

- ABBREVIATIONS:**
- AER - ADMINISTRATION ELECTRICAL ROOM
 - APB - ACCESS POINT BRIDGE
 - CPC - COMMUNICATION PROTOCOL CONVERTER
 - HMI - HUMAN INTERFACE UNIT
 - MCC - MOTOR CONTROL CENTER
 - MCP - MASTER CONTROL PANEL
 - MLPS - MIDDLE LAKE PUMPING STATION
 - MM - MULTIMODE FIBER OPTIC CABLE (6 SC DUPLEX)
 - PLC - PROGRAMMABLE LOGIC CONTROLLER
 - PM - POWER MONITOR
 - PP - PATCH PANEL
 - PS - PUMPING STATION
 - R - RADIO
 - RTU - REMOTE TELEMETRY UNIT
 - SLPS - SOUTH LAKE PUMPING STATION
 - SP - STATION PANEL
 - SUB - SUBSCRIBER BRIDGE
 - SW - SWITCH
- LEGEND:**
- CX COAXIAL
 - E ETHERNET E 10/100 BASE TX
 - F FIBER OPTIC ETHERNET F 100 BASE FX
 - (X) X= NUMBER OF FIBERS
 - S SERIAL

CH2MHILL®		INSTRUMENTATION AND CONTROL BLOCK DIAGRAM	
3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 AAC001992 WILLIAM RAY PHILLIPS - PE 38254		SWWRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	
DATE: JUNE 2013		PROJECT: 457133	
DWG: 008-N-6007		SHEET: of	
NTS		VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.			
DATE: JUNE 2013			
PROJECT: 457133			
DWG: 008-N-6007			
SHEET: of			

3011 SW WILLISTON RD
 GAINESVILLE, FL 32608
 EB0000072 AAC001992
 WILLIAM RAY PHILLIPS - PE 38254

SWWRF NITROGEN REMOVAL
 AND DIGESTER MODIFICATIONS
 MANATEE COUNTY UTILITIES
 MANATEE COUNTY, FL

INSTRUMENTATION AND CONTROL
BLOCK DIAGRAM

NTS
 VERIFY SCALE
 BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: JUNE 2013

PROJECT: 457133

DWG: 008-N-6007

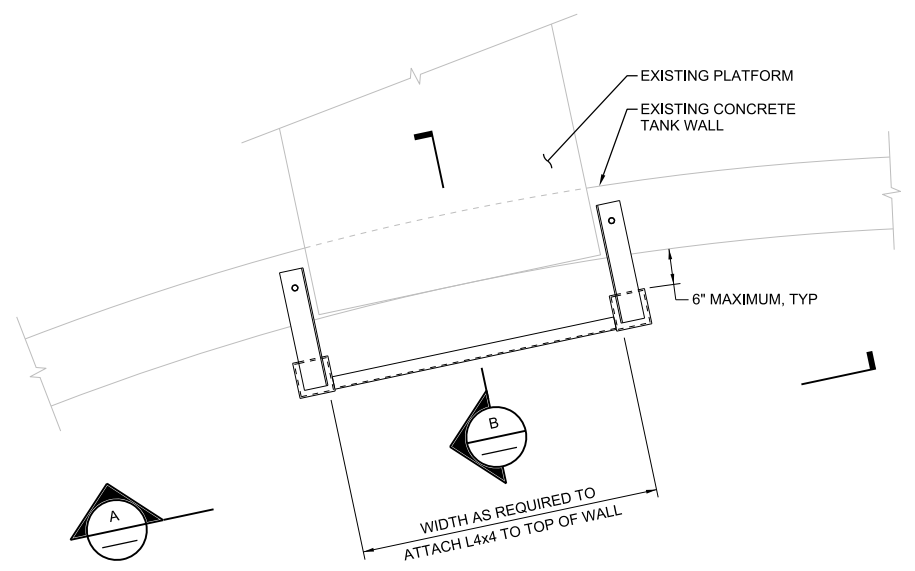
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FILENAME: 008-N-6007_457133.dgn PLOT DATE: 6/20/2013 PLOT TIME: 11:14:36 AM

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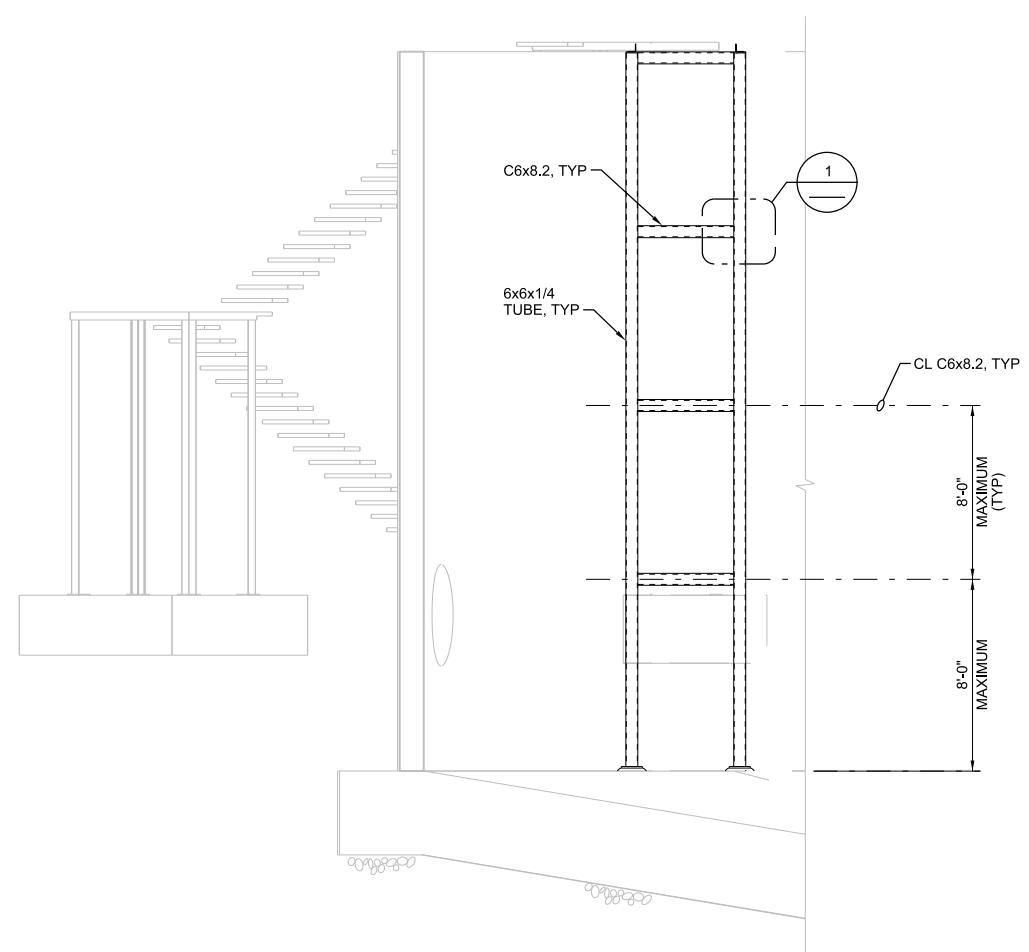
1 2 3 4 5 6

A
B
C
D

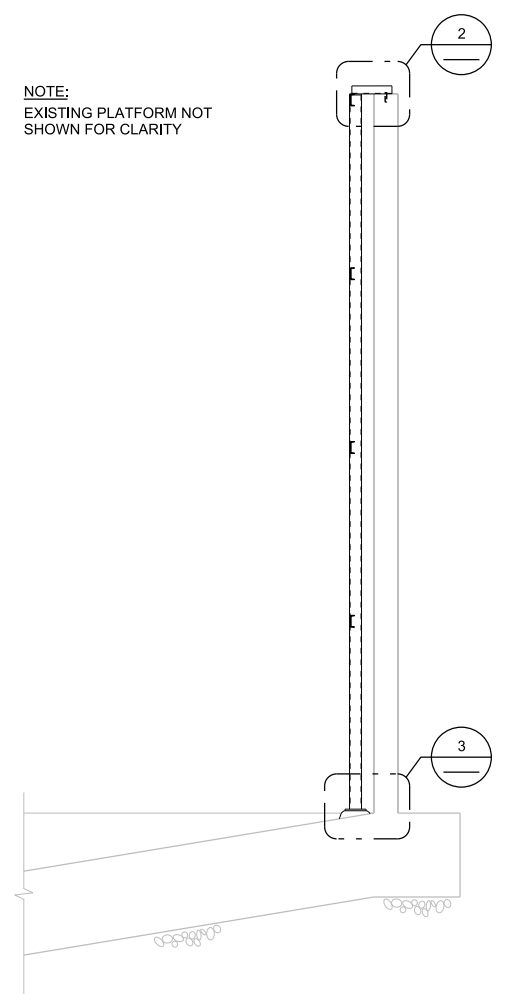


TYPICAL FOR EACH SLUDGE HOLDING TANK

TOP PLAN
3/4"=1'-0"

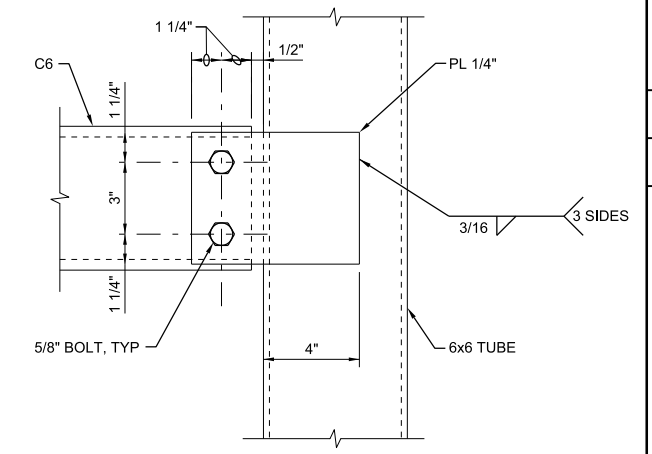


A SECTION
1/4"=1'-0"

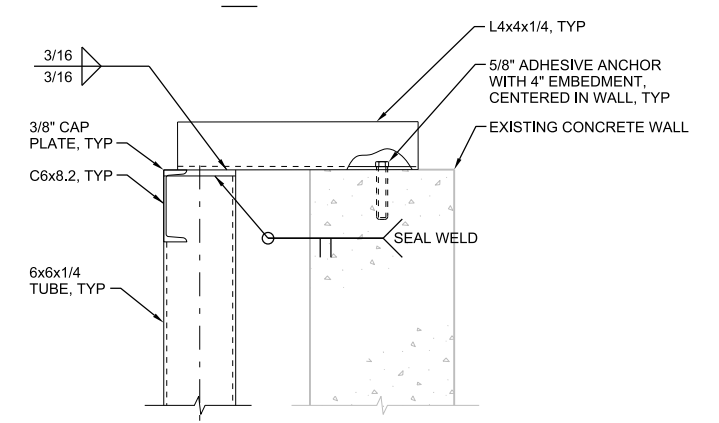


B SECTION
1/4"=1'-0"

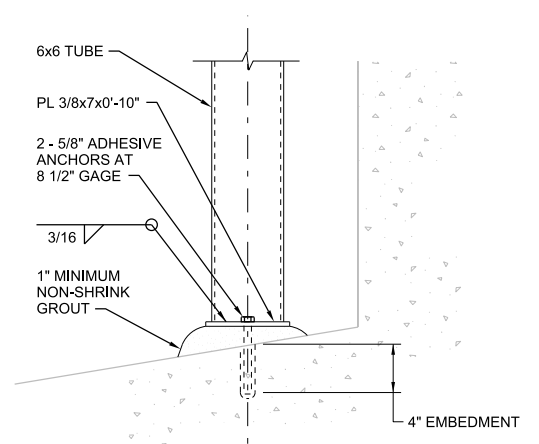
NOTES:
1. ALL MEMBERS, PLATES AND FASTENERS SHALL BE TYPE 316 STAINLESS STEEL.



1 DETAIL
3"=1'-0"



2 DETAIL
1 1/2"=1'-0"



3 DETAIL
1 1/2"=1'-0"

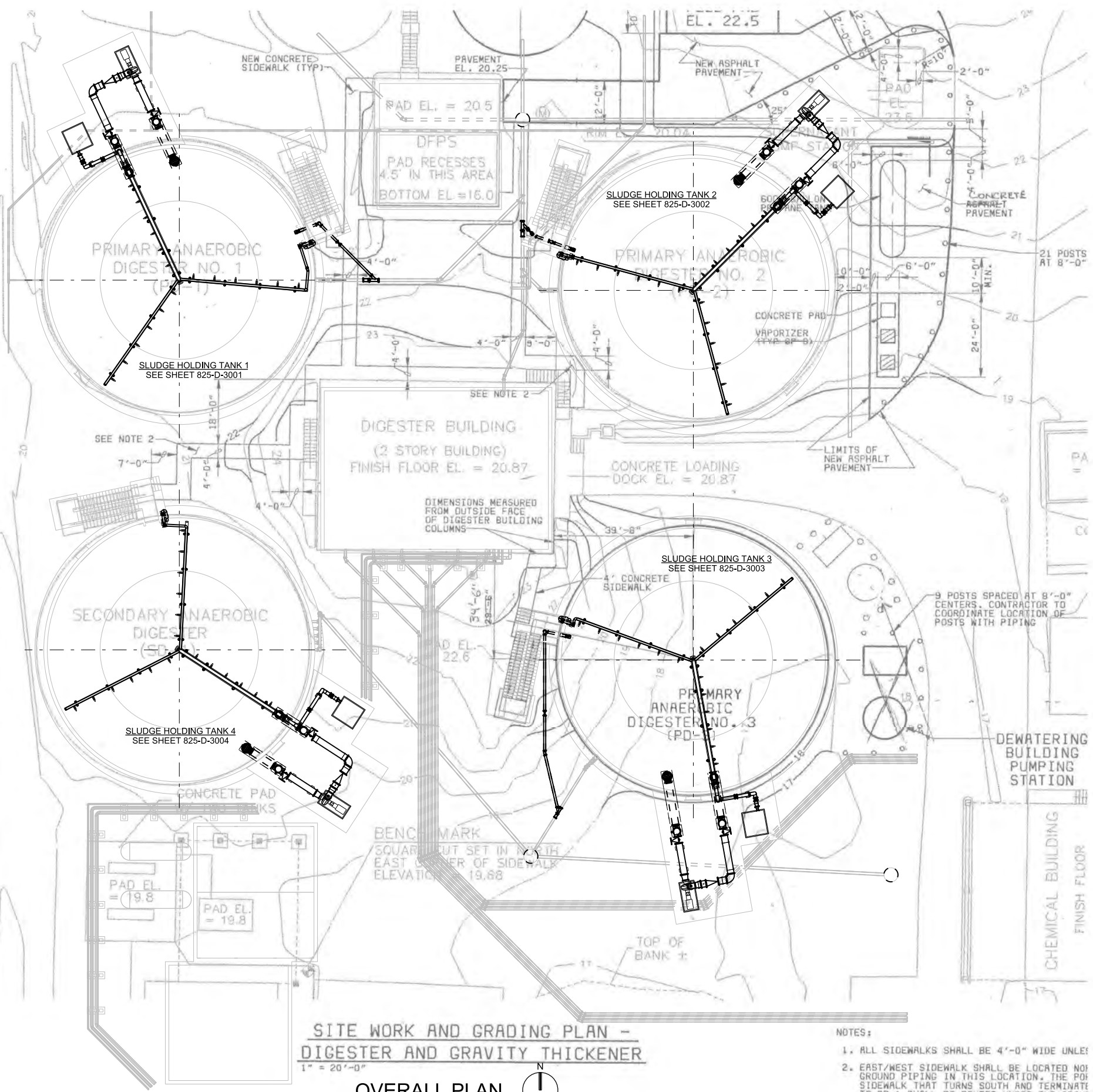
3011 SW WILLISTON RD
GAINESVILLE, FL 32608
EB0000072 AAC001992
DELAUNE LANGE - PE 70194

CH2MHILL®
STRUCTURAL
SLUDGE HOLDING TANKS
SUPPORT RACKS
TOP PLAN, SECTIONS AND DETAILS

AS SHOWN
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE JUNE 2013
PROJ 457133
DWG 825-S-3002
SHEET of

