMERSON)

FIBER OPTIC NETWORK
TO SCADA SYSTEM

FDTP-HW

(FIBER OPTIC TERMINATION PANEL)

(MP SYSTEMS)

ETHERNET CAT6
(MODBUS TCP/IP)

PROTOCOL
CONVERTER

ETHERNET CAT6
(MODBUS TCP/IP)

ETHERNET CAT6
(MODBUS TCP/IP)

ETHERNET CAT6
(AB ETHERNET/IP)

LCP-HW

(EMERSON)

HEADWORKS

FCP-UV

(ENAQUA)

UV SYSTEM #1

UV SYSTEM #2

UV SYSTEM #3
(FUTURE)

FCP-RWPS

(SYNCROFLO)

REUSE WATER
PUMP STATION

FCP-HW

(PARKSON)

FCP-VCR

(HYDRO)

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TRAVIS FIELD WATER RECLAMATION FACILITY

HEADWORKS LOCAL NETWORKING

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
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APPROVED:	TH
SCALE:	1" = 1'

I-15

SCADA (EMERSON)

FIBER OPTIC NETWORK TO SCADA SYSTEM

FCIP MCCR

(FIBER OPTIC TERMINATION PANEL)

(MP SYSTEMS)

ETHERNET CAT6 (MODBUS TCP/IP)

LCP MCCR

(EMERSON)

ALARM

TROUBLE

FACP-MCCR

THE FOLLOWING EQUIPMENT IS EITHER HARDWIRED OR CONNECTED VIA ETHERNET CAT6 (MODBUS TCP/IP) TO LCP-MCCR:

- EQ MIXER NO. 1
- EQ MIXER NO. 2
- EQ PUMP NO. 1 VFD
- EQ PUMP NO. 2 VFD
- EQ PUMP NO. 3 VFD
- FUTURE EQ PUMP NO. 4 VFD
- PLANT EFFLUENT PUMP #1 VFD
- PLANT EFFLUENT PUMP #2 VFD
- PLANT EFFLUENT PUMP #3 VFD
- FUTURE PLANT EFFLUENT PUMP #4 VFD
- SLUDGE FEED PUMP VFD
- SPECE CONE DUTY FEED PUMP
- SPECE CONE STANDBY FEED PUMP
- PLANT DRAIN PUMP #1 VFD
- PLANT DRAIN PUMP #2 VFD

BID SET - NOT FOR CONSTRUCTION

NO	REVISIONS	BY	DATE
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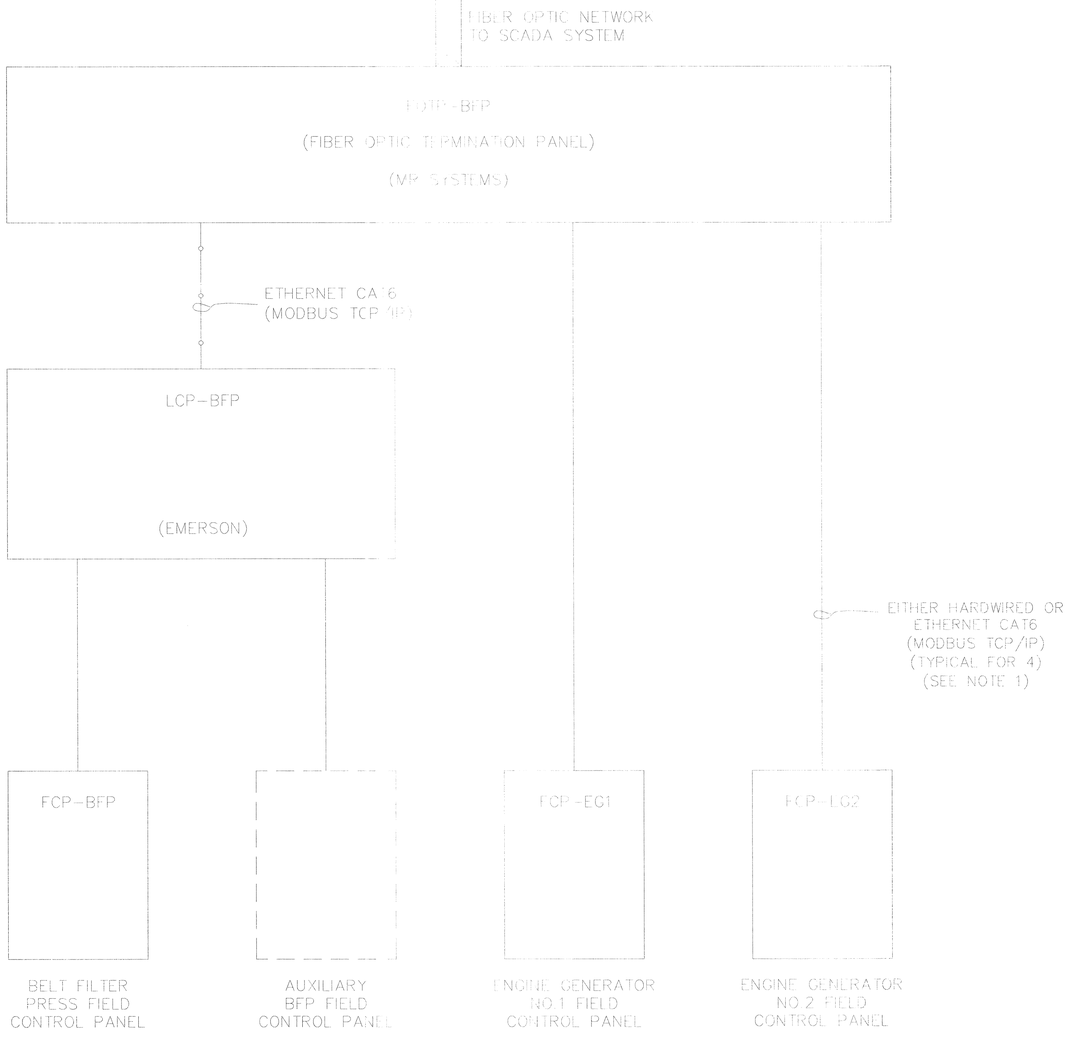
TRAVIS FIELD WATER RECLAMATION FACILITY

MCC ROOM EQUIPMENT MONITORED

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-16

SCADA (EMERSON)



NOTES:
1. TO BE DETERMINED BASED ON ACTUAL EQUIPMENT SUPPLIED

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NO	DATE	BY	REVISIONS
0	5-01-19	CDR	ISSUED FOR BIDS

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TRAVIS FIELD WATER RECLAMATION FACILITY

BELT FILTER PRESS LCP-BFP EQUIPMENT MONITORED

JOB NO:	J-26963.0000
DATE:	1-16-19
DRAWN:	TH
DESIGNED:	TH
REVIEWED:	FS
APPROVED:	TH
SCALE:	1" = 1'

I-17

J-1 IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER,COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR(PRIMARY ELEMENT)		
F	FLOW RATE	RATIO(FRACTION)			
G	USER'S CHOICE		GLASS,VIEWIG DEVIDE		
H	HAND				HIGH
I	CURRENT(ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME,TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE,INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE,RESTRICTION		
P	PRESSURE,VACUUM		POINT(TEST) CONNECTION		
Q	QUANTITY	INTEGRATE,TOTALIZE			
R	RADIATION		RECORD		
S	SPEED,FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION,MECANICAL ANALYSIS			VALVE,DAMPER,OR LOUVER	
W	WEIGHT,FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT,STATE,PRESENCE	Y AXIS		RELAY,COMPUTE,CONVERT	
Z	POSITION,DIMENSION	Z AXIS		DRIVER,ACTUATOR, UNCLASSIFIED,FINAL CONTROL ELEMENT	

GENERAL INSTRUMENT OR FUNCTION SYMBOLS	FIELD MOUNTED	PRIMARY LOCATION ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENT	01	02	03	04
SHARED DISPLAY SHARED CONTROL	05	06	07	08
COMPUTER FUNCTION	09	10	11	12
PROGRAMMABLE LOGIC CONTROL	13	14	15	16
PLC INPUT/OUTPUT	ANALOG INPUT TAG 17	ANALOG OUTPUT TAG	DISCRETE INPUT TAG 18	DISCRETE OUTPUT TAG

J-4 INSTRUMENT MODIFIER

1/2	SELECT 1 OR 2 POSITION
A/M	AUTO-MANUAL SETTING
AMSS	AUTO-MANUAL-START-STOP FUNCTION
DO	DISSOLVED OXYGEN
ESTOP	EMERGENCY STOP
FAIL	FAILURE CONDITION
HOR	HAND-OFF-REMOTE
I/I	CURRENT TO CURRENT CONVERTER
I/P	CURRENT TO PNEUMATIC CONVERTER
LEL	LOWER EXPLOSIVE LIMIT
LOR	LOCAL-OFF-REMOTE
LOS	LOCK-OUT-STOP
LR	LOCAL-REMOTE
OC	OPEN-CLOSE
OCR	OPEN-CLOSE-REMOTE
OIL	LUBRICATING OR COOLING OIL
ON	ON CONDITION
OPEN	OPEN CONDITION OR COMMAND
OSC	OPEN-STOP-CLOSE
RDY	READY CONDITION
RESET	RESET FAILURE
RUN	MAINTAINED RUN COMMAND
SP	SET POINT
SS	START-STOP
WND	MOTOR WINDING
BCN	BEACON
V/P	VOLTAGE TO PNEUMATIC CONVERTER
V/I	VOLTAGE TO CURRENT CONVERTER

