

PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

COUNTY PROJECT No. 6107400
NOT FOR CONSTRUCTION
OCTOBER 7, 2021

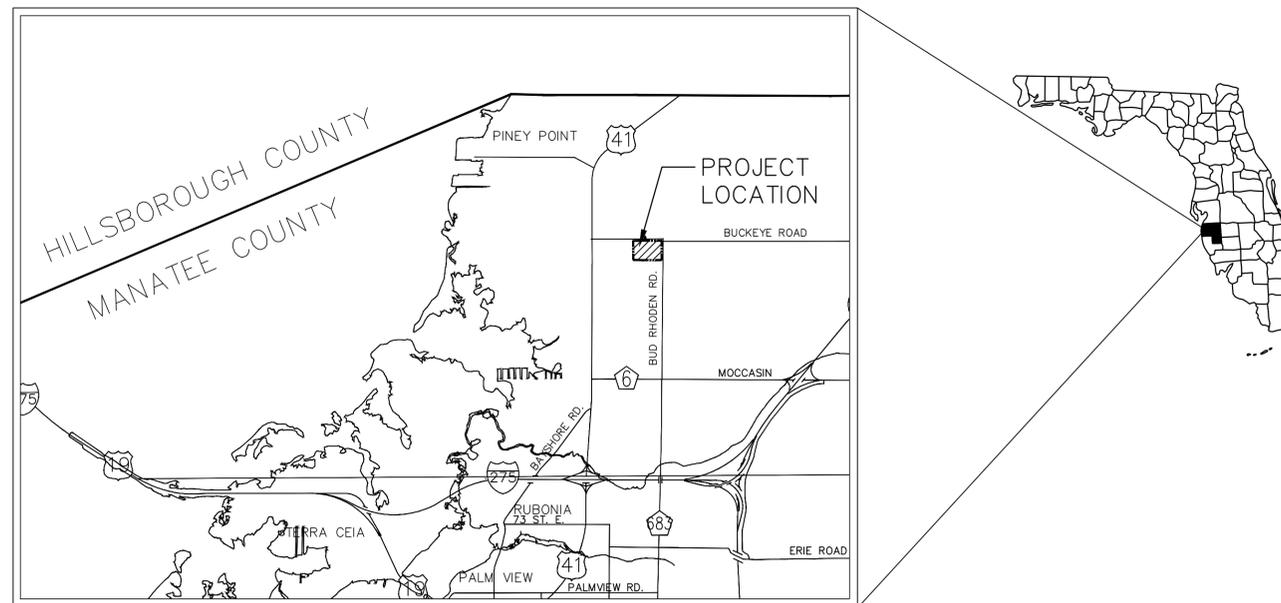


MANATEE COUNTY, FLORIDA

MANATEE COUNTY BUILDING AND DEVELOPMENT SERVICES SIGNATURE BLOCK	
Project Number: 6107400	Project Name: Piney Point Deep Well Injection
Approval Type: Final Planning Permit	PLN Number: PLN2016-01033
CASE MANAGER _____	DATE _____
PROJECT MANAGER _____	DATE _____
CONCURRENCY _____	DATE _____
ENVIRONMENTAL PLANNING _____	DATE _____
ENVIRONMENTAL HEALTH _____	DATE _____
FIRE DISTRICT _____	DATE _____
Attention: The combination of this signed plan and accompanying approval letter constitutes the complete approval document. Both documents should be provided to interested parties and submitted with any building permit application. There may be other documents, including a CLOS that affect this project approval.	
Received by OWNER/AGENT: _____	DATE _____

PROJECT DATA

PROJECT NAME: PINEY POINT DEEP WELL INJECTION
 ADDRESS: 3105 BUCKEYE RD, PALMETTO, FL 34221
 PARCEL ID: 603202109 (PART OF)
 OWNER: MANATEE COUNTY
 ZONING: PDEZ & PDI
 OVERLAY: CPA & MAN
 SPECIAL AREA: PIDTIF
 FUTURE LAND USE: IL (PROJECT AREA), P/SP-1 (PIPELINES)
 FLOOD ZONE: X (PROJECT AREA), X, AE, A (OWNERSHIP)
 AREA: +/- 1.71 ACRES (PROJECT), +/- 40.66 (OWNERSHIP)
 FAR: 0.75 (IL, PROJECT AREA), 0.00 (P/SP-1, PIPELINES)
 SETBACKS: 30' (FRONT, EAST), 15' (SIDE, NORTH/SOUTH), 20' (REAR, WEST)
 LANDSCAPE BUFFER: 20'
 WETLANDS: ONSITE
 WELLS: ONSITE
 VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
 ANTICIPATED CONSTRUCTION SCHEDULE: DECEMBER 2021 (START), JUNE 2022 (FINISH)
 NOTES: ALL BUILDING PERMITS WILL BE ISSUED PRIOR TO THE EXPIRATION OF THE CLOS OR FSP, WHICHEVER OCCURS FIRST.

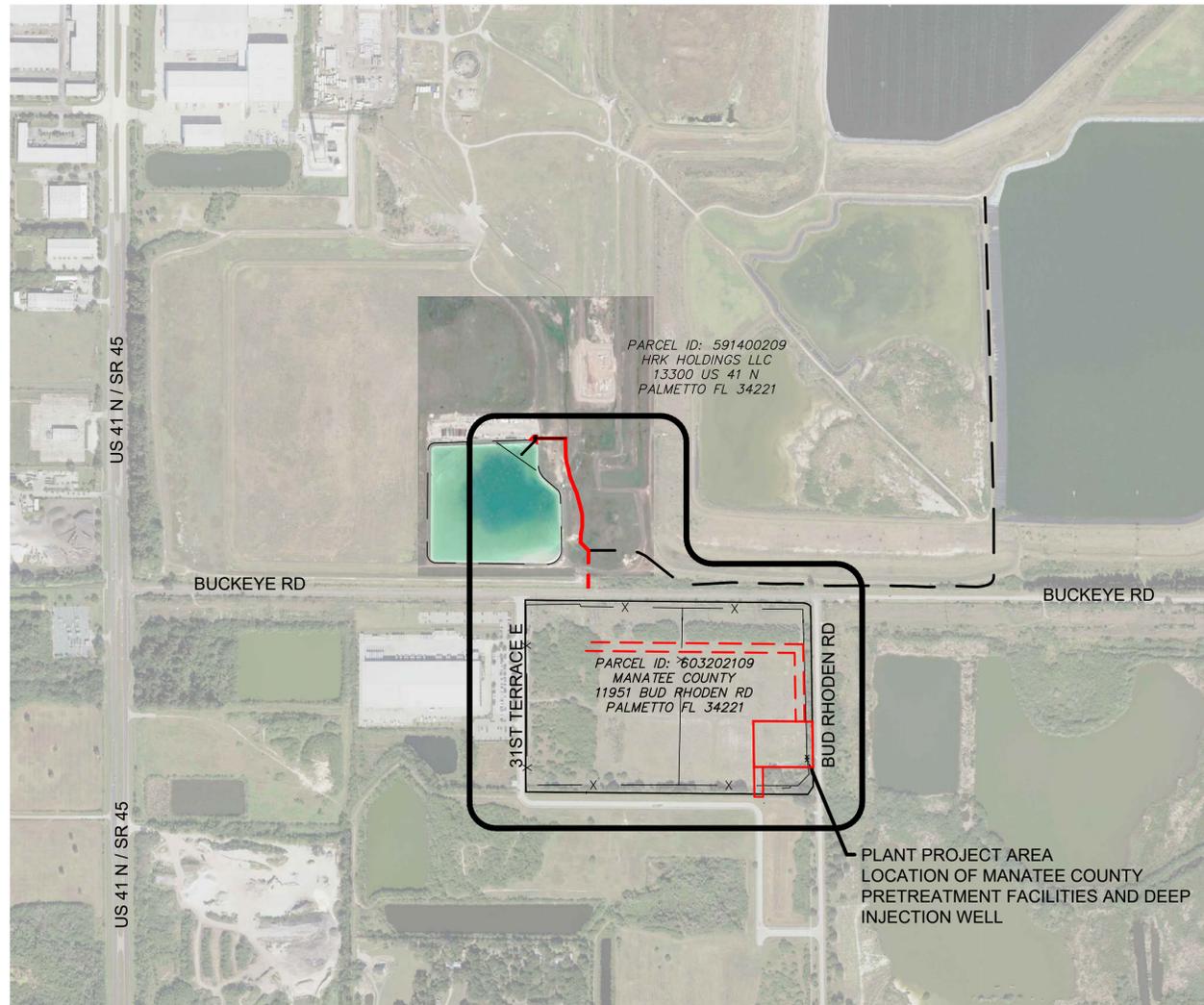


PROJECT VICINITY MAP
SECTION 7 & 8, TOWNSHIP 33S, RANGE 18E

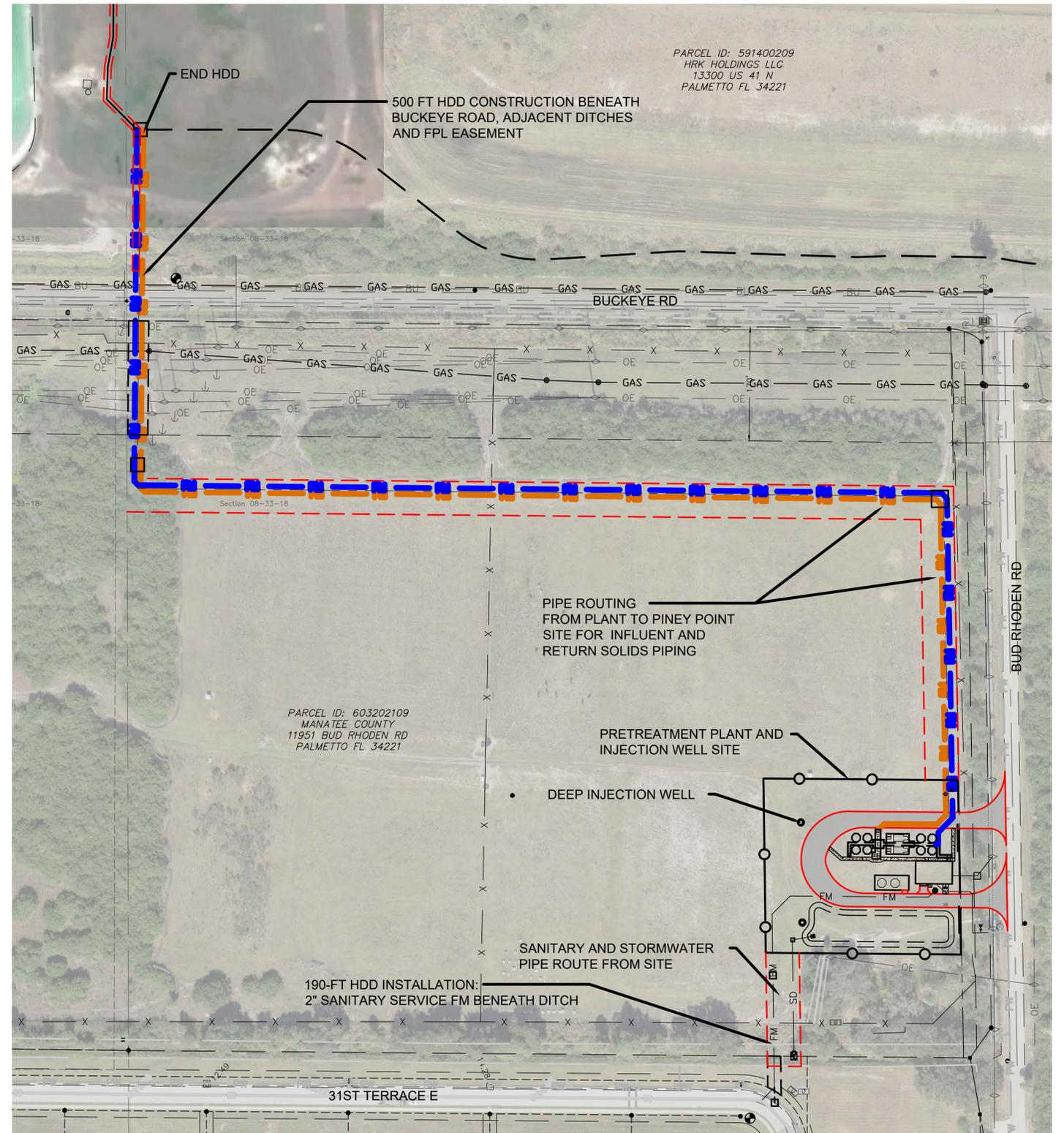
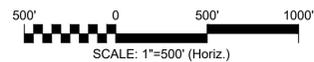
PROJECT CONTACTS

OWNER: MANATEE COUNTY
 CIVIL ENGINEER: TRACEY WEBB, PE
 MCKIM & CREED
 1365 HAMLET AVE
 CLEARWATER, FL 33756
 V: 727-442-7196
 SURVEYOR: TODD E. BOYLE, RSM
 MANATEE COUNTY
 SURVEY DIVISION
 1112 MANATEE AVE WEST
 BRADENTON, FL 34205
 V: 941-748-4501
 LANDSCAPE ARCHITECT: PHILLIP J. SMITH, RLA
 DWJA LANDSCAPE ARCHITECTS
 630 S. ORANGE AVE, STE 202
 SARASOTA, FL 34236
 V: 941-366-3156
 ENVIRONMENTAL: BRETT S. SOLOMON, MS
 ENVIRONMENTAL SCIENCE ASSOC.
 505 S. ORANGE AVE, STE. 101
 SARASOTA, FL 34236
 V: 407-403-6300

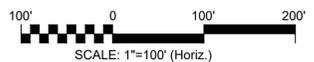




PROJECT LOCATION MAP
SCALE: 1"=500'



OVERALL PIPING PLAN
SCALE: 1"=100'



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REV. NO.	DESCRIPTIONS	DATE

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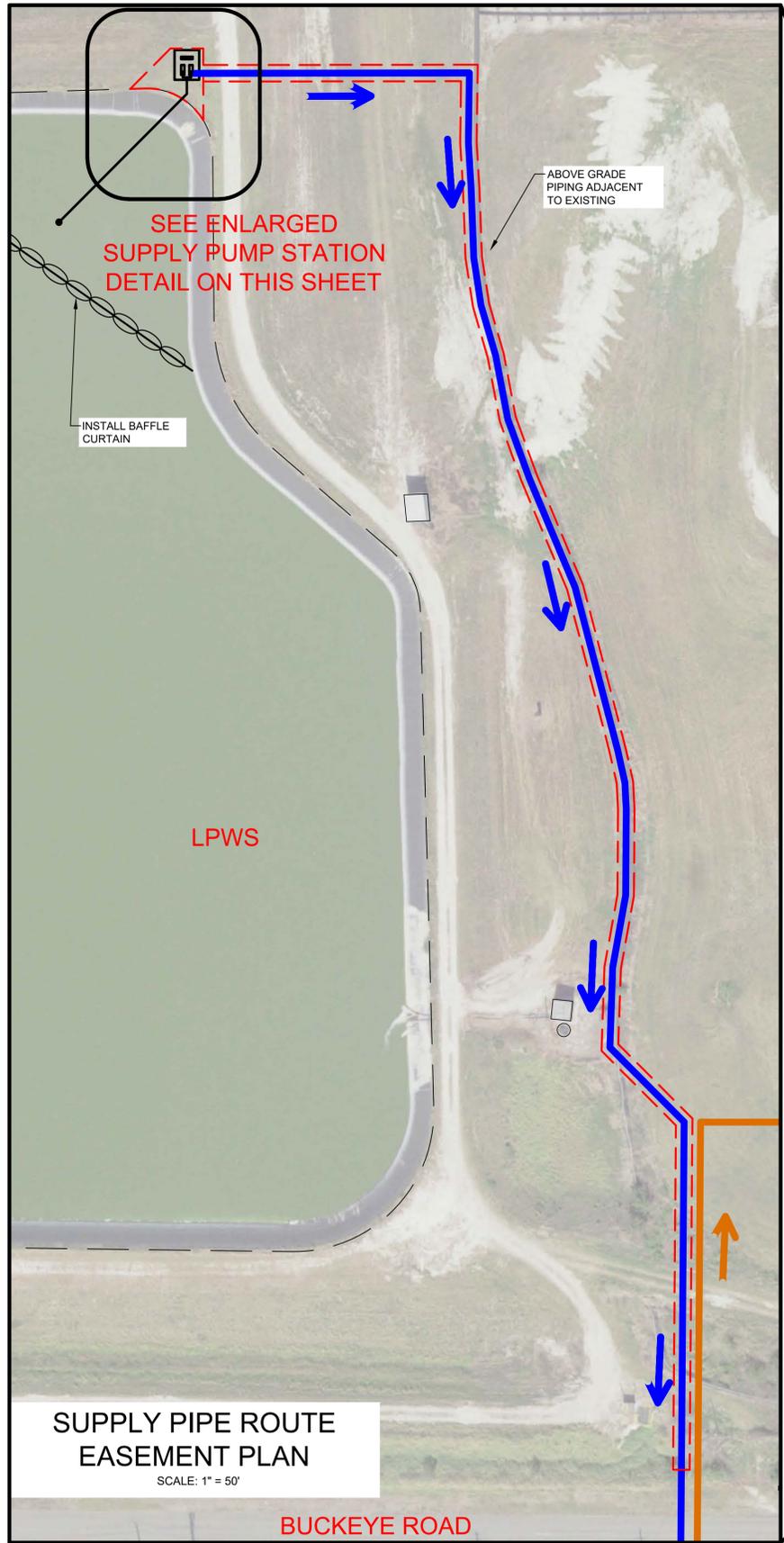
PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

CIVIL

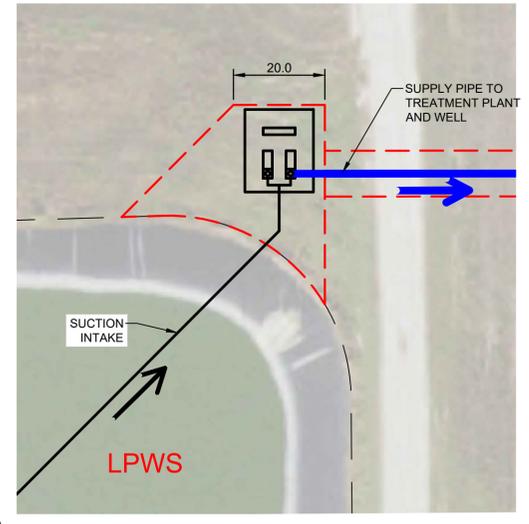
PROJECT LOCATION MAP AND OVERALL PIPING PLAN

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
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DRAWN: TLW	VERTICAL: NA	A REVISION
DESIGNED: TLW		
CHECKED: ASL		
PROJ. MGR.: P.J.L.		
STATUS:	NOT FOR CONSTRUCTION	

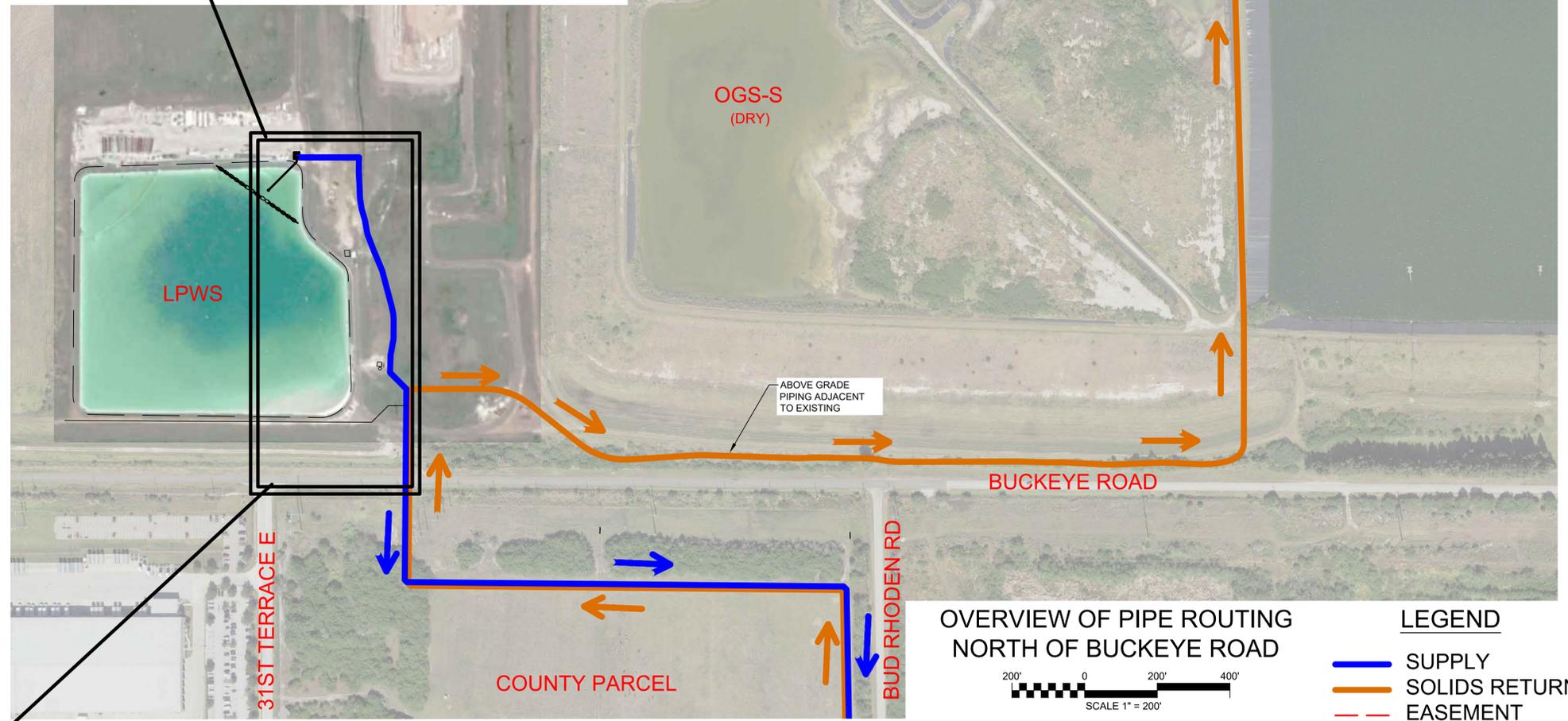
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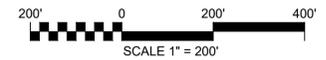
SUPPLY PIPE ROUTE EASEMENT PLAN
SCALE: 1" = 50'



ENLARGED DETAIL SUPPLY PUMP STATION
SCALE: 1" = 20'



OVERVIEW OF PIPE ROUTING NORTH OF BUCKEYE ROAD



LEGEND

- SUPPLY
- SOLIDS RETURN
- EASEMENT

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PROPOSED IMPROVEMENTS NORTH OF BUCKEYE ROAD

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: AS SHOWN	C01A
DRAWN: TLW	VERTICAL: NA	A REVISION
DESIGNED: TLW		
CHECKED: ASL		
PROJ. MGR.: P.J.L.		
STATUS: NOT FOR CONSTRUCTION		

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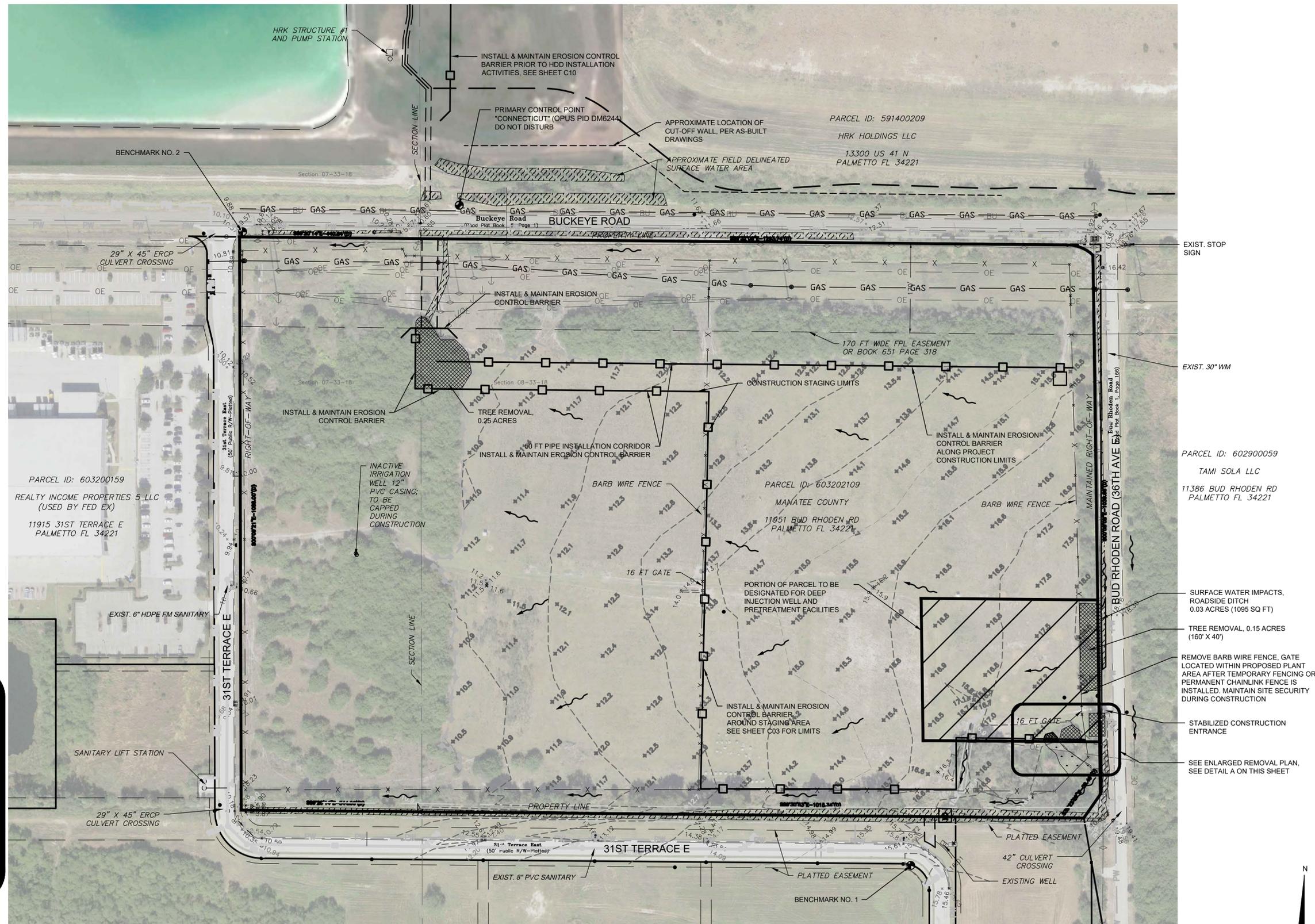
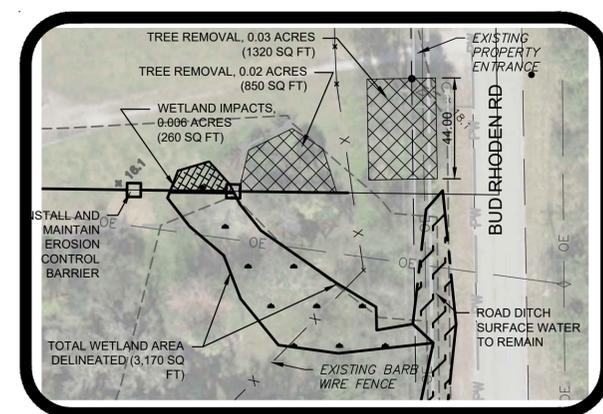
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GENERAL NOTES

1. PER PROVIDED SURVEY, PARCEL CONTAINS 40.66 ACRES.
2. A TITLE SEARCH HAS BEEN COMPLETED.
3. THERE IS A 170 FT WIDE UTILITY EASEMENT ALONG NORTHERN LIMITS FOR FPL.
4. PORTION OF PARCEL TO BE PERMANENTLY DESIGNATED FOR PRETREATMENT FACILITIES AND WELLS, AS DELINEATED BY PROPOSED FENCING PLUS 20-FT LANDSCAPING BUFFER: 1.71 ACRES
5. SEE SHEET C01 FOR CONVEYANCE PIPE ROUTING
6. UTILITIES SHOWN ARE NOT FIELD VERIFIED. APPROXIMATE LOCATIONS BASED ON GIS INFORMATION AND AS-BUILTS
7. PRIOR TO MOBILIZATION AND ANY EARTHMOVING ACTIVITIES PERIMETER EROSION BARRIER SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON PLANS.
8. APPROXIMATE WETLAND AND SURFACE WATER BOUNDARIES SHOWN ARE BASED ON ENVIRONMENTAL FIELD REVIEW COMPLETED ON AUGUST 27, 2021. BOUNDARIES ARE NOT AGENCY VERIFIED.

SURVEYOR'S NOTES

1. UNLESS NOTED, LOCATIONS LIMITED TO - OBSERVABLE, ABOVE GROUND IMPROVEMENTS. NO UNDERGROUND IMPROVEMENTS HAVE BEEN LOCATED EXCEPT THOSE SHOWN HEREON. SOME FEATURES MAY BE EXAGGERATED FOR CLARITY. DIMENSIONS SHOWN SUPERSEDE SCALED DIMENSIONS.
2. THIS SURVEY DOES NOT CERTIFY OR WARRANTY: TITLE, ZONING, EASEMENTS, OR FREEDOM OF ENCUMBRANCES.
3. SUBJECT TO EASEMENTS, DEDICATIONS AND RESTRICTIONS OF RECORD NOT PROVIDED TO THE SURVEYOR AND MAPPER. TITLE REPORT PROVIDED BY AMERICAN GOVERNMENT SERVICES CORPORATION-WA#2017-27799, DATED 03/03/2017. NO OTHER INSTRUMENTS OF RECORD, RIGHTS-OF-WAY AND/OR OWNERSHIP ARE KNOWN BY, OR WERE FURNISHED THIS SURVEYOR EXCEPT AS SHOWN HEREON.
4. THIS SURVEY MEETS THE REQUIREMENTS OF CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, AS IT PERTAINS TO SURVEYS.
5. SUBJECT TO EASEMENTS, DEDICATIONS AND RESTRICTIONS OF RECORD NOT PROVIDED TO THE SURVEYOR AND MAPPER.
6. ALL MEASUREMENTS SHOWN HEREON ARE GROUND FIELD MEASURED UNLESS SPECIFICALLY ANNOTATED, NOTED OR OTHERWISE STATED ON THIS SKETCH OF SURVEY.
7. THE BASIS OF BEARINGS FOR THIS SURVEY IS THE SOUTHERLY BOUNDARY LINE, WHICH BEARS S89°29'28"E (GRID), DERIVED USING REAL TIME KINEMATICS METHODS AND THE FLORIDA DEPARTMENT OF TRANSPORTATION'S PERMANENT REFERENCE NETWORK. THE DATUM FOR THE VALUES IS THE NORTH AMERICAN DATUM 1983 (1999 ADJUSTMENT) FLORIDA WEST ZONE. THE PUBLISHED VALUES OF "CONNECTICUT" (OPUS PID DM6244) AND "M009" (OPUS PID A19313) WERE USED TO VALIDATE THE PROJECT COORDINATES. HOWEVER, THESE VALUES ARE NOT TO BE CONSIDERED GEODETIC CONTROL.
8. THE ELEVATIONS SHOWN HEREON ARE BASED ON "CONNECTICUT" (NGS PID DM6244), ELEVATION 10.72 FEET, NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88), AND "DELAWARE" (NGS PID DM6245), ELEVATION 25.05 FEET NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88).
9. PARCEL INFORMATION SHOWN HEREON WAS GATHERED FROM THE MANATEE COUNTY GEOGRAPHIC INFORMATION SYSTEMS PROPERTY LOCATOR WEB SITE.



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Manatee County
FLORIDA

**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

CIVIL

**EXISTING CONDITIONS, REMOVAL PLAN
AND EROSION CONTROL PLAN**

DATE: OCTOBER 7, 2021	SCALE: HORIZONTAL: AS SHOWN	DRAWING NUMBER: C02
MCE PROJ. # 1024-0197	VERTICAL: NA	REVISION: A
DRAWN: TLW		
DESIGNED: TLW		
CHECKED: ASL		
PROJ. MGR.: P.J.L.		
STATUS: NOT FOR CONSTRUCTION		

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SIGN	SIGN DESIGNATION	SIZE
①	STOP	R1-1 36" X 36"
②	DO NOT ENTER	R5-1 36" X 36"
③	PLANT ENTRANCE (BLACK ON WHITE)	24" X 24"

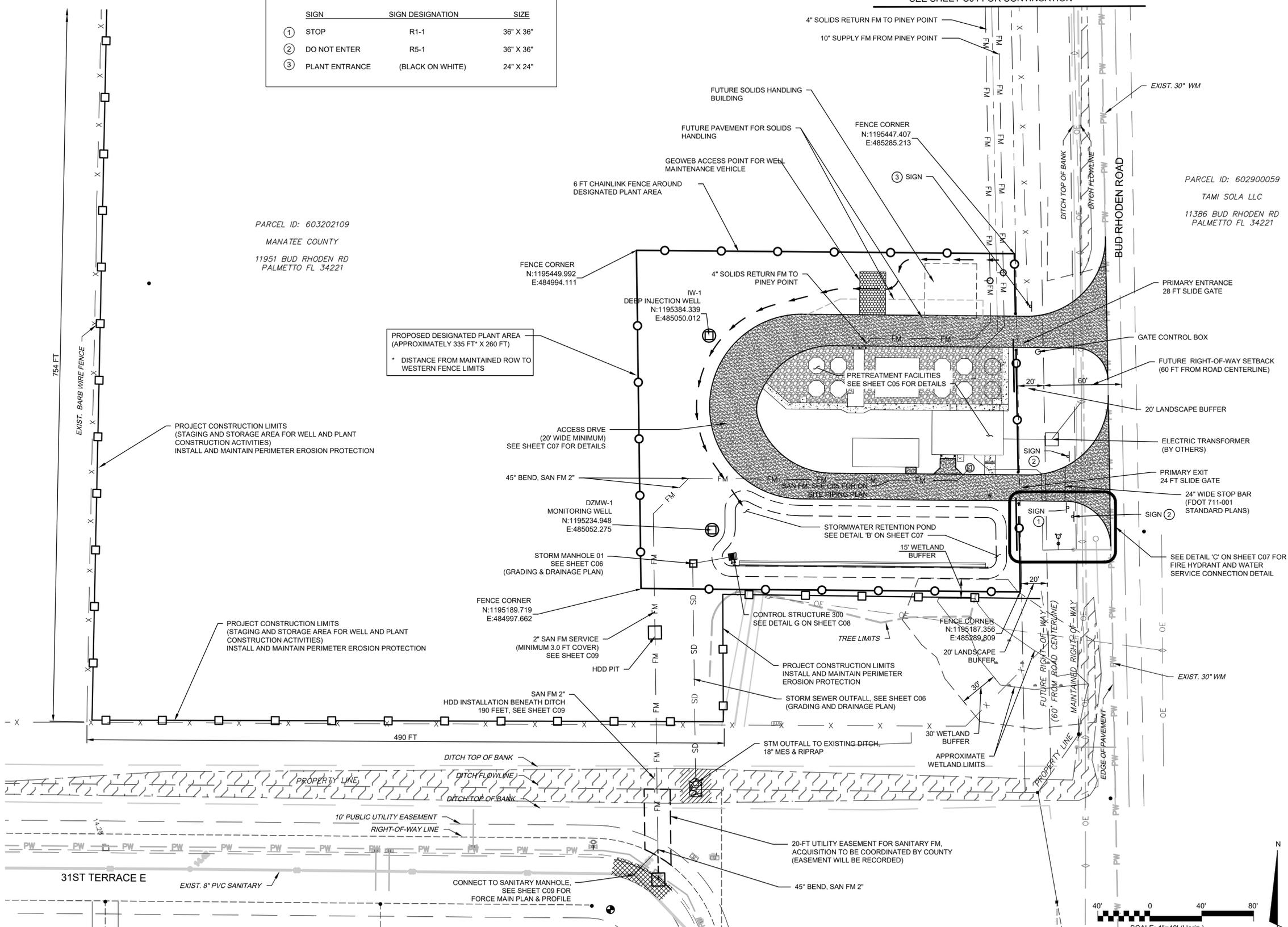
MATCHLINE STA 12+50 "PIPE ROUTE CL"
SEE SHEET C04 FOR CONTINUATION

PARCEL ID: 603202109
MANATEE COUNTY
11951 BUD RHODEN RD
PALMETTO FL 34221

PARCEL ID: 602900059
TAMI SOLA LLC
11386 BUD RHODEN RD
PALMETTO FL 34221

GENERAL NOTES

- ZONING: PROJECT LOCATED IN ZONE PDEZ-08-22(Z)(G)(R2)
- SITE TRAFFIC VOLUME
 - PLANT OPERATION WILL BE AUTOMATED. FULL-TIME STAFF IS NOT ANTICIPATED. ESTIMATED ONE PERSON ON SITE DAILY.
 - ROUTINE CHEMICAL DELIVERIES WILL BE REQUIRED. ESTIMATED ONE TANKER TRUCK DELIVERY PER WEEK. PAVEMENT WIDTH AND RADII HAVE BEEN DESIGNED TO ACCOMMODATE DELIVERY AND EMERGENCY VEHICLES.
- SITE SECURITY
 - CHAIN-LINK FENCE WILL BE PROVIDED AROUND PERIMETER OF PRETREATMENT PLANT AND WELLS AS SHOWN. AUTOMATED VEHICULAR GATES LOCATED AT ENTRANCE AND EXIT LOCATIONS.
 - GATE LOCATION LOCATED TO ALLOW FOR ONE DELIVERY VEHICLE TO STOP AT ENTRANCE WITHOUT BLOCKING ADJACENT ROADWAY.
- PARKING
 - OPERATION STAFF WILL PARK ON DRIVEWAY PAVEMENT. PAVEMENT WIDTH SUFFICIENT TO ALLOW FOR PASSING TRAFFIC IF NEEDED. NO DESIGNATED PARKING PROVIDED.
- LANDSCAPING/OPEN SPACES
 - NON-RESIDENTIAL PROJECTS SHALL HAVE THIRTY (30) PERCENT LANDSCAPING/OPEN SPACES, PER COUNTY CODE. PROPOSED IMPROVEMENTS MAINTAIN 69.5% OPEN-SPACE AREA.
 - MINIMUM 20 FT WIDE BUFFER WITH ENHANCED LANDSCAPING TO BE PROVIDED ALONG BUD RHODEN ROAD. THIS BUFFER SHALL BE PLANTED WITH TWO STAGGERED ROWS OF UNDERSTORY TREES CONTAINING SIX (6) EVERGREEN TREES (2" CALIPER, 6-FT HEIGHT, 3-FT SPREAD) AND 33 SHRUBS (30-IN AT TIME OF PLANTING) PER 100 LINEAR FT. AT LEAST THREE DIFFERENT SPECIES FOR EACH PLANT CATEGORY SHALL BE USED.
 - PARKING LOT LANDSCAPING NOT REQUIRED, EXEMPT IN PDEZ.
- RIGHT-OF-WAY
 - EXISTING RIGHT-OF-WAY AS SHOWN ALONG BUD RHODEN ROAD IS BASED ON COUNTY MAINTAINED LIMITS AT THE TIME OF PROJECT SURVEY, APRIL 2021.
 - FUTURE RIGHT-OF-WAY LIMITS SHOWN ARE BASED ON 60 FEET FROM CENTERLINE OF BUD RHODEN ROAD TO ACCOMMODATE FUTURE 120-FT, PER COUNTY PLANNING MAP 5-C.
- PAVEMENT MARKINGS
 - BUD RHODEN ROAD HAS EXISTING PAVEMENT MARKINGS TYPICAL OF A TWO-LANE RURAL ROAD. SOLID WHITE EDGE LINE ON BOTH SIDES AND A DASHED YELLOW CENTERLINE.
 - AS NOTED IN ITEM 2: SITE TRAFFIC VOLUME, TRAFFIC TO SITE IS MINIMAL AND SITE DISTANCES ARE GOOD. NO CHANGES TO PAVEMENT MARKINGS ON BUD RHODEN ROAD ARE PROPOSED.
 - NO PAVEMENT MARKINGS ARE PROPOSED ON SITE.



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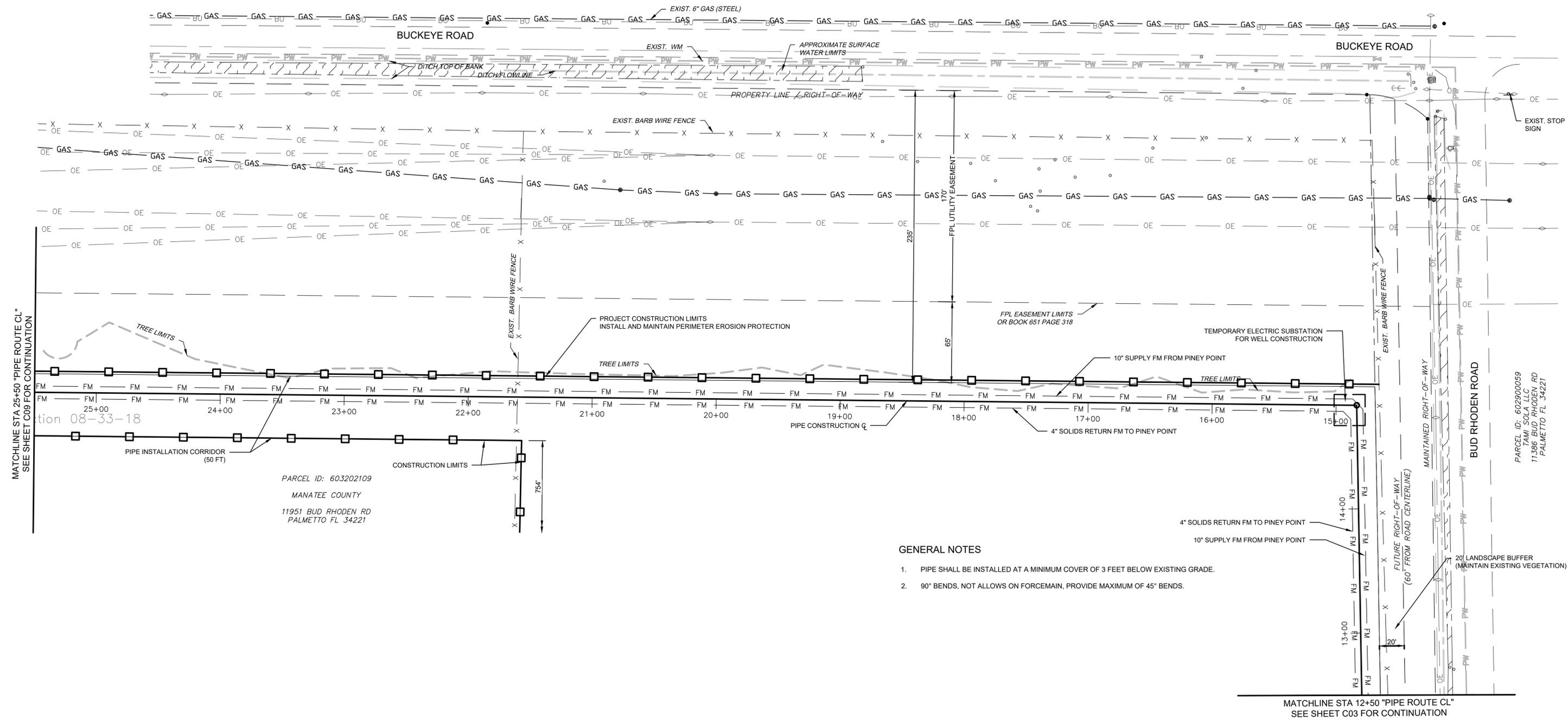
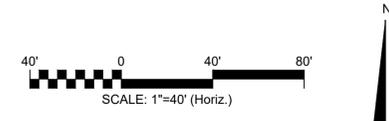


PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT
CIVIL
SITE LAYOUT AND PIPING PLAN

DATE: OCTOBER 7, 2021	SCALE: HORIZONTAL: AS SHOWN VERTICAL: NA	DRAWING NUMBER: C03
MCE PROJ. # 1024-0197	DESIGNED: TLW	DESIGNED: ASL
CHECKED: MGR.	PROJECT MGR.: P.J.L.	REVISION: A
STATUS: NOT FOR CONSTRUCTION		

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MATCHLINE STA 25+50 "PIPE ROUTE CL" SEE SHEET C09 FOR CONTINUATION

MATCHLINE STA 12+50 "PIPE ROUTE CL" SEE SHEET C03 FOR CONTINUATION

GENERAL NOTES

1. PIPE SHALL BE INSTALLED AT A MINIMUM COVER OF 3 FEET BELOW EXISTING GRADE.
2. 90° BENDS, NOT ALLOW ON FORCEMAIN, PROVIDE MAXIMUM OF 45° BENDS.

