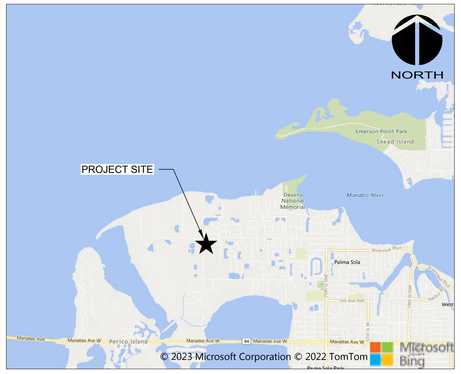
CONTRACT DRAWINGS

NORTHWEST BOOSTER PUMP STATION UPGRADES

COUNTY PROJECT NO. 6110970
AUGUST, 2024
ISSUED FOR BID



VICINITY MAP NOT TO SCALE

PROJECT NAME: NORTHWEST BOOSTER STATION UPGRADES

OWNER/DEVELOPER:

MANATEE COUNTY
1112 MANATEE AVE. W., STE. 803
BRADENTON, FL 34205
(941) 749-3014

SITE ADDRESS:

1525 99TH ST NW
BRADENTON, FL 34209

McKIM&CREED
1365 Hamlet Avenue
Clearwater, Florida 33756-3331
Phone: (727) 442-7196, Fax: (727) 461-3827

CA Lic. No. 29588
www.mckimcreed.com

PROJECT INFORMATION

SITE AERIAL SCALE: 1" = 200'

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811 Know what's below. Call before you dig.

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PROJECT NO. 01024-0206 NORTHWEST BOOSTER PUMP STATION UPGRADES

SUBMITTAL DATE: AUGUST, 2024

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PHILLIP J. LOCKE LICENSE No 57527 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY PHILLIP J. LOCKE, P.E. ON THE DATE ADJACENT TO THE SEAL

PHILLIP J. LOCKE LICENSE No 57527 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Phil Locke
DN: C=US, E=plocke4551@gmail.com, O=McKim Creed, OU=PE, CN=Phil Locke
Reason: I attest to the accuracy and integrity of this document
Date: 2024.08.20 14:00:51-04'00'

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MCKIM & CREED
1365 HAMLET AVENUE
CLEARWATER, FLORIDA 33756
CERTIFICATE OF AUTHORIZATION NO. 29588

PHILLIP J. LOCKE, P.E. NO. 57527

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GANG WANG LICENSE No. 64477 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY GANG WANG, P.E. ON THE DATE ADJACENT TO THE SEAL

GANG WANG LICENSE No. 64477 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Gang Wang
Date: 2024.08.20 13:20:10-04'00'

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GANG WANG, P.E. NO. 64477

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JOHN D. CHRISTIE LICENSE No AR0016722 STATE OF FLORIDA PROFESSIONAL ARCHITECT

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY JOHN D. CHRISTIE, A.I.A. ON THE DATE ADJACENT TO THE SEAL

JOHN D CHRISTIE
Digitally signed by JOHN D CHRISTIE
Date: 2024.08.20 13:01:32 -07'00'

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CHRISTIE & CHRISTIE, INC.
135 19TH AVENUE S.E.
ST. PETERSBURG, FL 33705

JOHN D. CHRISTIE, A.I.A. NO. AR0016722

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LAUREL L. SMITH LICENSE No. 91041 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY LAUREL L. SMITH, P.E. ON THE DATE ADJACENT TO THE SEAL

LAUREL L. SMITH LICENSE No. 91041 STATE OF FLORIDA PROFESSIONAL ENGINEER

Digitally signed by Laurel L. Smith
Date: 2024.08.20 14:28:34-04'00'

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CLEARWATER, FLORIDA 33756
CERTIFICATE OF AUTHORIZATION NO. 29588

LAUREL L. SMITH, P.E. NO. 91041

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

GENERAL

SIGNATURE SHEET

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

G-2
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

GENERAL NOTES

1. THESE PLANS ARE SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE EXISTING CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. CONTRACTORS ARE DIRECTED TO CONDUCT WHATEVER INVESTIGATION THEY DEEM NECESSARY, PRIOR TO BIDDING, TO DETERMINE THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED.
2. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.
3. CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS ON THE PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT CONSTRUCTION. SHOULD DISCREPANCIES OCCUR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO OBTAIN WRITTEN CLARIFICATION BEFORE COMMENCING WITH CONSTRUCTION.
4. CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, STORM DRAINS, SEWERS, UTILITIES, AND OTHER FACILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL REPAIR ANY DAMAGES DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO THE OWNER.
5. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 75% OF THE MANUFACTURERS' MAXIMUM RECOMMENDED DEFLECTION.
6. CONTRACTOR SHALL SUBMIT, FOR APPROVAL, A MAINTENANCE OF OPERATIONS PLAN (MOPO) WITH THE INTENT OF MAINTAINING FLOWS AT THIS BOOSTER PUMP STATION.
7. CONTRACTOR SHALL PROVIDE CERTIFIED RECORD DRAWINGS AS OUTLINED IN THE SPECIFICATIONS. RED-LINE DRAWINGS SHALL BE CURRENT WITH EACH PAY APPLICATION SUBMITTED AND WILL BE CHECKED AS PART OF THE PAY APPLICATION REVIEW PROCESS. PAYMENT WILL NOT BE MADE TO CONTRACTOR WITHOUT APPROVED RED-LINE DRAWINGS.
8. FIELD CONDITIONS MAY NECESSITATE ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED PIPELINES TO AVOID CONFLICTS. NO ADDITIONAL PAYMENT SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND THE OWNER'S ENGINEER.
9. CONTRACTOR SHALL SUBMIT, FOR APPROVAL, A CONSTRUCTION PHASING/SEQUENCING PLAN AT LEAST TWO (2) WEEKS PRIOR TO CONSTRUCTION. THE PLAN SHALL COORDINATE WITH MOPO PLAN.
10. ALL PROPOSED WORK SHALL BE COORDINATED WITH THE MANATEE COUNTY UTILITIES DEPARTMENT AT LEAST TWO WEEKS IN ADVANCE OF PROPOSED CONSTRUCTION.
11. CONTRACTOR SHALL FURNISH SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL OF ALL PIPE CONNECTIONS, TRANSITIONS, AND SPECIALS PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
12. CONNECTIONS TO EXISTING FACILITIES SHALL BE ACCOMPLISHED IN A NEAT WORKMANLIKE MANNER. WHEN FIELD CONDITIONS INDICATE ANY VARIANCE FROM DETAILED METHODS, THE CONTRACTOR SHALL PROVIDE COMPREHENSIVE AND DETAILED DRAWINGS FOR OWNER REVIEW AND APPROVAL PRIOR TO MAKING THE CONNECTIONS.
13. UNLESS OTHERWISE INDICATED OR APPROVED, ALL BELOW GROUND DUCTILE IRON PIPE SHALL HAVE PUSH-ON OR MECHANICAL JOINTS, AND ALL ABOVE GROUND DUCTILE IRON PIPE SHALL HAVE FLANGED JOINTS. ALL BELOW GRADE PIPING SHALL BE RESTRAINED.
14. ALL PIPELINES SHALL HAVE A MINIMUM COVER OF 36" BELOW EXISTING GRADE UNLESS OTHERWISE NOTED OR DIRECTED.
15. WATER SHALL NOT BE PERMITTED IN EXCAVATIONS AND TRENCHES DURING CONSTRUCTION. DEWATERING IS REQUIRED TO A MINIMUM OF 18" BELOW BOTTOM OF EXCAVATION.
16. ALL EXPOSED PIPING SHALL BE PAINTED WITH DESIGNATED COLORS ASSOCIATED WITH THEIR USAGE AS PROVIDED IN THE SPECIFICATIONS.
17. ALL NEW PIPELINES SHALL BE FLUSHED, PRESSURE TESTED, AND APPROVED PRIOR TO TIE-INS TO EXISTING FACILITIES. THE CONTRACTOR WILL BE ALLOWED TO USE TEMPORARY PLUGS FOR PRESSURE TESTING.
18. ALL CONCRETE THRUST BLOCKS INSTALLED FOR TESTING PURPOSES AND NOT REQUIRED FOR THE SYSTEM SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE.
19. CONTRACTOR SHALL PROVIDE PROTECTIVE MATTING, FUEL CONTAINMENT AND ALL OTHER MATERIALS, EQUIPMENT AND LABOR TO PROTECT THE STAGING AREA DURING CONSTRUCTION.
20. CONTRACTOR SHALL, PRIOR TO BEGINNING CONSTRUCTION, SUBMIT A "FUELING SPILL PREVENTION PLAN" THAT SHALL CLEARLY INDICATE HOW FUEL SPILLS WILL BE PREVENTED WHEN FUELING BOTH WITHIN AND OUTSIDE OF THE STAGING AREA.
21. CONTRACTOR SHALL SUBMIT A DEWATERING PLAN FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION. DEWATERING SHALL BE CONDUCTED IN ACCORDANCE WITH THE BMPS IDENTIFIED IN CHAPTER 4, 4.40 "DEWATERING" OF "THE FLORIDA STORMWATER EROSION AND SEDIMENTATION CONTROL INSPECTOR'S MANUAL".
22. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR, LICENSED IN THE STATE OF FLORIDA TO PERFORM CONSTRUCTION STAKING IN ACCORDANCE WITH RULE 61G17-6.004 (3) OF THE FLORIDA ADMINISTRATIVE CODE.
23. AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT SUNSHINE STATE ONE CALL OF FLORIDA AT 1-800-432-4770 OR THE NATIONAL 811 ONE CALL NUMBER WHEN APPLICABLE FOR UTILITY LOCATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITIES FOR THE POSSIBLE RELOCATION OR THE TEMPORARY MOVEMENT OF ANY EXISTING UTILITIES WITHIN THE RIGHTS-OF-WAY.
24. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE FLORIDA TRENCH SAFETY ACT, 90-96, LAWS OF FLORIDA EFFECTIVE OCTOBER 1, 1990 AND THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION EXCAVATION SAFETY STANDARDS, 29 CFR 1926.650, SUBPART P, AS AMENDED. THE CONTRACTOR SHALL INCLUDE IN THE TOTAL BID PRICE ALL COSTS FOR COMPLIANCE WITH THESE REGULATIONS.
25. CONTRACTOR SHALL USE ALL NECESSARY SAFETY PRECAUTIONS TO AVOID CONTACT WITH OVERHEAD AND UNDERGROUND UTILITIES, POWER LINES, ETC.
26. ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO WITHIN THE MANATEE COUNTY RIGHT-OF-WAY AND/OR EASEMENTS SHOWN ON THE DRAWINGS.THE PROJECT IS LOCATED AT 1525 99th ST NW, BRADENTON, FLORIDA 34209
27. CONTRACTOR SHALL USE APPROPRIATE TECHNIQUES, AS APPROVED, RECOMMENDED OR OFFERED BY FLORIDA POWER AND LIGHT TO PREVENT UNDERMINING OF POWER POLES DURING CONSTRUCTION. IF HOLDING OF POWER POLES IS RECOMMENDED OR REQUIRED BY THE UTILITY, THE CONTRACTOR SHALL COORDINATE THIS ACTIVITY WITH THE UTILITY AND BEAR ALL RELATED COSTS.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL UTILITY COMPANIES FOR THE RELOCATION AND ADJUSTMENT OF ALL UTILITIES, INCLUDING, ANY EXISTING POWER POLES AND/OR UTILITY CONDUITS WITHIN RIGHT-OF-WAY.
29. JOINT RESTRAINT SHALL BE INSTALLED AS NECESSARY TO PREVENT MOVEMENT OF EXISTING UNRESTRAINED PRESSURE PIPE AT ALL TIE-IN LOCATIONS WHETHER SPECIFICALLY IDENTIFIED ON THE PLANS OR NOT.
30. ALL WORK, EQUIPMENT AND MATERIALS SHALL MEET OR EXCEED CURRENT MANATEE COUNTY STANDARDS, UNLESS OTHERWISE STATED IN CONTRACT DOCUMENTS.
31. PIPE LENGTHS SHOWN ON PLAN VIEW DRAWINGS ARE IN LINEAR FEET AND DO NOT TAKE INTO ACCOUNT VERTICAL ELEVATION CHANGES, DEFLECTIONS, BENDS, ETC.

GENERAL NOTES CONT.

32. ALL CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH MANATEE COUNTY UTILITIES. THE PROJECT MANAGER IS JIM RENNEBERG (941-792-8811; EXT. 5325).
33. UNDER NO CIRCUMSTANCES IS THE NORTHWEST BOOSTER PUMP STATION TO BE SHUT DOWN CONCURRENTLY WITH THE COUNTY'S ELWOOD BOOSTER PUMP STATION OR CORTEZ BOOSTER PUMP STATION. AS IMPROVEMENTS TO THESE STATIONS ARE BEING PERFORMED AS PART OF SEPARATE CONTRACTS, IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE AND COMMUNICATE ANY NECESSARY SHUTDOWNS WITH THE OTHER CONTRACTOR(S), COUNTY, AND ENGINEER.
34. BASE FLOOD ELEVATION: 9.0' (NAVD88); DESIGN FLOOD ELEVATION: 11.0' (NAVD88).

RESTORATION AND MISCELLANEOUS NOTES

1. CONTRACTOR SHALL PROVIDE AN ASPHALT PATCH FOR TRENCH AREAS CONSTRUCTED IN EXISTING ROADWAYS. ADJUST ALL CASTINGS TO MATCH NEW PAVEMENT SURFACE.
2. CONTRACTOR SHALL REPLACE ALL EXISTING PAVING, STABILIZED EARTH, CURBS, SIDEWALKS, FENCES, LANDSCAPING AND OTHER IMPROVEMENTS WITH THE SAME OR BETTER TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.
3. ALL RESTORATION WORK PERFORMED THROUGHOUT THE PROJECT SHALL CONFORM TO EXISTING LINES AND GRADES UNLESS OTHERWISE NOTED.
4. ALL EXISTING FENCES DISTURBED DURING CONSTRUCTION SHALL BE REPLACED AND REINSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER UNLESS SHOWN TO BE REMOVED ON CONSTRUCTION PLANS.
5. CONTRACTOR SHALL RESTORE ALL IRRIGATION SYSTEM COMPONENTS TO PRE-CONSTRUCTION CONDITIONS..
6. CONTRACTOR SHALL RESTORE GRADE TO PRECONSTRUCTION ELEVATIONS UNLESS OTHERWISE NOTED.

SIDEWALK NOTES

1. ALL SIDEWALKS SHALL BE CONSTRUCTED WITH 4 INCH THICK 3000 PSI CLASS I CONCRETE REINFORCED WITH 6X6 NO. 10 MESH.
2. SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY DEVELOPMENT STANDARDS AND A MINIMUM OF FIVE (5) FEET WIDE.
3. THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/2 INCH UNDER A TEN-FOOT STRAIGHTEDGE, NOR MORE THAN 1/8 INCH ON A FIVE-FOOT TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2 INCH.
4. EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALK AND DRIVEWAYS OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2 INCH JOINTS.
5. CONTRACTION JOINTS: FIXED OPEN-TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE EDGED WITH A TOOL HAVING A 1/2 INCH RADIUS. SAWED JOINTS: A SLOT APPROXIMATELY 3/16 INCH WIDE AND NOT LESS THAN 1-1/2 INCHES DEEP SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.

SOIL EROSION & SEDIMENTATION CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO THE START OF ANY CONSTRUCTION, DEMOLITION, DEWATERING, OR MOBILIZATION ACTIVITIES, MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL WORK IS COMPLETE.
2. CONTRACTOR SHALL FOLLOW BEST MANAGEMENT PRACTICES THROUGHOUT DEMOLITION AND CONSTRUCTION.
3. HAY BALES AND/OR SILT SCREENS SHALL BE INSTALLED ADJACENT TO THE WORK AREAS TO PREVENT SEDIMENT TRANSPORT PRIOR TO THE COMMENCEMENT OF WORK.
4. INLET PROTECTION SHALL BE PLACED AT ALL INLETS IN OR ADJACENT TO THE PROJECT AREA.
5. AS SOON AS PRACTICAL, ALL DRESSED SLOPES AND DISTURBED AREAS SHALL BE SODDED OR SEEDED AND MULCHED TO PREVENT EROSION.
6. NO EXCAVATION SHALL EXTEND BELOW THE DEPTHS/ELEVATIONS SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS WITHOUT PRIOR APPROVAL.
7. CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND PROVIDE APPROVED FDEP NOI TO COUNTY.
8. CONTRACTOR SHALL PREPARE AND SUBMIT A DISPOSAL PLAN FOR EXCAVATION MATERIAL INCLUDING THE LOCATION OF DISPOSAL SITE(S) AND DISPOSAL PLANS SHOWING APPLICABLE BEST MANAGEMENT PRACTICES FOR REVIEW AND APPROVAL PRIOR TO ANY EARTHWORK ACTIVITIES.
9. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR ALL SURFACE WATER DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION.THE CONTRACTOR SHALL BE REQUIRED TO INSTALL ALL EROSION, SEDIMENT AND TURBIDITY CONTROL MEASURES PRIOR TO CONSTRUCTION OF ANY COMPONENTS ASSOCIATED WITH THE PROJECT. SEDIMENT CONTROL INCLUDES SILT DAMS, TRAPS, EROSION PROTECTION, AND ANY OTHER APPURTENANCES NEEDED BUT NOT NECESSARILY SHOWN ON THESE DRAWINGS.

UTILITY NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE FOLLOWING JURISDICTIONAL BODIES AND UTILITY COMPANIES:

SUNSHINE STATE ONE CALL OF FLORIDA
1-(800) 432-4770

INVESTIGATE BEFORE YOU EXCAVATE
CALL LOCAL PUBLIC UTILITY NOTIFICATION CENTER
TOLL FREE 1-800-432-4770
MIN. 48 HOURS BEFORE YOU EXCAVATE

CHARTER COMMUNICATIONS
USIC DISPATCH OFFICE
(800) 778-9140

FRONTIER COMMUNICATIONS
USIC DISPATCH CENTER
(800) 778-9140

FLORIDA POWER & LIGHT - MANATEE
USIC DISPATCH CENTER
(800) 778 -9140

MCI/VERIZON
FIELD CONTACT
(800) 624-9675

MANATEE COUNTY UTILITIES
ANTHONY WILLIAMS
(941) 792-8811

2. ALL UTILITY CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST VERSION OF THE MANATEE COUNTY UTILITY STANDARDS.
3. ALL BELOW GROUND DUCTILE IRON PIPE SHALL BE ENCASED IN A POLYETHYLENE WRAP IN ACCORDANCE WITH AWWA STANDARDS.
4. ALL VALVE BOX COVERS SHALL BE PAINTED TO INDICATE THEIR TYPE OF SERVICE.
5. ALL TEST POINT TAPPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE.

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

PHILLIP J. LOCKE, P.E.
No. 57527

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Clearwater, Florida 33756-3331
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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

GENERAL

GENERAL NOTES

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

G-3
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

ABBREVATION LEGEND

ASPH	ASPHALT
AVG	AVERAGE
BFV	BUTTERFLY VALVE
BPP	BLACK PLASTIC PIPE
C/L	CENTERLINE
C	CALCULATED
CBC	CONCRETE BOX CULVERT
CLF	CHAIN LINK FENCE
CLP	CONCRETE LIGHT POLE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CPB	CONDOMINIUM PLAT BOOK
D	CENTRAL ANGLE
DIP	DUCTILE IRON PIPE
DEP	DEPRESSED (CURB)
DL	DRAIN LINE
EL	ELEVATION
EP	EDGE OF PAVEMENT
EX	EXISTING
EOW	EDGE OF WATER
ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE
FCM	FOUND CONC MONUMENT
FIR	FOUND IRON ROD
FIRC	FOUND IRON ROD & CAP
FF	FINISH FLOOR ELEVATION
FND	FOUND NAIL & DISK
FM	FORCE MAIN
FIP	FOUND IRON PIPE
FO	FIBER OPTIC
FOP	FOUND OPEN PIPE
FPP	FOUND PINCH PIPE
HH	HAND HOLE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HORSE POWER
HSP	HIGH-SERVICE PUMP
IE	INVERT ELEVATION
L	LENGTH
LF	LINEAR FEET
LSA	LANDSCAPE AREA
MISC	MISCELLANEOUS
MP	METAL PIPE
NaClO	SODIUM HYPOCHLORITE (BLEACH)
N/D	NOT DETERMINED
NTS	NOT TO SCALE
OF	OVERFLOW
OHL	OVERHEAD LINE
OR	OFFICIAL RECORD BOOK
PB	PLAT BOOK
PG	PAGE
PP	PLASTIC PIPE
PRM	PERMANENT REFERENCE MARKER
PVC	POLYVINYL CHLORIDE
R	RADIUS
RGE	RANGE
IRC	IRON ROD AND CAP
RCP	REINFORCED CONCRETE PIPE
RDCR	REDUCER
R/W	RIGHT OF WAY
RLS	REGISTERED LAND SURVEYOR
RPZ	REDUCED PRESSURE ZONE
SCH	SCHEDULE
SEC	SECTION
STA	STATION
TOB	TOP OF BANK
TOS	TOE OF SLOPE
T.O.C.	TOP OF CONDUIT
T.O.N.	TOP OF NUT
T.O.P.	TOP OF PIPE
T.O.W.	TOP OF WALL
TWN	TOWNSHIP
UD	UNDERDRAIN
VERT	VERTICAL
VCP	VITRIFIED CLAY PIPE
VVH	VERIFIED VERTICAL AND HORIZONTAL
WPP	WOOD POWER POLE

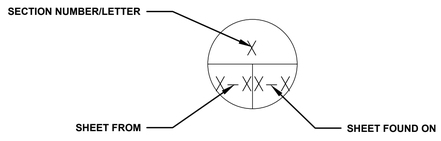
LINE & SYMBOL LEGEND

A	AIR RELEASE VALVE
C	COMMUNICATION MANHOLE
E	ELECTRICAL MANHOLE
U	UNKNOWN TYPE MANHOLE
S	SANITARY MANHOLE
D	STORM MANHOLE
YD	YARD DRAIN
	CATCH BASIN
	CURB INLET
CO	CLEANOUT
ICV	IRRIGATION CONTROL VALVE
SV	SANITARY VALVE
WV	WATER VALVE
RCWV	RECLAIMED WATER VALVE
GAS	NATURAL GAS VALVE
	SPIGOT
R	RECLAIMED WATER METER
W	WATER METER
WW	DOUBLE WATER METER
BFP	BACK FLOW PREVENTER
	CHECK VALVE ASSEMBLY
HYD	FIRE HYDRANT
FDC	FIRE DEPT. CONNECTION
	WATER WELL
	MONITORING WELL
	WOOD STREET LIGHT
	CONC STREET LIGHT
	METAL STREET LIGHT
	WOOD UTILITY POLE
CUP	CONCRETE UTILITY POLE
	WOOD LIGHT POLE
	METAL LIGHT POLE
	CONCRETE LIGHT POLE
	GUY WIRE POLE
	PEDESTRIAN SIGNAL POLE
	ELECTRIC METER POLE
	DECORATIVE LIGHT POST

CPB	COMMUNICATION PULLBOX
C	COMMUNICATION PEDESTAL
EPB	ELECTRICAL PULLBOX
CC	COMMUNICATION CABINET
EC	ELECTRICAL CABINET
TC	TRAFFIC CABINET
COM VAULT	COMMUNICATION VAULT
CHH	COMMUNICATION HANDHOLE
EHH	ELECTRIC HANDHOLE
UNK (SHH)	UNKNOWN HANDHOLE
TSPB	TRAFFIC SIGNAL PULLBOX
FOPB	FIBER OPTIC PULLBOX
FO	FIBER OPTIC MARKER
GAS	GAS MARKER
G.T. BOX	GAS TEST BOX
RISER BOX	UNKNOWN RISER BOX
TRANS	ELECTRIC TRANSFORMER
EB	ELECTRIC BOX
EM	ELECTRIC METER
KP	KEY PAD
ELEC PANEL	ELECTRICAL PANEL
	ANTENNA
	SPRINKLER HEAD
	TRASH CAN
	GROUND LIGHT
	WOOD POST
	ELECTRIC OUTLET
	SIGN
	GUY WIRE ANCHOR
M	MAILBOX
Ø	DIAMETER
	LARGE ROCK
	PARKING METER
X 0.00	EXISTING ELEVATION
	SITE CONTROL
	FOUND PROPERTY CORNER
	FOUND SECTION CORNER

R	RED FLAG
W	WHITE FLAG
B	BLUE FLAG
Y	YELLOW FLAG
O	ORANGE FLAG
G	GREEN FLAG
P	PURPLE FLAG
BPM	BLUE PAINT MARKS
RPM	RED PAINT MARKS
GPM	GREEN PAINT MARKS
OPM	ORANGE PAINT MARKS
PPM	PURPLE PAINT MARKS
WPM	WHITE PAINT MARKS
YPM	YELLOW PAINT MARKS
OHW	OVERHEAD WIRE
	RIGHT-OF-WAY LINE
	LANDSCAPE AREA
BE(B)	SUBSURFACE ELECTRICAL - LEVEL B
BE(B)	SUBSURFACE ELECTRICAL - LEVEL B
BFOC(B)	SUBSURFACE FIBER OPTIC - LEVEL B
BT	BURIED TELEPHONE
BT(B)	BURIED TELEPHONE - LEVEL B
E	SUBSURFACE ELECTRICAL
FO	SUBSURFACE FIBER OPTIC
FM	SUBSURFACE FORCE MAIN
FM(B)	SUBSURFACE FORCE MAIN - LEVEL B
G	GAS MAIN
G(B)	GAS MAIN - LEVEL B
OHL	OVERHEAD LINE
RCW	SUBSURFACE RECLAIMED WATER MAIN
RCW(B)	SUBSURFACE RECLAIMED WATER MAIN - LEVEL B
S(B)	SUBSURFACE SANITARY SEWER PIPE - LEVEL B
SS	SUBSURFACE SANITARY SEWER PIPE
TF	SUBSURFACE TRAFFIC FIBER
W(B)	SUBSURFACE WATER MAIN - LEVEL B
WM	SUBSURFACE WATER MAIN
	SUBSURFACE STORM DRAINAGE PIPE
	SUBSURFACE STORM DRAINAGE PIPE - LEVEL B
	GUARD RAIL
	FLAG POLE
	PROPOSED PIPING (ABOVE GROUND)
	PROPOSED PIPING (BELOW GROUND)
	EXISTING PIPING
NC	PROPOSED BUTTERFLY VALVE
	EXISTING BUTTERFLY VALVE
	EXISTING GATE VALVE
	PROPOSED PRESSURE SUSTAINING VALVE
	EXISTING CHECK VALVE
M NC	PROPOSED MOTOR ACTUATED VALVE
M	PROPOSED MOTOR ACTUATED VALVE
M	EXISTING FLOW METER

SECTION BUBBLE CALLOUT



TREE & LANDSCAPE LEGEND

00" - ACACIA	00" - UNKNOWN	00" -CITRUS	00" -PINE
00" -PALM SPECIES	00" - BOTTLEBRUSH	00" -CACTUS	-HEDGE
00" - BANANA	00" - MAPLE	00" - MANGO	-BUSH
00" - FICUS	00" -MAHOGANY	00" -PAPAYA	-PLANT
00" - SEAGRAPE	00" -OAK	00" -CYPRESS	
00" -GUMBO-LIMBO	00" -SCHEFFLERA	MULTI -ORNAMENTAL MULTI-TRUNK	

INDICATES TRUNK DIAMETER

NOTE: VERIFICATION OF TREE SPECIES SHOULD BE CONDUCTED BY A PROFESSIONAL ENGAGED IN THE FIELD OF NATURAL SCIENCE.

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

GENERAL

LEGENDS AND ABBREVIATIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

G-4
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

SURVEYOR'S NOTES

1. THIS IS A TOPOGRAPHIC SURVEY OF A CLIENT SPECIFIC AREA OF THE NORTHWEST BOOSTER PUMP STATION LOCATED AT 1525 99TH STREET NW, BRADENTON, FLORIDA, MEANT TO DEPICT EXISTING CONDITIONS, WHICH INCLUDE GROUND TOPOGRAPHY, BUILDING, ABOVE GROUND UTILITIES AND IMPROVEMENTS TO AID IN THE DESIGN OF IMPROVEMENTS TO THIS AREA.
2. DATE OF FIELD SURVEY: 12/01/2022
3. DATE OF COMPUTATIONS: 12/16/2022
4. DIMENSIONS ARE SHOWN IN U.S. SURVEY FEET AND DECIMALS THEREOF.
5. THE BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM. WEST ZONE (902), OF THE 1983 NORTH AMERICAN DATUM, 2011 ADJUSTED (NAD83/2011), AS ESTABLISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) FLORIDA PERMANENT RESIDENCE NETWORK (FPRN). MULTIPLE OBSERVATIONS WERE TAKEN, WITH A FOUR (4) HOUR DIFFERENCE, UTILIZING SEPARATE FDOT FPRN BASE STATIONS.
6. ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88) AND DERIVED FROM NATIONAL GEODETIC SURVEY (NGS) BENCHMARKS:

   a) "M 082" (PID AG9187)

   b) "26156 A" (PID D6639)
7. THIS IS NOT A BOUNDARY SURVEY. NO PROPERTY LINES WERE SURVEYED OR INVESTIGATED AND AS SUCH, NONE ARE SHOWN ON THIS SURVEY.
8. THIS SURVEY SHALL BE USED IN ITS DIGITAL FORMAT AND VIEWED AT A 1" = 20' SCALE. THIS SURVEY IS DIGITALLY SIGNED IN ACCORDANCE WITH SECTION 5J-17.062 OF THE FLORIDA ADMINISTRATIVE CODE AND IS NOT VALID WITHOUT SAID SIGNATURE.
9. UNDERGROUND IMPROVEMENTS, ENCROACHMENTS, FOUNDATIONS, AND/OR UTILITIES WERE NOT LOCATED AS PART OF THIS SURVEY UNLESS OTHERWISE SHOWN.
10. NO JURISDICTIONAL WETLANDS WERE DELINEATED NOR LOCATED AS PART OF THIS SURVEY.