INSTRUMENT SYMBOL IDENTIFIERS

J-1 J-2 J-3 J-4

J-1: IDENTIFICATION LETTERS (SEE TABLE ABOVE)
J-2: LOOP NUMBER
J-3: DEVICE SEQUENCE LETTER
J-4: INSTRUMENT MODIFIER

LINES

P=30

	MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF SHOWN)
	MAIN (EXISTING)
	SECONDARY PROCESS FLOW
	SECONDARY (EXISTING)
	INSTRUMENT SUPPLY PROCESS TAPS,NON PROCESS FLOW
	PNEUMATIC SIGNAL
	ANALOG ELECTRIC SIGNAL
	DISCRETE ELECTRIC SIGNAL
	CAPILLARY TUBE OR FILLED SYSTEM
	ELECTROMAGNETIC OF SONIC SIGNAL (UNGUDED)
	SOFTWARE OR DATA LINK
	MECHANICAL
L L	HYDRAULIC
120V	POWER SUPPLY
SA	SERVICE AIR AUPPLY

FLOW PRIMARY ELEMENTS

	ORIFICE PLATE
	SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE
	AVERAGING PITOT TUBE
T	THERMAL MASS FLOEMETER
M	MAGNETIC FLOWMETER
	TURBINE OR PROPELLER-TYPE PRIMARY ELEMENT
	ROTOMETER
	POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
	VORTEX SENSOR
	TARGET TYPE SENSOR
	VENTURI TUBE
	SONIC FLOWMETER
D	DENSITY METER

VALVES

	GATE VALVES (2-WAY AND 3-WAY)
	GLOBAL VALVE (3-WAY AND 2-WAY)
	PLUG VALVE
	ECCENTRIC PLUG VALVE
	CHECK VALVE AND BALL CHECK VALVE
	DIAPHRAGM VALVE (PINCH VALVE)
	BUTTERFLY VALVE
	BALL VALVE (2-WAY AND 3-WAY)
	NEEDLE VALVE
	INTERLOCK
	PRESSURE REDUCING REGULATING VALVE. SELF-CONTAINED
	BACK PRESSURE REGULATING VALVE. SELF-CONTAINED
S	SOLENOID VALVE
	PRESSURE SURGE DISCHARGE
	CONTROL VALVE
	TELESCOPING VALVE
NC NUM	NORMALLY CLOSED NORMALLY NUMBER 19

VALVE OPERATORS

	DIAPHRAGM
	DIAPHRAGM,PRESSURE BALANCED
	HAND
M	MOTOR
	CYLINDER OPERATOR
S	SOLENOID

General Notes

For Earth, For Life
Kubota

Kubota Membrane USA Cooporation
11807 North Creek Parkway S. Suite B108
Bothell, WA 98011 USA
Tel; +1 425 898 2853

REFERENCE ONLY
FOR
ENGINEERING
DESIGN WORK

No.	Revision/Issue	Date
6	JOHN BIRD	4/09 2019
5	ISSEY IWAKURA	3/18 2019
4	ISSEY IWAKURA	10/23 2018
3	ISSEY IWAKURA	9/21 2018
2	ISSEY IWAKURA	8/8 2018
1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name
SYMBOL

Project Name and Address
TRAVIS FIELD WATER RECLAMATION FACILITY

Area

Stamp

Drawing Number
SYMBOL1/2

Author
ISSEY IWAKURA

BID SET - NOT FOR CONSTRUCTION

INSTRUMENT & MECHANICAL EQUIPMENT SYMBOLS & MISCELLANEOUS

	CENTRIFUGAL BLOWER		INJECTOR		WELDED CAP
	INTAKE SCREEN/FILTER		FILTER OR SEPARATOR		BLIND FLANGE
	HVAC FAN		DRIP TRAP		PURGE
	FLOW STRAIGHTENING VANE		CAP OR PLUG		DIAPHRAGM
	FLEXIBLE COUPLING		HOSE CONNECTION		THERMOMETER WELL
	INLET SILENCER/FILTER		RUPTURE DISK, PRESSURE	M	MOTOR
	ROTARY LOBE PUMP		RUPTURE DISK,VACUUM		HEATING COIL
	SUBMERSIBLE PUMP		ANNULAR SEAL		DRAIN
	SUBMERSIBLE PUMP with GUIDE RAIL		CENTRIFICAL PUMP		DRAIN
	INTERLOCK,RELAY, OR OTHER FUNCTION DESCRIBED IN DRAWINGS OR SPECIFICATIONS		METERING PUMP		SLUICE GATE
	FLEXIBLE METAL HOSE		PROGRESSIVE CAVITY PUMP		FLAG GATE
	HOSE		UNION		SLIDE GATE
	INTERFACE MARKER NEW/EXISTIING		Y STRANER		FLANGE
M	MIXER		STATIC MIXER		REDUCER
	ULTRASONIC TRANSMITTER		CENTRIFUGAL BLOWER		ROTARY BLOWER

ABBREVIATIONS

AFD	ADJUSTABLE FRECUENCY DRIVE
AS	AIR SUPPLY
CMPTR	COMPUTER
CS	CONSTANT SPEED
DWV	DRAIN,WASTE, & VENT
ES	ELECTRICAL SUPPLY
FC	FAIL CLOSED
FO	FAIL OPEN
FP	FIELD PANEL
GND	GROUND
HMI	HUMAN-MACHINE INTERFACE
I/O	INPUT/OUTPUT
LCP	LOCAL CONTROL PANEL
MCC	MOTOR CONTROL CENTER
MUX	TELEMETRY MULTIPLEXING
NaOH	SODIUM HYDROXIDE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OF	OVERFLOW
PLC	PROGRAMMABLE LOGIC CONTROLLER
PT	PRESSURE TAG
SP	SUMP PUMP
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUTABLE POWER SUPPLY
V	VENT ABOVE ELEVATION
VS	VARIABLE SPEED
VSD	VARIABLE SPEED DRIVE(VFD)

FLOW STREAM DESIGNATION

XX" aaa

XX = LINE SIZE
aaa = FLOW STREAM ABBREVIATION AS DEFINED ON 00-G-04 GENERAL LEGEND

SHEET CONNECTION SYMBOLS

X | YY-a-ZZ — CONNECTION TO PROCESS WITH IN THIS CONTRACT

X = SEQUENCE
YY-a-ZZ = DWG. NO.

CONNECTION TO PROCESS NOT IN THIS CONTRACT

EQUIPMENT TAGS

aaa - xxxx

aaa = EQUIPMENT TAG PREFIX
SEE 00-M-01 FOR DEFINTIONS

xxxx = TAG NO.

UNIT PROCESS

No	Unit Process
01	PUMP STATION AREA
02	HEAD WORKS AREA
03	EQUALIZATION AREA
04	DE-OX AREA
05	ANEAROBIC AREA
06	1ST ANOXIC AREA
07	SWING AREA
08	PRE-AERATION AREA
09	2ND ANOXIC AREA
10	SMU AREA
11	RAS AREA
12	IR AREA
13	PERMEATE SYSTEM
14	AIR SCOUR SYSTEM
15	PRE-AERATION SYSTEM
16	CIP SYSTEM
17	WAS SYSTEM
18	UV SYSTEM
19	-
20	OTHER
99	PLC/SCADA

General Notes

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Kubota

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1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name
SYMBOL

Project Name and Address
TRAVIS FIELD WATER RECLAMATION FACILITY

Area

Stamp

Drawing Number
SYMBOL2/2

Author
ISSEY IWAKURA

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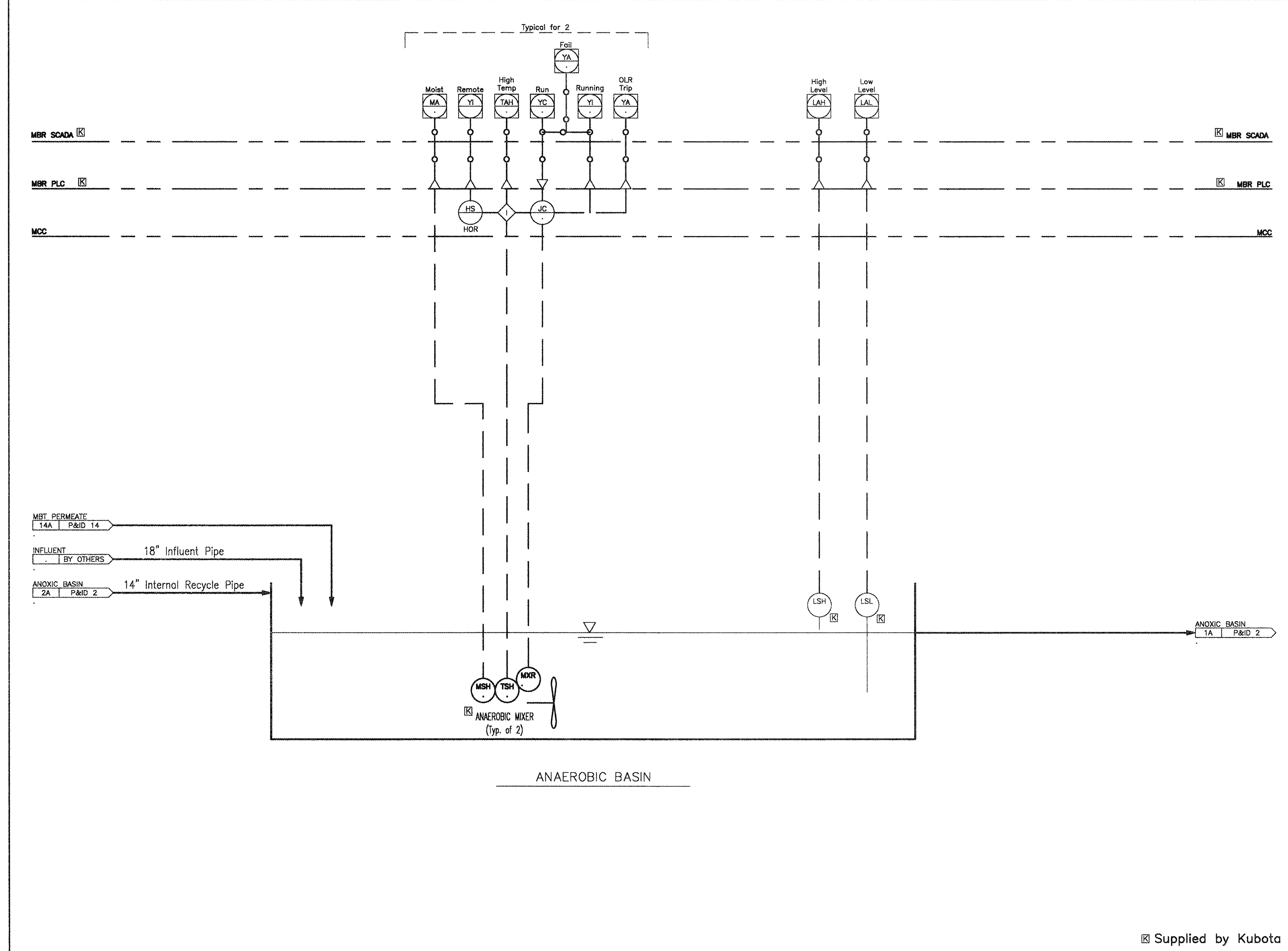