PARCEL ID: 603202109
 MANATEE COUNTY
 11951 BUD RHODEN RD
 PALMETTO FL 34221

PARCEL ID: 602900059
 TAMI SCOLA LLC
 11386 BUD RHODEN RD
 PALMETTO FL 34221

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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

CIVIL
NORTH PIPING PLAN

DATE:	OCTOBER 7, 2021
MCE PROJ. #	1024-0197
DRAWN	TLW
DESIGNED	TLW
CHECKED	ASL
PROJ. MGR.	PJL
STATUS:	NOT FOR CONSTRUCTION

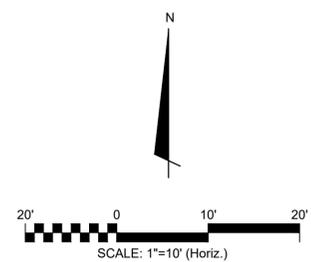
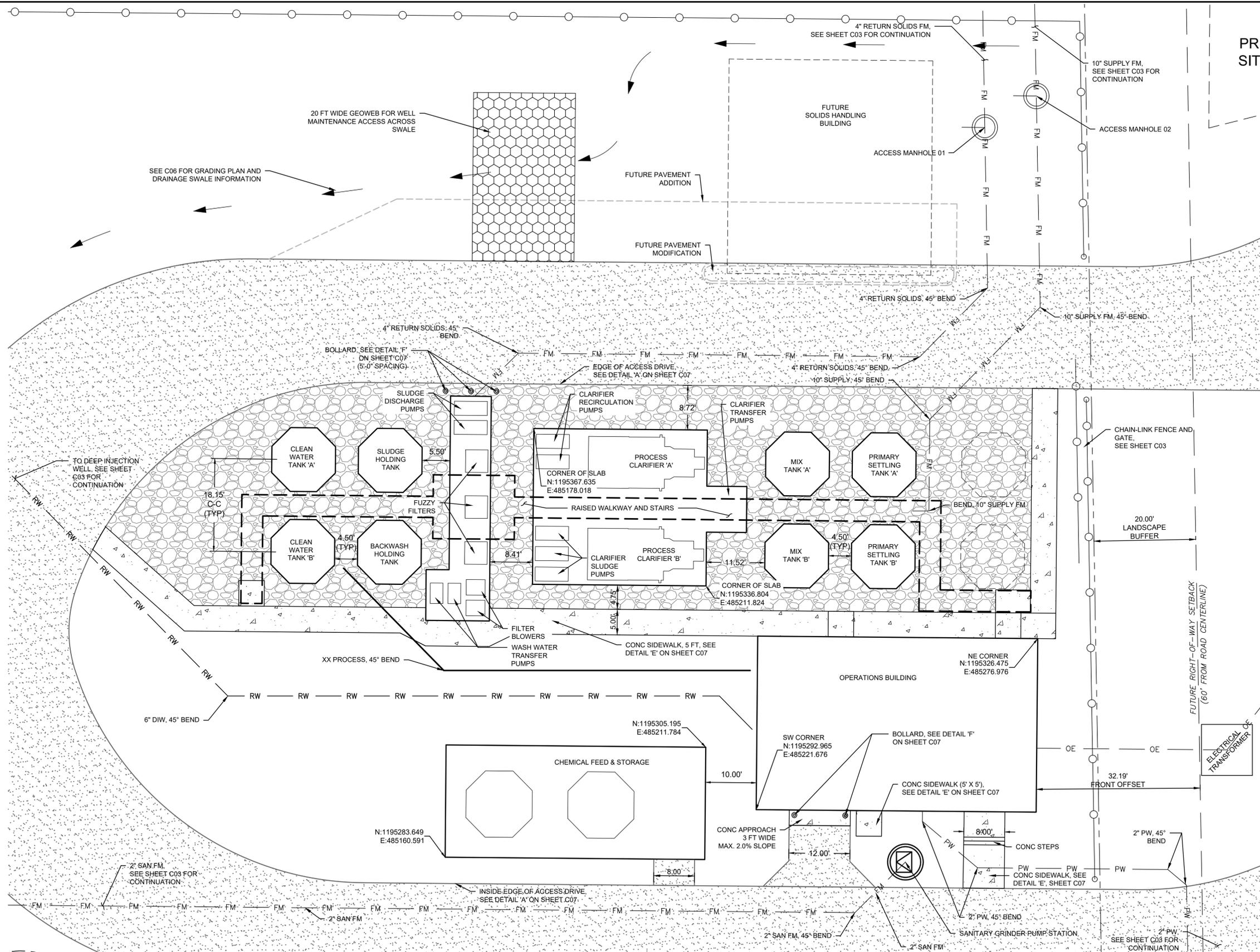
SCALE	HORIZONTAL: AS SHOWN
	VERTICAL: NA

DRAWING NUMBER	C04
REVISION	A

**PRETREATMENT FACILITIES
SITE LAYOUT & PIPING PLAN**
SCALE: 1"=10'

GENERAL NOTES

- SEE MECHANICAL SHEET FOR PROCESS PIPING IN TANK BATTERY



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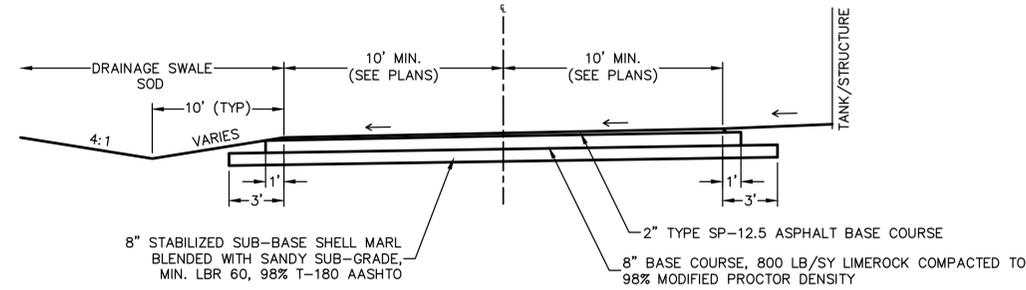
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**PRETREATMENT FACILITIES
SITE LAYOUT AND PIPING PLAN**

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
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DESIGNED TLW	REVISION	
CHECKED ASL		
PROJ. MGR. P.J.L.		

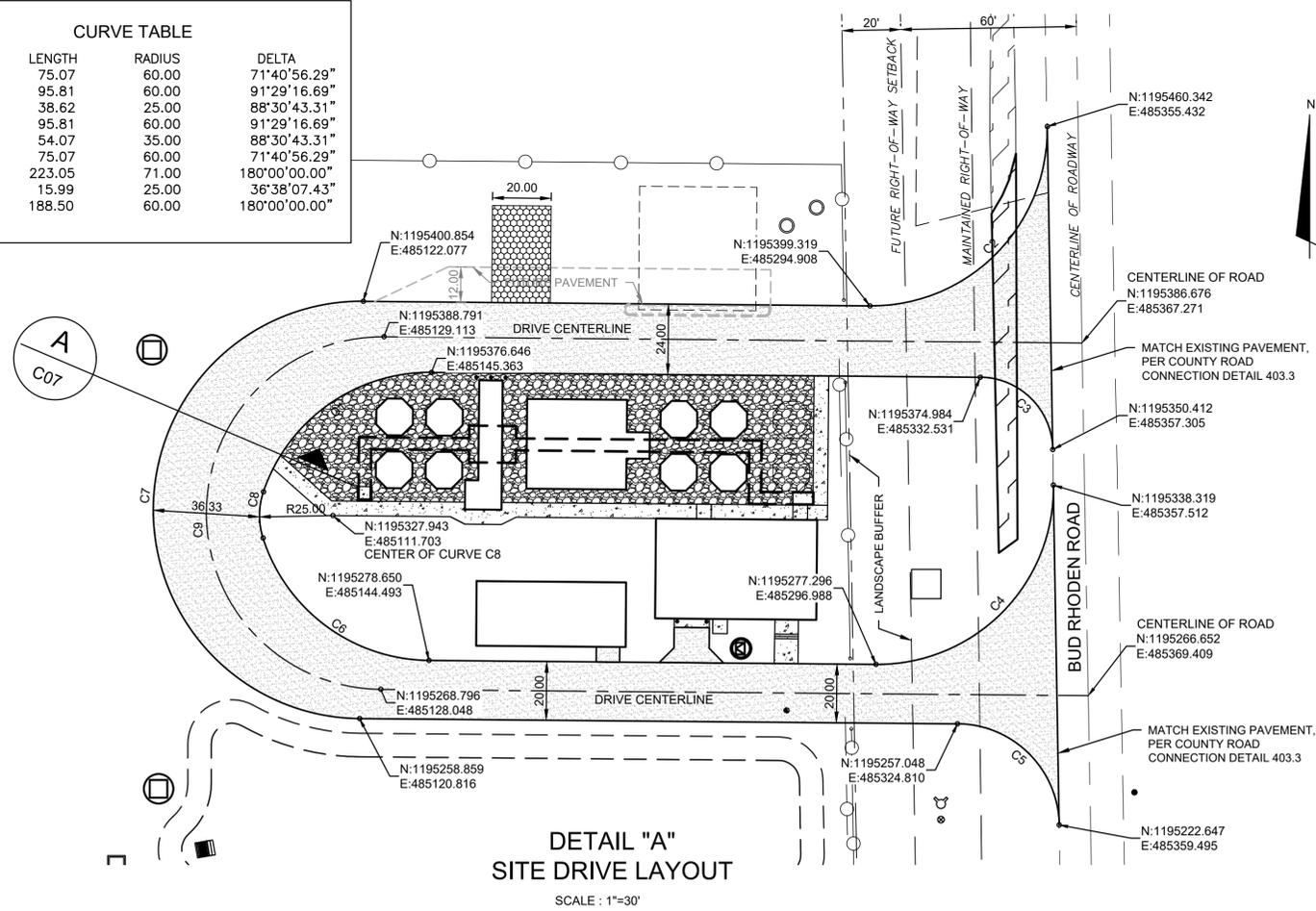
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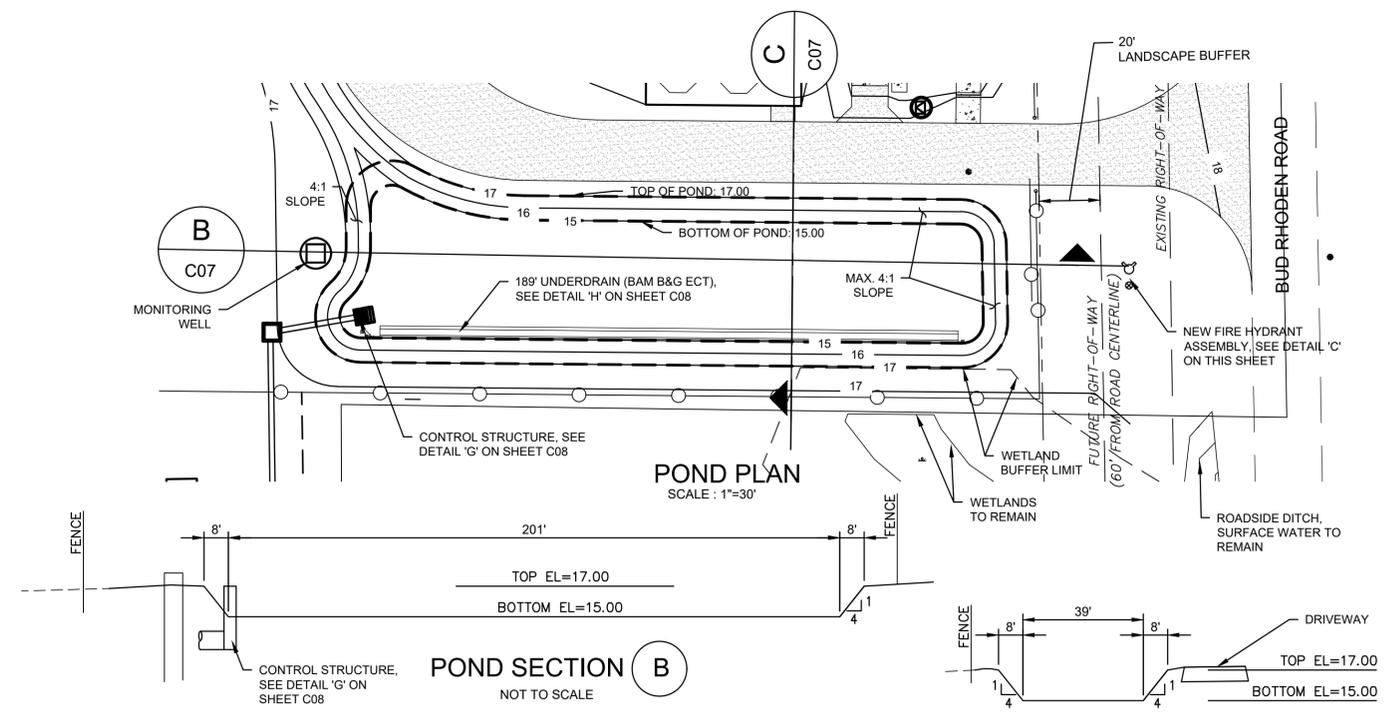


TYPICAL DRIVEWAY PAVEMENT SECTION (A)
NOT TO SCALE

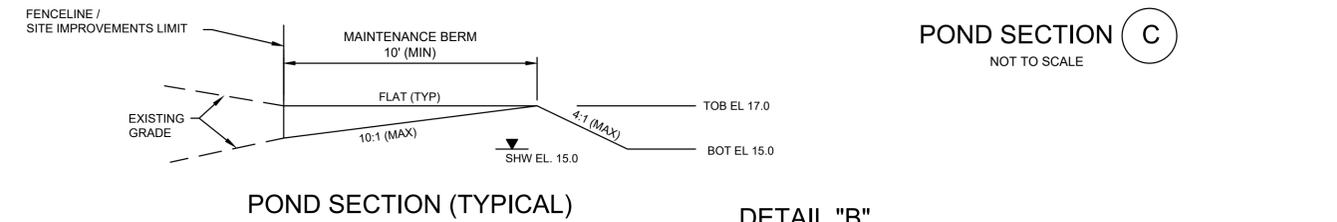
CURVE TABLE			
CURVE #	LENGTH	RADIUS	DELTA
C1	75.07	60.00	71°40'56.29"
C2	95.81	60.00	91°29'16.69"
C3	38.62	25.00	88°30'43.31"
C4	95.81	60.00	91°29'16.69"
C5	54.07	35.00	88°30'43.31"
C6	75.07	60.00	71°40'56.29"
C7	223.05	71.00	180°00'00.00"
C8	15.99	25.00	36°38'07.43"
C9	188.50	60.00	180°00'00.00"



DETAIL "A" SITE DRIVE LAYOUT
SCALE: 1"=30'



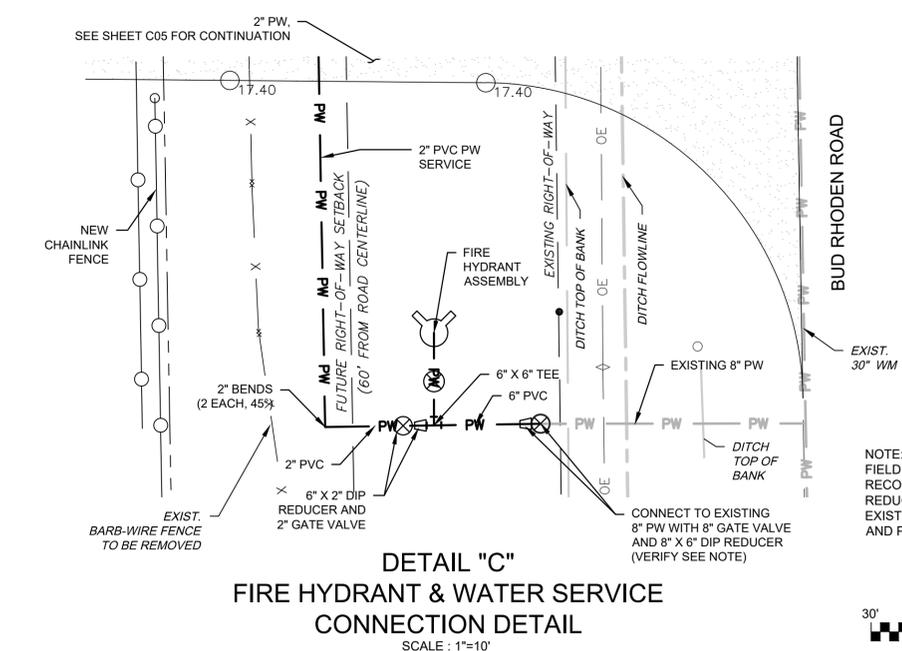
POND SECTION (B)
NOT TO SCALE



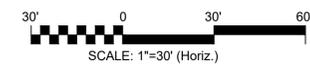
POND SECTION (TYPICAL)

POND SECTION (C)
NOT TO SCALE

DETAIL "B" STORMWATER RETENTION POND
AS NOTED



DETAIL "C" FIRE HYDRANT & WATER SERVICE CONNECTION DETAIL
SCALE: 1"=10'



NOTE: FIELD VERIFY EXISTING 8" WM. COUNTY GIS RECORDS SHOW AN 8" STUB OUT WITH AN 8X4 REDUCER AND 4" GV. IF 4" TRANSITION AND VALVE EXIST. CONTRACTOR SHALL REMOVE, SALVAGE AND PROVIDE TO COUNTY WATER DEPARTMENT.

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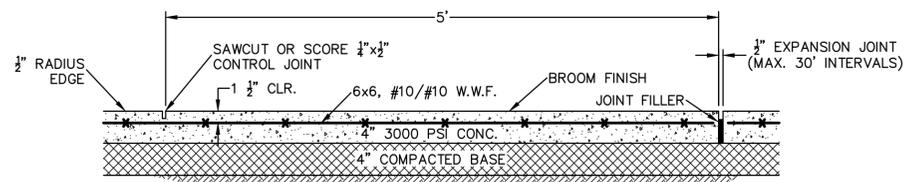
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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

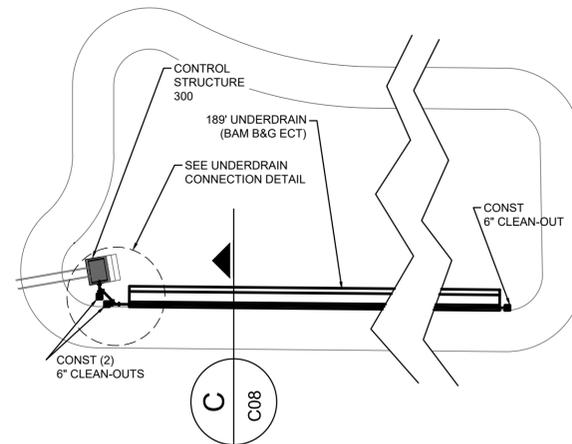
CIVIL
CIVIL DETAILS

DATE: OCTOBER 7, 2021	SCALE: HORIZONTAL: AS SHOWN	DRAWING NUMBER: C07
MCE PROJ. # 1024-0197	VERTICAL: NA	REVISION: A
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DESIGNED: TLW		
CHECKED: ASL		
PROJ. MGR.: P.J.L.		
STATUS: NOT FOR CONSTRUCTION		

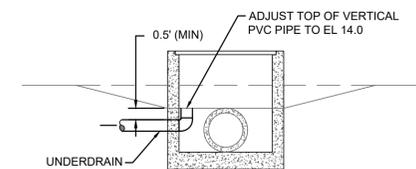
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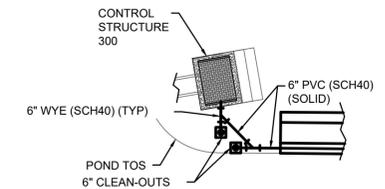
DETAIL "E"
TYPICAL CONCRETE SIDEWALK
NOT TO SCALE



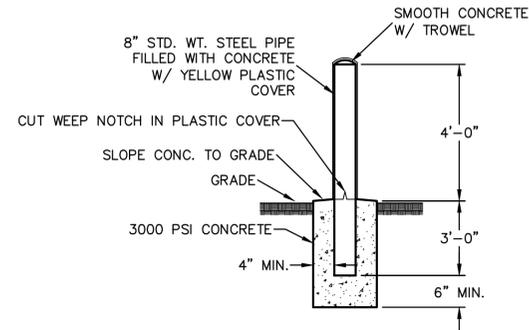
EFFLUENT FILTRATION PLAN VIEW
NOT TO SCALE



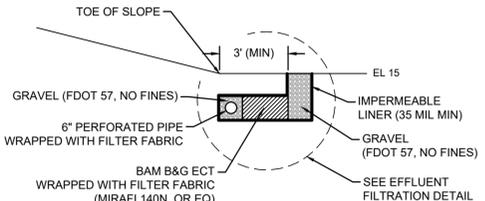
UNDERDRAIN CONNECTION TO CONTROL STRUCTURE 300
NOT TO SCALE



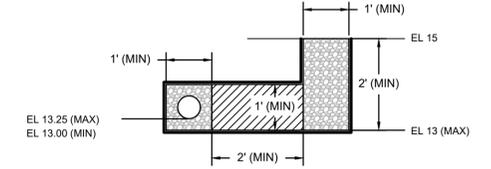
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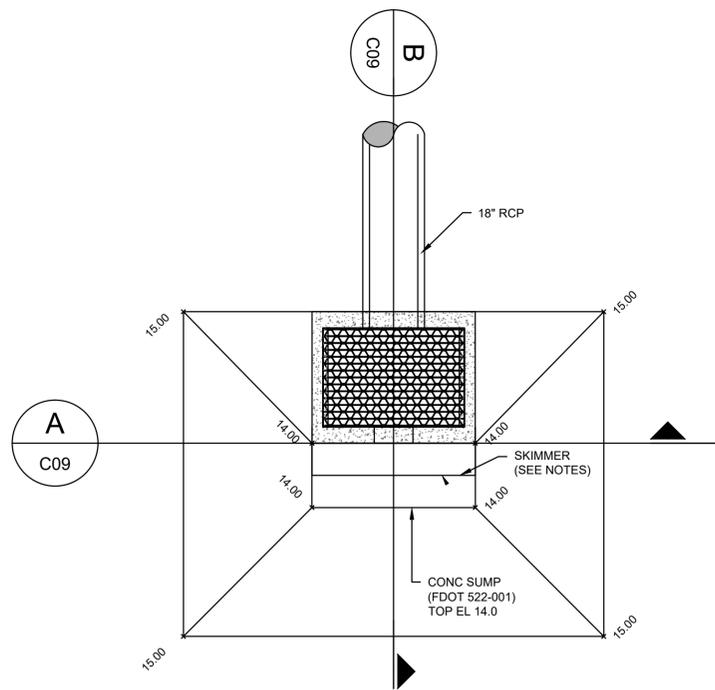
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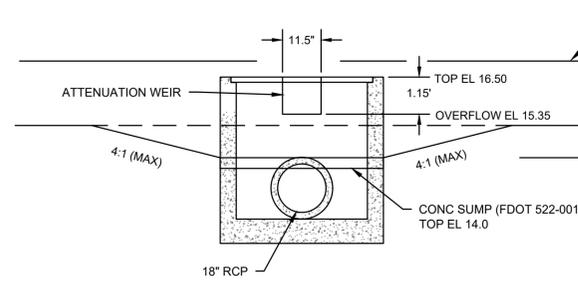
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NOT TO SCALE



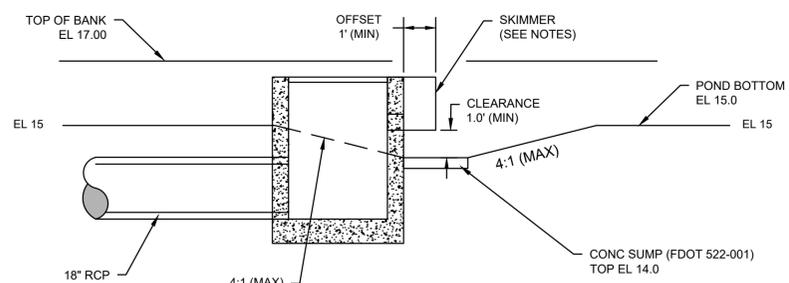
EFFLUENT FILTRATION DETAIL
NOT TO SCALE



PLAN VIEW



CONTROL STRUCTURE SECTION (A)
NOT TO SCALE



CONTROL STRUCTURE SECTION (B)
NOT TO SCALE

DETAIL "G"
CONTROL STRUCTURE 300
(FDOT 425-052, TYPE D, MOD)
NOT TO SCALE

- NOTES:
- CONTROL STRUCTURE 300 BASED ON FDOT 425-052 DITCH BOTTOM INLET, TYPE D
 - GRATES ARE STEEL
 - ATTENUATION WEIR 11.5 IN (0.9583 FT) WIDE, 1.15 FT HIGH
 - SKIMMER, ENVIRO-GLASKIMMER CHANNEL SIDE MOUNT 1.5 FT (DEEP), 5.083 FT (WIDE), 1.65 FT (BLADE HEIGHT)
SKIMMER TOP EL 16.50, SKIMMER BOT EL 14.85
MINIMUM CLEARANCE 1.0 FT, MINIMUM OFFSET 1.0 FT

I:\1024\0197\00-Drawing\0197-Civil-C_010240197_Site.dwg, 10/7/2021, 3:19:54 PM, Tracey L. Webb

REV. NO.	DESCRIPTIONS	DATE

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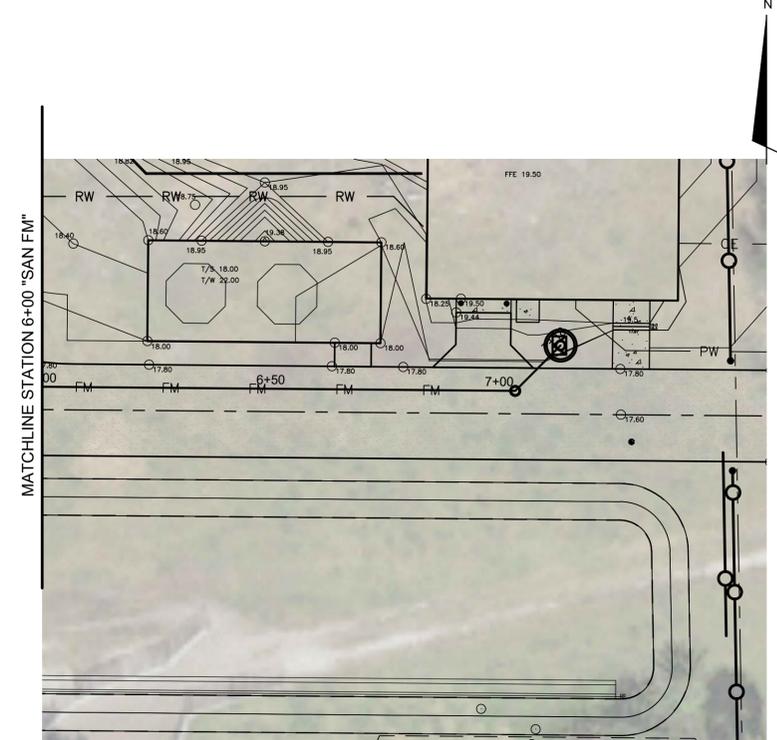
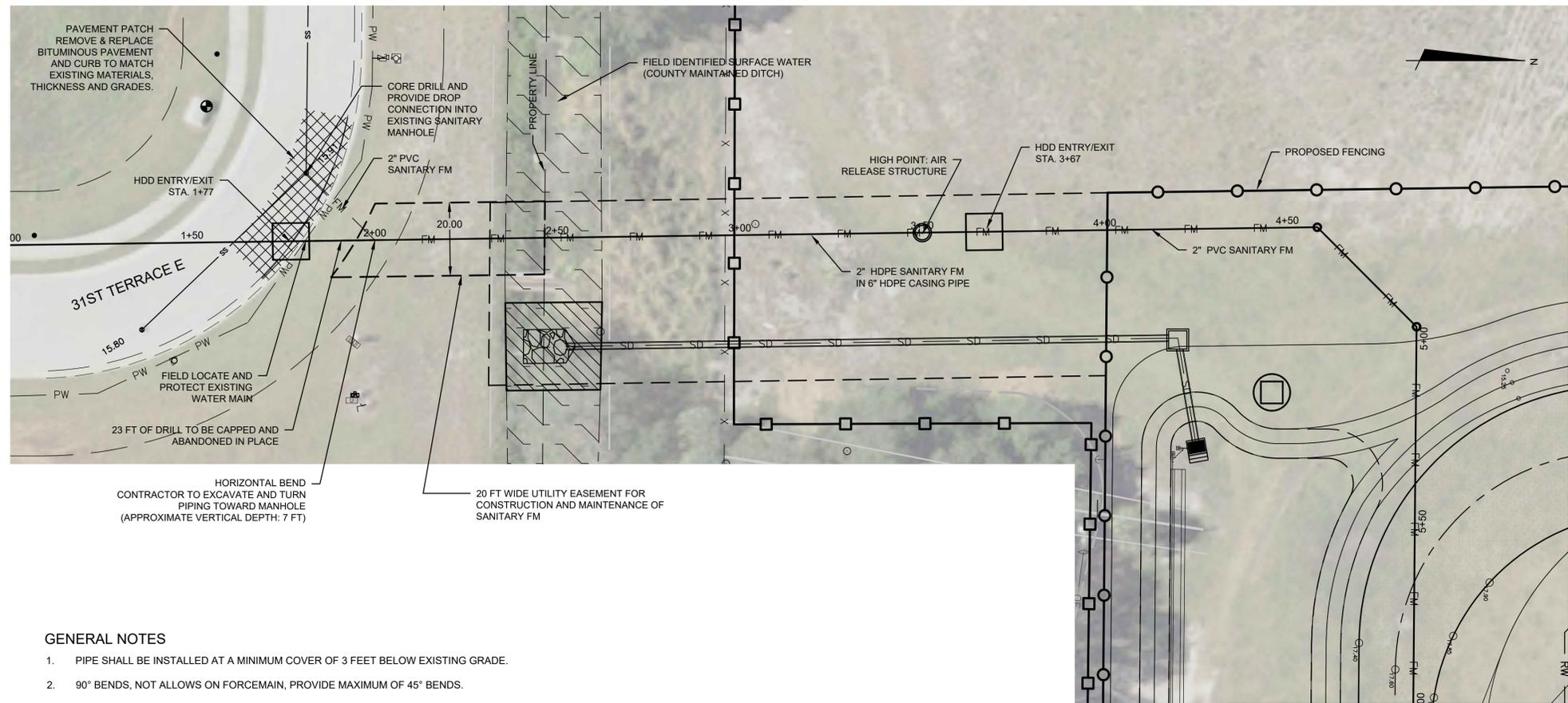
PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

CIVIL
CIVIL DETAILS

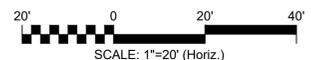
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MCE PROJ. # 1024-0197	HORIZONTAL: AS SHOWN	C08
DRAWN TLW	VERTICAL: NA	A REVISION
DESIGNED TLW		
CHECKED ASL		
PROJ. MGR. P.J.L.		

STATUS: **NOT FOR CONSTRUCTION**

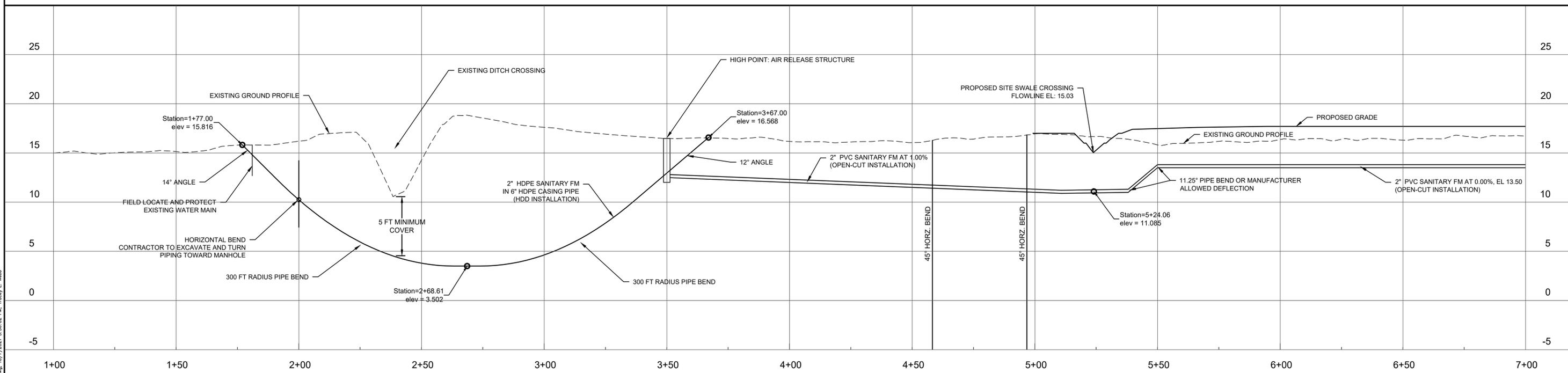
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- GENERAL NOTES**
- PIPE SHALL BE INSTALLED AT A MINIMUM COVER OF 3 FEET BELOW EXISTING GRADE.
 - 90° BENDS, NOT ALLOWED ON FORCEMAIN, PROVIDE MAXIMUM OF 45° BENDS.



MATCHLINE STATION 6+00 "SAN FM"



I:\01024\0197\00-Drawing\01024\0197_Piping.dwg, 10/7/2021, 3:36:02 PM, Tracey L. Webb

REV. NO.	DESCRIPTIONS	DATE

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

CIVIL

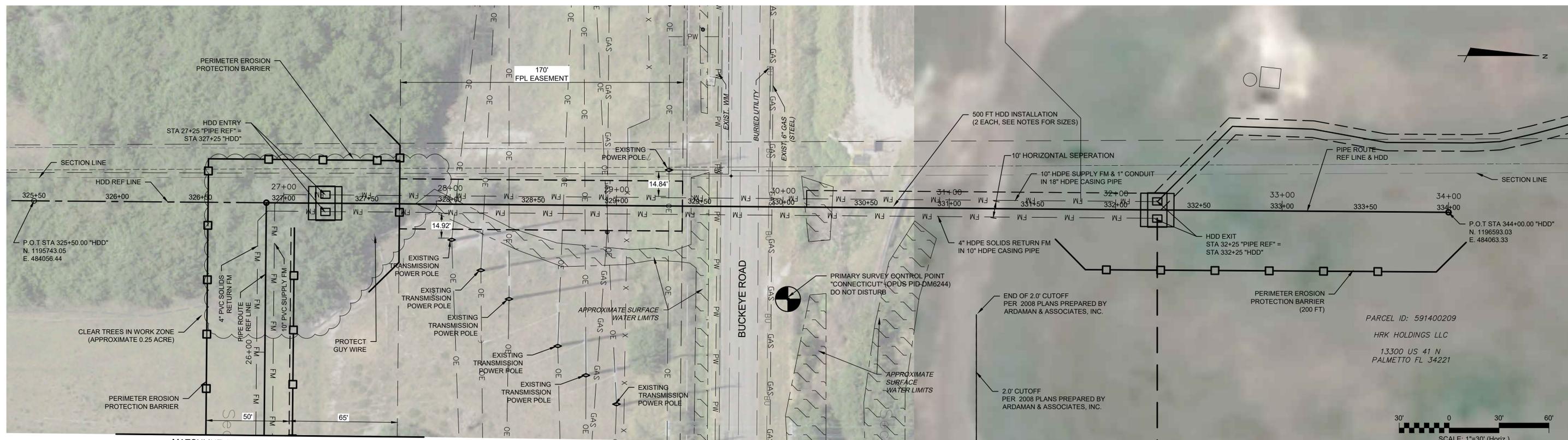
SANITARY FORCEMAIN PIPING PLAN & PROFILE

DATE:	OCTOBER 7, 2021
MCE PROJ. #	1024-0197
DRAWN	TLW
DESIGNED	TLW
CHECKED	ASL
PROJ. MGR.	PJL

SCALE	HORIZONTAL: AS SHOWN VERTICAL: NA	DRAWING NUMBER C09
REVISION		

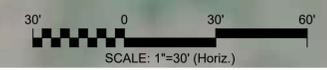
STATUS: **ISSUED FOR PERMITTING NOT FOR CONSTRUCTION**

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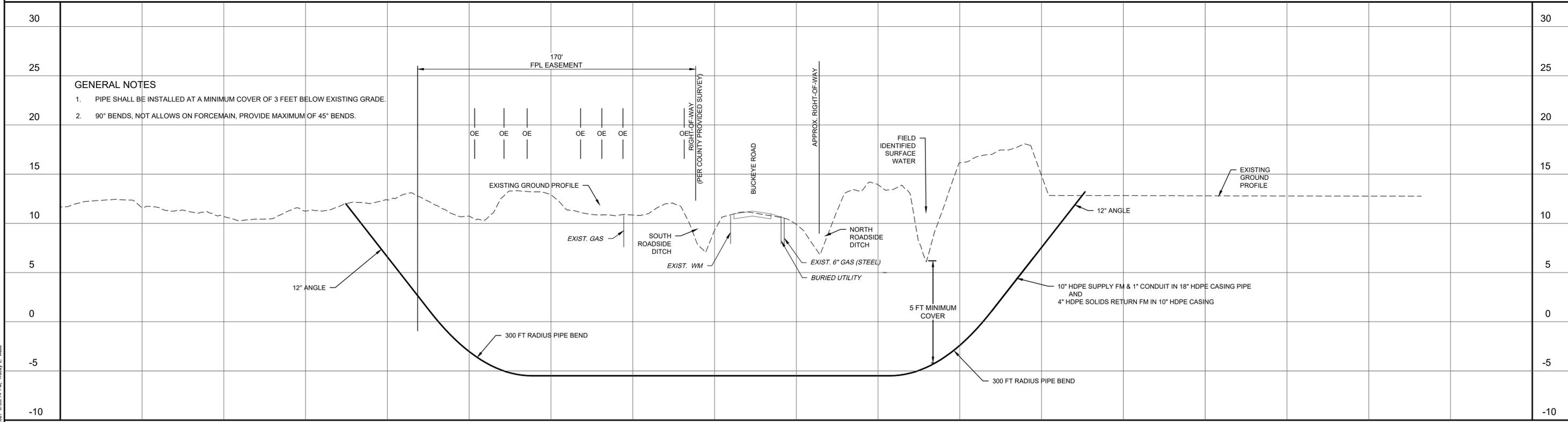


MATCHLINE STA 25+50 "PIPE ROUTE CL"
SEE SHEET C04 FOR CONTINUATION

PARCEL ID: 591400209
HRK HOLDINGS LLC
13300 US 41 N
PALMETTO FL 34221



- GENERAL NOTES**
- PIPE SHALL BE INSTALLED AT A MINIMUM COVER OF 3 FEET BELOW EXISTING GRADE.
 - 90° BENDS, NOT ALLOWED ON FORCEMAIN, PROVIDE MAXIMUM OF 45° BENDS.



325+50 "HDD" 326+00 "HDD" 326+50 "HDD" 327+00 "HDD" 327+50 "HDD" 328+00 328+50 329+00 329+50 330+00 330+50 331+00 331+50 332+00 332+50 333+00 "HDD" 333+50 "HDD" 334+00 "HDD" 334+50 "HDD"

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

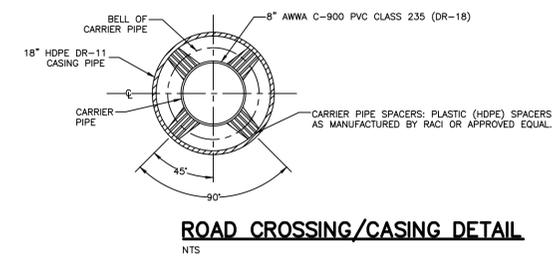
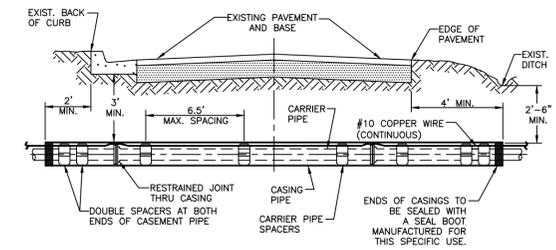
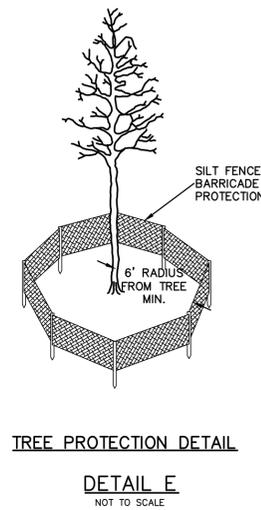
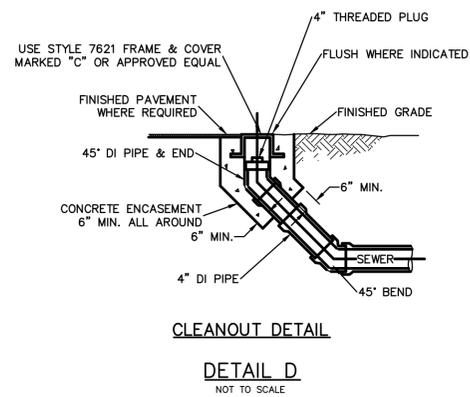
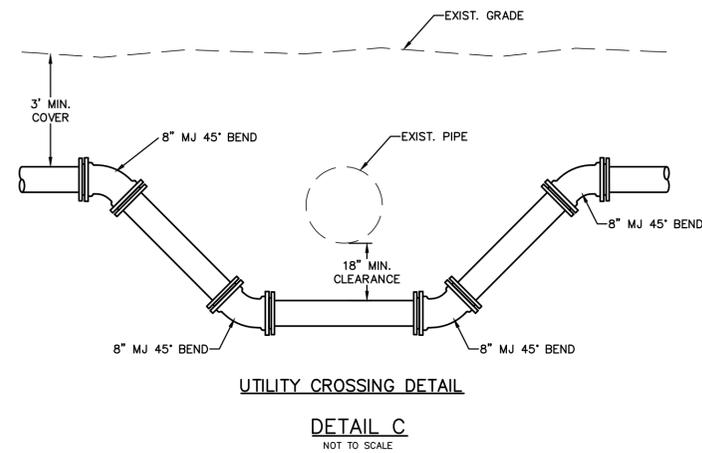
CIVIL

BUCKEYE RD HDD PIPE CROSSING PLAN & PROFILE

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: AS SHOWN	C10
DRAWN: TLW	VERTICAL: NA	A
DESIGNED: TLW		REVISION
CHECKED: ASL		
PROJ. MGR. P.J.L.		
STATUS: ISSUED FOR PERMITTING		
		NOT FOR CONSTRUCTION

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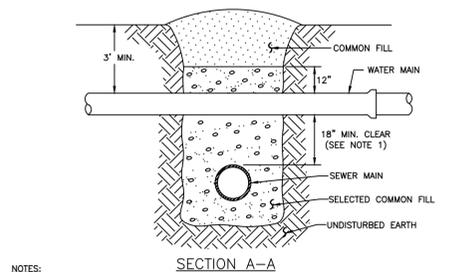
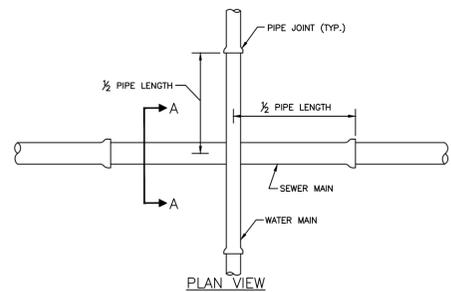
PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

CIVIL
CIVIL DETAILS

DATE:	OCTOBER 7, 2021
MCE PROJ. #	1024-0197
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CHECKED	ASL
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SCALE	HORIZONTAL: AS SHOWN VERTICAL: NA	DRAWING NUMBER	C11 A REVISION
STATUS:		FINAL SITE PLAN	

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NOTES:
 1. CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10" EACH SIDE OF CROSSING.
 2. WHERE NO ENCASEMENT IS REQUIRED, PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY SO THAT THE CROSSING IS AT EACH PIPE SECTION'S MIDPOINT REGARDLESS OF THE VERTICAL CLEARANCE.
 3. REFER TO THE JACK & BORE CROSSING DETAIL FOR CASING AND SPACER REQUIREMENTS.