ISSUED FOR BID

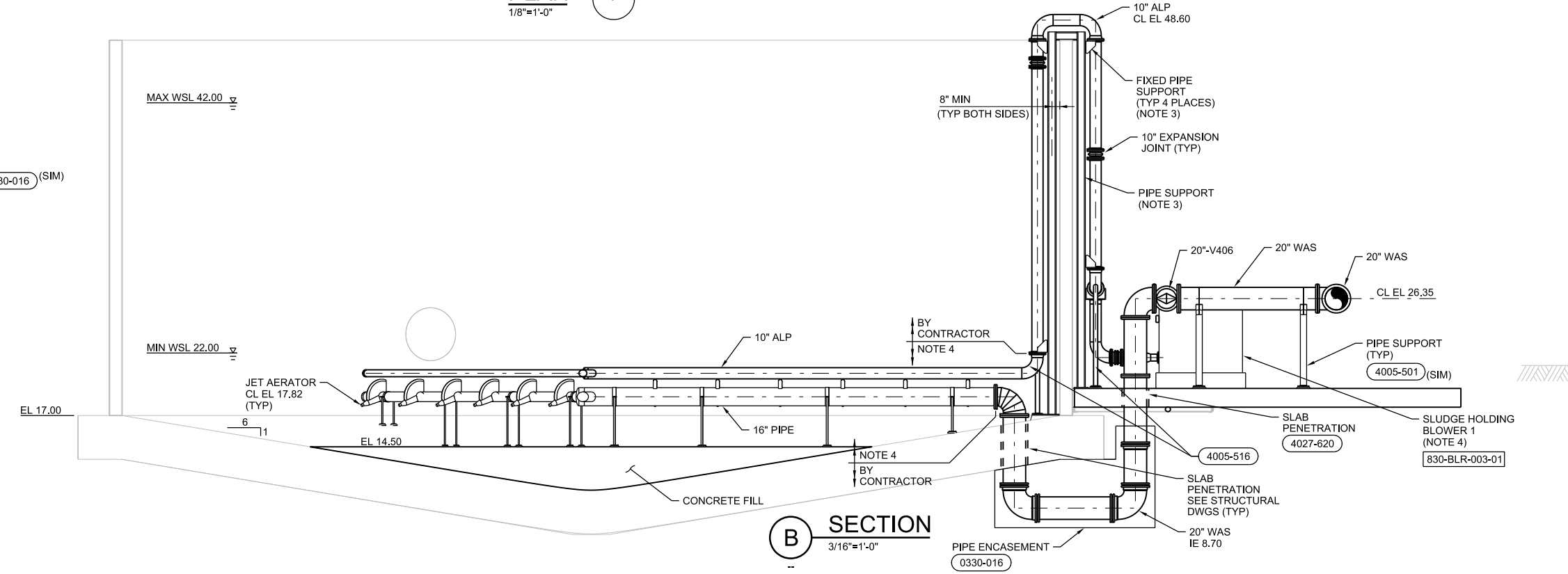
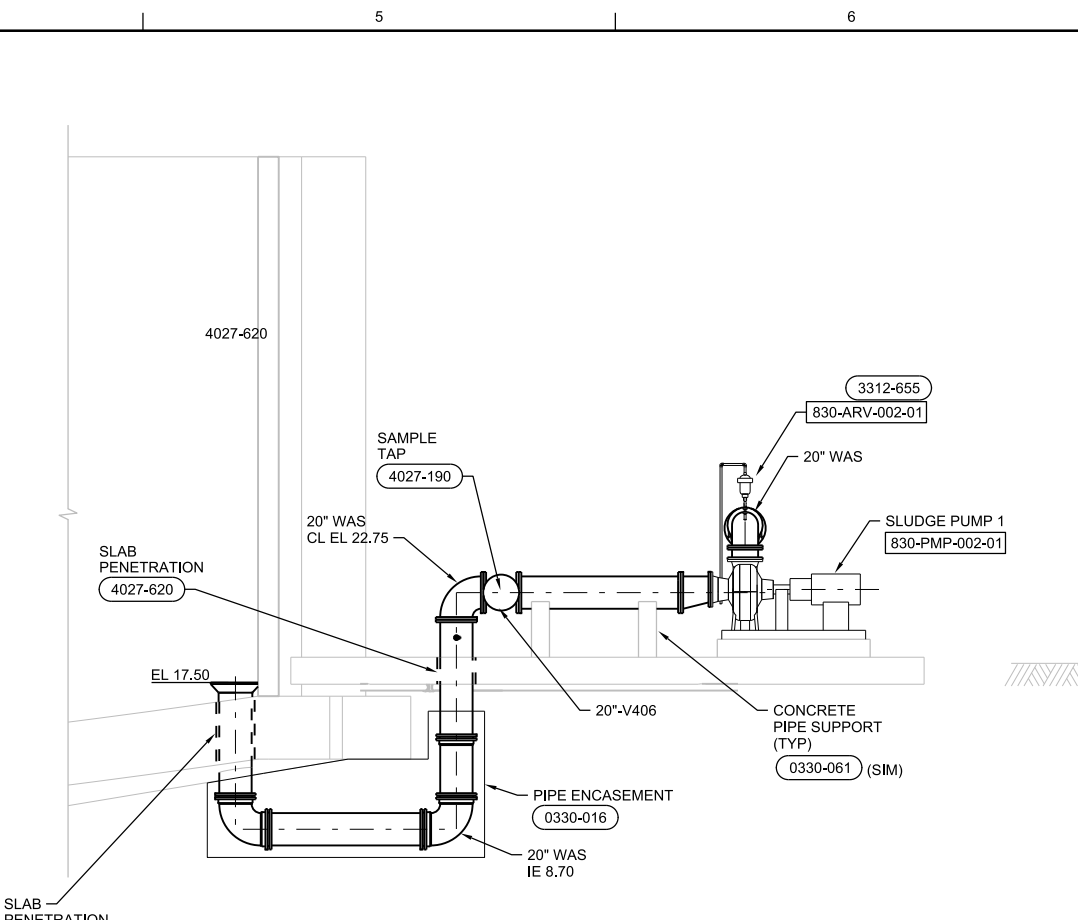
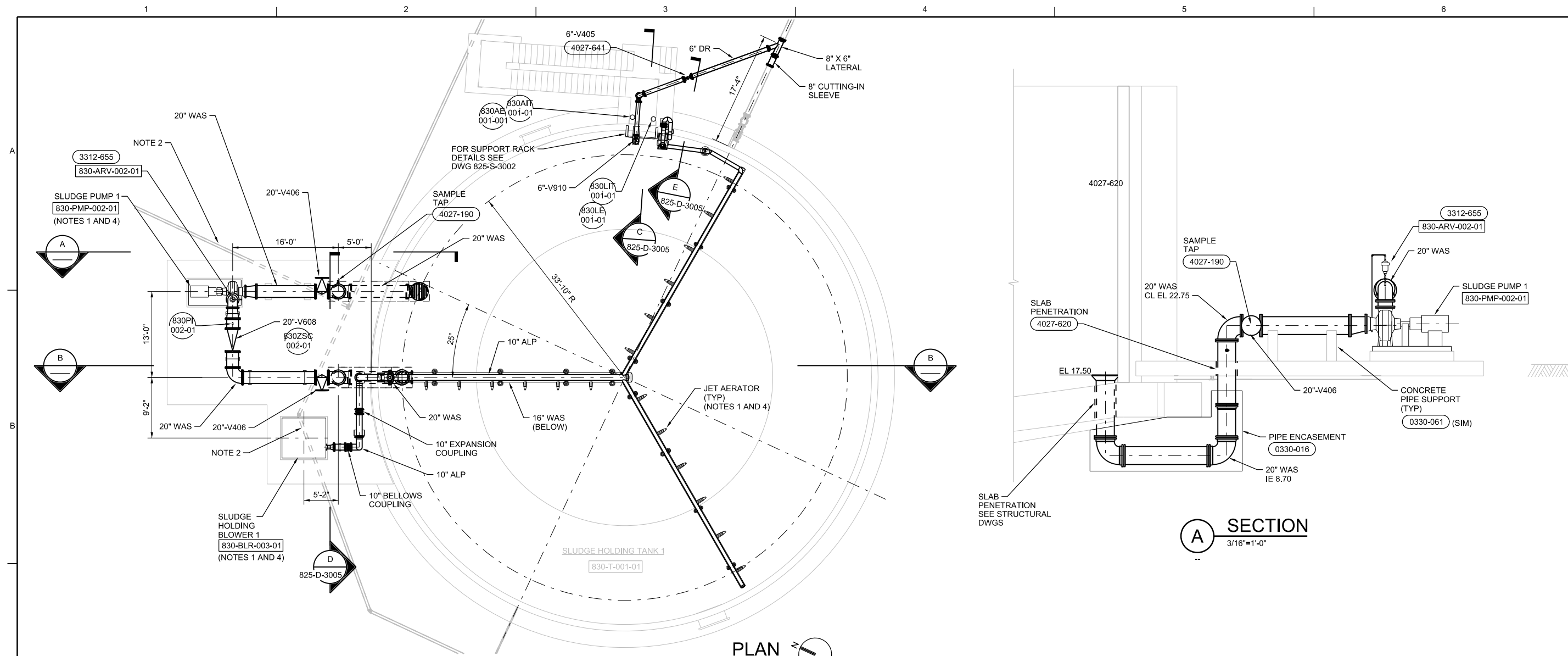
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**SITE WORK AND GRADING PLAN -
DIGESTER AND GRAVITY THICKENER**
1" = 20'-0"
OVERALL PLAN

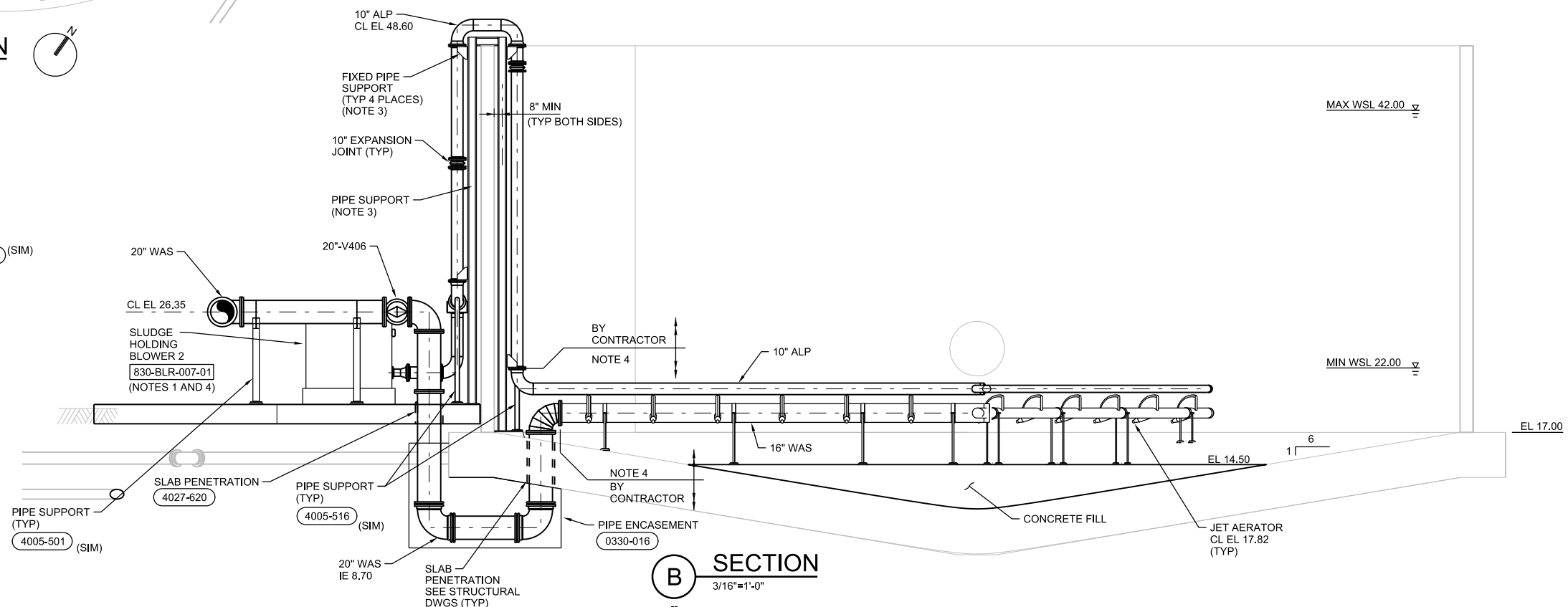
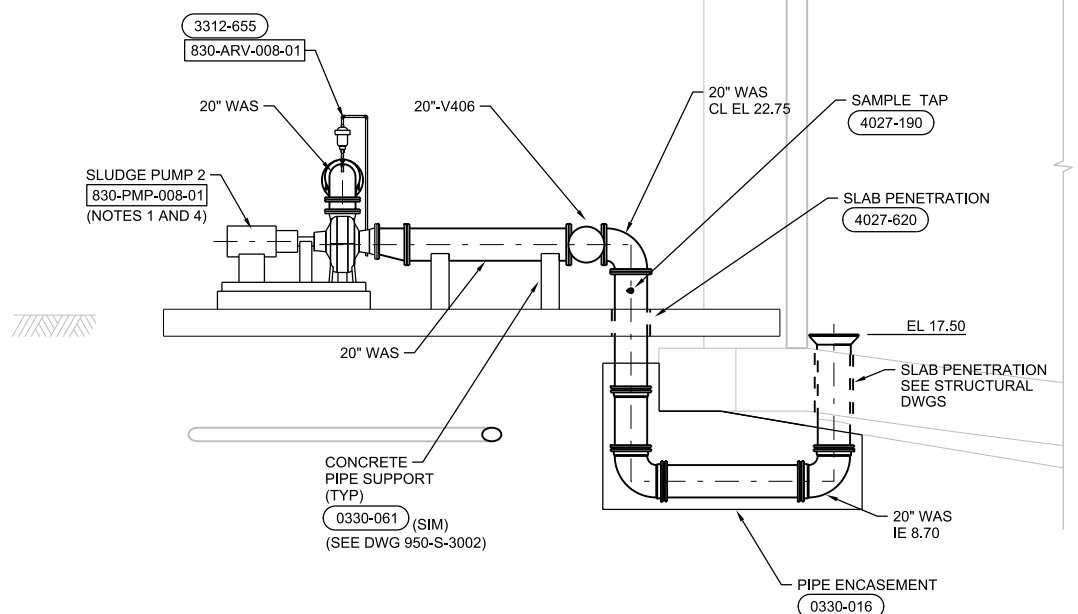
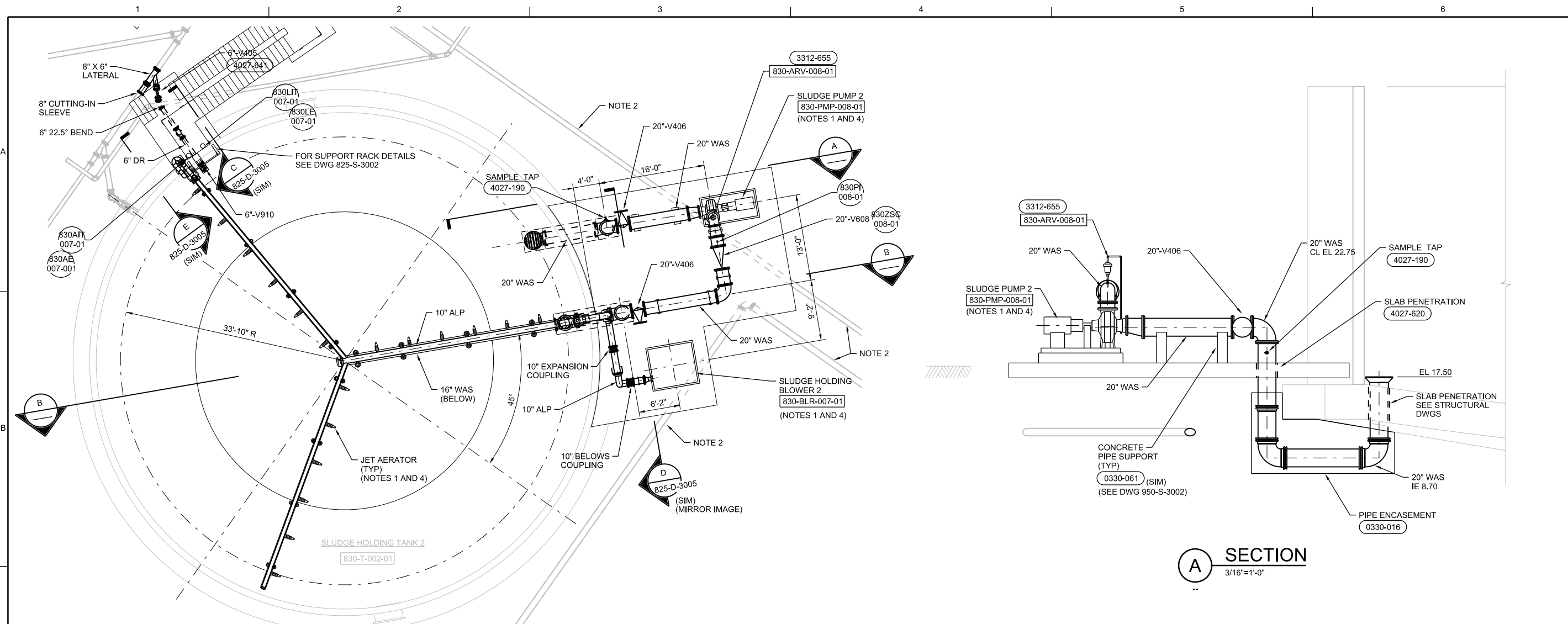
- NOTES:
1. ALL SIDEWALKS SHALL BE 4'-0" WIDE UNLESS OTHERWISE NOTED.
 2. EAST/WEST SIDEWALK SHALL BE LOCATED NOT TO INTERFERE WITH GROUND PIPING IN THIS LOCATION. THE POINT OF INTERSECTION THAT TURNS SOUTH AND TERMINATES TO SD-1 SHALL BE ROUTED UNDER THE ABOVE SIDEWALK. SLOPE OF THE EARTH SHALL NOT EXCEED 0:1.

<p>CH2MHILL®</p> <p>PROCESS SLUDGE HOLDING TANKS OVERALL PLAN</p>		<p>3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 AAC001992 TAO FU - PE 63138</p>		<p>SWMRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL</p>	
		<p>NO. DATE</p>	<p>DR</p>	<p>REVISION</p>	<p>CHK</p>
<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0" 1"</p>		<p>DATE</p>	<p>PROJ</p>	<p>DWG</p>	<p>SHEET</p>
<p>DATE: JUNE 2013</p>		<p>PROJ: 457133</p>	<p>DWG: 825-D-2001</p>	<p>SHEET: of</p>	<p>ISSUED FOR BID</p>



- NOTES:**
- COORDINATE EQUIPMENT AND PIPING WITH JET AERATION SYSTEM MANUFACTURER. THE EQUIPMENT SHOWN IS BASED ON ONE MANUFACTURER. DIFFERENT MANUFACTURER WILL HAVE DIFFERENT EQUIPMENT AND PIPING LAYOUT.
 - EXISTING PIPING UNDER NEW SLAB TO BE CONCRETE ENCASED A MINIMUM OF 3'-0" BEYOND EDGE OF SLAB AS PER DETAIL (0330-016) (SIM)
 - CONTRACTOR DESIGNED PIPE SUPPORT. DO NOT ATTACH TO WALL VERTICAL FACE.
 - FURNISHED BY OWNER.