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION ANAEROBIC BASIN

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

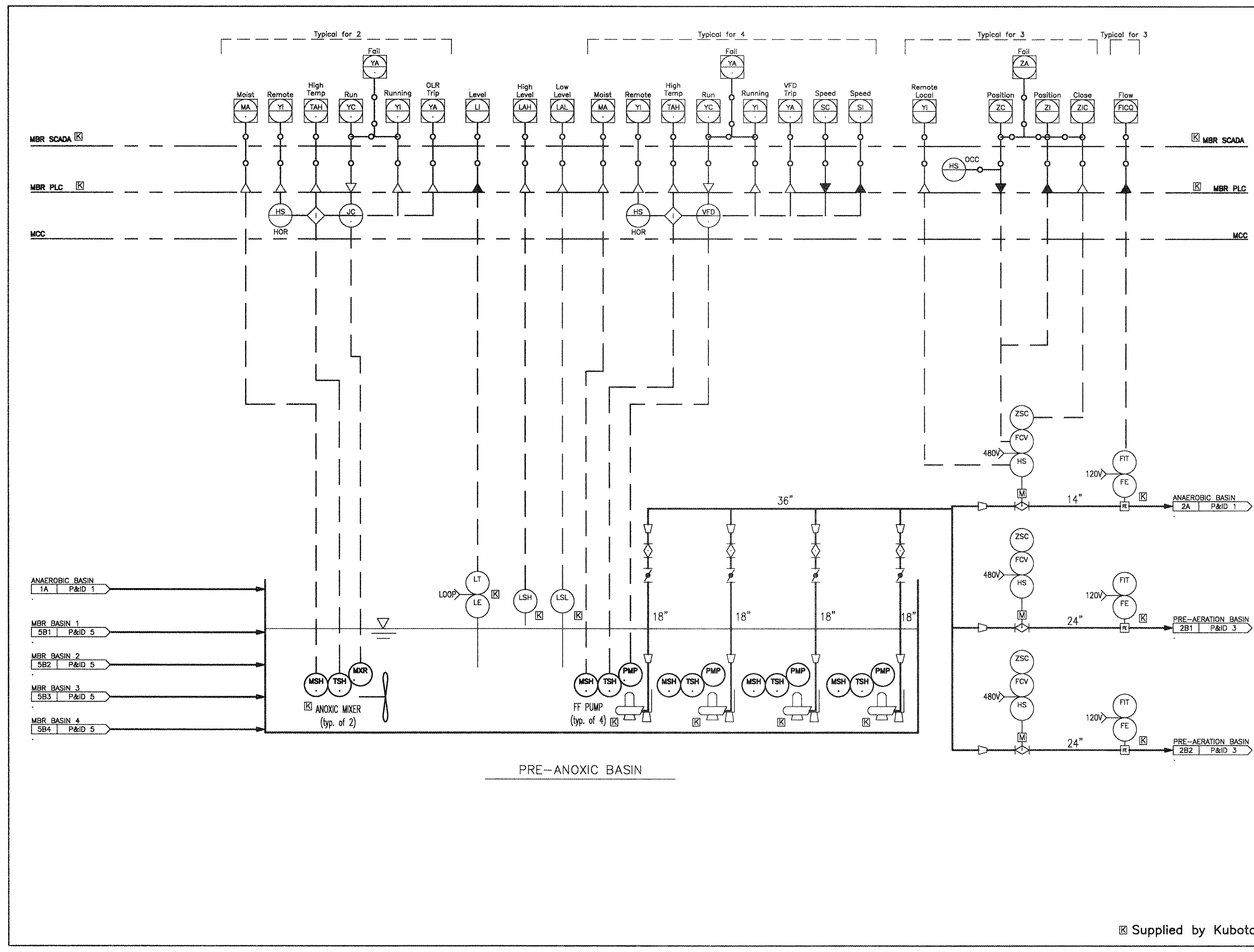
Area

Stamp

Drawing Number
MBR P&ID 1/15

Drawer
ISSEY IWAKURA

BID SET - NOT FOR CONSTRUCTION



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1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name
PROCESS & INSTRUMENTATION PRE–ANOXIC BASIN

Project Name and Address
TRAVIS FIELD WATER RECLAMATION FACILITY

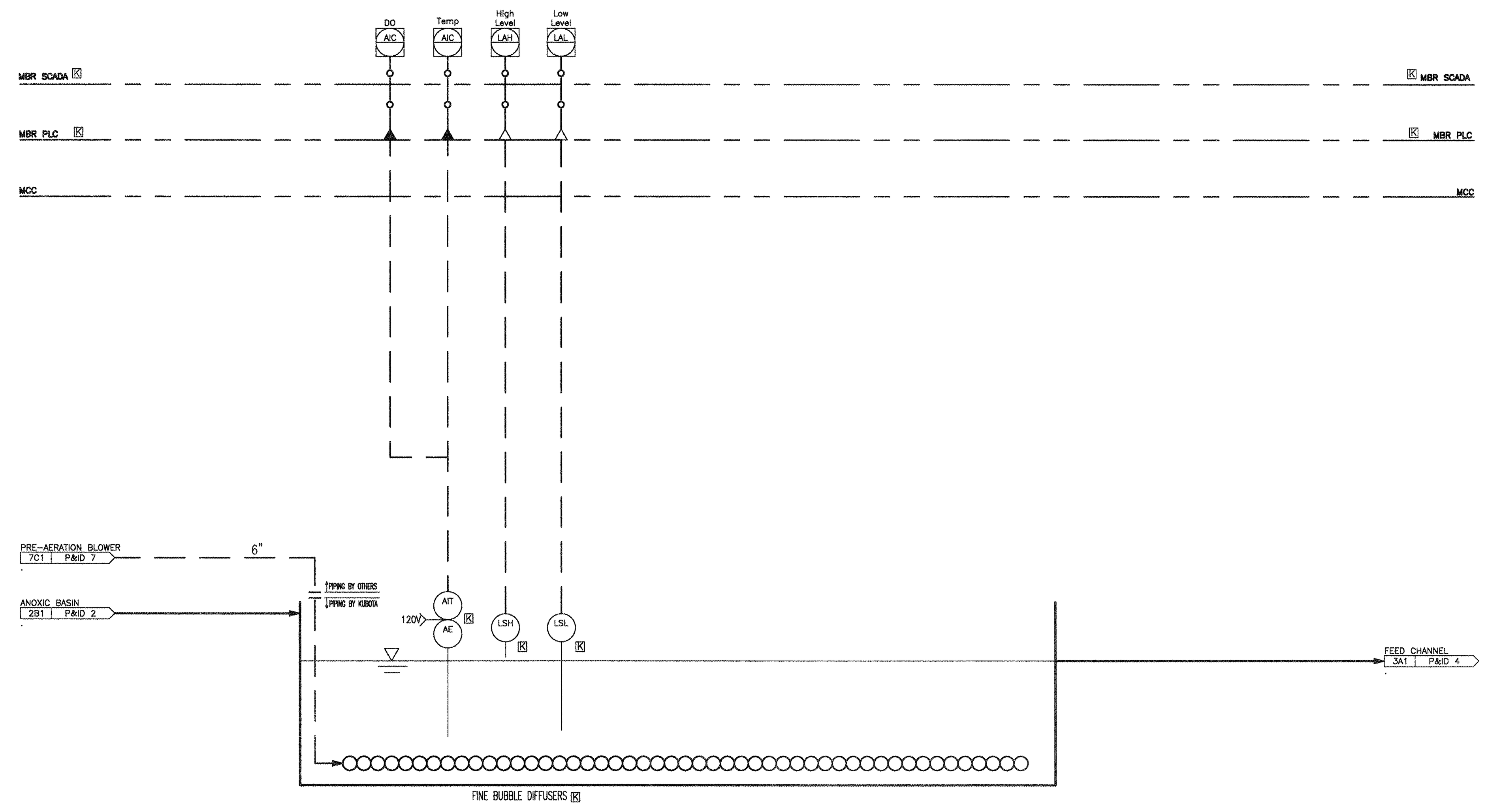
Area

Stamp

Drawing Number
MBR P&ID 2/15

Author
ISSEY IWAKURA

BID SET - NOT FOR CONSTRUCTION



PRE–AERATION BASIN 1

Typical of 2

Supplied by Kubota

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1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION PRE–AERATION BASIN 1 (typical of 2)