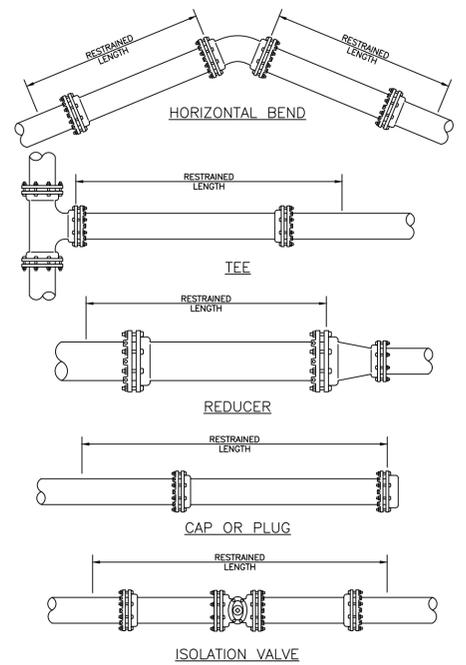
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES
		SIZE	LENGTH	SIZE	LENGTH	
36	142	59	28	X36	X36	453
30	124	51	25	X30	X30	391
24	106	44	21	X24	X24	327
20	92	38	18	X20	X20	280
16	77	32	15	X16	X16	231
12	61	25	12	X12	X12	181
10	52	22	10	X10	X10	153
8	44	18	9	X8	X8	128
6	34	14	7	X6	X6	98
4	24	10	5	X4	X4	69

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

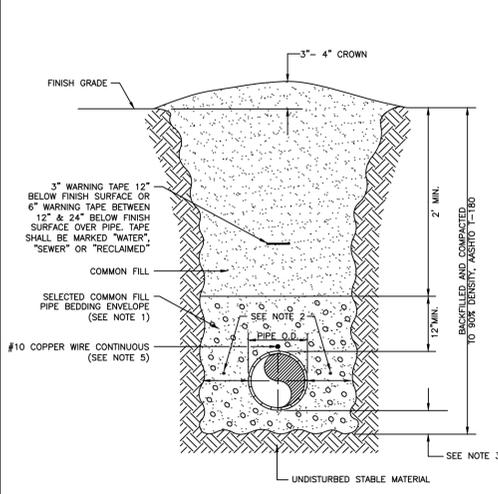
MAIN PIPE SIZE	HORIZ. BENDS	TEES		REDUCERS		PLUGS & VALVES
		SIZE	LENGTH	SIZE	LENGTH	
36	100	42	20	X36	X36	188
30	88	37	18	X30	X30	162
24	75	31	15	X24	X24	135
20	65	27	13	X20	X20	116
16	54	22	11	X16	X16	96
12	43	18	8	X12	X12	75
10	37	15	7	X10	X10	63
8	30	13	6	X8	X8	53
6	24	10	5	X6	X6	41
4	17	7	3	X4	X4	29

NOTE:
 SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 8 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.



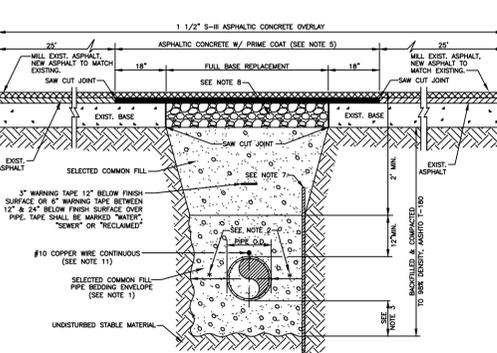
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING
 UG-10
 MAY 10, 2011
 DATE OF APPROVAL

NOTES:
 1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 3. TYPICALLY 4" TO 6".
 4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 5. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



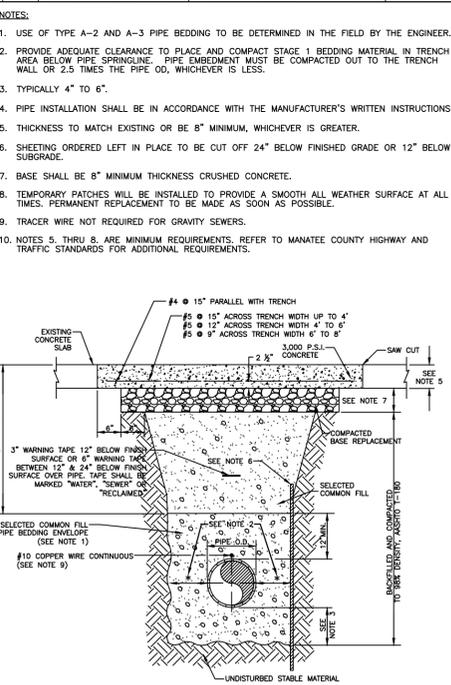
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING
 UG-11
 MAY 10, 2011
 DATE OF APPROVAL

NOTES:
 1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
 2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 3. TYPICALLY 4" TO 6".
 4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 5. ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1 1/4 INCH, WHICHEVER IS GREATER.
 6. MILL 25' BACK FROM TRENCH SAW CUT. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BELT JOINT TO EXIST ASPHALT. FINAL OVERLAY LIMITS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCREPANCY "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
 7. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
 8. BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE.
 9. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
 10. RESTORE SIGNAGE & MARKINGS WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.
 11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
 12. NOTES 5, THRU 10, ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



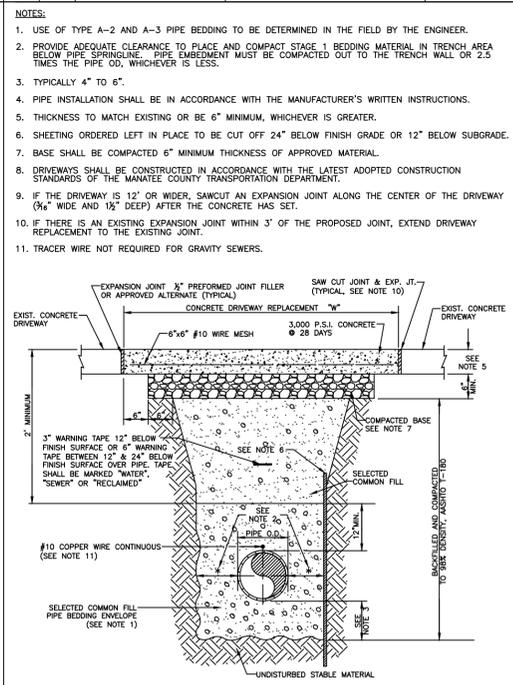
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING
 UG-12
 MAY 10, 2011
 DATE OF APPROVAL

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TYPICAL NEW WATER & SEWER LINE CROSSING
 UG-2
 MAY 10, 2011
 DATE OF APPROVAL



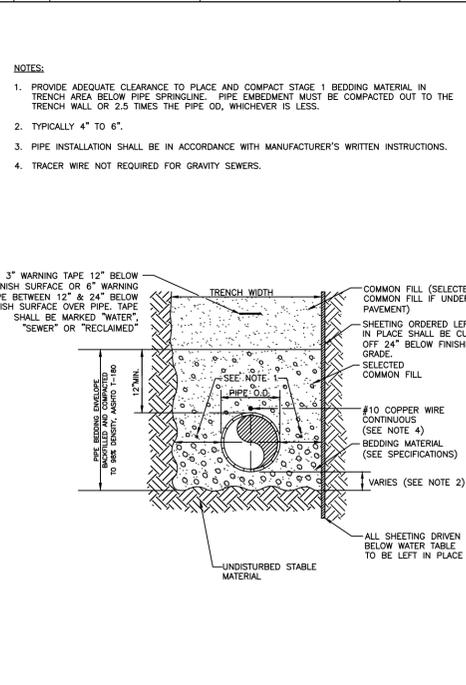
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING
 UG-13
 MAY 10, 2011
 DATE OF APPROVAL

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 RESTRAINED LENGTHS FOR DIP
 UG-9
 MAY 10, 2011
 DATE OF APPROVAL



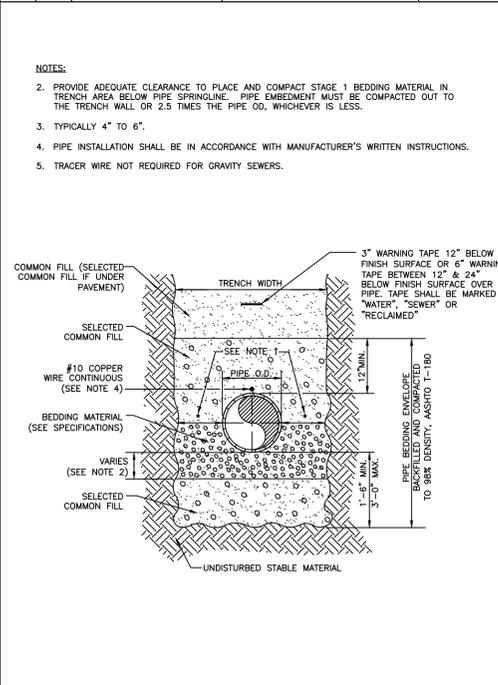
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING
 UG-14
 MAY 10, 2011
 DATE OF APPROVAL

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 RESTRAINED LENGTHS FOR PIPE
 UG-10
 MAY 10, 2011
 DATE OF APPROVAL



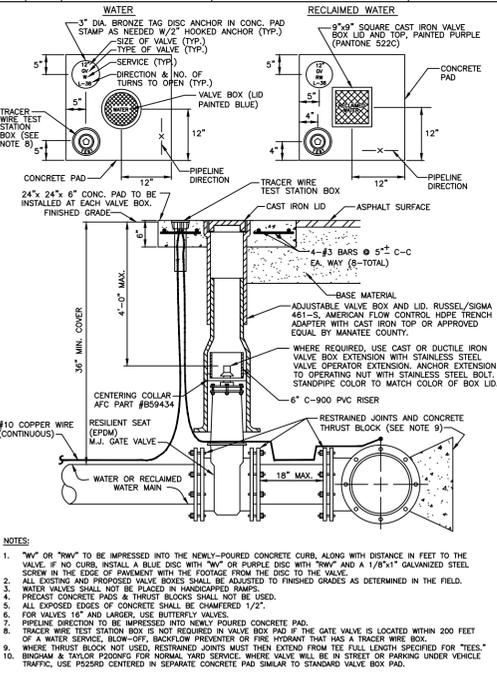
MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH TYPE A-2 PIPE BEDDING
 UG-15
 MAY 10, 2011
 DATE OF APPROVAL

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH TYPE A-1 PIPE BEDDING
 UG-11
 MAY 10, 2011
 DATE OF APPROVAL



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 TRENCH WITH TYPE A-3 PIPE BEDDING
 UG-16
 MAY 10, 2011
 DATE OF APPROVAL

MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 GATE VALVE, BOX, LID AND TAG
 UW-2
 MAY 10, 2011
 DATE OF APPROVAL



MANATEE COUNTY PUBLIC WORKS DEPARTMENT
 GATE VALVE, BOX, LID AND TAG
 UW-2
 MAY 10, 2011
 DATE OF APPROVAL

REV. NO.	DATE	DESCRIPTION	DATE

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 CA LIC No. 29588
 www.mckimcreed.com

Manatee County FLORIDA
 CIVIL
CIVIL DETAILS

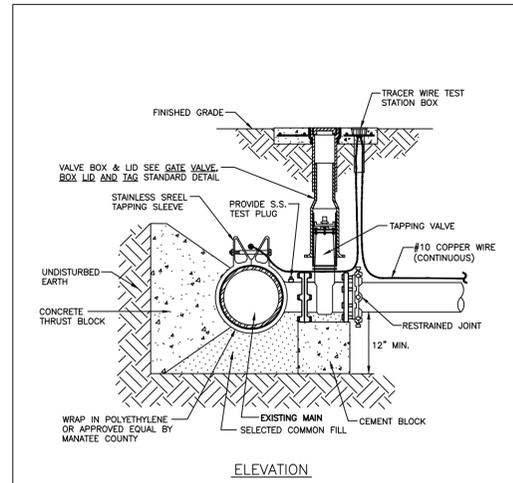
PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT
 CIVIL
CIVIL DETAILS

DATE: OCTOBER 7, 2021
 MCE PROJ. # 1024-0197
 DRAWN: TLW
 DESIGNED: TLW
 CHECKED: ASL
 PROJ. MGR.: P.J.L.

SCALE: HORIZONTAL: AS SHOWN
 VERTICAL: NA

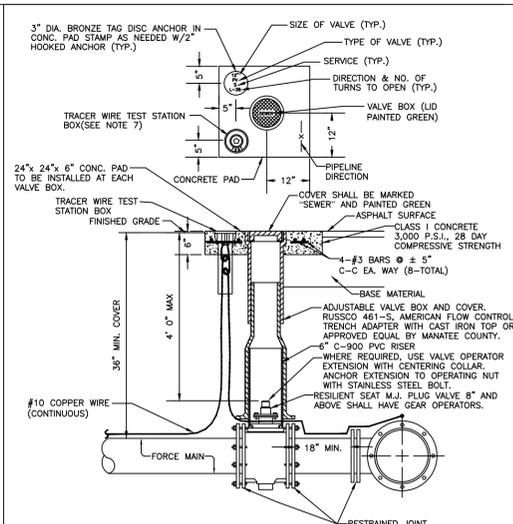
DRAWING NUMBER: **C12**
 REVISION: A

STATUS: **FINAL SITE PLAN**



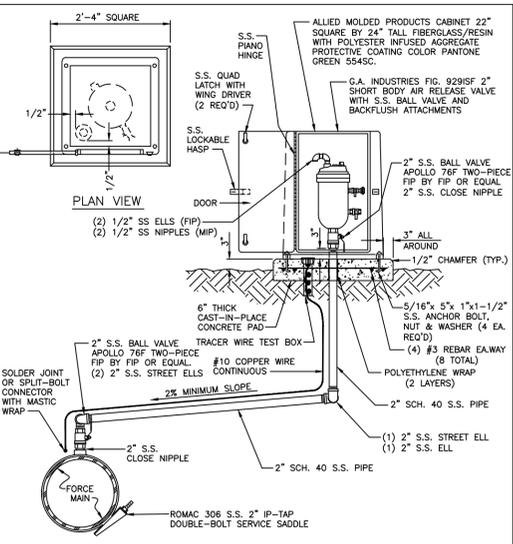
- NOTES:**
1. PRIOR TO TAPPING, CONTRACTOR TO DEMONSTRATE 60 MINUTE HYDROSTATIC TEST OF THE TAPPING SLEEVE AND VALVE WITH NO LOSS OF 180 PSI PRESSURE FOR WATER AND RECLAIMED WATER OR 150 PSI FOR FORCE MAIN.
 2. ALL FITTINGS TO BE WRAPPED WITH 20 MIL VISQUEEN AT THRUST BLOCK.
 3. ALL TAPS ON CONCRETE WATER MAINS AND LARGER THAN 12" ARE TO BE MADE BY A MANATEE COUNTY APPROVED TAPPING COMPANY. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR.
 4. ALL TAPS MUST BE OF A SMALLER SIZE THAN THE MAIN BEING TAPPED & PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP PIPE DIAMETERS (WHICHEVER IS GREATER) FROM A JOINT OR FITTING.
 5. CONTRACTOR TO SUPPLY A DRY HOLE FOR TAPPING CREW TO WORK IN AND A BACK-HOE TO LOWER TAPPING MACHINE INTO THE HOLE.
 6. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR TEES.
 7. TRACER WIRE TEST STATION BOX IS REQUIRED AT CONNECTIONS TO EXISTING MAINS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TAPPING SLEEVE AND VALVE	UW-4
REV. BY	DATE		PAGE 122
CLB/KE	11/10	MAY 10, 2011	
		DATE OF APPROVAL	



- NOTES:**
1. "SV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "SV" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE DISTANCE (FT.) FROM THE DISC TO THE VALVE.
 2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.
 3. SEWER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
 4. PRECAST CONCRETE PADS SHALL NOT BE USED.
 5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
 6. PLUG VALVES SHALL NOT BE USED AS A TAPPING VALVE. WHERE AN EXISTING FORCE MAIN IS TO BE TAPPED, USE A TAPPING GATE VALVE PER THE TAPPING SLEEVE AND VALVE DETAIL.
 7. TEST BOX TO BE BINGHAM & TAYLOR P200NFG OR EQUAL FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR UNDER VEHICLE TRAFFIC, USE P525RD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		PLUG VALVE, BOX, COVER AND TAG	US-12
REV. BY	DATE		PAGE 152
CLB/COM	11/10	MAY 10, 2011	
		DATE OF APPROVAL	



- NOTES:**
1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS, OR WHERE AIR WOULD BE ENTRAPPED, ALONG 4" AND LARGER FORCE MAINS.
 2. FORCE MAIN VERTICAL ALIGNMENT TO BE DESIGNED SUCH THAT THE MINIMUM NUMBER OF REQUIRED AIR RELEASE VALVES ARE INSTALLED.
 3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL.
 4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
 5. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
 6. AIR RELEASE VALVES TO BE IN BELOW-GRADE INSTALLATIONS UNLESS IMPRACTICAL. INSTALLATIONS MAY BE ABOVE-GROUND ONLY WHERE APPROVED AND SPECIFICALLY INDICATED ON THE PLAN.
 7. CONCRETE PAD SHALL BE TYPE 1 CONCRETE W/ 3,000 P.S.I., 28 DAY COMPRESSIVE STRENGTH.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR FORCE MAINS	US-25
REV. BY	DATE		PAGE 165
CLB/KE	11/10	MAY 10, 2011	
		DATE OF APPROVAL	

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REV. NO.	DESCRIPTIONS	DATE

SEAL

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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

CIVIL
CIVIL DETAILS

DATE:	OCTOBER 7, 2021
MCE PROJ. #	1024-0197
DRAWN	TLW
DESIGNED	TLW
CHECKED	ASL
PROJ. MGR.	PJL
STATUS:	FINAL SITE PLAN

SCALE	HORIZONTAL: AS SHOWN	VERTICAL: NA	DRAWING NUMBER C13
			A REVISION

WATERING APPLICATION RATES	
TREES AND PALMS	50 GALLONS/TREE FLOOD IRRIGATE TREE WELL.
SHRUBS	10 GALLONS/SHRUB SPRAYED OVER ENTIRE PLANTING BED.
GROUNDCOVERS / WILDFLOWERS	5 GALLONS/GROUNDCOVER SPRAYED OVER ENTIRE PLANTING BED.

WATERING SCHEDULE											
MONTH 1	MONTH 2	MONTH 3	MONTH 4	MONTH 5	MONTH 6	MONTH 7	MONTH 8	MONTH 9	MONTH 10	MONTH 11	MONTH 12
WATER 3 TIMES PER WEEK	WATER 2 TIMES PER WEEK	WATER 2 TIMES PER WEEK	WATER 1 TIME PER WEEK	WATER 1 TIME PER WEEK	WATER 1 TIME PER WEEK						

TECHNICAL MAINTENANCE PLAN FOR ESTABLISHMENT													
MAINTENANCE OPERATION	UNTIL FINAL ACCEPTANCE WEEKLY CYCLE BY CONTRACTOR												
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
MOWING 6" HEIGHT	X	X	X	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXX	X	X	CONTRACTOR TO MOW ON WEEKLY BASIS FROM APRIL TO OCTOBER (WARM SEASON) AND MONTHLY BASIS FROM NOVEMBER TO MARCH (COOL SEASON) TO CONSTRUCTION COMPLETION AND FINAL ACCEPTANCE.
WATERING	BACKFILL AND WATER-IN EACH PLANTING IN THREE LAYERS. (SEE PLANTING DETAILS.) COMPLETELY SATURATE AND COMPACT PLANTING HOLE TO COMPLETE INSTALLATION OPERATION. SET IRRIGATION TIME CLOCK OR HAND WATER UNTIL THE IRRIGATION TIME CLOCK IS FULLY FUNCTIONAL.												
WEEDING	X	X	X	X	X	X	X	X	X	X	X	X	CONTRACTOR TO WEED ALL PLANTING BEDS AND INDIVIDUAL TREE WELLS EVERY TWO WEEKS. WEEDING BY HAND AND CHEMICAL HERBICIDE GLYPHOSATE OR EQUAL, AS APPROVED AND PER THE SARASOTA COUNTY'S APPROVED LIST. APPLIED AT RATE OF 1-1/2 OZ. PER GALLON USING 15 GALLON BACKPACK SPRAYER UNDER SUPERVISION OF LICENSED OPERATOR FOR BEDS. POST ALL APPLICATIONS.
PRUNING	AS NEEDED TO REMOVE MECHANICALLY DAMAGED BRANCHES DUE TO HANDLING. MUST MAINTAIN FLORIDA GRADE #1 FORM FOR FINAL ACCEPTANCE.												
FERTILIZATION	PALMS, TREES, AND SHRUBS TO BE FERTILIZED AT PLANTING, AND AGAIN 2 TIMES PER YEAR, USING 20-10-5 ANALYSIS, SLOW-RELEASE FERTILIZER (OR EQUAL) TABLETS. TABLETS TO BE UNIFORMLY PLACED AROUND ROOT BALL AT THE TOP OF FIRST LAYER OF PREPARED BACKFILL. SEE TABLE FOR TABLET SIZE AND APPLICATION RATE.												
GENERAL	CONTRACTOR TO RESTORE SAUCERS ONCE A MONTH. TREES OR PALMS TO BE RESET TO VERTICAL PLUMB AS NECESSARY. SUBMIT REPORTS BIWEEKLY RECORDING ALL MAINTENANCE TO THE PROJECT MANAGER AND LANDSCAPE ARCHITECT.												
IRRIGATION	NONE. HAND WATERING PER THE ATTACHED WATERING SCHEDULE FOR 12 MONTHS AFTER INSTALLATION.												
EDGING			X						X				EDGE ALL BEDS ONCE BEFORE TURNOVER.
MULCH 3" DEPTH MELALEUCA	MULCH IMMEDIATELY ON EACH PLANTING. AFTER WATERING-IN EACH PLANT.												

NOTE: THIS TECHNICAL MAINTENANCE IS REQUIRED TO BE COMPLETED FOR ONE YEAR AFTER FINAL ACCEPTANCE.

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REVNO.	DESCRIPTIONS	DATE

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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT
TECHNICAL MAINTENANCE PLAN

DATE: Sept. 01, 2021
MCE PROJ. # 2021-58
DRAWN PJS
DESIGNED PJS
CHECKED PJS
PROJ. MGR. PJS

SCALE
HORIZONTAL: 1"=30'
VERTICAL: NA

M&C FILE NUMBER
DRAWING NUMBER
L-03
REVISION
A

STATUS:
NOT FOR PERMITTING
CONSTRUCTION

DIVISION 2 - SITE WORK
SECTION 0221
FINISH GRADING

- I. GENERAL
1. SCOPE
- FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO SHAPE, MOLD, AND FINISH GRADE ALL FEATURES OF THE PROJECT.
 - INCLUDE ALL KILLING REMOVAL OF VEGETATIVE GROWTH AND HAND WORK NECESSARY TO ESTABLISH FINISH GRADE INCLUDING UNDER ANY EXISTING TREES.
 - KILL AND ELIMINATE ANY AND ALL UNWANTED VEGETATIVE GROWTH FROM TOPSOIL AND SUBSOIL BY APPROVED MEANS, AND BEFORE PLANTING.
 - CONSTRUCT BERMS TO ELEVATIONS SHOWN, AND PERFORM ALL GRADING, INCLUDING ROUGH GRADING (2" +/-) BEFORE IRRIGATION INSTALLATION, AND FINISHED GRADING PRIOR TO PLANTING.
 - LIGHTLY SCARIFY TOPSOIL INTO SURFACE OF SUBGRADE. REMOVE EXTRANEIOUS MATTER MEASURING ONE INCH (1") OR LARGER IN ANY DIMENSION.
 - MATERIAL SHALL INCLUDE FILL AND TOPSOIL APPROPRIATELY THROUGHOUT THE PROJECT.

- II. EXECUTION
- BERMS AND GRADED AREAS
 - ALL BERMS AND GRADED AREAS SHALL BE BUILT IN ACCORDANCE WITH THE SITE DEVELOPMENT PLANS AND DETAILS. FINISH GRADING OPERATIONS SHALL BRING ALL BERMS AND GRADED AREAS TO A FINAL GRADE POSITION SO AS NOT TO INHIBIT POSITIVE DRAINAGE.
 - THE SITE DEVELOPMENT PLANS SHOW EARTH BERM LOCATIONS. THE CONTRACTOR SHALL SUPPLY SUFFICIENT SECOND CUT CLEAN FILL MATERIAL TO PROVIDE A FINISH GRADE AS REPRESENTED ON THE PLANS. QUANTITIES OF SOIL GIVEN REPRESENT APPROXIMATE FINISH VOLUMES COMPACTED IN PLACE. BERMS SHALL BE SO SHAPED THAT THEIR LINES AND SLOPES WILL BLEND WITH THE SURROUNDING CONTOURS. THE MOUNDS AND VALLEYS OF THE BERMS SHALL BE SCULPTURED INTO SMOOTH UNDULATING SHAPES WITHOUT "BIRD-BATHS"
 - IN ORDER TO DEVELOP AESTHETICALLY PLEASING BERMS, THE ARCHITECT RESERVES THE RIGHT TO MAKE MINOR ADJUSTMENTS IN SHAPE AND CONTOURING AT ANY TIME DURING CONSTRUCTION. FINISH GRADING OF BERMS SHALL BE DONE BY A WHEEL TRACTOR AND SHALL INVOLVE THE PUSHING AND BACK-BLADING OF SMALL AMOUNTS OF MATERIAL IN A REPETITIVE OPERATION.
 - UNIFORMLY FINE GRADE AREAS WITHIN GRADING LIMITS INCLUDING TRANSITION AREAS, SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCE (MINIMUM 3% SLOPE), COMPACT WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES.
 - OBTAIN APPROVAL OF FINISHED GRADES BEFORE PROCEEDING WITH IRRIGATION, GRASSING AND PLANTING OPERATIONS. ELIMINATE IRREGULARITIES AND PONDING. LEAVE GRADE 1 1/2" BELOW CURB OR WALK.
 - IF PLANTING AND MULCHING IS NOT COMMENCED IMMEDIATELY, PROTECT STOCKPILED OR SPREAD TOPSOIL FROM EROSION BY FORCE OR WIND. WATER, OR OTHER FORCE, RE-ESTABLISH ERODED, RUTTED, OR SETTLED GRADES TO PROPER FINISHED GRADE.
 - LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR REPAIRING, RE-GRADING, AND RE-SEEDING ANY AREAS COMPLETED BY THE GENERAL CONTRACTOR WHICH ARE DISTURBED BY THE WORK OF THIS CONTRACT.
 - THE TILLED AREAS SHALL BE SETTLED, FINE GRADED, AND RAKED TO MEET APPROVED FINISHED GRADE. COARSE SOIL LUMPS, ROCKS, ROOTS, WEEDS AND DEBRIS NOT PASSING THROUGH A HAND RAKE SHALL BE REMOVED FROM THE SURFACE. THE SURFACE SHALL BE SMOOTH, FIRM, AND OF FINE TEXTURE IMMEDIATELY BEFORE SODDING.

- III. INSPECTION AND APPROVAL
- INSPECTION
 - ALL FINISH GRADING OPERATIONS SHALL BE SUBJECT TO REGULAR INSPECTIONS BY THE ARCHITECT. BECAUSE THE CONTOURING OF THE PROJECT IS ESSENTIAL TO AN AESTHETICALLY PLEASING DEVELOPMENT THE ARCHITECT MAY MAKE MINOR ALTERATIONS DURING THE FINISH GRADING OPERATIONS.
 - APPROVAL
 - ALL FINISH GRADING OPERATIONS SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT PRIOR TO BEGINNING THE INSTALLATION OF THE IRRIGATION SYSTEM. POSITIVE DRAINAGE IS A FUNCTION OF FINISH GRADING AND WILL BE GUARANTEED BY THE CONTRACTOR. FOLLOWING THE INSTALLATION AND BACKFILLING OF THE IRRIGATION SYSTEM A DRAINAGE CHECK MAY BE CONDUCTED BY NATURAL OR MAN MADE CIRCUMSTANCES. ANY POSITIVE DRAINAGE FAULTS WILL BE CORRECTED AND A NEW FINISH GRADE ESTABLISHED.
- END SECTION 2-0221

DIVISION 2 - SITE WORK
SECTION 0270
LANDSCAPE - GENERAL

- I. SCOPE
- THE WORK EMBRACED UNDER THIS CONTRACT INCLUDES SUPPLYING AND PLACING OF ALL MATERIALS AS LISTED IN THE SPECIFICATIONS AND ON THE PLANS IN ACCORDANCE WITH SOUND INDUSTRY PRACTICE. ALL LABOR, EQUIPMENT, TOOLS, PLANT MATERIAL AND MISCELLANEOUS ITEMS CALLED FOR HEREIN OR REQUIRED FOR SATISFACTORY COMPLETION OF THE WORK, SHALL BE FURNISHED AND INSTALLED BY THE CERTIFIED LANDSCAPE CONTRACTOR OR LICENSED IRRIGATION SUBCONTRACTOR.
 - CONTRACTORS SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY LICENSES AND PERMITS, AND SHALL COMPLY IN ALL WAYS WITH FEDERAL, STATE AND LOCAL CODES.
- II. INVESTIGATION OF SITE:
- ALL BIDDERS SHALL PERSONALLY EXAMINE THE SITE AND FULLY ACQUAINT THEMSELVES WITH ALL EXISTING CONDITIONS IN ORDER THAT NO MISUNDERSTANDING MAY ARISE AS TO THE CHARACTER OR AS TO THE EXTENT OF THE WORK TO BE DONE, AND LIKEWISE, IN ORDER TO ADVISE AND ACQUAINT THEMSELVES WITH ALL PRECAUTIONS TO BE TAKEN IN ORDER TO AVOID INJURY TO PERSONS AND PROPERTY.
 - THE CONTRACTOR SHALL DETERMINE BY SITE INVESTIGATION ANY NECESSARY WORK NOT SPECIFICALLY CALLED FOR, BUT, NECESSARY TO SATISFACTORILY COMPLETE THE WORK. NO ADDITIONAL COMPENSATION WILL BE GRANTED BECAUSE OF ANY DIFFICULTIES WHICH MAY BE ENCOUNTERED ON THE SITE IN THE EXECUTION OR MAINTENANCE OF ANY PORTION OF THE WORK IF NOT IDENTIFIED AT THIS TIME.
 - ANY DAMAGES TO UNDERGROUND OR ABOVE GROUND UTILITIES OR TO ANY PROPERTY OF THE OWNER OR OTHER CONTRACTOR SHALL BE REPAIRED OR REPLACED IMMEDIATELY AT THE RESPONSIBLE CONTRACTOR'S EXPENSE.
 - ANY DAMAGE CAUSED TO UNDERGROUND INSTALLATIONS OF ANOTHER CONTRACTOR SHALL BE BACK CHARGED TO THAT CONTRACTOR IF SUCH INSTALLATIONS ARE NOT LOCATED IN ACCORDANCE WITH PLANS.
- III. QUALIFICATIONS:
- ALL LANDSCAPE AND IRRIGATION CONTRACTORS WISHING TO BID THE PROJECT SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE SPECIALIZING IN THIS TYPE OF WORK IN THIS LOCATION AND HAVE ALL APPLICABLE LICENSES.
 - INDIVIDUALS OR CORPORATIONS NOT ABLE TO MEET THIS REQUIREMENT MAY SUBMIT THEIR QUALIFICATIONS TO THE LANDSCAPE ARCHITECT DURING THE BIDDING PERIOD FOR REVIEW AND POSSIBLE QUALIFICATION.
- IV. PERFORMANCE STANDARDS:
- ALL WORK SHALL BE PERFORMED BY COMPETENT AND SKILLED CRAFTSMEN. LABOR CREWS SHALL BE UNDER THE DIRECT CONTROL OF A SINGLE FOREMAN DESIGNATED AT THE BEGINNING OF THE WORK AND SKILLED IN READING BLUEPRINTS AND COORDINATION BETWEEN OFFICE AND JOB. WHILE LABOR CREWS MAY CHANGE, THE SAME FOREMAN WILL BE IN CHARGE THROUGHOUT THE JOB. CONTRACTOR SHALL REVIEW PLANS THROUGHOUT THE JOB. CONTRACTOR SHALL REVIEW PLANS AND SPECIFICATIONS WITH THE JOB FOREMAN TO INSURE COMPLETE UNDERSTANDING OF THE PROJECT.
 - TOOLS SHALL NOT BE LEFT ON THE JOB SITE IN AN UNSAFE OR UNPROTECTED CONDITION.
 - ALL OPEN EXCAVATIONS SHALL BE PROPERLY BARRICADED AND LIGHTED AT NIGHT.
 - THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL, SOIL, AND/OR RUBBISH CAUSED BY HIS EMPLOYEES OR WORK. THE CONTRACTOR SHALL CLEAN BEHIND HIS WORK IMMEDIATELY AND SHALL TAKE NECESSARY PRECAUTIONS TO KEEP CONCRETE, BRICK AND OTHER PAVING MATERIAL CLEAN OF SOIL. THIS SHALL INCLUDE THE USE OF DROP-CLOTHS, ETC. DAMAGE TO GRADES OR LAWNS SHALL BE REPAIRED IMMEDIATELY AND ALL DEBRIS AND EXCESS SOIL REMOVED BY RAKING.
 - ALL STAKING AND LAYOUT OF PHYSICAL FEATURES SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE CONSTRUCTION OR PLANTING IS STARTED. THE SAME SHALL APPLY TO THE ESTABLISHMENT OF PROPER GRADES AND LEVELS. ALL PLANTING BEDS SHALL BE ACCURATELY STAKED, SPRAYED OR FLAGGED IN ACCORDANCE WITH THE PLANS. CHANGES NECESSITATED BY BUILDING CHANGES, ETC., SHALL BE IN KEEPING WITH THE OVERALL CONCEPTS OF THE DESIGN. ANY BEDS DEVELOPED WITHOUT THE APPROVAL OF THE ARCHITECT SHALL, IF THEY DO NOT ACCURATELY REPRESENT THE PLAN AND/OR THE DESIGN CONCEPT, BE REDEVELOPED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
 - MATERIAL SUCH AS GROUND COVERS, MULCH OR GRAVEL SHALL BE SPREAD IN THE SPECIFIED QUANTITY TO COVER THE AREA DESIGNED. NO ADDITIONAL MATERIALS SHALL BE USED IN SUCH AREAS WITHOUT THE APPROVAL OF THE ARCHITECT AND/OR OWNER.
 - THE CONTRACTOR SHALL IN GOOD WORKMANLIKE MANNER, DO AND PERFORM ALL WORK AND FURNISH ALL SUPPLIES AND MATERIALS, MACHINERY, EQUIPMENT, FACILITIES AND MEANS, EXCEPT AS OTHERWISE EXPRESSLY SPECIFIED HEREIN, NECESSARY OR PROPER TO PERFORM AND COMPLETE ALL THE WORK REQUIRED BY THIS CONTRACT, WITHIN THE TIME SPECIFIED HEREIN, IN ACCORDANCE WITH THE PROVISIONS OF THIS CONTRACT AND SAID SPECIFICATIONS AND IN ACCORDANCE WITH THE PLANS, AND IN ACCORDANCE WITH THE DIRECTIONS OF THE ARCHITECT AS GIVEN FROM TIME TO TIME DURING THE PROGRESS OF THE WORK.

- END OF SECTION 2-0270

DIVISION 2 - SITE WORK
SECTION 0280
LANDSCAPE DEVELOPMENT

- I. GENERAL
- STAKING AND LAYOUT: ALL STAKING AND LAYOUT OF PHYSICAL FEATURES SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE CONSTRUCTION OF PLANTING IS STARTED. THE SAME SHALL APPLY TO THE ESTABLISHMENT OF PROPER GRADES AND LEVELS. ALL PLANTING BEDS SHALL BE ACCURATELY STAKED, SPRAYED OR FLAGGED IN ACCORDANCE WITH THE PLANS. CHANGES NECESSITATED BY BUILDING CHANGES, ETC., SHALL BE IN KEEPING WITH THE OVERALL CONCEPTS OF THE DESIGN. ANY BEDS DEVELOPED WITHOUT THE APPROVAL OF THE ARCHITECT SHALL, IF THEY DO NOT ACCURATELY REPRESENT THE PLAN AND/OR THE DESIGN CONCEPT, BE REDEVELOPED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
 - COMMENCEMENT OF WORK: WORK UNDER THIS CONTRACT SHALL COMMENCE NOT LESS THAN TEN (10) DAYS AFTER NOTICE TO PROCEED AND SHALL BE COMPLETE IN AN ORDERLY BUSINESS LIKE FASHION. ONCE WORK IS BEGUN IT SHALL CONTINUE ON CONSECUTIVE WORKING DAYS UNTIL WORK IS COMPLETED. SUNDAYS, SATURDAYS, HOLIDAYS AND STOPPAGES DUE TO FOU WEATHER OR DELAYS CAUSED BY THE OWNER OR BUILDING CONTRACTOR SHALL BE EXCLUDED. UNNECESSARY DELAYS IN WORK MAY RESULT IN FORFEITURE OF PERFORMANCE BOND WHEN REQUIRED. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO IMMEDIATELY NOTIFY THE LANDSCAPE ARCHITECT IN WRITING, OF ANY STOPPAGES IN WORK DUE TO CIRCUMSTANCES BEYOND HIS CONTROL AND TO STATE THE TIME DURATION OF SUCH STOPPAGE.
 - MAINTENANCE: THE CONTRACTOR IS ENTIRELY RESPONSIBLE FOR THE WORK UNTIL FINAL ACCEPTANCE. ONCE MATERIAL IS PLANTED, IT SHALL RECEIVE WATER EACH DAY FROM TIME OF PLANTING UNTIL FINAL INSPECTION. NOT TO INCLUDE SUNDAYS. WATERING SHALL BE DONE IN ACCORDANCE WITH SOUND NURSERY PRACTICE. WATER SHALL BE SUPPLIED BY THE OWNER, HOSES, ETC. BY THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED FOR SPECIFIC JOB CONDITIONS. MAINTENANCE OF TURF AREAS SHALL ALSO INCLUDE MOWING TO MAINTAIN A HEALTHY CONDITION AND FOR AESTHETIC PURPOSES.
 - COORDINATION OF WORK: THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETE COORDINATION OF PLANTING OPERATIONS WITH THE OTHER CONTRACTORS ON THE JOB. REPAIR OF DAMAGE TO PLANTS, GRADES, LAWNS, ETC., DURING INSTALLATION SHALL NOT BE CONSIDERED AS AN EXTRA, AND SHALL NOT BE CHARGEABLE TO THE OWNER. DAMAGE CAUSED BY OTHER CONTRACTORS WILL BE THE RESPONSIBILITY OF SAID CONTRACTORS.
 - RIGHT TO REJECT: THE OWNER SHALL HAVE THE RIGHT, AT ANY STAGE OF THE WORK, TO REJECT ANY AND ALL WORK AND MATERIALS WHICH, IN HIS OPINION, MAY NOT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS. REJECTED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND ACCEPTABLE MATERIAL SUBSTITUTED IN ITS PLACE.
 - UNDERGROUND DEBRIS: SHOULD ANY OBJECTIONABLE MATERIAL SUCH AS CONCRETE, BRICKS, ROOTS OR OTHER DEBRIS ENCOUNTERED DURING LANDSCAPE INSTALLATION, THEY SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR. ALL OPEN EXCAVATIONS SHALL BE PROPERLY BARRICADED, AND LIGHTED AT NIGHT.
 - ALL PLANT MATERIAL FURNISHED BY THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED, SHALL BE FLORIDA #1 OR BETTER IN ACCORDANCE WITH GRADES AND STANDARDS FOR NURSERY PLANTS, STATE PLANT BOARD OF FLORIDA. THE LANDSCAPE ARCHITECT RESERVES ALL RIGHTS TO DETERMINE ACCEPTABILITY OF PLANT MATERIAL SUBMITTED FOR PLANTING.
 - SUBSTITUTIONS WILL BE PERMITTED ONLY UPON SUBMISSION OF SUFFICIENT PROOF THAT ANY PLANT IS NOT OBTAINABLE AND UPON AUTHORIZATION OF THE LANDSCAPE ARCHITECT. UNDER NO CIRCUMSTANCES SHALL UNAUTHORIZED SUBSTITUTIONS BE INCLUDED IN THE BID PROPOSAL AND BREAKDOWN.
 - CLEAN-UP: THE CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL, SOIL, AND/OR RUBBISH CAUSED BY HIS EMPLOYEES OR WORK. CONTRACTOR SHALL CLEAN BEHIND HIS WORK IMMEDIATELY AND SHALL TAKE NECESSARY PRECAUTIONS TO KEEP CONCRETE, BRICK AND OTHER PAVING MATERIAL CLEAN OF SOIL. THIS SHALL INCLUDE THE USE OF DROP-CLOTHS, ETC. DAMAGE TO GRADES OR LAWNS SHALL BE REPAIRED IMMEDIATELY AND ALL DEBRIS AND EXCESS SOIL REMOVED. SHOULD THE CONTRACTOR FAIL TO KEEP THE PREMISES IN A CLEAN SATISFACTORY CONDITION, THE OWNER RESERVES THE RIGHT TO HIRE APPROPRIATE PERSONNEL TO PERFORM CLEAN-UP WORK AND BACK CHARGE THE CONTRACTOR FOR ALL COSTS INCURRED.
 - ABBREVIATIONS:

c.w.	CLEAR WOOD
c.t.	CLEAR TRUNK
CL. (S)	CLUMP (S)
DBL.	DOUBLE
O.A.	OVER ALL (HEIGHT & WIDTH THE SAME)
O.A.H	OVER ALL HEIGHT
s.p.r.	SPREAD
stms.	STEMS
STG. HTS.	STAGGERED HEIGHTS
HD. (S)	HEAD (S)
std.	STANDARD
f.o.w.	FAN ON WALL *
f.o.f.	FAN ON FENCE *
k.s.	TRUNKS
esp.	ESPALIER
r.c.	ROOTED CUTTINGS
u.r.c.	UN-ROOTED CUTTINGS
o.c.	ON CENTER

- * NOTE: (F.O.W. & F.O.F) FAN ON WALL AND FAN ON FENCE SHALL MEAN PROVIDING ALL NECESSARY HOOKS, MASONRY PLUGS, ETC., AND TYING AS REQUIRED TO BEGIN ESPALIER OF PLANTS SPECIFIED.
- COMPLETION AND ACCEPTANCE:
 - COMPLETION OF THE WORK SHALL MEAN THE FULL AND EXACT COMPLIANCE AND CONFORMITY WITH THE PROVISIONS EXPRESSED OR IMPLIED IN THE DRAWINGS AND SPECIFICATIONS, AND ASSOCIATED CHANGE ORDER AS APPROVED BY THE LANDSCAPE ARCHITECT.
 - FINAL INSPECTION SHALL BE MADE BY THE LANDSCAPE ARCHITECT AT THE REQUEST OF THE CONTRACTOR, AND SHALL BE PRIOR TO FINAL REQUEST FOR PAYMENT. ALL REQUIREMENTS OF THE SPECIFICATIONS SHALL APPLY UNTIL FINAL ACCEPTANCE OF THE WORK BY THE OWNER OR HIS REPRESENTATIVE.
 - THE ACCEPTABILITY OF ALL MATERIAL, WORKMANSHIP, LABOR AND COMPLIANCE WITH THE SPECIFICATIONS, GRADES AND LEVELS, SHALL BE DETERMINED BY THE LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT WILL PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR AND OWNER OF ANY MATERIAL AND/OR WORKMANSHIP THAT IS BELIEVED TO BE AT A LEVEL OF QUALITY AND/OR PERFORMANCE BELOW THAT WHICH WAS SPECIFIED WITHIN THE CONTRACT DOCUMENTS.
 - GENERAL WARRANTY: NEITHER THE FINAL CERTIFICATE OF PAYMENT NOR ANY PROVISION OF THE CONTRACT DOCUMENTS NOR PARTIAL OR ENTIRE OCCUPANCY OF THE PREMISES BY THE OWNER SHALL CONSTITUTE AN ACCEPTANCE OF WORK NOT DONE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS OR RELIEVE THE CONTRACTOR OF LIABILITY IN RESPECT TO ANY EXPRESS WARRANTIES OR RESPONSIBILITY FOR FAULTY MATERIAL AND/OR WORKMANSHIP. THE CONTRACTOR SHALL REMEDY ANY DEFECTS IN THE WORK AND PAY FOR ANY DAMAGE TO OTHER WORK RESULTING THEREFROM WHICH SHALL APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK UNLESS A LONGER PERIOD IS SPECIFIED. THE GUARANTY PERIOD SHALL COMMENCE AT SUCH TIME AS THE LANDSCAPE ARCHITECT CERTIFIES THAT THE PROJECT HAS BEEN COMPLETED IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. IN CERTAIN INSTANCES LIMITED, DEFINED AREAS OF THE PROJECT MAY BE RELEASED BY THE LANDSCAPE ARCHITECT FOR MAINTENANCE PURPOSES ONLY AND/OR FOR COMMENCEMENT OF THE GUARANTY PERIOD. SUCH PARTIAL RELEASES SHALL BE AT THE SOLE DISCRETION OF THE LANDSCAPE ARCHITECT.