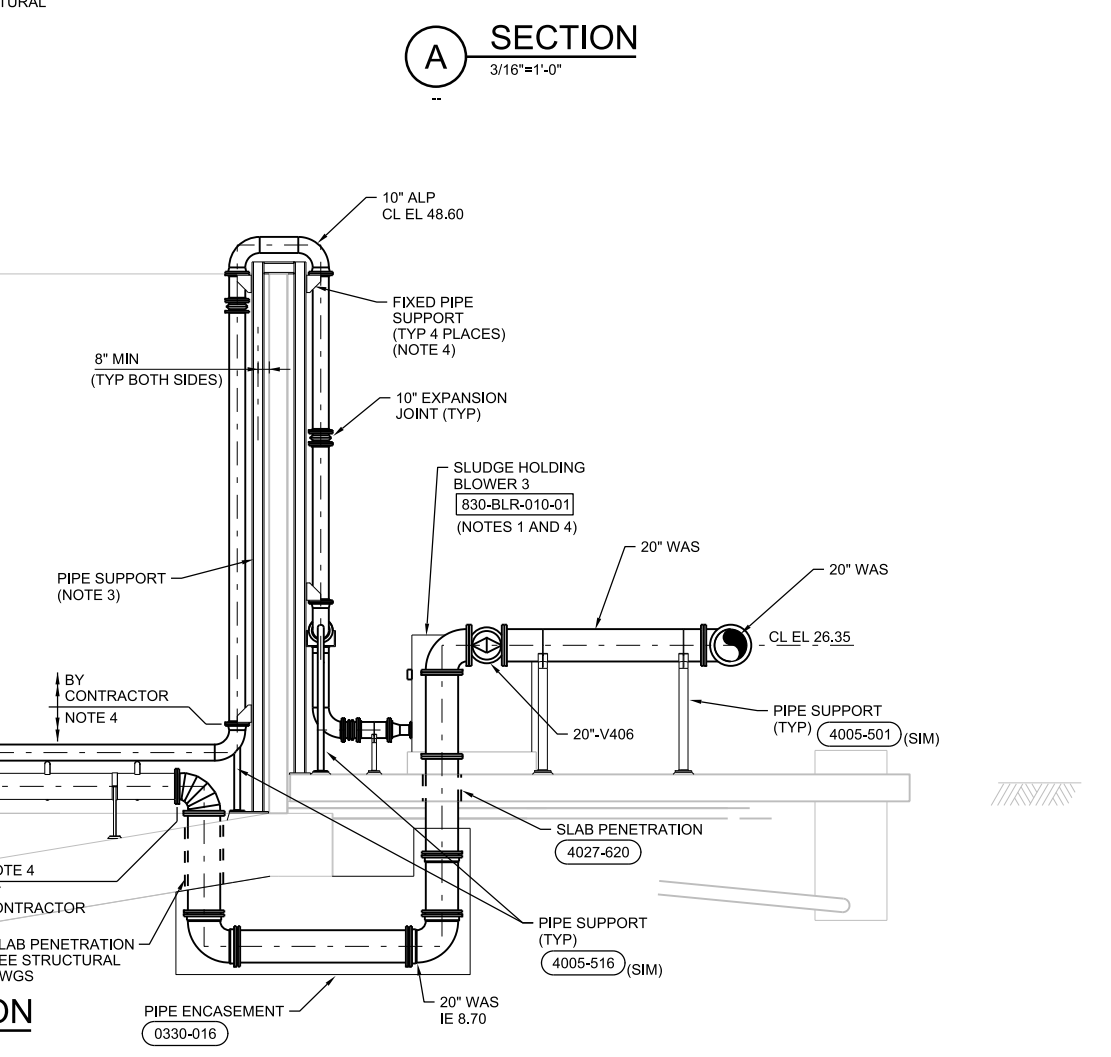
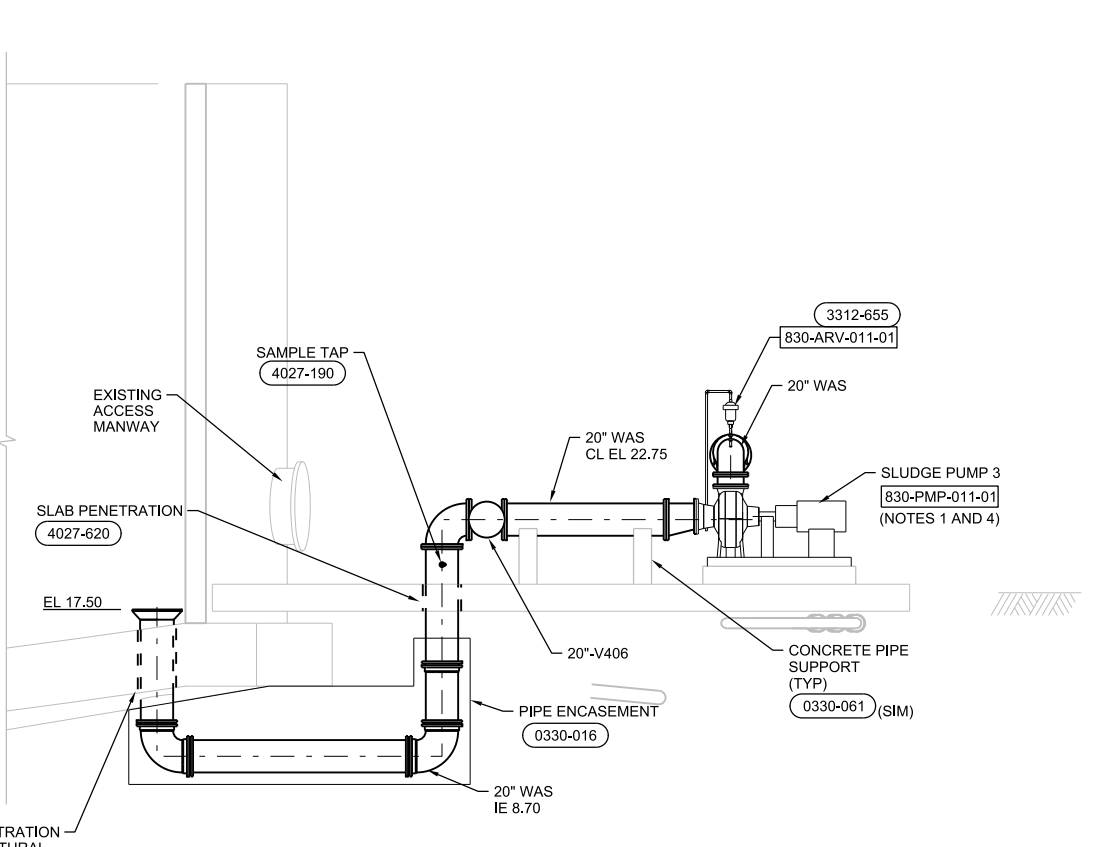
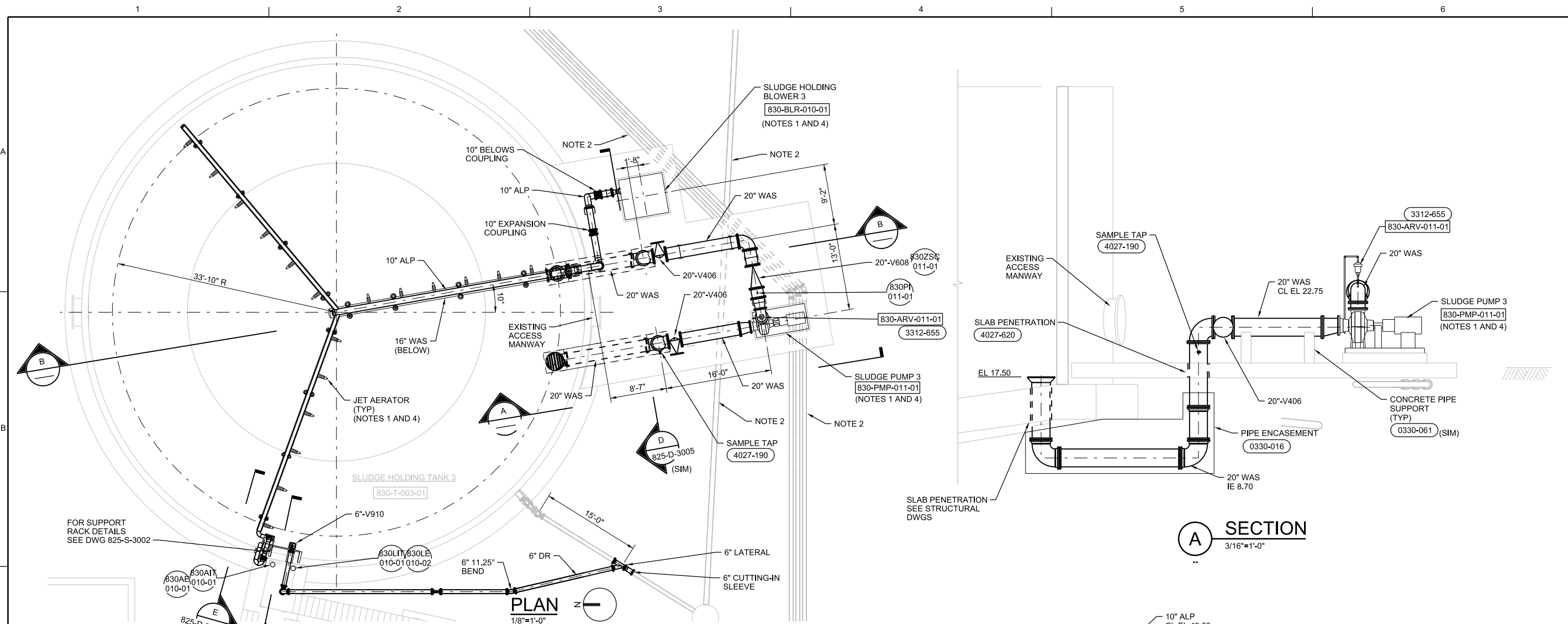
3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 AAC001992 TAO FU - PE 63138		SWWRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	
CH2MHILL®		PROCESS SLUDGE HOLDING TANKS PLAN AND SECTIONS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0" 1"			
DATE	JUNE 2013	PROJ	457133
DWG	825-D-3001	SHEET	of
NO.	DATE	DR	APVD
DSGN		T FU	R BOE
REVISION	CHK	APVD	T FU
BY	APVD	BY	APVD



- NOTES:**
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 - CONTRACTOR DESIGNED PIPE SUPPORT. DO NOT ATTACH TO WALL VERTICAL FACE.
 - FURNISHED BY OWNER.

3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 AAC001992 TAO FU - PE 63138		SWRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	
CH2MHILL®		PROCESS SLUDGE HOLDING TANKS PLAN AND SECTIONS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.			
DATE	JUNE 2013	PROJ	457133
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ISSUED FOR BID		T FU R BOE CHK REVISION NO. DATE DSGN	

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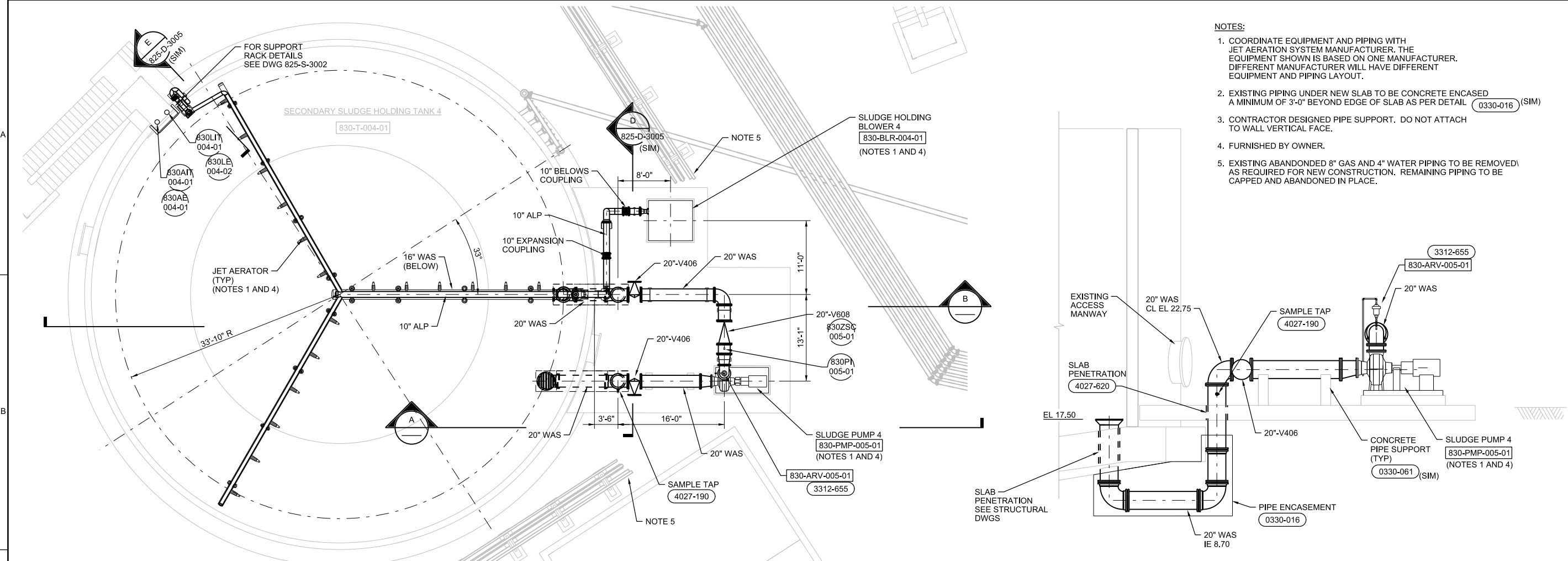


- NOTES:**
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CH2MHILL®		PROCESS SLUDGE HOLDING TANKS PLAN AND SECTIONS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1 2'			
DATE	JUNE 2013	PROJ	457133
DWG	825-D-3003	SHEET	of
T FU		R BOE	
DR		CHK	
NO. DATE		REVISION	
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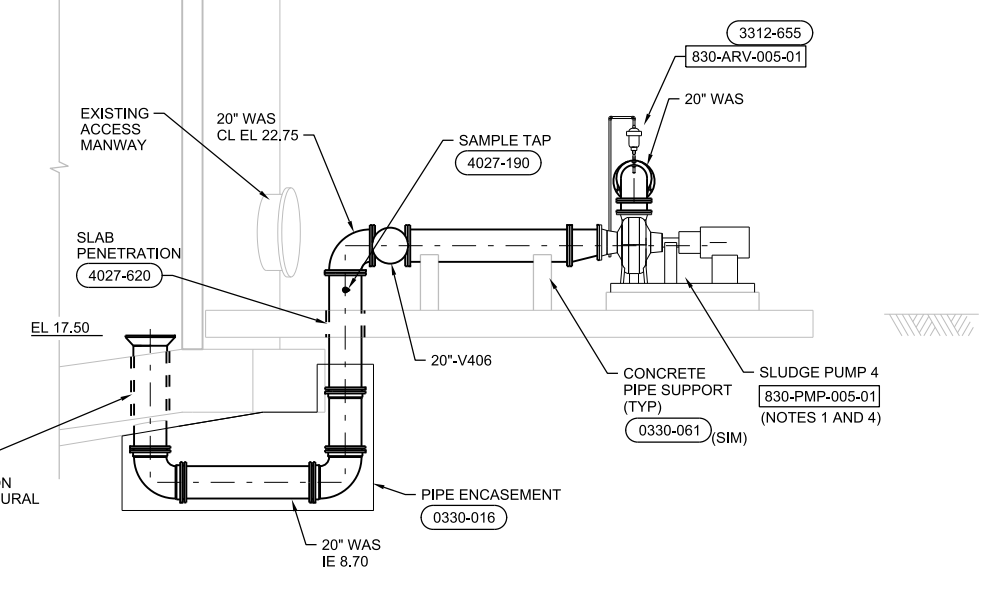
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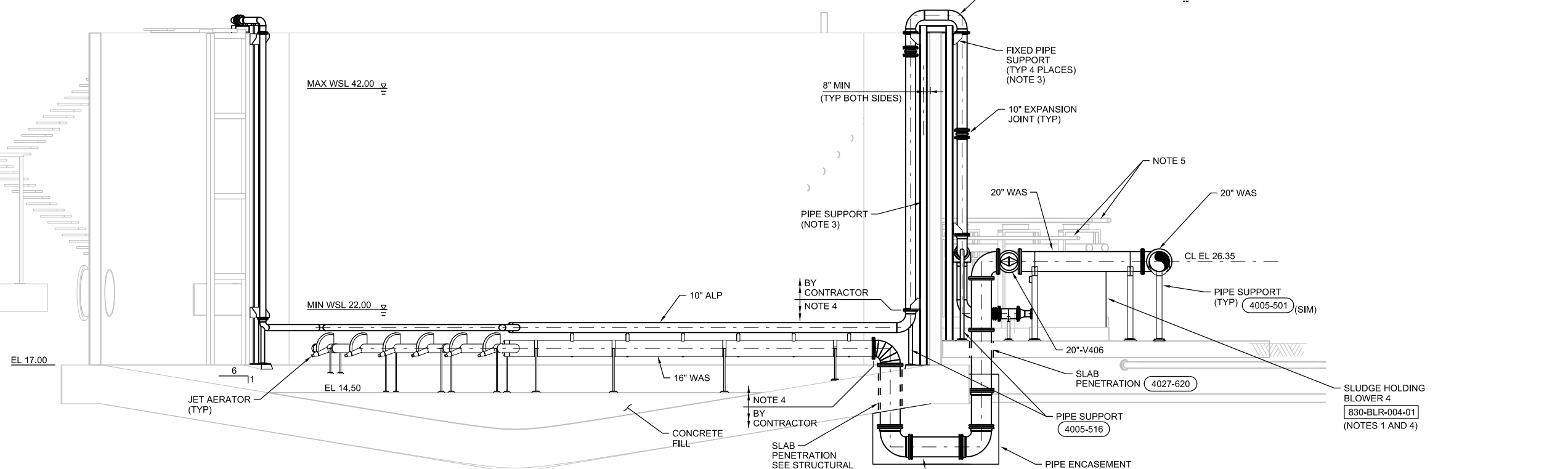


- NOTES:
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 - EXISTING PIPING UNDER NEW SLAB TO BE CONCRETE ENCASED A MINIMUM OF 3'-0" BEYOND EDGE OF SLAB AS PER DETAIL 0330-016 (SIM)
 - CONTRACTOR DESIGNED PIPE SUPPORT. DO NOT ATTACH TO WALL VERTICAL FACE.
 - FURNISHED BY OWNER.
 - EXISTING ABANDONED 8" GAS AND 4" WATER PIPING TO BE REMOVED AS REQUIRED FOR NEW CONSTRUCTION. REMAINING PIPING TO BE CAPPED AND ABANDONED IN PLACE.

PLAN
1/8"=1'-0"



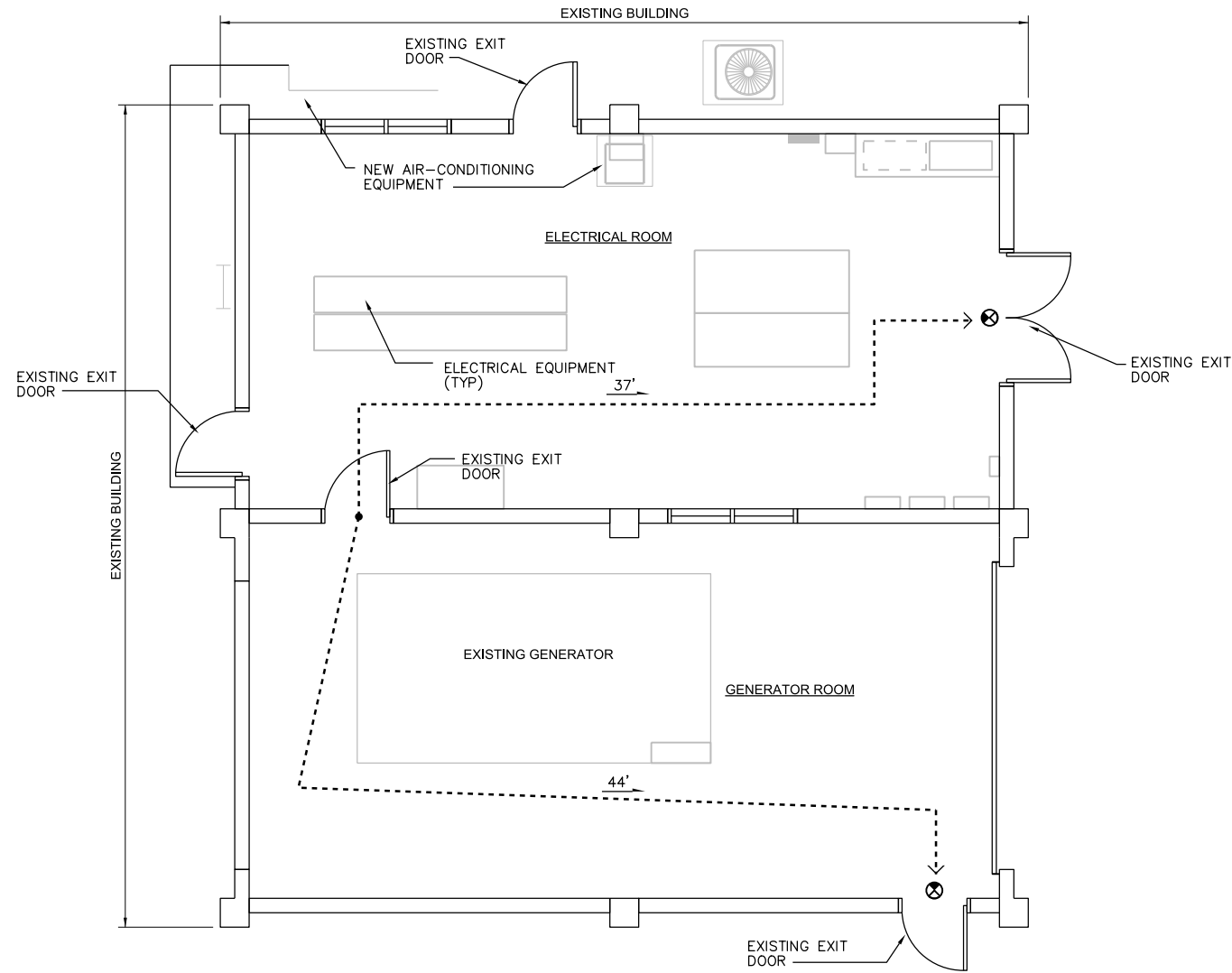
A SECTION
3/16"=1'-0"



B SECTION
3/16"=1'-0"

3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 AAC001992 TAO FU - PE 63138		SWWRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	
CH2MHILL®		PROCESS SLUDGE HOLDING TANKS PLAN AND SECTIONS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"			
DATE	JUNE 2013	PROJ	457133
DWG	825-D-3004	SHEET	of
ISSUED FOR BID		T FU	
R BOE		APVD	
N PATTERSON		CHK	
DR		REVISION	
NO.		DATE	
DSGN		BY	
APVD		T FU	

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LIFE SAFETY FLOOR PLAN
1/4"=1'-0"

LIFE SAFETY PLAN LEGEND:

- XX---> TRAVEL DISTANCE TO EXIT = 30 FEET
- ⊗ ONE SIDED EXIT LIGHTS TO REMAIN
- NOTE: EXISTING FIRE EXTINGUISHERS TO REMAIN.