LEGEND

	OVERHEAD ELECTRIC WIRE	CONC	CONCRETE
	POST	TOB	TOP OF BANK
	LIGHT POLE	TOE	TOE OF SLAB (BOTTOM OF SLOPE)
	OAK TREE	CLF	CHAIN-LINK FENCE
	GUY ANCHOR	RCP	REINFORCED-CONCRETE PIPE
	VALVE COVER WATER	INV	INVERT
	SHARED UTILITY POLE	TYP	TYPICAL
	WATER METER	ELEV	ELEVATION
	SERVICE CABINET		
	ELECTRIC METER		
	A/C UNIT		
	EXISTING ASPHALT EXTENTS		

REV.NO.	DESCRIPTION	DATE
-	-----	-----

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

GENERAL

EXISTING SITE SURVEY

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1" = 15'
VERTICAL: N/A

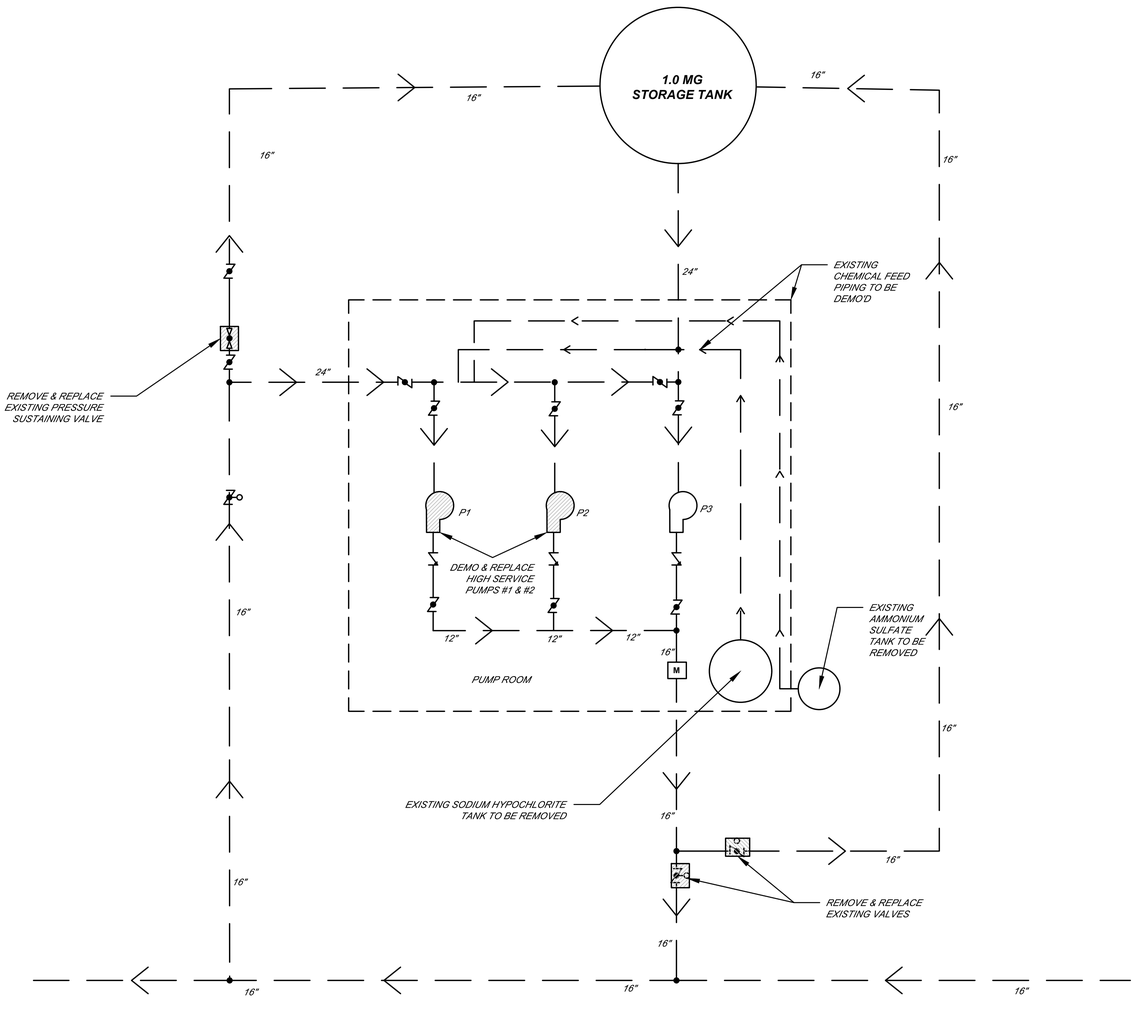
G-5
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

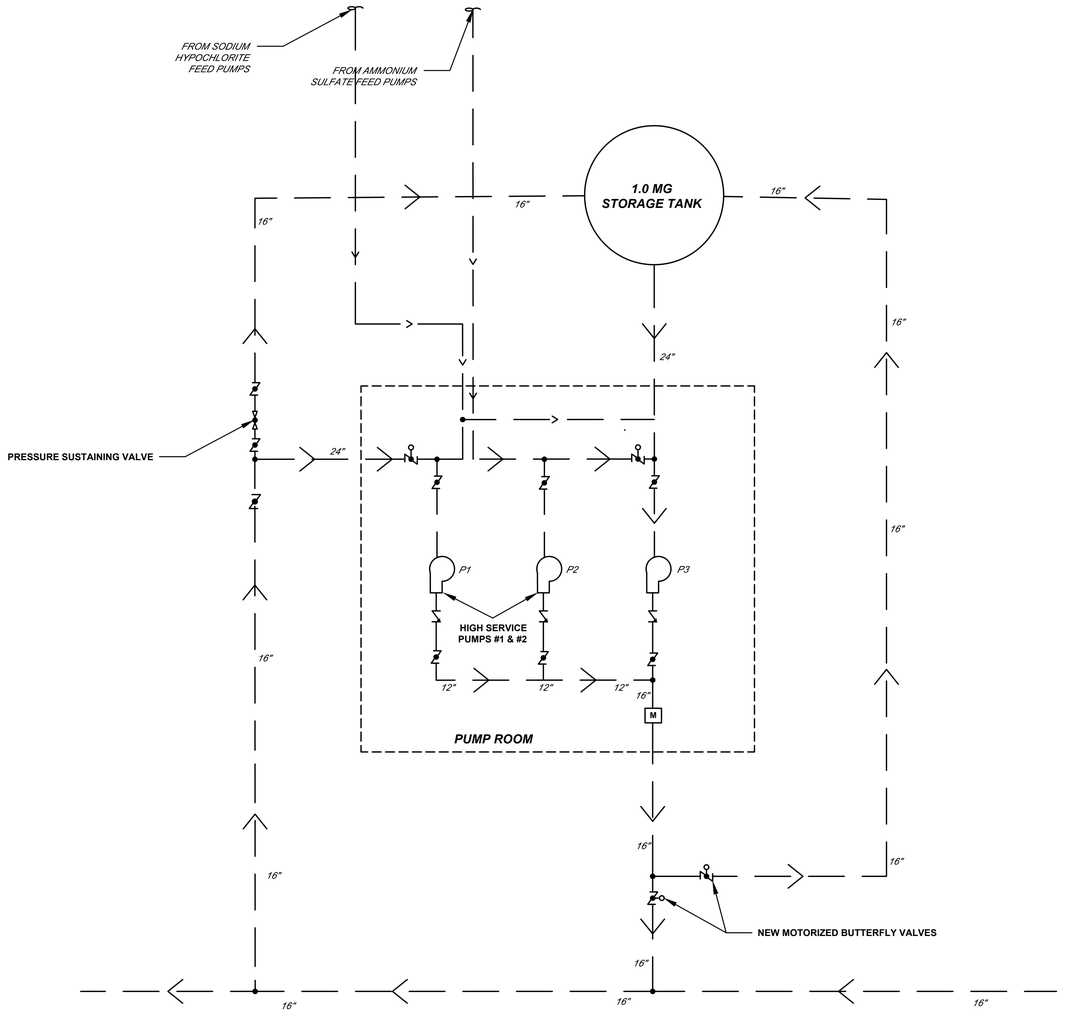
I:\01024\0206\ENG\80-DRAWINGS\GENERAL\G-4 EXISTING SITE SURVEY.DWG 08/12/2024 11:04:27 AARON TURMAN

LEGEND

- EQUIPMENT AND PIPING
- MANUAL BUTTERFLY VALVE
- MOTORIZED BUTTERFLY VALVE
- CHECK VALVE
- FLOW METER (M)
- BOOSTER PUMP



EXISTING AND DEMO



PROPOSED

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

GENERAL

PROCESS SCHEMATIC

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

G-6
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

NORTH

5 0 5 10

SCALE: 1" = 10'

EXIST 16" MOTORIZE BFV

EXIST LIGHT POLE

EXIST 16" BFV

EXIST 12" PRESSURE SUSTAINING VALVE TO BE REMOVED AND REPLACED

EXIST 16" BFV

EXIST 16" DIP

30" RCP

CATCH BASIN

GRATE ELEV = 3.78'

INV ELEV = 0.34'

DEMO EXIST NORTH GATE

DEMO EXIST SOUTH GATE

EXIST ASPHALT

EXIST 24" DIP SUCTION

DEMO AND RESTORE ASPHALT DRIVE (SEE SHEET C-4 FOR RESTORATION DETAIL)

DEMO DRIVEWAY FOR CONDUIT; REPAIR AFTER WORK COMPLETE (SEE SHEET E-4)

EXIST CONCRETE RETAINING WALL

OAK TREE PREVIOUSLY REMOVED BY COUNTY PERSONNEL

REMOVE EXIST FENCE FROM GATE POST TO FIRST POST SOUTH OF GATE POST

EXIST SECURITY FENCE

TOE

SEE SHEET M-1 FOR DEMOLITION

EXIST PUMP STATION BUILDING

DEMO EXIST AMMONIUM SULFATE TANK

EXIST 16" MOTORIZED BFV TO BE REMOVED AND REPLACED; PROVIDE VALVE ACTUATORS TO COUNTY

EXIST 16" DIP DISCHARGE

EXIST 16" DIP DISCHARGE

EXIST 16" DIP FILL

EXIST 16" DIP WATER MAIN

WATER

ELEC

EXIST 24" DIP SUCTION

TOE

TOB

EXIST 16" SECONDARY DIP FILL

EXIST GROUND STORAGE TANK

INV ELEV = 0.44'

CATCH BASIN

GRATE ELEV = 3.58'

INV ELEV = 0.49'

TOB

TOB

EXIST 8" DIP DRAIN TO STORMWATER POND 2

DEMO EXISTING 8" TEE AND ASSOCIATED PIPING (SEE SHEET M-6 FOR DETAILS)

EXIST RIP-RAP

EXIST 8" ISOLATION VALVE

EXIST STORMWATER POND 2

PHOTO NO. 2
PRESSURE SUSTAINING VALVE

PHOTO NO. 1
MOTORIZED BUTTERFLY VALVES

NOTES:
1) CONTRACTOR SHALL REMOVE AND REPLACE EXIST PRESSURE SUSTAINING VALVE AND ALL ABOVE GROUND PIPING ADJACENT TO THE VALVE
2) CONTRACTOR SHALL CUT EXIST BELOW GRADE PIPING ADJACENT TO THE EXIST MOTORIZED BFV'S AND INSTALL SLEEVES OR OTHER MEANS OF CONNECTING THE NEW MOTORIZED BFV'S TO THE EXIST PIPING. EXIST PIPING SHALL BE RESTRAINED AS NEEDED.
3) CONTRACTOR SHALL REMOVE AND REPLACE THE EXISTING CONCRETE SUPPORTING THE VALVE AND LOCAL PIPING ASSEMBLIES.

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

CIVIL SITE

EXISTING SITE PLAN AND DEMO

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1" = 10'
VERTICAL: N/A

C-1
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\CIVIL\C-1 EXISTING SITE PLAN AND DEMO.DWG 08/12/2024 11:04:41 AARON TURMAN

EXIST SECURITY FENCE

PROPOSED DRAINAGE SWALE

T.O.B = 4'

PROPOSED 12" PRESSURE SUSTAINING VALVE (SEE PHOTO NO. 2)

EXIST 16" DIP

PROPOSED NORTH GATE

PROPOSED 1" PVC PW W/ ABOVE-GRADE RPZ

EXISTING LIGHT POLE

BOTTOM OF SWALE = 3.5'

PROPOSED EMERGENCY EYEWASH STATION AND SHOWER

NORTHING: 1156405.82
EASTING: 442116.30

PROPOSED SOUTH GATE

PROPOSED ASPHALT

EXIST 24" DIP SUCTION

24" x 2" DOUBLE STRAP TAPPING SADDLE AND VALVE W/ 2" x 1" RED

PROPOSED CHEMICAL BUILDING (SEE SHEET M-2)

NORTHING: 1156377.82
EASTING: 442100.97

EXIST ROLL-UP DOOR

5'-0"

TOE

EXIST PUMP STATION BUILDING

PROPOSED 16" MOTORIZED BFV'S (SEE PHOTO NO.1)

WATER

EXIST 16" DIP DISCHARGE

EXIST 16" DIP DISCHARGE

EXIST 16" DIP WATER MAIN

EXIST 16" DIP FILL

ELEC

EXIST 24" DIP SUCTION

TOE

TOB

EXIST 16" DIP SECONDARY FILL

EXIST GROUND STORAGE TANK

TOE

TOB

TOB

TOB

MODIFY EXISTING DRAIN LINE STAND-PIPE ASSEMBLY AND INSTALL NEW DRAIN PUMP (SEE SHEET M-6)

EXIST 8" DIP DRAIN TO STORMWATER POND 2

EXIST RIP-RAP

FLOATING TURBIDITY BARRIER

EXIST 8" ISOLATION VALVE

EXIST STORMWATER POND 2

NOTES:
1) GATE SHALL REMAIN SECURED THROUGHOUT CONSTRUCTION
2) CONTRACTOR SHALL MAINTAIN CLEAR ACCESS FOR CHEMICAL DELIVERIES AND COUNTY PERSONNEL

NORTH

5 0 5 10

SCALE: 1" = 10'

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

CIVIL SITE

PROPOSED SITE PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

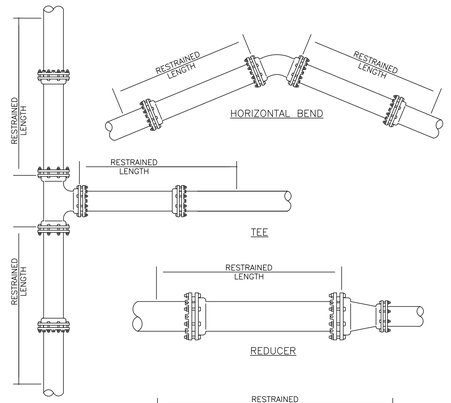
SCALE
HORIZONTAL: 1" = 10'
VERTICAL: N/A

C-2
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\CIVIL\C-2 PROPOSED SITE PLAN.DWG 08/12/2024 11:04:51 AARON TURMAN



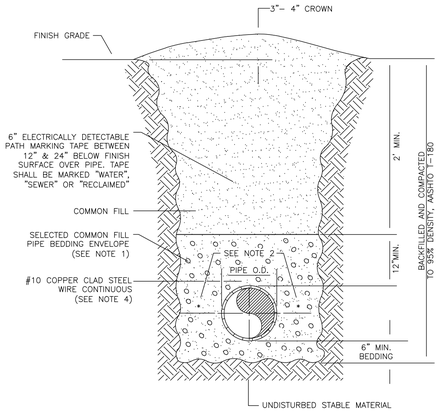
NOTE:

1. SEE DETAIL UG-8 RESTRAINED LENGTHS FOR PVC PIPE FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR PIPE.

PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	RESTRAINED LENGTHS FOR PIPE	UG-10
		DATE OF APPROVAL	

NOTES:

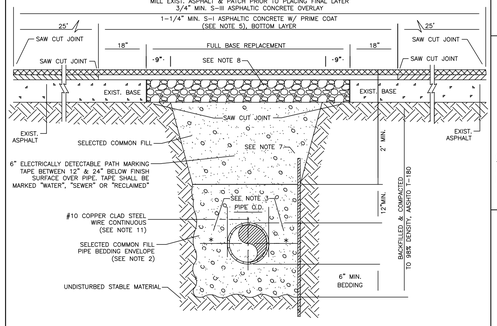
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.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



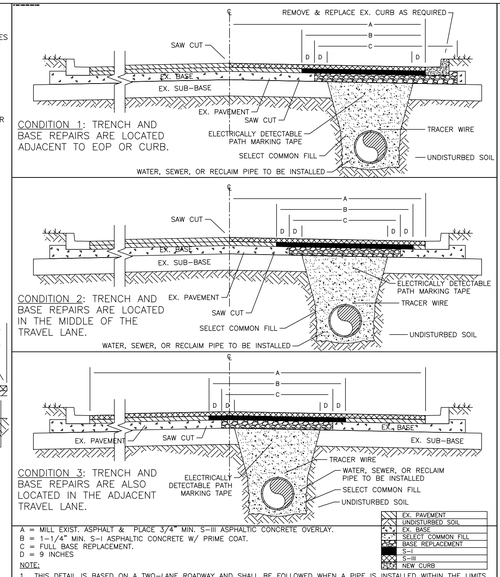
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING	UG-11
		DATE OF APPROVAL	

NOTES:

1. BITUMINOUS PAVEMENT SHALL BE REMOVED IN CLEAN STRAIGHT LINES BY SAW CUTTING. WHERE BITUMINOUS PAVEMENT ADJOINS A TRENCH, THE EDGES ADJACENT TO THE TRENCH SHALL BE TRIMMED TO A NEAT STRAIGHT LINES BEFORE RESURFACING TO ENSURE THAT ALL AREAS TO BE RESURFACED ARE ACCESSIBLE TO ROLLERS OR TAMPERS USED TO COMPACT THE SUB-GRADE OR PAVING MATERIALS.
2. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. 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.
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 S-I, WHICHEVER IS GREATER.
6. MILL 25' BACK FROM TRENCH CROSSING SAW CUTS. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCERNABLE "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. NEW BASE SHALL MATCH EXISTING; OR BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR 150, WHICHEVER IS GREATER.
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 & MARKING 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 LOCAL ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (CROSSING)	UG-12
		DATE OF APPROVAL	



CONDITION 1: TRENCH AND BASE REPAIRS ARE LOCATED ADJACENT TO EOP OR CURB.

CONDITION 2: TRENCH AND BASE REPAIRS ARE LOCATED IN THE MIDDLE OF THE TRAVEL LANE.

CONDITION 3: TRENCH AND BASE REPAIRS ARE ALSO LOCATED IN THE ADJACENT TRAVEL LANE.

A = MILL EXIST. ASPHALT & PLACE 3/4" MIN. S-III ASPHALTIC CONCRETE OVERLAY.
B = 1-1/4" MIN. S-I ASPHALTIC CONCRETE W/ PRIME COAT.
C = FULL BASE REPLACEMENT.
D = 9 INCHES

NOTE:

1. THIS DETAIL IS BASED ON A TWO-LANE ROADWAY AND SHALL BE FOLLOWED WHEN A PIPE IS INSTALLED WITHIN THE LIMITS OF A ROADWAY AND RUNS PARALLEL WITH THE EDGE OF PAVEMENT. THIS DETAIL CAN ALSO BE UTILIZED FOR RESTORATION NEEDS OF ROADWAYS WITH ADDITIONAL LANES. CONDITION 3 ONLY EXTENDS TO NEXT ADJACENT LANE ON MULTI-LANE ROADS.
2. THE MILL AND OVERLAY SHALL BE FIELD ADJUSTED TO MEET THE NEEDS FOR PAVEMENT RESTORATION DUE TO CONSTRUCTION ACTIVITIES AND SHALL BE COORDINATED WITH THE COUNTY.
3. SEE TRENCH WITH ASPHALT PAVEMENT TYPE A-1 PIPE BEDDING (CROSSING) DETAIL FOR NOTES 1 TO 12 THAT ARE ALSO APPLICABLE TO ASPHALT PAVEMENT RESTORATION.

PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (LONGITUDINAL)	UG-12B
		DATE OF APPROVAL	

MAIN PIPE SIZE	HORIZ. BENDS 90°	HORIZ. BENDS 45°	HORIZ. BENDS 22.5°	TEES SIZE / LENGTH	REDUCERS SIZE / LENGTH	PLUGS & VALVES
36	142	59	28	x36 / 393 x30 / 318 x24 / 232 x20 / 165 x16 / 84 x12 / 1	x30 / 137 x24 / 247 x20 / 309 x16 / 359	453
30	124	51	25	x30 / 333 x24 / 252 x20 / 189 x16 / 115 x12 / 23 x10 / 1	x24 / 137 x20 / 213 x16 / 276	391
24	106	44	21	x24 / 270 x20 / 211 x16 / 143 x12 / 61 x10 / 10 x8 / 1	x20 / 98 x16 / 178 x12 / 241	327
20	92	38	18	x20 / 225 x16 / 161 x12 / 85 x10 / 59 x8 / 1	x16 / 98 x12 / 176 x10 / 227	280
16	77	32	15	x16 / 177 x12 / 107 x10 / 65 x8 / 19 x6 / 1	x12 / 98 x10 / 163 x8 / 169	231
12	61	25	12	x12 / 127 x10 / 89 x8 / 50 x6 / 1	x10 / 88 x8 / 96 x6 / 131	181
10	52	22	10	x10 / 101 x8 / 64 x6 / 11	x8 / 51 x6 / 94 x4 / 125	153
8	44	18	9	x8 / 78 x6 / 50 x4 / 1	x6 / 54 x4 / 92	128
6	34	14	7	x6 / 46 x4 / 1	x4 / 50	98
4	24	10	5	x4 / 19		69

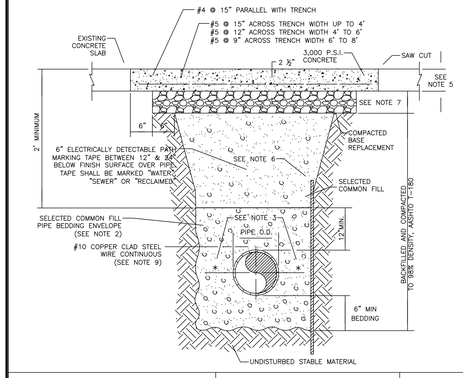
NOTE:

1. SEE UG-8, RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	RESTRAINED LENGTHS FOR DIP	UG-9
		DATE OF APPROVAL	

NOTES:

1. CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWED EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2"). IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, COLD JOINT, EXPANSION JOINT OR EDGE, THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES, WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT, SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
2. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. 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.
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.
6. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
7. BASE SHALL BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR 150.
8. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
9. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
10. NOTES 5. THRU 9. ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	TRENCH WITH CONCRETE PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-13
		DATE OF APPROVAL	

REV.NO	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

CIVIL SITE

CIVIL DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

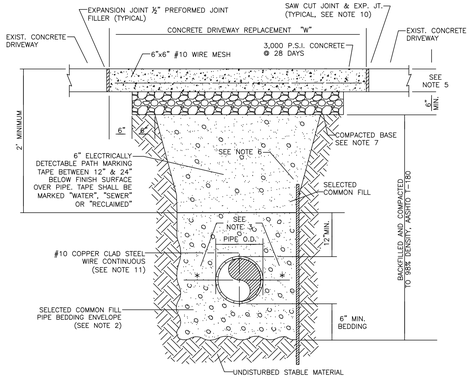
SCALE
HORIZONTAL: N/A
VERTICAL: N/A

C-3
DRAWING NUMBER
REVISION

STATUS: **ISSUED FOR BID**

NOTES:

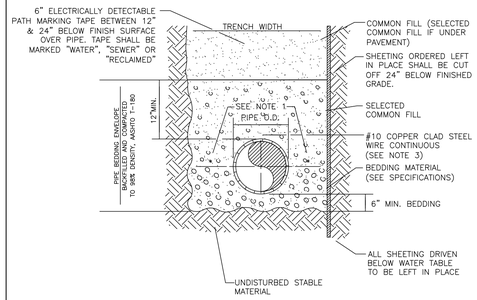
1. CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWED EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2"). IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, COLD JOINT, EXPANSION JOINT OR EDGE, THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES, WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT, SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
2. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. 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.
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. THICKNESS TO MATCH EXISTING OR BE 6" MINIMUM, WHICHEVER IS GREATER.
6. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISH GRADE OR 12" BELOW SUBGRADE.
7. BASE SHALL BE COMPACTED 6" MINIMUM THICKNESS OF APPROVED MATERIAL.
8. DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST ADOPTED CONSTRUCTION STANDARDS OF THE MANATEE COUNTY TRANSPORTATION DEPARTMENT.
9. IF THE DRIVEWAY IS 12' OR WIDER, SAWCUT AN EXPANSION JOINT ALONG THE CENTER OF THE DRIVEWAY (3/8" WIDE AND 1½" DEEP) AFTER THE CONCRETE HAS SET.
10. IF THERE IS AN EXISTING EXPANSION JOINT WITHIN 3' OF THE PROPOSED JOINT, EXTEND DRIVEWAY REPLACEMENT TO THE EXISTING JOINT.
11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING	UG-14

NOTES:

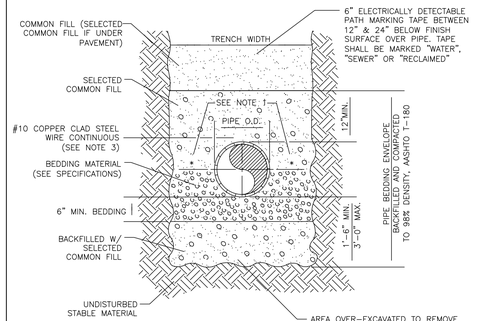
1. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
2. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



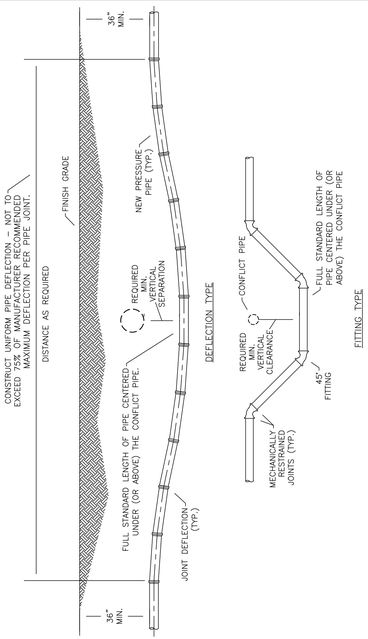
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	TRENCH WITH TYPE A-2 PIPE BEDDING	UG-15

NOTES:

1. 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.
2. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
3. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



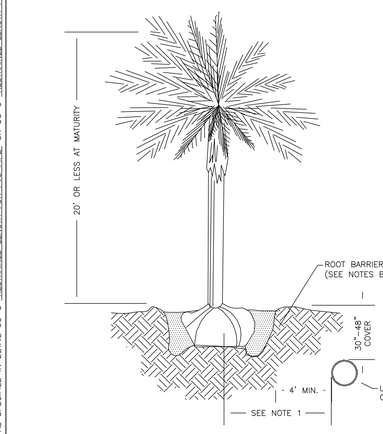
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	TRENCH WITH TYPE A-3 PIPE BEDDING	UG-16



NOTES:

1. AT ALL TIMES, PIPE SHALL CROSS ABOVE CONFLICT WHEN POSSIBLE.
2. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6" VERTICAL SEPARATION AND MAINTAIN REQUIRED COVER TO FINISHED GRADE.
3. THE DEFLECTION TYPE CROSSING IS PREFERRED.
4. DEFLECTION SHALL NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM JOINT DEFLECTION.
5. FITTINGS SHALL BE RESTRAINED AS SPECIFIED IN DETAIL UG-8 "RESTRAINED LENGTH FOR PVC PIPE" OR UG-9 "RESTRAINED LENGTH FOR DIP".

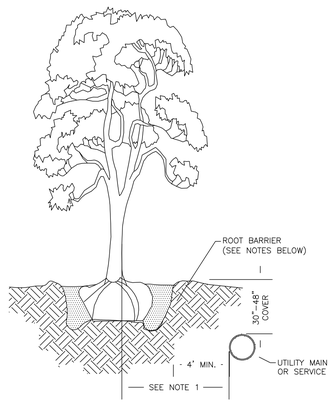
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	PRESSURE PIPE DEFLECTION AT UTILITY CROSSING	UG-18



NOTES:

1. THIS DISTANCE SHALL BE 7' MINIMUM WITH ROOT BARRIER AND 10' MINIMUM IF NO ROOT BARRIER IS USED.
2. ALL ROOT BARRIERS SHALL BE 4' MINIMUM FROM ALL MAINS AND SERVICES.
3. THE INSTALLATION OF ROOT BARRIERS SHALL BE COORDINATED WITH MANATEE COUNTY AND INSPECTED BY MANATEE COUNTY PRIOR TO BACKFILLING. ALL ROOT BARRIERS SHALL EXTEND UP TO FINISHED GRADE
4. ROOT BARRIERS SHALL BE A FLEXIBLE PANEL BARRIER, A MINIMUM 36" DEEP.
5. ALL ROOT BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES WRITTEN INSTRUCTIONS.

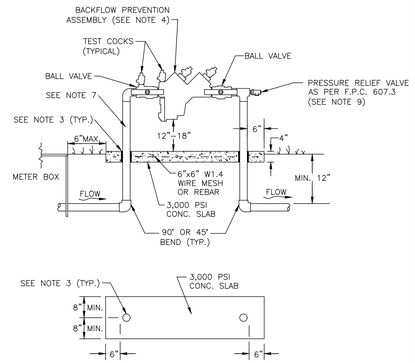
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	TYP. SMALL TREE OR PALM TREE WITH ROOT BARRIER	UG-19



NOTES:

1. THIS DISTANCE SHALL BE 10' MINIMUM WITH ROOT BARRIER AND 15' MINIMUM IF NO ROOT BARRIER IS USED.
2. ALL ROOT BARRIERS SHALL BE 4' MINIMUM FROM ALL MAINS AND SERVICES.
3. THE INSTALLATION OF ROOT BARRIERS SHALL BE COORDINATED WITH MANATEE COUNTY AND INSPECTED BY MANATEE COUNTY PRIOR TO BACKFILLING. ALL ROOT BARRIERS SHALL EXTEND UP TO FINISHED GRADE
4. ROOT BARRIERS SHALL BE MINIMUM 36" DEEP. FLEXIBLE BARRIERS SHALL BE 36" PANELS.
5. ALL ROOT BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES WRITTEN INSTRUCTIONS.
6. LARGE PALM TREES INCLUDE ROYAL, WASHINGTONIAN, BISMARK AND SIMILAR SIZED SPECIES.