- RESPONSIBILITIES OF THE OWNER THROUGHOUT THE GUARANTY PERIOD SHALL BE AS FOLLOWS:
- MAINTAIN A REGULAR INSPECTION SCHEDULE OF ALL MATERIALS AND WORKMANSHIP INCLUDED WITHIN THE SCOPE OF THE CONTRACTED WORK.
 - ESTABLISH NORMAL, REGULARLY SCHEDULED MAINTENANCE PROCEDURES FOR ALL AREAS OF WORK UNDERTAKEN BY THE CONTRACTOR. SUCH MAINTENANCE PROCEDURES AND FREQUENCY SHALL BE IN KEEPING WITH NORMAL INDUSTRY STANDARDS FOR THE SCOPE AND NATURE OF THE WORK INVOLVED.
 - MAINTAIN A WRITTEN RECORD OF ALL MAINTENANCE PROCEDURES UNDERTAKEN INCLUDING THE FREQUENCY OF ALL MAINTENANCE PERFORMED, RECORD OF PROBLEMS ENCOUNTERED AND SOLUTIONS.
 - MONITOR ALL PLANT MATERIALS FOR PROPER SOIL MOISTURE CONTENT AND THE UNIFORMITY OF WATER APPLICATION OVER TIME, AS COMPENSATED FOR SEASONAL VARIATION AND LOCAL CLIMATE. APPLY LOCALIZED HAND WATERING AS NECESSARY TO ENSURE PROPER MOISTURE LEVELS FOR THE ESTABLISHMENT OF LARGER PLANT MATERIALS AND PLANTS IN UNIQUE MICRO-ENVIRONMENTS.
 - PROVIDE WRITTEN NOTIFICATION TO THE CONTRACTOR AND THE LANDSCAPE ARCHITECT OF ANY MATERIAL AND/OR WORKMANSHIP THAT IS BELIEVED TO BE AT A LEVEL OF QUALITY AND/OR PERFORMANCE BELOW THAT WHICH WAS SPECIFIED WITHIN THE CONTRACT DOCUMENTS AND SUBJECT TO THE CONTRACTOR'S GUARANTY. SUCH NOTICE SHALL BE DELIVERED TO THE CONTRACTOR AND THE LANDSCAPE ARCHITECT VIA MAIL TO THEIR LAST KNOWN ADDRESS.

- RESPONSIBILITIES OF THE CONTRACTOR THROUGHOUT THE GUARANTY PERIOD SHALL INCLUDE THE FOLLOWING:
- PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH A WRITTEN MAINTENANCE SCHEDULE WHICH ADDRESSES ALL ASPECTS OF THE WORK SCOPE AS COMPLETED UNDER THIS CONTRACT.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE OF ALL ITEMS WITHIN THE WORK SCOPE FOR THE ENTIRE COURSE OF THE CONTRACT UNLESS SPECIFICALLY NOTED OTHERWISE WITHIN THE CONTRACTOR DOCUMENTS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTING THE PROJECT SITE AT REGULAR INTERVALS DURING THE GUARANTY PERIOD. THE FREQUENCY OF SUCH INSPECTIONS SHALL BE AT THE DISCRETION OF THE CONTRACTOR; HOWEVER, THE FREQUENCY SHALL BE SUCH THAT THE CONTRACTOR IS SATISFIED THAT HE CAN PERCEIVE POTENTIAL MAINTENANCE CONCERNS, NOTIFY THE OWNER AND PROTECT HIS INTERESTS IN THE GUARANTY OF MATERIALS AND WORKMANSHIP.

- FAILURE OF THE CONTRACTOR TO COMPLY WITH ANY OF THE ABOVE CONTRACTOR RESPONSIBILITIES SHALL BE CONSIDERED AS HIS ACCEPTANCE OF ALL MAINTENANCE SCHEDULES AND PROCEDURES AS BEING PERFORMED BY THE OWNER AND THE CONTRACTOR SHALL THEREBY FORFEIT HIS RIGHT TO DISPUTE ANY QUESTION ARISING AS TO GUARANTY OF SPECIFIC MATERIALS AND/OR WORKMANSHIP.
- ALL PLANT MATERIALS SHALL BE GUARANTEED TO BE ALIVE AND IN SATISFACTORY GROWTH, FLORIDA #1 GRADE OR BETTER, AS TO THEIR SPECIES, AT THE END OF THE GUARANTY PERIOD.
- GUARANTY PERIODS FOR PLANT MATERIALS SHALL BE AS FOLLOWS:

GROUND COVERS & VINES - 12 MONTHS
SHRUBS - 12 MONTHS
PALMS - 12 MONTHS
TREES (INCLUDING MYRICA SPP.) - 12 MONTHS
- AT ANY TIME DURING THE GUARANTY PERIOD THE CONTRACTOR SHALL BE NOTIFIED IN WRITING AND REQUIRED TO REPLACE ALL PLANTS THAT ARE DEAD OR IN AN UNSATISFACTORY CONDITION OF GROWTH. ALL REPLACEMENTS AND RELATED REPLACEMENT COSTS SHALL BE AT THE CONTRACTOR'S EXPENSE. SHALL BE OF A LIKE SIZE AND KIND OF THE PLANTS AS ORIGINALLY SPECIFIED AND/OR REMOVED, AND, SHALL BE GUARANTEED FOR AN ADDITIONAL PERIOD OF TIME IN COMPLIANCE WITH THE ABOVE STATED GUARANTY PERIODS.
- ACTS OF GOD: ANY PLANT MATERIALS PROVIDED AND INSTALLED OR MATERIALS WHICH HAVE BEEN PLANTED AND DAMAGED OR DESTROYED BY ANY PHENOMENA CONSIDERED AS AN ACT OF GOD, I.E., HURRICANE WINDS, FIRE, FLOOD, FREEZE, RAIN, HAIL, ETC. SHALL, ACCORDING TO THE FLORIDA LAW, BELONG TO THE OWNER AND SHALL BE HIS RESPONSIBILITY. ANY MATERIALS WHICH HAVE BEEN PROVIDED AND INSTALLED OR PLANT MATERIALS WHICH HAVE BEEN PLANTED AND DAMAGED OR DESTROYED BY ACTS OF THEFT, VANDALISM OR TERRORISM SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER. MATERIALS STORED ON-SITE AS YET NOT PLANTED ARE NOT COVERED BY THIS CLAUSE AND ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

DIVISION 2 - SITE WORK
SECTION 0281
TOPSOIL AND FERTILIZERS

- I. GENERAL
- TOPSOIL TOPSOIL IS DEFINED AS 95% SAND WITH NOT MORE THAN 2% CLAY AND THE BALANCE LOAM MATERIAL. SAND IS DEFINED AS MATERIAL WHICH PASSES THROUGH NUMBER 20 AND NUMBER 10 SIEVE. TOPSOIL SHALL BE FREE FROM HARD CLODS, STIFF CLAY, HARDPAN, SODS, LARGE STONES, LIME, CEMENT, BRICKS, COAL ASHES, CINDERS, SLAG, CONCRETE, TAR OR ITS RESIDUE, TARRER PAPER, BOARDS, CLIPS, STICKS OR OTHER OBJECTIONABLE MATERIAL. TOPSOIL SHALL CONTAIN NO MORE THAN 5% LOAM OR SILT AND SHALL BE WEED FREE. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING PERCOLATION TO DETERMINE PERCOLATION RATES FOR AREAS OF THE SITE TO RECEIVE LANDSCAPING, I.E., BEDS, HEDGE ROWS AND ALL TREE LOCATIONS LESS THAN 6" PER HOUR THE DRAINAGE CONTAINER SHALL INSTALL SUMPS TO PROVIDE DRAINAGE AT 6" PER HOUR SUMPS SHALL BE A MINIMUM OF 8" IN DIAMETER, SHALL BE 36" DEEP OR BREAK THROUGH CONFORMING LAYER WHICH EVER IS GREATER AND BACKFILLED WITH CLEAN BURNED SAND.
 - ROUGH GRADES TO BE FURNISHED BY OTHERS SHALL BE ASCERTAINED BY SITE INSPECTION PRIOR TO BIDDING.
- II. MATERIALS
- PEAT MOSS - PEAT MOSS SHALL CONSIST OF COARSE, PARTIALLY DECOMPOSED VEGETABLE MATTER OF NATURAL OCCURRENCE. IT SHALL BE MEDIUM BROWN IN COLOR, CLEAN, LOW IN CONTENT OF MINERAL AND WOODY MATERIAL, AND MILDLY ACID, AND SHALL BE SHREDDED AND FREE FROM ALL STONES AND TWIGS.
 - SAND - CLEAN, COARSE, UNGRADED, MEETING ASTM C33-55 REQUIREMENT FOR CONCRETE SAND.
 - BONEMEAL - COMMERCIAL BONEMEAL SHALL BE FINELY GROUND AND HAVE A MINIMUM ANALYSIS OF 4% NITROGEN AND 20% PHOSPHORIC ACID.
 - NATURAL ORGANIC FERTILIZER - SHALL BE A COMMERCIALLY NATURAL ORGANIC FERTILIZER 6-3-0 (ACTIVE SLUDGE), SUCH AS MILORGANITE, PRODUCED BY THE SEWERAGE COMMISSION, MILWAUKEE, WISCONSIN.
 - FERTILIZER AND LIME MATERIALS
 - FERTILIZERS - ALL FERTILIZERS SHALL BE UNIFORM IN COMPOSITION FREE FLOWING AND SUITABLE FOR APPLICATION BY MECHANICAL SPREADER EQUIPMENT. FERTILIZERS SHALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO APPLICABLE STATE FERTILIZER LAWS. THE FOLLOWING INFORMATION SHALL BE SHOWN ON THE FERTILIZER BAG OR PACKAGE OR ON A TAG:
 - NAME AND ADDRESS OF MANUFACTURER.
 - NAME, BRAND OR TRADE MARK.
 - NUMBER OF NET POUNDS OF READY MIXED MATERIAL IN THE PACKAGE.
 - CHEMICAL COMPOSITION OR ANALYSIS.
 - GUARANTEE OF ANALYSIS.
 - IF A BRAND OR GRADE OF FERTILIZER IS DELIVERED IN THE BULK, A WRITTEN STATEMENT HAVING THE ABOVE LISTED INFORMATION MUST ACCOMPANY EACH LOAD.
 - CUSTOM MIXED FERTILIZERS SHALL HAVE A WRITTEN STATEMENT CONTAINING THE FOLLOWING INFORMATION WITH EACH LOAD:
 - WEIGHT OF EACH COMMERCIAL FERTILIZER USED IN THE CUSTOM MIXING.
 - THE GUARANTEED ANALYSIS OF EACH COMMERCIAL FERTILIZER USED IN THE CUSTOM MIXING.
 - TOTAL WEIGHT OF FERTILIZER DELIVERED IN EACH LOAD.
 - THE MANUFACTURER OF EACH OF THE COMMERCIAL FERTILIZERS.
 - GUARANTEED ANALYSIS OF EACH LOAD TO BE STATED AS FOLLOWS:
 - % OF TOTAL NITROGEN.
 - % OF TOTAL AVAILABLE PHOSPHORIC ACID.
 - % OF TOTAL SOLUBLE POTASH.
 - NAME AND ADDRESS OF THE PERSON SELLING THE FERTILIZER.
 - FERTILIZER APPLICATION RATES SHALL BE DETERMINED BY SOIL TEST (UNDER UNUSUAL CIRCUMSTANCES WHERE THERE IS INSUFFICIENT TIME FOR A COMPLETE SOIL TEST, 30 POUNDS MILORGANITE FERTILIZER PER 1000 SQ. FT. CAN BE APPLIED), SHALL BE DISTRIBUTED EVENLY OVER THE AREA TO BE SODDED.
 - LIME - LIME MATERIAL SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). GROUND LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A 100-MESH SIEVE AND 98% TO 100% WILL PASS THROUGH A MESH SIEVE.
 - APPLICATION RATES FOR LIMING MATERIALS SHALL BE DETERMINED BY SOIL TESTS. (UNDER UNUSUAL CIRCUMSTANCES WHERE THERE IS INSUFFICIENT TIME FOR A COMPLETE SOIL TEST, LIME SHALL BE APPLIED AT A MINIMUM RATE OF 50 POUNDS OF GROUND LIMESTONE OF ITS EQUIVALENT PER 1000 SQ. FT.). LIME SHALL BE DISTRIBUTED UNIFORMLY OVER THE ENTIRE AREA TO BE SODDED.
 - PH OF ALL TOPSOIL SHALL BE BETWEEN 5.0 AND 6.5. A SOIL ANALYSIS SHALL BE SUPPLIED BY THE CONTRACTOR INDICATING PH AND NECESSARY TO AMEND SOIL TO PROPER PH.

- III. EXECUTION
- TOPSOIL SHALL BE PLACED IN ALL PLANTING PITS SIX INCHES (6") BELOW AND TO THE SIDE OF PLANT ROOT SYSTEM.
 - ALL FERTILIZERS AND SOIL AMENDMENTS SHALL BE SPREAD PRIOR TO BEGINNING WORK UNDER PARAGRAPH 3 BELOW.
 - LAWN AREAS - IN THOSE INSTANCES THAT TOPSOIL IS CALLED FOR IN THE DRAWINGS IN LAWN AREAS IT SHALL BE PLACED FOUR INCHES (4") DEEP AND DICED OR ROTO-TILLED AN ADDITIONAL FOUR INCHES (4") INTO THE EXISTING GRADE. A SMOOTH TRACTOR BLADE FINISH PLUS ONE INCH (1") BELOW SOD FINISH GRADE SHALL THEN BE ESTABLISHED.
- END SECTION 2-0281

DIVISION 2 - SITE WORK
SECTION 0282
LAWNS

- I. GENERAL
- SCOPE: PERFORM ALL WORK NECESSARY FOR INSTALLING SOD AND/OR SEED AS SHOWN ON THE DRAWINGS OR INFERRIBLE THEREFROM AND/OR AS SPECIFIED, IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
 - QUALIFICATIONS: LAWN SODDING AND RELATED WORK SHALL BE PERFORMED BY A FIRM WITH A MINIMUM OF THREE YEARS (3) EXPERIENCE SPECIALIZ-ING IN THIS TYPE OF WORK.
 - COMPLIANCE WITH REGULATIONS: COMPLY WITH ALL FEDERAL AND/OR STATE REGULATIONS CONCERNING CLASSIFICATION OR TRANSPORTATION OF SOD AND FERTILIZER MATERIALS.
 - SOIL STERILANTS: NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS UNTIL SUFFICIENT TIME HAS ELAPSED TO PERMIT DISSIPATION OF TOXIC MATERIALS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY LOSS OR DAMAGE TO SOD OR SEED ARISING FROM IMPROPER USE OF STERILANTS OR DUE TO HIS FAILURE TO ALLOW SUFFICIENT TIME TO PERMIT DISSIPATION OF TOXIC MATERIALS, WHETHER OR NOT SUCH STERILANTS ARE SPECIFIED HEREIN.

II. MATERIALS

- SOD:
 - CLASS OF SOD AND COMPOSITION: THE SOD USED SHALL BE 97% WEED FREE. IT SHALL BE NURSERY GROWN AND WELL ROOTED. SOD SHALL BE SUBJECT TO REVIEW BY THE ARCHITECT PRIOR TO BEING CUT AND AGAIN BEFORE IT IS LAID. THE CONSISTENCY OF ADHERENT SOIL SHALL BE SUCH THAT IT WILL NOT BREAK, CRUMBLE, OR TEAR DURING HANDLING AND PLACING OF THE SOD.
 - EACH PIECE OF SOD SHALL BE WELL COVERED WITH TURF GRASS. SHALL BE FREE FROM NOXIOUS WEEDS AND OTHER OBJECTIONABLE PLANTS AND SHALL NOT CONTAIN SUBSTANCES INJURIOUS TO GROWTH. THE GRASS SHALL BE MOWN TO A LENGTH OF NO LESS THAN ONE AND ONE-HALF INCHES (1 1/2") NOR MORE THAN FOUR INCHES (4") BEFORE THE SOD IS CUT.
 - ALL SOD USED SHALL COMPLY WITH STATE AND FEDERAL LAWS WITH RESPECT TO INSPECTION FOR PLANT DISEASES AND INSECT INFESTATION. AN INSPECTION CERTIFICATE, REQUIRED BY LAW TO THIS EFFECT, SHALL ACCOMPANY EACH SHIPMENT, AND ON ARRIVAL SHALL BE FILED WITH THE ARCHITECT.
 - SOIL OF THE SOD TO BE USED SHALL BE LOAMY SAND AND COMPATIBLE WITH THE SOILS OF THE PROJECT. NO MUCK OR HEAVY PEAT SOIL GROWN SOD WILL BE ACCEPTED.
- THICKNESS OF CUT: SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF THREE-FOURTHS INCH (3/4"), PLUS OR MINUS ONE-FOURTH INCH (1/4"), AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH.
- PAD-SIZE: INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE FIVE PERCENT (5%). BROKEN PADS AND TORN OR UNEVEN EDGES WILL NOT BE ACCEPTABLE.
- STRENGTH OF SOD SECTIONS: STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY FROM A FIRM GRASP ON THE UPPER TEN PERCENT (10%) OF THE SECTION.
- MOISTURE CONTENT: SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- TIME LIMITATIONS: SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF FORTY EIGHT (48) HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD SHALL BE INSPECTED PRIOR TO ITS INSTALLATION.
- SEED:
 - SEED SHALL BE SCARIFIED ARGENTINE BAHIA GRASS. IT SHALL BE DOMESTICALLY GROWN AND COMPLY WITH CURRENT STATE AND FEDERAL REGULATIONS PURITY.
 - ALL SEED SHALL BE DELIVERED TO THE JOB SITE IN SACKS PLAINLY MARKED AND CERTIFIED AS TO CONTENT.
 - GERMINATION RATE OF ALL SEED SHALL BE NOT LESS THAN SIXTY-FIVE PERCENT (65%) AND NO SEED WITH AN EXCESS OF FIVE PERCENT (5%) WEED SEED SHALL BE USED.

- III. EXECUTION
- CLEAN UP: PRIOR TO SEEDING OR SODDING, THE SURFACE SHALL BE CLEARED OF ALL TRASH, DEBRIS AND STONES LARGER THAN ONE INCH (1") IN DIAMETER, AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING OR MAINTENANCE OPERATIONS.
 - THE CONTRACTOR SHALL VERIFY GRADES ESTABLISHED DURING FINAL SOIL PREPARATION AS BEING TRUE TO FINISH CONTOURS SHOWN, AND SHALL MAINTAIN SUCH AREAS UNTIL THE EFFECTIVE DATE TO BEGIN SODDING AND/OR SEEDING OPERATIONS. IN SUCH INSTANCES WHERE A SPLIT RESPONSIBILITY EXISTS BETWEEN GRADING AND GRASSING CONTRACTORS, IT SHALL BE THE RESPONSIBILITY OF THE GRASSING CONTRACTOR TO MAINTAIN A SUITABLE GRADE FOR GRASSING ONCE HE HAS ACCEPTED THE GRADE PROVIDED TO HIM.

IN ALL CASES THE GROUND SHALL BE HAND RAKED IMMEDIATELY PRIOR TO BEING SODDED TO REMOVE ANY IRREGULARITIES IN THE GRADE.

- SODDING OPERATIONS:
 - SODDING TIME: SOD SHALL BE PLACED WHEN THE GROUND IS IN A WORKABLE CONDITION AND TEMPERATURES ARE LESS THAN NINETY DEGREES (90) FAHRENHEIT. SOD SHALL NOT BE PLACED DURING EXTENDED DROUGHT, UNLESS IRRIGATION IS AVAILABLE.
 - TRANSPORTATION: SOD SHALL BE IN A MOIST CONDITION AT THE TIME OF CUTTING AND SHALL BE KEPT IN A MOIST CONDITION UNTIL IT IS PLACED. ANY SOD THAT HAS DRIED OUT WILL BE REJECTED AND SHALL BE IMMEDIATELY REMOVED FROM THE JOB SITE. THE SOD TO BE TRANSPORTED IN EITHER A CLOSED VAN OR IN OPEN TRUCK PROPERLY COVERED. SOD CUT FOR MORE THAN FORTY-EIGHT (48) HOURS SHALL NOT BE USED WITHOUT THE CONCURRENCE OF THE ARCHITECT. ALL SOD SHALL BE KEPT MOIST AND PROTECTED FROM EXPOSURE TO SUN, WIND AND FREEZING PRIOR TO PLACING.
 - MISTING THE SOIL: DURING PERIODS OF HIGH TEMPERATURE AND AFTER ALL UNEVENNESS IN THE SOIL SURFACE HAS BEEN CORRECTED, THE SOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
 - STARTER STRIP: THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHALL BE EXERCISED TO INSURE THAT THE SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 - SLOPING SURFACES: IN DITCHES, THE SOD SHALL BE PLACED WITH THE LONGER DIMENSION PERPENDICULAR TO THE FLOW OF THE WATER IN THE DITCH. ON SLOPES, STARTING AT THE BOTTOM OF THE SLOPE, THE SOD SHALL BE PLACED WITH THE LONGER DIMENSION PARALLEL TO THE CONTOURS OF THE GROUND. THE EXPOSED EDGE OF THE SOD SHALL BE BURIED FLUSH WITH THE ADJACENT SOD. ON SLOPES WHERE THE SOD MAY BE DISPLACED DURING SODDING OPERATIONS, THE WORKMAN SHALL WORK FROM LADDERS OR TREADED PLANKS.
 - STAKING SOD: THE SOD SHALL BE STAKED ON ALL SLOPES OF 2:1 OR STEEPER. SOD SHALL BE STAKED WITH NOT LESS THAN FOUR (4) STAKES PER YARD WITH AT LEAST ONE STAKE FOR EACH PIECE OF SOD. STAKES SHALL BE LATH OR SIMILAR MATERIAL, POINTED, AND DRIVEN WITH THE FLAT SIDE AGAINST THE SLOPE, SIX INCHES (6") INTO THE GROUND, LEAVE APPROXIMATELY ONE-HALF INCH (1/2") OF THE TOP ABOVE THE GROUND.
 - WATER AND ROLLING: THE CONTRACTOR SHALL WATER SOD IMMEDIATELY AFTER INSTALLATION TO PREVENT EXCESSIVE DRYING DURING PROGRESS OF THE WORK. AS SODDING IS COMPLETED IN ANY ONE SECTION, THE ENTIRE AREA SHALL BE ROLLED. IT SHALL THEN BE THOROUGHLY IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE NEW SOD PAD AND SOIL IMMEDIATELY BELOW THE SOD ARE THOROUGHLY WET.
 - SUPPLEMENTAL WATERING: DURING PERIODS OF INTENSE HEAT OR ABNORMAL RAINFALL, SUPPLEMENTAL WATERING MAY BE REQUIRED PRIOR TO ACCEPTANCE OF THE WORK. WHEN SUPPLEMENTAL WATERING IS DIRECTED BY THE ARCHITECT, WATER SHALL BE APPLIED AT THE RATE SPECIFIED BY THE ARCHITECT.
 - DISPOSAL OF SURPLUS MATERIAL: SURPLUS AND WASTE MATERIALS RESULTING FROM SODDING OPERATIONS SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE.

DIVISION 2 - SITE WORK
SECTION 0282
LAWNS - CONTINUED

REVISION	DESCRIPTION	DATE

 <p>DAVID W. JOHNSON ASSOCIATES 680 S. ORANGE AVENUE SUITE 202 SARASOTA, FLORIDA 34236 941-552-9189 FAX 941-554-4816</p>	 <p>1365 Hamlet Avenue Clearwater, Florida 33756 Phone: (727)442-7196, Fax: (727)461-3827 CA Lic. No. 29588 www.mckimcreed.com</p>
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PHILLIP J. SMITH
R.L.A. # 1096

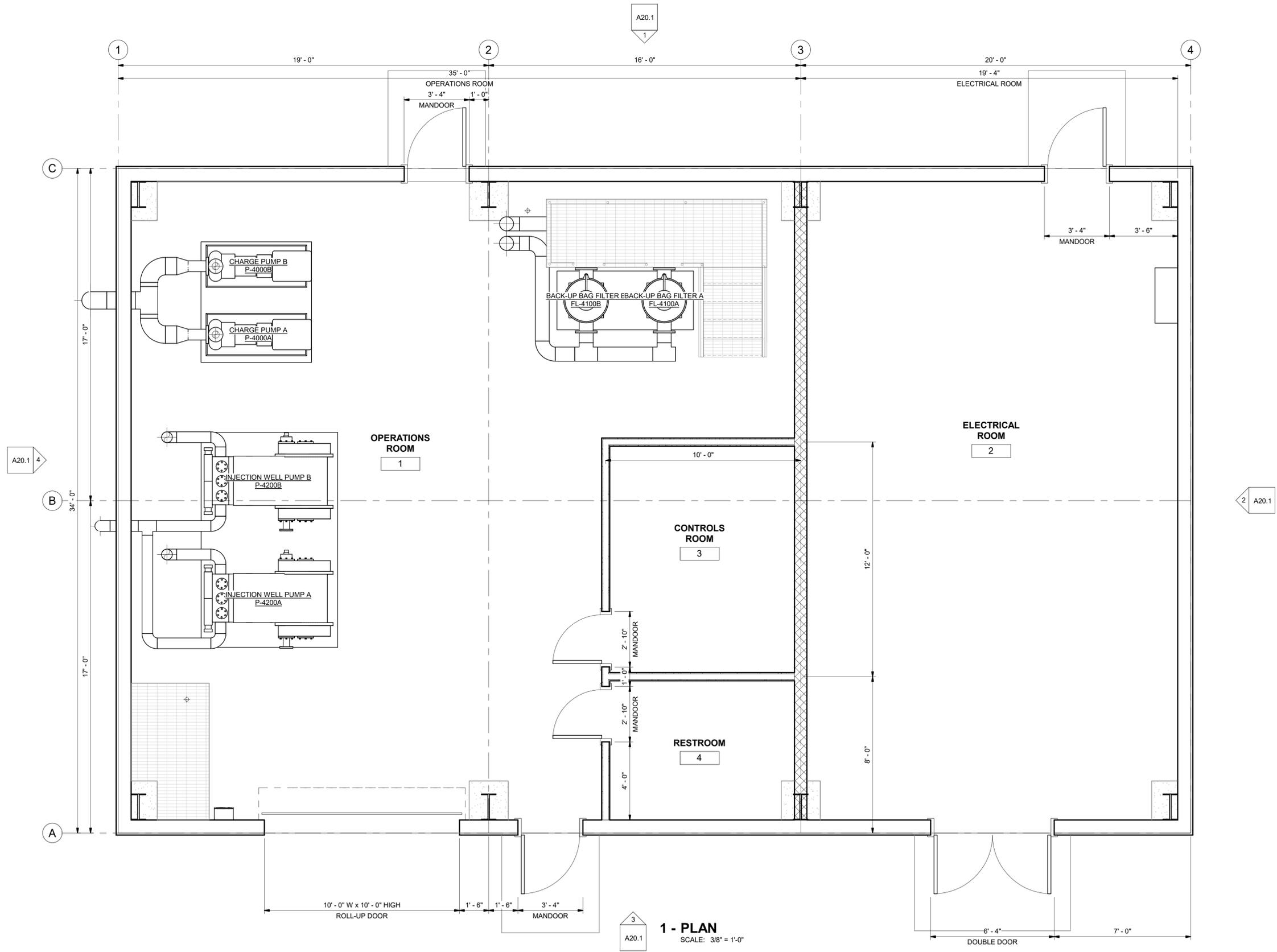


Manatee
County
FLORIDA

PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PLANTING SPECIFICATIONS

DATE: Sept. 01, 2021	SCALE: —	M&C FILE NUMBER: —
MCE PROJ. # 2021-58	HORIZONTAL: 1"=30'	DRAWING NUMBER: L-05
DRAWN: PJS	VERTICAL: NA	
DESIGNED: PJS		
CHECKED: PJS		
PROJ. MGR. PJS		
STATUS: NOT FOR CONSTRUCTION	FOR PERMITTING CONSTRUCTION	REVISION: A



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

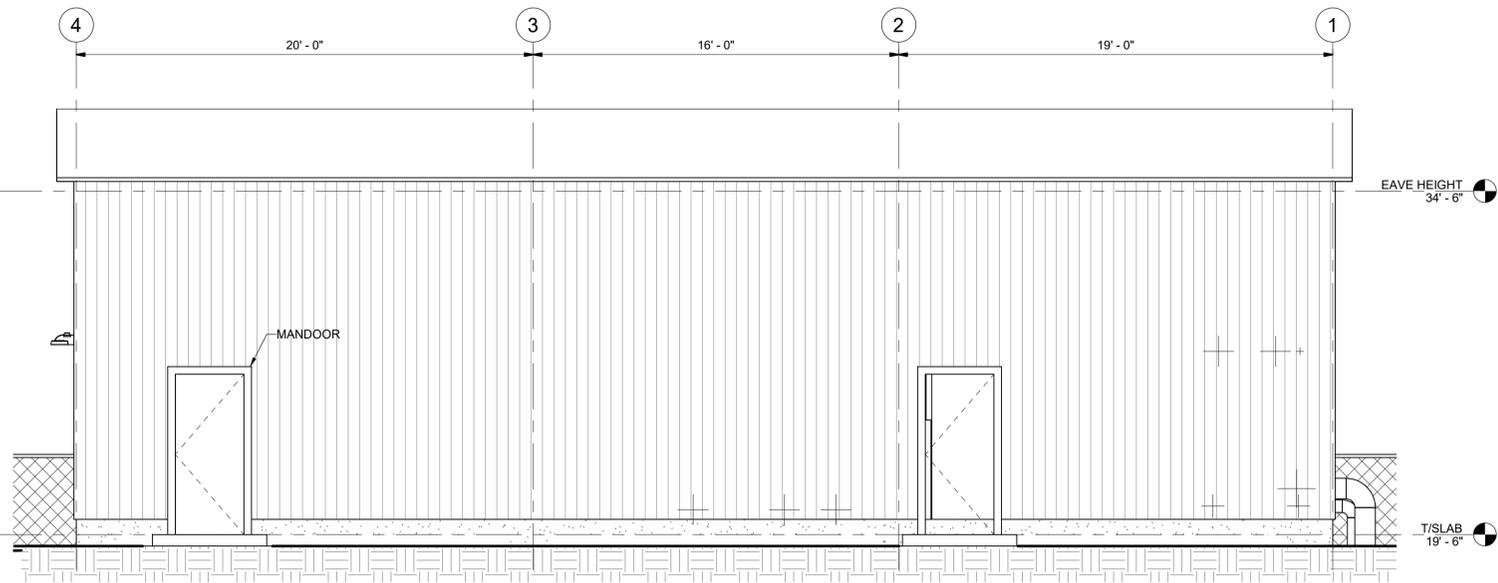
REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021

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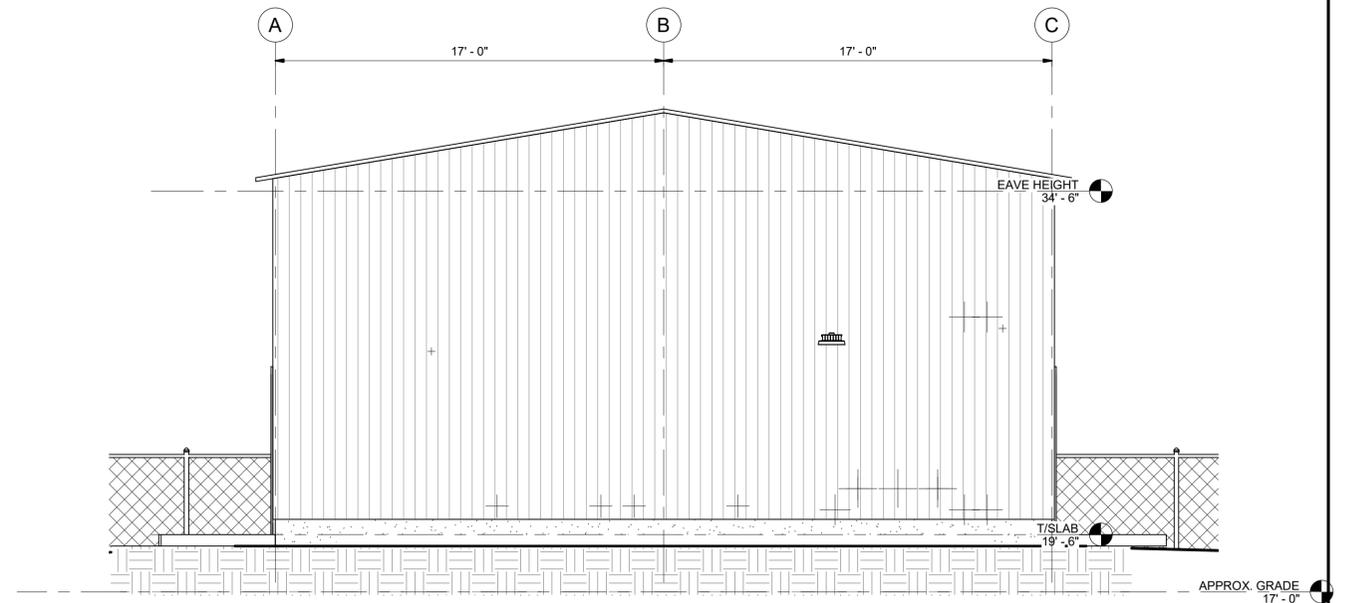


**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**
 ARCHITECTURAL
 FLOOR PLAN

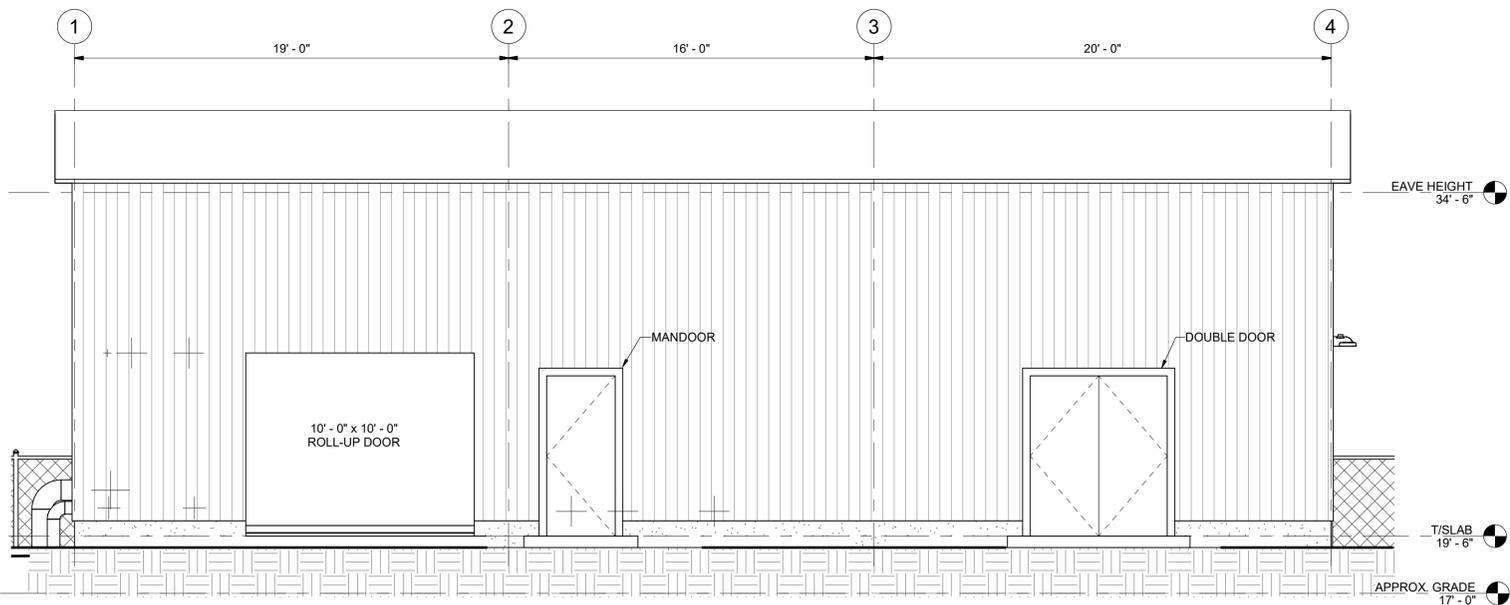
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STATUS: PRELIMINARY NOT FOR CONSTRUCTION		



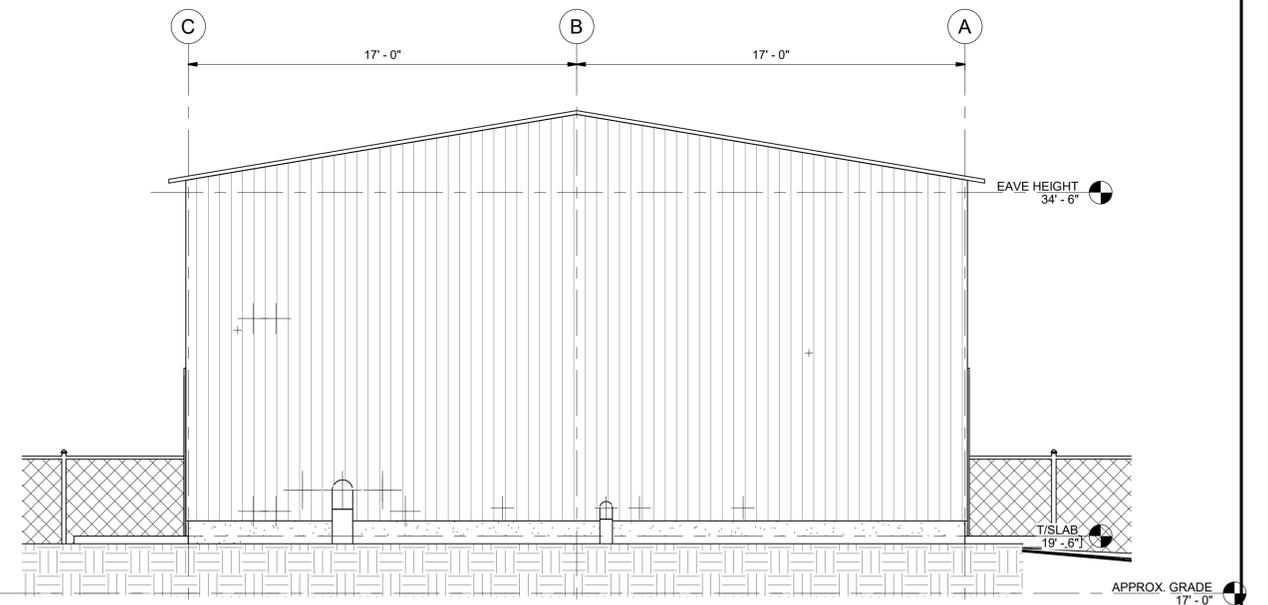
1 ELEVATION
SCALE: 1/4" = 1'-0"



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



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



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

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**ARCHITECTURAL
ELEVATIONS**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	Author
DESIGNED	Designer
CHECKED	Checker
PROJ. MGR	Approver

SCALE	A20.1
1/4" = 1'-0"	DRAWING NUMBER
	A
	REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



1 - RENDERING
SCALE:

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021




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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