PLUMBING		
NO TOILET FACILITIES INCLUDING POTABLE DRINKING WATER ARE PROVIDED. SCALEHOUSE FACILITY IS WITHIN 500 FEET.		
FIRE SEPARATION REQUIREMENTS		
ACTUAL FIRE SEPARATION DISTANCE (TABLE 602)	20 FT OR GREATER	0 HR
DISTANCE FROM ADJACENT BUILDING OR PROPERTY LINE	20 FT OR GREATER	0 HR
FIRE PROTECTION		
SPRINKLERS	NOT EXISTING OR PROVIDED	
FIRE EXTINGUISHERS	EXISTING	
EXIT LIGHTING	EXISTING	

APPLICABLE CODES	
2010 FLORIDA BUILDING CODE 2010 FLORIDA EXISTING BUILDING CODE 2010 FLORIDA PLUMBING CODE 2010 FLORIDA MECHANICAL CODE 2010 FLORIDA FIRE PREVENTION CODE NATIONAL ELECTRICAL CODE	
DESCRIPTION	
THIS EXISTING MASONRY BUILDING WILL BE MODIFIED BY ADDING AND DELETING ELECTRICAL EQUIPMENT.	
EXISTING BUILDING CODE	
CLASSIFICATION OF WORK	ALTERATION LEVEL 1

PROJECT CODE DATA	
2010 FBC	
BUILDING: SW GENERATOR BUILDING	
GENERAL INFORMATION	
USE AND OCCUPANCY CLASSIFICATION	ASSUMED F-1 OR UTILITY
CONSTRUCTION CLASSIFICATION	ASSUMED TYPE VB UNPROTECTED
AREA AND HEIGHT LIMITATIONS	
MAXIMUM ALLOWABLE AREA (TABLE 503)	8,500 SF
ACTUAL AREA: (TOTAL EXISTING BUILDING)	1015.7 SF
ACTUAL PER FLOOR: (TOTAL AFFECTED SF)	SCOPE OF WORK AREA 497.43 SF
MAXIMUM ALLOWABLE STORIES:	1
ACTUAL NUMBER OF STORIES:	1
MAXIMUM ALLOWABLE HEIGHT:	40 FT
ACTUAL HEIGHT:	EXISTING

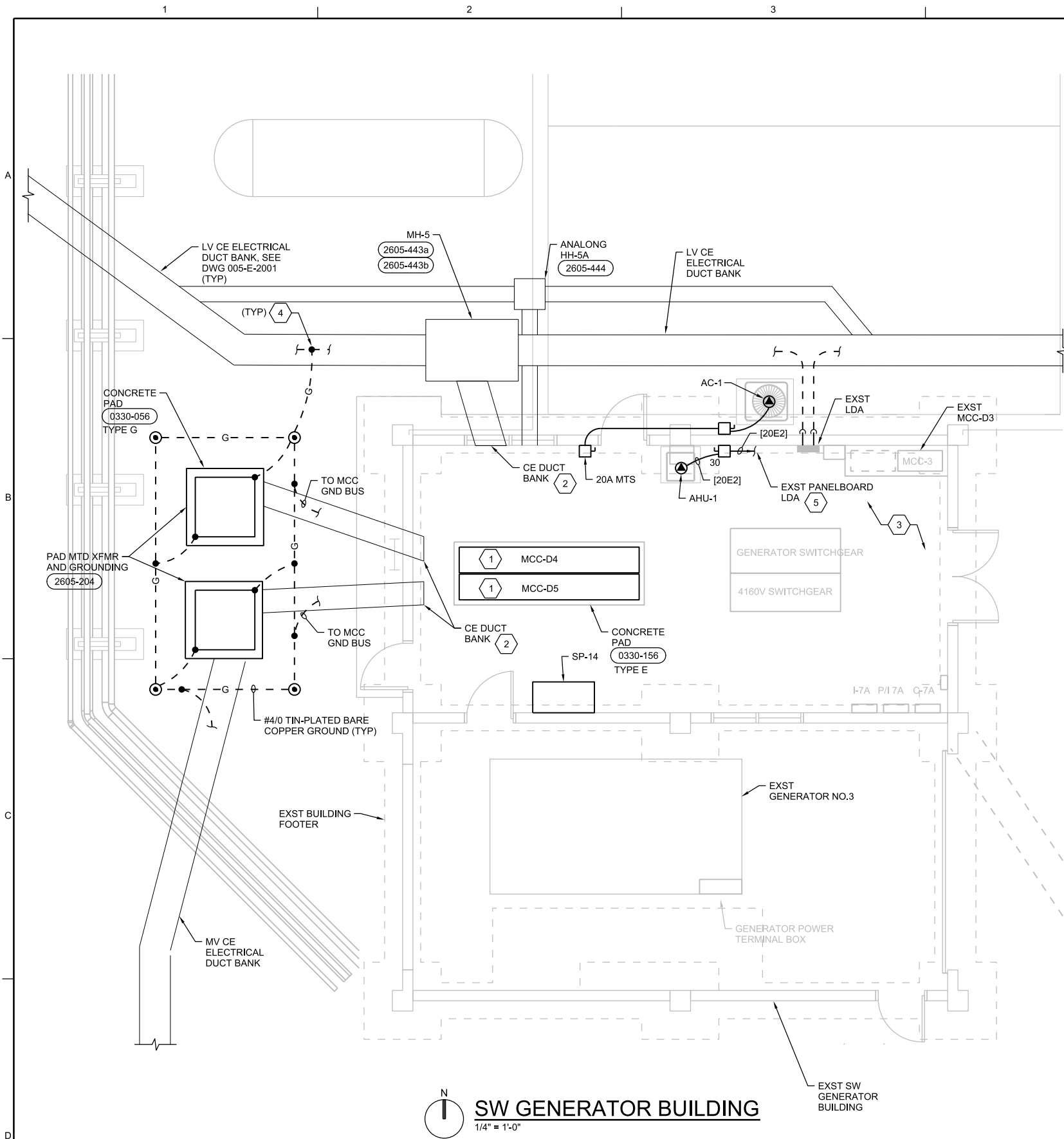
OCCUPANCY / EGRESS INFORMATION	
DESIGN OCCUPANCY (TABLE 1004.1.1)	3 PERSONS
ACTUAL NUMBER OF OCCUPANTS	3 MAXIMUM
EGRESS WIDTH BASED ON OCCUPANCY (TABLE 1005.1)	36" PROVIDED
ALLOWABLE DEAD END LENGTH (SECTION 1018.4)	20 FT
NUMBER OF EXITS (SECTION 1021.2)	2
NUMBER OF EXITS (SECTION 1015.1)	75 FT 1 MEANS OF EGRESS
ALLOWABLE COMMON PATH OF TRAVEL (SECTION 1014.3)	75 FEET
MAX TRAVEL DISTANCE ALLOWED (SECTION 1016.1)	200 FEET

REQUIRED FIRE RESISTANT RATINGS	
BUILDING ELEMENTS (TABLE 601)	VB
STRUCTURAL FRAME	0 HR
EXTERIOR BEARING WALLS	0 HR
INTERIOR BEARING WALLS	0 HR
INTERIOR NON-BEARING WALLS	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR
SHAFT ENCLOSURE (707.4)	N/A
STAIRWAY ENCLOSURE (1019.1)	N/A
CORRIDOR (TABLE 1016.1)	N/A
OCCUPANCY SEPARATION (302.3.2)	N/A
INCIDENTAL USE AREAS (302.1.1)	N/A

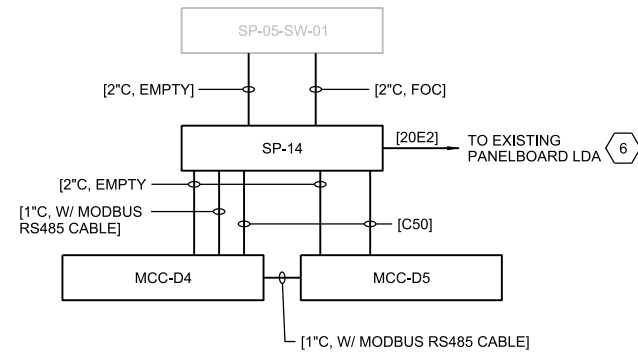
3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 / AAC001992 BETH TRAUTWEIN - AR 91388	SWRF NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	A COULLIAS DR	A COULLIAS CHK	A DOLSAK APVD	B TRAUTWEIN BY
		A COULLIAS DSGN	A COULLIAS REVISION	A DOLSAK APVD	B TRAUTWEIN BY
		NO.	DATE	A DOLSAK APVD	B TRAUTWEIN BY
		DATE	DATE	A DOLSAK APVD	B TRAUTWEIN BY
CH2MHILL® ARCHITECTURAL EXISTING SOUTHWEST GENERATOR BUILDING LIFE SAFETY PLAN		VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"			
DATE JUNE 2013 PROJ 457133 DWG 860-A-0001 SHEET of		DATE JUNE 2013 PROJ 457133 DWG 860-A-0001 SHEET of			

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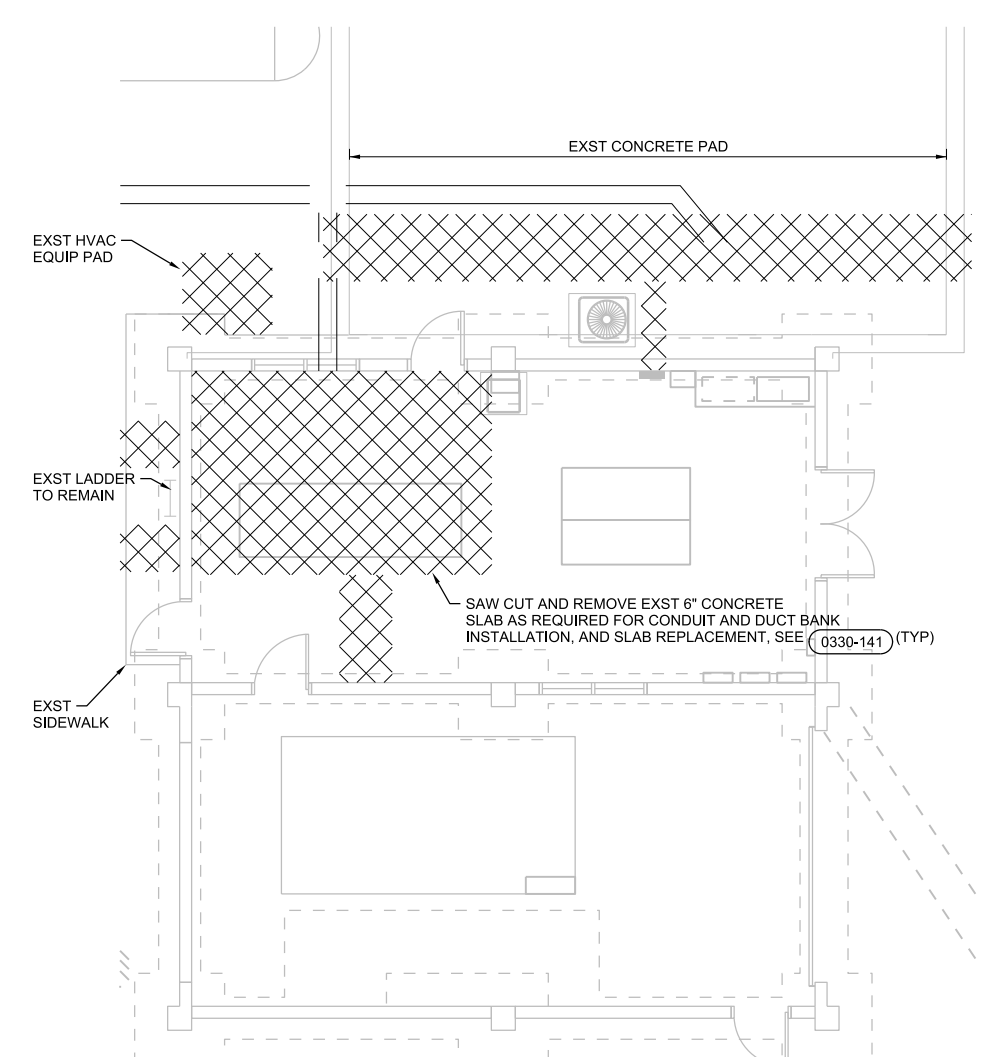


SW GENERATOR BUILDING
1/4" = 1'-0"



RISER DIAGRAM

- SHEET KEYNOTES**
- ALL CONDUITS TO MCC SHALL BE BOTTOM ENTRY. CONDUIT AND EQUIPMENT PAD LAYOUT SHALL BE BASED ON MCC MANUFACTURER'S CERTIFIED DRAWINGS.
 - CONDUITS SHALL ENTER BUILDING VIA CONCRETE ENCASED DUCT BANK. DUCT BANK SHALL PASS BELOW BUILDING FOOTER. CONCRETE ENCASEMENT SHALL EXTEND PAST INSIDE EDGE OF FOOTER.
 - EXST LIGHTING TO REMAIN.
 - CONNECT TO GROUND CONDUCTOR EMBEDDED IN CONCRETE ENCASED DUCT BANK.
 - CONNECT TO EXISTING 20A, 3-POLE CIRCUIT BREAKER. SEE PANELBOARD SCHEDULE FOR CIRCUIT NUMBER.
 - CONNECT TO EXISTING 20A, 1-POLE SPARE CIRCUIT BREAKER. SEE PANELBOARD SCHEDULE FOR CIRCUIT NUMBER.



DEMOLITION PLAN
3/16" = 1'-0"

NO.	DATE	DR	CHK	REVISION	BY	APVD
		D NICHOLSON	N ADAMS			
					M WAYNE	APVD

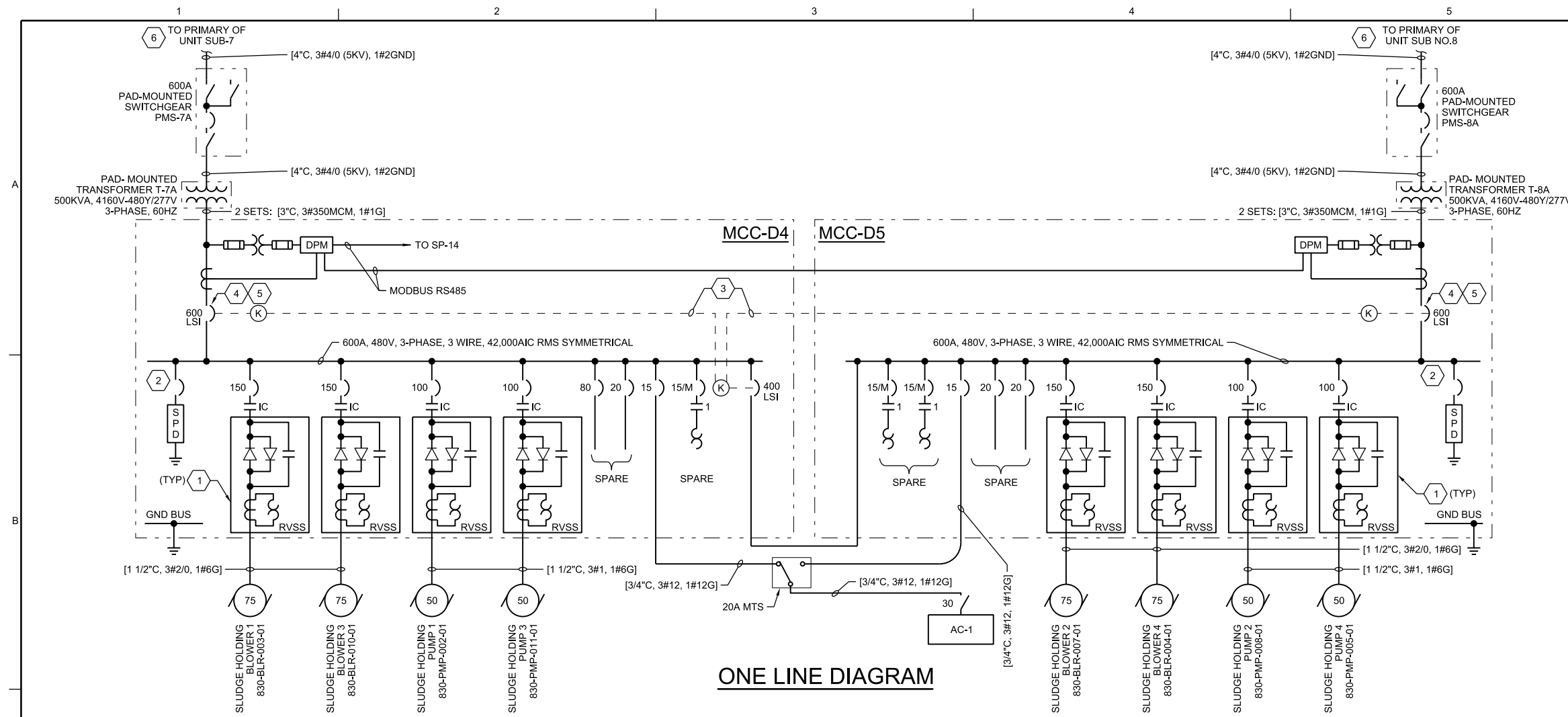
3011 SW WILLISTON RD
GAINESVILLE, FL 32608
EB0000072 AAC001992
DAVID C NICHOLSON - PE 60201