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

Area

Stamp

Drawing Number

MBR P&ID 3/15

Author

ISSEY IWAKURA

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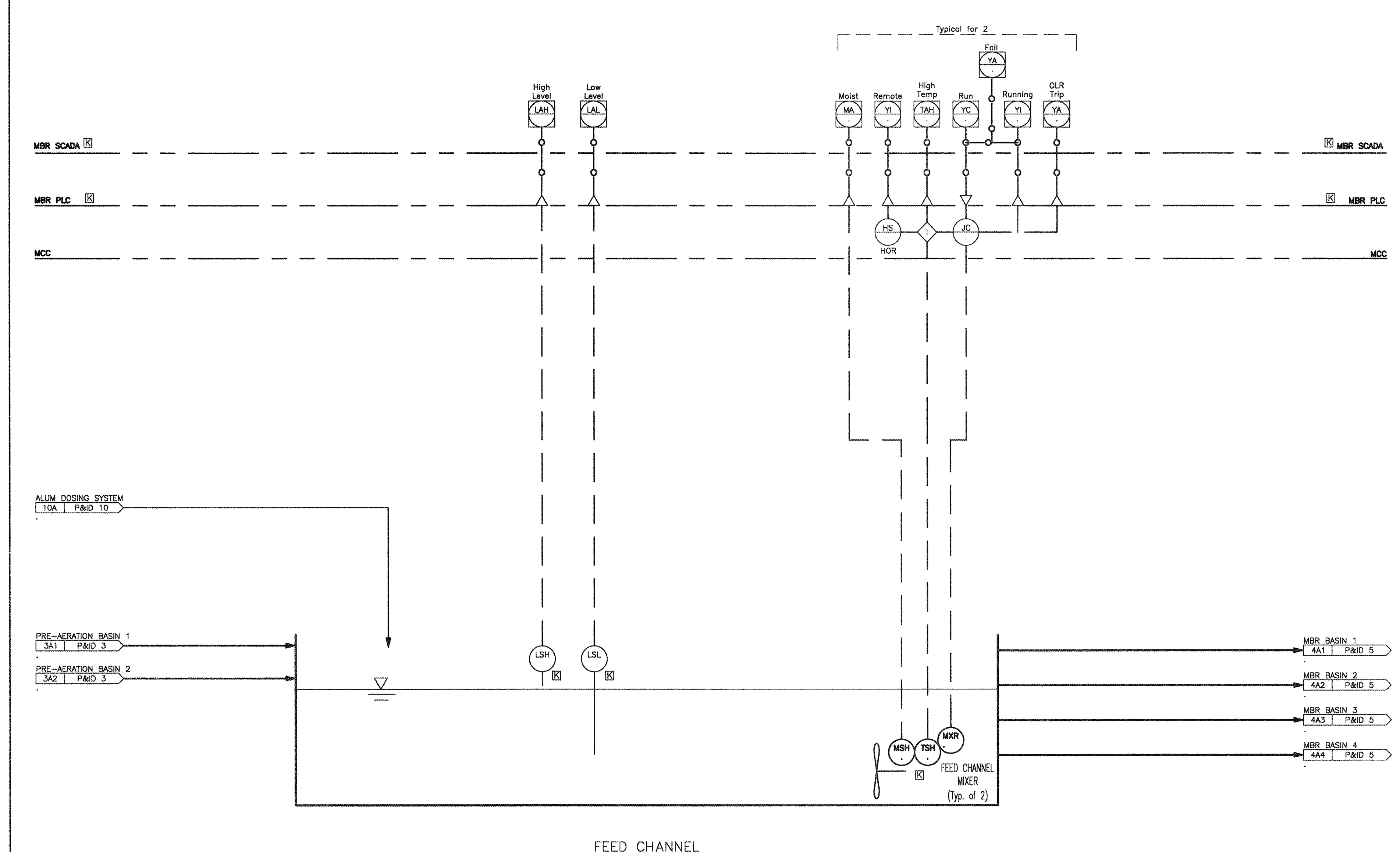

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REFERENCE ONLY FOR ENGINEERING DESIGN WORK

No.	Revision/Issue	Date
6	JOHN BIRD	4/08 2019
5	ISSEY IWAKURA	3/18 2019
4	ISSEY IWAKURA	10/23 2018
3	ISSEY IWAKURA	9/21 2018
2	ISSEY IWAKURA	8/8 2018
1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION FEED CHANNEL

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

Area

Stamp

Drawing Number

MBR P&ID 4/15

Author

ISSEY IWAKURA

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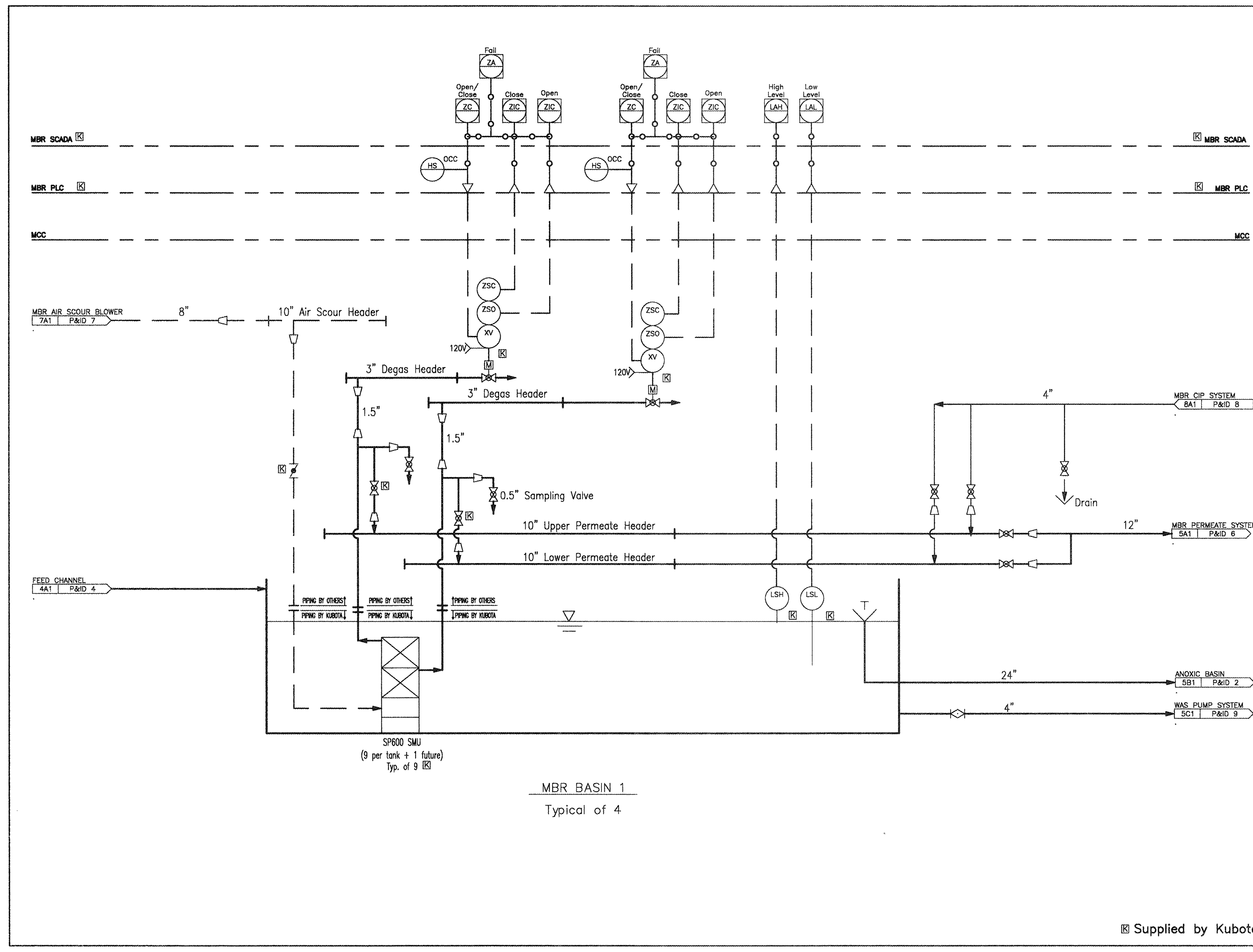

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1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION MBR BASIN 1 (typical of 4)