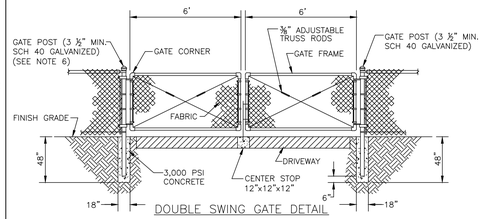
PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	TYP. CANOPY TREE, LARGE PALM OR EXOTIC TREE WITH ROOT BARRIER	UG-20



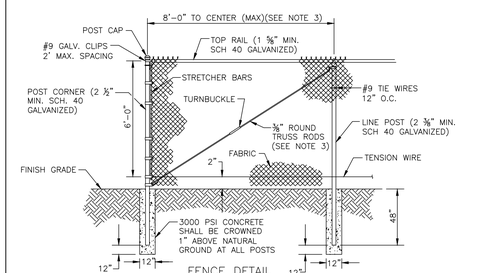
NOTES:

1. BACKFLOW PREVENTION ASSEMBLY MUST BE INSTALLED IMMEDIATELY DOWNSTREAM OF METER, AS SHOWN ABOVE
2. COPPER PIPE TYPE "L" (OR "K") OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 12" BELOW GRADE.
3. PIPES PASSING THROUGH CONCRETE SLAB SHALL BE PROPERLY PROTECTED; POLYETHYLENE WRAPPED OR PVC SLEEVED. COPPER SHALL NOT COME IN CONTACT WITH THE CONCRETE.
4. THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE FLORIDA PLUMBING CODE (LATEST EDITION) AND CHAPTER 2-31, ARTICLE X OF THE MANATEE COUNTY CODE OF ORDINANCES.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. BACKFLOW PREVENTER SHALL BE TESTED AT THE TIME OF INSTALLATION.
7. PRESSURE REDUCING VALVE IS REQUIRED UPSTREAM OF BACKFLOW PREVENTION ASSEMBLY, IF SYSTEM PRESSURE EXCEEDS 80 PSI.
8. 3' MINIMUM CLEARANCE FROM LANDSCAPING PLANTS AND 10' MIN. CLEARANCE FROM TREES TO EDGE OF CONCRETE SLAB AND CLEAR OPENING FOR ACCESS FROM STREET.
9. IN ADDITION TO THE PRV, THE BUILDING DEPT. MAY REQUIRE AN APPROVED DEVICE FOR THERMAL EXPANSION CONTROL DOWNSTREAM OF THE ASSEMBLY.
10. FITTINGS AND CONNECTIONS FOR ABOVE-GROUND INSTALLATIONS SHALL NOT ALLOW ANY MOVEMENT OR ROTATION OF BACKFLOW PREVENTION ASSEMBLY.
11. REFER TO DETAIL US-15 WATER METER & BACKFLOW PREVENTER FOR LIFT STATIONS FOR WATER SERVICE AT SEWAGE PUMPING STATION.
12. BACKFLOW PREVENTION ASSEMBLIES USED FOR POTABLE APPLICATIONS SHALL BE LEAD FREE AS DEFINED IN THE REDUCTION OF LEAD IN DRINKING WATER ACT, SECTION 1417 OF THE SAFE DRINKING WATER ACT, 42 U.S.C. 300g-6, AS MAY BE AMENDED, AND IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS

PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	3/4" & 1" BACKFLOW PREVENTION ASSEMBLY	UW-13



DOUBLE SWING GATE DETAIL



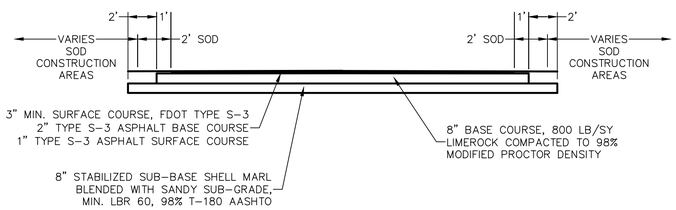
FENCE DETAIL

END & CORNER POST TOP OPTIONS		TOP & BOTTOM FABRIC OPTIONS	
STANDARD	DOME	TWIST	KNUCKLE

NOTES:

1. FENCING SHALL BE CHAIN LINK, W/ PRIVACY DECORATIVE SLATS (COLOR MATCHED).
2. CHAIN LINK FENCING SHALL BE #9 GAUGE, GALVANIZED STEEL WITH VINYL COATING (BLACK OR GREEN).
3. TRUSS BARS ON CHAIN LINK FENCES ARE REQUIRED FOR THE FIRST SPAN ON EACH SIDE OF THE CORNER POST AND FOR EACH GATE SECTION.
4. LANDSCAPE SCREENING SHALL BE LOCATED ON THE EXTERIOR OF LIFT STATION FENCING.
5. SWING GATES SHALL BE CAPABLE OF SWINGING BOTH INWARDS AND OUTWARDS. CANTILEVER SLIDE GATES AND ROLL SLIDE GATES MEETING FDOT DESIGN STANDARDS MAY BE USED AS AN OPTION TO SWING GATES.
6. GATE POSTS AND TRACK LINE POSTS SHALL BE 4 INCH SCHEDULE 40 FOR CANTILEVER SLIDE GATES AND ROLL SLIDE GATES.

PUBLIC WORKS DEPARTMENT			
REV.BY	DATE	DATE OF APPROVAL	SECURITY FENCING	US-17



INTERIOR PLANT ROADWAY TYPICAL SECTION

NOT TO SCALE

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

CIVIL SITE

CIVIL DETAILS 2

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: TBD
VERTICAL: N/A

C-4
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\CIVIL\C-4 CIVIL DETAILS 2.DWG 08/12/2024 11:05:03 AARON TURMAN

1 GENERAL NOTES

1.1 ALL WORK IS TO BE PERFORMED IN A GOOD, WORKMANLIKE AND PROFESSIONAL MANNER.

1.2 ALL CONSTRUCTION SHALL BE IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE, 2023 EDITION, OR LOCAL BUILDING CODE REQUIREMENTS IF MORE STRINGENT.

1.3 THESE DRAWINGS DO NOT SHOW PROVISIONS FOR SAFETY DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THE REQUIRED BRACING, SHORING, AND SAFETY DEVICES THROUGHOUT THE CONSTRUCTION OF THIS PROJECT.

2 COORDINATION

2.1 STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH AND COORDINATED WITH ARCHITECTURAL, CIVIL, ELECTRICAL, HVAC, MECHANICAL & PLUMBING DRAWINGS, INCLUDING VENDOR SUBMITTAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.

2.2 COORDINATE THE EXACT SIZE AND LOCATION OF ALL SLEEVES AND OPENINGS THROUGH WALLS OR CONCRETE SLABS WITH ARCHITECTURAL, CIVIL, ELECTRICAL, HVAC, MECHANICAL & PLUMBING DRAWINGS, INCLUDING VENDOR SUBMITTAL DRAWINGS AND OTHER CONTRACT DOCUMENTS.

2.3 ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN ON THESE DRAWINGS ARE TO BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE WORK PROCEEDS, INCLUDING ORDERING AND FABRICATING MATERIALS.

2.4 INDEPENDENT TESTING OF MATERIALS SHALL BE PROVIDED AS DEFINED IN PROJECT SPECIFICATIONS. IN GENERAL PROJECT INVOLVES THE FOLLOWING:
A. SOIL/FILL COMPACTION & BEARING.
B. C.I.P. CONCRETE.

2.5 IF COORDINATION OF INFORMATION PRESENTED CONFLICTS w/ THE PROJECT SPECIFICATIONS, THE DRAWINGS WILL TAKE PRECEDENCE.

2.6 IN GENERAL CALL-OUTS ARE FOR NEW CONSTRUCTION U.N.O.. EXISTING CONSTRUCTION CALL-OUTS, ELEVATIONS AND DIMENSIONS OF EXISTING STRUCTURES ARE BASED ON EXISTING RECORD DRAWINGS PROVIDED TO McKIM & CREED. THE (*) SYMBOL ON INDIVIDUAL FACILITY "STRUCTURAL" DRAWINGS INDICATES EXISTING CONSTRUCTION CALL-OUTS, CONDITIONS, ELEVATIONS AND DIMENSIONS TO BE FIELD VERIFIED BY THE GENERAL CONTRACTOR U.N.O. PRIOR TO CONSTRUCTION, INCLUDING ORDERING AND FABRICATING MATERIALS. RECORD DRAWINGS PROVIDED BY MANATEE COUNTY UTILIZED INCLUDES:
A. NONE.

2.7 SPECIAL INSPECTIONS (IF APPLICABLE): ALL FOUNDATION SOILS, REINF. STEEL, C.I.P. CONCRETE & STRUCTURAL STEEL WORK SHALL BE REVIEWED AS STATED IN CONJUNCTION w/ THEIR RESPECTIVE NOTES BELOW.

3 FOUNDATIONS

3.1 SHALLOW FOUNDATION CRITERIA:
THE ALLOWABLE SOIL BEARING CAPACITY IS ASSUMED TO BE 2000 PSF BASED ON THE PROVISIONS OF THE FLORIDA BUILDING CODE (FBC) 2023 SECTION 1806.2, PRESUMPTIVE LOAD BEARING VALUES FOR SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL, AND CLAYEY GRAVEL TYPE SOILS. (I.E. CLASS 4 TYPE SOILS). SUBGRADE PREPARATION SHALL BE DONE TO DEVELOP A UNIFORM DENSITY OF NOT LESS THAN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY, PER ASTM D-1557.

3.2 IN THE EVENT UNUSUAL SOIL CONDITIONS ARE UNCOVERED, INCLUDING CONDITIONS THAT DEVIATE FROM THOSE DESCRIBED IN THE PROJECT GEOTECHNICAL REPORT, NOTIFY THE OWNER AND ENGINEER PRIOR TO FOUNDATION CONSTRUCTION FOR INSTRUCTIONS HOW TO PROCEED. ADJUSTMENT IN THE FOOTING DEPTHS AND GENERAL FOUNDATION CONSTRUCTION MAY BE MADE BY THE ENGINEER BEFORE WORK PROCEEDS. CONTRACTOR IS RESPONSIBLE FOR PERFORMING ANY SUCH ADJUSTMENTS.

3.3 FOOTING & BASE SLAB EXCAVATIONS AND FORMS SHALL BE REVIEWED BY AN OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.

3.4 FOOTING & BASE SLAB ELEVATIONS SHALL NOT BE RAISED OR LOWERED WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

3.5 ALL EXCAVATIONS SHALL BE ADEQUATELY DEWATERED BEFORE PLACEMENT OF CONCRETE. NO CONCRETE OR CONCRETE FILL SHALL BE PLACED IN STANDING WATER. ACCUMULATION EXCEEDING 1 INCH SHALL BE PUMPED OUT.

3.6 ALL FILL INSIDE THE STRUCTURE/BUILDING's FOOTPRINT AND BELOW FOUNDATION's SHALL BE SELECT MATERIAL FREE FROM ROOTS, TRASH WOOD SCRAPS, AND OTHER EXTRANEOUS MATERIALS.

3.7 ALL FOOTINGS SHALL BE CENTERED UNDER THE SUPPORTED WALL/COLUMN MEMBER UNLESS NOTED OTHERWISE.

3 FOUNDATIONS CTD.

3.8 CONSTRUCTION JOINTS IN FOUNDATION SLABS, WALLS, FOOTINGS SHALL BE MADE AT LOCATIONS SHOWN ON DRAWINGS.

3.9 ANCHOR BOLTS SHALL BE SET BY MEANS OF TEMPLATE. "FLOATING" ANCHOR BOLTS INTO PLACE IS PROHIBITED.

3.10 CONTRACTOR IS TO VERIFY THE ELEVATION AND LOCATION OF ALL EXISTING AND PROPOSED UTILITIES PRIOR TO CONSTRUCTION. ANY "KNOWN" UTILITY LINES DAMAGED WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE. IF ANY "UNKNOWN" UTILITY LINES ARE ENCOUNTERED WHEN EXCAVATING THE CONTRACTOR IS TO CEASE ALL EXCAVATION ACTIVITY UNTIL THE ENGINEER AND OWNER ARE NOTIFIED AND INSTRUCTIONS ARE PROVIDED ABOUT HOW TO PROCEED.

3.11 THE CONTRACTOR SHALL OBTAIN THE OWNER'S PERMISSION BEFORE ENCASING OR BACK FILLING AROUND ANY EXISTING UNDERGROUND STRUCTURE, PIPING, ELECTRICAL, OR OTHER UNDERGROUND WORK.

4 REINFORCING STEEL

4.1 BARS SHALL BE ROLLED FROM NEW BILLET-STEEL OF DOMESTIC MANUFACTURE CONFORMING TO "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN BILLET STEEL BARS FOR CONC. REINFORCEMENT," ASTM A615, GRADE 60.

4.2 DETAIL AND FABRICATE REINFORCING STEEL IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL," LATEST PUBLICATION.

4.3 REINFORCING STEEL IN PLACE SHALL BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.

4.4 WELDED WIRE FABRIC SHALL CONFORM TO "STANDARD SPECIFICATION FOR WELDED STEEL WIRE FABRIC FOR CONCRETE REINFORCEMENT," ASTM A1064.

4.5 PLACE WELDED WIRE FABRIC AT CENTER OF SLABS-ON-GRADE AND ELEVATED SLAB TOPPINGS OVER METAL DECK, UNLESS NOTED OTHERWISE.

4.6 PROVIDE BARS AT CORNERS AND INTERSECTIONS OF WALLS & FOOTINGS OF THE SAME NUMBER AND SIZE AS LONGITUDINAL BARS, U.N.O. ON THE DRAWINGS.

4.7 FABRICATE CONTINUOUS BARS IN WALLS, SLABS & FOOTINGS TO THE LONGEST PRACTICABLE LENGTHS.

4.8 REINFORCING STEEL SHALL NOT BE BENT AFTER BEING PARTIALLY EMBEDDED IN HARDENED CONCRETE.

4.9 BARS SHALL BE COLD BENT AND SHALL NOT BE HEATED FOR ANY REASON.

4.10 REINFORCING BARS SHALL NOT BE WELDED U.N.O. ON THE DRAWINGS.

4.11 REFERENCE DRAWINGS FOR REQUIREMENTS FOR LAP SPLICING REINFORCING STEEL IN CONCRETE. ALL "LCS" SHALL CONFORM TO CLASS B SPLICE CRITERIA & IT IS ACCEPTABLE TO LAP SPLICE NON "LCS" A MINIMUM 50 BAR DIAMETERS, UNLESS NOTED OTHERWISE.

4.12 LAP SPLICED BARS IN CONCRETE ARE TO BE WIRE TIED.

5 CONCRETE

5.1 IN GENERAL CONCRETE SHALL DEVELOP 3,000 TO 4,500 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS. REFERENCE "DESIGN CRITERIA" THIS DWG. & PROJECT SPECIFICATIONS, FOR APPLICATION & SPECIFIC CONCRETE MIX DESIGN REQUIREMENTS.

5.2 CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318-19 & TO "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES", ACI 350-20.

5.3 PLACE 1/2 INCH EXPANSION JOINT MATERIAL BETWEEN EDGES OF SLABS AND VERTICAL SURFACES UNLESS NOTED OTHERWISE.

5.4 PROVIDE CONSTRUCTION OR CONTROL JOINTS IN SLABS & WALLS AT LOCATIONS SHOWN ON DRAWINGS, AT OFFSETS AND CHANGES IN DIRECTION AND AT THIRTY (30) FEET MAXIMUM U.N.O.. GENERAL CONTRACTOR TO PROVIDE CONSTRUCTION JOINT LAYOUT PLAN PER THE PROJECT SPECIFICATIONS PRIOR TO CONSTRUCTION, INCLUDING ORDERING & FABRICATING MATERIALS.

5.5 CHAMFER EXPOSED EDGES OF CONCRETE 3/4 INCH, UNLESS NOTED OTHERWISE.

5.6 CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER CURING OF ALL CONCRETE. CURING METHODS SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318-19, "CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES" ACI 350-20 AND "STANDARD PRACTICE FOR CURING CONCRETE," ACI 308-16.

5.7 UNLESS NOTED OTHERWISE DOWELS SHALL BE THE SAME NUMBER AND SIZE AS THE LARGEST VERTICAL BAR TO WHICH THEY ARE SPLICED.

5.8 REFERENCE PROJECT SPECIFICATIONS FOR REQUIRED FINISHES.

5 CONCRETE CTD.

5.9 CONTRACTOR SHALL SUBMIT REBAR SHOP DRAWINGS FOR APPROVAL TO OWNER PRIOR TO FABRICATION. DO NOT FABRICATE REINFORCING PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS.

5.10 CAST-IN-PLACE REINFORCED CONCRETE SHALL HAVE A MINIMUM (28) DAY OF COMPRESSIVE STRENGTH AS SPECIFIED IN SECTION 16 - DESIGN CRITERIA. DOCUMENTATION INDICATING THE PROPOSED CONCRETE PROPORTIONS WILL PRODUCE AN AVERAGE COMPRESSIVE STRENGTH EQUAL TO OR GREATER THAN THE REQUIRED AVERAGE COMPRESSIVE STRENGTH IN ACCORDANCE WITH ACI 301-16, SECTIONS 4.2.3.4.A OR 4.2.3.4.B SHALL BE SUBMITTED FOR ACCEPTANCE PRIOR TO CONCRETE PLACEMENT.

5.11 ROUGHEN THE "BASE" CONCRETE POUR SURFACE TO A FULL AMPLITUDE OF 1/4" MINIMUM, WHERE NOTED ON THE CONSTRUCTION DRAWINGS.

5.12 CONCRETE ACCESSORIES AS FOLLOWS:
a.) PREFORMED WATERSTOPS SHALL BE PVC 6 INCH LONG w/ 3/8 INCH (MIN.) CENTER BULB & TAPERED RIB ENDS AND IN ACCORDANCE w/ THE PROJECT SPECIFICATIONS.
b.) EXPANSIVE WATERSTOPS SHALL BE ADEKA ULTRA SEAL TYPE MC-2010M. THE WATERSTOPS CAN BE EITHER ADHERED TO THE CONCRETE WITH 3M-2141 BONDING ADHESIVE OR NAILED IN PLACE USING 1.5 INCH CONCRETE NAILS 3 TO 6 INCHES APART OR AN APPROVED EQUAL.
c.) RETROFIT WATERSTOPS SHALL BE SIKA WESTEC ENVIROSTOP TPE TYPE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
d.) CAULK/SEALANT - BASF MASTERSEAL CR125.
e.) BONDING AGENT - SHALL BE STRUCTURAL EPOXY ADHESIVE CONFORMING TO ASTM C-881 TYPE I STRENGTH AND II, GRADE 2, CLASS B AND C WITH A MINIMUM BOND STRENGTH OF 1900 PSI.
1.) SIKA ARMATEC 110 EpoCem OR AN APPROVED EQUAL.

5.13 CONCRETE POST INSTALLED ANCHORS NOTE THE FOLLOWING:
a.) BOLTED ANCHORING SYSTEMS EMBEDDED IN CONCRETE SHALL BE RED HEAD, C6 EPOXY ADHESIVE ANCHORING SYSTEM OR AN APPROVED EQUAL. MECHANICAL WEDGE TYPE ANCHORS ARE NOT ALLOWED.
b.) REBAR ANCHORING SYSTEM EMBEDDED IN CONCRETE SHALL BE RED HEAD, C6 EPOXY ADHESIVE ANCHORING SYSTEM OR AN APPROVED EQUAL. DEPTH OF REBAR EMBEDMENT SHALL MEET MFG.'s RECOMMENDATIONS TO ENSURE DEVELOPMENT OF THE FULL TENSILE STRENGTH OF THE REINFORCING BAR.

6 GROUT

6.1 PROVIDE NON-SHRINK GROUT UNDER ALL COLUMN BASE PLATES AND BEAM BEARING PLATES AND ELSEWHERE AS INDICATED ON DRAWINGS. NON-SHRINK GROUT SHALL CONFORM TO ASTM C1107.

6.2 GROUT SHALL BE NON-METALLIC AND NON-STAINING AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI.

7 MASONRY

7.1 THE CONSTRUCTION OF MASONRY SHALL COMPLY WITH THE REQUIREMENTS OF TMS 402/602-16. SPECIAL ATTENTION SHALL BE GIVEN TO THE MOISTURE CONTENT AND WEATHER CONDITIONS DURING CONSTRUCTION. REFERENCE BUILDING SERIES AND/OR THESE STRUCTURAL DRAWINGS FOR LOCATIONS OF VERTICAL CONTROL/EXPANSION JOINTS.

7.2 CONCRETE MASONRY UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C90. UNITS ARE TO BE NORMAL WEIGHT UNLESS NOTED OTHERWISE. THE NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY SHALL BE 2,000 PSI.

7.3 REQUIRED COMPRESSIVE STRENGTH OF MASONRY ASSEMBLAGE, f'm, IS 2,000 PSI (MINIMUM), U.N.O. ON THE DRAWINGS.

7.4 MORTAR SHALL CONFORM TO THE REQUIREMENTS OF ASTM C270 AND SHALL BE TYPE "S" w/ PORTLAND CEMENT (ASTM C150), MASONRY SAND (ASTM C144) AND HYDRATED LIME (ASTM C207). CALCIUM CHLORIDE IS PROHIBITED.

7.5 GROUT/CONCRETE FILL FOR HOLLOW MASONRY UNITS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI & IF CONCRETE, SHALL BE NORMAL WEIGHT PEA-GRAVEL CONCRETE.

7.6 JOINT REINFORCING: "LADDER/TRUSS TYPE" REFERENCE PROJECT SPECIFICATIONS AND/OR THESE STRUCTURAL DRAWINGS.

7.7 JOINT ANCHORS: REFERENCE PROJECT SPECIFICATIONS.

7.8 WALL TO COLUMN TIES : REFERENCE PROJECT SPECIFICATIONS.

7.9 MASONRY CONSTRUCTION INCLUDING GROUT FILL, MORTAR AND HORIZONTAL & VERTICAL REINFORCING TO BE REVIEWED BY THE OWNER'S CONSTRUCTION REPRESENTATIVE THROUGHOUT MASONRY & CONCRETE CONSTRUCTION OF THE PROJECT. THESE REVIEWS SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 17 OF THE FLORIDA BUILDING CODE.

8 STRUCTURAL STEEL

8.1 STEEL SHALL CONFORM TO "STANDARD SPECIFICATION FOR STRUCTURAL STEEL," ASTM A36 (Fy=36 KSI) FOR ANGLES, PLATES & CHANNELS. WIDE FLANGE SECTIONS SHALL CONFORM TO ASTM A992 (Fy=50 KSI). HOLLOW STEEL SECTIONS (HSS) SHALL CONFORM TO ASTM A500, GRADE B (Fy=46 KSI). STEEL PIPE SHALL CONFORM TO ASTM A53, GRADE B, (Fy=35 KSI). STAINLESS STEEL WHERE INDICATED SHALL BE ASTM A276, TYPE S31603 (316L) (Fy=25 KSI).

8.2 STEEL WORK SHALL CONFORM TO "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL BUILDINGS", OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC., (AISC 360-16), INCLUDING ALL SUPPLEMENTS AND THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", AISC 2017.

8.3 CONNECTION BOLTS SHALL BE 3/4 INCH DIAMETER CONFORMING TO "STANDARD SPECIFICATION FOR HIGH-STRENGTH BOLTS FOR STRUCTURAL STEEL JOINTS", ASTM A325, UNLESS NOTED OTHERWISE CONNECTIONS ARE BEARING TYPE WITH THREADS EXCLUDED FROM SHEAR PLANES (A325x). STAINLESS STEEL WHERE INDICATED SHALL BE ASTM F593, ALLOY GROUP 2.

8.4 WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY AWS D1.1-20 "STRUCTURAL WELDING CODE". WELDING SHALL BE PERFORMED BY CERTIFIED PERSONNEL WHO HAVE BEEN PREVIOUSLY QUALIFIED BY TEST PRESCRIBED IN THE AWS "STRUCTURAL WELDING CODE". ELECTRODES SHALL CONFORM TO AWS 5.5, E70XX.

8.5 THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY BRACING, SHORING, AND GUYING OF STEEL FRAMING AGAINST WIND, CONSTRUCTION LOADS, AND OTHER TEMPORARY FORCES UNTIL SUCH PROTECTION IS NO LONGER REQUIRED FOR THE SAFE SUPPORT OF THE FRAMING.

8.6 ANCHOR BOLTS SHALL BE ASTM F1554 OR ASTM A36 & SHALL BE EITHER HEADED w/ NUTS TACK WELDED TO BOLTS OR NON-HEADED w/ HOOKS AS REQUIRED BY THE DRAWINGS. PROVIDE (2) NUTS AND WASHERS WITH EACH ANCHOR BOLT AT COLUMNS UNLESS NOTED OTHERWISE. STAINLESS STEEL WHERE INDICATED SHALL BE ASTM F593, ALLOY GROUP 2.

8.7 ALL DESIGN, DETAILING, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE 2017 EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION.

8.8 ALL GALVANIZED MATERIALS THAT ARE FIELD CUT, FIELD WELDED OR DAMAGED IN SURFACE FINISH SHALL BE CLEANED AND RE-COATED w/ A 98% ZINC RICH OXIDE AND IN CONFORMANCE w/ THE PROJECT SPECIFICATIONS.

8.9 STRUCTURAL STEEL FRAMING TO BE REVIEWED BY THE THE OWNER'S CONSTRUCTION REPRESENTATIVE.

9 ALUMINUM

NOT APPLICABLE.

10 PRECAST CONCRETE

NOT APPLICABLE.

11 PRE-ENGR. TIMBER TRUSS

11.1 TRUSS FABRICATOR SHALL FURNISH TRUSS LAYOUT. SHOP DRAWINGS, ENGINEERING DESIGN COMPUTATIONS, CONNECTION DETAILS, TOP & BOTTOM CHORD BRIDGING & BRACING REQUIREMENTS FOR TRUSSES ON THE TRUSS LAYOUT PLAN. ALL INCLUDING THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF FLORIDA. NOTE THE ENGINEER'S SEAL ACCOMPANIED BY THE ENGINEER'S SIGNATURE & DATE CERTIFIES THE TRUSS DESIGN WORK ADHERES TO THESE SPECIFIED REQUIREMENTS IN ADDITION TO THE 2023 EDITION OF THE FLORIDA BUILDING CODE.

11.2 SHOP DRAWINGS ARE TO BE SUPPLIED TO OWNERS REPRESENTATIVE AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION (INCLUDING ORDERING OF MATERIALS) & ERECTION. THE SHOP DRAWINGS SHALL INCLUDE TRUSS DESIGN IN ADDITION TO:
a. CHORD & WEB MEMBER LAYOUTS AND SIZES.
b. TRUSS HORIZ. & VERT. TOP & BOTTOM CHORD BRIDGING AND BRACING MEMBER LAYOUTS AND SIZES.
c. CALL OUT OF ALL INDIVIDUAL TRUSS CONNECTORS, CONNECTORS TO BE MANUFACTURED BY SIMPSON
d. CALL OUT ALL OF THE TRUSS METAL PLATE CHORD/WEB CONNECTORS USED TO FABRICATE THE TRUSSES.
e. CALL OUT REQUIRED HORIZONTAL AND VERTICAL LOADING COMPONENTS & REACTIONS DUE TO APPLICABLE GRAVITY DEAD, COLLATERAL AND LIVE LOADS, WIND, SNOW AND SEISMIC LOADING.

11.3 REFERENCE DRAWINGS FOR REQUIREMENTS TO ANCHOR THE TRUSSES TO THE STRUCTURE.

11.4 PRE-MANUFACTURED ROOF TRUSSES ARE TO BE CONSTRUCTED OF 2x TIMBER FRAMING & SHALL ADHERE TO THE FOLLOWING:
a. ROOF TRUSS DESIGN LOADS ARE THE FOLLOWING:
TOP CHORD DEAD LOAD = 10psf
TOP CHORD LIVE LOAD = 20psf
BOTTOM CHORD DEAD LOAD = 15psf
BOTTOM CHORD LIVE LOAD = 10psf
WIND LOADS: 2023 EDITION OF THE FLORIDA BUILDING CODE & ASCE 7-22
LOAD DURATION FACTOR 1.15

11.5 ALL WOOD MEMBERS SHALL BEAR THE IDENTIFICATION GRADE AS CALLED FOR IN THE FABRICATOR'S SEALED ENGINEERED DESIGN CALCULATIONS & SHOP DRAWINGS.

11.6 PROVIDE THE REQ'D. CAMBER IN EACH ROOF TRUSS SO THAT THE DEAD LOAD & LIVE LOAD DEFLECTION SHALL BE THE SAME IN ALL PLANES.

11.7 THE ERECTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE BRACING TO RESIST ALL BUILDING CODE LOAD CASES POSSIBLY ENCOUNTERED DURING ERECTION.

11.8 THE ERECTOR SHALL INSTALL ALL TOP & BOTTOM CHORD BRIDGING AND TRUSS BRACING AS CALLED OUT IN THE FABRICATOR'S SEALED ENGINEERED DESIGN CALCULATIONS & SHOP DRAWINGS. COORDINATE w/ THE GC RESPONSIBILITY OF INSTALLING THE TOP & BOTTOM CHORD BRACING/BLOCKING.

11.9 TRUSS CONNECTORS AND TRUSS ANCHOR TIES SHALL BE GALVANIZED & MANUFACTURED BY "SIMPSON STRONG TIE". TRUSS CONNECTORS AND ANCHORS AS CALLED OUT ON BOTH THE SHOP AND STRUCTURAL DRAWINGS MAY BE REVISED BY THE ENGINEER OF RECORD (E.O.R.) THESE STRUCTURAL DRAWINGS DURING THE SHOP DRAWING REVIEW PHASE. CONNECTORS AND ANCHOR TIES SHOWN ARE BASED UPON ESTIMATED UPLIFT REACTIONS THAT WILL BE VERIFIED BY THE E.O.R. IT IS RECOMMENDED THE GC DO NOT ORDER TRUSS CONNECTORS UNTIL THE "FINAL" ROOF FRAMING SHOP DRAWINGS HAVE BEEN APPROVED, REVISED TRUSS CONNECTORS WILL BE AT NO ADDITIONAL COST TO THE OWNER OR THE ENGINEER OF RECORD (THIS DRAWING).

11.10 MAXIMUM TRUSS SPACING AS INDICATED ON THE ACCEPTED SHOP DRAWINGS.

12 PRE-ENGR. METAL BLDGS.

NOT APPLICABLE.