SWRF NITROGEN REMOVAL
AND DIGESTER MODIFICATIONS
MANATEE COUNTY UTILITIES
MANATEE COUNTY, FL

CH2MHILL®
ELECTRICAL
**EXISTING SOUTHWEST
GENERATOR BUILDING
PLAN**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JUNE 2013
PROJ	457133
DWG	860-E-2001
SHEET	of

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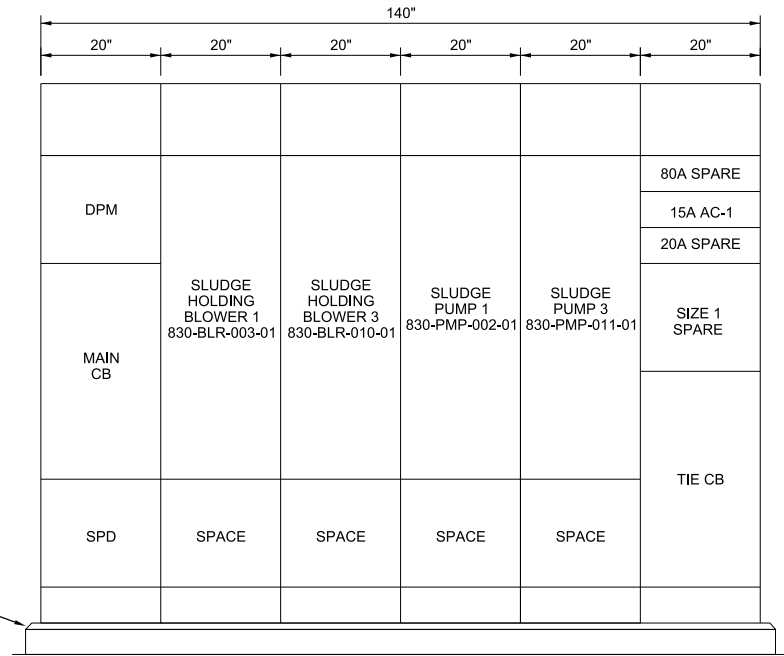


ONE LINE DIAGRAM

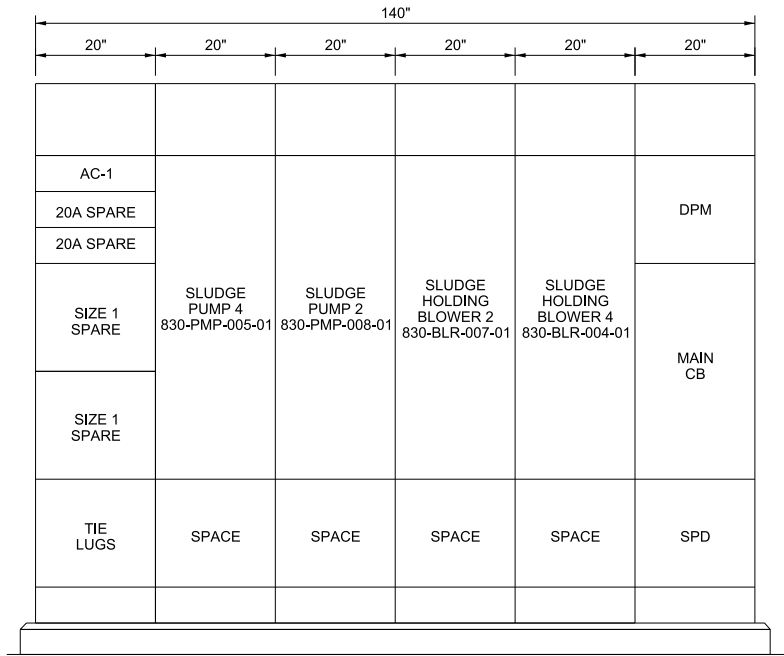
- ### SHEET KEYNOTES
- REDUCED VOLTAGE SOLID STATE MOTOR STARTER WITH ISOLATION CONTACTOR, INTERNAL BY-PASS, AND INTERNAL SOLID STATE OVERLOADS.
 - SIZED BY MANUFACTURER.
 - PROVIDE KIRK KEY INTERLOCK, SUCH THAT THE TIE BREAKER IN MCC-D4 CANNOT BE CLOSED UNLESS ONE OF THE MAIN BREAKERS IN MCC-D4 OR MCC-D5 IS OPEN.
 - SERVICE ENTRANCE RATED.
 - PROVIDE WARNING LABEL INDICATING THE LOAD SIDE OF THE CIRCUIT BREAKER MAY BE CONNECTED TO AN ALTERNATE POWER SOURCE AND MAY HAVE POWER ON THE LOAD SIDE EVEN WHEN THE CIRCUIT BREAKER IS OPEN.
 - SEE DRAWING 007-E-6002 FOR CONTINUATION.

MCC-D4 CONNECTED LOAD	
DESCRIPTION	AMPS
BLOWER NO. 1	96
BLOWER NO. 3	96
PUMP NO. 1	65
PUMP NO. 3	65
TOTAL	322
TOTAL PLUS 25% OF LARGEST MOTOR	346

MCC-D5 CONNECTED LOAD	
DESCRIPTION	AMPS
BLOWER NO. 2	96
BLOWER NO. 4	96
PUMP NO. 2	65
PUMP NO. 4	65
AC-1	7
TOTAL	329
TOTAL PLUS 25% OF LARGEST MOTOR	353



MCC-D4 ELEVATION



MCC-D5 ELEVATION

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SWWRF NITROGEN REMOVAL
AND DIGESTER MODIFICATIONS
MANATEE COUNTY UTILITIES
MANATEE COUNTY, FL

CH2MHILL
ELECTRICAL

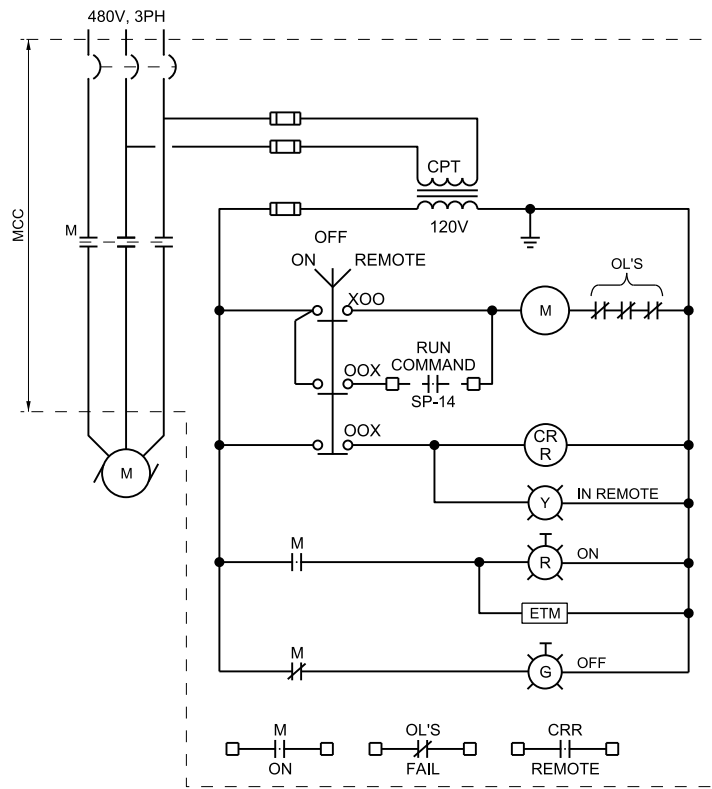
**MCC-D4 AND MCC-D5
ONE LINE DIAGRAM AND ELEVATION**

NO. DATE
DR N. ADAMS
CHK N. ADAMS
REVISION
BY APVD D. NICHOLSON

DATE JUNE 2013
PROJ 457133
DWG 860-E-6001
SHEET of

VERIFY SCALE
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CONTROL DIAGRAM: TYPICAL SIZE 1 SPARE

EXISTING PANEL: LDA
 SERVICE VOLTAGE: 208Y/120V
 TOTAL LOAD KVA: 0.0
 REMARKS:
 EXST PANEL LOADS SHOWN IN ITALICS
 MODIFICATIONS SHOWN IN BOLD

LOCATION: SW GENERATOR 3LDG 860
 PHASE: 3
 BUS SIZE:
 NEUTRAL: YES

WIRE: 4
 MAIN SIZE: 150A
 MOUNTING: SURFACE

TYPE: CB

LOAD IN KVA			CIRCUIT DESCRIPTION	BKR A/P	CKT NO.	CKT NO.	BKR A/P	CIRCUIT DESCRIPTION	LOAD IN KVA		
A	B	C							A	B	C
			<i>CONTROL RM LTS</i>	2017	1	2	20/1	LIGHTING GEN ROOM			
			<i>EXT LTS</i>	2017	3	4	20/1	RECPTS, CONTROL RM, E & S WALLS			
			<i>EXT RECPT</i>	2017	5	6	20/1	RECPTS GEN ROOM & EQUIP PAD			
			<i>RECPTS, CONTROL RM, N & W WALL</i>	2017	7	8	20/1	RECPT BATTERY CHARGER, S WALL			
			<i>OVERHEAD DOOR</i>	2017	9	10	20/1	SPARE			
			<i>PRESSURE/TEMPERATURE MONITOR</i>	2017	11	12	20/1	EXTERIOR BLDG LIGHTS			
			<i>CONTROL CABINET SPACE HEATER</i>	2017	13	14	20/1	GEN SPACE HTR AND VIBRATION SW			
			<i>CUSTOM AIR/FUEL CONTROLLER</i>	2017	15	16	20/1	SPARE			
			<i>SPARE</i>	2017	17	18	20/1	FPL LOSS SHUT DOWN			
			<i>SP-14</i>	2017	19	20	20/1	MODULATING VALVE- HEAT RECOVERY			
			<i>MODULATING VALVE - HEAT DUMP</i>	2017	21	22	20/1	METHANE GAS ANALYZER			
			830-AIT-007-01, 830-LIT-007-01	2017	25	26	20/1	SPARE			
			830-AIT-010-01, 830-LIT-010-01	2017	27	28	20/1	SPARE			
			830-AIT-001-01, 830-LIT-001-01	2017	29	30	20/1	SPACE			
			830-AIT-004-01, 830-LIT-004-01	2017	31	32	20/1	SPACE			
			<i>PRELUBE OIL PUMP</i>	2012	33	34	50/2	JACKET WATER HEATER			
					35	36					
					37	38					
			AIR HANDLER AHU-1	2013	39	40	60/3	SPARE			
					41	42					
0.0	0.0	0.0	TOTAL						0.0	0.0	0.0

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 DAVID C NICHOLSON - PE 00201

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 AND DIGESTER MODIFICATIONS
 MANATEE COUNTY UTILITIES
 MANATEE COUNTY, FL

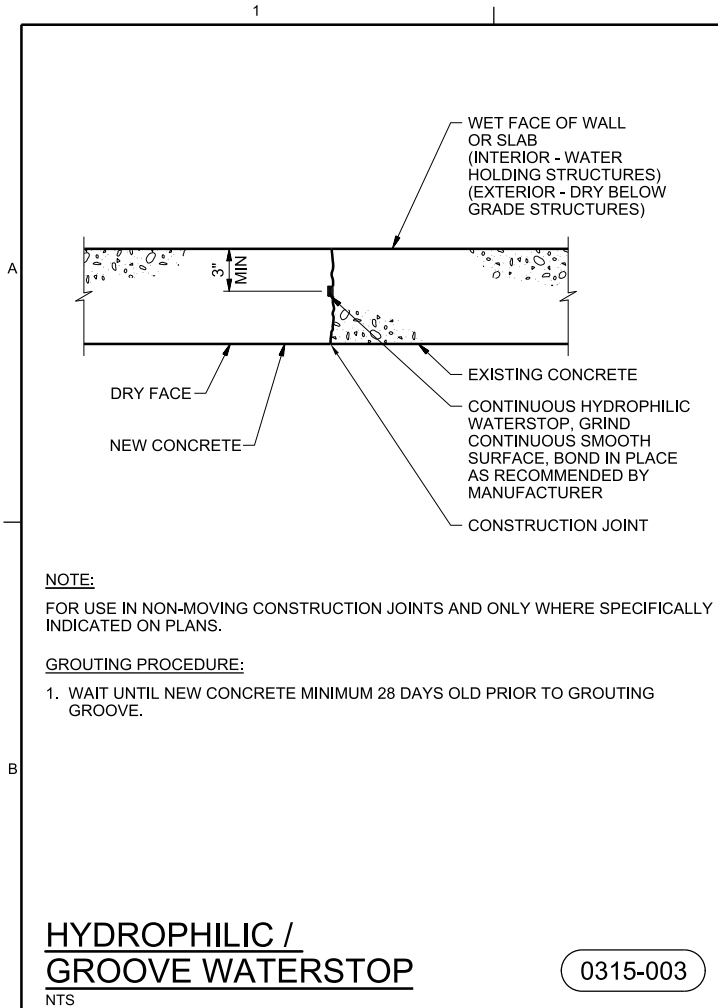
CH2MHILL®
 ELECTRICAL
**CONTROL DIAGRAMS &
 PANELBOARD SCHEDULE**

VERIFY SCALE
 BAR IS ONE INCH ON ORIGINAL DRAWING.
 DATE: JUNE 2013
 PROJ: 457133
 DWG: 860-E-6003
 SHEET: of

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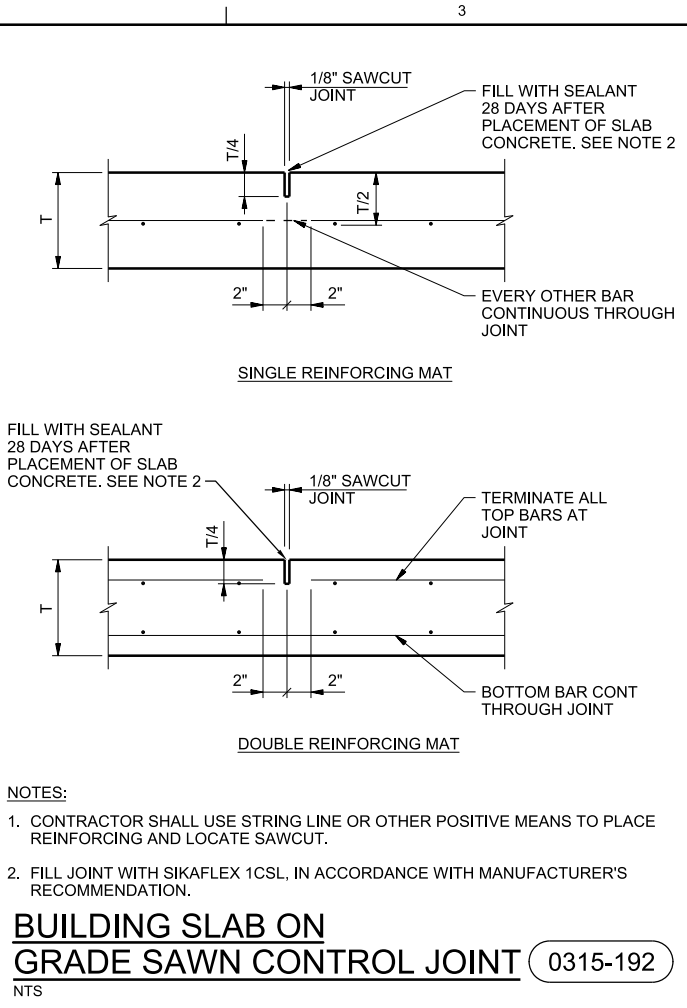
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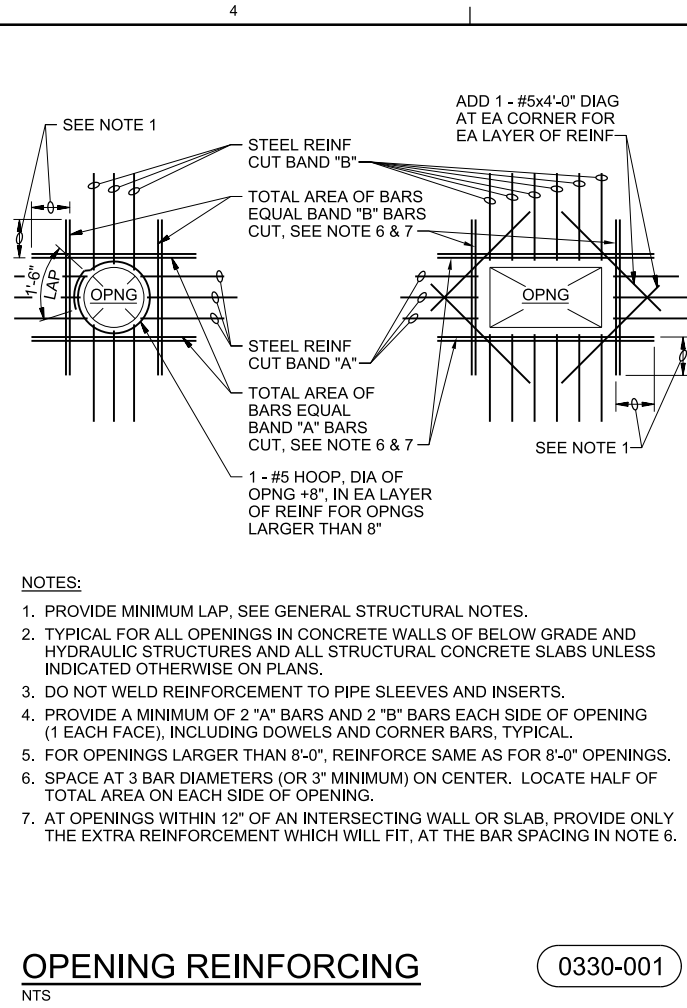
HYDROPHILIC / GROOVE WATERSTOP
NTS