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 5/15

Author
ISSEY IWAKURA

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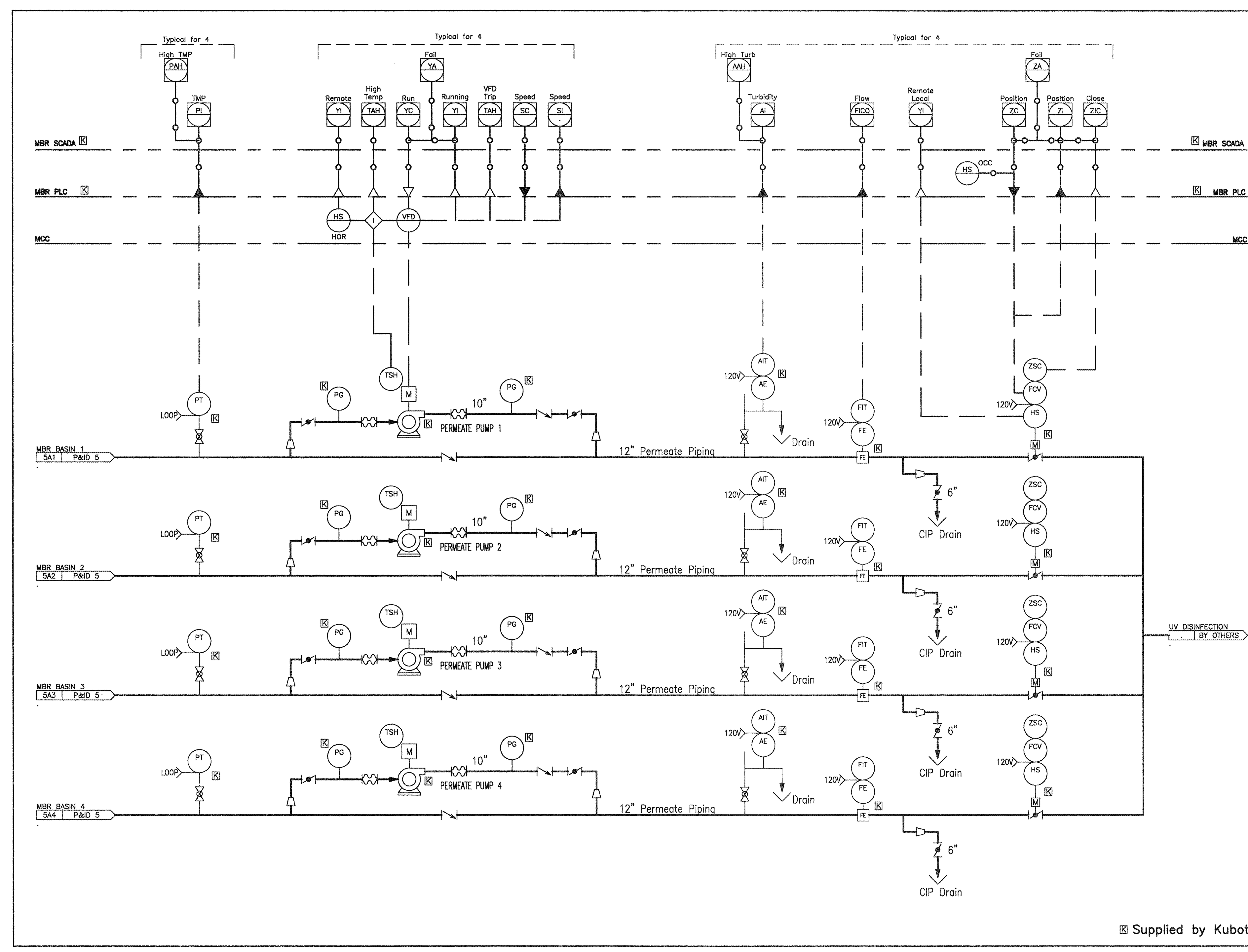

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION MBR PERMEATE SYSTEM

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

Area

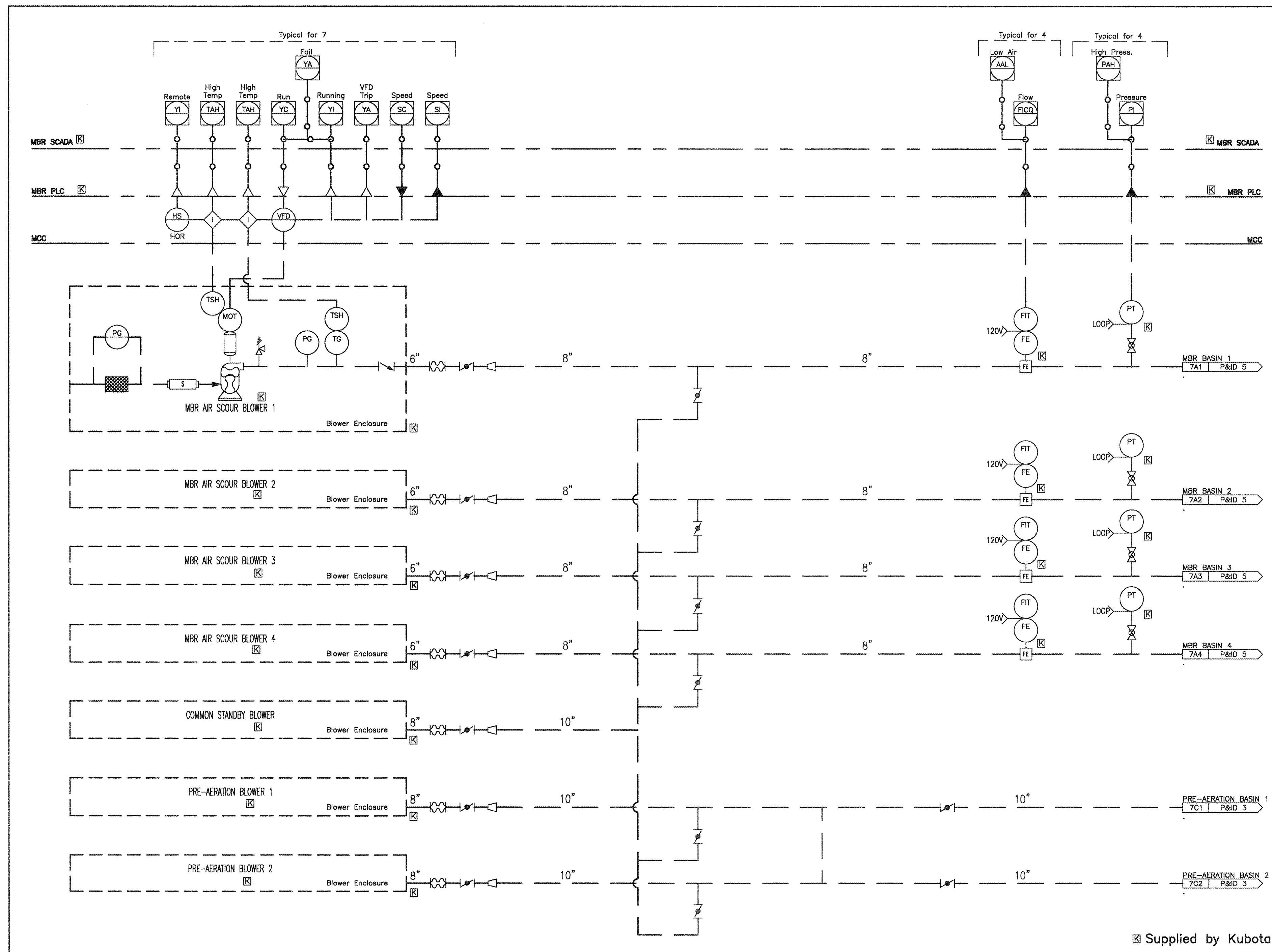
Stamp

Drawing Number

MBR P&ID 6/15

Author

ISSEY IWAKURA



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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
MBR AERATION
SYSTEM

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 7/15

Author
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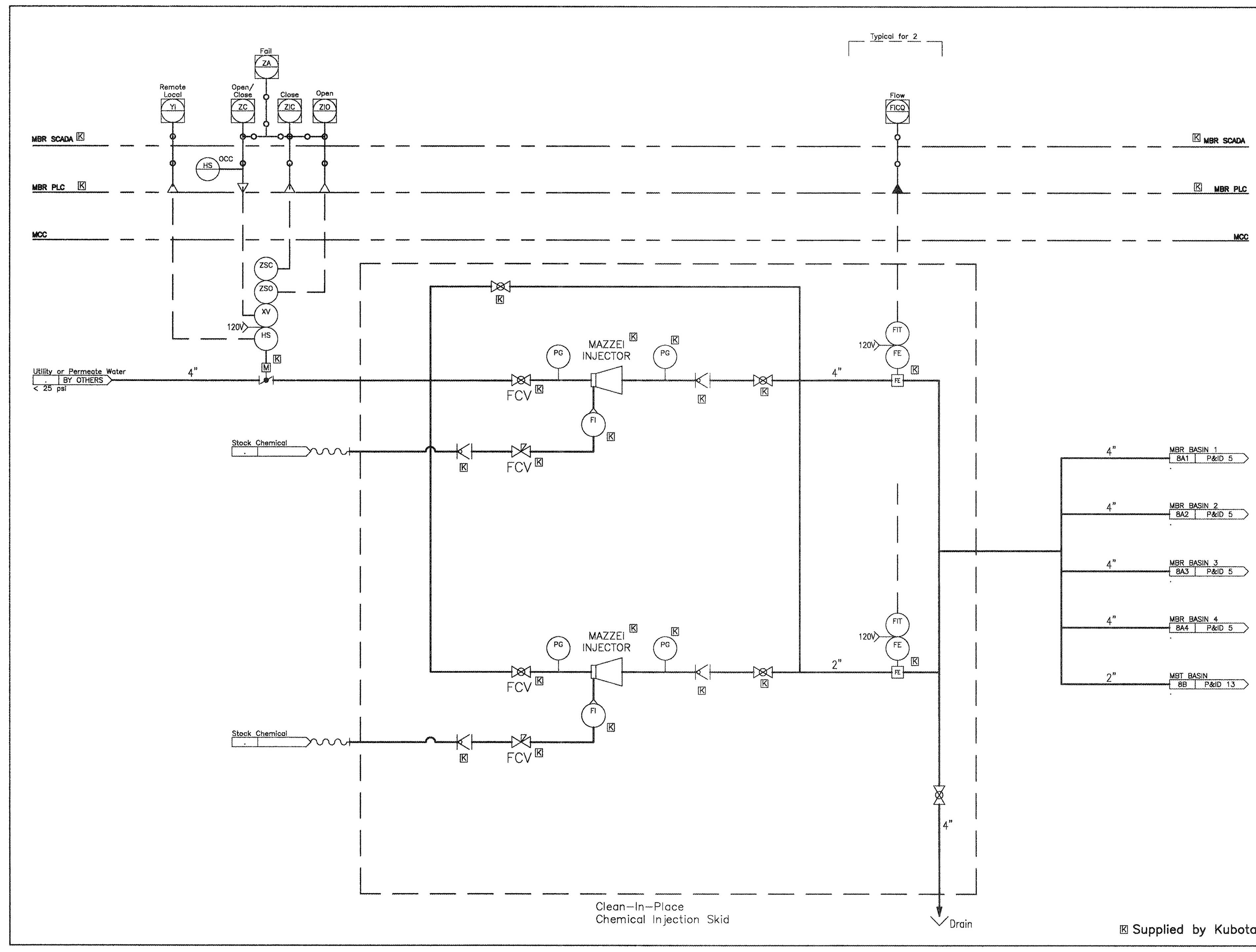