13 MISC. BUILDING MATERIALS

13.1 ALL MISCELLANEOUS MATERIALS ARE TO BE DELIVERED TO SITE & STAGED ON SITE PRIOR TO INSTALLATION. STORE ON SITE AS REQUIRED BY THE MATERIAL MANUFACTURER TO AVOID DAMAGE PRIOR TO INSTALLATION.

13.2 CAULK & SEALANT MATERIAL SHALL BE MASTERSEAL "NP 1" ONE COMPONENT, MOISTURE CURING HIGH PERFORMANCE POLY-URETHANE SEALANT, OR AN APPROVED EQUAL.

14 ABBREVIATIONS

14.1 THE FOLLOWING LIST OF ABBREVIATIONS IS NOT INTENDED TO REPRESENT ALL THOSE USED ON THE DRAWINGS, BUT TO SUPPLEMENT THE MORE COMMON ABBREVIATIONS USED.

ADD'L	=	ADDITIONAL	LLH	=	LONG LEG HORIZONTAL
AL	=	ALUMINUM	LLV	=	LONG LEG VERTICAL
ALT.	=	ALTERNATE	L.P.	=	LOW POINT
BLDG.	=	BUILDING	LSL	=	LONG SLOTTED
BLK.	=	BLOCK	MAS.	=	MASONRY
BM.	=	BEAM	MAT'L.	=	MATERIAL
B.O.	=	BOTTOM OF	MFG.	=	MANUFACTURER
BRG.	=	BEARING	MIN.	=	MINIMUM
C.I.P.	=	CAST-IN-PLACE	MTL.	=	METAL
CLR.	=	CLEAR	NA	=	NOT APPLICABLE
CMU	=	CONC. MAS. UNIT	N/A	=	NOT APPLICABLE
C.O.	=	CLEAN OUT	NOM.	=	NOMINAL
COL.	=	COLUMN	N.S.	=	NEAR SIDE
CONC.	=	CONCRETE	N.T.S.	=	NOT TO SCALE
CONN.	=	CONNECTION	O.C.	=	ON CENTER
CONST.	=	CONSTRUCTION	O/F	=	OUTSIDE FACE
CONT.	=	CONTINUOUS	O/H	=	OVERHANG
COORD.	=	COORDINATE	O/O	=	OUT TO OUT
CTR.	=	CENTER	OPNG.	=	OPENING
CTR'D.	=	CENTERED	OPP.	=	OPPOSITE
DBL.	=	DOUBLE	ORIENT.	=	ORIENTATION
DIR.	=	DIRECTION	PLCS.	=	PLACES
DWG.	=	DRAWING	P.P.	=	PUMP PAD
DWG.'s.	=	DRAWINGS	RAD.	=	RADIUS
EA.	=	EACH	REF.	=	REFERENCE
EL.	=	ELEVATION	REINF.	=	REINFORCING
E.O.	=	EDGE OF	REQ'D.	=	REQUIRED
EQ.	=	EQUAL	RET.	=	RETAINING
EQUIP.	=	EQUIPMENT	ROT.	=	ROTATE
EXIST.	=	EXISTING	SIM.	=	SIMILAR
EXP.	=	EXPANSION	SPA.	=	SPACED
FLG.	=	FLANGE	SPECS.	=	SPECIFICATIONS
FDN.	=	FOUNDATION	S.S.	=	STAINLESS STEEL
F.S.	=	FAR SIDE	SSL	=	SHORT SLOTTED
FT.	=	FEET	STD.	=	STANDARD
FTG.	=	FOOTING	STL.	=	STEEL
GA.	=	GAGE	T&B	=	TOP & BOTTOM
GALV.	=	GALVANIZED	T/D	=	TURN DOWN
GALV'D	=	GALVANIZED	THK.	=	THICK
HORZ.	=	HORIZONTAL	THK'D	=	THICKENED
H.P.	=	HIGH POINT	T.O.	=	TOP OF
HRS.	=	HOURS	T.O.S	=	TOP OF STEEL
I/F	=	INSIDE FACE	TYP.	=	TYPICAL
INFO.	=	INFORMATION	U.N.O.	=	UNLESS NOTED OTHERWISE
INTR.	=	INTERIOR	XB	=	CROSS OR "X"-BRACE
JST.	=	JOIST	VERT.	=	VERTICAL
JT.	=	JOINT	W.P.	=	WORK POINT
KB	=	KNEE BRACE			
LCS	=	LIQUID CONTAINMENT STRUCTURES			

REV.NO.	DESCRIPTION	DATE
-	--	--

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

STRUCTURAL GENERAL NOTES

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AEA
CHECKED	WFB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

S-1
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

15 DESIGN LOADS

DESIGN LOADS BASIS OF DESIGN:
FLORIDA BUILDING CODE 2023 EDITION & ASCE 7-22 FOR WIND DESIGN

LIVE LOAD: – FLOOR SLABS AND HATCHES:
* 300 PSF UNIFORM LIVE LOAD
* HS20 WHEEL LOAD

ROOF LOAD: N/A
SNOW LOAD: N/A
WIND LOAD: Vult=157 mi/hr, Vasd=122 mi/ hr, EXPOSURE C, RISK CATEGORY III

CALCULATED WIND BASE SHEARS:
Vx = K & Vy = K

SOIL BEARING: REF. "FOUNDATIONS" NOTE 3.1

16 DESIGN CRITERIA

CONCRETE 28 DAY COMPRESSIVE STRENGTH:	
SLABS-ON-GRADE & NON LCS SLABS	f'c = 4,000 PSI
MINOR EQUIPMENT PADS & PIPE ENCASEMENTS:	f'c = 3,000 PSI
SLABS & WALLS OF LCS:	f'c = 4,500 PSI
BEAMS & COLUMNS OF LCS:	f'c = 4,500 PSI
NON-LCS FOOTINGS, WALLS, COLUMNS & BEAMS:	f'c = 4,000 PSI
BELOW GRADE & RETAINING WALLS:	f'c = 4,000 PSI
SIDEWALK, DRIVEWAY, CURB & GUTTER:	f'c = 3,000 PSI
REINFORCING STEEL:	ASTM A615, GRADE 60
WELDED WIRE FABRIC:	ASTM A1064
STRUCTURAL STEEL:	REF. STRUCTURAL NOTE 8.1
ALUMINUM:	NOT APPLICABLE
BOLTS SHALL BE 3/4"ø TYPE 316 S.S.:	REF. STRUCTURAL NOTE 8.3
ANCHOR BOLTS SHALL BE 3/4"ø TYPE 316 S.S.:	REF. STRUCTURAL NOTE 8.6
STEEL ELECTRODES SHALL CONFORM TO:	AWS 5.5 E70XX
ALUMINUM WELD FILLERS ALLOYS SHALL CONFORM TO:	NOT APPLICABLE
ALLOWABLE PILE CAPACITY:	REF. STRUCTURAL NOTE 3.1

17 LEGEND

ENLARGED PLAN AREA, DETAIL =

CONC. MASONRY BLOCK = (EXIST.)

BRICK VENEER = (EXIST.)

CONC. WALL, SLAB, ETC. = (EXIST.)

GROUT = (EXIST.)

GRATING =

DETAIL OR SECTION NO./SHEET NO. REFERENCE =

PROJECT NORTH = NORTH OR North OR TRUE NORTH N

ELEVATION DATUM =

X-SYY.Y

ELEVATION NO./SHEET NO. REFERENCE =

X'-X" = EQUIVALENT SITE EL VERTICAL DATUM

ELEVATIONS X'-X" = $

STEP IN FOOTING ELEVATION = ▶

STL. FRAMING COL./BM. MOMENT CONNECTION =

REV NO.	DESCRIPTION	DATE
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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

STRUCTURAL DESIGN LOADS, CRITERIA AND LEGEND

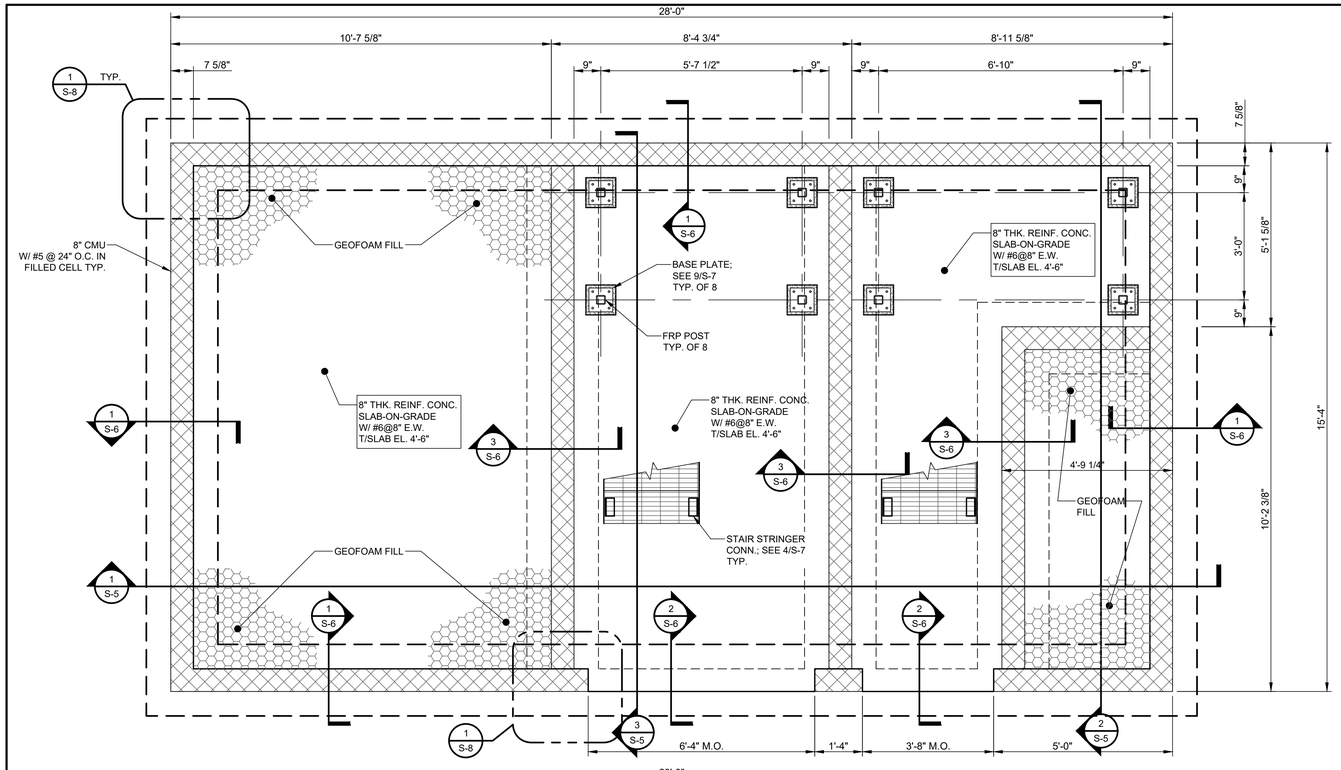
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	MMP
DESIGNED	AEA
CHECKED	WFB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

S-2
DRAWING NUMBER

REVISION

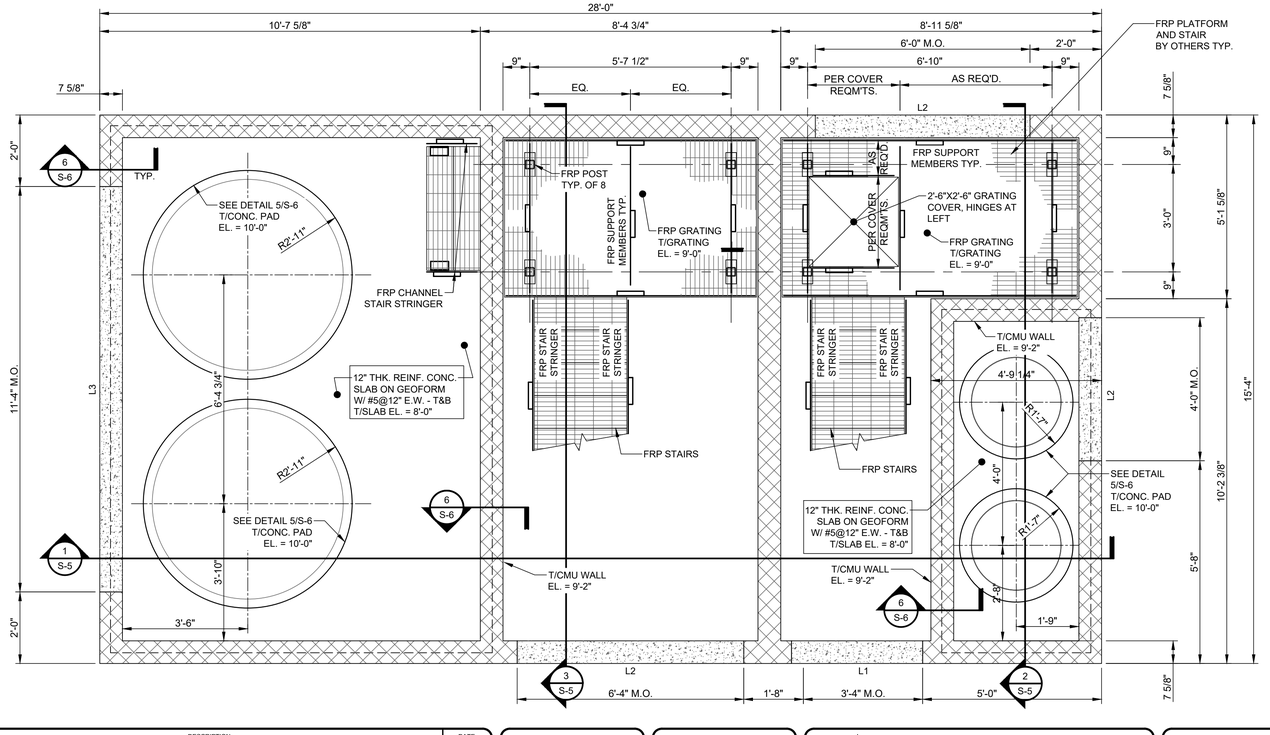
STATUS: ISSUED FOR BID



1 - FOUNDATION PLAN

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

NORTH



2 - FIRST FLOOR FRAMING PLAN

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

NORTH

NOTES:

1. **SEE DWG S-1 FOR GENERAL NOTES.**
2. **SEE DWG S-5, 6, 7, & 8 FOR SECTIONS AND DETAILS.**
3. **SEE MECHANICAL DWGS FOR TANK AND EQUIPMENT LOCATIONS.**
4. **GROUT ALL CMU CELLS BELOW ELEVATION 9'-6".**
5. REFERENCE SPECIFICATION 06600 FOR FRP PRODUCT REQUIREMENT.

REV.NO.	DESCRIPTION	DATE
-	—	—

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NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

STRUCTURAL BUILDING PLAN

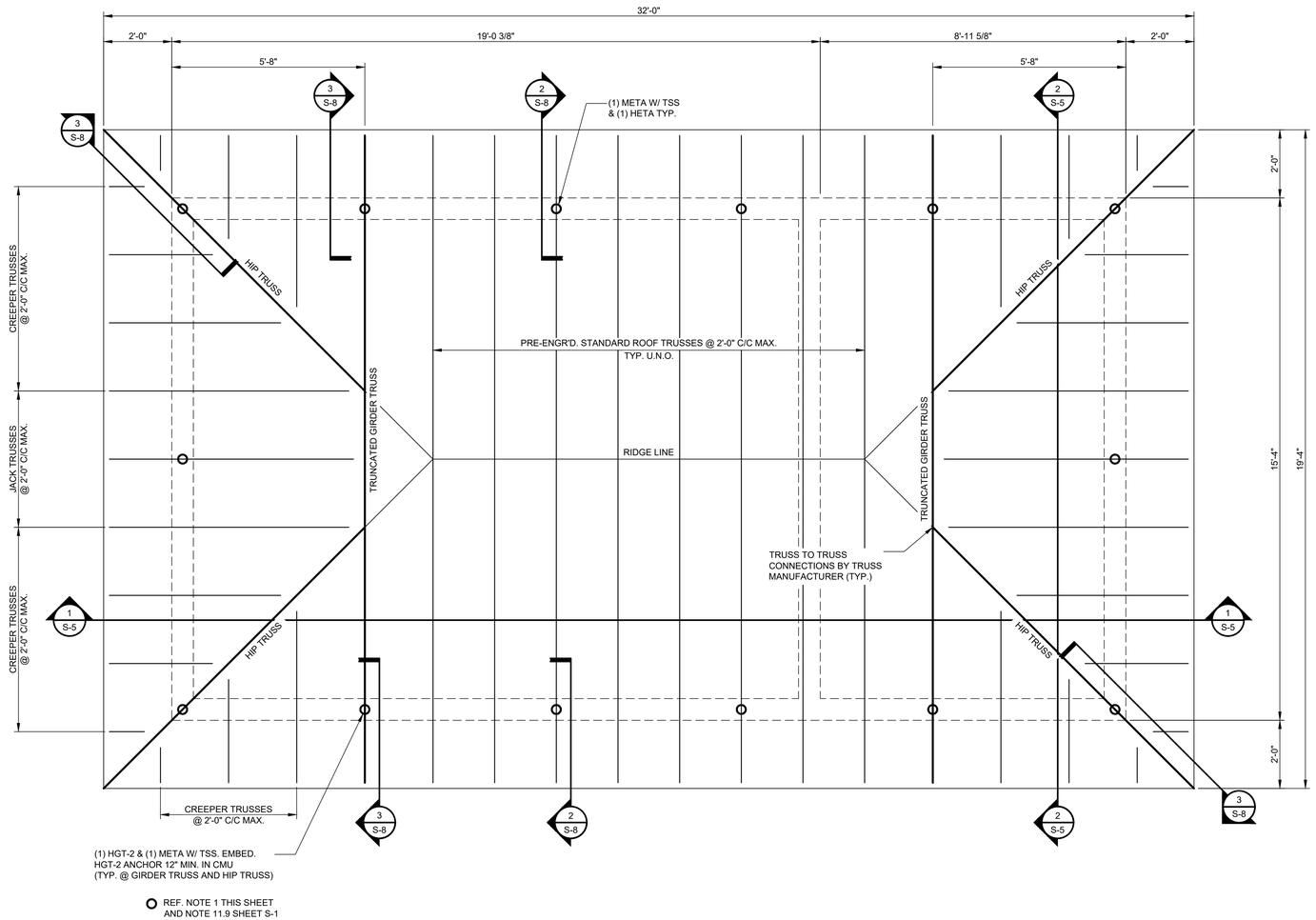
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1/2" = 1'-0"
VERTICAL: 1/2" = 1'-0"

S-3
DRAWING NUMBER

REVISION

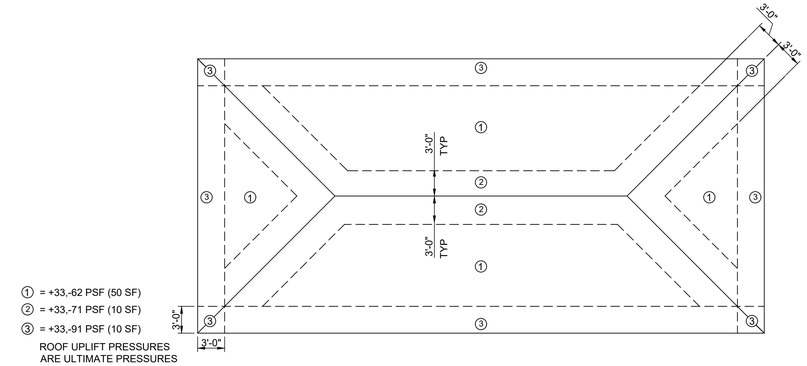
STATUS: **ISSUED FOR BID**



1 - ROOF FRAMING PLAN

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

NORTH

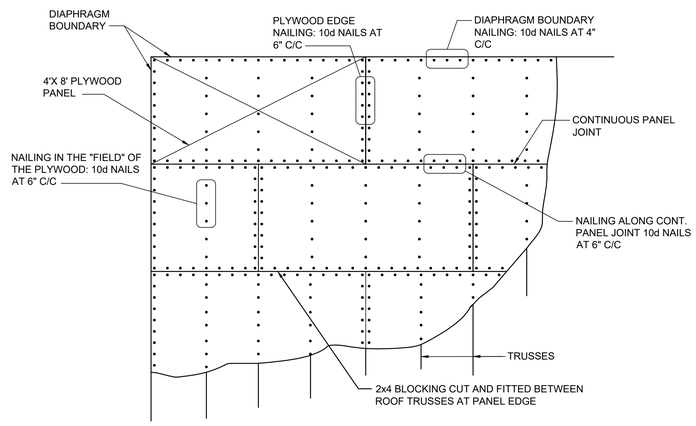


① = +33,-62 PSF (50 SF)
② = +33,-71 PSF (10 SF)
③ = +33,-91 PSF (10 SF)

ROOF UPLIFT PRESSURES
ARE ULTIMATE PRESSURES

2 - WIND UPLIFT PLAN

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



NOTES:
1. PROVIDE PLYWOOD WITH MINIMUM NOMINAL PANEL THICKENESS OF 19/32".
2. NAILS TO HAVE MINIMUM NOMINAL PENETRATION IN FRAMING OF 1 1/2".

3 - PLYWOOD NAILING PATTERN

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

NOTES
1. TRUSS CONNECTIONS AND HOLD-DOWNS SHOWN SHALL BE SIMPSON STRONG-TIE ZMAX (G185) HOT DIPPED GALVANIZED (ASTH 123) OR EQUIVALENT

REV.NO.	DESCRIPTION	DATE
-	---	---

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

STRUCTURAL BUILDING PLAN

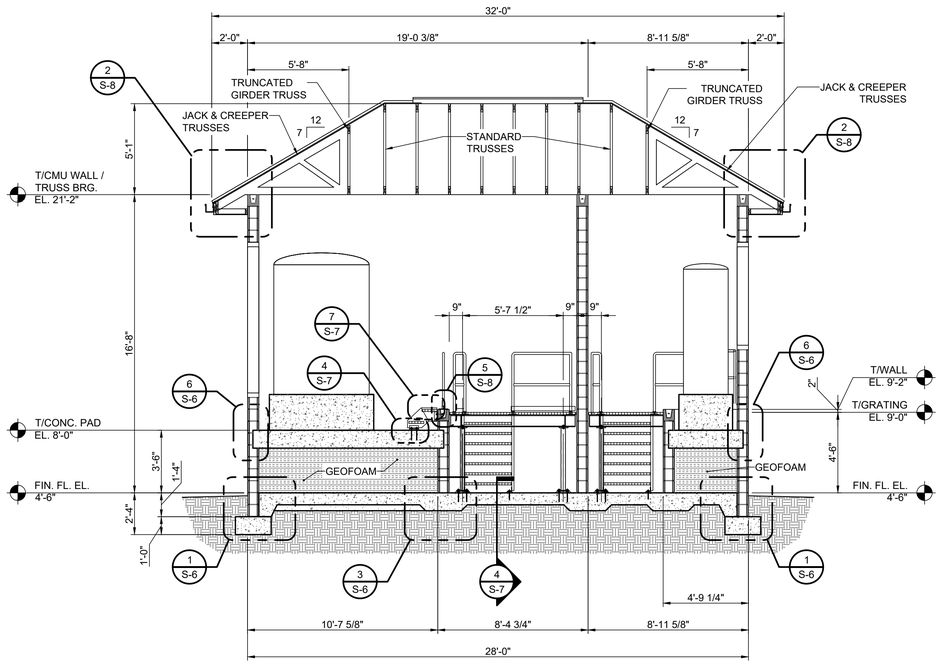
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

S-4
DRAWING NUMBER

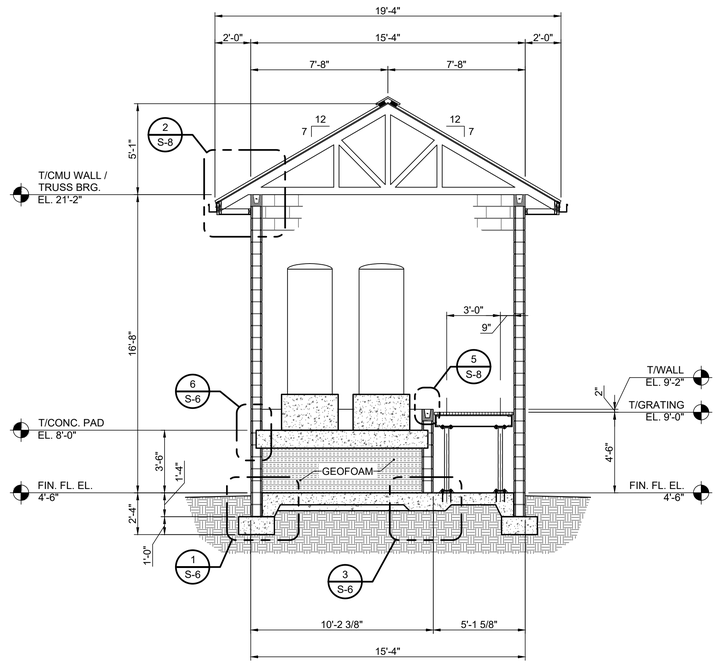
REVISION

STATUS: ISSUED FOR BID



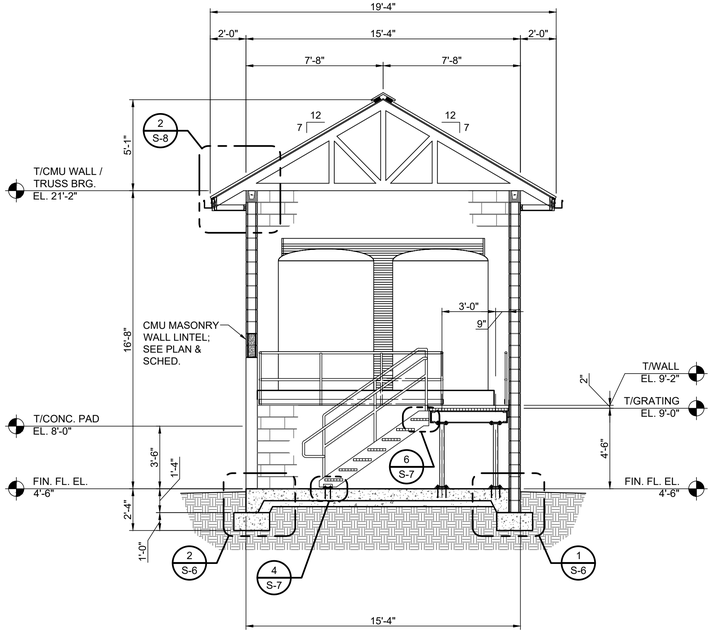
1 - SECTION

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



2 - SECTION

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



3 - SECTION

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

NOTES:

1. COMPACTED STONE FILL SHALL BE 2B STONE. STONE FILL SHALL BE USED TO BRING NEW SLAB ON GRADE TO REQUIRED ELEVATIONS.
   A. STONE FILL TO BE 2B STONE COMPACTED IN 6" LOOSE LIFTS.
   B. COMPACT FILL WITH WALK BEHIND VIBRATORY EQUIPMENT IN ALTERNATING PASSES UNTIL MATERIAL IS UNYIELDING.
2. FOAM FILL SHALL BE USED FOR INTERIOR FILL UNDER EQUIPMENT AND TANK SUPPORT SLABS TO BRING FINISH CONCRETE TO REQUIRED ELEVATIONS.
   A. GEOFOAM 6" OR THICKER SHALL BE TYPE IX MATERIAL WITH A MINIMUM DENSITY OF 1.8 PCF AND MINIMUM 25 PSI COMPRESSIVE 10% DEFORMATION.
   B. MATERIAL IS TO HAVE AN ASTM C 578-85 (PER (6" THICKNESS) FLAME SPREAD OF 25 OR LESS WITH SMOKE DEVELOPED 450 OR LESS.
   C. RIGID FOAM FILL OR GEOFOAM LESS THAN 5" IN THICKNESS SHALL BE LAYERS OF XPS-60 FOAM BOARDS WITH A MINIMUM WIDTH OF 24". USE MULTIPLE BOARDS AS REQUIRED.
   D. FOAM FILL SHALL BE LAID IN MULTIPLE LAYERS IN RANDOM PATTERN TO PREVENT CONTINUOUS SEAMS. SECURE FILL WITH CONSTRUCTION ADHESIVE TO PREVENT MOVEMENT DURING CONCRETE FINISH.
3. GROUT ALL CMU WALL CELLS BELOW ELEVATION 9'-6".

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

STRUCTURAL BUILDING SECTIONS

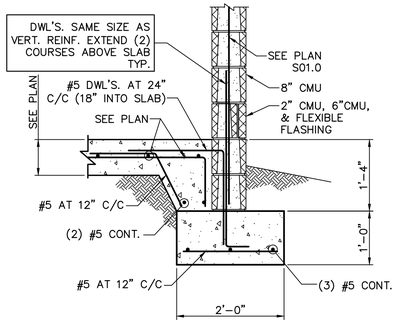
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

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

S-5
DRAWING NUMBER

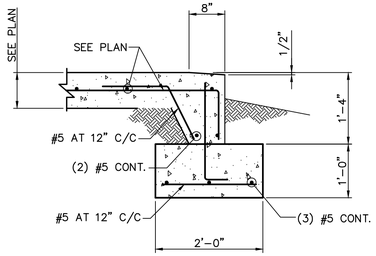
REVISION

STATUS: ISSUED FOR BID



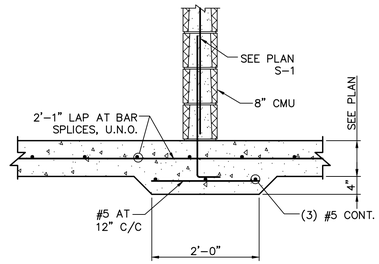
1 - SECTION

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



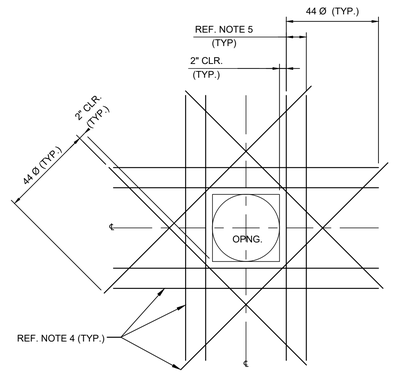
2 - SECTION

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



3 - SECTION

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

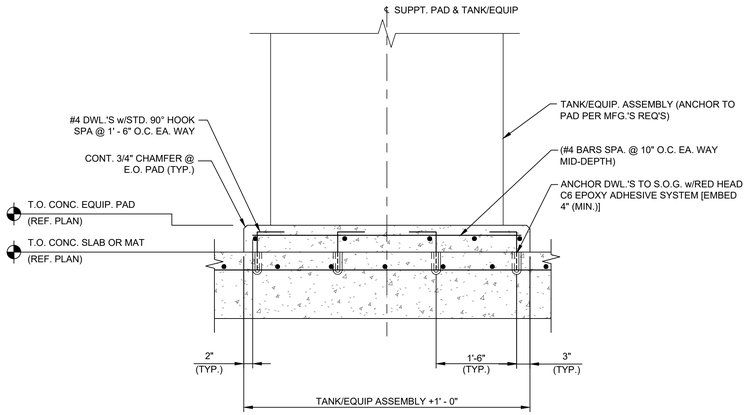


4 - DETAIL - TYP. BAR REINF. REQ'S @ SLAB & WALL OPNG.'S

N.T.S.