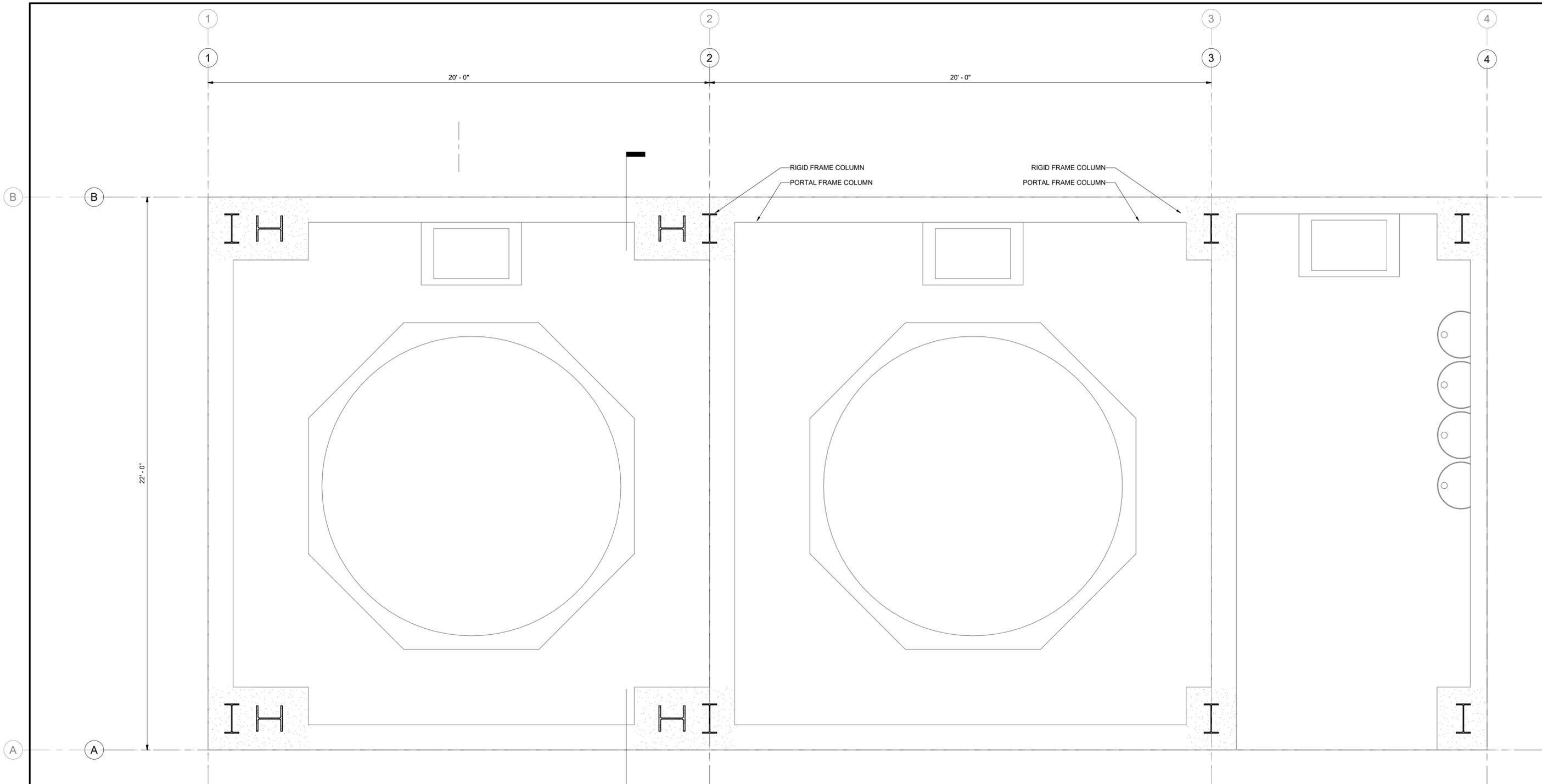
**ARCHITECTURAL
 RENDERING**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	Author
DESIGNED	Designer
CHECKED	Checker
PROJ. MGR	Approver

SCALE
12" = 1'-0"

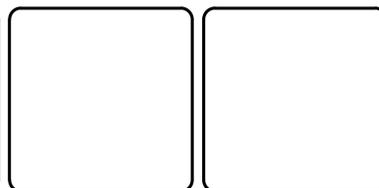
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DRAWING NUMBER
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REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



1 - PLAN
SCALE: 1/2" = 1'-0"

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

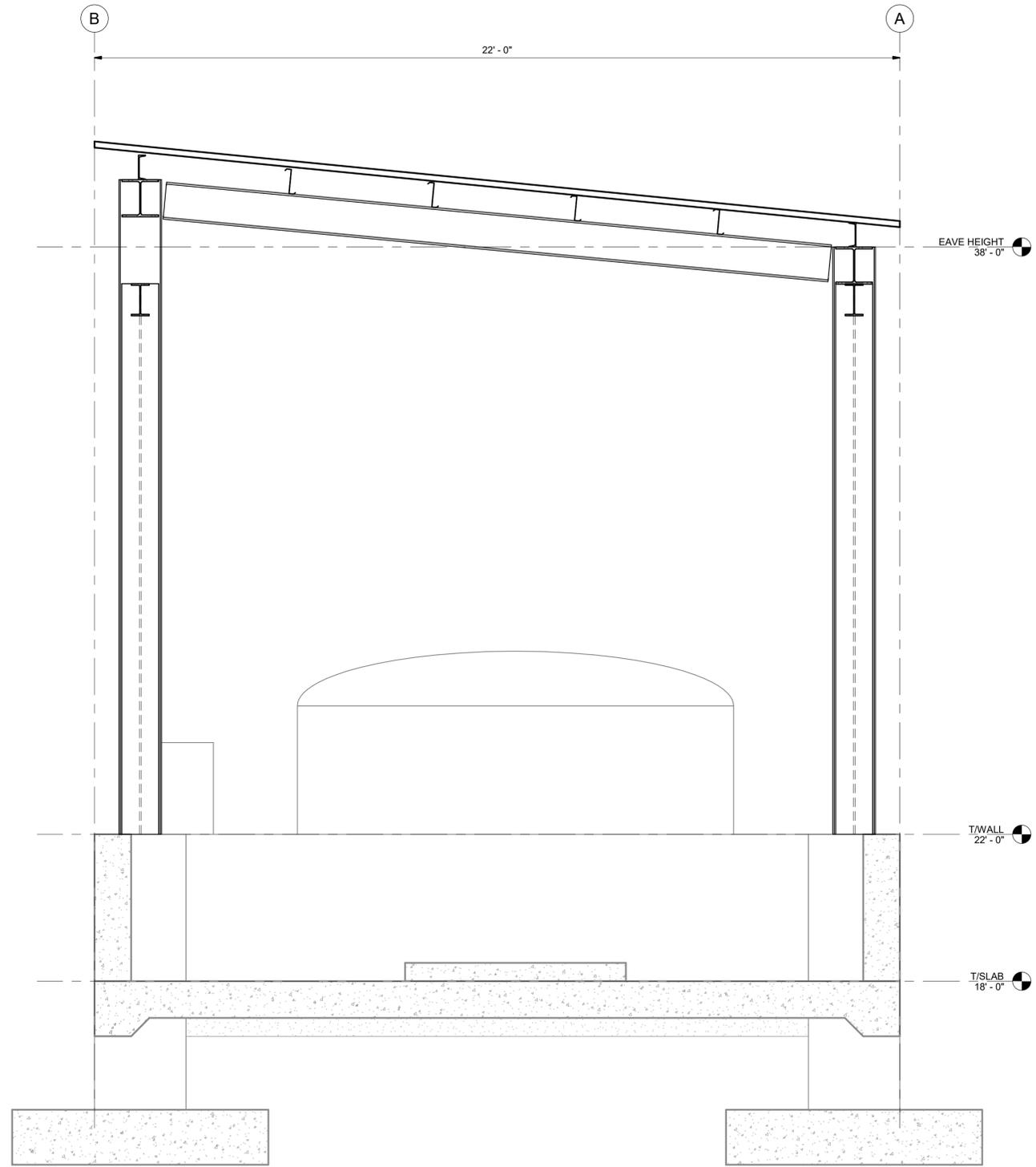
ARCHITECTURAL
ARCHITECTURAL PLAN

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	Author
DESIGNED	Designer
CHECKED	Checker
PROJ. MGR	Approver

SCALE
1/2" = 1'-0"

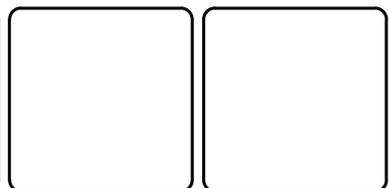
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DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



SECTION
SCALE: 1/2" = 1'-0"

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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

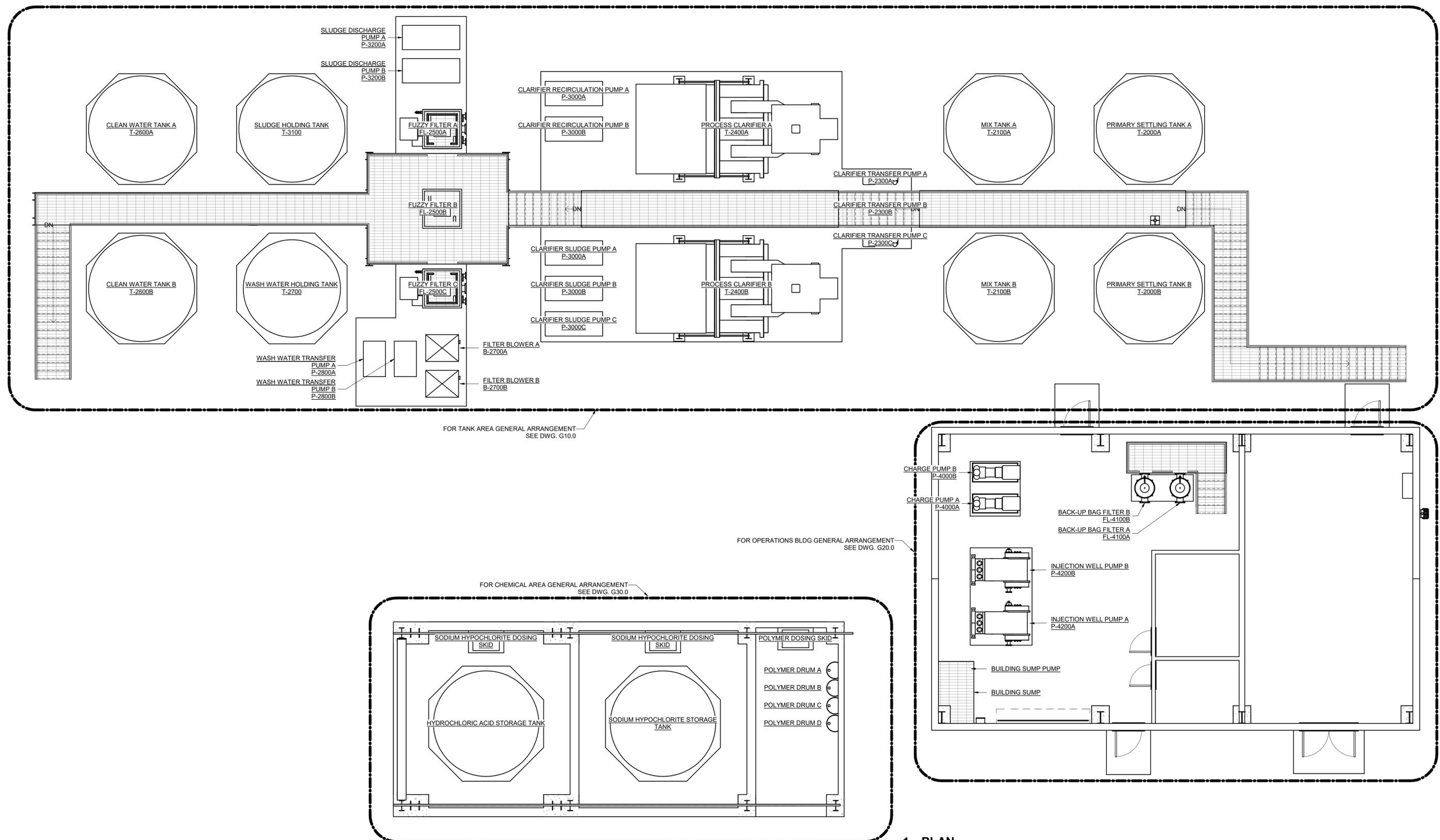
ARCHITECTURAL
ARCHITECTURAL SECTION

PROJ START DATE: AUG 2021
MCE PROJ. # 1024-0197
DRAWN Author
DESIGNED Designer
CHECKED Checker
PROJ. MGR Approver

SCALE
1/2" = 1'-0"

A30.2
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



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

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021

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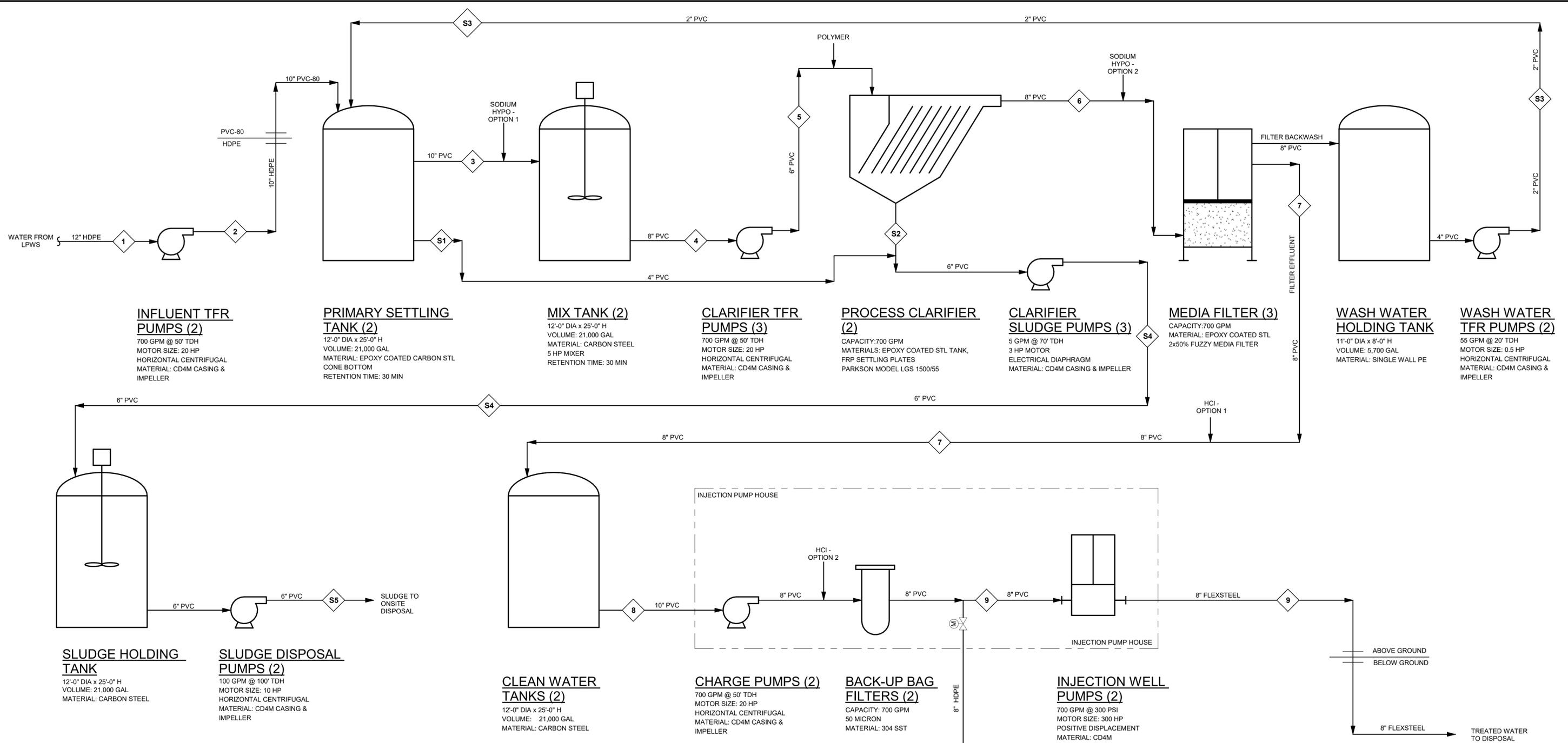
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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**GENERAL
SITE GENERAL ARRANGEMENT**

PROJ START DATE: AUG 2021	SCALE	G00.1 DRAWING NUMBER
MCE PROJ. # 1024-0197	3/16" = 1'-0"	
DRAWN MSR		A REVISION
DESIGNED MSR		
CHECKED JMV		
PROJ. MGR JMV		
STATUS: PRELIMINARY		
NOT FOR CONSTRUCTION		



INFLUENT TFR PUMPS (2)
 700 GPM @ 50' TDH
 MOTOR SIZE: 20 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4M CASING & IMPELLER

PRIMARY SETTLING TANK (2)
 12'-0" DIA x 25'-0" H
 VOLUME: 21,000 GAL
 MATERIAL: EPOXY COATED CARBON STL
 CONE BOTTOM
 RETENTION TIME: 30 MIN

MIX TANK (2)
 12'-0" DIA x 25'-0" H
 VOLUME: 21,000 GAL
 MATERIAL: CARBON STEEL
 5 HP MIXER
 RETENTION TIME: 30 MIN

CLARIFIER TFR PUMPS (3)
 700 GPM @ 50' TDH
 MOTOR SIZE: 20 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4M CASING & IMPELLER

PROCESS CLARIFIER (2)
 CAPACITY: 700 GPM
 MATERIALS: EPOXY COATED STL TANK, FRP SETTLING PLATES
 PARKSON MODEL LGS 1500/55

CLARIFIER SLUDGE PUMPS (3)
 5 GPM @ 70' TDH
 3 HP MOTOR
 ELECTRICAL DIAPHRAGM
 MATERIAL: CD4M CASING & IMPELLER

MEDIA FILTER (3)
 CAPACITY: 700 GPM
 MATERIAL: EPOXY COATED STL
 2x50% FUZZY MEDIA FILTER

WASH WATER HOLDING TANK
 11'-0" DIA x 8'-0" H
 VOLUME: 5,700 GAL
 MATERIAL: SINGLE WALL PE

WASH WATER TFR PUMPS (2)
 55 GPM @ 20' TDH
 MOTOR SIZE: 0.5 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4M CASING & IMPELLER

SLUDGE HOLDING TANK
 12'-0" DIA x 25'-0" H
 VOLUME: 21,000 GAL
 MATERIAL: CARBON STEEL

SLUDGE DISPOSAL PUMPS (2)
 100 GPM @ 100' TDH
 MOTOR SIZE: 10 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4M CASING & IMPELLER

CLEAN WATER TANKS (2)
 12'-0" DIA x 25'-0" H
 VOLUME: 21,000 GAL
 MATERIAL: CARBON STEEL

CHARGE PUMPS (2)
 700 GPM @ 50' TDH
 MOTOR SIZE: 20 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4M CASING & IMPELLER

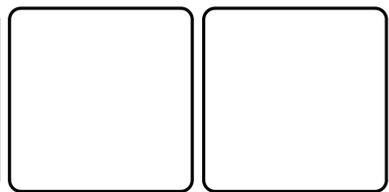
BACK-UP BAG FILTERS (2)
 CAPACITY: 700 GPM
 50 MICRON
 MATERIAL: 304 SST

INJECTION WELL PUMPS (2)
 700 GPM @ 300 PSI
 MOTOR SIZE: 300 HP
 POSITIVE DISPLACEMENT
 MATERIAL: CD4M

CHEMICAL FLOWS				
PARAMETER	UNIT	12.5% NaOCl	40% POLYMER	30% HCl
FLOW	GPD	68.6	4.9	277
FLOW	GPH	2.86	0.21	11.54

PROCESS & SLUDGE FLOWS															
PARAMETER	UNIT	1	2	3	4	5	6	7	8	9	S1	S2	S3	S4	S5
FLOW	MGD	1.01	1.04	1.04	1.04	1.04	1.03	1.00	1.00	1.00	0.003	0.010	0.029	0.013	0.013
FLOW	GPM	701.4	721.4	719.3	719.3	719.3	712.4	692.4	692.4	692.4	2.1	6.9	160.0	10	10

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

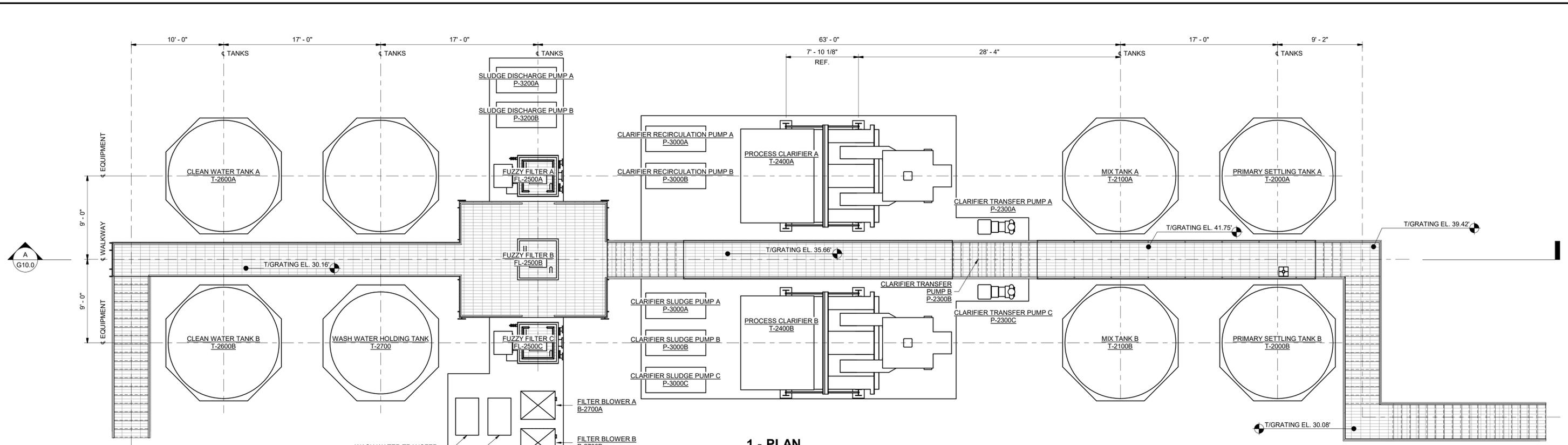


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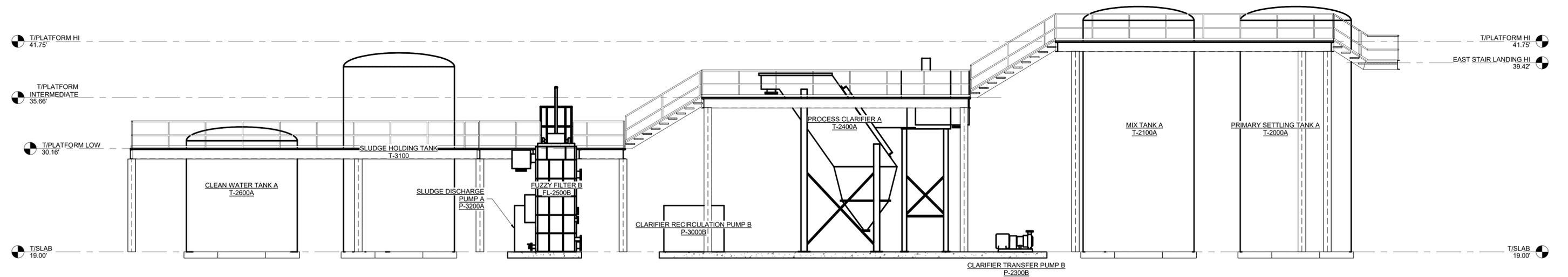


PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT
 PIPING & INSTRUMENTATION
PROCESS FLOW DIAGRAM

PROJ START DATE: AUG 2021	SCALE: NTS	G00.2
MCE PROJ. # 1024-0197	DRAWING NUMBER	
DRAWN: NMB	CHECKED: JMV	REVISION: A
DESIGNED: NMB	PROJ. MGR: JMV	
STATUS: PRELIMINARY NOT FOR CONSTRUCTION		

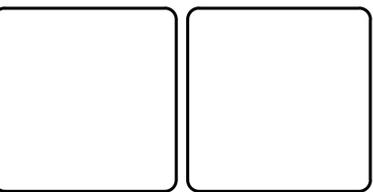


1 - PLAN
SCALE: 3/16" = 1'-0"



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

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

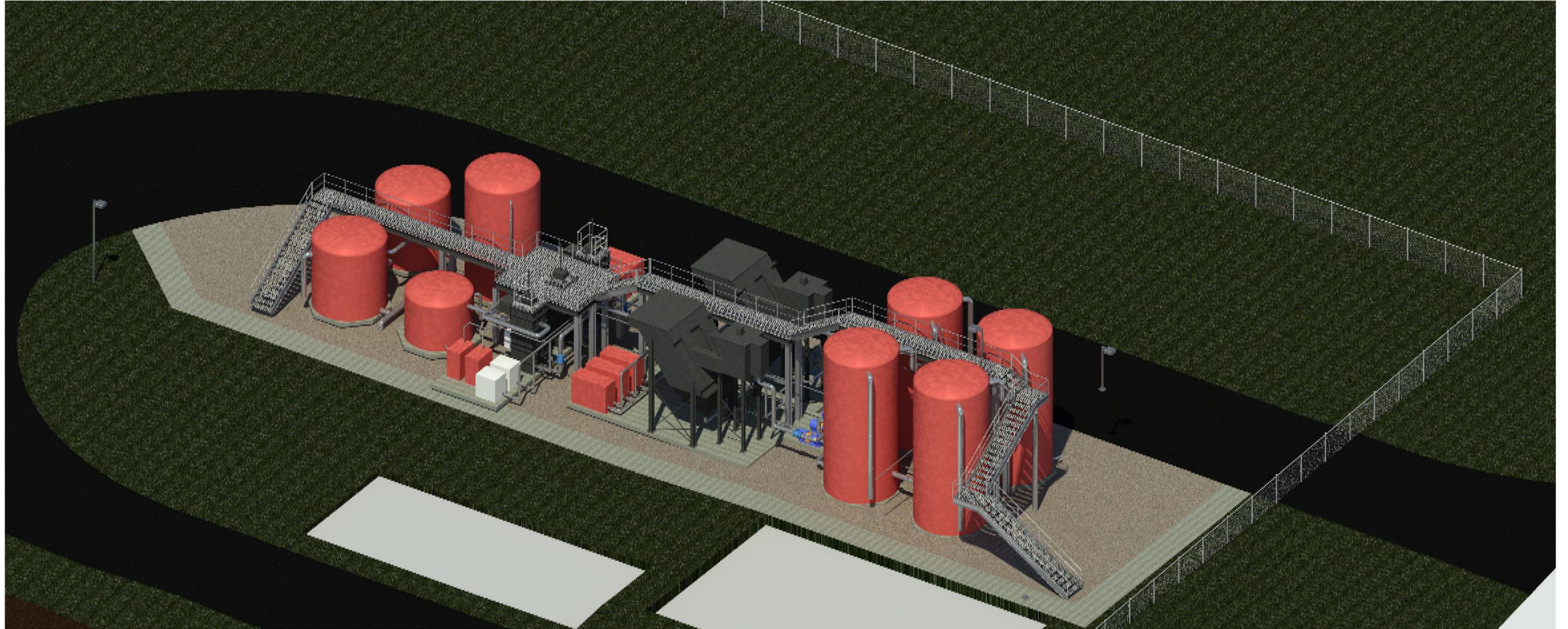
**GENERAL
 TANK AREA
 GENERAL ARRANGEMENT AND SECTION**

PROJ START DATE: AUG 2021
 MCE PROJ. # 1024-0197
 DRAWN MSR
 DESIGNED MSR
 CHECKED JMV
 PROJ. MGR JMV

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

G10.0
 DRAWING NUMBER
 A
 REVISION

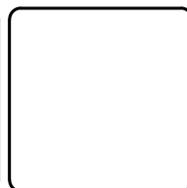
STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



1 - RENDERING
SCALE:

NOTE:
OPERATIONS BUILDING AND CHEM STORAGE AREA NOT SHOWN FOR CLARITY

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

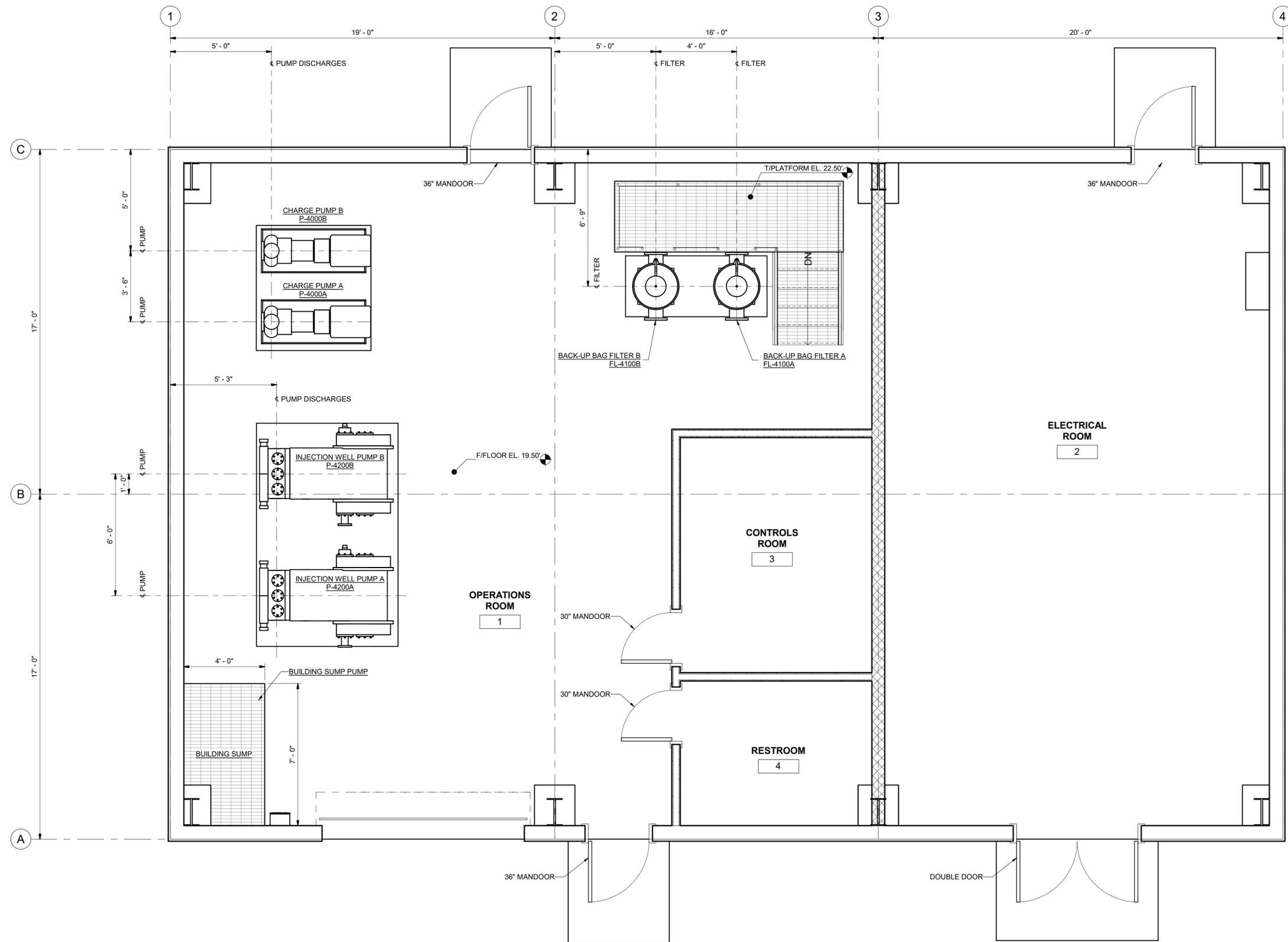
**GENERAL
 TANK AREA
 RENDERING**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	MSR
DESIGNED	MSR
CHECKED	JMV
PROJ. MGR	JMV

SCALE
12" = 1'-0"

G10.1
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



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

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

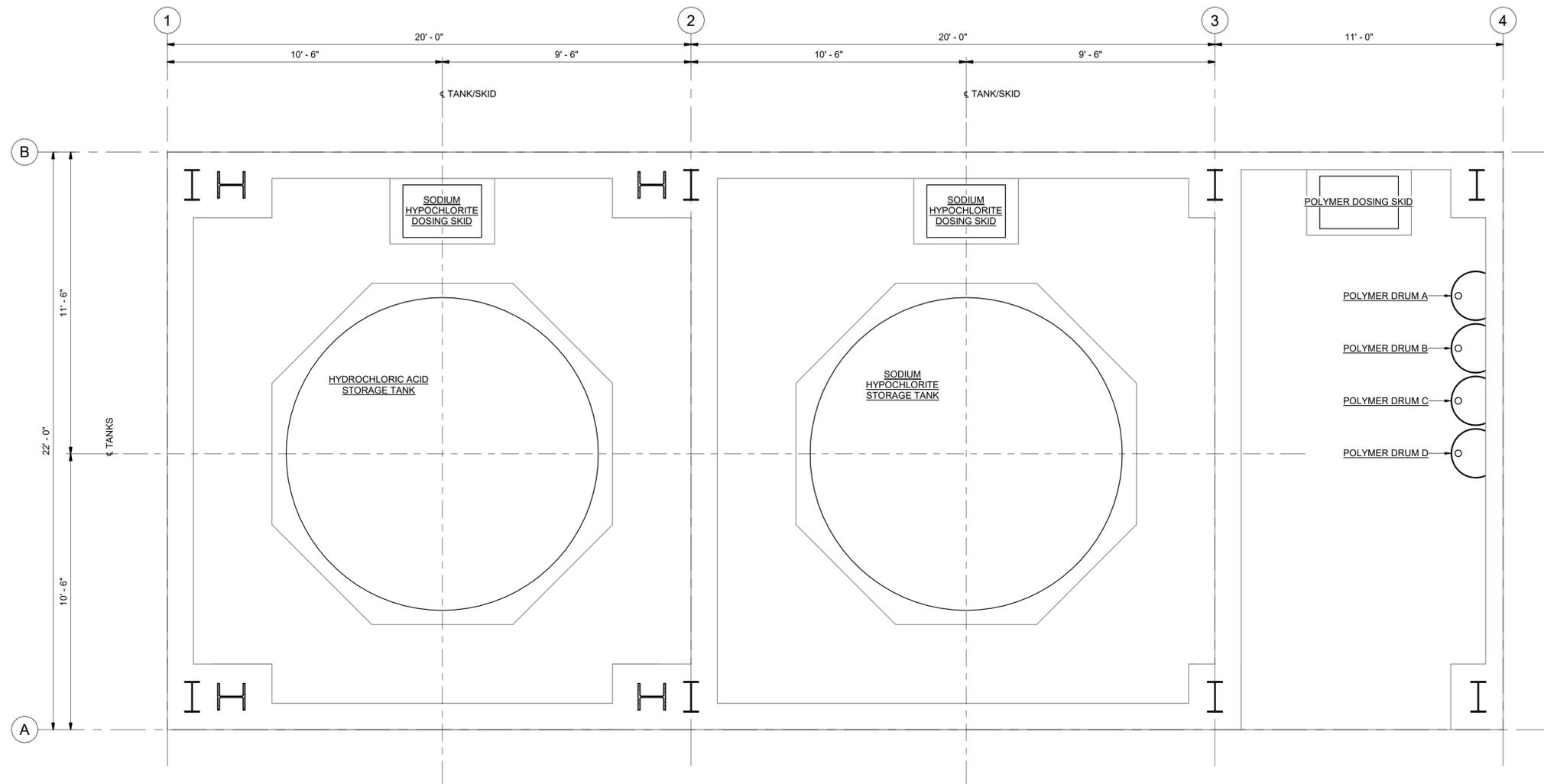
**GENERAL
OPERATIONS BUILDING
GENERAL ARRANGEMENT**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	Author
DESIGNED	Designer
CHECKED	Checker
PROJ. MGR	Approver

SCALE
3/8" = 1'-0"

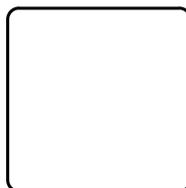
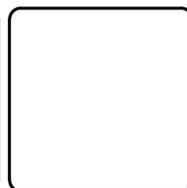
G20.0
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



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

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/8/2021



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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

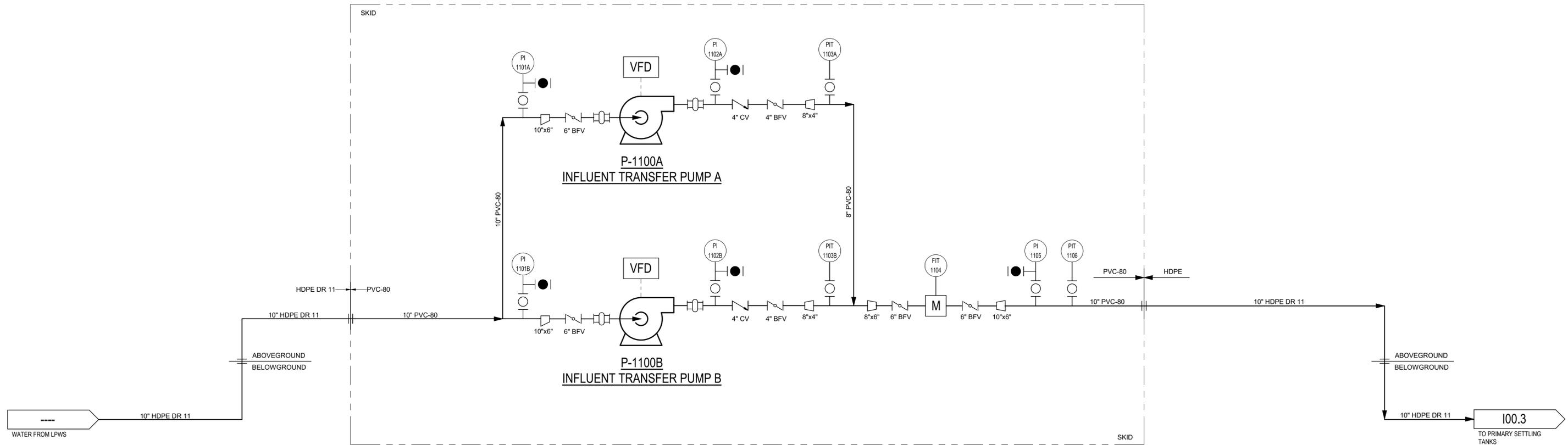
**GENERAL
 CHEMICAL AREA
 GENERAL ARRANGEMENT**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	MSR
DESIGNED	MSR
CHECKED	JMV
PROJ. MGR	JMV

SCALE
3/8" = 1'-0"

G30.0
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



**P-1100A/B
INFLUENT TRANSFER
PUMPS A/B (2)**
700 GPM EA. @ 35' TDH
HP: 12 HP
HORIZONTAL CENTRIFUGAL
MATERIAL: CD4MCU
QTY: 2 X 100%

REV. NO.	DESCRIPTION	DATE
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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
INFLUENT TRANSFER PUMP STATION**

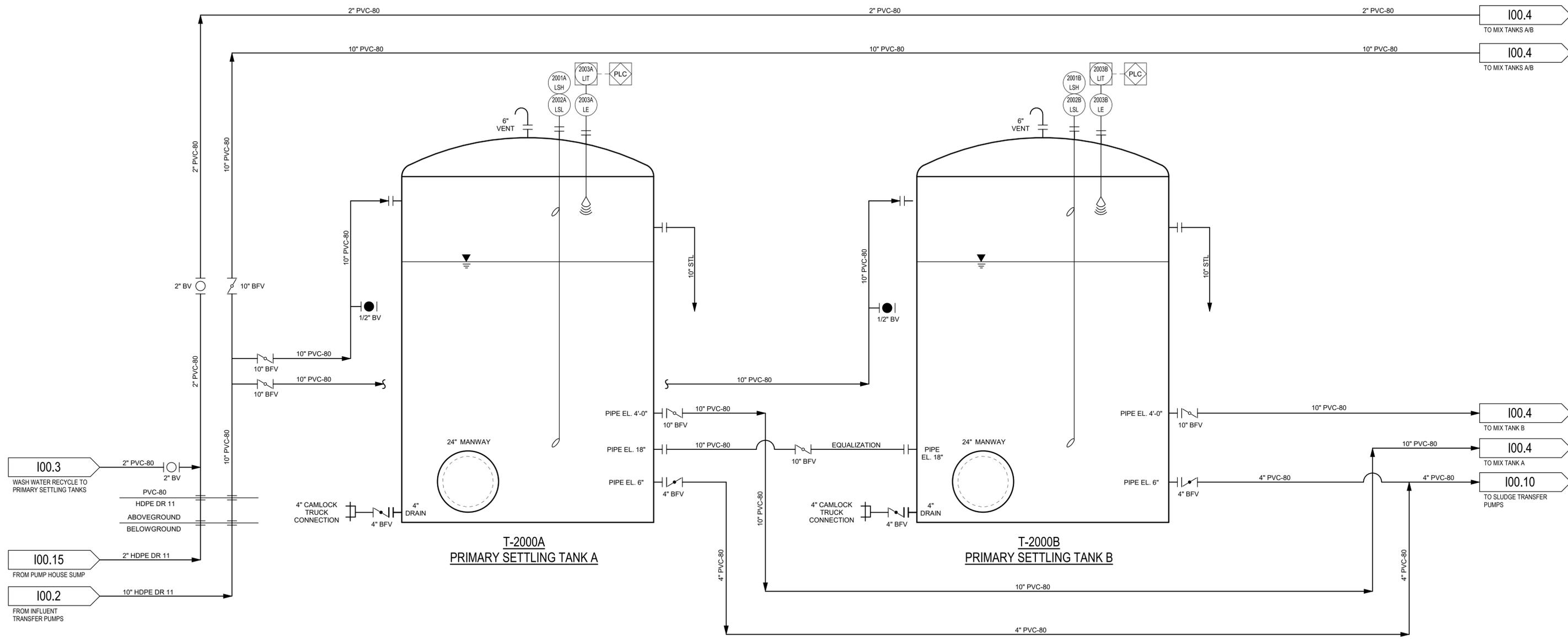
PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE
NTS

100.2

DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



**T-2000A/B
PRIMARY SETTLING
TANKS A/B (2)**
500 BBL (21,000 GAL)
12' DIA. X 25' H
MATERIAL: FRP

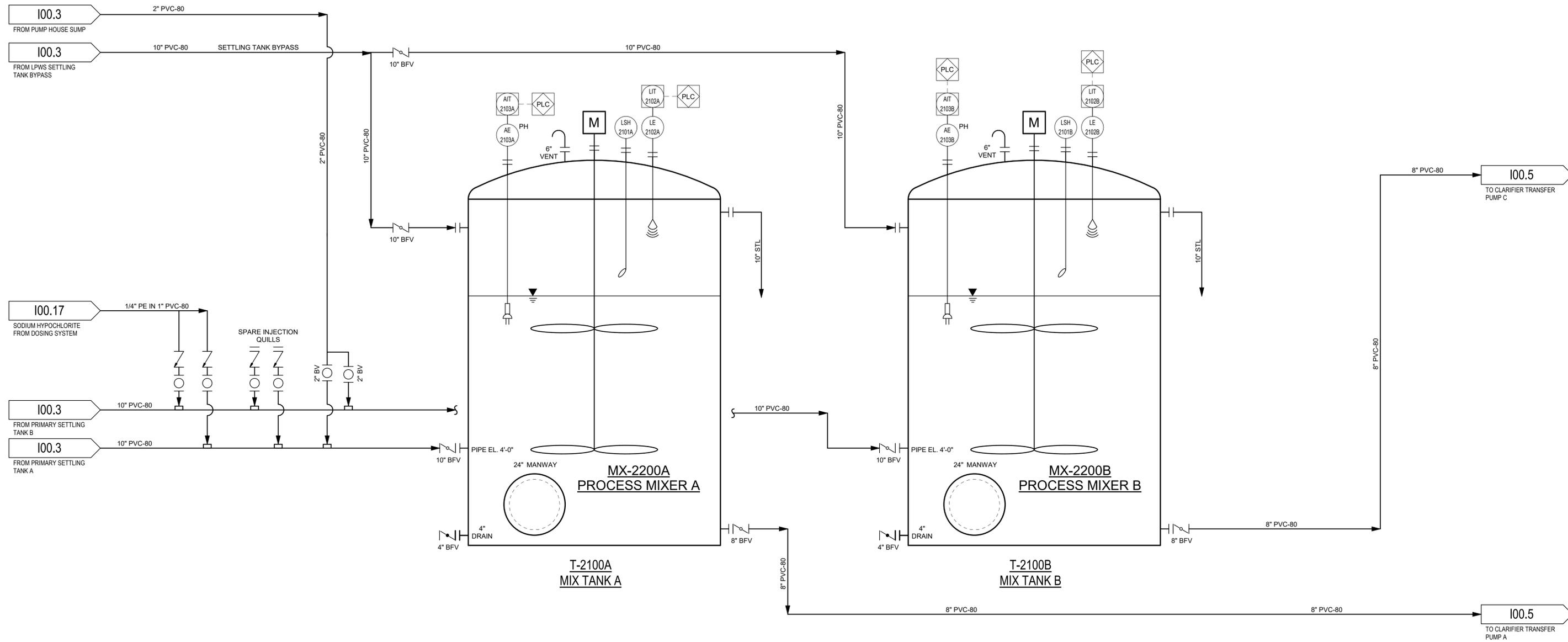
REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**
PIPING & INSTRUMENTATION
PRIMARY SETTLING TANKS