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
MBR CHEMICAL
CLEAN-IN-PLACE

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 8/15

Author
ISSEY IWAKURA

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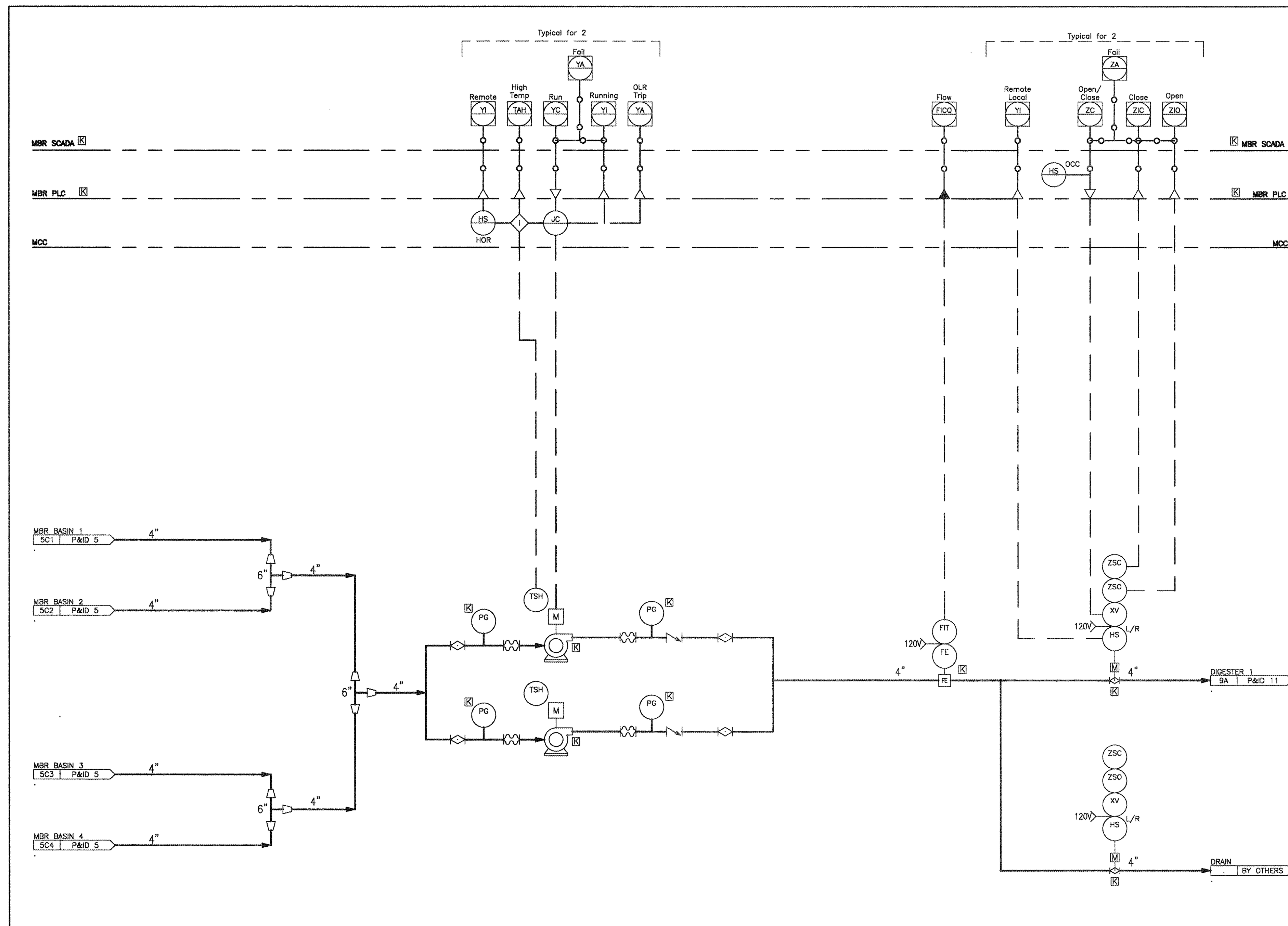

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
WAS PUMP SYSTEM

Project Name and Address

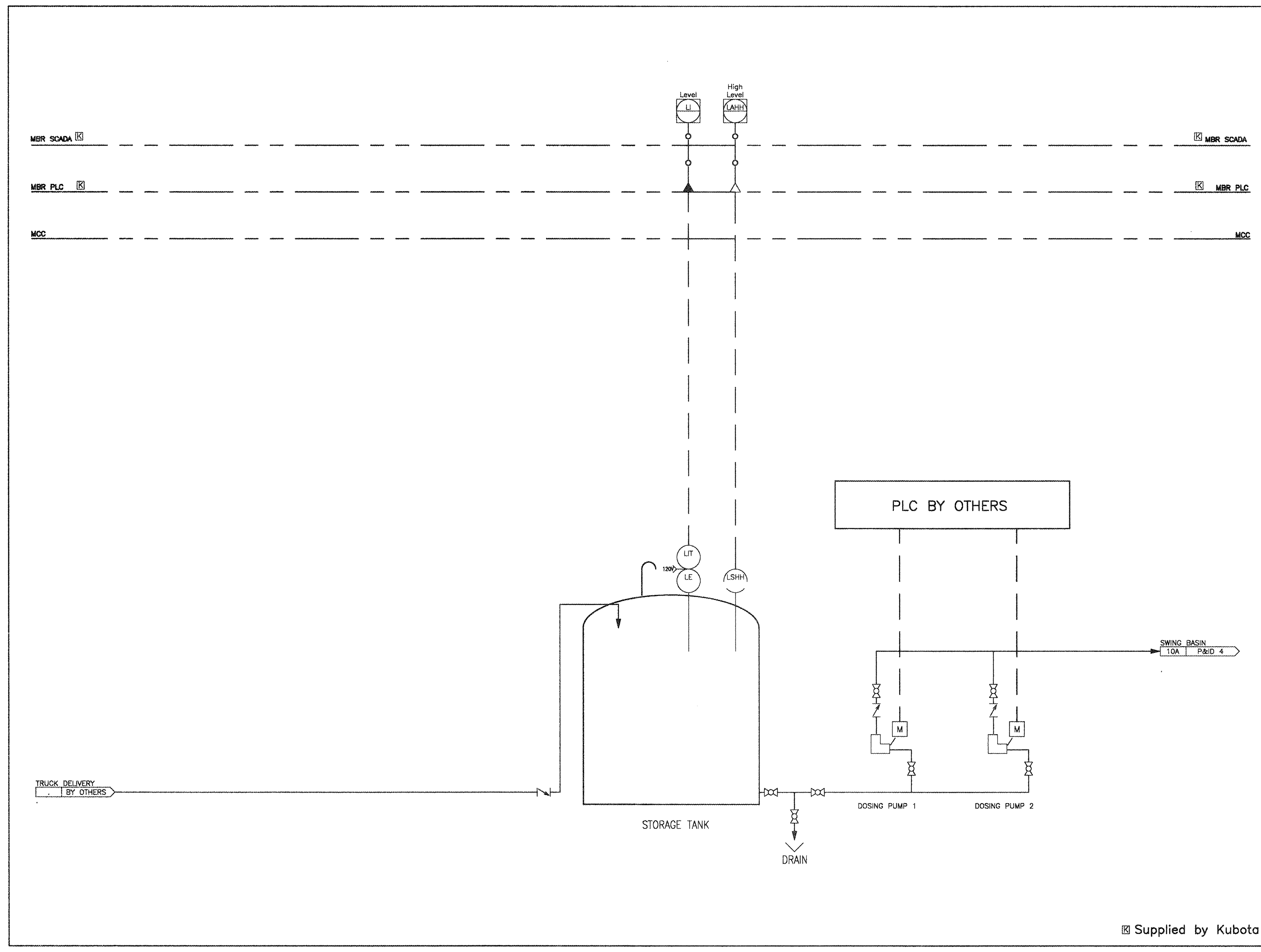
TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 9/15

Author
ISSEY IWAKURA



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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
ALUM INJECTION