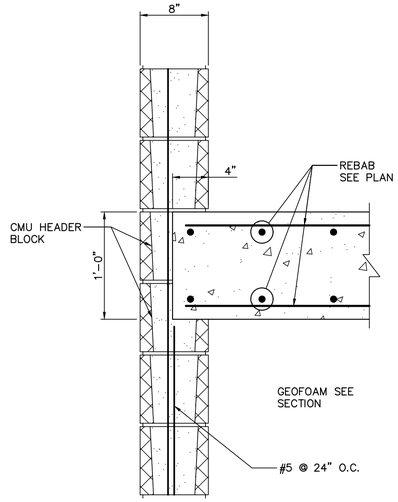
NOTES:

1. USE THIS DETAIL FOR PENETRATIONS 8" OR FOR SMALLER OPENINGS BEND BARS IN FIELD PER ACI 318-19 / 350-20.
2. PLACE EXTRA BARS OF THE SAME SIZE AS THE INTERRUPTED BARS AT EACH SIDE OF OPENINGS. QUANTITY OF EXTRA BARS AT EACH SIDE SHALL EQUAL HALF THE QUANTITY OF INTERRUPTED BARS, EXCEPT WHERE NOTED OTHERWISE. PROVIDE ONE DIAGONAL BAR EACH SIDE OF OPENING, SIZE TO BE EQUAL TO MAIN REINFORCING. LARGER Ø BAR CONTROLS IF HORIZONTAL & VERTICAL BARS DIFFER (TYPICAL, EACH FACE).
3. Ø SYMBOL = BAR DIAMETERS
4. WHERE BAR IN INTERRUPTED BY A CONTROL JOINT OR CONCRETE EDGE, BEND BAR PARALLEL TO THE JOINT EDGE AND PROVIDE EITHER STANDARD 90 DEGREE, STANDARD 180 DEGREE, OR CLASS B BAR LEG LENGTHS FOR BARS IN TENSION, UNLESS NOTED OTHERWISE.
5. SPACE THE ADDITIONAL BARS AT $\frac{1}{2}$ THE REQUIRED BAR SPACING.



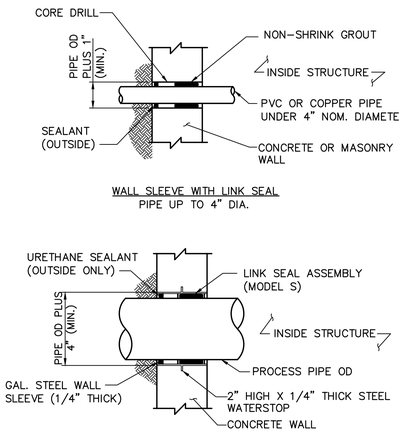
5 - DETAIL - EQUIPMENT PAD

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



6 - SECTION

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



USE THIS SLEEVE ON ALL PENETRATIONS UNLESS NOTED OTHERWISE

7 - TYP. WALL SLEEVE

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

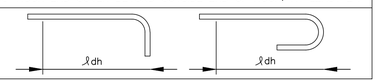
DEVELOPMENT LENGTH OF STD. HOOKS

FOR BARS IN TENSION

fy = 60,000 PSI f 'c = 4,000 PSI OR GREATER

BAR SIZE	DEVELOPMENT LENGTH, ℓdh	
	BASIC	w/ CONCRETE COVER
#3	8"	6"
#4	10"	7"
#5	1'-0"	9"
#6	1'-2"	10"
#7	1'-5"	1'-0"
#8	1'-7"	1'-1"
#9	1'-9"	1'-3"
#10	2'-0"	1'-5"
#11	2-2"	1'-6"

• SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2 1/2", AND FOR 90° HOOK END COVER BEYOND OUTSIDE END OF HOOK, AT LEAST 2".



BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH

FOR BARS IN COMPRESSION

fy = 60,000 PSI f 'c = 4,000 PSI OR GREATER

BASIC DEVELOPMENT LENGTH		BAR SIZE	SPLICE LENGTH	
BASIC	CONFINEMENT *		BASIC	CONFINEMENT **
8"	8"	#3	1'-0"	1'-0"
10"	8"	#4	1'-3"	1'-1"
1'-0"	9"	#5	1'-7"	1'-4"
1'-3"	1'-0"	#6	1'-11"	1'-7"
1'-5"	1'-1"	#7	2'-2"	1'-10"
1'-7"	1'-3"	#8	2'-6"	2'-1"
1'-9"	1'-4"	#9	2'-10"	2'-4"
2'-0"	1'-6"	#10	3'-2"	2'-7"
2'-2"	1'-8"	#11	3'-6"	2'-10"

• BAR ENCLOSED w/ IN SPIRALS OF NOT LESS THAN 1/4" DIAMETER AND NOT MORE THAN 4" PITCH OR w/ IN #4 TIES IN CONFORMANCE w/ ACI 318 / ACI 350 SECTION 7.10.5 AT NOT MORE THAN 4" O.C., FACTOR 0.75 USED.

•• BAR ENCLOSED w/ IN TIES PER ACI 318 / ACI 350 SECTION 12.17.2.4.

BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH

FOR BARS IN TENSION

fy = 60,000 PSI f 'c = 4,000 PSI OR GREATER (NORMAL WEIGHT CONCRETE)

BASIC DEVELOPMENT LENGTH ** (ℓd)						BAR SIZE	CLASS B SPLICE LENGTH ** (1.3 x ℓd)					
CLEAR SPA≥ 4db		CLEAR SPA≥ 2db		CLEAR SPA. < 2db			CLEAR SPA≥ 4db		CLEAR SPA.≥ 2db		CLEAR SPA. < 2db	
BASIC	TOP *	BASIC	TOP *	BASIC	TOP *		BASIC	TOP *	BASIC	TOP *	BASIC	TOP *
8"	1'-0"	1'-3"	1'-7"	1'-10"	2'-4"	#3	1'-0"	1'-3"	1'-7"	2'-0"	2'-4"	3'-0"
1'-0"	1'-3"	1'-7"	2'-1"	2'-5"	3'-1"	#4	1'-3"	1'-10"	2'-1"	2'-8"	3'-1"	4'-0"
1'-3"	1'-7"	2'-0"	2'-7"	3'-0"	3'-10"	#5	1'-7"	2'-1"	2'-7"	3'-4"	3'-10"	5'-0"
1'-6"	1'-11"	2'-5"	3'-1"	3'-7"	4'-8"	#6	1'-11"	2'-5"	3'-1"	4'-0"	4'-8"	6'-0"
2'-1"	2'-9"	3'-6"	4'-6"	5'-2"	6'-9"	#7	2'-9"	3'-7"	4'-6"	5'-10"	6'-9"	8'-9"
2'-5"	3'-1"	4'-0"	5'-2"	6'-0"	7'-9"	#8	3'-1"	4'-1"	5'-2"	6'-8"	7'-9"	10'-0"
2'-9"	3'-6"	4'-6"	5'-9"	6'-8"	8'-8"	#9	3'-6"	4'-7"	5'-9"	7'-6"	8'-8"	11'-3"
3'-0"	3'-11"	4'-11"	6'-5"	7'-5"	9'-8"	#10	3'-11"	5'-1"	6'-5"	8'-4"	9'-8"	12'-6"
3'-4"	4'-3"	5'-5"	7'-1"	8'-2"	10'-8"	#11	4'-3"	5'-7"	7'-1"	9'-2"	10'-8"	13'-9"

• TOP REINFORCEMENT IS HORIZONTAL REINFORCEMENT PLACED RESULTING w/ MORE THAN 1'-0" OF FRESH CONCRETE CAST IN THE MEMBER BELOW THE REINFORCEMENT.

•• LENGTHS SHOWN IN CHART SHALL BE MODIFIED WHERE REQUIRED TO CONFORM TO THE PROVISIONS OF ACI 318 / ACI 350 SECTION 12.17.2.4.

8 - DETAIL - SCHEDULE - REINF. BAR SPLICE REQUIREMENTS

N.T.S.

REV.NO.	DESCRIPTION	DATE
.	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

STRUCTURAL

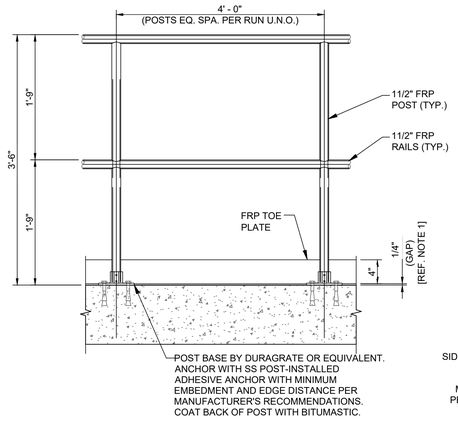
STRUCTURAL DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	MMP
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

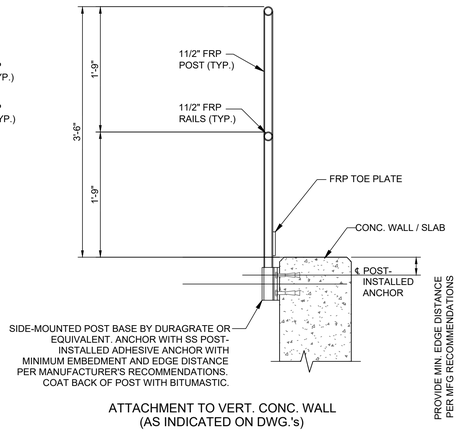
SCALE — HORIZONTAL: N/A — VERTICAL: N/A

S-6 DRAWING NUMBER — REVISION

STATUS: **ISSUED FOR BID**



ATTACHMENT TO HORZ. CONC.
(AS INDICATED ON DWG.'s)



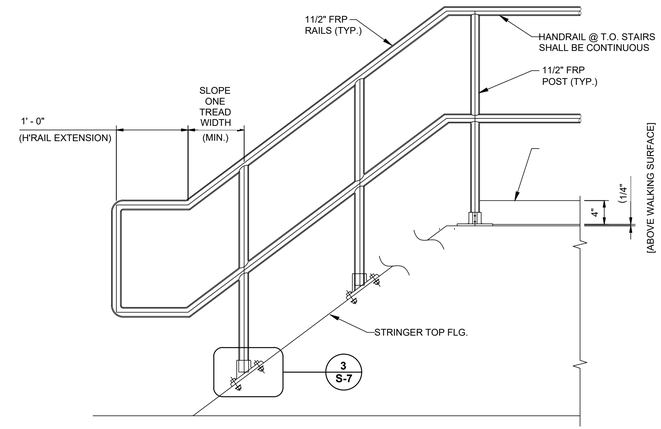
ATTACHMENT TO VERT. CONC. WALL
(AS INDICATED ON DWG.'s)

GENERAL NOTES:

1. GAP FOR TOE PLATE ABOVE THE WALKING SURFACE U.N.O..
2. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

1 - TYP. FRP GUARDRAIL & POST ASSEMBLY - CONCRETE CONN.'S REQ'S.

SCALE: 1" = 1'-0"

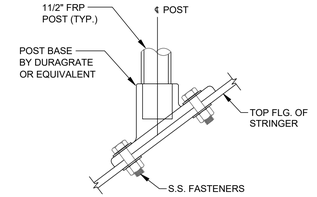


GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

2 - TYP. FRP GUARDRAIL & POST ASSEMBLY - FRP STRINGER CONN.'S REQ'S.

SCALE: 1" = 1'-0"

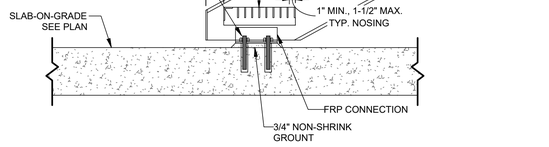


GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

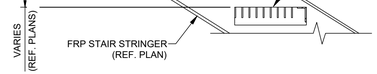
3 - FRP POST / FRP STRINGER TOP FLG. CONN. DETAIL

SCALE: 3" = 1'-0"



4 - FRP STAIR STRINGER CONN. DETAIL

SCALE: 1" = 1'-0"

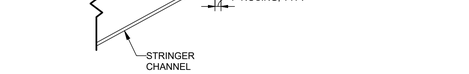


GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

5 - FRP ACCESS STAIR TREAD DETAIL

SCALE: 1" = 1'-0"

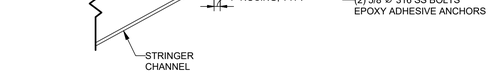


GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

6 - FRP STAIR @ BEAM CONN. DETAIL

SCALE: 1" = 1'-0"



GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO, DESIGN CRITERIA AND LEGEND.

7 - FRP STAIR TOP @ CONCRETE DETAIL

SCALE: 1" = 1'-0"

NOTES:
1. SEE S-1 FOR STRUCTURAL GENERAL NOTES.
2. REFERENCE SPECIFICATION 06600 FOR FRP PRODUCT REQUIREMENT.

REV NO.	DESCRIPTION	DATE
-	---	---

REVISIONS

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STRUCTURAL

STRUCTURAL DETAILS

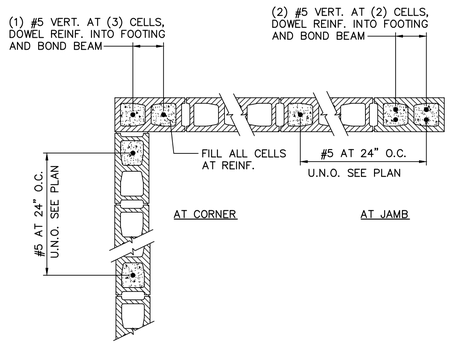
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

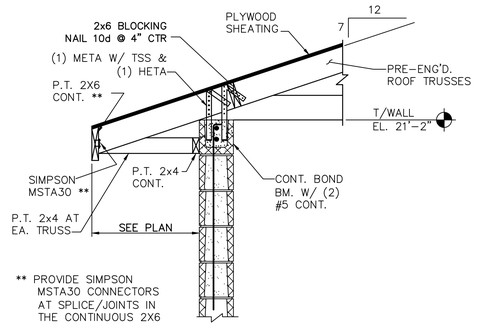
S-7
DRAWING NUMBER

REVISION

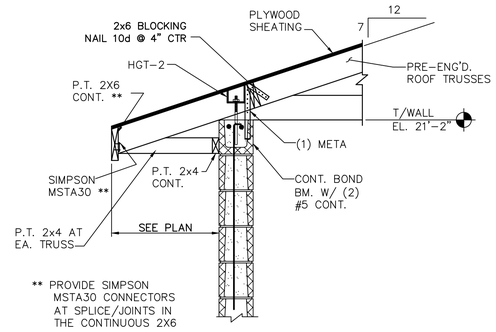
STATUS: **ISSUED FOR BID**



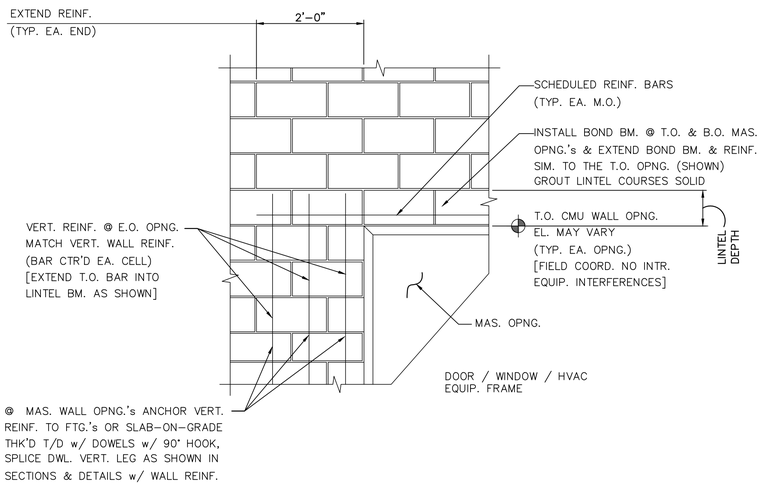
1 - DETAIL
SCALE: 3/4" = 1'-0"



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

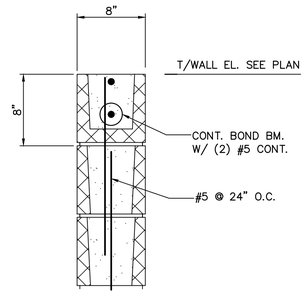


3 - SECTION
SCALE: 3/4" = 1'-0"



ELEVATION

4 - DETAIL - TYP. MAS. OPNG. REINF.
SCALE: 1 1/2" = 1'-0"



5 - INTERIOR WALL TOP BEAM DETAIL
SCALE: 1 1/2" = 1'-0"

GENERAL NOTES:

1. REFERENCE DWG S-1 FOR ADDITIONAL GENERAL NOTES, MATERIAL SPECIFICATIONS & REQUIREMENTS, DESIGN LOADS, INFO., DESIGN CRITERIA AND LEGEND.

CMU MASONRY WALL LINTEL SCHEDULE

LINTEL MARK	M.O. CLR. SPAN	LINTEL DEPTH	LINTEL REINF.	END BRG. @ EA. END
L1	1' - 4" TO 3' - 4"	8"	(2) #5	2'-0"
L2	3' - 4" TO 8' - 0"	16"	(2) #5 T&B	2'-0"
L3	8' - 1" TO 12' - 0"	24"	(2) #6 T&B	2'-0"

REV.NO.	DESCRIPTION	DATE
-	—	—

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STRUCTURAL

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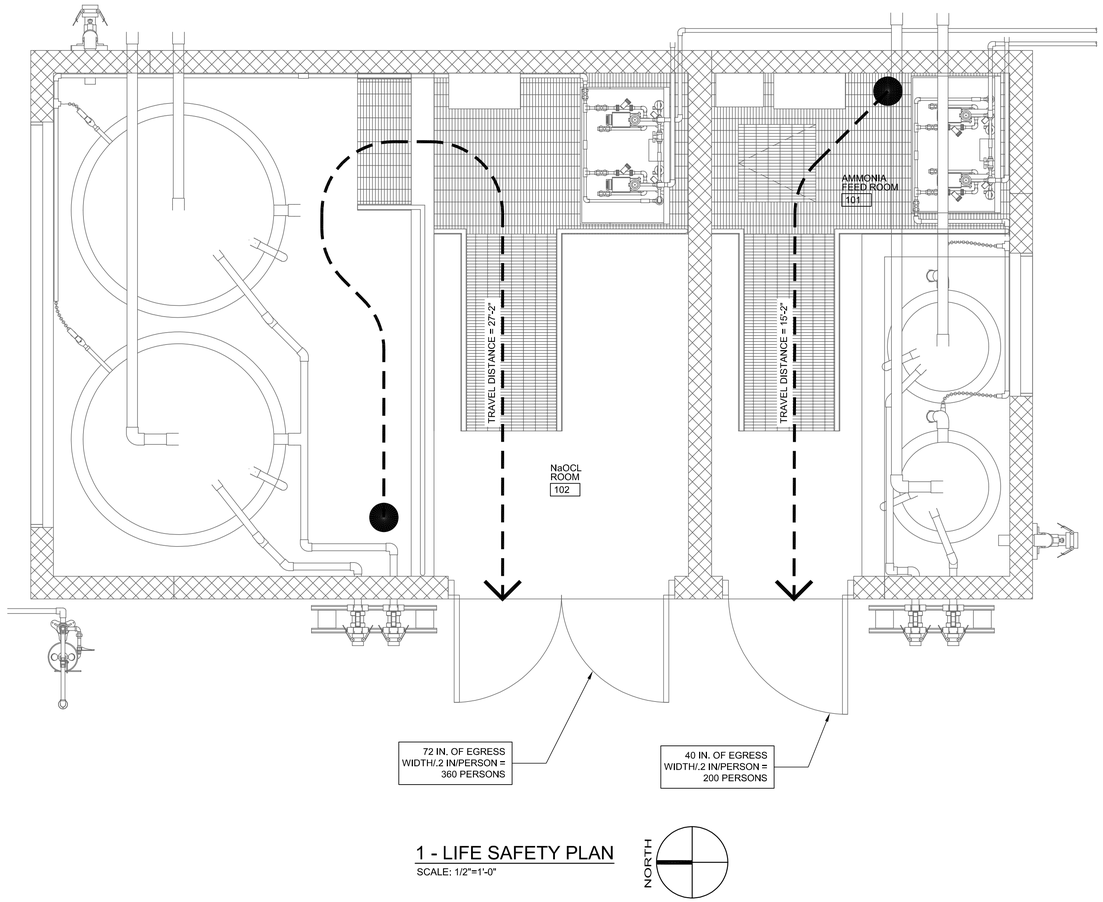
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JMS
DESIGNED	AGW
CHECKED	AEA
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

S-8
DRAWING NUMBER
REVISION

STATUS: **ISSUED FOR BID**



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

BUILDING CODE SUMMARY

PROJECT NAME: NORTHWEST BOOSTER PUMP STATION

PROPOSED USE: CHEMICAL FEED BUILDING

GOVERNING CODES

- 2023 FLORIDA BUILDING CODE, BUILDING, 8th EDITION
- 2023 FLORIDA BUILDING CODE, ACCESSIBILITY, 8th EDITION
- 2023 FLORIDA BUILDING CODE, MECHANICAL, 8th EDITION
- 2023 FLORIDA BUILDING CODE, PLUMBING, 8th EDITION
- 2023 FLORIDA BUILDING CODE, ENERGY CONSERVATION, 8th EDITION
- FLORIDA FIRE PREVENTION CODE 8th EDITION
  - •• FLORIDA AMENDED NFPA 1 FIRE CODE 2021 EDITION
  - •• FLORIDA AMENDED NFPA 101 LIFE SAFETY CODE 2021 EDITION
- NFPA 70 NATIONAL ELECTRIC CODE (2020)

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

USE GROUP:	CODE:
LOW HAZARD FACTORY INDUSTRIAL, GROUP F-2	306.3 FBC 8th ED. (2023) BUILDINGS

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

	ALLOWABLE (III-B)	PROPOSED (III-B)
HEIGHT ABOVE GRADE PLANE (TABLE 504.3a)	55'-0" (NONSPRINKLERED)	16'-0" (NONSPRINKLERED)
STORIES ABOVE GRADE PLANE (TABLE 504.4)	3 (NONSPRINKLERED)	1 (NONSPRINKLERED)
TOTAL BUILDING AREA IN SQ. FT. (TABLE 506.2)	18,000 SF (NONSPRINKLERED)	1,582 SF (NONSPRINKLERED)

CHAPTER 6 TYPES OF CONSTRUCTION

	ALLOWABLE	PROPOSED
CONSTRUCTION TYPE (TABLE 601)	V	V

FIRE-RESISTANCE RATING EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE (TABLE 602)

	TYPE OF CONSTRUCTION	FIRE SEPARATION DIST. PROPOSED	OCCUPANCY GROUP F-1, M, S-1	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U
FIRE SEPARATION DISTANCE X > 30'	ALL	5' ≤ X < 10'	1 HR.	1 HR.

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

MAX. AREA OF EXTERIOR WINDOW OPENINGS (TABLE 705.8)

FIRE SEPARATION DIST. PROPOSED	DEGREE OF OPENING PROTECTION PROPOSED	ALLOWABLE AREA
5' TO LESS THAN 10'	UNPROTECTED, NONSPRINKLERED	25%
15'-4" X 16'-0" = 245 SF X 0.25 = 61 SF MAX ALLOWED	4'-0" X 8'-8" = 35 SF PROPOSED	35 SF < 61 SF—OK

CHAPTER 8 MEANS OF EGRESS

MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT (TABLE 1004.5)

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR (SF/OCCUP.)
ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	300 GROSS

OCCUPANT LOAD CALCULATIONS

ROOM NO.	ROOM NAME	AREA	OCCUPANT LOAD FACTOR	OCCUPANT LOAD	
				CALCULATED	PROJECTED
101	AMMONIA FEED ROOM	250 SF	300	1	UNOCCUPIED
102	NaOCL ROOM	117 SF	300	1	UNOCCUPIED
			TOTAL	2	UNOCCUPIED

EXIT CAPACITY (1005.3)

EXIT COMPONENT	EXIT CAPACITY FACTOR
VERTICAL TRAVEL	0.3 INCHES PER PERSON
HORIZONTAL TRAVEL	0.2 INCHES PER PERSON

LEVEL	OCCUPANCY LOAD	EXIT CAPACITY (REQUIRED)	EXIT CAPACITY (PROVIDED)
FIRST FLOOR	2	2 X 0.2 = 0.4 REQ'D (72" MIN.)	(1 X 40") + (1 X 72") = 112" TOTAL

SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY (TABLE 1006.2.1)

SPACE/OCCUPANCY	MAX. OCCUP. LOAD OF SPACE	MAX. TRAVEL DIST. W/O SPRINKLER SYSTEM	PROJECTED OCCUPANT LOAD OF SPACE	PROJECTED TRAVEL DIST. W/O SPRINKLER SYSTEM
AMM. FEED ROOM / F-2	49	75'-0"	1 (1 EXIT ALLOWED)	27'-2" (1 EXIT ALLOWED)
NaOCL ROOM / F-2	49	75'-0"	1 (1 EXIT ALLOWED)	15'-2" (1 EXIT ALLOWED)

EXIT ACCESS TRAVEL DISTANCE (TABLE 1017.2)

OCCUPANCY	MAX. TRAVEL DIST. WITHOUT SPRINKLER SYSTEM	PROJECTED MAX. TRAVEL DIST. WITHOUT SPRINKLER SYSTEM
LOW HAZARD FACTORY INDUSTRIAL, GROUP F-2	300'-0"	27'-2"

1/2" = 1'-0"

12" 0 1' 2' 3' 4' 5'

JOHN D CHRISTIE Digitally signed by JOHN D CHRISTIE
Date: 2024.08.20 13:02:27 -07'00'

REV.NO.	DESCRIPTION	DATE
-	--	--

REVISIONS

JOHN D. CHRISTIE LICENSE No AR0016722 STATE OF FLORIDA REGISTERED ARCHITECT

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ARCHITECTURAL

CODE DATA & LIFE SAFETY PLAN

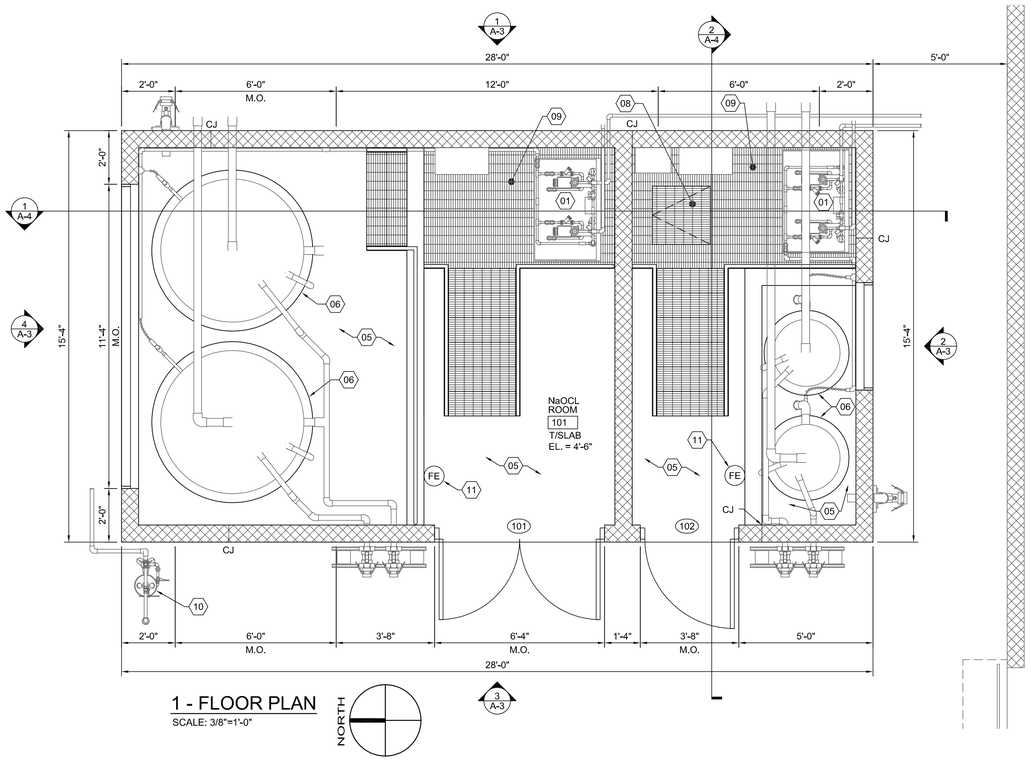
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JDC/JBC
DESIGNED	JDC
CHECKED	JDC
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1/2" = 1'-0"
VERTICAL: N/A

A-1
DRAWING NUMBER

REVISION

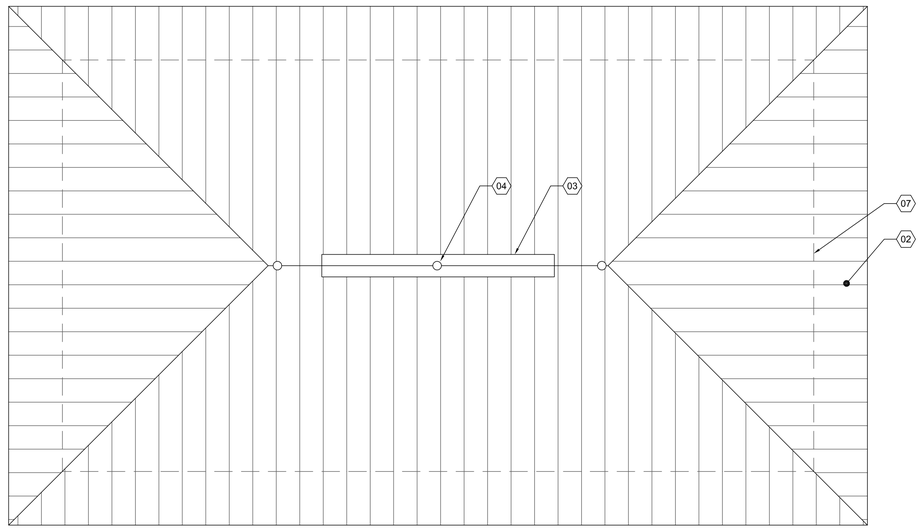
STATUS: ISSUE FOR BID



1 - FLOOR PLAN

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

NORTH



2 - ROOF PLAN

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

NORTH

KEY NOTES:

01 CHEMICAL FEED PUMP SKID (SEE MECHANICAL)

02 STANDING SEAM METAL ROOF TO MATCH PANEL STYLE OF ADJACENT ROOF & MATCH COLOR TO APPROVAL OF THE OWNER

03 RIDGE VENT

04 LIGHTNING PROTECTION - REFER TO SHEET E-10

05 CONCRETE SLAB (SEE STRUCTURAL)

06 CONCRETE TANK PAD (SEE STRUCTURAL)

07 LINE OF EXTERIOR WALL BELOW

08 FIBERGLASS GRATING ACCESS HATCH (SEE STRUCTURAL)

09 FIBERGLASS GRATING

10 EMERGENCY EYE WASH / SHOWER

11 #10 TYPE ABC SURFACE MOUNTED FIRE EXTINGUISHER, @ 54" A.F.F.