PROJ START DATE: AUG 2021	SCALE: NTS	100.3 DRAWING NUMBER
MCE PROJ. # 1024-0197		
DRAWN: NMB		A
DESIGNED: NMB		REVISION
CHECKED: JMV		
PROJ. MGR: JMV		
STATUS: PRELIMINARY		
NOT FOR CONSTRUCTION		



T-2100A/B
MIX TANKS A/B (2)
 500 BBL (21,000 GAL)
 12' DIA. X 25' H
 MATERIAL: FRP

MX-2200A/B
PROCESS MIXERS A/B (2)
 316 STAINLESS STEEL
 30 HP MOTORS
 2 x 66" IMPELLERS
 3/60/460 VAC

REV. NO.	DESCRIPTION	DATE
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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

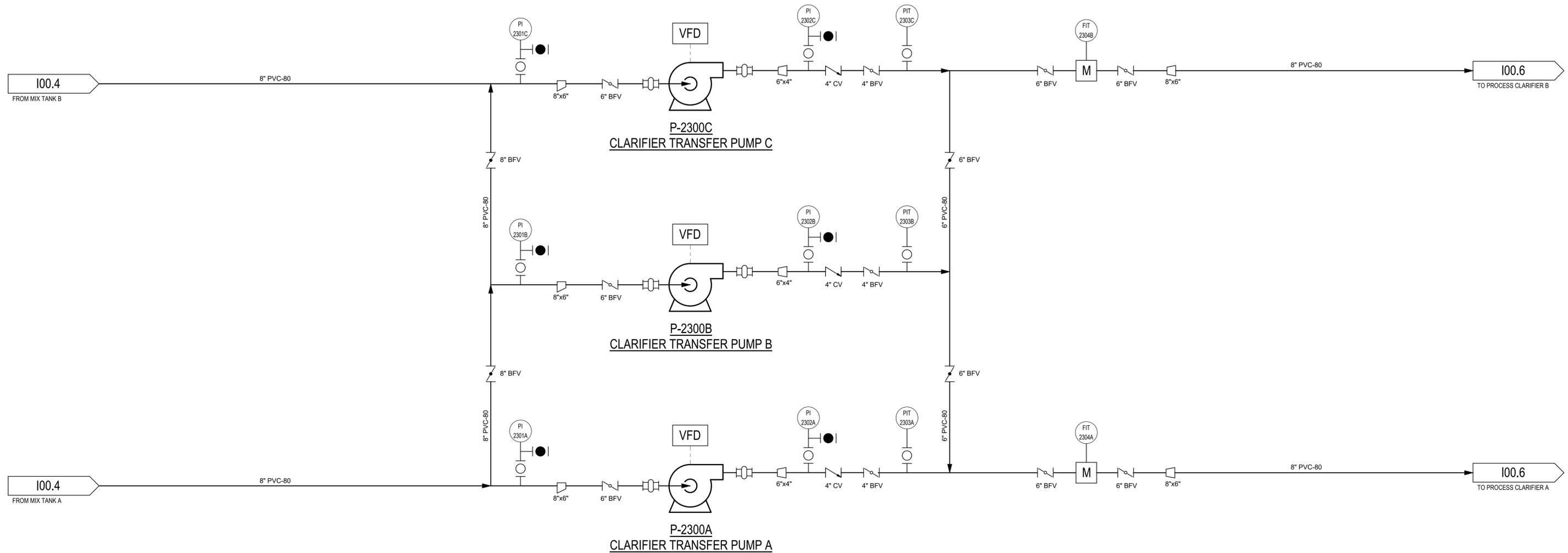
PIPING & INSTRUMENTATION
MIX TANKS

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
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100.4
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



P-2300A/B/C
CLARIFIER TRANSFER
PUMPS A/B/C (3)
 450 GPM EA. @ 30' TDH
 HP: 5 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4MCU
 QTY: 3 X 100%

REV. NO.	DESCRIPTION	DATE
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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PIPING & INSTRUMENTATION
CLARIFIER TRANSFER PUMPS

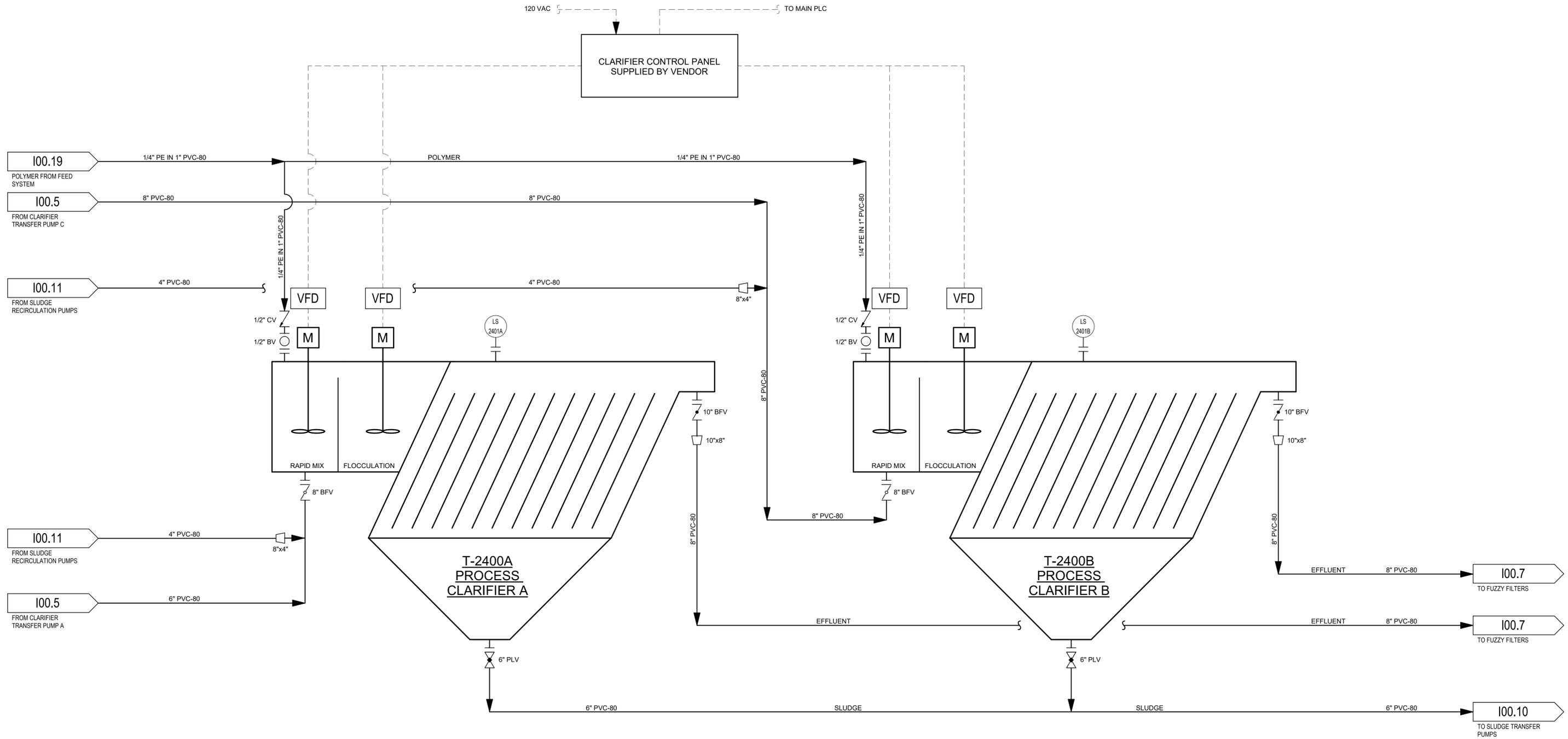
PROJ START DATE: AUG 2021
MCE PROJ. # 1024-0197
DRAWN NMB
DESIGNED NMB
CHECKED JMV
PROJ. MGR JMV

SCALE
 NTS

100.5

DRAWING NUMBER
A
 REVISION

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION



**T-2400A/B
PROCESS CLARIFIERS A/B (2)**

CAPACITY: 450 GPM EA.
22'-7" L X 11'-4" W X 21'-5" H
EPOXY COATED STEEL
0.5 HP, 3/60/460 VAC RAPID MIX MOTOR
0.5 HP, 3/60/460 VAC FLOC MIX MOTOR

REV. NO.	DESCRIPTION	DATE
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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
PROCESS CLARIFIERS**

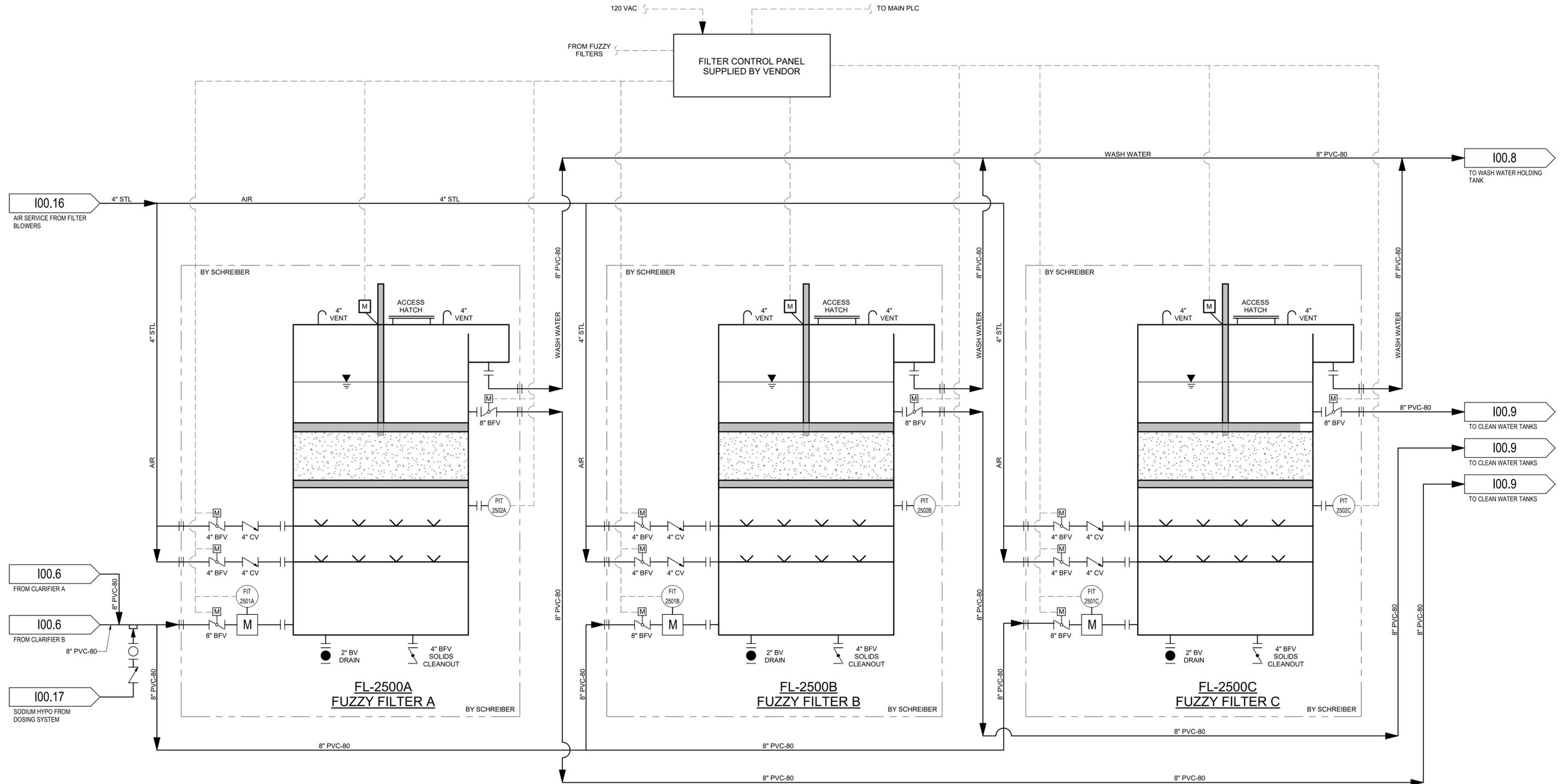
PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
-------	-----

100.6
DRAWING NUMBER

A
REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



**FL-2500A/B/C
FUZZY FILTERS A/B/C (3)**

CAPACITY: 450 GPM EA.
4' L X 4' W X 17'-10" H
3.2 HP SCREW ACTUATOR MOTOR

REV. NO.	DESCRIPTION	DATE
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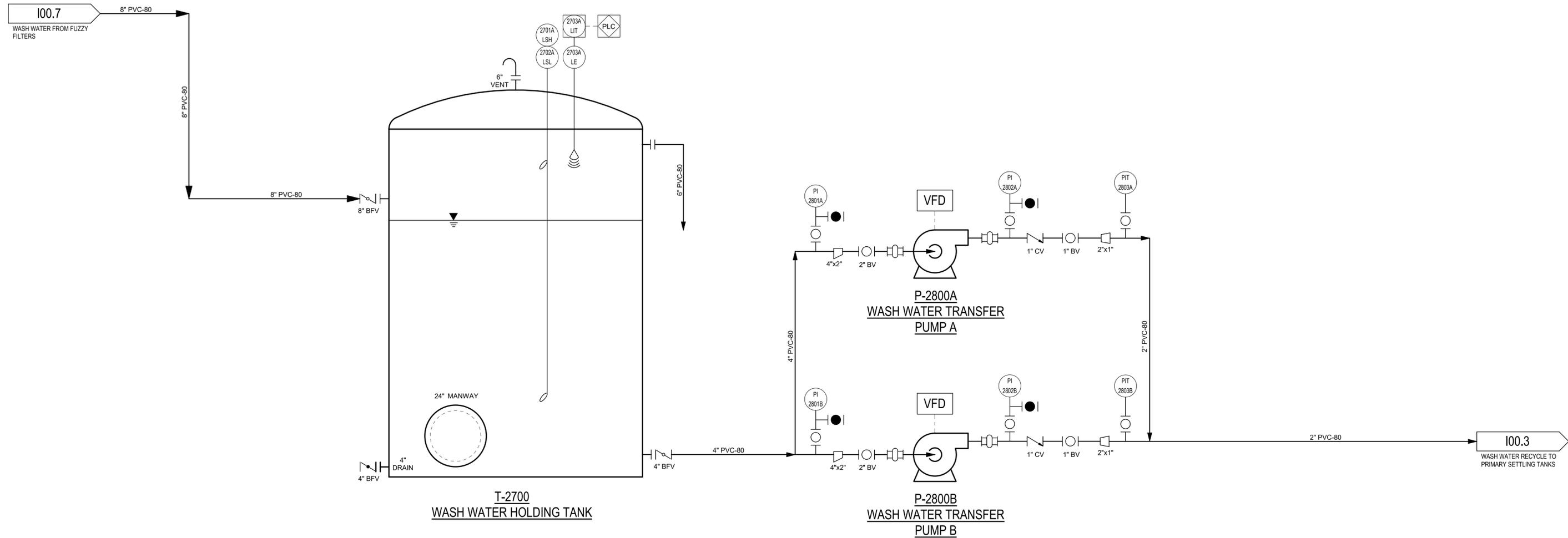


**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
FUZZY FILTERS**

PROJ START DATE: AUG 2021	SCALE
MCE PROJ. # 1024-0197	NTS
DRAWN NMB	100.7 DRAWING NUMBER A REVISION
DESIGNED NMB	
CHECKED JMV	
PROJ. MGR JMV	

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



T-2700
WASH WATER HOLDING TANK
 5,700 GAL
 11' DIA. X 8' H
 SINGLE WALLED POLYETHYLENE

P-2800A/B
WASH WATER TRANSFER PUMPS A/B (2)
 55 GPM EA. @ 20' TDH
 HP: 0.5 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4MCU
 QTY: 2 X 100%

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

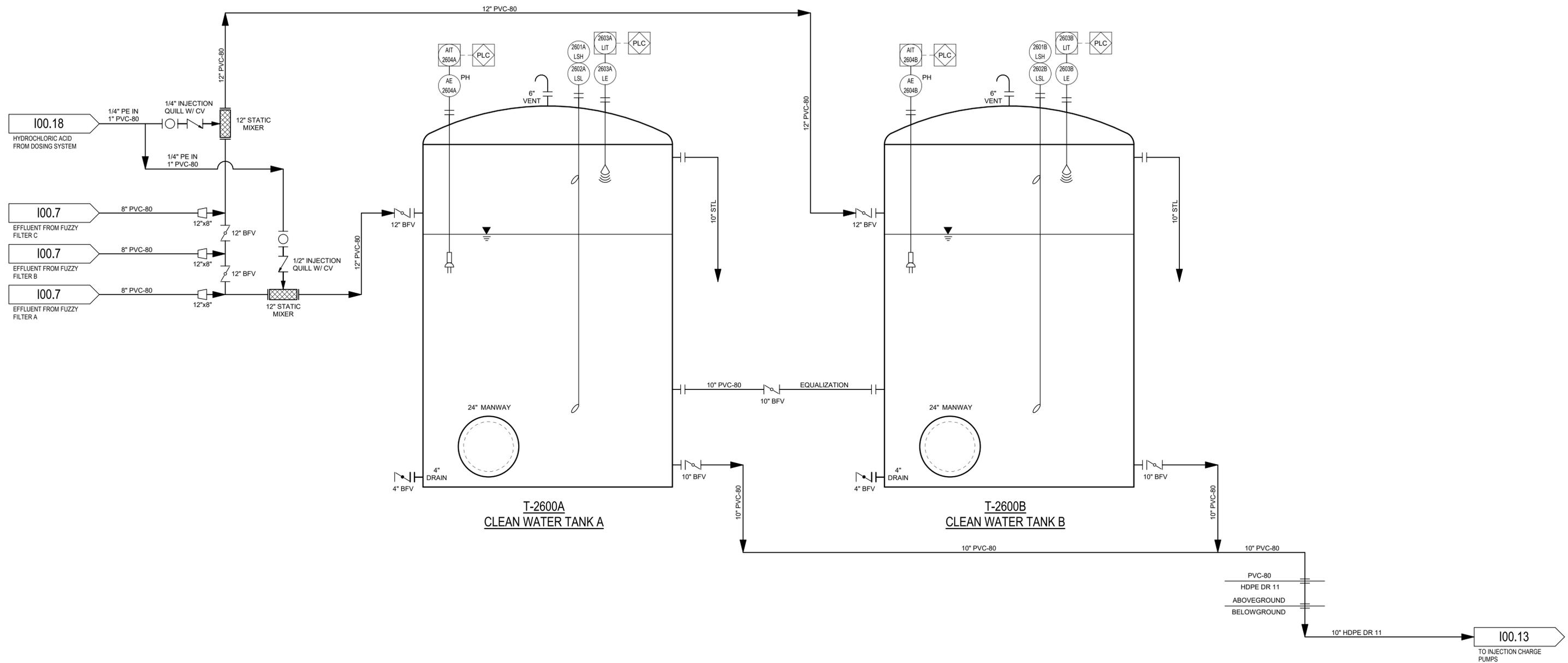
PIPING & INSTRUMENTATION
PIPING & INSTRUMENTATION DIAGRAM WASH WATER TANK

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
-------	-----

100.8
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY NOT FOR CONSTRUCTION**



T-2600A
CLEAN WATER TANK A

T-2600B
CLEAN WATER TANK B

T-2600A/B
CLEAN WATER TANKS A/B
7,000 GAL EA.
12' DIA. X 12' H
MATERIAL: FRP

REV. NO.	DESCRIPTION	DATE
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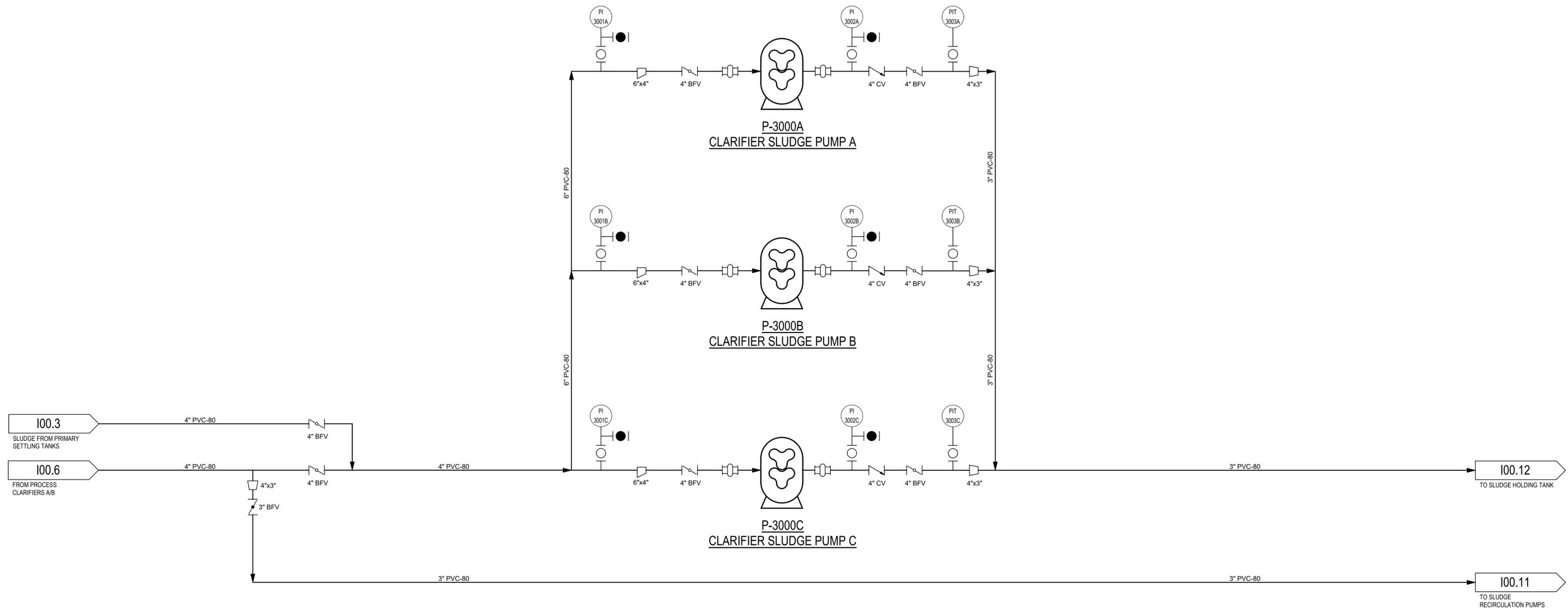
**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**
PIPING & INSTRUMENTATION
CLEAN WATER TANKS

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
-------	-----

100.9
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



**P-3000A/B/C
CLARIFIER SLUDGE
PUMPS A/B/C**
 35 GPM EA. @ 13 PSI
 HP: 3 HP
 ROTARY LOBE
 MATERIAL: 316 SST
 QTY: 3 X 100%

REV. NO.	DESCRIPTION	DATE
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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

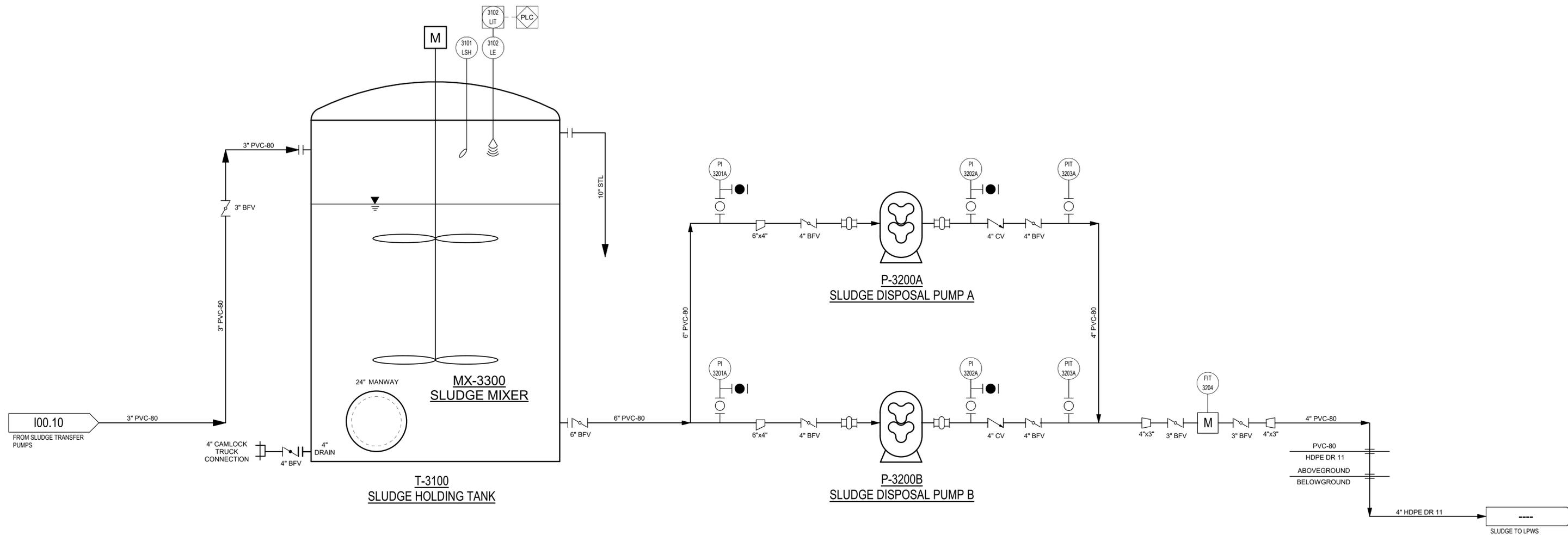
**PIPING & INSTRUMENTATION
 CLARIFIER SLUDGE PUMPS**

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
-------	-----

100.10
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



**P-3100
SLUDGE HOLDING TANK**
500 BBL (21,000 GAL)
12' DIA. X 25' H
MATERIAL: FRP

**MX-3300
SLUDGE MIXER**
316 STAINLESS STEEL
30 HP MOTOR
2 x 66" IMPELLERS
3/60/460 VAC

**P-3200A/B
SLUDGE DISPOSAL
PUMPS A/B**
100 GPM EA. @ 100' TDH
HP: 7.5 HP
ROTARY LOBE
MATERIAL: CD4MCU
QTY: 2 X 100%

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021



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**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
SLUDGE DISCHARGE PUMPS**

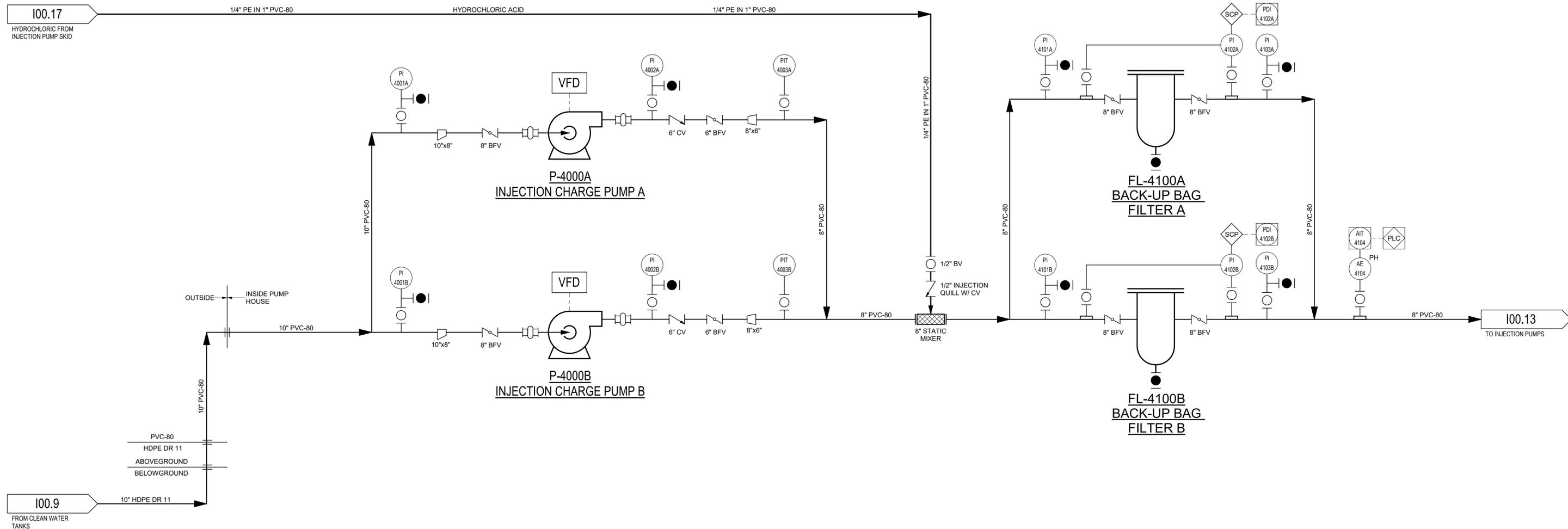
PROJ START DATE: AUG 2021
MCE PROJ. # 1024-0197
DRAWN NMB
DESIGNED NMB
CHECKED JMV
PROJ. MGR JMV

SCALE
NTS

100.12
DRAWING NUMBER

A
REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



100.9 FROM CLEAN WATER TANKS

10" HDPE DR 11

10" PVC-80

OUTSIDE

INSIDE PUMP HOUSE

PVC-80

HDPE DR 11

ABOVEGROUND

BELOWGROUND

P-4000A/B
INJECTION CHARGE
PUMPS A/B
 700 GPM EA. @ 50' TDH
 HP: 20 HP
 HORIZONTAL CENTRIFUGAL
 MATERIAL: CD4MCU
 QTY: 2 X 100%

FL-4100A/B
BACK-UP BAG
FILTERS A/B
 700 GPM CAPACITY
 100 MICRON
 MATERIAL: CARBON STEEL
 QTY: 2 X 100%

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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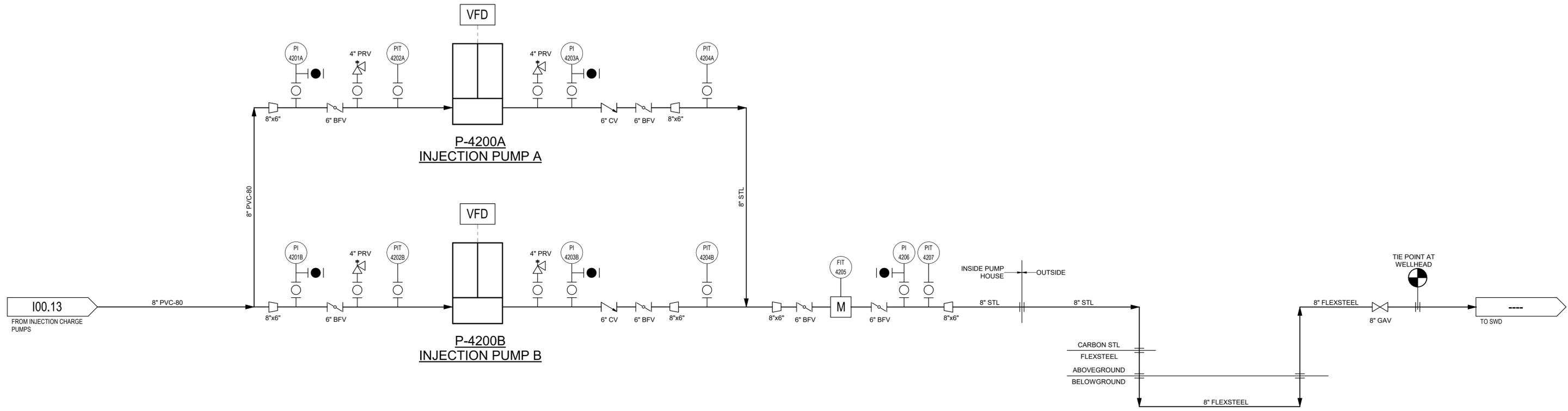
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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PIPING & INSTRUMENTATION
INJECTION CHARGE PUMPS

PROJ START DATE: AUG 2021	SCALE
MCE PROJ. # 1024-0197	NTS
DRAWN NMB	100.13 DRAWING NUMBER
DESIGNED NMB	
CHECKED JMV	
PROJ. MGR JMV	REVISION
A	

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION



P-4000A/B
INJECTION CHARGE
PUMPS A/B
 700 GPM EA. @ 450 PSI
 HP: 300 HP
 POSITIVE DISPLACEMENT
 MATERIAL: GD4MCU
 QTY: 2 X 100%

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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 Clearwater, Florida 33756
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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

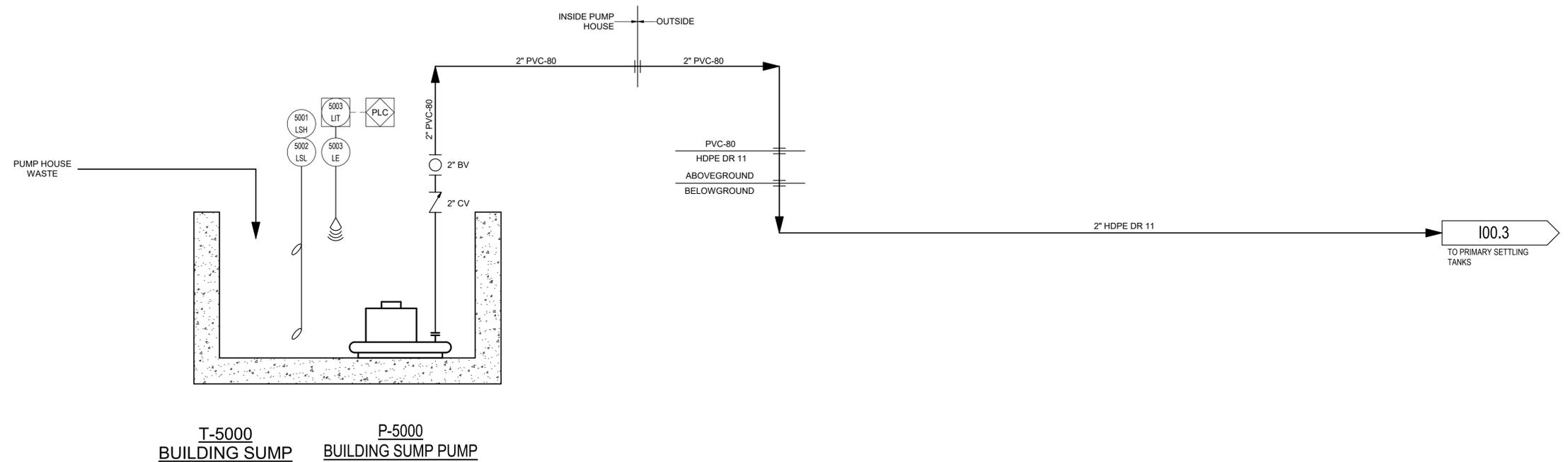
PIPING & INSTRUMENTATION
INJECTION PUMPS

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
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DRAWING NUMBER	100.14
REVISION	A

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION



**T-5000
BUILDING SUMP**
PRECAST CONCRETE SUMP
SIZE: 4' L X 4' W X 4' D

**P-5000
BUILDING SUMP
PUMP**
50 GPM @ 50' TDH
HP: 5 HP
SUBMERSIBLE
MATERIAL: CAST IRON
QTY: 1

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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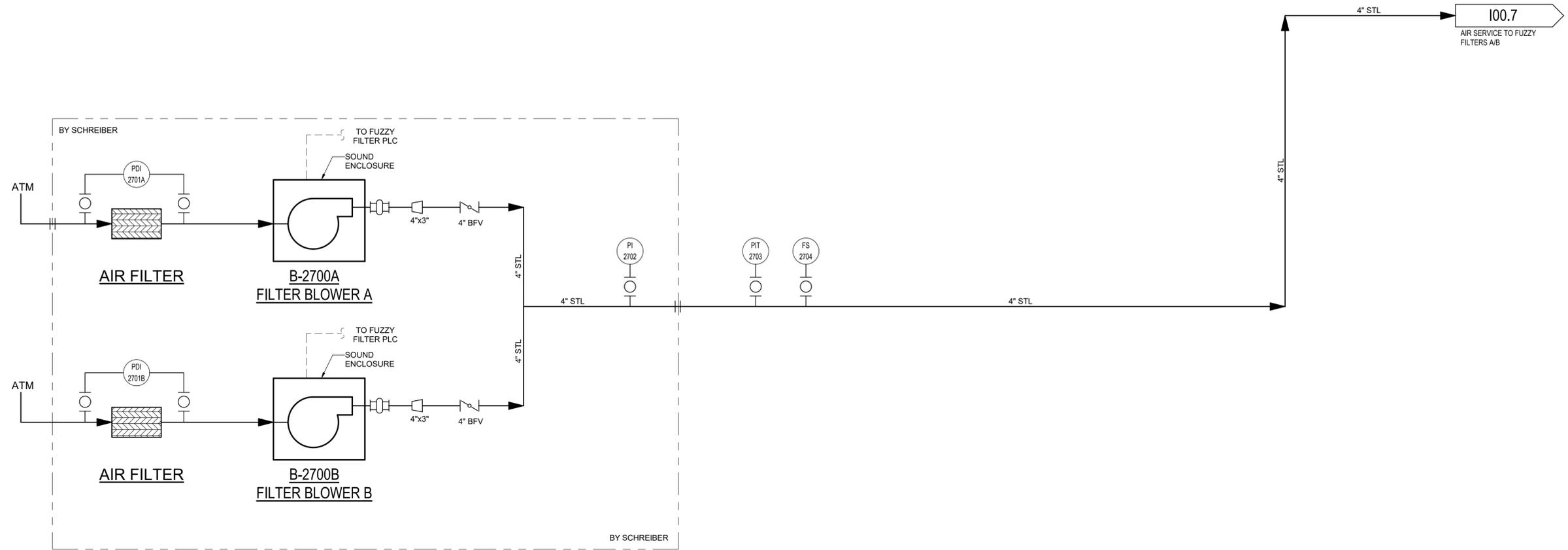


**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
BUILDING SUMP**

PROJ START DATE: AUG 2021	SCALE
MCE PROJ. # 1024-0197	NTS
DRAWN Author	100.15 DRAWING NUMBER
DESIGNED Designer	
CHECKED Checker	
PROJ. MGR Approver	A REVISION

STATUS: **PRELIMINARY
NOT FOR CONSTRUCTION**



**B-2700A/B
FILTER BLOWERS A/B**

TYPE: POSITIVE DISPLACEMENT
 DESIGN FLOW: XXX SCFM
 HP: 15 HP
 MATERIAL: DUCTILE IRON
 DEAD HEAD PRESSURE: XXX PSIG
 QTY: 2 X 100% (ONE OPERATING,
 ONE STANDBY)

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021



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**PINEY POINT DEEP INJECTION WELL
 PRETREATMENT PROJECT**

**PIPING & INSTRUMENTATION
 FILTER BLOWERS**

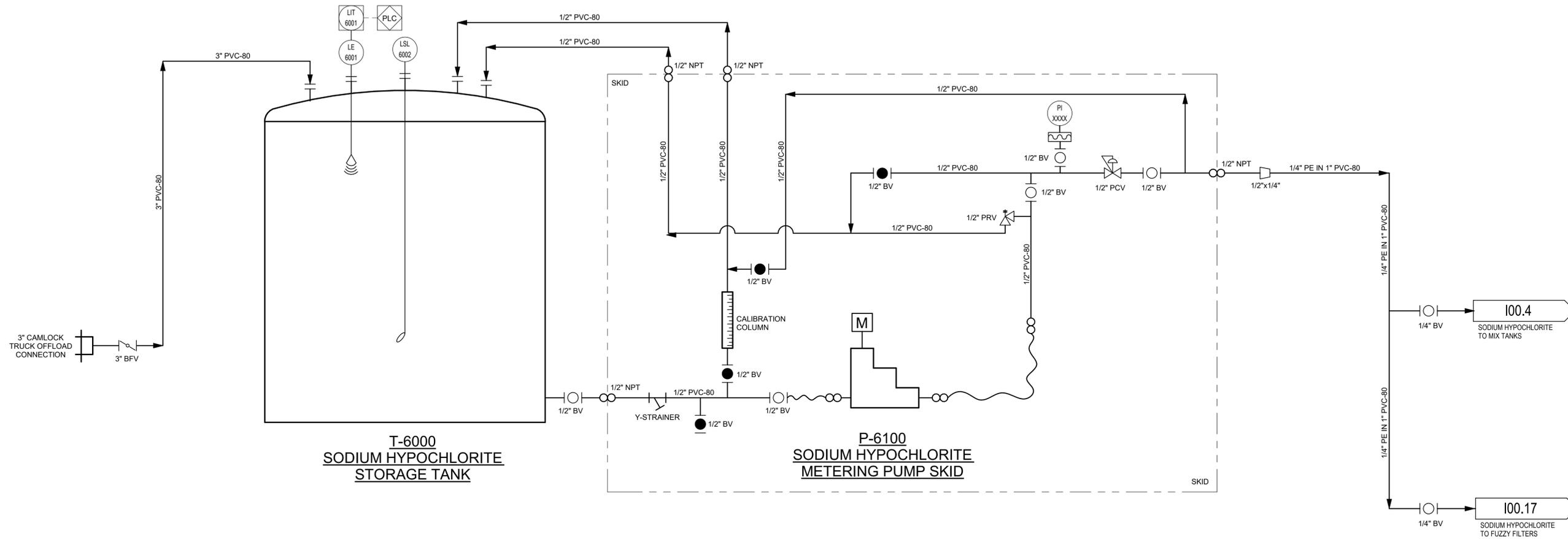
PROJ START DATE: AUG 2021
MCE PROJ. # 1024-0197
DRAWN Author
DESIGNED Designer
CHECKED Checker
PROJ. MGR Approver