0315-003



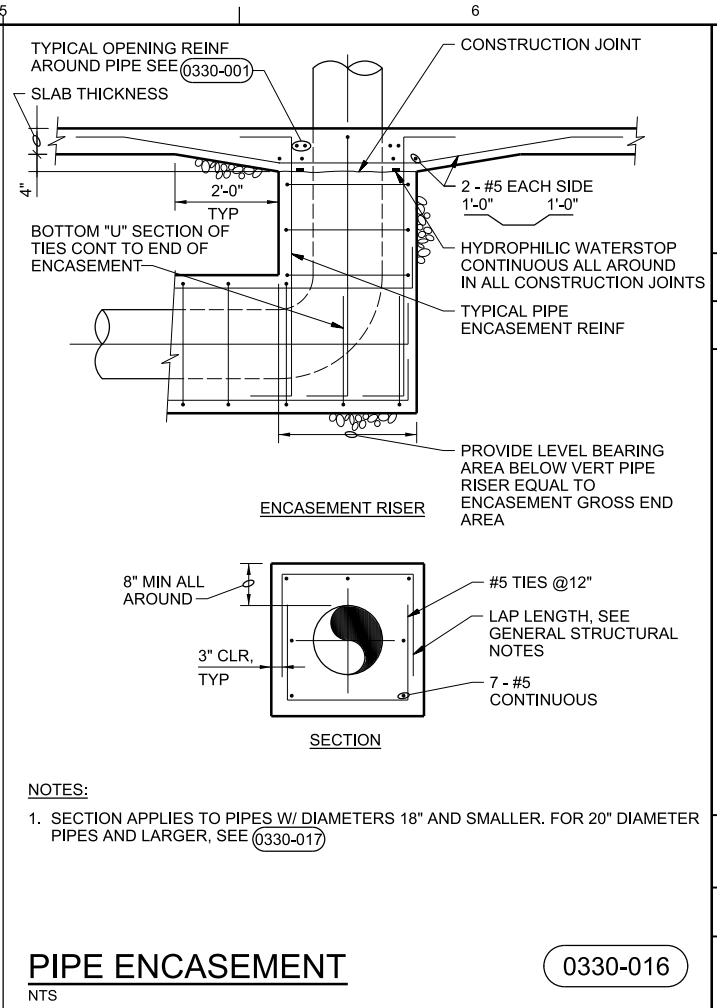
BUILDING SLAB ON GRADE SAWN CONTROL JOINT
NTS

0315-192



OPENING REINFORCING
NTS

0330-001



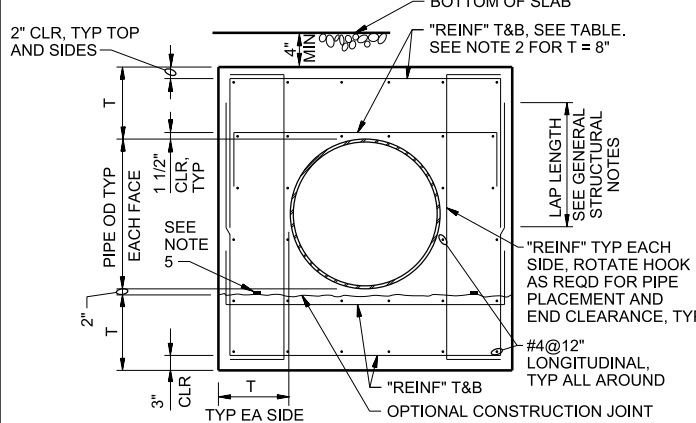
PIPE ENCASEMENT
NTS

0330-016

PIPE ENCASEMENT TABLE

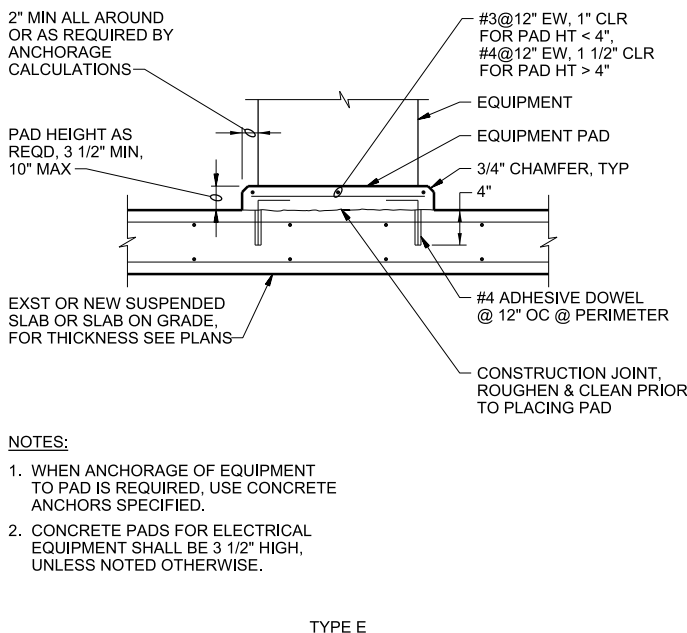
PIPE DIA (IN.)	H=10 FEET		H=20 FEET		H=30 FEET		H=40 FEET	
	T (in)	REINF	T (in)	REINF	T (in)	REINF	T (in)	REINF
20 THRU 30	8	#5@12"	10	#5@12"	10	#5@12"	10	#6@12"
36 THRU 42	10	#5@12"	10	#6@12"	10	#7@12"	10	#6@6"
48 THRU 54	10	#6@12"	10	#7@12"	10	#7@6"	12	#7@6"
UP TO 60	10	#6@12"	10	#6@6"	14	#7@6"	14	#7@6"

HEAVY DARK LINE INDICATES BREAK BETWEEN ONE LAYER OF REINFORCING AND TWO. SEE NOTE 2.

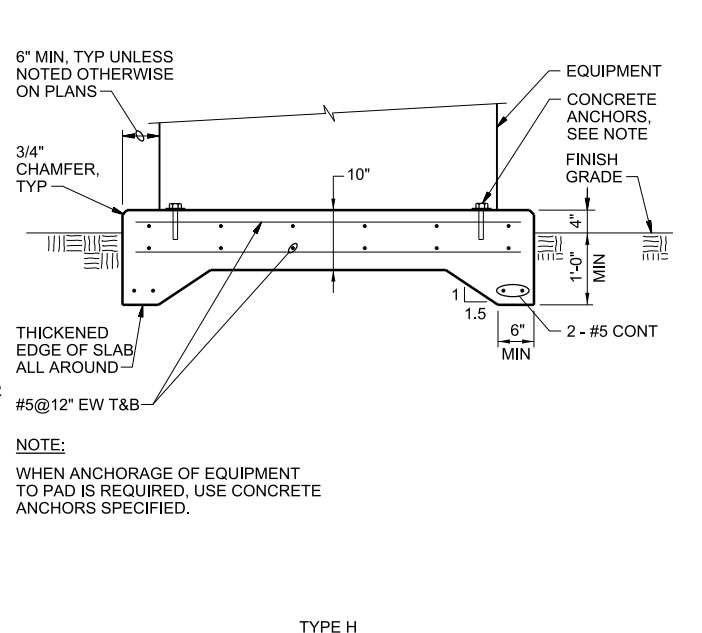


PIPE ENCASEMENT
NTS

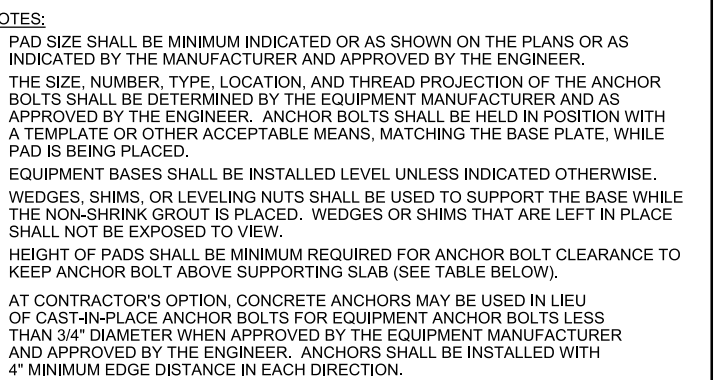
0330-017



CONCRETE EQUIPMENT PAD
NTS



CONCRETE EQUIPMENT PAD
NTS



AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

CONCRETE EQUIPMENT PAD
NTS

0330-056

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SWRF NITROGEN REMOVAL
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MANATEE COUNTY, FL

DATE: JUNE 2013
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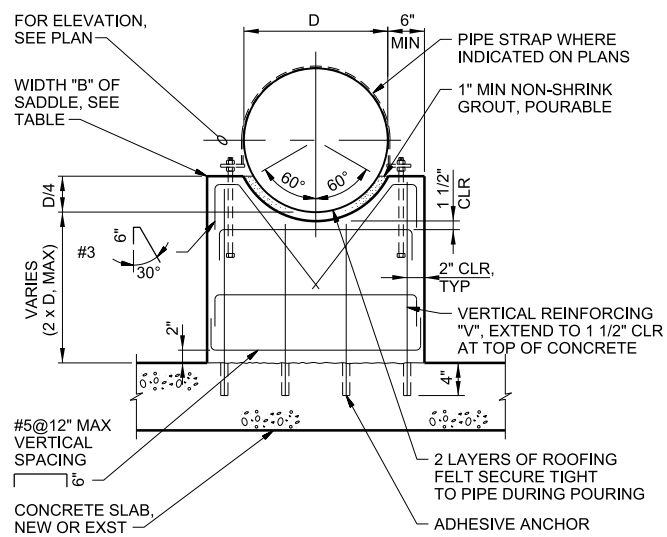
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VERIFY SCALE
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DATE: JUNE 2013
PROJ: 457133
DWG: 950-S-5001
SHEET: of

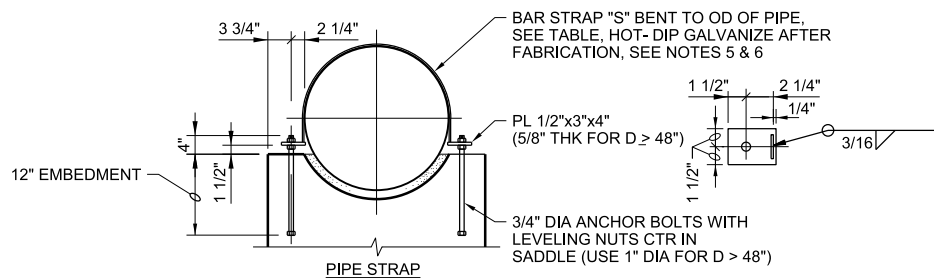
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D LANGE
M CHRZANOWSKI
B BARBER
DR
CHK
REVISION
APVD
BY
APVD



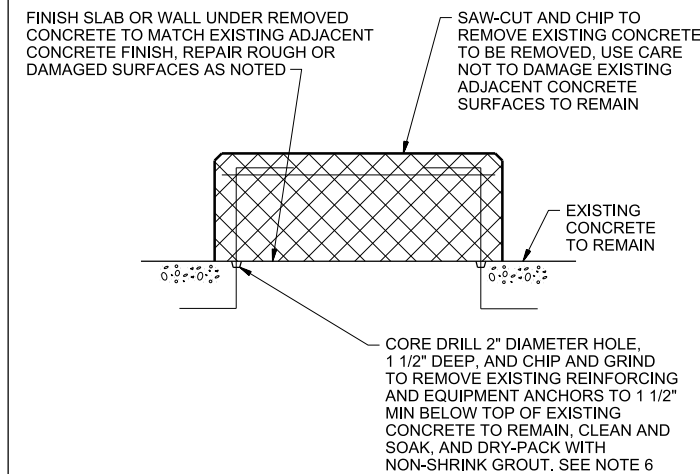
TYPE "A" SADDLE



PIPE DIAMETER D	SADDLE WIDTH B	LAYERS OF REINFORCING	VERTICAL REINFORCING V	PIPE STRAP SIZE S	NO. OF STRAPS
D<12"	6"	1 (CTRD)	#5@12"	3/16"x2"	1
12"<D<24"	8"	1 (CTRD)	#5@12"	3/16"x2 1/2"	1
24"<D<36"	10"	2 (EF)	#5@12"	1/4"x2"	1
36"<D<48"	12"	2 (EF)	#5@12"	1/4"x3"	1
48"<D<60"	16"	2 (EF)	#6@12"	3/8"x3"	2
60"<D<72"	18"	2 (EF)	#6@12"	3/8"x3"	2

NOTES:

- FOR "B"=10" OR THICKER, USE 2 LAYERS OF REINFORCING, TURN HORIZONTAL BARS 90° TO HOOK AROUND VERTICALS, 1 1/2" CLEAR OF CONCRETE
- FORM 3/4" BEVEL ON ALL EXPOSED CORNERS OF SUPPORT.
- USE TYPE 'A' SADDLE IN ALL LOCATIONS WHERE A SLAB (NEW OR EXISTING) OCCURS. USE TYPE 'B' IN OTHER LOCATIONS.
- FOR LOCATIONS WHERE PIPE STRAP IS REQUIRED, SEE DRAWINGS. UNLESS INDICATED OTHERWISE A STRAP IS NOT REQUIRED.
- AT SUBMERGED CONDITIONS, STRAP SHALL BE STAINLESS STEEL.
- PROVIDE 3/4" BY STRAP WIDTH PLUS 1" WIDE NEOPRENE PAD BELOW STRAP.



NOTES:

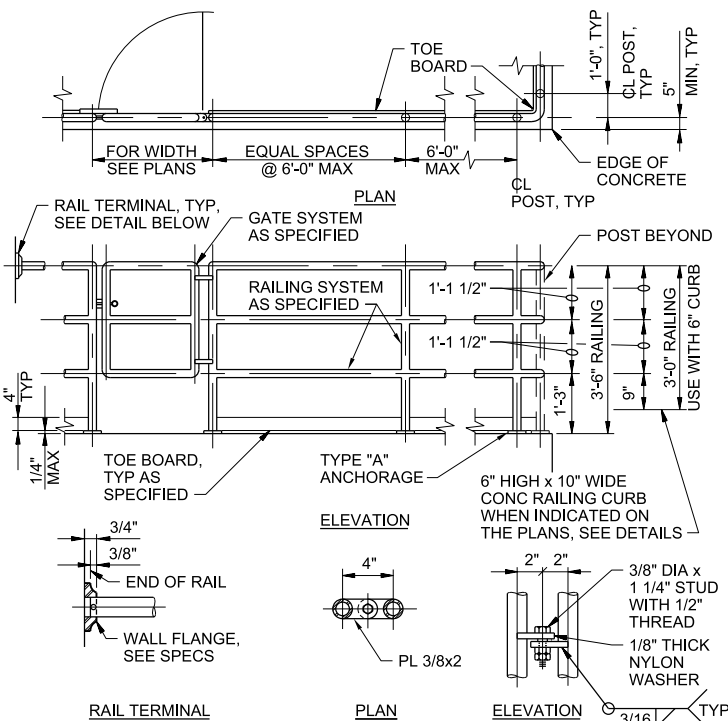
- REMOVE CONCRETE OUT TO SOUND CONCRETE.
- IF CHIPPING INTO THE SURFACE OF THE EXISTING SLAB OR WALL TO REMAIN IS REQUIRED, MAKE EDGES PERPENDICULAR TO THE SURFACE. DO NOT FEATHER EDGES.
- FILL DEFECTIVE AREA WITH NON-SHRINK GROUT OR AN APPROVED PREPACKAGED PATCHING MATERIAL TO MATCH APPEARANCE OF ADJACENT CONCRETE SURFACES.
- USE APPROVED BONDING AGENT ON SURFACES TO BE PATCHED PRIOR TO PLACING NON-SHRINK GROUT.
- DEMONSTRATE METHODS FOR REPAIR USING ACTUAL MATERIALS, METHODS, AND CURING PROCEDURES REQUIRED BY MATERIAL MANUFACTURERS. CONSULT WITH BONDING AGENT MANUFACTURER AND NON-SHRINK GROUT MANUFACTURER ON TECHNIQUES.
- AT INSIDE FACE OF PRESTRESSED CONCRETE TANKS (DIGESTERS) REMOVE ANCHORS TO 1" BELOW CONCRETE SURFACE. DO NOT DAMAGE CORRUGATED STEEL DIAPHRAGM IN WALL.

PIPE SUPPORT - CONCRETE SADDLE

0330-061

CONCRETE DEMOLITION

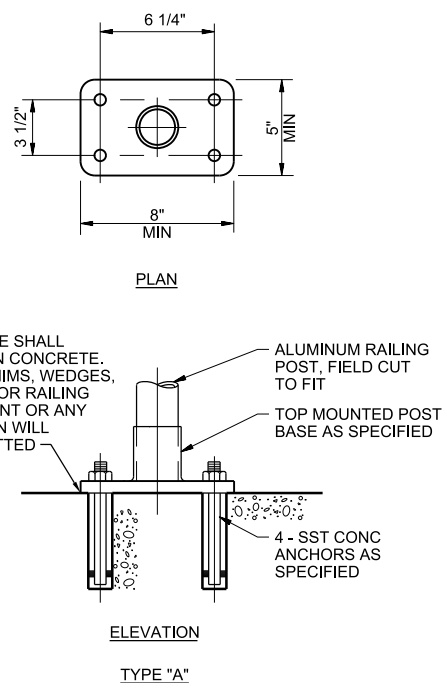
0330-143



- NOTES:
- FASTEN RAIL TO WALL FLANGE PER MANUFACTURER'S RECOMMENDATIONS.
 - WALL FLANGE TO BE MOUNTED TO WALL WITH (2) 3/8" DIA SST WEDGE ANCHORS.
 - AT CONTRACTOR'S OPTION FABRICATE HINGES OR PROVIDE OTHER HINGES AS SPECIFIED. ANODIZE FINISH AFTER ALL WELDING AS SPECIFIED.

RAILING - 3 RAIL - ALUMINUM

0552-001



- NOTE:
- PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE PER SPECIFICATIONS.

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MANATEE COUNTY UTILITIES
MANATEE COUNTY, FL

STRUCTURAL
STANDARD DETAILS

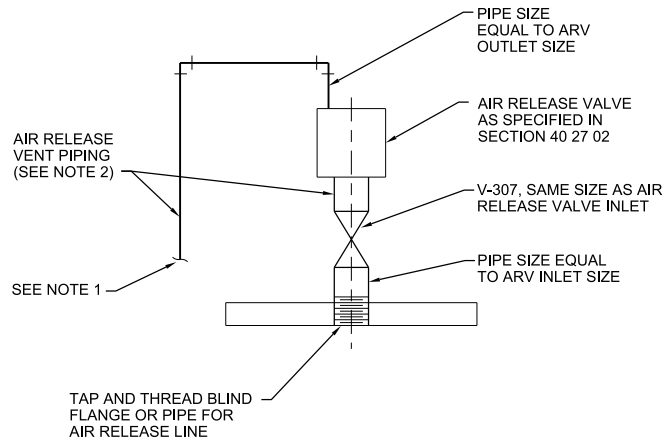
NTS
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DWG: 950-S-5002
SHEET of

REVISION
BY: AP/VD
CHK: M CHRZANOWSKI
DR: B BARBER
DSGN: NO. DATE

D LANGE
D LANGE

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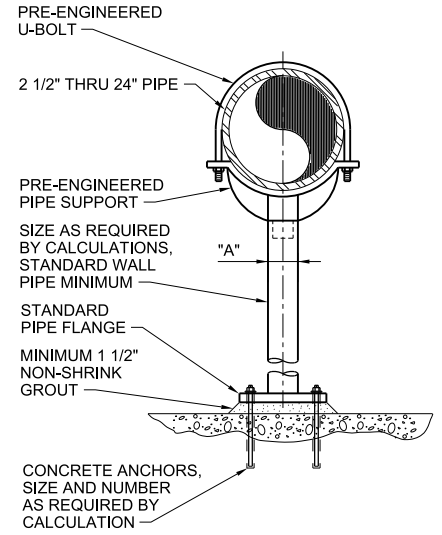
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- NOTES:**
- ROUTE VENT TO FLOOR DRAIN/TRENCH DRAIN FOR INTERIOR INSTALLATION. FOR EXTERIOR INSTALLATION ROUTE VENT OFF PAD TO GRADE.
 - PIPING MATERIAL AS SPECIFIED IN SECTION 40 27 00 OR SPECIFIC SERVICE.