LEGEND

W1 WINDOW KEY

101 DOOR KEY

LV2 LOUVER KEY

ROOM NAME 100 ROOM NAME & NUMBER

CJ CONTROL JOINT

5/A05.0 DETAIL KEY

1 A00.0 ELEVATION KEY

1 A00.0 SECTION KEY

FE FIRE EXTINGUISHER, SEE KEY NOTE 11

8" CMU WALL

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Date: 2024.08.20 13:05:45 -07'00'

3/8" = 1'-0" 12" 0 1' 2' 3' 4' 5'

REV.NO.	DESCRIPTION	DATE
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NORTHWEST BOOSTER PUMP STATION UPGRADES

ARCHITECTURAL

FLOOR & ROOF PLANS

DATE:	AUGUST 2024
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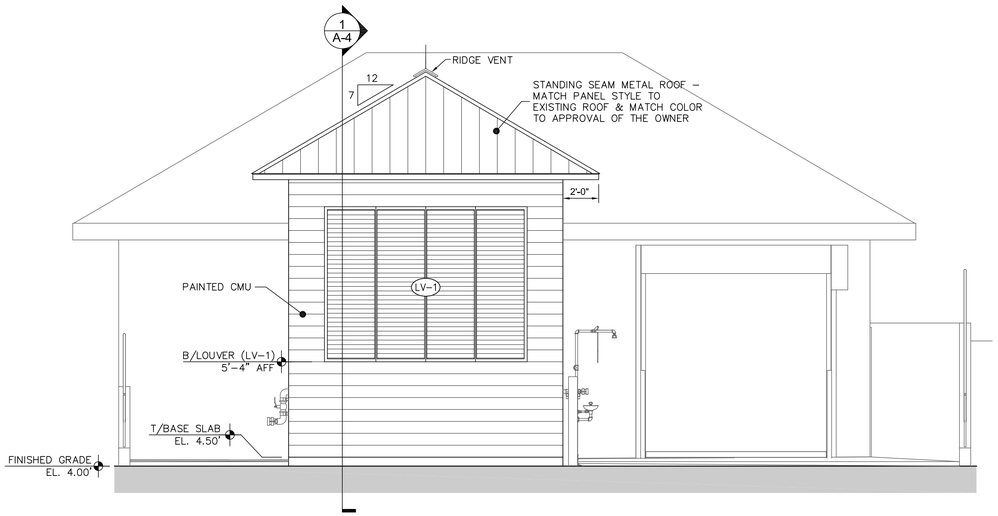
DRAWN	JDC/JBC
DESIGNED	JDC
CHECKED	JDC
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 3/8" = 1'-0"
VERTICAL: N/A

A-2
DRAWING NUMBER

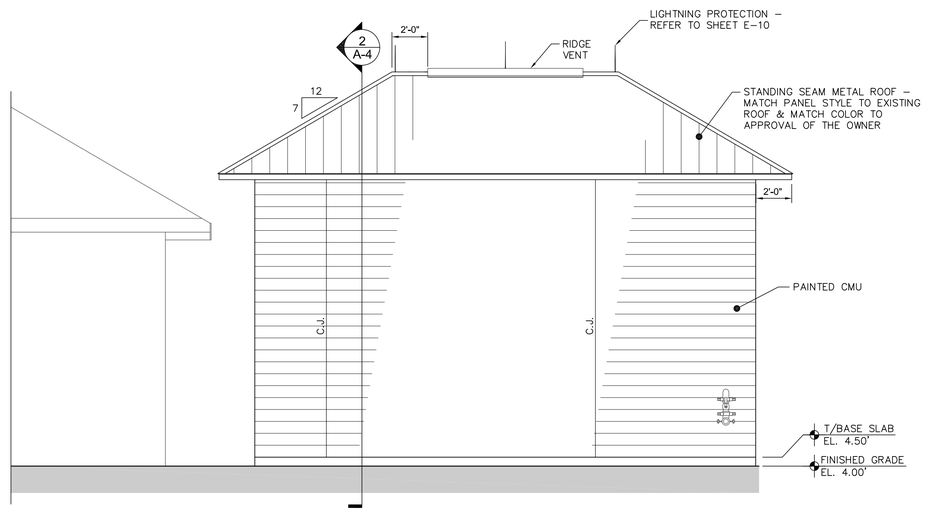
REVISION

STATUS: ISSUE FOR BID



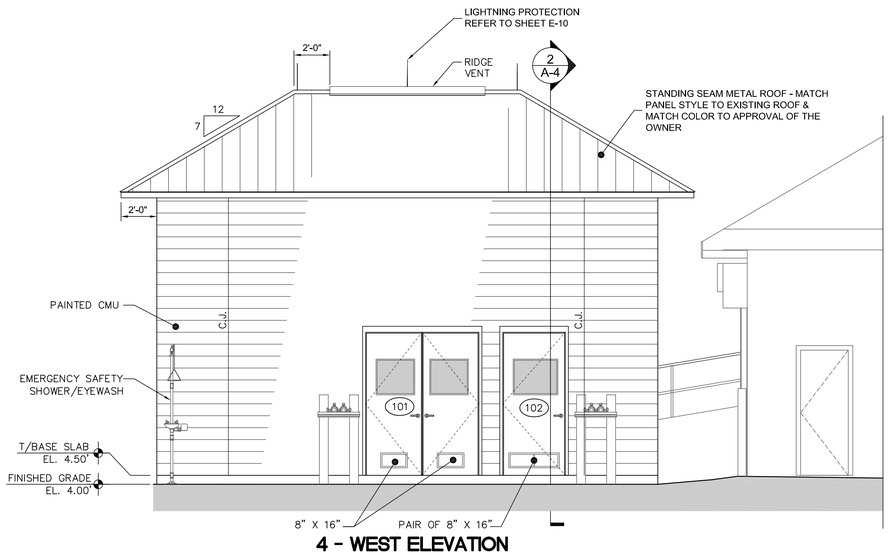
3 - NORTH ELEVATION

1/4"=1'-0"



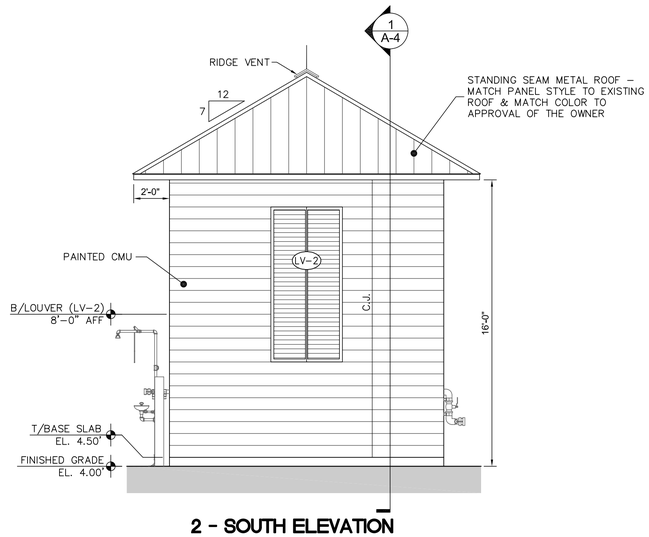
1 - EAST ELEVATION

1/4"=1'-0"



4 - WEST ELEVATION

1/4"=1'-0"



2 - SOUTH ELEVATION

1/4"=1'-0"

1/4" = 1'-0"

12" 0 5' 10'

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REV.NO.	DESCRIPTION	DATE
-	—	—

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No AR0016722
STATE OF FLORIDA
REGISTERED ARCHITECT

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ARCHITECTURAL

EXTERIOR ELEVATIONS

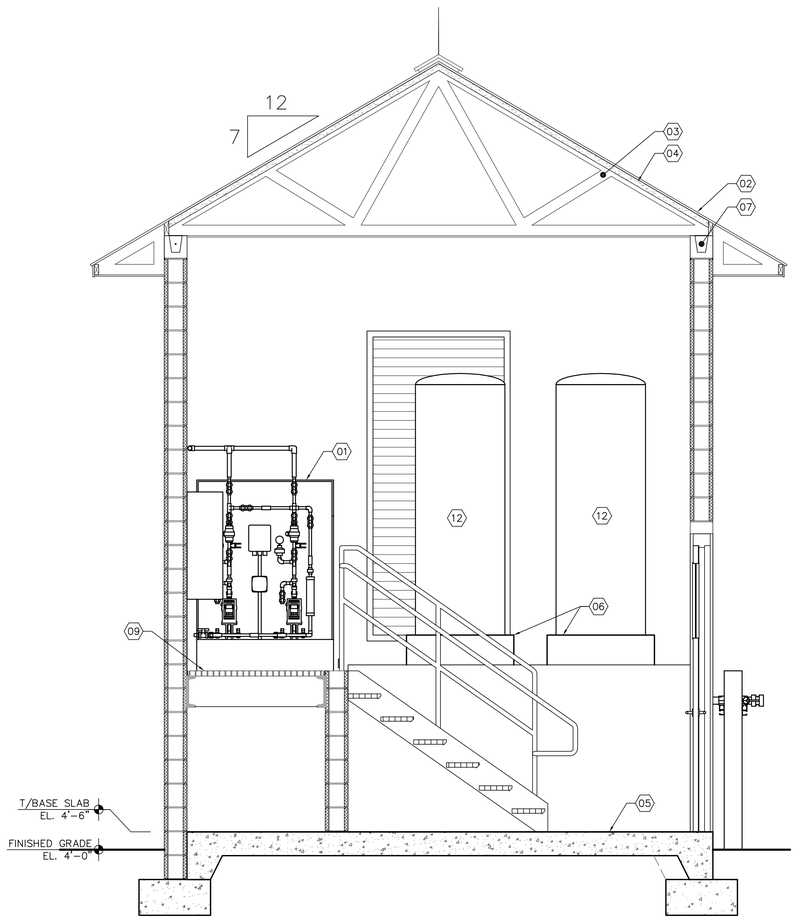
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JDC/JBC
DESIGNED	JDC
CHECKED	JDC
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1/4" = 1'-0"
VERTICAL: N/A

A-3
DRAWING NUMBER

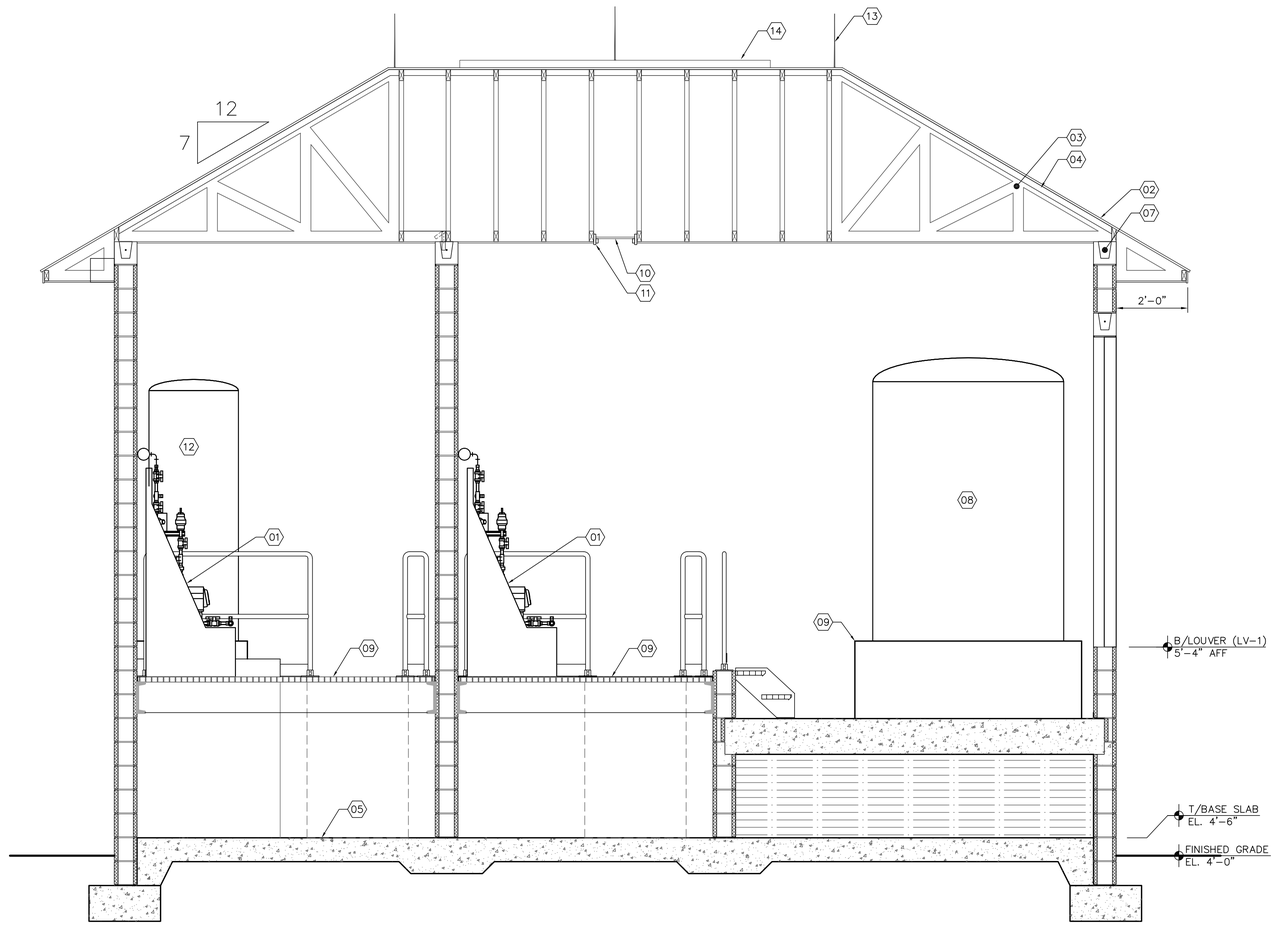
REVISION

STATUS: ISSUE FOR BID



2 - BUILDING SECTION

1/2"=1'-0"



1 - BUILDING SECTION

1/2"=1'-0"

KEY NOTES:

01 CHEMICAL FEED PUMP SKID (SEE MECHANICAL)

02 STANDING SEAM METAL ROOF PANELS ON ICE & WATER SHIELD HIGH TEMP UNDERLAYMENT OF 5/8" EXTERIOR PLYWOOD SHEATHING TO MATCH STYLE & COLOR OF ADJACENT ROOF

03 2X4 PRESSURE TREATED PRE-ENGINEERED WOOD TRUSS

04 CLOSED CELL SPRAY INSULATION R30

05 REINFORCED CONCRETE SLAB ON GRADE (SEE STRUCTURAL)

06 CONCRETE TANK PAD (SEE STRUCTURAL)

07 8" BOND BEAM (SEE SHEET S-8)

08 NaOCl STORAGE TANK

09 FIBERGLASS GRATING

10 1'-2"x3'-0" PLYWOOD ACCESS HATCH (ABOVE) LOCATE BETWEEN ROOF TRUSSES

11 1x2 ON 1x4 FRAME OPENING SUPPORT FOR ACCESS HATCH

12 AMMONIUM SULFATE STORAGE TANK

13 LIGHTNING PROTECTION

14 RIDGE VENT

1/2" = 1'-0" (12" 0 1' 2' 3' 4' 5')

JOHN D CHRISTIE

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REV.NO.	DESCRIPTION	DATE
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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ARCHITECTURAL

BUILDING & WALL SECTIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JDC/JBC
DESIGNED	JDC
CHECKED	JDC
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1/2" = 1'-0"
VERTICAL: N/A

A-4
DRAWING NUMBER

REVISION

STATUS: ISSUE FOR BID

E:\NW BOOSTER PUMP STATION, MANATEE\DRAWINGS\ARCHITECTURAL\A-4 - BUILDING AND WALL SECTIONS.DWG 08/19/2024 09:22:21 JACK CHRISTIE

LOUVER SCHEDULE

NOTE: ALL LOUVERS TO HAVE 8x8 .028 SS HIGH TENSILE ALLOY NO. 304 SCREEN MESH IN SS FRAMES
THREADED SS STUDS SECURED TO LOUVER FRAME. PROVIDE SS WING NUTS.

MARK	SIZE (WxH)	MATERIAL	FINISH	TYPE	DETAILS			FLORIDA PRODUCT APPROVAL #	ZONE	WIND PSF (REQUIRED)	WIND PSF (TESTED)	BASIS OF DESIGN
					HEAD	JAMB	SILL					
LV-1	11'-4" x 8'-8"	ALUMINUM	KYNAR	FIXED	H-2	J-2	S-2	10088.1	5	+50/-50	+150/-150	GREENHECK EHH-601D W/ INSECT SCREENING
LV-2	4'-0" x 8'-8"	ALUMINUM	KYNAR	FIXED	H-2	J-2	S-2	10088.1	4	+50/-50	+150/-150	GREENHECK EHH-601D W/ INSECT SCREENING

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING	CL'G HGT	REMARKS
				NORTH	EAST	SOUTH	WEST			
101	AMMONIA ROOM	SC	NONE	PCMU	PCMU	PCMU	PCMU	PPWD	24'-8"	-
102	NaOCL ROOM	SC	NONE	PCMU	PCMU	PCMU	PCMU	PPWD	24'-8"	-

ABBREVIATIONS

NONE = NONE
SC = SEALED CONCRETE
PC = PAINTED CONCRETE
VCT = VINYL COMPOSITE TILE
VB = VINYL BASE
PGB = PAINTED GYPSUM BOARD
PCMU = PAINTED CMU
PSS = PAINTED STUCCO SYSTEM
PES = PAINTED EXPOSED STRUCTURE
PPWD = PAINTED PLYWOOD
N/A = NOT APPLICABLE

ROOM FINISH NOTES:

1. Secondary containment to be: Tnemec Series 61 Tneme-Liner, or Equal.
2. ———
3. ———
4. ———

DOOR AND FRAME SCHEDULE

DOOR NO.	FIRE RATING	DOOR						FRAME					HDW. SET	FLORIDA PRODUCT APPROVAL #	ZONE	WIND PSF (REQUIRED)	WIND PSF (TESTED)	BASIS OF DESIGN	DOOR NO.
		SIZE			MAT'L	TYPE	GLAZING	MAT'L	TYPE	DETAILS									
		WIDTH	HEIGHT	THK.						HEAD	JAMB	SILL							
101	N/A	PR. 3'-0"	8'-0"	1 3/4"	FRP	B	LAM	FRP	2	H-1	J-1	S-1	1	26592.5	4	+50/-50	+90/-90	CHEM-PRUF FIBERGLASS "IMPACT" DOOR & FRAME	101
102	N/A	3'-4"	8'-0"	1 3/4"	FRP	A	LAM	FRP	1	H-1	J-1	S-1	2	26592.4	4	+50/-50	+90/-90	CHEM-PRUF FIBERGLASS "IMPACT" DOOR & FRAME	102

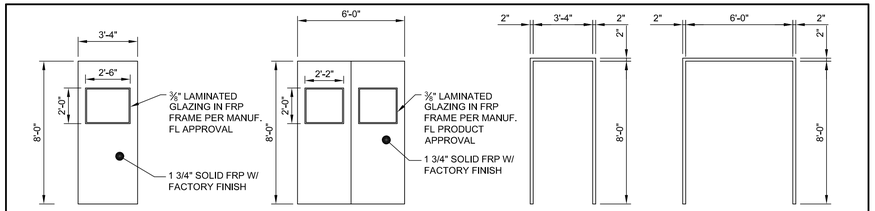
MATERIAL LEGEND:

FRP – FIBER REINFORCED POLYESTER
IAL – INSULATED ALUMINUM
HM – HOLLOW METAL
STL – STEEL
INS – 1" INSULATED, LAMINATED GLAZING
LAM – 3/8" LAMINATED GLAZING
N/A – NOT APPLICABLE

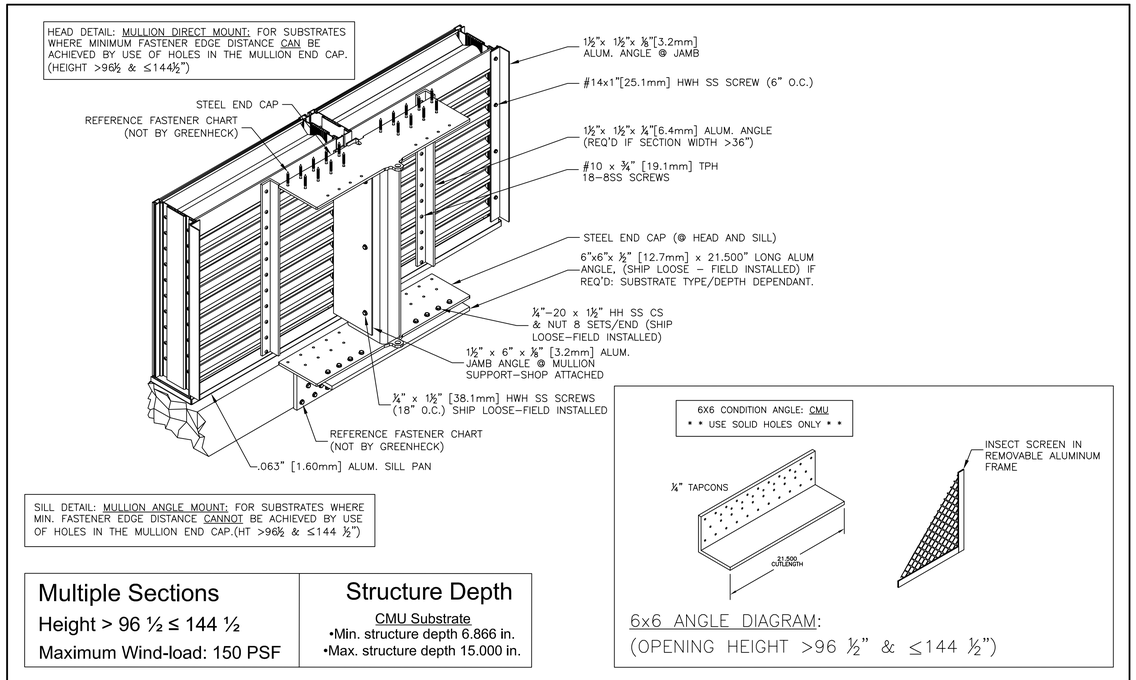
HARDWARE SCHEDULE: ALL FINISHES SHALL BE DULL STAINLESS STEEL UNLESS OTHERWISE NOTED [US32D]

HW-1
8 4½" X 4½" BUTT HINGES
2 CORBIN RUSSWIN FE5400S MULTI-POINT EXIT DEVICES
1 FIBERGLASS ASTRAGAL (BY CHEM-PRUF)
2 CLOSERS W/ HOLD OPEN
1 NEOPRENE WEATHERSTRIP SET
1 OUTSWING THRESHOLD (HAGER 520S)
2 DOOR BOTTOM SWEEPS (PEMKO 345V)

HW-2
4 4½" X 4½" BUTT HINGES
1 CORBIN RUSSWIN FE5400S MULTI-POINT EXIT DEVICE
1 CLOSER W/ HOLD OPEN
1 NEOPRENE WEATHERSTRIP SET
1 OUTSWING THRESHOLD (HAGER 520S)
1 DOOR BOTTOM SWEEP (PEMKO 345V)

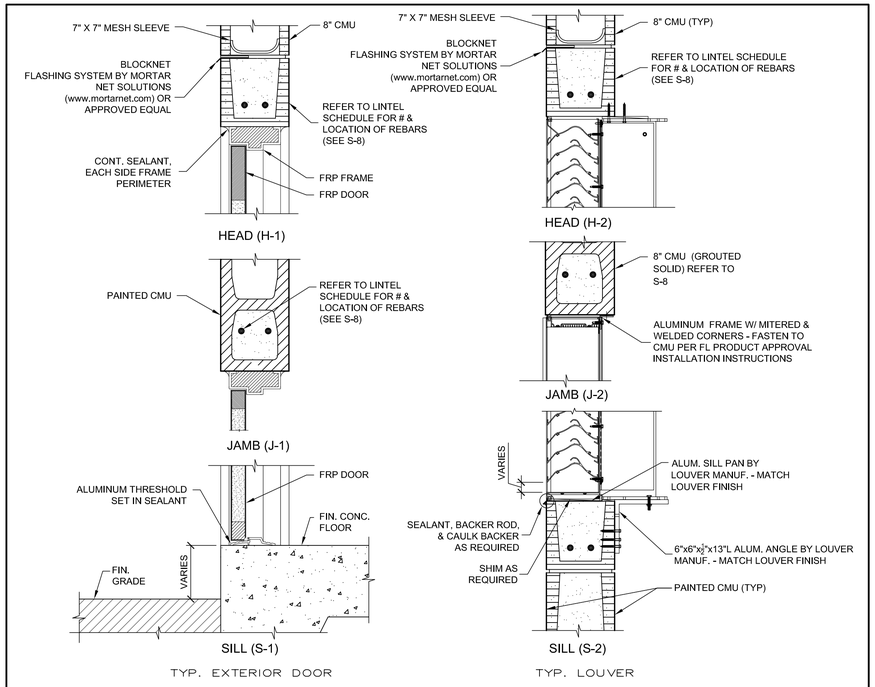


1 - DOOR & FRAME ELEVATIONS
1/4"=1'-0"



Multiple Sections	Structure Depth
Height > 96 ½ ≤ 144 ½	CMU Substrate
Maximum Wind-load: 150 PSF	•Min. structure depth 6.866 in.
	•Max. structure depth 15.000 in.