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 10/15

ISSEY IWAKURA

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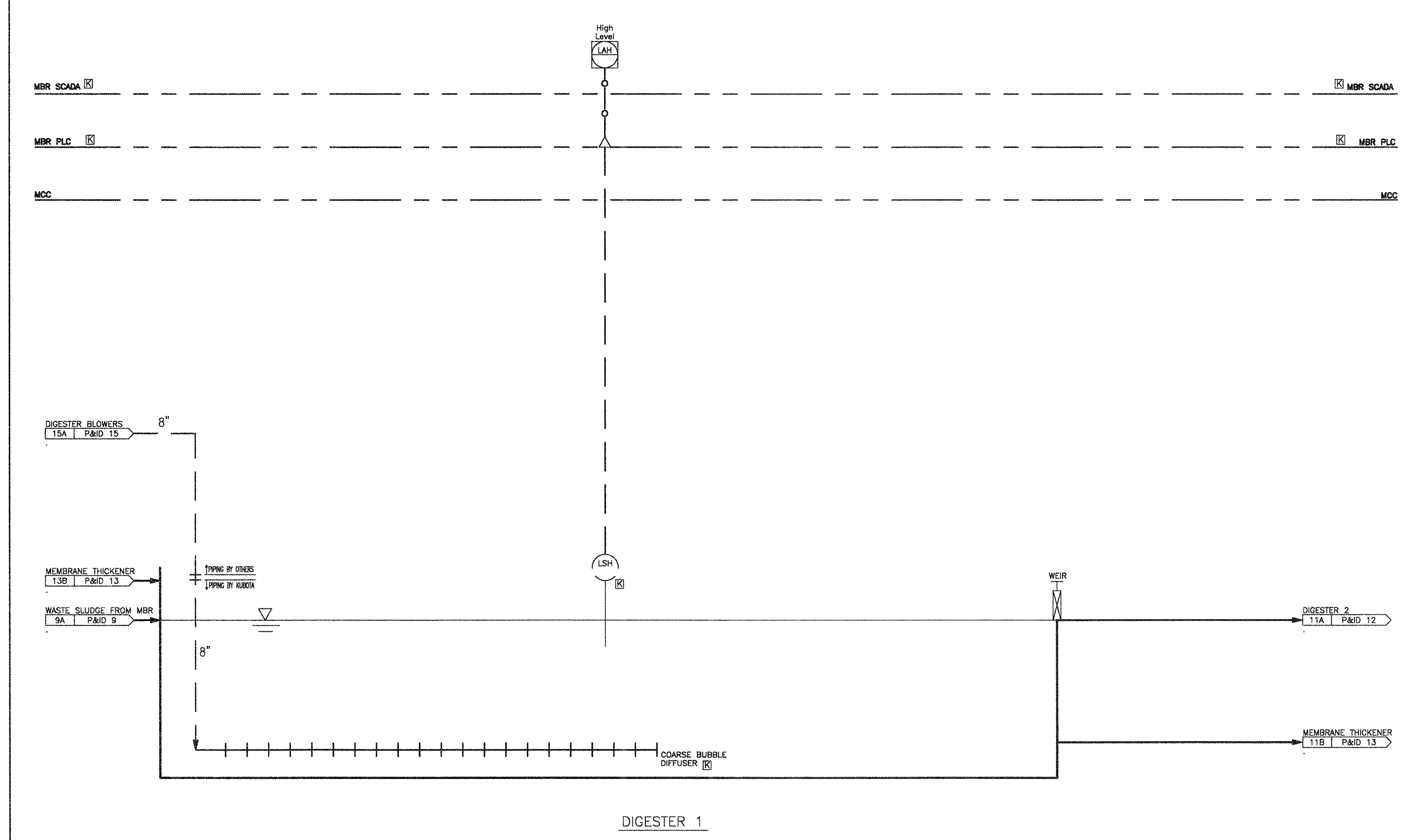

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
DIGESTER 1

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 11/15

Author
ISSEY IWAKURA

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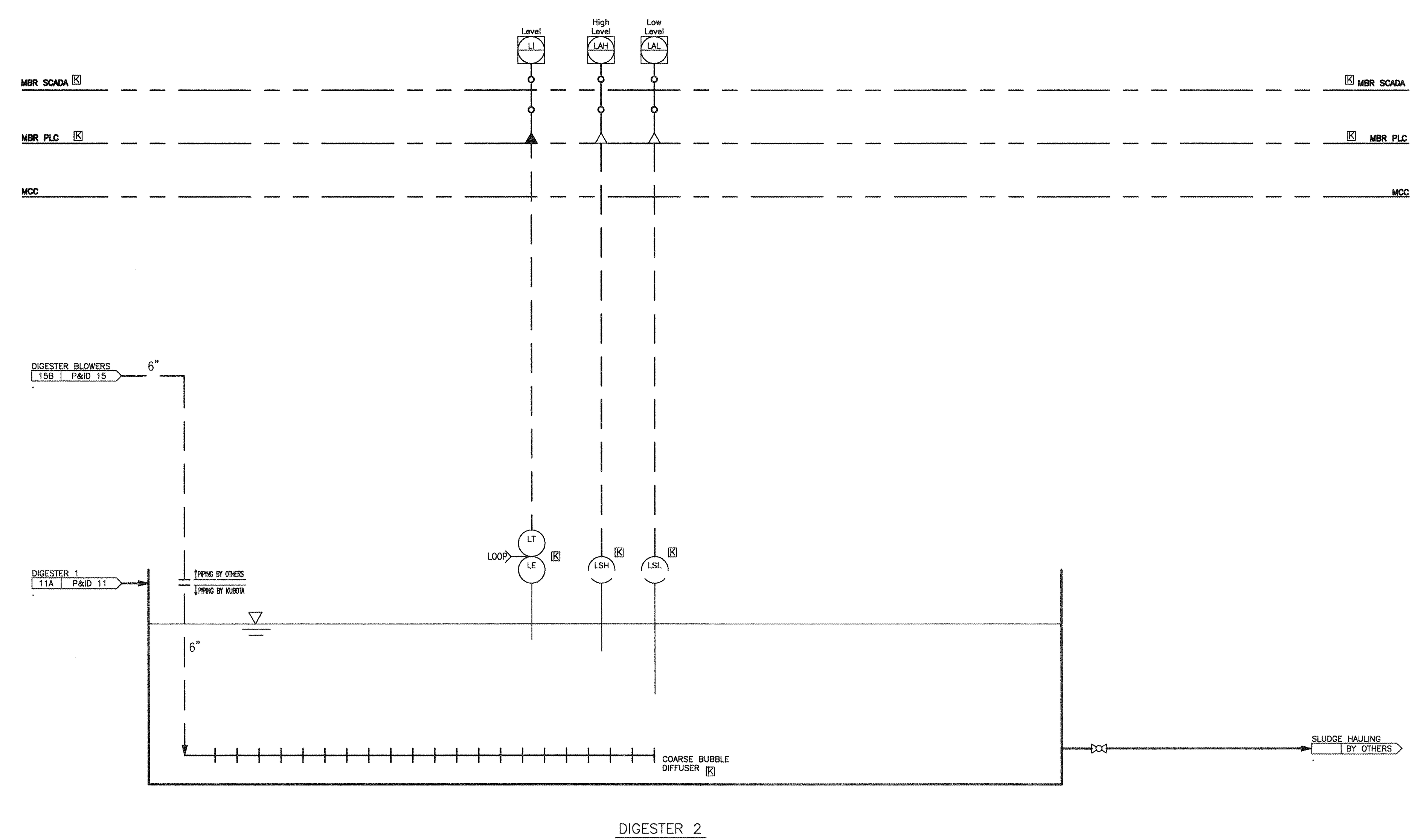

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
DIGESTER 2

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 12/15

Author
ISSEY IWAKURA

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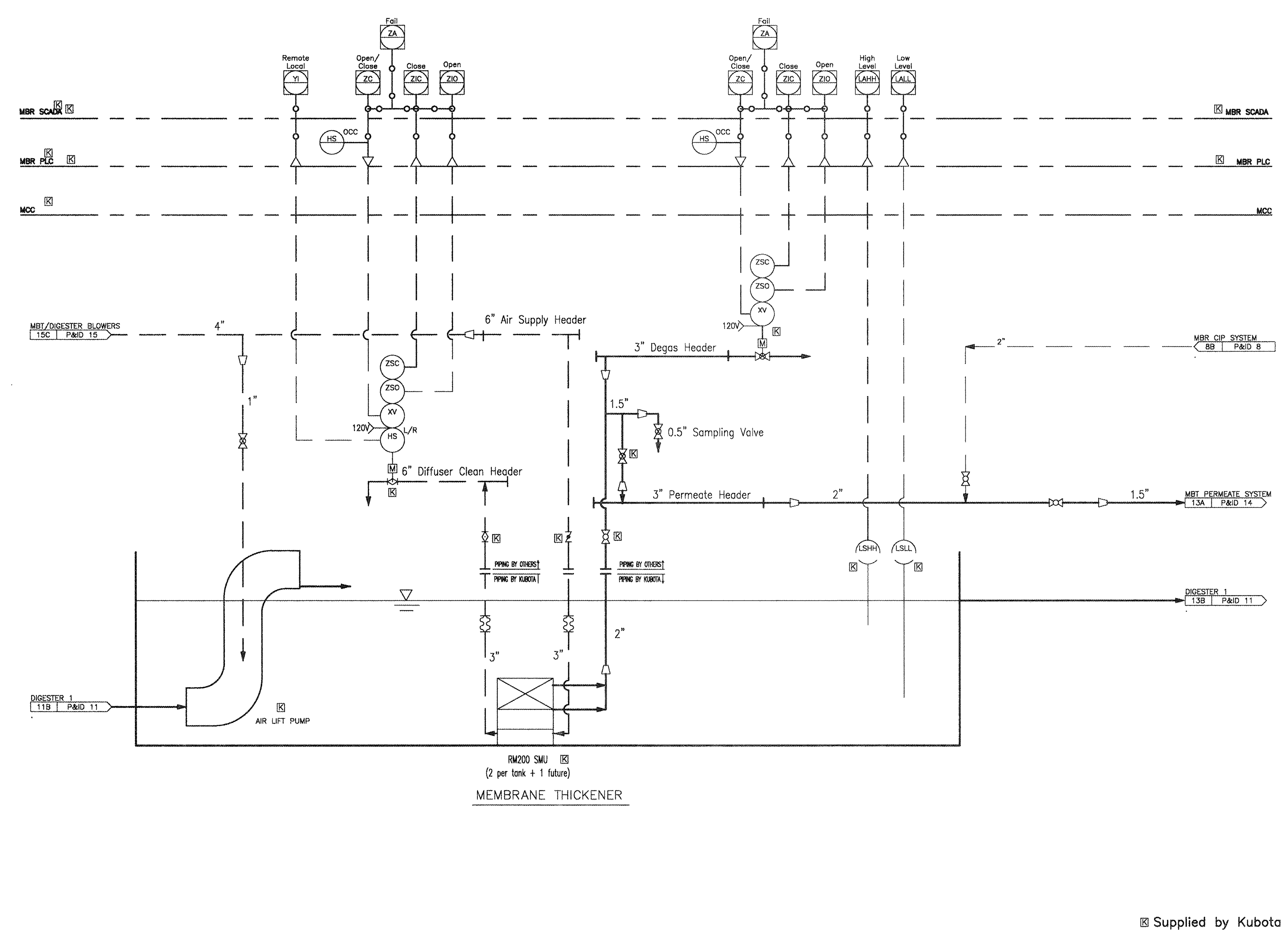