SCALE
NTS

DRAWING NUMBER
100.16

REVISION
A

STATUS: **PRELIMINARY
 NOT FOR CONSTRUCTION**



T-6000
SODIUM HYPOCHLORITE
STORAGE TANK
 SINGLE-WALLED
 CROSS-LINKED POLYETHYLENE
 3,000 GALLON
 SG: 1.2
 X' DIAM x X' H

P-6100
SODIUM HYPOCHLORITE
METERING PUMP SKID
 PACKAGED SKID SUPPLIED BY VENDOR
 12.5% NaOCl
 1.6 GPH (70 GPD) @ 50 PSI

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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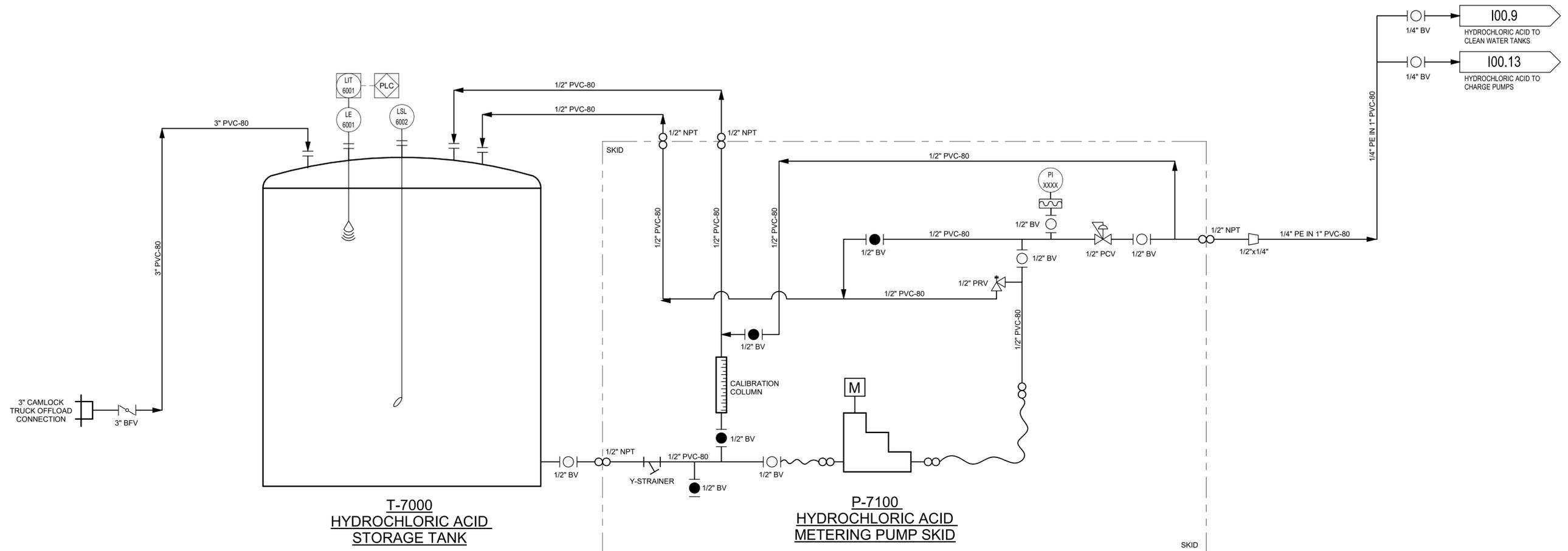
PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PIPING & INSTRUMENTATION
SODIUM HYPOCHLORITE SYSTEM

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	Author
DESIGNED	Designer
CHECKED	Checker
PROJ. MGR	Approver

SCALE	100.17
NTS	A
DRAWING NUMBER	REVISION

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION



T-7000
HYDROCHLORIC ACID
STORAGE TANK
 SINGLE-WALLED
 CROSS-LINKED POLYETHYLENE
 10,305 GALLON
 SG: 1.2
 X' DIAM x X' H

P-7100
HYDROCHLORIC ACID
METERING PUMP SKID
 PACKAGED SKID SUPPLIED BY VENDOR
 30% HCl
 11.5 GPH (300 GPD) @ 50 PSI

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021

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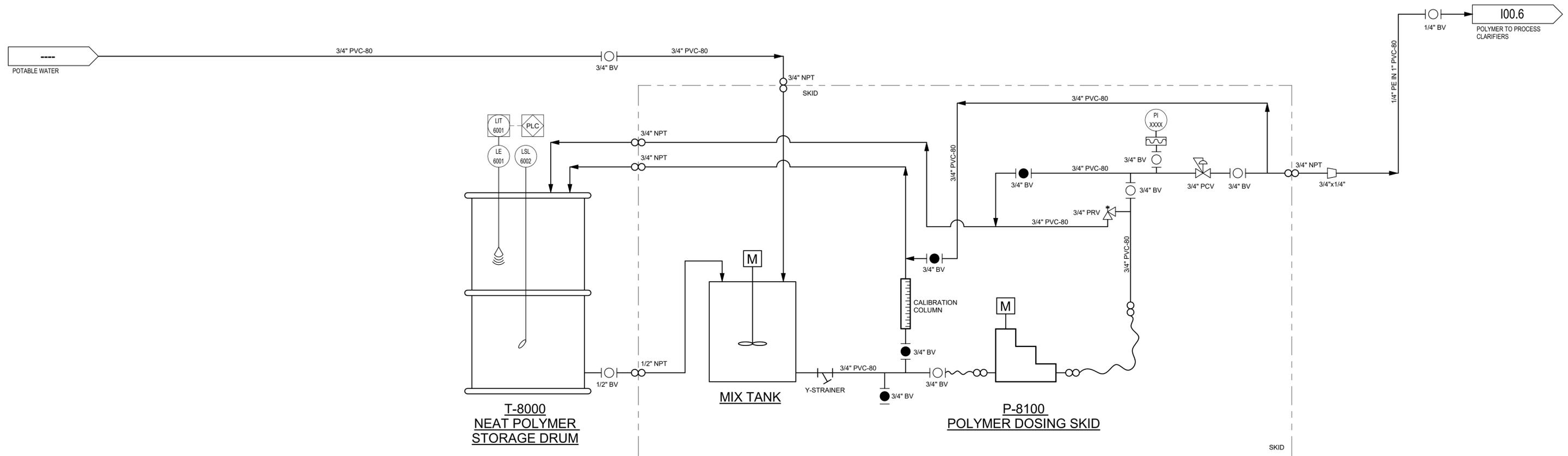
CA Lic. No. 29588
 www.mckimcreed.com



PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PIPING & INSTRUMENTATION
HYDROCHLORIC ACID SYSTEM

PROJ START DATE: AUG 2021	SCALE: NTS	100.18
MCE PROJ. # 1024-0197	DRAWN: Author	
DESIGNED: Designer	CHECKED: Checker	A
PROJ. MGR: Approver		REVISION
STATUS: PRELIMINARY		NOT FOR CONSTRUCTION



T-8000
NEAT POLYMER
STORAGE DRUM
 NEAT POLYMER STORAGE
 55 GALLON DRUM

P-8100
POLYMER DOSING SKID
 PACKAGED SKID SUPPLIED BY VENDOR
 40% POLYMER DILUTION
 0.6 GPH (15 GPD)
 1/2 HP MOTOR
 115/230 VAC, 1 PHASE

REV. NO.	DESCRIPTION	DATE
A	PROPOSAL ISSUE - NOT FOR CONSTRUCTION REVISIONS	10/08/2021



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 Clearwater, Florida 33756
 Phone: (727) 442-7196, Fax: (727) 461-3827

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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

PIPING & INSTRUMENTATION
POLYMER DOSING SYSTEM

PROJ START DATE:	AUG 2021
MCE PROJ. #	1024-0197
DRAWN	NMB
DESIGNED	NMB
CHECKED	JMV
PROJ. MGR	JMV

SCALE	NTS
-------	-----

100.19
DRAWING NUMBER
A
REVISION

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION

1 ABBREVIATIONS	
NOTE: ALL ABBREVIATIONS MAY NOT BE UTILIZED FOR THIS PROJECT	
A, AMP	AMMETER / AMPERE
ACV	AIR OPERATED CONTROL VALVE
AFD	ADJUSTABLE FREQUENCY DRIVE
AF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AIT	ANALYTICAL INDICATION TRANSMITTER
AL	ALUMINUM
ARMS	ARC-FLASH REDUCTION SYSTEM
AS	AMMETER SWITCH
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
AQD	ARC QUENCHING DEVICE
BKR	BREAKER
BLDG	BUILDING
BV	BUTTERFLY VALVE
C	CONDUIT
CAB	CABINET
CB	CIRCUIT BREAKER
CBV	CABLE BY VENDOR, INSTALLED BY CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION
CHH	COMMUNICATION HANDHOLE
CKT	CIRCUIT
CLG	CEILING
CL2	CHLORINE
CMH	COMMUNICATION MANHOLE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY, CORROSION RESISTANT
CS	CONTROL STATION
CSH	DIAPHRAGM LEAK DETECTOR
CT	CURRENT TRANSFORMER
CTRL	CONTROL
CU	COPPER
CV	CONTROL VALVE
DB	DECIBEL
DC	DIRECT CURRENT
DCS	DISTRIBUTED CONTROL SYSTEM
DET	DUAL ELEMENT TIME DELAY
DISC	DISCONNECT
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
DPSH	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	EMPTY CONDUIT
EF	EXHAUST FAN
EHH	ELECTRICAL HANDHOLE
EL, ELEV	ELEVATION
ELTU	ELECTRONIC TRIP UNIT
EMER	EMERGENCY
EMH	ELECTRICAL MANHOLE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPRF	EXPLOSION PROOF
EQUIP	EQUIPMENT
EW	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FDR	FEEDER
FIT	FLOW INDICATION TRANSMITTER
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLOUR	FLOUR
FMC	FLEXIBLE METALLIC CONDUIT
FS	FLOW SWITCH
FT	FEET OR FOOT
FUT	FUTURE
FVNR	FULL VOLTAGE NON-REVERSING STARTER
FWE	FURNISHED WITH EQUIPMENT
G, GND	GROUND
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HG	HOT DIPPED GALVANIZED
HH	HANDHOLE
HOA	HAND-OFF-AUTO
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HZ	HERTZ
ID	INTERIOR DIAMETER
IHH	INSTRUMENTATION HANDHOLE
IMC	INTERMEDIATE METALLIC CONDUIT (GALVANIZED)
IMH	INSTRUMENTATION MANHOLE
IMT	INTERMEDIATE METALLIC
IN	INCHES
ITB	INSTRUMENT TERMINAL BOX
JB	JUNCTION BOX
K	THOUSAND
KA	KILOVOLT AMPERE
KAIC	THOUSAND AMPERES INTERRUPTING CURRENT
KCMIL	THOUSAND CIRCULAR MILLS
KVA	THOUSAND VOLT AMPERES
KW	KILOWATTS
KWH	KILOWATT-HOURS
LA	LIGHTNING ARRESTOR
LCP	LOCAL CONTROL PANEL
LED	LIGHT-EMITTING DIODE
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
LIT	LEVEL INDICATION TRANSMITTER
LP	LIGHTING PANEL, LIGHT POLE
LS	LEVEL SWITCH
LTG	LIGHTING
LV	LOW VOLTAGE
M	MOTOR
MA	MILLIAMPERE
MB	MOTOR BEARING DETECTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MS	MOISTURE SENSOR
MSB	MAIN SWITCHBOARD
MTD	MOUNTED/MOUNTING
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE - MOTOR VIBRATION DETECTOR
NA	NON-AUTOMATIC
N/A	NOT APPLICABLE
NC	NORMALLY CLOSE
NEC	NATIONAL ELECTRIC CODE
N, NEU	NEUTRAL
NI	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OFCL	OWNER FURNISHED, CONTRACTOR INSTALLED
OL	OVERLOAD RELAY
P	POLE
PA	PUBLIC ADDRESS
PB	PUSH BUTTON
P/B	PULL BOX
PCP	PUMP CONTROL PANEL
PF	POWER FACTOR
PFC	POWER FACTOR CORRECTION CAPACITORS
PFD	PULL FUSE DISCONNECT
PH	PHASE
PI	PRESSURE INDICATION TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PP	POWER PANEL, POWER POLE
PR	PAIR
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PTZ	PAN-TILT-ZOOM
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RMC	RIGID REMOTE TELEMETRY UNIT
R/S	RUN/STOP HAND SWITCH
RVSS	REDUCED VOLTAGE SOFT STARTER
SCCR	SHORT CIRCUIT CURRENT RATING
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SEC	SECONDARY
SP	SPARE
SPEC	SPECIFICATION
SPD	SURGE PROTECTION DEVICE
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
ST	SHUNT TRIP
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCH GEAR
TB	TERMINAL BOX
TEL	TELEPHONE
TEMP	TEMPERATURE
TEW	THERMOCOUPLE EXTENSION WIRE
TIT	TEMPERATURE INDICATION TRANSMITTER
TMTU	THERMAL-MAGNETIC TRIP UNIT
TS	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UN	UNLESS OTHERWISE NOTED
UNINT	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTMETER
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
VLV	MANUAL OPERATED VALVE
VS	VOLTMETER SWITCH
WS	TORQUE SWITCH
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
ZI	ZONE INTERLOCK
ZC	STROKE POSITIONER
ZS	LIMIT SWITCH
ZSC	LIMIT SWITCH CLOSED
ZSO	LIMIT SWITCH OPEN

2 CONTRACTOR RESPONSIBILITIES	
2.1.	CONTRACTOR SHALL REFERENCE ALL SPECIFICATIONS, DRAWINGS AND CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2.2.	CONTRACTOR SHALL COMPLY WITH ALL STATE, COUNTY, AND CITY STANDARDS, DETAILS, AND SPECIFICATIONS.
2.3.	THE GENERAL NOTES AS STATED ON THIS SHEET ARE APPLICABLE TO ALL CONTRACT DOCUMENTS AND SCOPE OF WORK UNDER THIS CONTRACT UNLESS NOTED OTHERWISE.
2.4.	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NFPA, NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
2.5.	CONTRACTOR SHALL COORDINATE WITH THE LOCAL ELECTRICAL UTILITY TO ESTABLISH NEW ELECTRICAL SERVICE(S) AND FINAL CONNECTIONS TO PROVIDE UTILITY POWER AS REQUIRED TO INCLUDE ESTABLISHING TEMPORARY UTILITY ACCOUNT TO PROVIDE ELECTRICAL POWER FOR START-UP AND COMMISSIONING.
2.6.	THE ELECTRICAL INSTALLATION SHALL MEET THE REQUIREMENTS OF ALL APPLICABLE NECA/NEIS STANDARDS TO INCLUDE OWNER CONSTRUCTION STANDARDS.
2.7.	CONTRACTOR SHALL PLAN AND COORDINATE ELECTRICAL CONSTRUCTION WITH ALL CRAFT/TRADE TO ACHIEVE AN EFFICIENT AND EFFECTIVE ELECTRICAL INSTALLATION.
2.8.	THE SCHEDULING AND DURATION OF ANY PROCESS OR FACILITY SHUTDOWN TO REMOVE AND/OR INSTALL EQUIPMENT SHALL BE COORDINATED IN ADVANCE WITH FACILITY MANAGEMENT, ENGINEER, OWNER OR OWNER REPRESENTATIVE.

5 ELECTRICAL EQUIPMENT	
5.1.	600V RATED ELECTRICAL EQUIPMENT SHALL HAVE AN AMPERE INTERRUPTING CAPACITY (AIC) RATINGS AS SHOWN ON THE CONTRACT DRAWINGS.
5.2.	EQUIPMENT SHALL BE ARRANGED AND INSTALLED TO COMPLY WITH ALL CODE-REQUIRED, MANUFACTURER-RECOMMENDED AND HEAT-DISSIPATION CLEARANCES.
5.3.	EQUIPMENT INSTALLATIONS AND PLACEMENTS SHALL COMPLY WITH NEC ARTICLE 110 FOR ALL CLEARANCE REQUIREMENTS.
5.4.	EQUIPMENT SHALL FIT INTO THOSE SPACES AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENTS.
5.5.	CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTIONS FOR ALL EQUIPMENT INSTALLED AND/OR MODIFIED UNDER CONTRACT.

8 GROUNDING AND BONDING	
8.1.	GROUNDING AND BONDING SYSTEMS SHALL COMPLY WITH NFPA 70 AND NFPA 780 TO INCLUDE THOSE REQUIREMENTS IN APPLICABLE SPECIFICATION SECTIONS
8.2.	REFERENCE GROUNDING INSTALLATION DETAILS AS SHOWN ON CONTRACT DOCUMENTS
8.3.	ALL DIRECT-BURIED GROUNDING SYSTEM CONDUCTORS SHALL BE BARE 4/0AWG COPPER
8.4.	ALL CONCRETE ENCASED GROUNDING SYSTEM CONDUCTORS SHALL BE TINNED 4/0AWG COPPER
8.5.	ALL GROUNDING AND BONDING TAPS SHALL BE TINNED #2AWG COPPER MINIMUM
8.6.	GROUNDING SYSTEM CONDUCTORS SHALL BE BURIED 30-INCH BELOW FINISHED GRADE
8.7.	UNDERGROUND OR CONCRETE ENCASED GROUNDING SYSTEM CONNECTIONS SHALL BE MADE WITH EXOTHERMIC WELDS
8.8.	CONNECTIONS TO STRUCTURAL STEEL AND/OR REBAR SHALL BE MADE WITH EXOTHERMIC WELDS
8.9.	ELECTRICAL EQUIPMENT AND/OR FRAMING SUPPORTS SHALL BE BONDED TO GROUNDING SYSTEM USING TINNED #2AWG COPPER, MECHANICAL LUGS, 316L STAINLESS-STEEL, ANTI-VIBRATION FASTENERS AND BLUE 'LOCTITE' OR EQUAL THREAD COMPOUND (MINIMUM 2 LOCATIONS)
8.10.	MECHANICAL EQUIPMENT AND/OR SKID FRAMING SHALL BE BONDED TO GROUNDING SYSTEM USING TINNED #2AWG COPPER, MECHANICAL LUGS, 316L STAINLESS-STEEL, ANTI-VIBRATION FASTENERS AND BLUE 'LOCTITE' OR EQUAL THREAD COMPOUND (MINIMUM 2 LOCATIONS)
8.11.	MAN-WAY AND/OR EQUIPMENT HATCH FRAMES SHALL BE BONDED TO GROUNDING SYSTEM USING TINNED #2AWG COPPER, MECHANICAL LUGS, 316L STAINLESS-STEEL, ANTI-VIBRATION FASTENERS AND BLUE 'LOCTITE' OR EQUAL THREAD COMPOUND (MINIMUM 2 LOCATIONS)
8.12.	GROUND TEST WELLS SHALL BE 15-INCH MINIMUM ROUND CONCRETE WITH CAST IRON COVER WITH BEAD WELDED LETTERING, "GROUND" AND RATED AASHTO H-10 LOADING
8.12.1.	J&R CONCRETE PRODUCTS P/N E6-RT-BOX OR EQUAL
8.13.	GROUNDING SYSTEM EXTENSIONS:
8.13.1.	PROVIDE SUFFICIENT SLACK GROUNDING CABLE TO MAKE CONNECTIONS TO FUTURE GROUNDING CONDUCTORS, DUCTBANKS AND/OR EQUIPMENT
8.13.2.	INSTALL 2.0-INCH PVC PIPE 48-INCH ABOVE FINISHED GRADE AT LOCATION AND INDICATE ON AS-BUILD DRAWINGS WITH A MINIMUM OF THREE (3) MEASUREMENTS FROM NEAREST STRUCTURES

9 SITE LIGHTING	
9.1.	CONTRACTOR SHALL REFERENCE ALL CONTRACT DRAWINGS PRIOR TO EXCAVATION AND INSTALLATION OF UNDERGROUND RACEWAYS, DUCTBANKS AND GROUNDING/BONDING COMPONENTS.
9.2.	ALL SITE LIGHTING POWER "RUN" CONDUCTORS SHALL BE #6AWG STRANDED COPPER W/600V TYPE XHHW-2, 90°C INSULATION.
9.3.	ALL SITE LIGHTING POWER "TAP" CONDUCTORS SHALL BE #10AWG STRANDED COPPER W/ 600V TYPE THHN/THWN, 90°C INSULATION.
9.4.	ALL TAP AND RUN CONNECTIONS SHALL BE WATER-PROOF.
9.5.	TRANSITIONS THROUGH FINISHED GRADE AND CONCRETE SHALL BE PVC-COATED ALUMINUM CONDUIT EXTENDING 12-INCHES ABOVE AND BELOW TRANSITION.
9.6.	ALL SITE LIGHTING BRANCH CIRCUITS SHALL BE DIRECT-BURIED SCH-80 2.0" PVC CONDUIT UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS.

3 POWER AND CONTROL RACEWAYS	
3.1.	EXPOSED CONDUIT SHALL BE RIGID ALUMINUM CONDUIT (RAC). GRS, IMC AND EMT ARE NOT ACCEPTABLE.
3.2.	CONCEALED CONDUIT EMBEDDED IN CONCRETE SHALL BE SCH-40 PVC
3.3.	DIRECT-BURIED CONDUIT SHALL BE DIRECT-BURIED SCH-80 PVC
3.4.	TRANSITIONS THROUGH FINISHED GRADE AND/OR CONCRETE SHALL BE PVC-COATED RAC CONDUIT.
3.5.	DRAWINGS DEPICT MAJOR DUCTBANK, CABLE-TRAY, BUS-DUCT, WIRE-WAY, TRENCH/FLOOR DUCTS, RACEWAY, CONDUIT, ETC., TO INCLUDE CABLE, CONDUCTOR AND WIRING IN SCHEMATIC AND/OR DIAGRAMMATIC FORMATS. THE CONTRACTOR SHALL REFERENCE ALL EQUIPMENT SPECIFICATIONS AND MANUFACTURER INSTRUCTIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.
3.6.	RACEWAY INSTALLATION AND/OR ARRANGEMENT LAYOUTS ARE NOT TYPICALLY SHOWN ON THE DRAWINGS. CONTRACTOR SHALL DEVELOP LOGICAL GROUPINGS, ROUTING AND MARSHALLING OF DUCTBANK, CABLE-TRAY, BUS-DUCT, WIRE-WAY, TRENCH/FLOOR DUCT, RACEWAY, CONDUIT, ETC., THESE SHALL NOT BE ROUTED THROUGH OR INTERFERE WITH ANY STRUCTURAL ELEMENTS. CONTRACTOR SHALL SUBMIT THESE RACEWAY INSTALLATION AND/OR ARRANGEMENT LAYOUTS PER THE SPECIFICATIONS FOR ENGINEER REVIEW PRIOR TO INSTALLATION.
3.7.	RACEWAY ROUTINGS SHALL BE ORGANIZED AND GROUPED IN A PRACTICAL MANNER TO MINIMIZE CROSS-OVERS AND SADDLES. RACEWAY INSTALLATIONS SHALL BE ARRANGED TO ENTER EQUIPMENT FOR DIRECT CONDUCTOR TERMINATIONS.
3.8.	RACEWAYS SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED OR SHOWN. THESE SHALL RUN PARALLEL TO LANDSCAPE AND STRUCTURAL FEATURES WHILE THE BENDS AND TURNS SHALL BE MADE BY MEANS OF LARGE RADIUS FITTINGS.
3.9.	PROVIDE FLEXIBLE RACEWAY CONNECTIONS TO ALL EQUIPMENT SUBJECT TO MOVEMENT AND/OR VIBRATION. CONTRACTOR SHALL MAKE RACEWAY CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS.
3.10.	CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES, TERMINAL BOXES AND JUNCTION BOXES FOR INSTALLATION FOR THE WIRING SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS THOUGH ALL BOXES MAY NOT BE INDICATED ON THE DRAWINGS.
3.11.	SPARE CONDUITS SHALL BE CAPPED OR PLUGGED WITH A PVC FITTING AND INCLUDE 200# TEST POLYPROPYLENE PULL STRING.

6 DUCTBANK SYSTEMS	
6.1.	DUCTBANK SYSTEM ROUTING AND SECTIONS ARE SHOWN ON THE CONTRACT DOCUMENTS AS DIAGRAMMATIC. CONTRACTOR SHALL SUBMIT PROPOSED DUCTBANK INSTALLATION LAYOUT DRAWINGS FOR ENGINEER REVIEW PRIOR TO EXCAVATION, FABRICATION AND/OR INSTALLATION
6.2.	DUCTBANK SYSTEMS SHALL NOT INTERFERE WITH ANY STRUCTURAL FOUNDATION AND/OR FEATURE
6.3.	DUCTBANK SYSTEMS SHALL HAVE A MINIMUM OF 18-INCH OF CLEAN COMPACTED COVER UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS
6.4.	DUCTBANK SYSTEMS ROUTED UNDER ROADWAYS SHALL BE CONSTRUCTED AND INSTALLED PER STRUCTURAL ENGINEER OF RECORD DESIGN REQUIREMENTS
6.5.	DUCTBANK SYSTEMS SHALL INCLUDE A BARE 4/0AWG COPPER GROUNDING CONDUCTOR LAID 6 TO 12-INCHES ABOVE DUCTBANK AND ROUTED INTO EACH MAN-HOLE
6.6.	DUCTBANK GROUNDING CONDUCTOR SHALL BE CONNECTED WITH EXOTHERMIC WELDS TO GROUNDING SYSTEMS AS SHOWN THE DRAWINGS
6.7.	DUCTBANK SYSTEMS SHALL BE ARRANGED TO ALLOW 1.5 TO 2.0-INCH MINIMUM SEPARATION BETWEEN RACEWAYS
6.8.	ABS PLASTIC DUCT-SPACERS SHALL BE UTILIZED AND INSTALLED TO MAINTAIN RACEWAY SEPARATION DURING PLACEMENT OF CONCRETE
6.8.1.	UNDERGROUND DEVICES INC. P/N DUCT DONUT 2C OR APPROVED EQUAL
6.9.	RACEWAYS SHALL BE SECURED TO PREVENT FLOATATION DURING CONCRETE PLACEMENT WITH METALLIC HOLD-DOWN ASSEMBLIES
6.9.1.	UNDERGROUND DEVICES, INC. P/N HOLD-DOWN BAR H5X-XX-2X OR APPROVED EQUAL
6.10.	ALL RACEWAYS BENDS SHALL BE MADE WITH LARGE SWEEP RADII, TO MANUFACTURERS STANDARDS
6.11.	ALL RACEWAYS SHALL BE REAMED, DE-BURRED AND CLEAN PRIOR TO COUPLING
6.12.	ALL PVC RACEWAYS SHALL BE JOINED WITH GREY HEAVY-BODIED PVC CEMENT AND FULLY SEATED IN SLIP-COUPLING OR FITTING
6.13.	ALL PVC RACEWAYS SHALL ENTER MAN-HOLE WALLS PERPENDICULAR AND HAVE BELL-END FITTINGS INSTALLED PRIOR TO DRAWING WIRES OR CABLES
6.14.	RACEWAY ARRANGEMENTS SHALL BE MADE TO MAXIMUM THE DISTANCE BETWEEN 480/277V AND 208/120V FEEDER AND BRANCH CONDUCTORS FROM LOW-VOLTAGE AND FIBER OPTIC SIGNAL CABLING
6.15.	DUCTBANK EXTENSIONS:
6.15.1.	BULK-HEAD DUCTBANK CONCRETE POUR AND REMOVE ALL FORM WORK
6.15.2.	EXTEND ALL REBAR AND CONDUITS 24" MINIMUM FROM END OF CONCRETE DUCTBANK
6.15.3.	GLUE PVC END CAPS ON ALL CONDUITS. SLEEVE REBAR WITH PVC PIPE
6.15.4.	INSTALL 2.0-INCH PVC PIPE 48-INCH ABOVE FINISHED GRADE AT LOCATION AND INDICATE ON AS-BUILD DRAWINGS WITH A MINIMUM OF THREE (3) MEASUREMENTS FROM NEAREST STRUCTURES

10 WIRING DEVICES	
10.1.	GENERAL
10.1.1.	INDOORS OR NON PROCESS AREAS SHALL BE INSTALLED CONCEALED AND FLUSH WITH STAINLESS-STEEL DEVICE COVER PLATES.
10.1.2.	OUTDOORS OR IN PROCESS AREAS SHALL BE INSTALLED WITHIN WEATHER-PROOF, CORROSION RESISTANT DEVICE BOXES WITH METALLIC IN-USE AND/OR WATER-TIGHT DEVICE COVER PLATES.
10.2.	RECEPTACLES/GROUND FAULT CURRENT INTERRUPTING (GFCI)
10.2.1.	SHALL BE INDIVIDUAL GFCI RECEPTACLE DEVICES RATED FOR 20A/120V WITH LED POWER INDICATOR.
10.2.2.	GFCI RECEPTACLE DEVICES SHALL NOT SHARE NEUTRAL CONDUCTORS ON THREE-PHASE SYSTEMS

4 CABLE TRAY	
4.1.	THE CABLE TRAY INSTALLATION SHALL MEET ALL THE REQUIREMENTS OF ALL APPLICABLE NECA/NEIS STANDARDS. THESE INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
4.1.1.	NECA 1, STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION
4.1.2.	NECA/NEMA 105-2015, STANDARD FOR INSTALLING METAL CABLE TRAY
4.2.	ALL CABLE TRAYS SHALL BE ALUMINUM LADDER TYPE WITH 4-INCH SIDE WALLS AND 9-INCH RUNG SPACING.
4.3.	THE MANUFACTURER'S RECOMMENDED MECHANICAL LOADING SHALL NOT BE EXCEEDED.
4.4.	THE CABLE TRAY SHALL BE CAREFULLY ALIGNED AND LEVELLED PLUMB AND TRUE. CABLE TRAY SECTIONS AND FITTINGS SHALL BE ASSEMBLED ON THEIR SUPPORTS AND JOINED TOGETHER, USING MANUFACTURER'S STANDARD CONNECTOR UNITS, PROPERLY ALIGNED AND SECURED.
4.5.	SPICES SHOULD BE LOCATED AS CLOSE AS POSSIBLE TO POINTS ONE-THIRD THE DISTANCE BETWEEN SUPPORT AND MIDPOINT OF THE SPAN. STRAIGHT SECTION LENGTHS SHOULD BE EQUAL TO OR GREATER THAN THE SPAN LENGTH TO ENSURE NOT MORE THAN ONE SPLICE PLATE BETWEEN SUPPORTS.
4.6.	ALL METALLIC CABLE TRAYS ARE TO BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 392.60 AND BEST INDUSTRIAL PRACTICES.
4.7.	ALUMINUM CABLE TRAY SYSTEMS OR SECTIONS, CONDUCTIVITY SHALL BE ESTABLISHED AND MAINTAINED BY PERFORMING THE FOLLOWING OPERATION AT EACH BONDING JUMPER LUG CONNECTION:
4.7.1.	WIRE-BRUSH ALUMINUM SURFACES TO EXPOSE A BRIGHT 'WHITE' METAL SURFACE.
4.7.2.	CLEAN BRUSHED SURFACES WITH DENATURATED ALCOHOL.
4.7.3.	APPLY ANTI-OXIDIZING COMPOUND (BURNDY PENTROX OR APPROVED EQUAL) TO CLEAN, BRUSHED SURFACES. A TIME PERIOD OF LESS THAN 5 MINUTES MUST NOT ELAPSE BETWEEN STEPS 'A' AND 'C'.
4.8.	RE-APPLY ANTI-OXIDIZING COMPOUND AS REQUIRED AND BOLT LUG COMPONENTS.
4.9.	SUFFICIENT SPACE SHALL BE PROVIDED AND MAINTAINED ABOUT THE CABLE TRAYS TO ALLOW ADEQUATE ACCESS FOR INSTALLING AND MAINTAINING CABLING.
4.10.	ALL CABLES AND CABLE TIES SHALL BE SECURED TO CABLE TRAY RUNGS. UV-RESISTANT NYLON 'TY-WRAP'S' ARE ACCEPTABLE FOR HORIZONTAL RUNS AND STAINLESS-STEEL 'TY-WRAP'S' SHOULD BE USED IN VERTICAL RUNS. MAXIMUM TIE SPACING SHALL BE 12-INCHES FOR CABLES IN VERTICAL CABLE TRAYS AND 36-INCHES FOR CABLES IN HORIZONTAL. CABLE TIES SHALL BE OF SUFFICIENT TENSILE STRENGTH AND RIGIDITY TO PREVENT 'SNAKING' OF CABLES.
4.11.	THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTIONS OF CABLE TRAYS TO ALL ELECTRICAL EQUIPMENT AS REQUIRED PER CONTRACT.
4.12.	MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CABLE TRAY SUPPORTS.
4.13.	STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, MITER-CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CABLE TRAY SUPPORTS.

7 CABLES/ CONDUCTORS/ WIRES	
7.1.	QUANTITY AND SIZING OF CONDUCTORS, CABLING, WIRING AND RESPECTIVE RACEWAYS DEPICTED ON THE CONTRACT DOCUMENTS ARE SELECTED UPON THE BASIS OF DESIGN, STANDARD ELECTRICAL COMPONENTS AND/OR STANDARD EQUIPMENT WITH DIRECT ROUTED CONNECTIONS.
7.2.	CONTRACTOR MAY SUBMIT FOR REVIEW BY ENGINEER AND PRIOR TO INSTALLATION, LOGICAL CONDUCTOR AND RACEWAY GROUPINGS IN COMPLIANCE WITH APPLICABLE CODES, STANDARDS AND SPECIFICATIONS WITHOUT ADDITIONAL COST TO OWNER.
7.3.	CONTRACTOR SHALL PROVIDE A CIRCUIT IDENTIFICATION LABEL AT EACH END OF EACH POWER, BRANCH, CONTROL AND INSTRUMENTATION CIRCUIT CABLE ASSEMBLY, CONDUCTOR OR WIRE.
7.4.	POWER/FEEDER
7.4.1.	CONTRACTOR SHALL NOT EXCEED CABLE MANUFACTURER SPECIFICATIONS FOR SIDE-WALL AND TENSION LIMITS WHEN DRAWING POWER CABLES INTO RACEWAYS.
7.4.2.	CONTRACTOR SHALL DRAW POWER CABLES AND CONDUCTORS WITHIN RACEWAYS UTILIZING POLY/WATER LUBRICANT J OR APPROVED EQUAL.
7.4.3.	NO SPLICES TO POWER CONDUCTORS AND/OR CABLING SHALL BE MADE WITHOUT ENGINEER APPROVAL. NO JUNCTIONS SHALL BE MADE BELOW GRADE WITHOUT APPROVAL OF ENGINEER.
7.5.	POWER/BRANCH
7.5.1.	RACEWAY AND WIRING FOR LIGHTING, RECEPTACLES AND BRANCH CIRCUITS ARE NOT TYPICALLY SHOWN ON THE CONTRACT DRAWINGS BUT SHALL BE PROVIDED AS REQUIRED UNDER THIS CONTRACT

11 HARDWARE AND SUPPORTS	
11.1.	ALL FASTENERS AND HARDWARE SHALL BE STAINLESS-STEEL 316L.
11.2.	STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
11.3.	MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
11.4.	CONTRACTOR SHALL PROVIDE ALL SUPPORTS AND FASTENING HARDWARE FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CONTROL PANELS, ETC., AS REQUIRED IN THE SPECIFICATIONS.
11.5.	CONTRACTOR SHALL PROVIDE AND INSTALL CONCRETE EMBEDDED LEVELING CHANNEL SUPPORTS FOR FLOOR MOUNTED EQUIPMENT SPANNING DISTANCES 48" AND GREATER IN LENGTH OR 36" AND GREATER IN DEPTH.
11.6.	STRUCTURAL MEMBERS SHALL NOT BE DRILLED, CUT, WELDED TO, OR OTHERWISE MODIFIED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.

1 ANY BLOCKS			
	ANY GENERAL PANEL		ANY EMERGENCY LIGHTING
	ANY SQUARE		ANY AUXILIARY
	ANY CIRCLE		ANY OUTLET
	ANY FIRE BLOCK		ANY VALVE
	ANY CIRCUIT BREAKER		ANY CONTACTOR
	ANY MOTOR		ANY LIGHTING
	ANY LIGHTING		ANY GROUND BLOCK

4 GENERAL ELECTRICAL SYMBOLS			
	LIGHTING, INSTRUMENT OR RECEPTACLE PANELBOARD		VOLTMETER SWITCH
	POWER PANELBOARD		FLOAT/FLOW SWITCH
	CONTROL PANEL		LIMIT SWITCH
	MOTOR CONTROL CENTER		PRESSURE SWITCH
	POWER MONITOR		THERMOSTAT
	AMMETER		JUNCTION BOX, SIZE PER NEC
	AMMETER SWITCH		ELECTRICAL EQUIPMENT CONNECTION
	VOLTMETER		ELECTRICAL MANHOLE / HANDHOLE AND THE LETTERS INDICATE THE TYPE OF THE HOLE

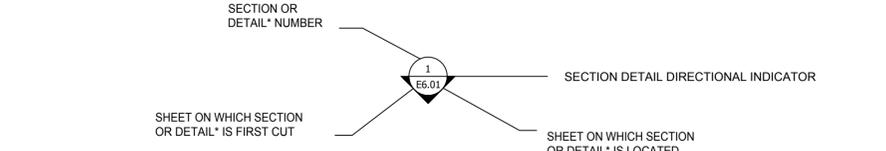
5 GROUNDING / BONDING SYMBOLS	
	GROUND ROD TEST WELL
	GROUND ROD
	GROUNDING / BONDING CONNECTION EXOTHERMIC WELD
	GROUNDING / BONDING CONNECTION MECHANICAL
	GROUND, EARTH
	GROUNDING / BONDING CONDUCTOR (REFERENCE CONTRACT DOCUMENTS FOR REQUIREMENTS)
	LIGHTNING PROTECTION CONDUCTOR (REFERENCE CONTRACT DOCUMENTS FOR REQUIREMENTS)

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2 POWER SYMBOLS			
	CLASS 1/2 DIVISION III CONDUIT SEAL-OFF FITTING		TRANSFORMER, POWER TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH THREE OR MORE SELECTOR/PUSH SWITCHES LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, SHIELDED ISOLATION TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH TWO SELECTOR/PUSH SWITCHES LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, CURRENT 'CT' TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCAL CONTROL STATION WITH ONE SELECTOR/PUSH SWITCH LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION		TRANSFORMER, POTENTIAL 'PT' OR 'VT' TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCATED AT FIELD DEVICE		AUTOMATIC OR MANUAL TRANSFER SWITCH, STAND-ALONE TYPE AND RATINGS AS NOTED ON THE DRAWINGS
	LOCATED AT MAIN CONTROL PANEL		SAFETY / DISCONNECT SWITCH TOP NUMBER DENOTES FUSE SIZE (NF=NON-FUSED) BOTTOM NUMBER DENOTES FRAME SIZE RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING
	LOCATED AT LOCAL CONTROL PANEL		MOTOR CONTROLLER, STAND-ALONE WITH EXTERNAL DISCONNECT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE UPPER RIGHT NUMBERS DENOTE AMPERE AND FRAME RATINGS CENTER RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FVNR FULL VOLTAGE NON-REVERSE FVR FULL VOLTAGE REVERSIBLE TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDING RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER VFD VARIABLE FREQUENCY DRIVE
	MOUNTED ON DOOR		MOTOR CONTROLLER, FULL-VOLTAGE MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: FVNR FULL VOLTAGE NON-REVERSE FVR FULL VOLTAGE REVERSIBLE
	DRAW-OUT POWER CIRCUIT BREAKER WITH PROGRAMMABLE SOLID STATE RELAY 'EO' DENOTES ELECTRICALLY OPERATED		MOTOR CONTROLLER, PART-WINDING MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: TS1W TWO SPEED - SINGLE WINDING TS2W TWO SPEED - DUAL WINDING
	FIXED-MOUNT POWER CIRCUIT BREAKER WITH ADJUSTABLE SOLID STATE RELAY		MOTOR CONTROLLER, REDUCED-VOLTAGE MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: RVSS REDUCED VOLTAGE SOFT STARTER RVAT REDUCED VOLTAGE AUTO TRANSFORMER
	CIRCUIT BREAKER, GENERIC FIXED-MOUNT 'TMTU' THERMAL-MAGNETIC TRIP UNIT 'ELTU' ELECTRONIC TRIP UNIT		MOTOR CONTROLLER, VARIABLE FREQUENCY DRIVE, MCC UNIT: UPPER LEFT NUMBER DENOTES NEMA FRAME SIZE LETTERS WITHIN THE SYMBOL DENOTE THE FOLLOWING: VFD VARIABLE FREQUENCY DRIVE
	CIRCUIT BREAKER, GENERIC		LINE OR LOAD REACTOR CENTER RIGHT NUMBER DENOTES PERCENT IMPEDANCE
	CIRCUIT BREAKER, THERMAL		MOTOR PROTECTION FILTER
	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTOR		AC MOTOR SINGLE OR THREE PHASE AS NOTED
	CIRCUIT BREAKER, THERMAL ENCLOSED TOP NUMBER DENOTES TRIP BOTTOM NUMBER DENOTES FRAME SIZE UPPER LEFT NUMBER DENOTES NEMA ENCLOSURE RATING		CABLE-TRAY TYPE AS NOTED ON THE DRAWINGS
	FUSE, GENERIC		WIRE WAY TYPE AS NOTED ON THE DRAWINGS
	FUSE, GENERIC TOP NUMBER DENOTES TRIP BOTTOM NUMBER DENOTES VOLTAGE CLASS MIDDLE NUMBER DENOTES TYPE		ENCLOSURE FAN, 120VAC UON
	WIRING DEVICE, POWER RECEPTACLE WITH INTEGRAL DISCONNECT / LOAD BREAK NEMA CONFIGURATION SHOWN LOWER RIGHT		
	WIRING DEVICE, POWER RECEPTACLE NEMA CONFIGURATION SHOWN LOWER RIGHT		
	PANELBOARD		

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3 AUXILIARY SYSTEMS	
	AUXILIARY DETECTOR DC DOOR CONTACT GD GLASS-BREAK DETECTOR MS MOTION SENSOR CR CARD READER
	CONTROL PANEL MIDDLE LETTERS DENOTE THE FOLLOWING: IACP INTRUSION ALARM CONTROL PANEL ACP ALARM CONTROL PANEL FOPP FIBER OPTIC PATCH PANEL
	ALARM BEACON LETTER INDICATORS COLOR
	CLOSED CIRCUIT CAMERA
	PAGING UNIT
	PAGING UNIT WITH LOUD SPEAKER
	PAGING UNIT
	SOUND POWERED TELEPHONE
	FLAT CABLE TRANSITION BOX
	TELEPHONE PUNCH DOWN BLOCK
	PRIVATE BRANCH EXCHANGE
	EXTERNAL PORT NODE
	FIBER OPTIC CONVERTER
	LINE EXTENDER
	PAGING CONTROL CABINET
	MULTIPLEXOR
	TRANSCEIVER
	MONITOR
	T1 DEMARCATION
	UNINTERRUPTIBLE POWER SUPPLY



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REVNO.	DESCRIPTIONS	DATE

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

ELECTRICAL

ELECTRICAL SYMBOLS AND ABBREVIATIONS I

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: TBD	E00.2
DRAWN: CJA	VERTICAL: TBD	A
DESIGNED: LLS	REVISION	
CHECKED: AAH		
PROJ. MGR: FJL		
STATUS: PRELIMINARY		
NOT FOR CONSTRUCTION		

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED UNDER RULE 61G15-23.004 F.A.C.