3 - LOUVER INSTALLATION DETAILS
NOT TO SCALE



2 - HEAD, JAMB, AND SILL DETAILS
1 1/2"=1'-0"

1/4" = 1'-0" (12" 0 5' 10')
1 1/2" = 1'-0" (12" 6" 0 1')

JOHN D CHRISTIE
Digitally signed by JOHN D CHRISTIE
Date: 2024.08.20 13:07:14 -07'00'

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ARCHITECTURAL

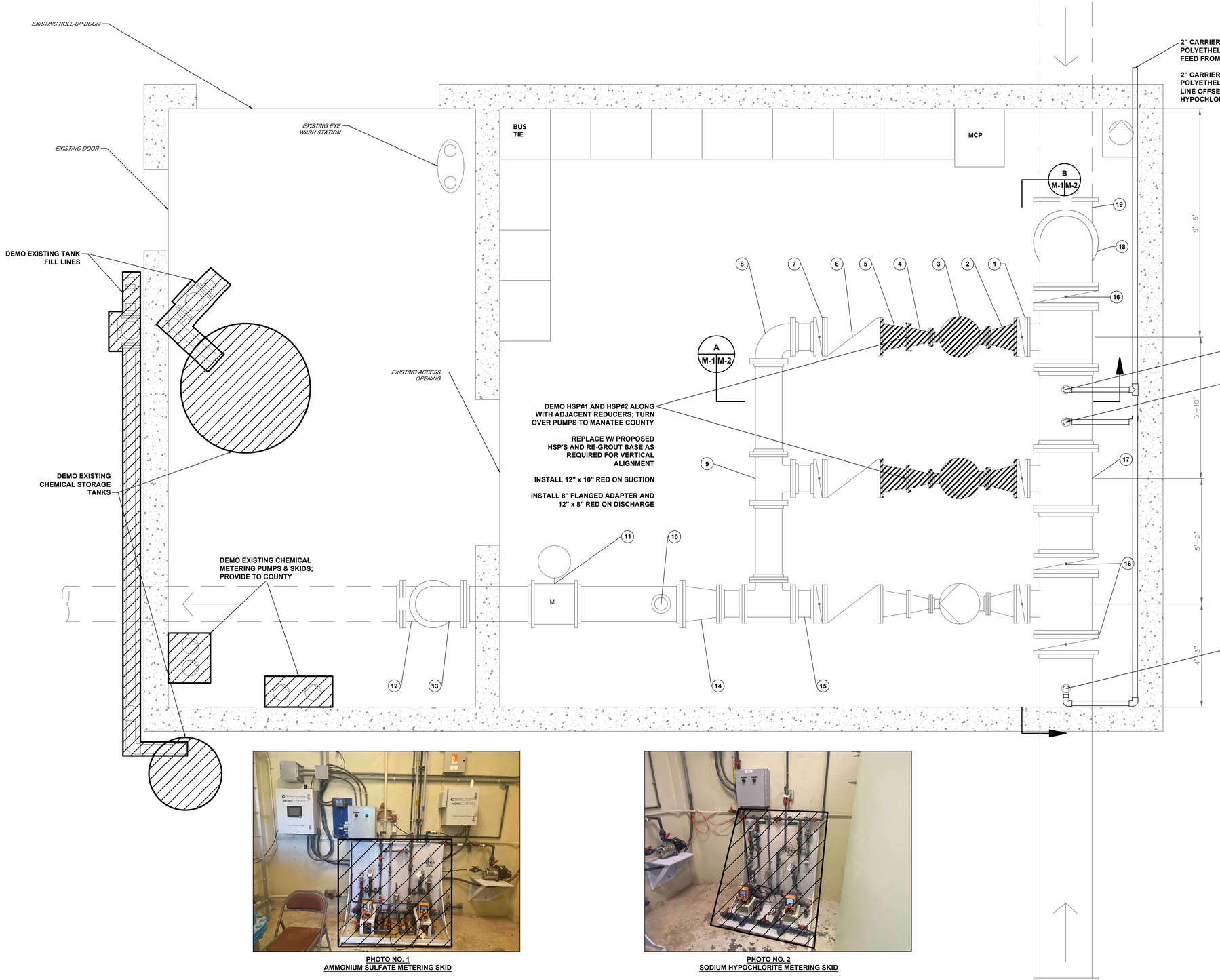
SCHEDULES & DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JDC/JBC
DESIGNED	JDC
CHECKED	JDC
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS NOTED
VERTICAL: N/A

A-5
DRAWING NUMBER
REVISION

STATUS: ISSUE FOR BID



NORTH

KEY

1. 12" FLG BFL W/ HANDWHEEL (TYP 3)
2. 12" X 6" FLG FLEX RDCR W/ RESTRAINING RODS (TYP 3)
3. VERTICAL SHAFT HIGH SERVICE PUMP (TYP 3)
4. 5" X 8" FLG FLEX RDCR W/ RESTRAINING RODS (TYP 3)
5. 8" X 12" FLG RDCR
6. 12" FLG SLANTING DISK CV W/ SNUBBER (TYP 3)
7. 12" FLG BFV W/ HWD (TYP 3)
8. 12" FLG 90° BASE BEND
9. 12" FLG TEE (TYP 2)
10. 1" AUTOMATIC AIR RELEASE W/ 1" SST BALL VALVE
11. 16" FLG MAG-METER
12. 16" RJ 90° BEND
13. 16" FLG 90° BEND
14. 12" X 16" FLG RDCR
15. 12" FLG SPOOL (TYP 2)
16. 24" FLG MOTORIZED BFV
17. 12" X 24" FLG TEE (TYP 3)
18. 24" FLG 90° BEND
19. 24" RJ 90° BEND

NOTES:
1. CONTRACTOR SHALL MAINTAIN CLEAR ACCESS FOR CHEMICAL DELIVERIES AND COUNTY PERSONNEL
2. DEMO EXISTING CHEMICAL FEED PIPING INSIDE PUMP STATION

PHOTO NO. 1
AMMONIUM SULFATE METERING SKID

PHOTO NO. 2
SODIUM HYPOCHLORITE METERING SKID

PHOTO NO. 3
IN-LINE BOOSTER PUMPS

REV.NO.	DESCRIPTION	DATE
-	---	---

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PHILLIP J. LOCKE, P.E.
No. 57527

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

PUMP STATION DEMO & PROPOSED PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

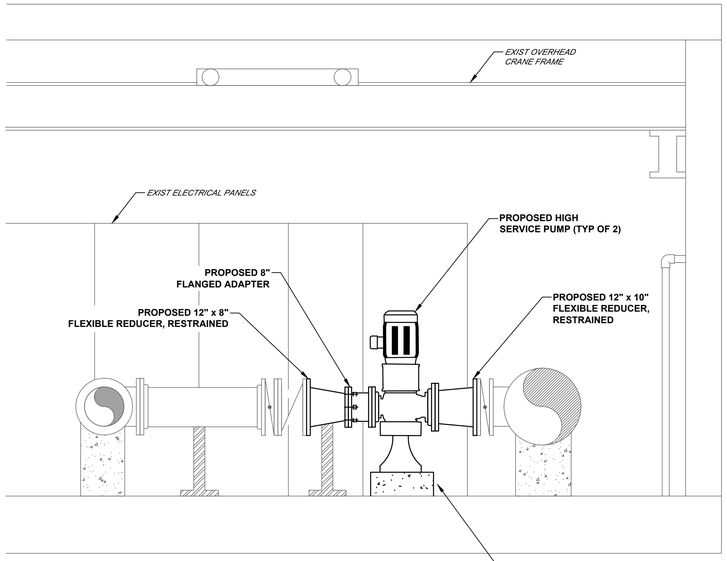
SCALE
HORIZONTAL: 1/2" = 1'-0"
VERTICAL: N/A

M-1
DRAWING NUMBER

REVISION

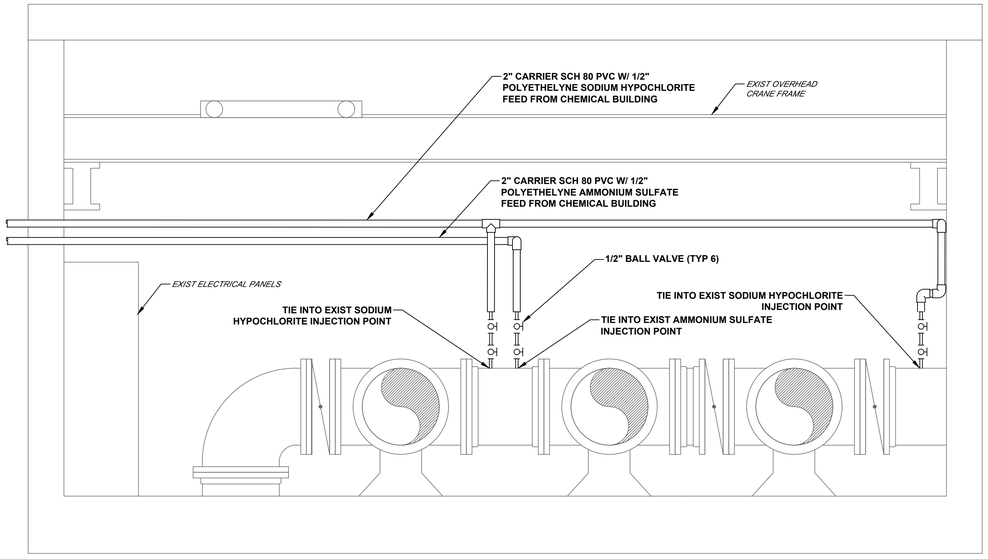
STATUS: ISSUED FOR BID

NOTES:
1. REGROUT BASE AND INSTALL CONC PUMP PAD TO FIT NEW HIGH SERVICE PUMP. PUMP SUCTION/DISCHARGE CENTERLINE IS APPROX. 30" ABOVE FF



SECTION A
SCALE: 1/2" = 1'-0"
M-1 | M-2

NOTES:
1. RUN NEW CHEMICAL FEED LINES ALONG WALL BELOW EXISTING ELECTRICAL CONDUIT
2. ELEVATED CHEMICAL PIPING SHALL BE SUPPORTED WITH FRP WALL SUPPORTS & IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS
3. INSTALL NEW INJECTION QUILLS



SECTION B
SCALE: 1/2" = 1'-0"
M-1 | M-2

REV.NO.	DESCRIPTION	DATE
-	---	---

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No. 57527

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

PUMP STATION SECTIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: 1/2" = 1'-0"
VERTICAL: 1/2" = 1'-0"

M-2
DRAWING NUMBER

REVISION

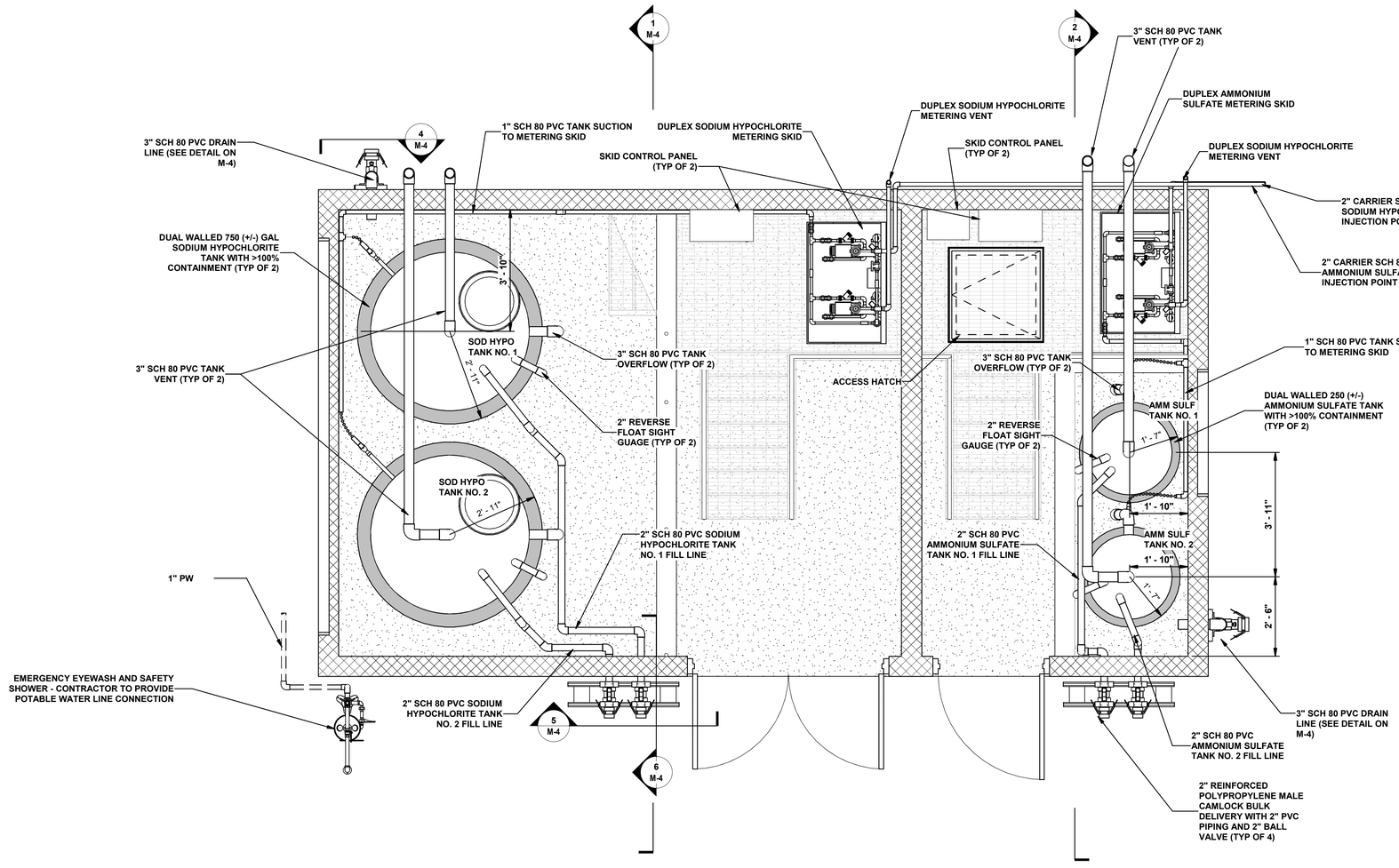
STATUS: ISSUED FOR BID

NOTES:

1. CONTRACTOR TO TAP 1" PW LINE TO EXISTING BURIED 24" DI LINE TO EAST OF CHEMICAL BUILDING.
2. APPLY SPECIFIC CHEMICAL RESISTANT COATING TO ALL CONCRETE SURFACES WITHIN CONTAINMENT AREA.
3. SEE STRUCTURAL SHEETS FOR DIMENSIONING.
4. ALL PIPING SHALL BE ADEQUATELY MOUNTED USING FRP PIPE SUPPORTS.
5. PIPING CONFIGURATION SHOWN IS CONCEPTUAL ONLY. TANK PENETRATIONS AND ROUTING OF PIPE SHALL BE FIELD COORDINATED.
6. CHEMICAL METERING SKID VENT LINES SHALL EXIT BUILDING AT AN ELEVATION ABOVE TOP OF THEIR RESPECTIVE CHEMICAL STORAGE TANKS.

CONTRACTOR TO PROVIDE TWO (2) FOAM WALL CONTAINMENT BERMS TO BE PLACE UNDER FRP GRATING BENEATH SKIDS.

BERM SHALL BE ULTRATECH MODEL NO. 8852



CHEMICAL BUILDING MECHANICAL FLOOR PLAN

1/2" = 1'-0"

REV. NO.	DESCRIPTION	DATE

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

CHEMICAL BUILDING MECHANICAL FLOOR PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR	PJL

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

M-3 DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

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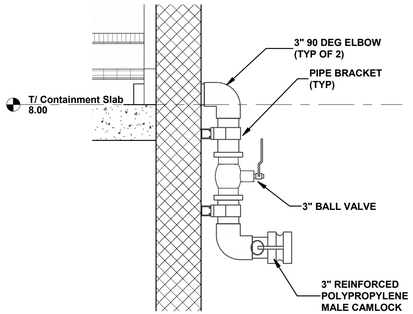
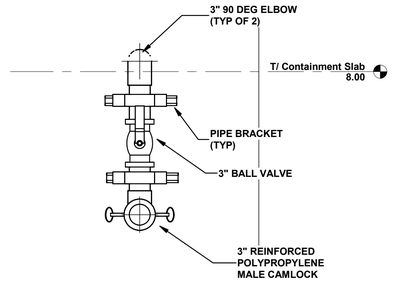
NOTES:

1. TANK SUCTION TAP TO BE MIN. 6" AND MAX. 8" ABOVE BOTTOM OF TANK
2. METERING SKID SUCTION LINE TO BE AT ELEV. 9.83
3. ALL PIPING TO BE ADEQUATELY MOUNTED USING FRP PIPE SUPPORTS
4. OVERFLOW PIPING AT TOP OF SHELL HEIGHT
5. PIPING TAPPED INTO TOP OF TANKS SHALL BE BULKHEAD STYLE FOR FLAT SURFACE PENETRATION OR UBD STYLE FOR CURVED SURFACE PENETRATION
6. CHEMICAL METERING SKID VENT LINES SHALL EXIT BUILDING AT AN ELEVATION ABOVE TOP OF THEIR RESPECTIVE CHEMICAL STORAGE TANKS.



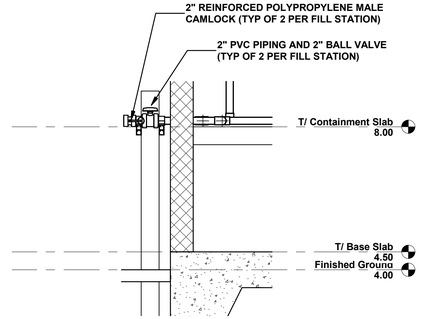
DRAIN LINE DETAIL I

1" = 1'-0"



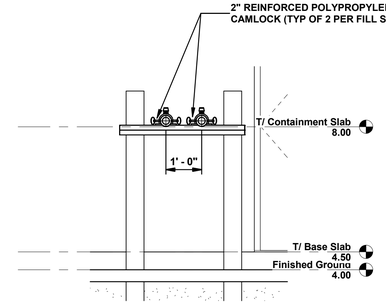
DRAIN LINE DETAIL II

1" = 1'-0"



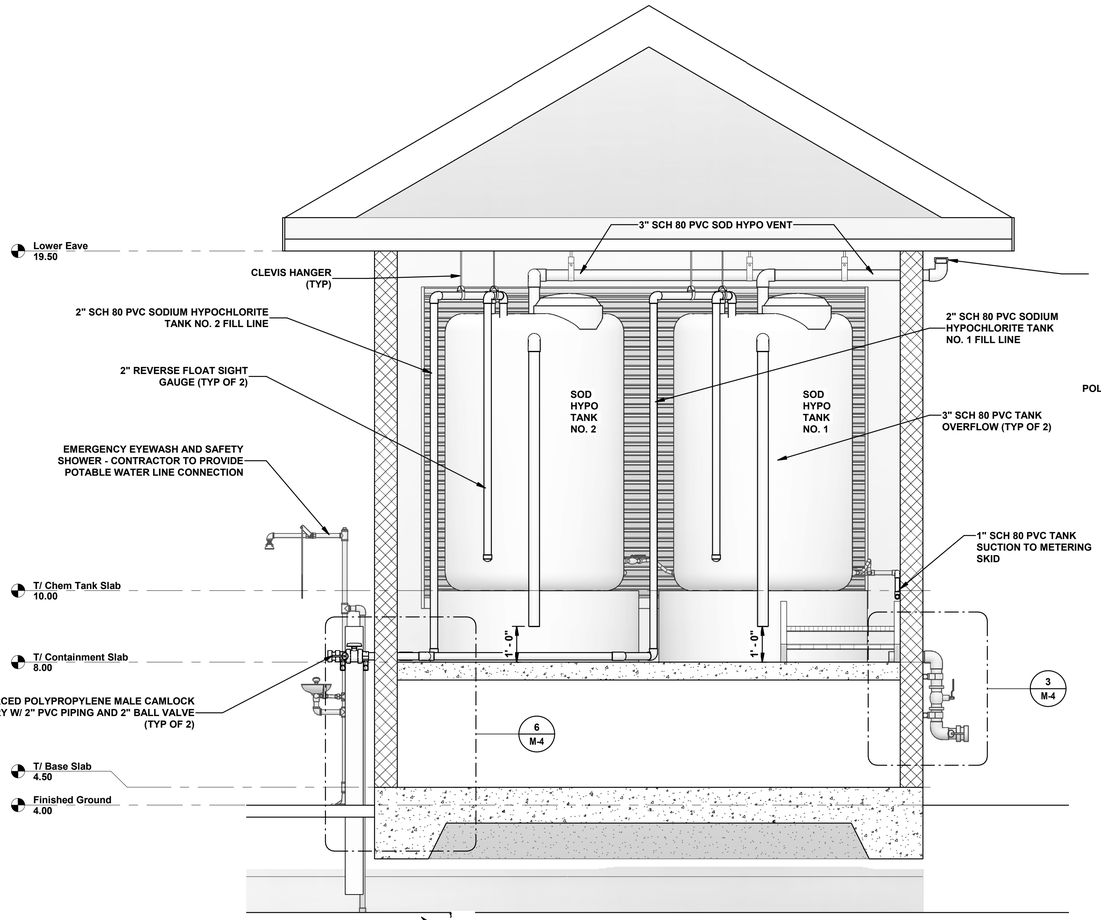
TANK FILL STATION VIEW I

1/2" = 1'-0"



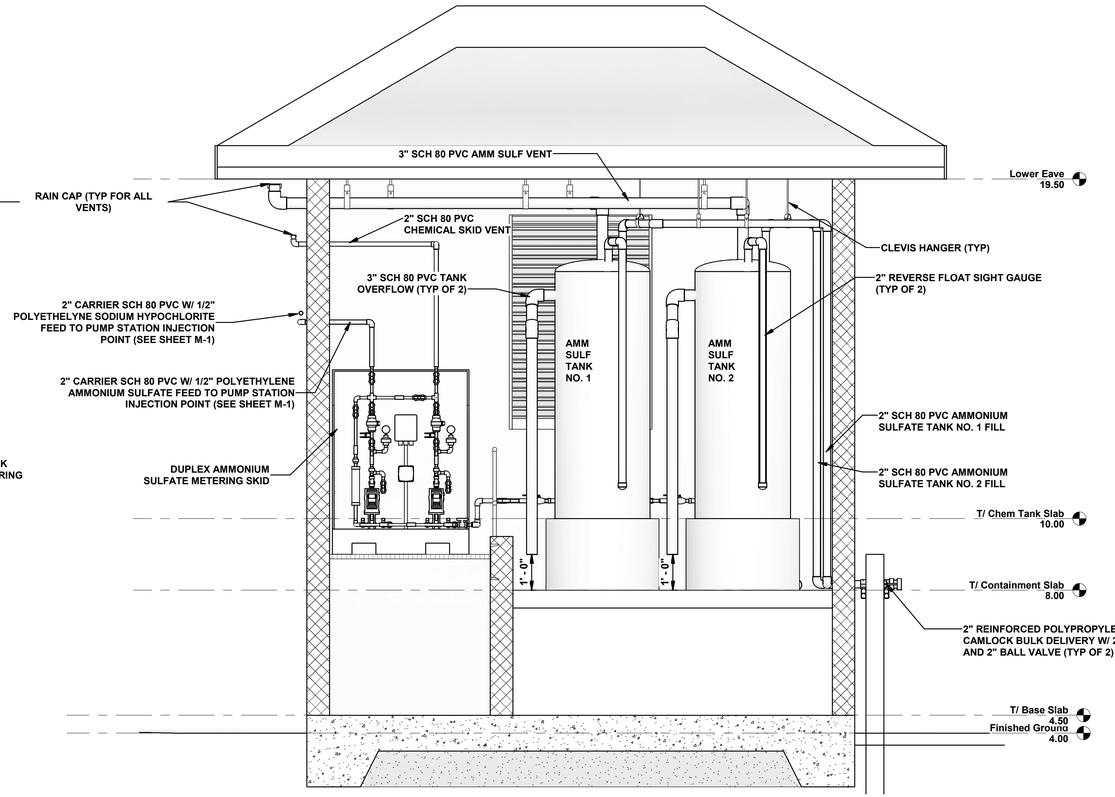
TANK FILL STATION VIEW II

1/2" = 1'-0"



1 M-3 NaOCL TANK SECTION

1/2" = 1'-0"



2 M-3 AMMONIUM TANK SECTION

1/2" = 1'-0"

REV. NO.	DESCRIPTION	DATE

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

CHEMICAL TANK SECTIONS

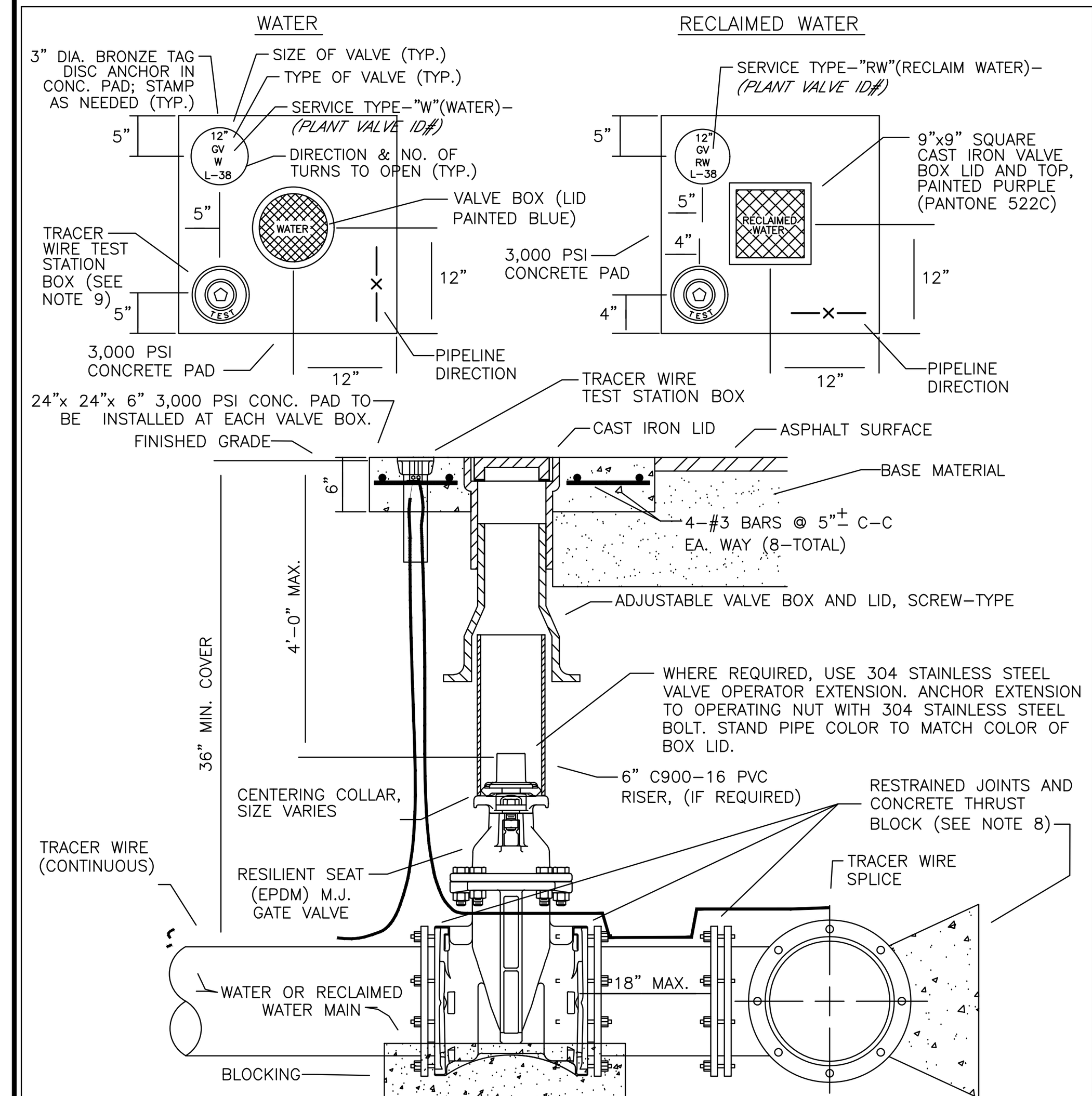
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR	PJL

SCALE: As indicated

DRAWING NUMBER: M-4

REVISION

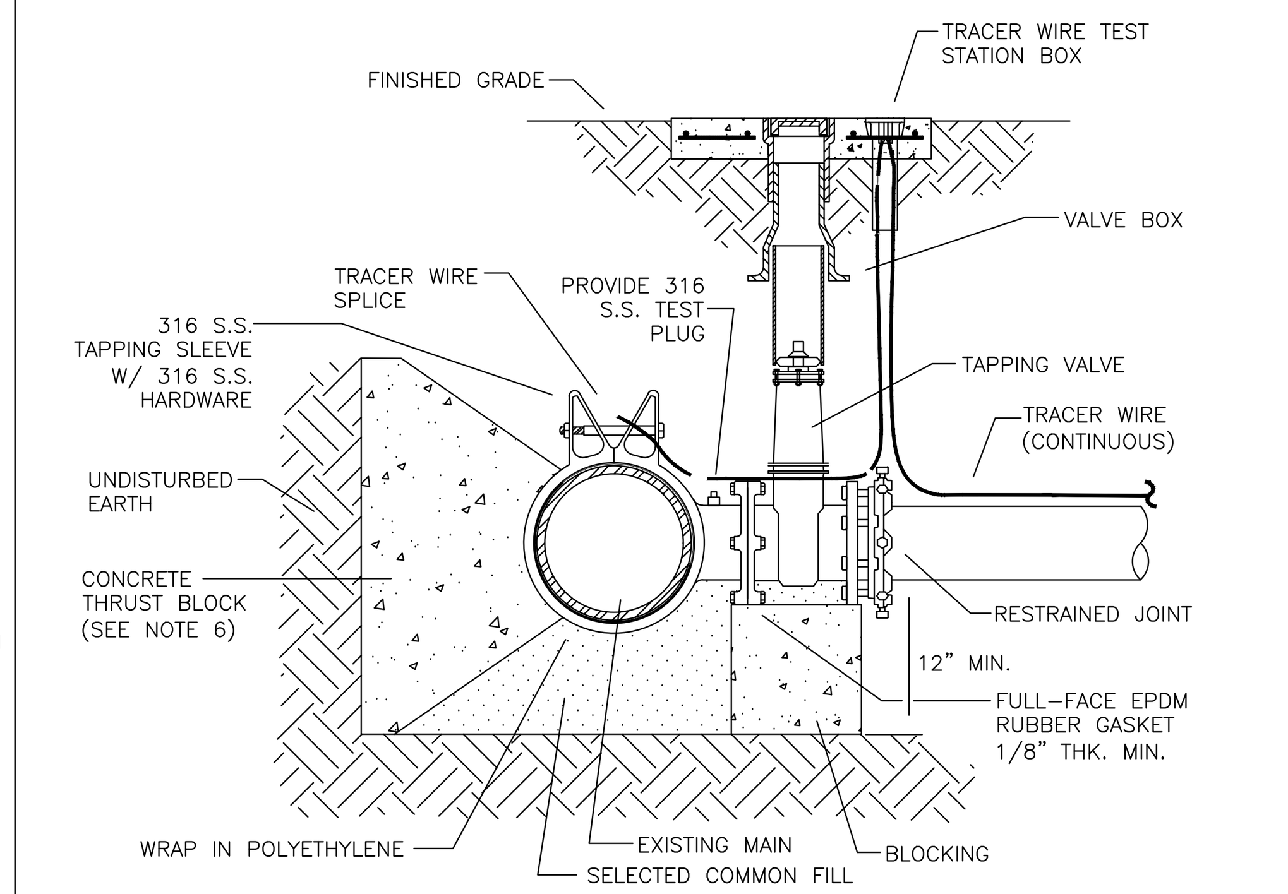
STATUS: ISSUED FOR BID



NOTES:

1. "WV" OR "RWV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A BLUE DISC WITH "WV" OR PURPLE DISC WITH "RWV" USING A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
2. ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
3. VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS, CURBS, OR GUTTERS.
4. PRECAST CONCRETE PADS SHALL NOT BE USED.
5. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
6. PIPELINE DIRECTION TO BE IMPRESSED INTO NEWLY POURED CONCRETE PAD.
7. TRACER WIRE TEST STATION BOX IS NOT REQUIRED IN VALVE BOX PAD IF THE GATE VALVE IS LOCATED WITHIN 200 FEET OF A WATER SERVICE, BLOW-OFF, BACKFLOW PREVENTER OR FIRE HYDRANT THAT HAS A TRACER WIRE BOX.
8. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR "TEES."
9. USE NON-TRAFFIC RATED BOXES FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE TRAFFIC RATED BOXES. WHERE POSSIBLE, LOCATE TRACE WIRE TESTING STATION OUTSIDE OF TRAVEL LANE OR IN MEDIAN, CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.
10. THE BRASS TAG SHALL HAVE A "PLANT VALVE ID# WHEN VALVES ARE INSTALLED WITHIN THE COUNTY TREATMENT PLANT LIMITS. THE PLANT VALVE ID# SHALL BE SHOWN ON THE CONSTRUCTION PLANS AND RECORD DRAWINGS.
11. REFER TO SECTION 1.11 GATE VALVES IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