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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS & INSTRUMENTATION MEMBRANE THICKENING BASIN

Project Name and Address

TRAVIS FIELD WATER RECLAMATION FACILITY

Area

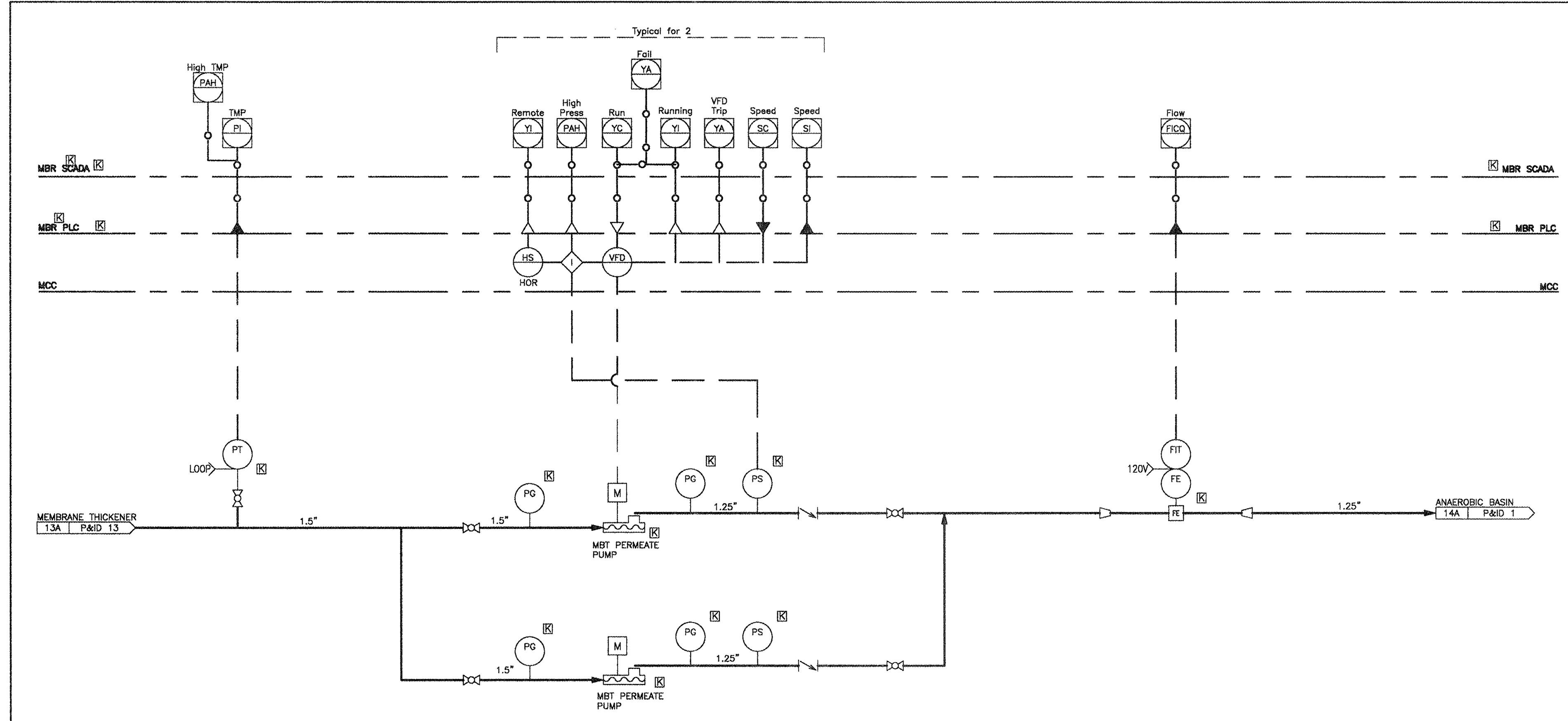
Stamp

Drawing Number

MBR P&ID 13/15

Author

ISSEY IWAKURA



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0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
MBT PERMEATE
PUMP SYSTEM

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 14/15

Author
ISSEY IWAKURA

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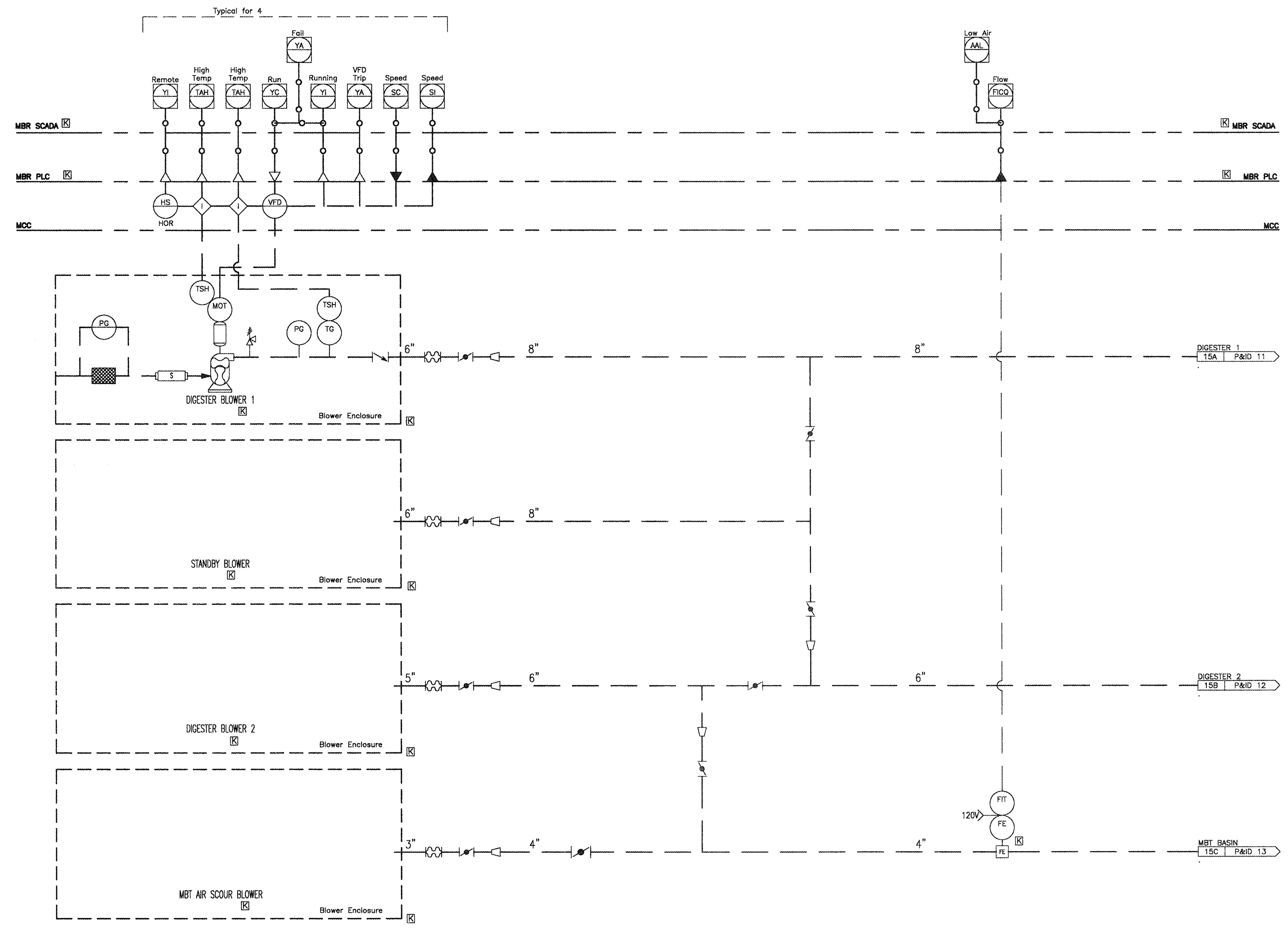

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1	ISSEY IWAKURA	7/27 2018
0	K. FOSTER	12/22 2017

Drawing Name

PROCESS &
INSTRUMENTATION
MBT/ DIGESTER
BLOWER SYSTEM

Project Name and Address

TRAVIS FIELD WATER
RECLAMATION FACILITY

Area

Stamp

Drawing Number
MBR P&ID 15/15

Author
ISSEY IWAKURA

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