6 CONTROL DIAGRAM AND SCHEMATIC SYMBOLS

	MOMENTARY PUSH BUTTON NORMALLY OPENED		CONTROL RELAY, GENERIC DESIGNATIONS: CR CONTROL RELAY MX AUXILIARY RELAY TR TIMING RELAY AR ALARM RELAY RR READY RELAY
	MOMENTARY PUSH BUTTON NORMALLY CLOSED		CONTROL RELAY, LATCHING
	MUSHROOM PUSH BUTTON NORMALLY OPENED		CONTACT, NORMALLY OPENED TOP ID TAG DENOTES PARENT RELAY
	MUSHROOM PUSH BUTTON NORMALLY CLOSED		CONTACT, NORMALLY CLOSED TOP ID TAG DENOTES PARENT RELAY
	TOGGLE SWITCH NORMALLY OPENED		CONTACT, NORMALLY OPENED TOP ID TAG DENOTES PARENT RELAY
	TOGGLE SWITCH NORMALLY CLOSED		CONTACT, NORMALLY CLOSED TOP ID TAG DENOTES PARENT RELAY
	TWO-POSITION SWITCH NORMALLY OPENED		SOLENOID, GENERIC
	THREE-POSITION BUTTON NORMALLY OPENED		HEATING ELEMENT, GENERIC
	LIMIT SWITCH NORMALLY OPENED		ELAPSED TIME METER, ELECTRONIC
	LIMIT SWITCH NORMALLY CLOSED		HORN, ALARM A/V INDICATES AUDIO AND VISUAL ANNUNCIATION
	LIMIT SWITCH HELD OPENED		TRANSFORMER, CONTROL POWER RATINGS AS NOTED ON THE DRAWINGS
	LIMIT SWITCH HELD CLOSED		BATTERY OR DC POWER SOURCE
	TEMPERATURE SWITCH NORMALLY OPENED		MOTOR ACTUATED VALVE M MODULATING O/C OPEN/CLOSE
	TEMPERATURE SWITCH NORMALLY CLOSED		SOLENOID VALVE O/C OPEN/CLOSE
	FLOAT SWITCH NORMALLY OPENED		INDICATION LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR
	FLOAT SWITCH NORMALLY CLOSED		INDICATION LIGHT, PUSH-TO-TEST W - WHITE G - GREEN A - AMBER R - RED B - BLUE C - CLEAR
	FLOW SWITCH NORMALLY OPENED		
	FLOW SWITCH NORMALLY CLOSED		
	PRESSURE SWITCH NORMALLY OPENED		
	PRESSURE SWITCH NORMALLY CLOSED		
	ON DELAY TIME RELAY NORMALLY OPENED TIMED CLOSED NOTC		
	ON DELAY TIME RELAY NORMALLY CLOSED TIMED OPENED NCTO		
	OFF DELAY TIME RELAY NORMALLY OPENED TIMED OPENED NOTO		
	OFF DELAY TIME RELAY NORMALLY CLOSED TIMED CLOSED NCTC		

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7 LIGHTING AND RECEPTACLE SYMBOLS

	LIGHT FIXTURE, VARIOUS TYPES UPPERCASE CHARACTERS "A1" DENOTES TYPE. REFER TO LIGHTING SCHEDULE OR DRAWING NOTES LOWERCASE LETTER "a" DENOTES CONTROL SWITCH DUAL SWITCHING INDICATED BY PAIRS OF LOWERCASE LETTERS "a,b" NUMBER "LP-100/15" DENOTES LIGHTING PANEL AND CIRCUIT NUMBER "N" DENOTES NIGHT LIGHT, CIRCUIT AHEAD OF CONTROL SWITCHES.		WIRING DEVICE, POWER RECEPTACLE WITH INTEGRAL DISCONNECT / LOAD BREAK NEMA CONFIGURATION SHOWN LOWER RIGHT
	LIGHT FIXTURE, VARIOUS TYPES EMERGENCY / EGRESS BATTERY BACK-UP POWER		WIRING DEVICE, POWER RECEPTACLE NEMA CONFIGURATION SHOWN LOWER RIGHT
	PENDANT OR CEILING MOUNTED LIGHTING FIXTURE		WIRING DEVICE, SINGLE DUPLEX RECEPTACLE, TYPICAL LOWER RIGHT CHARACTERS DENOTE THE FOLLOWING: GF GROUND FAULT CIRCUIT INTERRUPTER IG ISOLATED GROUND SS SURGE PROTECTIVE WP WEATHER-PROOF GF/WP GROUND FAULT CIRCUIT INTERRUPTER / WEATHERPROOF
	WALL MOUNTED LIGHTING FIXTURE		WIRING DEVICE, DUPLEX RECEPTACLE GROUND FAULT CIRCUIT INTERRUPTER / WEATHERPROOF NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS
	POLE OR STANCHION MOUNTED LIGHTING FIXTURE		WIRING DEVICE, DUPLEX RECEPTACLE SPLIT-WIRED / SWITCHED NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS
	TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURE		WIRING DEVICE, QUADPLEX RECEPTACLE NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS
	POLE OR STANCHION MOUNTED LIGHTING FIXTURE WITH RECEPTACLE		WIRING DEVICE, QUADPLEX RECEPTACLE FLOOR BOX MOUNTED NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS
	TWO (2) LAMP EMERGENCY / EGRESS LIGHTING FIXTURE LETTERS DENOTE TYPE		WIRING DEVICE, HEAT-TRACE OR SPECIAL PURPOSE RECEPTACLE REFERENCE DRAWINGS FOR ADDITIONAL DETAILS
	EXIT SIGN WALL MOUNTED (SINGLE FACE WITH INDICATING ARROWS) WITH BATTERY PACK ARROW INDICATES DIRECTION OF EXIT DOOR		WIRING DEVICE, TELEPHONE RJ-11 UNLESS OTHERWISE NOTED ON DRAWINGS
	EXIT SIGN PENDANT MOUNTED (DOUBLE FACE WITH INDICATING ARROWS) WITH BATTERY PACK ARROWS INDICATE DIRECTION OF EXIT DOOR		WIRING DEVICE, TELEPHONE AND DATA RJ-11 AND RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS
	FIXTURE DESIGNATION SYMBOL. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION AND TYPE. ALL FIXTURES SHOWN IN A ROOM WITH THIS SYMBOL SHALL BE OF TYPE INDICATED BY LETTER; NUMBER IN SYMBOL INDICATES LAMP WATTAGE AND NUMBER OF LAMPS WHERE MORE THAN ONE (UNLESS OTHERWISE NOTED). NUMBER BELOW SYMBOL INDICATES MOUNTING HEIGHT ABOVE FINISHED FLOOR OR AS NOTED.		WIRING DEVICE, DATA RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS
	WIRING DEVICE LIGHTING CONTROL SWITCHES: UPPER-LEFT CHARACTER "a" DENOTES SWITCH DESIGNATION. LOWER-RIGHT CHARACTER "4" DENOTES SWITCH CONTROL		WIRING DEVICE, TELEPHONE AND DATA FLOOR BOX MOUNTED RJ-11 AND RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS
	2 TWO POLE 3 THREE-WAY SWITCH CONTROL 4 FOUR-WAY SWITCH CONTROL D DIMMER CONTROL OS OCCUPANCY SENSOR M MOTOR RATED SWITCH T 24V DC MOMENTARY CONTACT SWITCH V VARIABLE SPEED FAN SWITCH		

9 RACEWAY/LINE WEIGHTS

	NEW ELECTRICAL RACEWAY(S)		CONCEALED RACEWAY(S) IN FLOOR SLAB, UNDERGROUND, ETC.
	EXISTING ELECTRICAL RACEWAY(S)		EXISTING RACEWAY(S) AND/OR CABLES
	NEW TELEPHONE LINE(S)		RACEWAY TURNED DOWN
	EXISTING TELEPHONE LINE(S)		RACEWAY TURNED UP
	OVERHEAD ELECTRICAL UTILITY		RACEWAY TERMINATED / CAPPED OFF
	OVERHEAD TELEPHONE UTILITY		RACEWAY REMOVED / ABANDONED
	UNDERGROUND ELECTRICAL UTILITY		RACEWAY AND/OR CABLE ID NUMBER
	UNDERGROUND TELEPHONE UTILITY		RACEWAY HOMERUN TO EQUIPMENT ID TAG AS SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER).
	NEW GROUNDING / BONDING		TO PLC-1 CONDUCTOR/CABLE CALL-OUT WITHIN RACEWAY
	EXISTING GROUNDING / BONDING		
	NEW LIGHTNING PROTECTION CONDUCTOR		
	RACEWAY SYSTEM CALL-OUTS: CT - CABLE TRAY BD - BUS DUCT DB - DUCTBANK EC - EXPOSED CONDUIT WW - WIRE WAY/TROUGH		

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8 FIRE ALARM SYSTEM

	AUDIO / VISUAL ALARM INDICATOR HORN / STROBE NUMBER INDICATES STROBE CANDELA RATING OTHER THAN 15
	HORN
	PULL STATION
	CONTROL PANEL MIDDLE LETTERS DENOTE THE FOLLOWING: FACP FIRE ALARM CONTROL PANEL
	BELL
	FIRE ALARM ANNUNCIATOR STATION
	FLOW SWITCH
	VALVE TAMPER SWITCH
	END OF LINE RESISTOR
	FLAME DETECTOR
	SMOKE DETECTOR, MULTISENSOR D - DUCT MOUNTED H - HIGH TEMPERATURE / THERMAL I - IONIZATION P - PHOTOELECTRIC
	SIGNAL INPUT MODULE
	SIGNAL MODULE

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Manatee County
FLORIDA

PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

ELECTRICAL
ELECTRICAL SYMBOLS AND
ABBREVIATIONS II

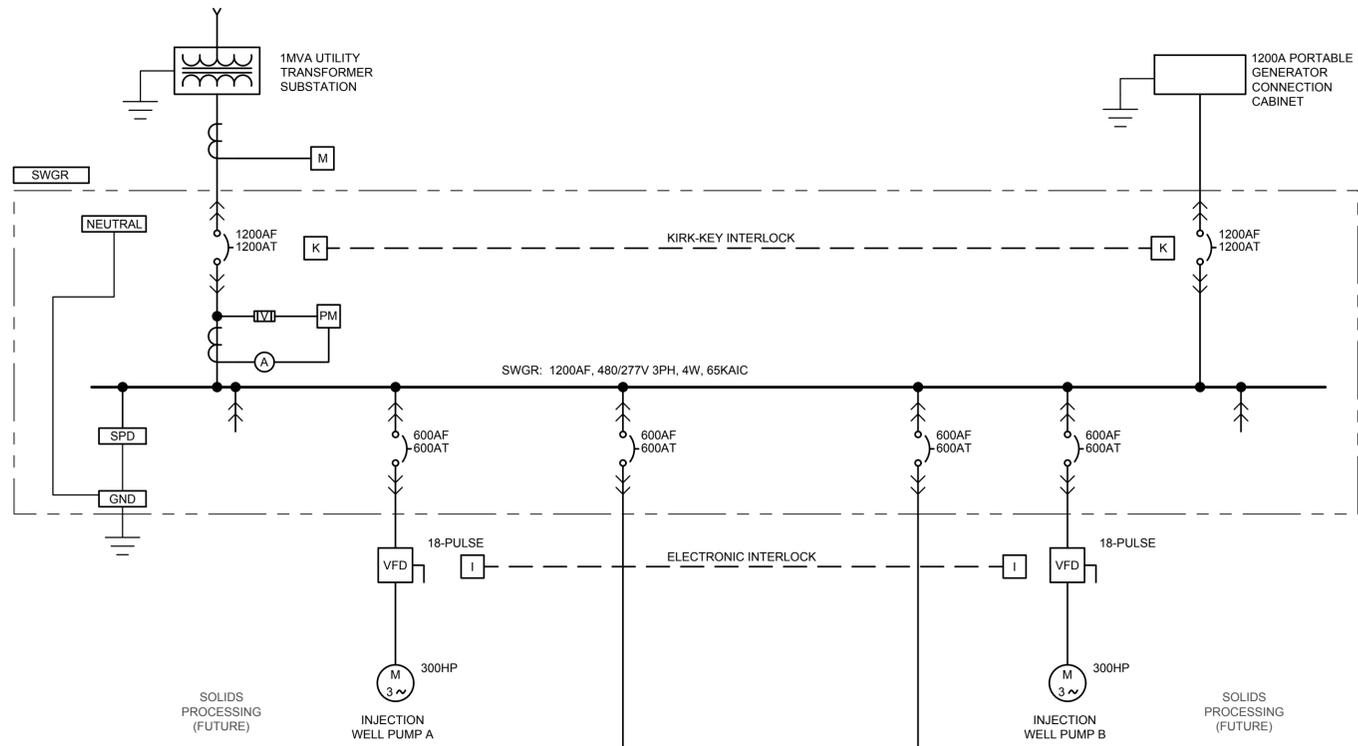
DATE: OCTOBER 7, 2021
MCE PROJ. # 1024-0197
DRAWN CJA
DESIGNED LLS
CHECKED AAH
PROJ. MGR. PJJ

SCALE
HORIZONTAL: TBD
VERTICAL: TBD

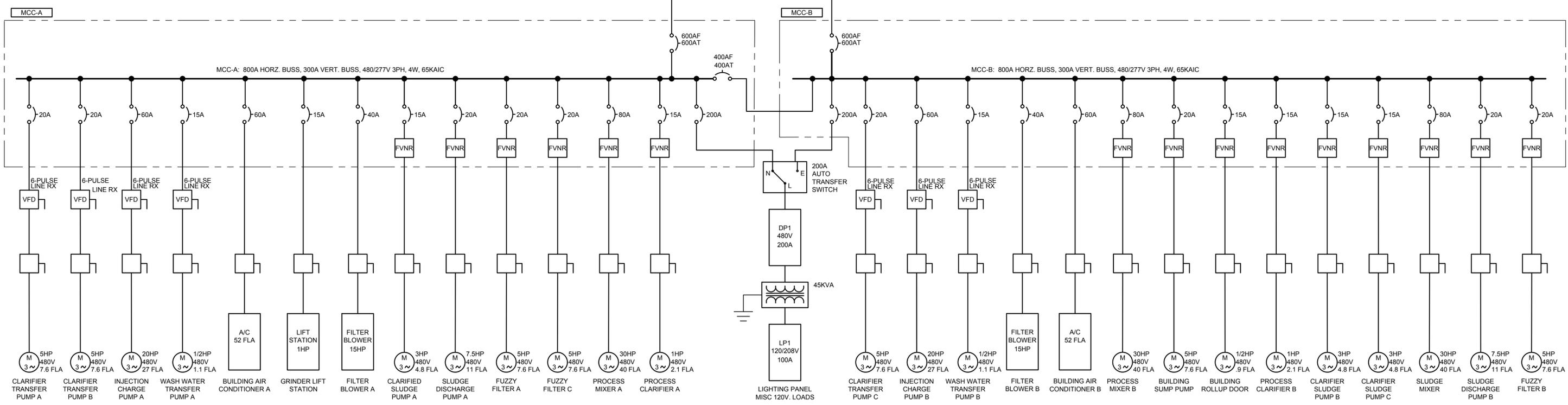
DRAWING NUMBER
E00.3
REVISION
A

STATUS: PRELIMINARY
NOT FOR CONSTRUCTION

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- NOTES:
- ALL VFDS SHALL BE HEAVY-DUTY 6-PULSE DRIVES WITH SUFFICIENT HARMONIC MODIFICATIONS TO MEET IEEE 519 AT THE UTILITY LEVEL.
 - VFDS OVER 100HP SHALL BE 18-PULSE OR UTILIZE ACTIVE-PASSIVE HARMONIC FILTERS.
 - VFDS LESS THAN 100HP SHALL UTILIZE 3% LINE REACTORS AND DC CHOKE.
 - VFDS SHALL BE PROVIDED WITH LOAD REACTORS WHERE INSTALLED MORE THAN 100FT FROM THE MOTOR.
 - VFD DRIVEN EQUIPMENT SHALL MEET THE REQUIREMENTS OF NEMA MG-1 INVERTER DUTY RATING FOR MOTOR INSULATION AND VOLTAGE SPIKES.
 - 120VAC POWER AND EQUIPMENT TELEMTRY/CONTROL CIRCUITS REQUIRED, THOUGH GENERALLY NOT SHOWN, PROVIDE PROPOSED PANEL SCHEDULE FOR REVIEW PRIOR TO CONSTRUCTION.
 - ALL SWGR, MCC, VFD AND MOTOR DISCONNECTS SHALL BE PAD-LOCKABLE IN THE OFF POSITION.
 - POWER WIRE XHHW-2, LIGHTING AND CONTROL WIRING THWN-2. GENERAL ROUTING SHALL BE TC-ER RATED CABLE IN COVERED AL LADDER TRAYS. HOMERUN CIRCUITS FOR SITE LIGHTING AND SIMILAR SHALL BE DIRECT BURY SCHEDULE 80 PVC.



CLARIFIER TRANSFER PUMP A	CLARIFIER TRANSFER PUMP B	INJECTION CHARGE PUMP A	WASH WATER TRANSFER PUMP A	BUILDING AIR CONDITIONER A	GRINDER LIFT STATION	FILTER BLOWER A	CLARIFIED SLUDGE PUMP A	SLUDGE DISCHARGE PUMP A	FUZZY FILTER A	FUZZY FILTER C	PROCESS MIXER A	PROCESS CLARIFIER A	LIGHTING PANEL MISC 120V. LOADS	CLARIFIER TRANSFER PUMP C	INJECTION CHARGE PUMP B	WASH WATER TRANSFER PUMP B	FILTER BLOWER B	BUILDING AIR CONDITIONER B	PROCESS MIXER B	BUILDING SUMP PUMP	BUILDING ROLLUP DOOR	PROCESS CLARIFIER B	CLARIFIER SLUDGE PUMP B	CLARIFIER SLUDGE PUMP C	SLUDGE MIXER	SLUDGE DISCHARGE PUMP B	FUZZY FILTER B
M 5HP 480V 7.6 FLA	M 5HP 480V 7.6 FLA	M 20HP 480V 27 FLA	M 1/2HP 480V 1.1 FLA	A/C 52 FLA	LIFT STATION 1HP	FILTER BLOWER 15HP	M 3HP 480V 4.8 FLA	M 7.5HP 480V 11 FLA	M 5HP 480V 7.6 FLA	M 5HP 480V 7.6 FLA	M 30HP 480V 40 FLA	M 1HP 480V 2.1 FLA		M 5HP 480V 7.6 FLA	M 20HP 480V 27 FLA	M 1/2HP 480V 1.1 FLA	FILTER BLOWER 15HP	A/C 52 FLA	M 30HP 480V 40 FLA	M 5HP 480V 7.6 FLA	M 1/2HP 480V 1.1 FLA	M 1HP 480V 2.1 FLA	M 3HP 480V 4.8 FLA	M 3HP 480V 4.8 FLA	M 30HP 480V 40 FLA	M 7.5HP 480V 11 FLA	M 5HP 480V 7.6 FLA

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REV. NO.	DESCRIPTIONS	DATE

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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

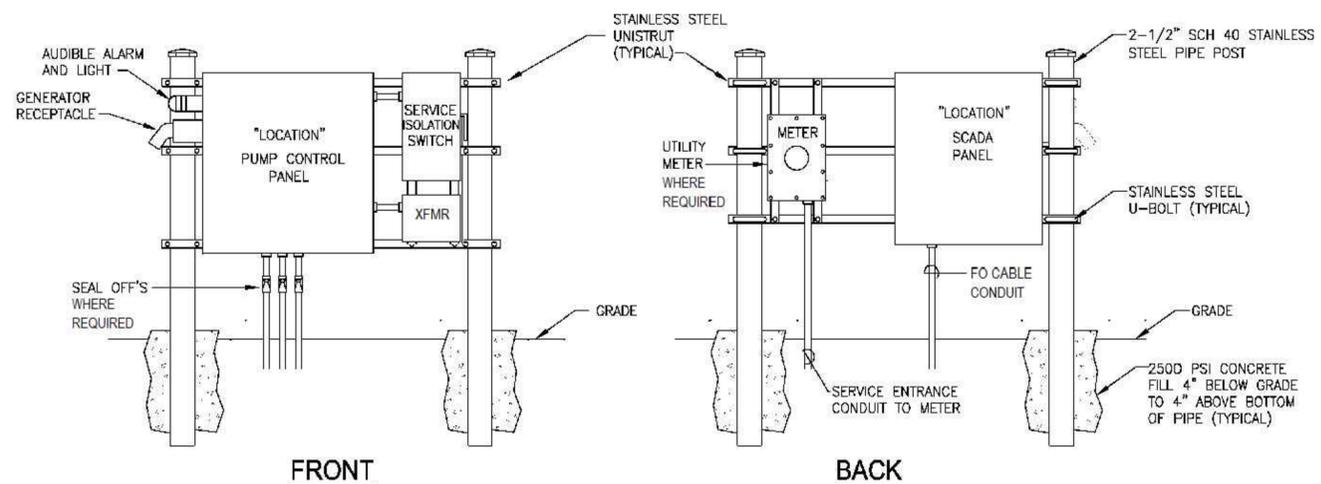
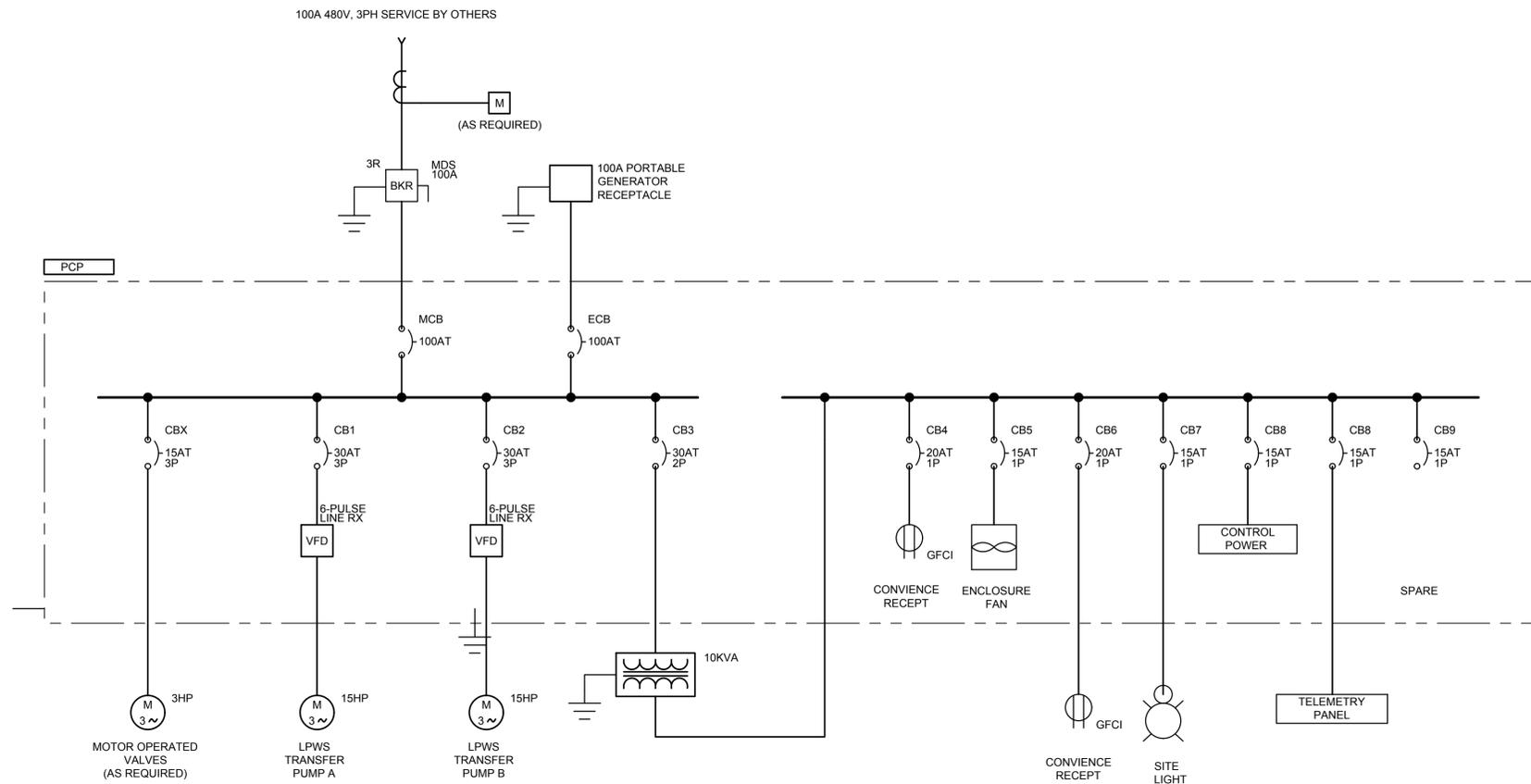
ELECTRICAL
WWTP SINGLE LINE DIAGRAM

DATE: OCTOBER 7, 2021
MCE PROJ. # 1024-0197
DRAWN: CJA
DESIGNED: LLS
CHECKED: AAH
PROJ. MGR.: PJJ

SCALE: HORIZONTAL: N/A, VERTICAL: N/A

DRAWING NUMBER: E02.0
REVISION: A

STATUS: PROPOSAL ISSUE
NOT FOR CONSTRUCTION



TYPICAL ELECTRIC EQUIPMENT MOUNTING DETAIL
NOT TO SCALE

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

ELECTRICAL

LPWS PUMP STATION SINGLE LINE DIAGRAM

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: N/A	E02.1
DRAWN: CA	VERTICAL: N/A	A
DESIGNED: LLS		REVISION
CHECKED: AAH		
PROJ. MGR.: PJJ		
STATUS: PROPOSAL ISSUE	NOT FOR CONSTRUCTION	

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LOAD TABLE						
		480V	1000 KVA	XFR	83%	
			KW	GEN	-----	
SWGR		3 Ph	1200 AT	MCB	83%	
ELEC ROOM		4 WIRE	1200 AF	BUSS	83%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
INJECTION WELL PUMPS	Y	1	2		300	361.0
MCC-A	Y	1	1	190.5	105.5	283.4
MCC-B	Y	1	1	190.0	121.5	192.4
SOLIDS PROCESSING (FUTURE)	Y	0	0	30.0	60.0	0.0
						0.0
						0.0
SUM				380.5	827.0	836.8
TOTAL CONNECTED LOAD (A)						1197.8
TOTAL RUNNING LOAD				825.6		994.2
		DUTY: 0.830022	NEC 230.42 SE:		1046.0 A	

LOAD TABLE						
		480V	KVA	XFR	-----	
			KW	GEN	-----	
MCC-A		3 Ph	600 AT	MCB	56%	
ELECTRICAL ROOM		4 WIRE	600 AF	BUSS	56%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
PROCESS MIXER A	Y	1	1		30.0	40.0
CLARIFIER TRANSFER PUMPS A,C	Y	1	2		5.0	7.6
PROCESS CLARIFIER A	Y	0	1		1.0	0.0
FUZZY FILTER A,C	Y	2	2		5.0	15.2
WASH WATER TRANSF. PUMP A	N	1	1		0.5	1.1
CLARIFIER SLUDGE PUMP A	Y	1	1		3	4.8
SLUDGE DISPOSAL PUMP A	Y	1	2		7.5	11.0
CHARGE PUMP A	Y	0	1		20.0	0.0
FILTER BLOWER A	Y	1	1		15	21.0
BLDG HVAC	Y	0	1	40		0.0
GRINDER LIFT STATION	Y	1	1	0.5	1	2.7
DP + LP TRANSFORMER	Y	1	1	150		180.0
						0.0
						0.0
						0.0
SUM				190.5	105.5	283.4
TOTAL CONNECTED LOAD (A)						302.0
TOTAL RUNNING LOAD				281.1		338.6
		DUTY: 1.121026				

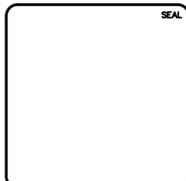
CIRCUIT DESIGNATION PINEY POINT WELL & WTP MAIN POWER FEED	
UTILITY TRANSFORMER	
MAX XFMR RATING:	1000 KVA
PRIMARY VOLTS:	UNKN
SECONDARY VOLTS:	480 V
IMPEDANCE FACTOR:	5.75%
FLA:	1202.8 A
MULTIPLIER:	19.324
CABLE TO MAIN	
NUMBER OF SETS:	4
WIRE SIZE:	500 kCMIL
CONDUIT TYPE:	PVC
CONDUCTOR TYPE:	Copper
C VALUE:	22185
DIST XFMR TO MAIN:	50 ft
F VALUE:	0.0473
MULTIPLIER:	0.9549
Isc SYM RMS	23,243 A
@XFMR SECONDARY	23.24 kA
Isc MOTOR CONTRB.	4,811 A
@XFMR SECONDARY	4.81 kA
TOTAL Isc SYM RMS	28,055 A
@XFMR SECONDARY	28.05 kA
Isc SYM RMS	22,195 A
@MAIN BREAKER	22.19 kA
Isc MOTOR CONTRB.	4,811 A
@MAIN BREAKER	4.81 kA
Total Isc sym RMS	27,006 A
@MAIN BREAKER	27.01 kA

LOAD TABLE						
		480V	90 KVA	XFR	62%	
			KW	GEN	-----	
INFLUENT PUMP STATION		3 Ph	100 AT	MCB	67%	
LPWS TANK SITE		4 WIRE	100 AF	BUSS	67%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
TRANSFER PUMPS	Y	2	2		15	42.0
MISC 120V LOADS	Y	1	1	10		12.0
MOTOR OPERATED VALVES	N	1	1		3	4.8
						0.0
						0.0
SUM				10.0	33.0	58.8
TOTAL CONNECTED LOAD (A)						58.8
TOTAL RUNNING LOAD				55.7		67.1
		DUTY: 1.140306	NEC 230.42 SE:		72.3 A	

LOAD TABLE						
		480V	KVA	XFR	-----	
			KW	GEN	-----	
MCC-B		3 Ph	600 AT	MCB	36%	
ELECTRICAL ROOM		4 WIRE	600 AF	BUSS	36%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
PROCESS MIXER B	Y	1	1		30.0	40.0
CLARIFIER TRANSFER PUMPS	Y	1	1		5.0	7.6
PROCESS CLARIFIER B	Y	1	1		1.0	2.1
FUZZY FILTER B	Y	1	1		5.0	7.6
WASH WATER TRANSF. PUMP B	N	1	1		0.5	1.1
CLARIFIER SLUDGE PUMPS B,C	Y	1	2		3	4.8
SLUDGE DISPOSAL PUMP B	Y	1	1		7.5	11.0
SLUDGE MIXER	Y	1	1		30	40.0
CHARGE PUMP B	Y	1	1		20.0	27.0
FILTER BLOWER B	Y	0	1		15	0.0
BLDG HVAC	Y	1	1	40		48.0
BLDG SUMP PUMP	Y	1	1		1	2.1
BLDG ROLL UP DOOR	N	1	1		0.5	1.1
DP + LP TRANSFORMER	Y	0	1	150		0.0
						0.0
SUM				190.0	121.5	192.4
TOTAL CONNECTED LOAD (A)						197.2
TOTAL RUNNING LOAD				177.7		214.0
		DUTY: 1.085044				

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REV. NO.	DESCRIPTIONS	DATE



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PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT

ELECTRICAL

ELECTRICAL TABLES AND SCHEDULES I

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: TBD	E02.2
DRAWN: NMB	VERTICAL: TBD	A
DESIGNED: NMB	TBD	REVISION
CHECKED: JVG		
PROJ. MGR.: PJJ		
STATUS: PRELIMINARY	NOT FOR CONSTRUCTION	

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LIGHTING FIXTURE SCHEDULE				
LETTER	DESCRIPTION	LAMPS	REMARKS	SYMBOL
A1	LED OUTDOOR POLE MOUNTED AREA LIGHT. EPA 1.2sqft. DK PRONZE FINISH. TYPE 3 DISTRIBUTION. PROVIDE POLE AND BASE. WIND 150MPH CONSTANT. PHOTOCELL	30 LED L90/>80,000HRS. 69WATTS, 700mA, 4000K	LITHONIA LIGHTING MOD. KAD LED 30C 700 40K R3 MVOLT HS OR APPROVED EQUAL	
A2	LED OUTDOOR POLE MOUNTED AREA LIGHT. EPA 1.2sqft. DK PRONZE FINISH. TYPE 3 DISTRIBUTION WITH HOUSESIDE SHIELD. PROVIDE POLE AND BASE. WIND 150MPH CONSTANT. PHOTOCELL	30 LED L90/>80,000HRS. 69WATTS, 700mA, 4000K	LITHONIA LIGHTING MOD. KAD LED 30C 700 40K R3 MVOLT HS OR APPROVED EQUAL	
B	LED OUTDOOR POLE MOUNTED AREA LIGHT. EPA 1.2sqft. DK BRONZE FINISH. TYPE 4 DISTRIBUTION. PROVIDE POLE AND BASE WIND 150MPH CONSTANT. PHOTOCELL	60 LED L90/>80,000HRS. 137WATTS, 700mA, 4000K	LITHONIA LIGHTING MOD. KAD LED 60C 700 40K R3 MVOLT OR APPROVED EQUAL	
C	OUTDOOR, WET LOCATION RATED WALL PACK. PHOTOCELL	50W, 4000K	LITHONIA LIGHTING, KAXW LED P2 40K R3 MVOLT OR APPROVED EQUAL	
D	4' PENDANT SUSPENDED LED LUMINAIRE, WET LOCATION LISTED	80W, L80/60,000HRS, 4000K, 350mA	LITHONIA LIGHTING MOD. FEM LED OR APPROVED EQUAL	
E	COMBINATION EXIT SIGN AND EMERGENCY EGRESS, INJECTION MOLDED, ENGINEERING GRADE, HIGH IMPACT THERMOPLASTIC, WHITE FINISH, AUTO TEST, BATTERY BACKUP	5W, 120V, DUAL HEAD, WHITE LED, RED LENS	EMERGENSEE LIGHTING MOD. SECEU OR APPROVED EQUAL	

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	80	LP145 KVA TRANSFORMER	45	54.1	3	20.0			3	18.0	15	CRANE	40	2	
7	20	CONTROL VALVES	2	2.4	3	1.3			3	2.4	2	ROLLUP DOOR	20	8	
13	30	PUMP ROOM EXHAUST FANS	5	6.0	3	3.3			3	6.0	5	PUMP ROOM EXHAUST FANS	30	14	
19					3	0.0			3					20	
25					3	0.0			3					26	
PANEL DP-1 LOCATION PINEY POINT WELL & WWTP BUILDING MAIN ELECTRICAL ROOM NOTES: FED FROM MCC-A & MCC-B VIA 200A TRANSFER SWITCH						TOTAL KVA			24.7	24.7	24.7	SERVICE CHARACTERISTICS VOLTS: 480Y/277 PHASE: 3 WIRE: 4 42 MIN AIC SYMM, FULLY RATED ASSEMBLY			
						GRAND CONNECTED TOTAL KVA			74.0						

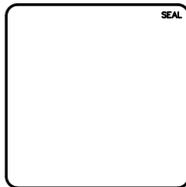
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1	20	MAIN CONTROL PANEL	1.2	10.0	1	1.3			1	0.8	0.1	SLUDGE RECIRC. PUMP A	20	2	
3	20	SLUDGE RECIRC PUMP B	0.1	0.8	1		0.9		1	6.2	0.75	TELEMETRY PANEL	20	4	
5	20	PRIMARY SETTLING TANK A, RADAR LIT	0.1	0.8	1			0.2	1	0.8	0.1	PRIMARY SETTLING TANK B, RADAR LIT	20	6	
7	20	MIXING TANK A, RADAR LIT	0.1	0.8	1	0.2			1	0.8	0.1	MIXING TANK B, RADAR LIT	20	8	
9	20	MIXING TANK A, pH PROBE	0.1	0.8	1		0.2		1	0.8	0.1	MIXING TANK B, pH PROBE	20	10	
11	20	CLARIFIER A, MAG METER	0.2	1.7	1			0.4	1	1.7	0.2	CLARIFIER B, MAG METER	20	12	
13	20	FUZZY FILTER A, MAG METER	0.2	1.7	1	0.4			1	1.7	0.2	FUZZY FILTER B, MAG METER	20	14	
15	20	FUZZY FILTER C, MAG METER	0.2	1.7	1		0.3		1	0.8	0.1	SODIUM HYPOCHLORITE DOSING SKID	20	16	
17	20	HYDROCHLORIC ACID DOSING SKID	0.1	0.8	1			0.6	1	4.2	0.5	POLYMER DOSING SKID	20	18	
19	20	CLEAN WATER TANK A, RADAR LIT	0.1	0.8	1	0.2			1	0.8	0.1	CLEAN WATER TANK B, RADAR LIT	20	20	
21	20	CLEAN WATER TANK A, pH PROBE	0.1	0.8	1		0.2		1	0.8	0.1	CLEAN WATER TANK B, pH PROBE	20	22	
23	20	SLUDGE HOLDING TANK, RADAR LIT	0.1	0.8	1			0.6	1	4.2	0.5	ACCESS DOOR/GATE/CAMERA EQUIPMEN	20	24	
25	20	BAG FILTER A, pH PROBE	0.1	0.8	1	0.1			1			SPARE	20	26	
27	20	SPARE			1		0.0		1			SPARE	20	28	
29	20	SPARE			1			0.0	1			SPARE	20	30	
31	20	SPARE			1	0.0			1			SPARE	20	32	
33	20	SPARE			1		0.0		1			SPARE	20	34	
35	20	SPARE			1			0.0	1			SPARE	20	36	
37	60	LP-B	10.91	30.3	3	3.6			3			SURGE PROTECTION DEVICE	30	38	
PANEL LP-A LOCATION PINEY POINT WELL & WWTP BUILDING MAIN ELECTRICAL ROOM NOTES: FED FROM DP VIA 45KVA TRANSFORMER						TOTAL KVA			5.8	5.2	5.4	SERVICE CHARACTERISTICS VOLTS: 208Y/120 PHASE: 3 WIRE: 4 22 MIN AIC SYMM, FULLY RATED ASSEMBLY			
						GRAND CONNECTED TOTAL KVA			16.5						

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1*	20	SITE LIGHT SOUTH DRIVE POLES	0.37	3.1	1	1.1			1	6.2	0.75	SITE LIGHT NORTH DRIVE POLES	20	2*	
3*	20	SITE LIGHT CENTER POLES	0.37	3.1	1		0.8		1	3.5	0.42	CATWALK AREA LIGHT POLES	20	4*	
5*	20	SITE LIGHT INJECTION WELL	0.15	1.2	1			0.3	1	1.2	0.15	SITE LIGHT MONITORING WELL	20	6*	
7*	20	CHEMICAL AREA LIGHTS	0.3	2.5	1	0.8			1	3.7	0.45	BUILDING EXTERIOR LIGHTS	20	8*	
9	20	PROCESS EQUIPMENT ROOM LIGHTS	0.3	2.5	1		0.3		1	0.0	0	SPARE	20	10	
11	20	PROCESS EQUIPMENT ROOM LIGHTS	0.3	2.5	1			0.5	1	1.3	0.16	BATHROOM LIGHTS	20	12	
13	20	ELECTRICAL ROOM LIGHTS	0.32	2.7	1	0.5			1	1.3	0.16	CONTROL ROOM LIGHTS	20	14	
15	20	ELECTRICAL ROOM LIGHTS	0.32	2.7	1		0.4		1	0.7	0.09	EMG EGRESS LIGHTING	20	16	
17	20	CHEMICAL AREA RECEPTACLES	0.72	6.0	1			1.4	1	6.0	0.72	CATWALK AREA RECEPTACLES	20	18	
19	20	BUILDING EXTERIOR RECEPTACLES	0.72	6.0	1	0.9			1	1.5	0.18	INJECTION WELL RECEPTACLES	20	20	
21	20	PROCESS EQUIPMENT ROOM RECEPTACLE	0.72	6.0	1		1.4		1	6.0	0.72	ELECTRICAL ROOM RECEPTACLES	20	22	
23	20	PROCESS EQUIPMENT ROOM RECEPTACLE	0.72	6.0	1			1.4	1	6.0	0.72	ELECTRICAL ROOM RECEPTACLES	20	24	
25	20	CONTROL ROOM RECEPTACLES	0.72	6.0	1	1.1			1	3.0	0.36	BATHROOM RECEPTACLES	20	26	
27	20	SPARE			1		0.0		1			SPARE	20	28	
29	20	SPARE			1			0.0	1			SPARE	20	30	
PANEL LP-B LOCATION PINEY POINT WELL & WWTP BUILDING MAIN ELECTRICAL ROOM NOTES: FED FROM LP-A PHOTO CONTROL SMART PANEL						TOTAL KVA			4.3	2.9	3.6	SERVICE CHARACTERISTICS VOLTS: 208Y/120 PHASE: 3 WIRE: 4 22 MIN AIC SYMM, FULLY RATED ASSEMBLY			
						GRAND CONNECTED TOTAL KVA			10.9						

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PINEY POINT DEEP INJECTION WELL PRETREATMENT PROJECT

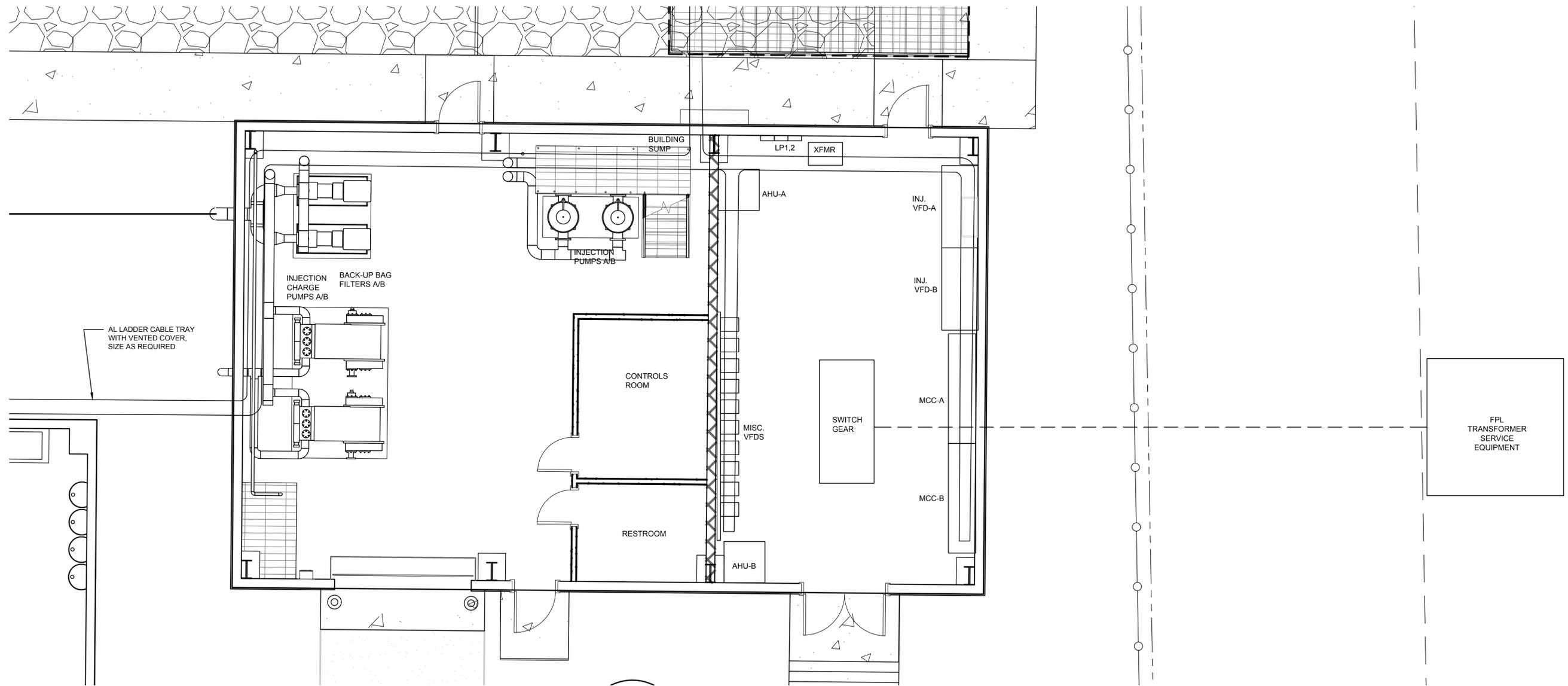
ELECTRICAL

ELECTRICAL TABLES AND SCHEDULES II

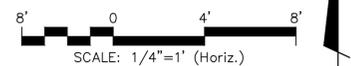
DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: TBD	E02.3
DRAWN: NMB	VERTICAL: TBD	A
DESIGNED: NMB	REVISION	
CHECKED: JVG		
PROJ. MGR: PJJ		

STATUS: **PRELIMINARY**
NOT FOR CONSTRUCTION

- NOTES:
1. PRELIMINARY LAYOUT BASED ON TYPICAL SCHNEIDER ELECTRIC AND YASKAWA EQUIPMENT FOOTPRINTS.
 2. MIN. 48" ELECTRICAL WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT.



PRETREATMENT FACILITIES
ELECTRICAL BUILDING PRELIMINARY LAYOUT



REV. NO.	DESCRIPTIONS	DATE

SEAL

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Manatee County
FLORIDA

**PINEY POINT DEEP INJECTION WELL
PRETREATMENT PROJECT**

ELECTRICAL
ELECTRICAL BUILDING PLAN

DATE: OCTOBER 7, 2021	SCALE	DRAWING NUMBER
MCE PROJ. # 1024-0197	HORIZONTAL: AS NOTED	E03.0
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