AIR RELEASE VALVE ASSEMBLY
NTS

3312-655

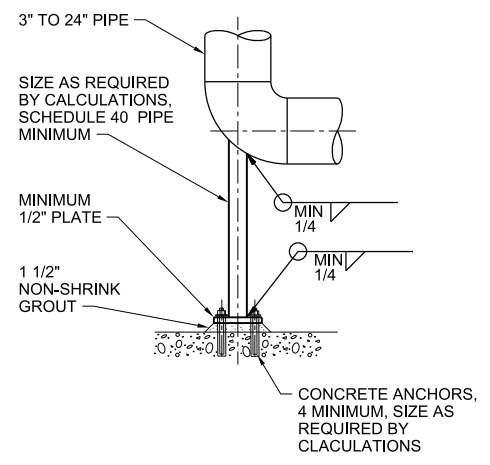


PIPE SIZE	"A" MINIMUM NOMINAL PIPE SIZE
2-1/2"	2-1/2"
3"	2-1/2"
4"	3"
6"	3"
8"	3"
10"	3"
12"	3"
14"	3"
16"	3"
20"	4"
24"	4"

- NOTE:**
SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT SADDLE SUPPORT PEDESTAL TYPE - NON-ADJUSTABLE
NTS

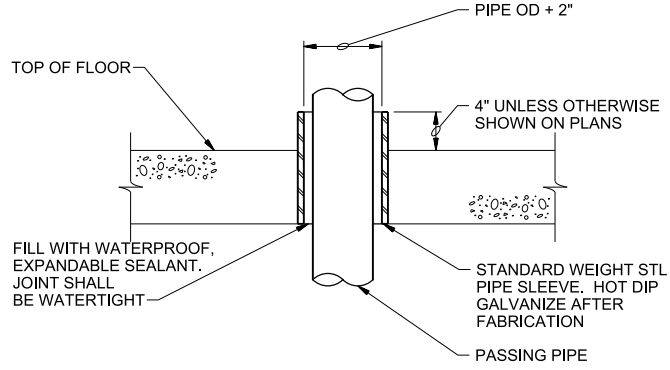
4005-501



- NOTES:**
- MINIMUM COMPONENT AND CONNECTION SIZES SHOWN. FURNISH LARGER SIZES IF REQUIRED BY CALCULATIONS.
 - SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

PIPE SUPPORT
NTS

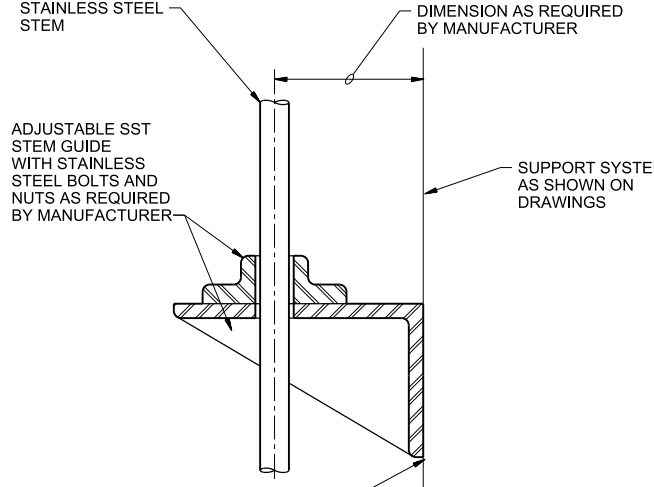
4005-516



- NOTES:**
- COAT FLOOR SLEEVE WITH SPECIFIED PAINT SYSTEM BEFORE CONCRETE PLACEMENT.

FLOOR SLEEVE
NTS

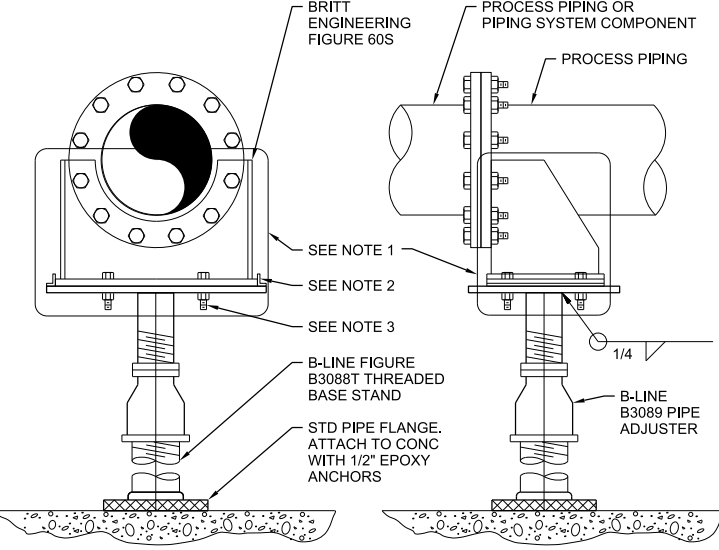
4005-620



CONTRACTOR TO ATTACH TO SUPPORT SYSTEM AS REQUIRED. WHERE NECESSARY, STAINLESS STEEL ANCHOR BOLTS, NUTS AND WASHERS ARE TO BE USED. SIZE, LENGTH AND THREAD PROJECTION AS REQUIRED BY MANUFACTURER

STEM GUIDE INSTALLATION
NTS

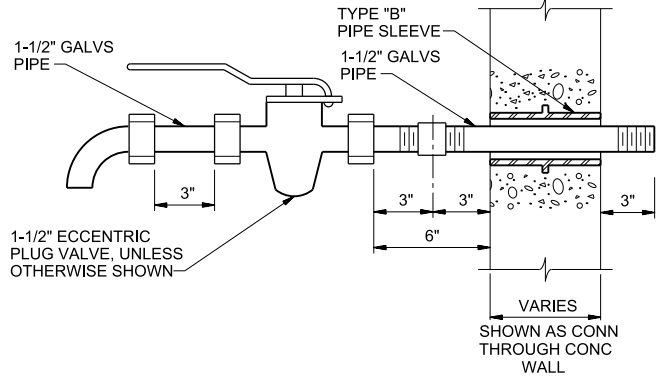
3520-702



- NOTES:**
- PROVIDED BY FRP PIPE SUPPLIER FOR FRP PIPE. PROVIDED BY MECHANICAL CONTRACTOR FOR ALL OTHER PIPE. INSTALLED BY MECHANICAL CONTRACTOR.
 - PROVIDE GUIDE CLIPS FOR TYPE FFG ONLY. WELD TO BASE PLATE ALONG OUTSIDE EDGE ONLY.
 - PROVIDE MACHINE BOLTS AND NUTS FOR TYPE FFA ONLY.

PIPE FLANGE FLOOR SUPPORT
NTS

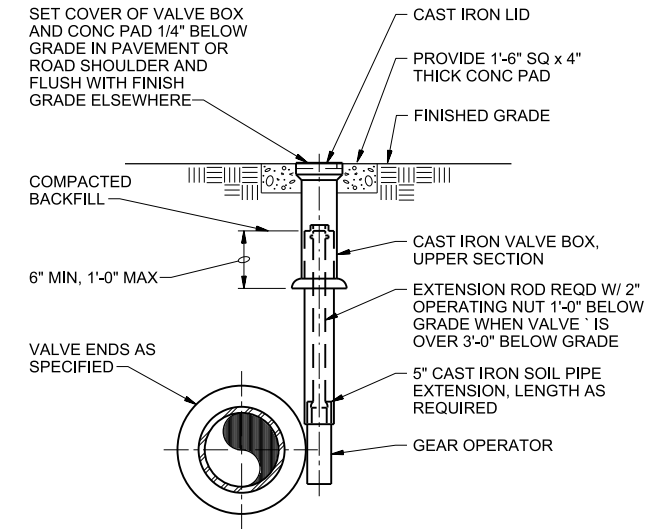
4005-501A



- NOTES:**
- FOR CONNECTION TO STEEL PIPE, WELD THRED-O-LET TO PIPE; FOR DI PIPE, USE DOUBLE STRAP SADDLE.
 - FOR CONNECTION TO SAMPLE LINE, OMIT DISCHARGE ELBOW AND PROVIDE CONNECTING ADAPTER TO SAMPLE LINE.

PIPE FLANGE FLOOR SUPPORT
NTS

4027-190



BURIED BUTTERFLY OR PLUG VALVE BOX
NTS

4027-641

NO.	DATE	DR	CHK	APVD	T FU
				R BOE	T FU
				APVD	
				BY	
				REVISION	

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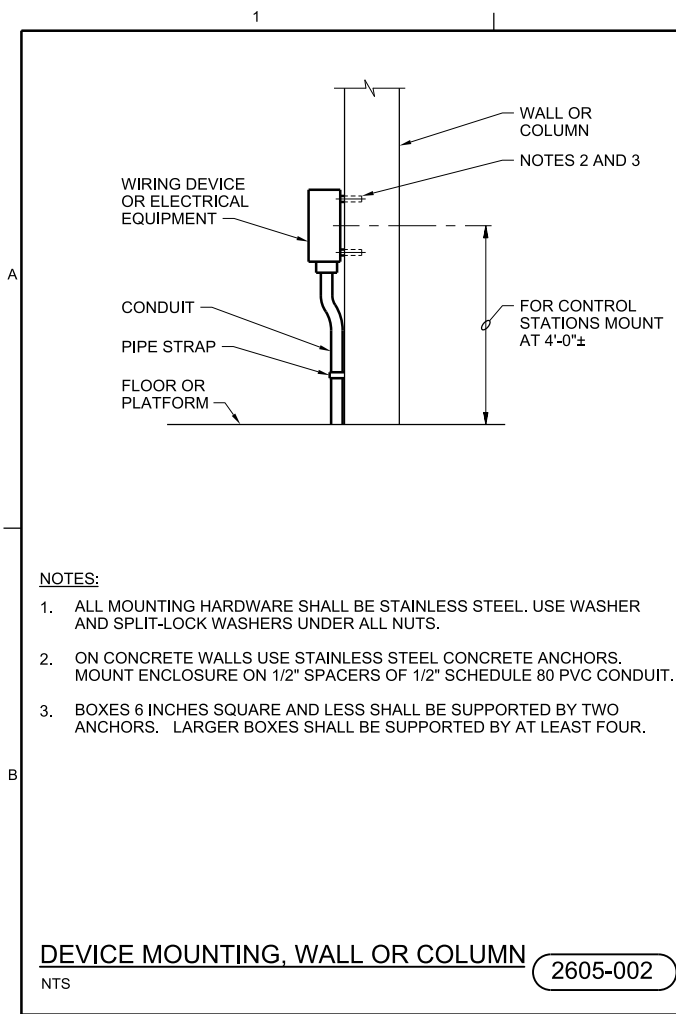
CH2MHILL

PROCESS
STANDARD DETAILS

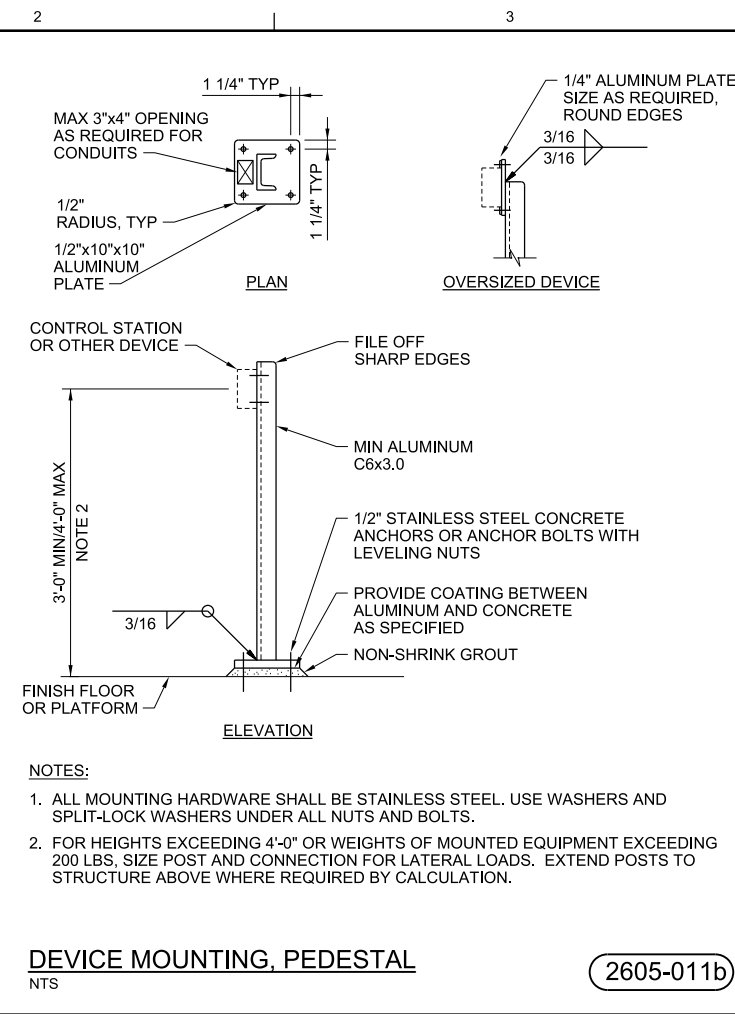
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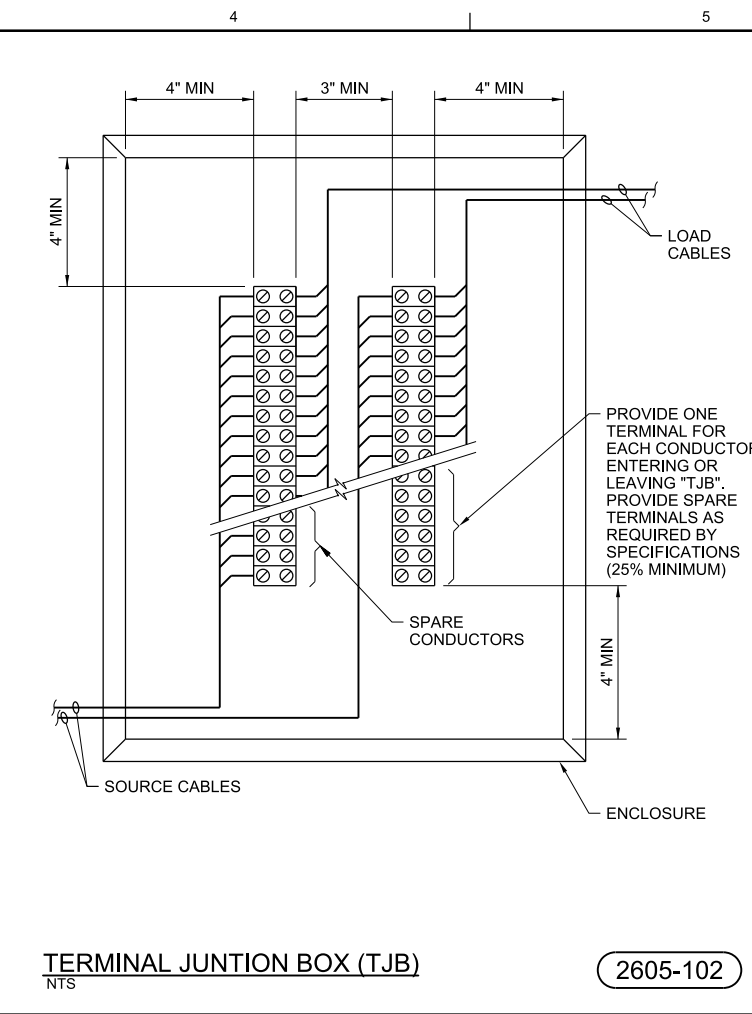
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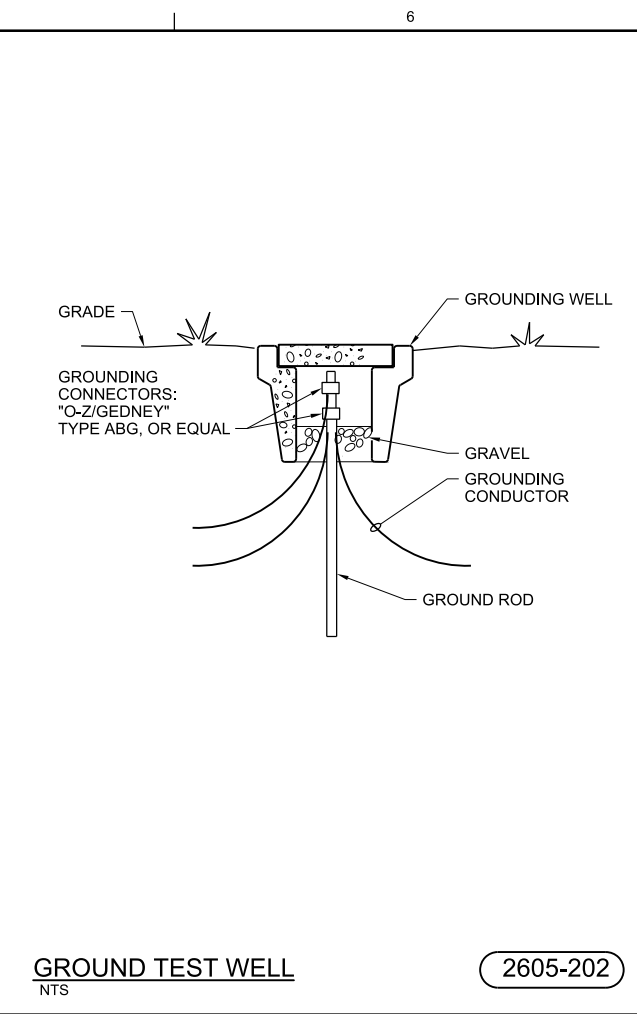
DEVICE MOUNTING, WALL OR COLUMN
NTS (2605-002)



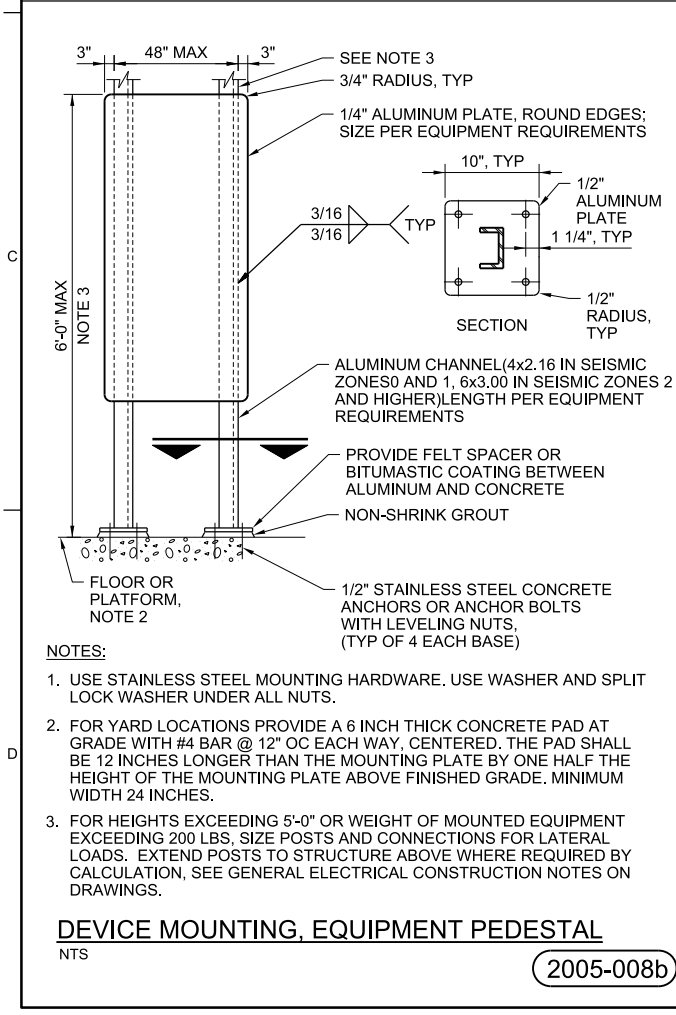
DEVICE MOUNTING, PEDESTAL
NTS (2605-011b)



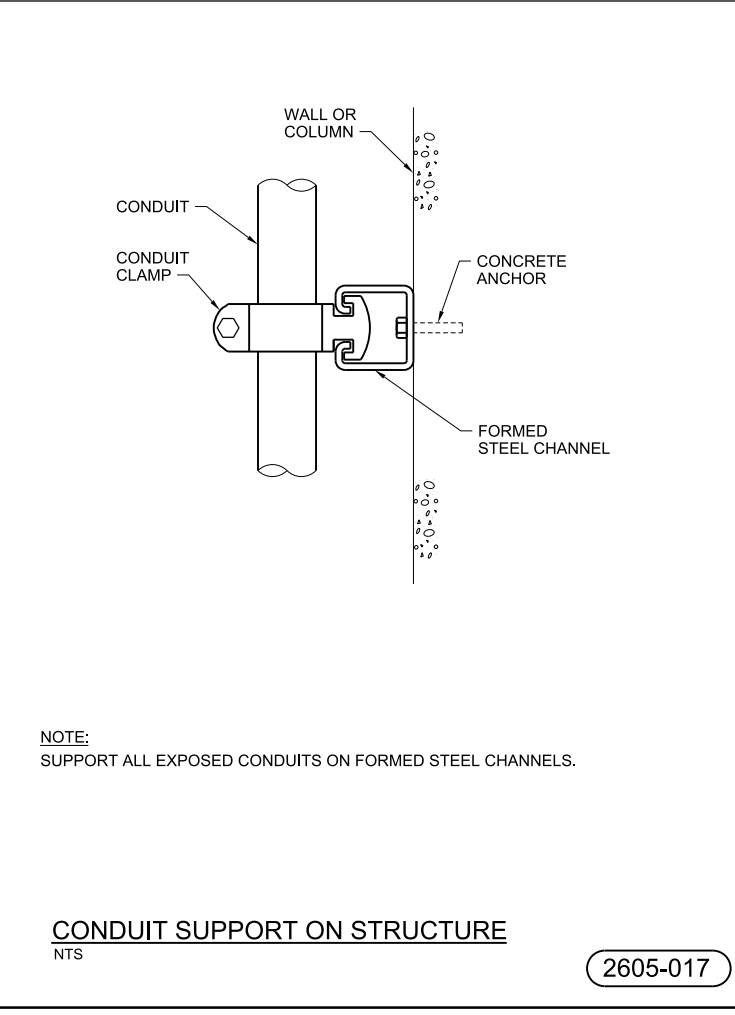
TERMINAL JUNCTION BOX (TJB)
NTS (2605-102)



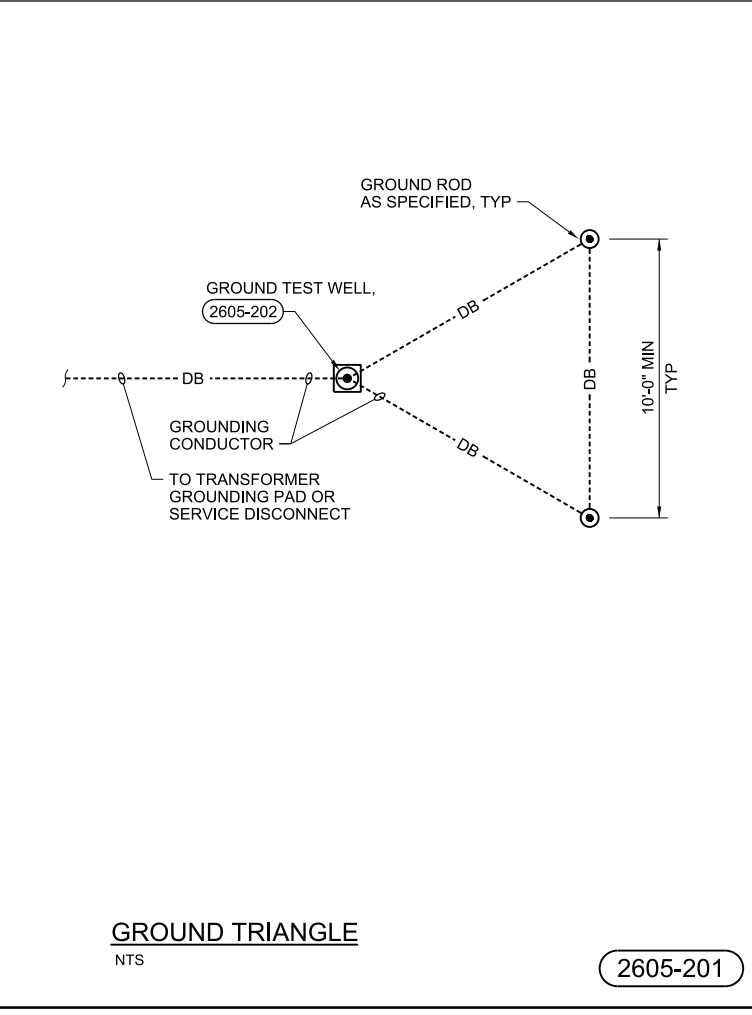
GROUND TEST WELL
NTS (2605-202)



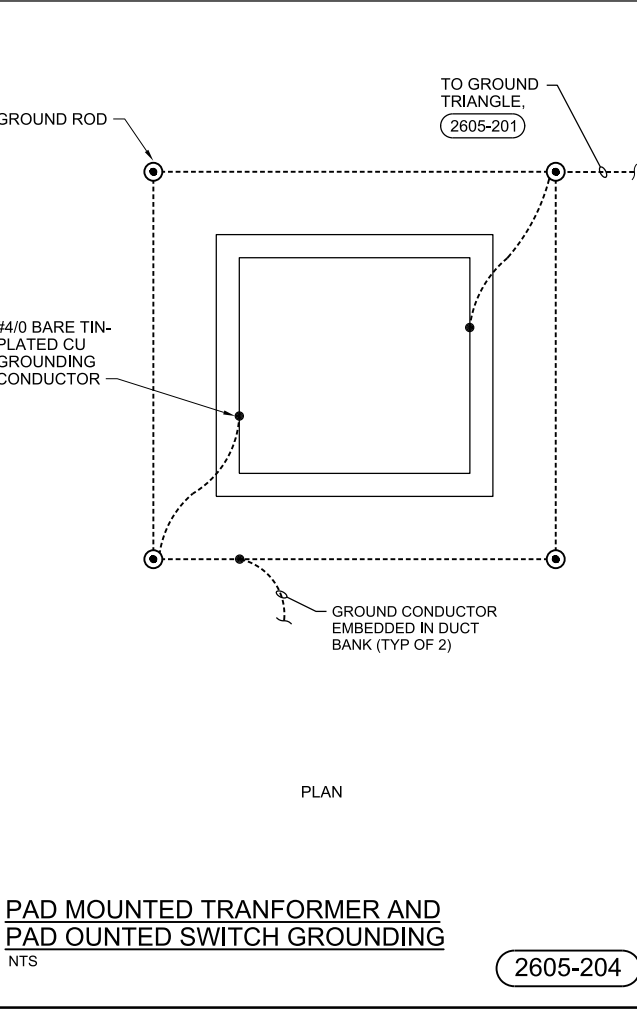
DEVICE MOUNTING, EQUIPMENT PEDESTAL
NTS (2005-008b)



CONDUIT SUPPORT ON STRUCTURE
NTS (2605-017)

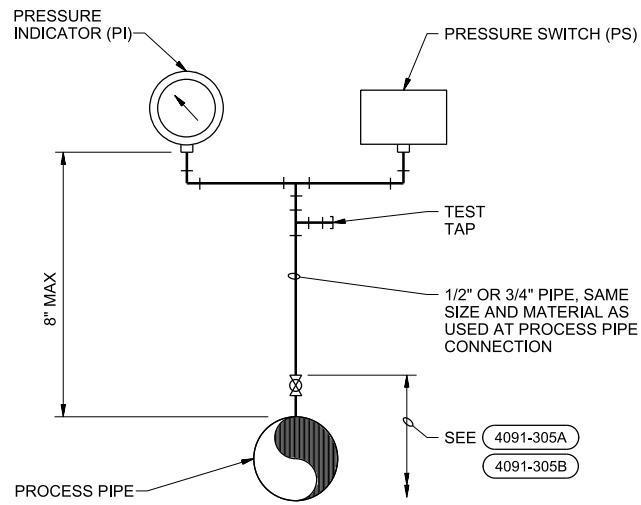


GROUND TRIANGLE
NTS (2605-201)



PAD MOUNTED TRANSFORMER AND PAD MOUNTED SWITCH GROUNDING
NTS (2605-204)

3011 SW WILLISTON RD GAINESVILLE, FL 32608 EB0000072 - AAC001992 DAVID C. NICHOLSON - PE 00201		SWWRP NITROGEN REMOVAL AND DIGESTER MODIFICATIONS MANATEE COUNTY UTILITIES MANATEE COUNTY, FL	
CH2MHILL®		ELECTRICAL DETAILS	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"			
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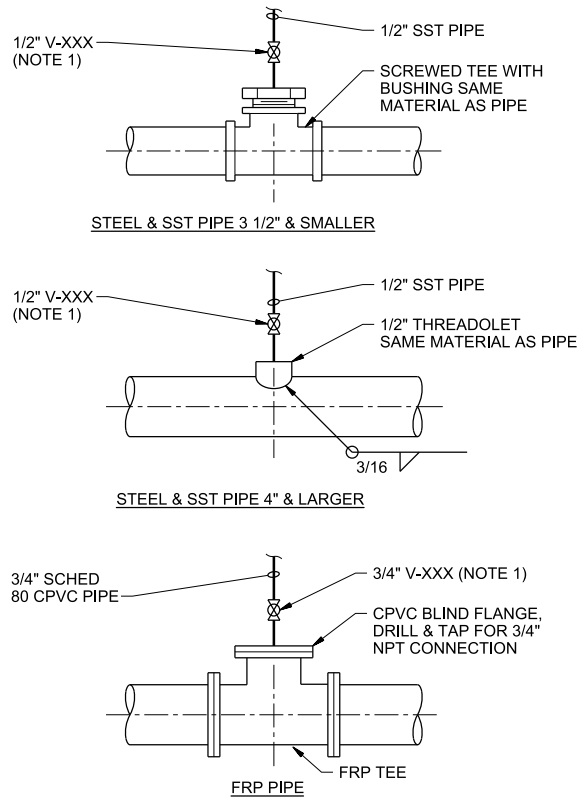
DIRECT MOUNTING

- NOTES:**
- INDICATOR AND SWITCH INSTALLATION SHOWN. FOR SINGLE INSTRUMENT INSTALLATIONS, MOUNT DEVICE DIRECTLY ABOVE TEST TAP.

PRESSURE SWITCH & INDICATOR INSTALLATION

NTS

4091-304A

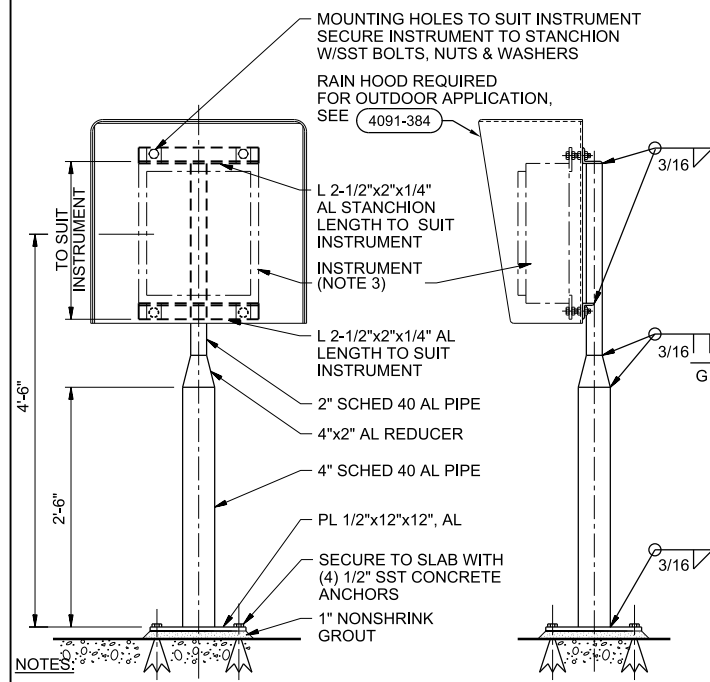


- NOTES:**
- SEE 40 27 02B FOR VALVE SPECIFICATIONS.

PRESSURE CONNECTION INSTALLATION

NTS

4091-305B

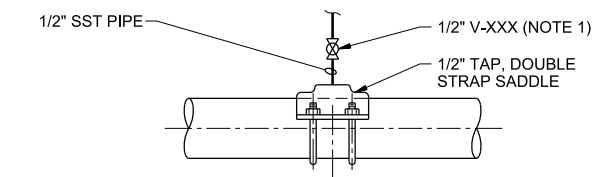


- NOTES:**
- ROUND OFF ALL EXPOSED EDGES AND CORNERS.
 - PAINT ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.
 - FOR MULTIPLE OR SMALLER INSTRUMENTS MOUNT SUITABLE SIZED 10 GA ALUMINUM PANEL THROUGH RAIN HOOD TO STANCHION STANDOFFS. DRILL AND TOP ALUMINUM PANEL AS REQ'D TO MOUNT INSTRUMENTS.

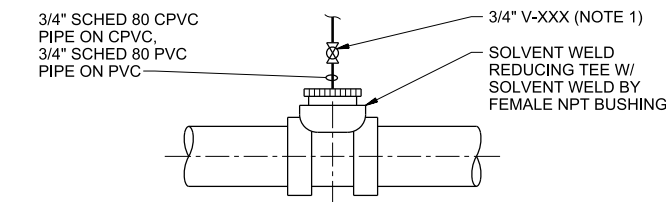
STANCHION SUPPORT - INSTRUMENT MOUNTING STAND

NTS

4091-383



CEMENT LINE STEEL PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE



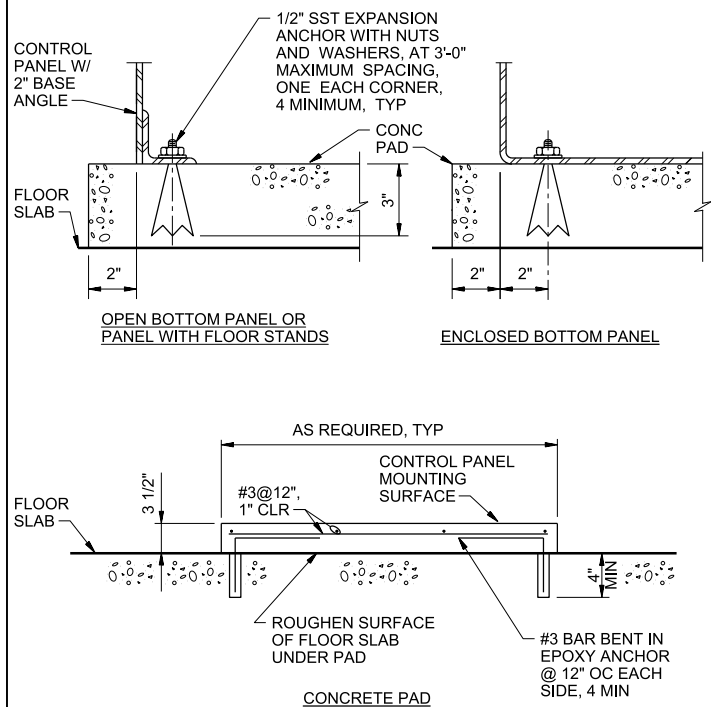
PVC AND CPVC PIPE

- NOTES:**
- SEE 40 27 02B FOR VALVE SPECIFICATIONS.

PRESSURE CONNECTION INSTALLATION

NTS

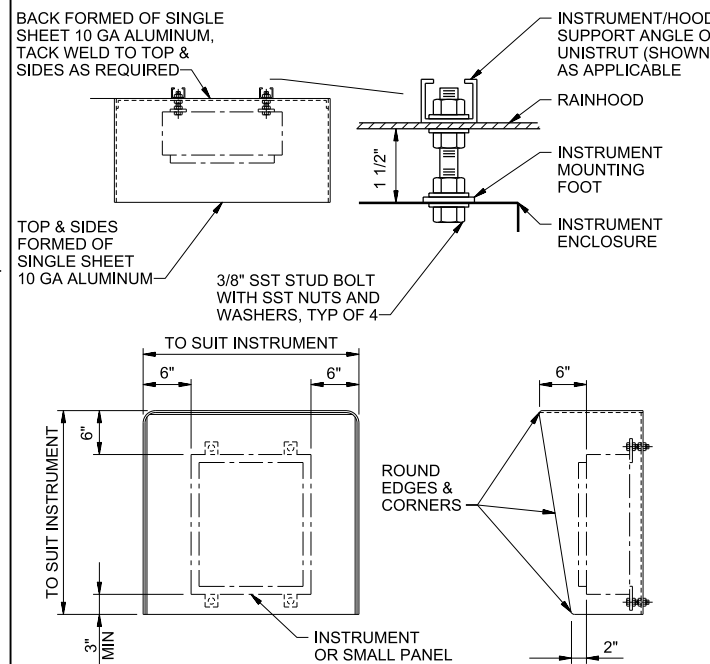
4091-305A



STANDARD FREESTANDING PANEL MOUNTING

NTS

4091-382



- NOTES:**
- ALL EXPOSED EDGES TO BE GRIND SMOOTH AND BURR FREE.
 - MOUNT RAIN HOOD BETWEEN INSTRUMENT AND MOUNTING BRACKET. DRILL HOLES IN RAIN HOOD AS PER MOUNTING HOLES FOR INSTRUMENT, SEE 4091-383

RAIN HOOD INSTALLATION

NTS

4091-384

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