PUBLIC WORKS DEPARTMENT			GATE VALVE, BOX, LID AND TAG	UW-2
REV.BY	DATE			
		DATE OF APPROVAL		

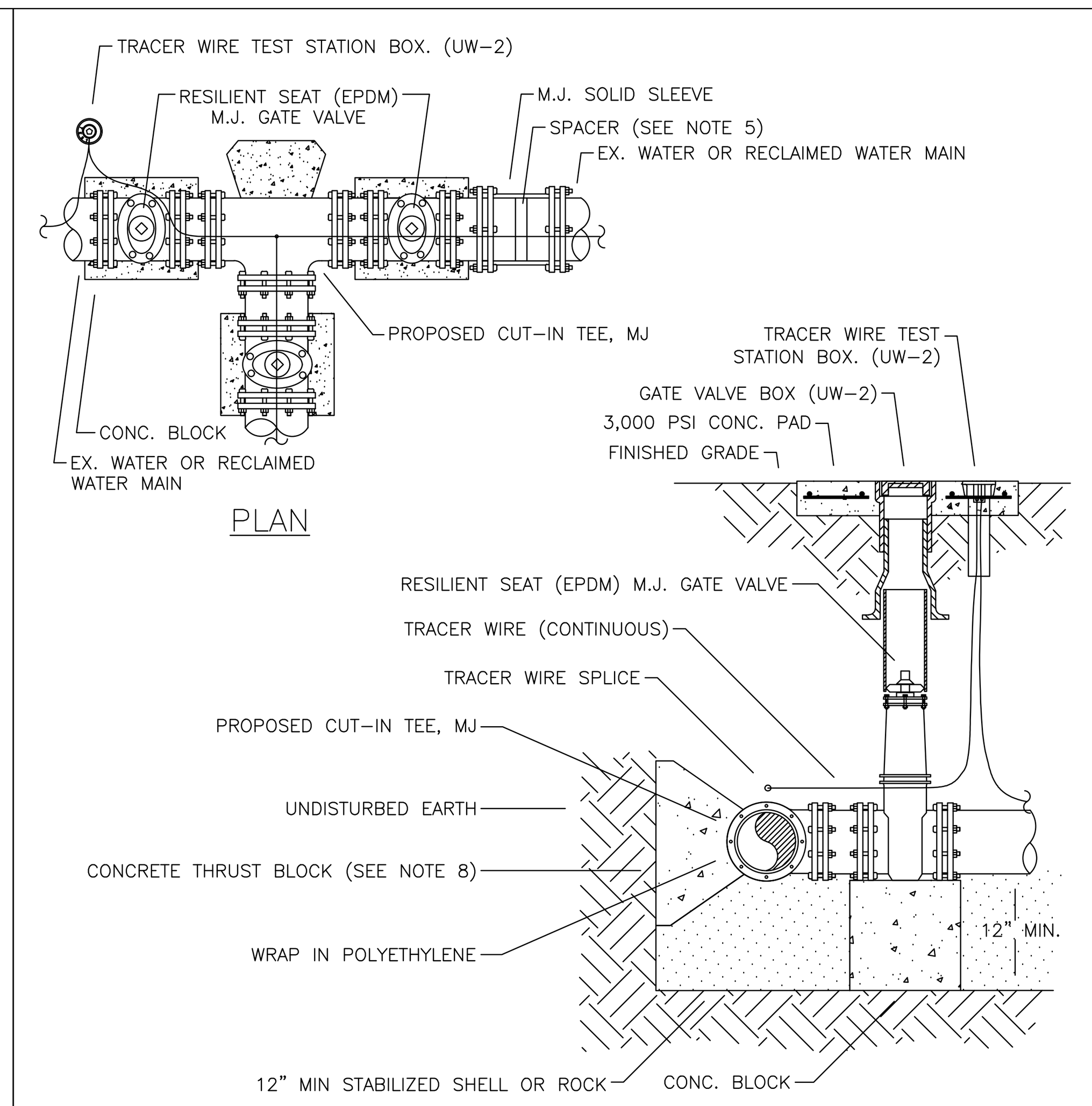


ELEVATION

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.
2. ALL FITTINGS TO BE WRAPPED WITH 20 MIL POLYETHYLENE WRAP 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.
8. SEE SECTION 1.11 TAPPING SLEEVES AND VALVES IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

PUBLIC WORKS DEPARTMENT			TAPPING SLEEVE AND VALVE (WATER/RECLAIM)	UW-3
REV.BY	DATE			
		DATE OF APPROVAL		



PROFILE

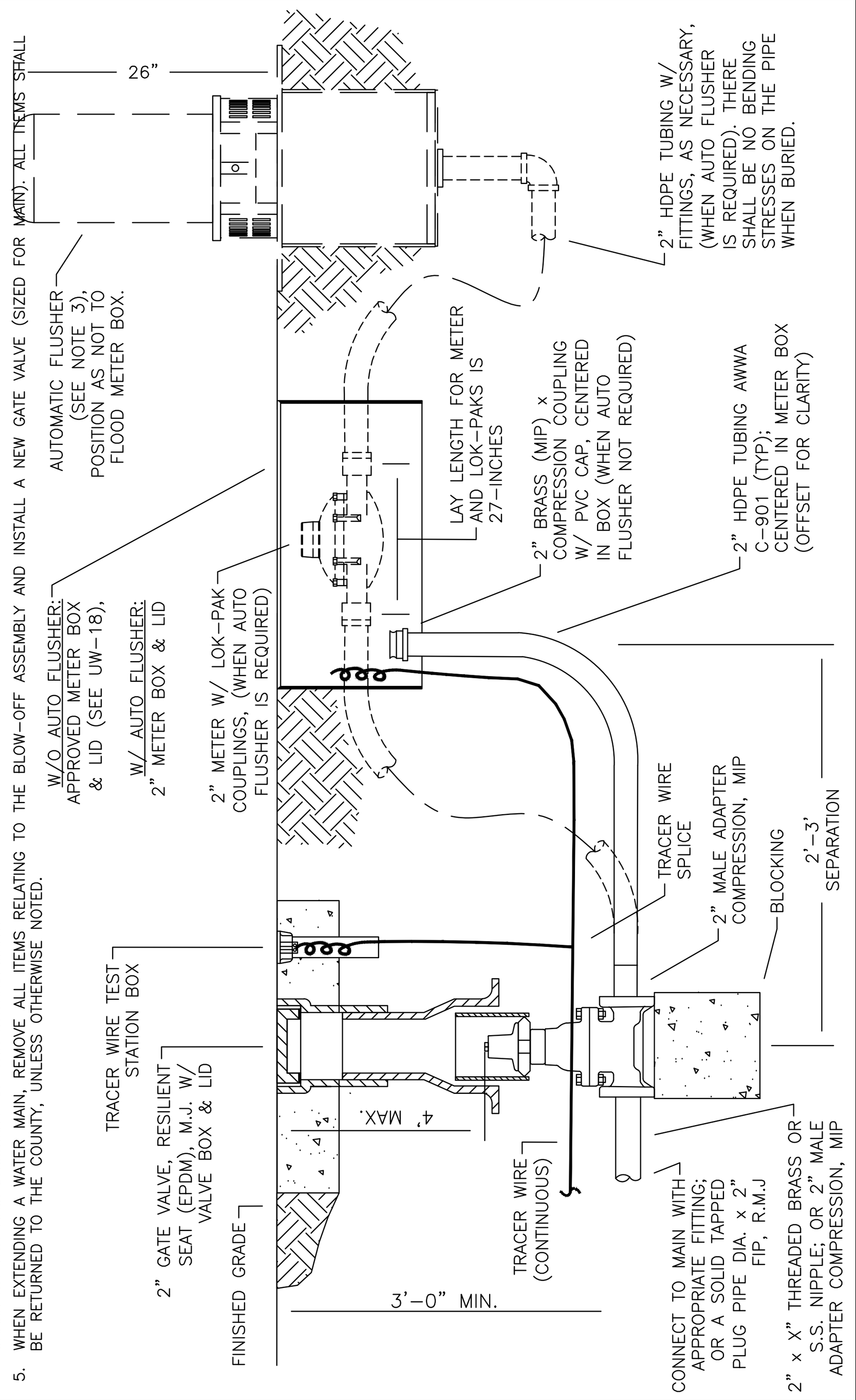
NOTES:

1. ALL FITTINGS TO BE WRAPPED WITH 20 MIL POLYETHYLENE WRAP AT THRUST BLOCK.
2. TRACER WIRE TEST STATION BOX IS REQUIRED AT CONNECTIONS TO EXISTING MAINS.
3. WATER VALVES SHALL BE INSTALLED ON ALL SIDES OF TEES AND CROSSES, UNLESS INLINE VALVES ON THAT LEG WITHIN 200 FEET.
4. RESTRAINED JOINTS MUST EXTEND FROM TEE FULL LENGTH SPECIFIED FOR VALVES.
5. SPACER IS REQUIRED IF A GAP EXISTS. SPACER NOT TO EXCEED OVER 30% OF SLEEVE WIDTH.
6. IN ASBESTOS CONCRETE PIPE (AC) APPLICATIONS: TWO COUPLINGS ARE REQUIRED. ALL FITTINGS INCLUDING COUPLINGS SHALL BE SUPPORTED WITH CONCRETE BLOCKING TO PREVENT SETTLEMENT.
7. ALL EXISTING RESTRAINING SHALL BE MODIFIED AND OR RE-INSTATED AS NECESSARY, TO MEET THE RESTRAINT REQUIREMENT FOR VALVES.
8. WHERE THRUST BLOCK NOT USED, RESTRAINED JOINTS MUST THEN EXTEND FROM TEE FULL LENGTH SPECIFIED FOR "TEES".

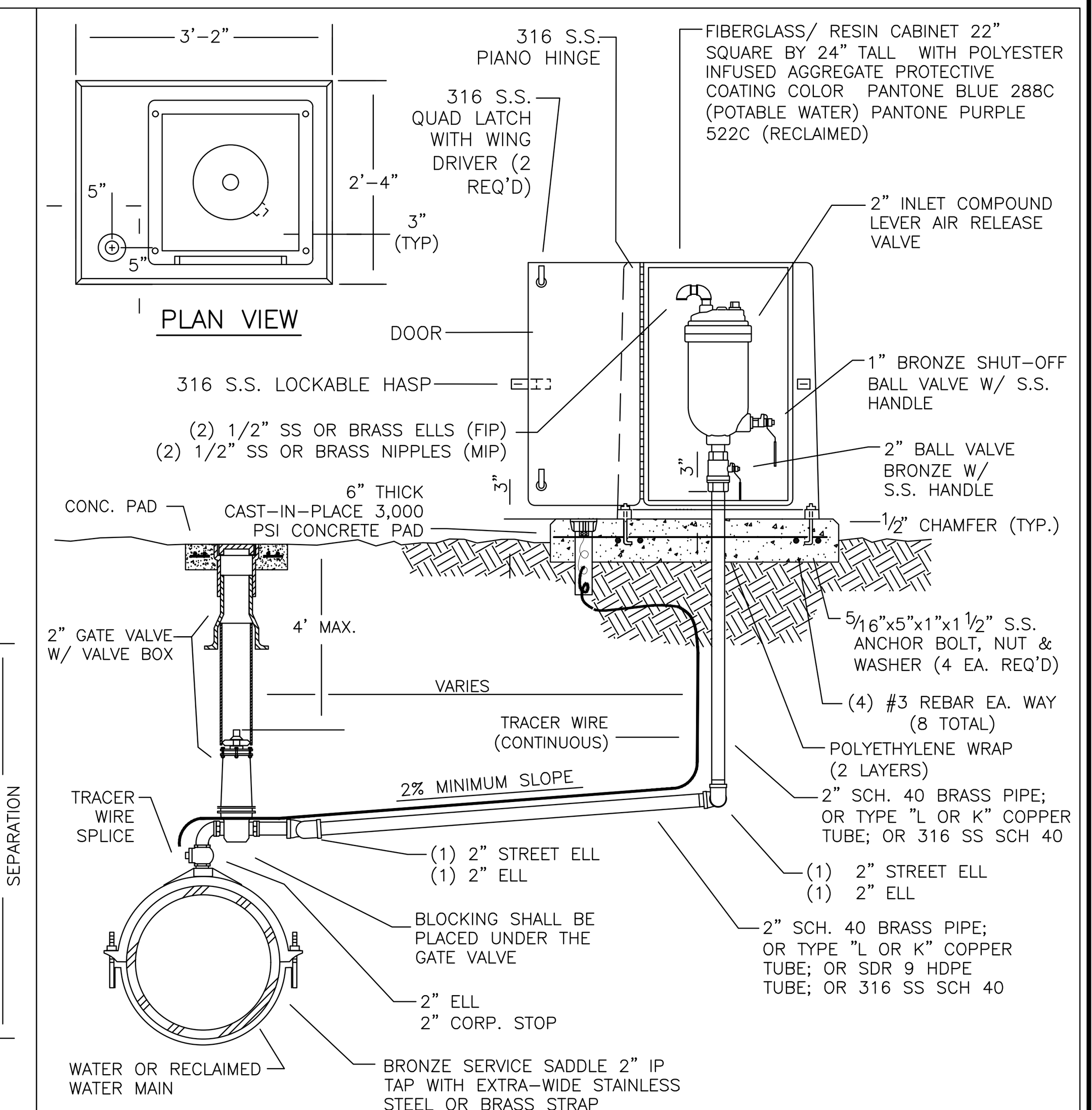
PUBLIC WORKS DEPARTMENT			CUT-IN TEE	UW-4
REV.BY	DATE			
		DATE OF APPROVAL		

NOTES:

1. ALL DEAD-END WATER MAINS REQUIRE A BLOW-OFF AT THE END, WHETHER TEMPORARY OR PERMANENT.
2. BLOW-OFF VALVE ASSEMBLIES, METER BOXES, AND/OR AUTOMATED FLUSHING DEVICES SHALL NOT BE LOCATED IN DRIVEWAYS OR SIDEWALKS, AND SHALL BE INSTALLED AS CLOSE TO THE LOT LINES AS POSSIBLE.
3. DEAD-END PUBLIC MAINS, WITH MORE THAN A 4-DAY WATER VOLUME TURN-OVER RATE, SHALL REQUIRE A COUNTY-METERED, PRIVATELY OWNED & MAINTAINED AUTOMATIC FLUSHING SYSTEM TO BE INSTALLED WITH AN APPROVED METER BOX/LID, COUNTY METER, AND AN AUTOMATED FLUSHING DEVICE.
4. THE DEVELOPMENT SHALL FURNISH AND MAINTAIN THE FLUSHING DEVICE, INCLUDING ALL ASSOCIATED ITEMS. THE DEVELOPMENT SHALL COORDINATE WITH MANATEE COUNTY LABORATORY PERSONNEL TO ESTABLISH AN APPROVED FLUSHING PLAN TO MAINTAIN WATER QUALITY. ONCE WATER QUALITY CAN BE SUSTAINED BY THE PROPOSED DEVELOPMENT WATER USAGE, THE FLUSHING DEVICE AND ASSOCIATED ITEMS SHALL BE REMOVED. ALL COSTS ASSOCIATED WITH THE FLUSHED WATER SHALL BE THE RESPONSIBILITY OF THE DEVELOPMENT.
5. WHEN EXTENDING A WATER MAIN, REMOVE ALL ITEMS RELATING TO THE BLOW-OFF ASSEMBLY AND INSTALL A NEW GATE VALVE (SIZED FOR MAIN). ALL ITEMS SHALL BE RETURNED TO THE COUNTY, UNLESS OTHERWISE NOTED.



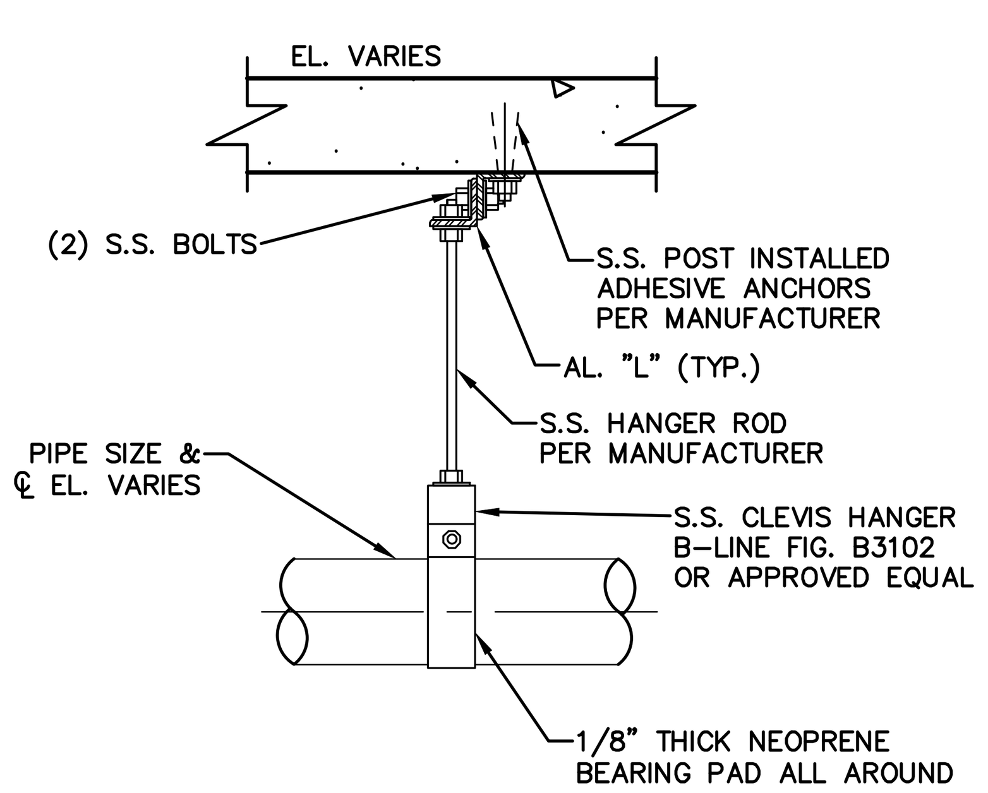
PUBLIC WORKS DEPARTMENT			2" BLOW-OFF ASSEMBLY	UW-8
REV.BY	DATE			
		DATE OF APPROVAL		



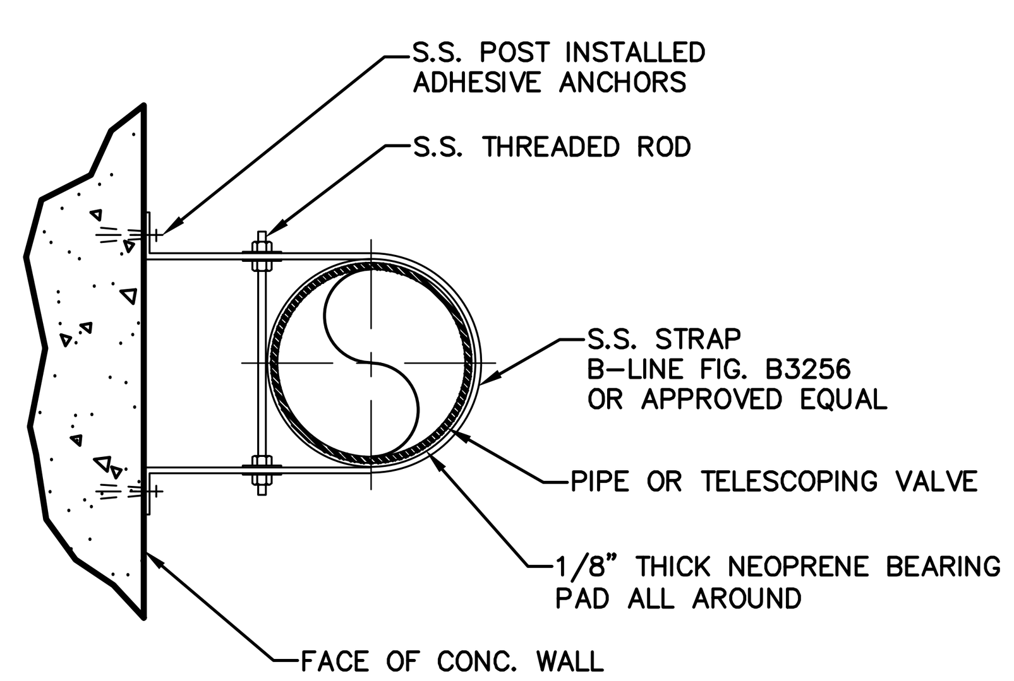
NOTES:

1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG THE MAINS, WHERE ARE COULD BE TRAPPED.
2. ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
6. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
7. ARV SHALL BE INSTALLED MINIMUM 6 FT FROM EDGE OF PAVEMENT; 10 FT MAXIMUM FROM BACK OF CURB; 4 FT MIN. MAY BE APPROVED BY UTILITIES IN SOME EXISTING AREAS.
8. SEE UW-2 GATE VALVE, BOX, LID AND TAG STANDARD DETAIL. CENTERING COLLAR IS NOT REQUIRED ON 2" GATE VALVES.

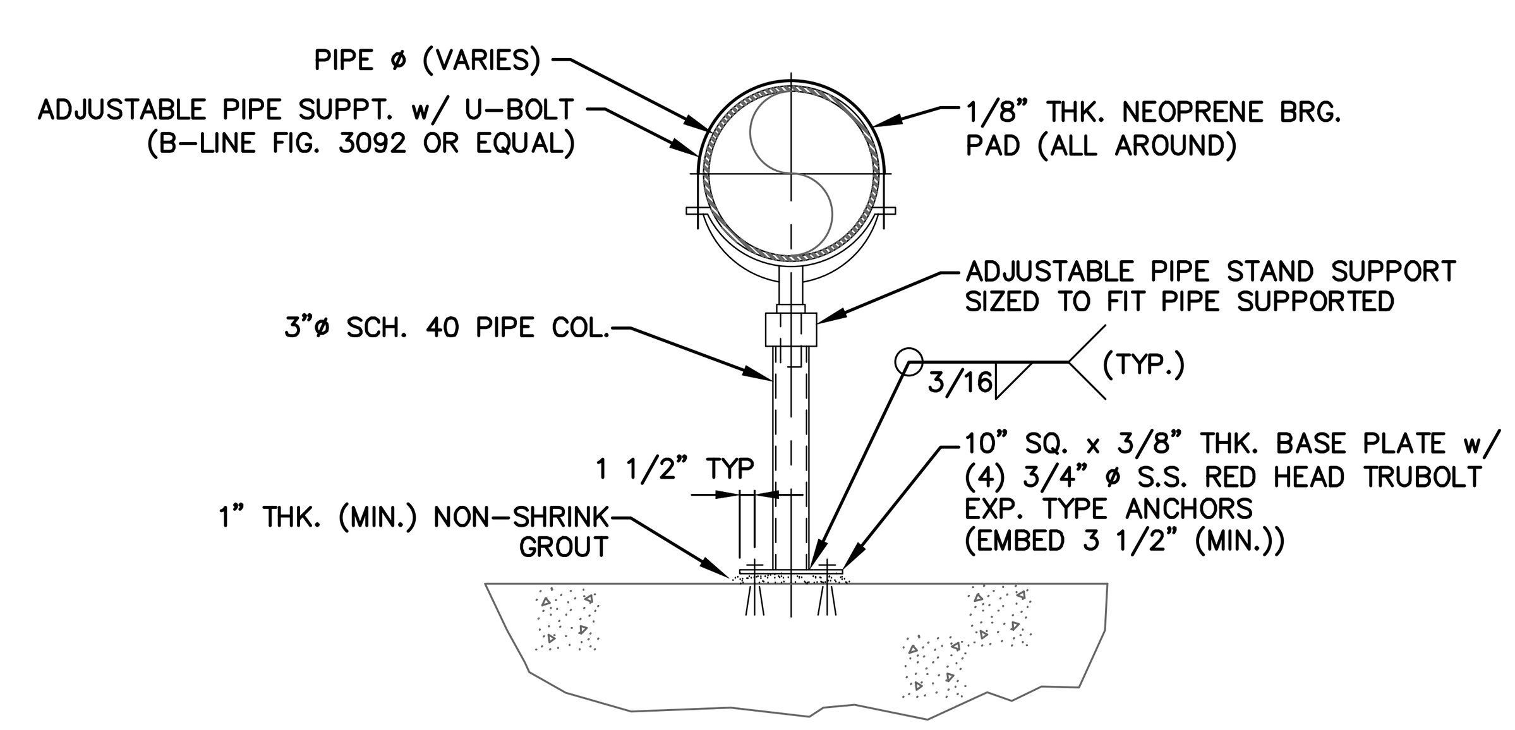
PUBLIC WORKS DEPARTMENT			ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR 16-INCH AND LARGER MAINS	UW-11
REV.BY	DATE			
		DATE OF APPROVAL		



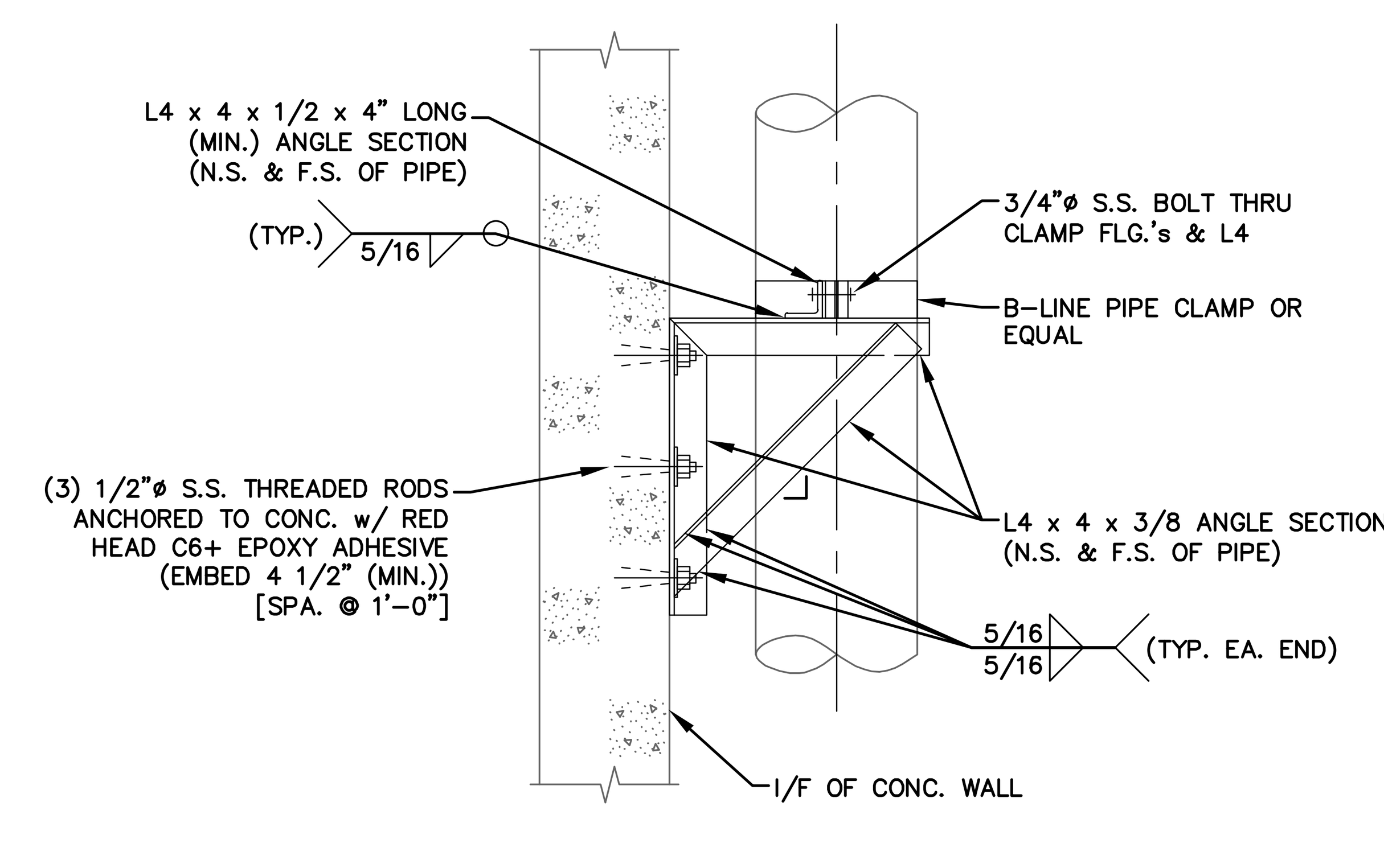
PIPE SUPPORT TYPE 1
NOT TO SCALE



PIPE STAND-OFF BRACKET TYPE 2
NOT TO SCALE



PIPE SUPPORT TYPE 3
NOT TO SCALE



PIPE SUPPORT TYPE 4
NOT TO SCALE

REV.NO.	DESCRIPTION	DATE
	REVISIONS	

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

MECHANICAL DETAILS

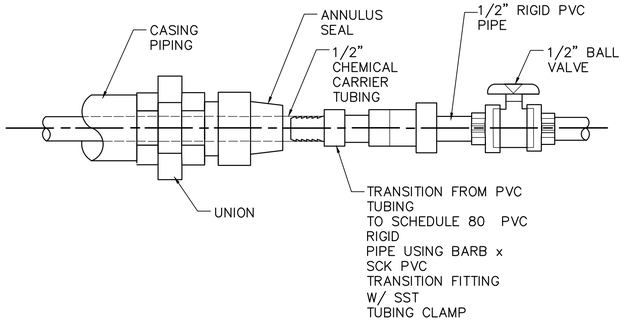
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

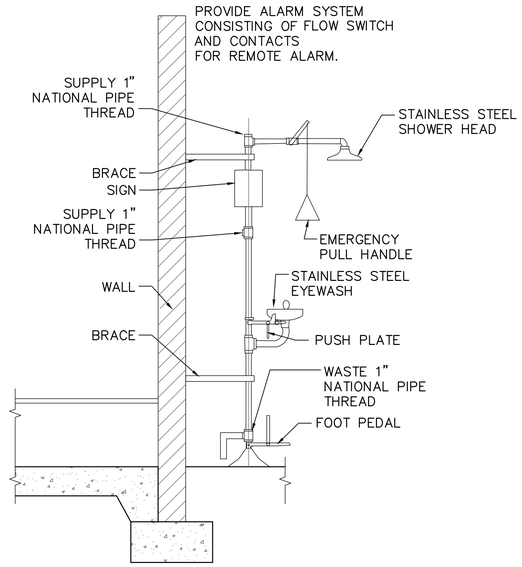
M-5
DRAWING NUMBER
REVISION

STATUS: **ISSUED FOR BID**

I:\01024\0206\ENG\80-DRAWINGS\MECHANICAL\M-4 MECHANICAL DETAILS.DWG 08/12/2024 11:07:08 AARON TURMAN

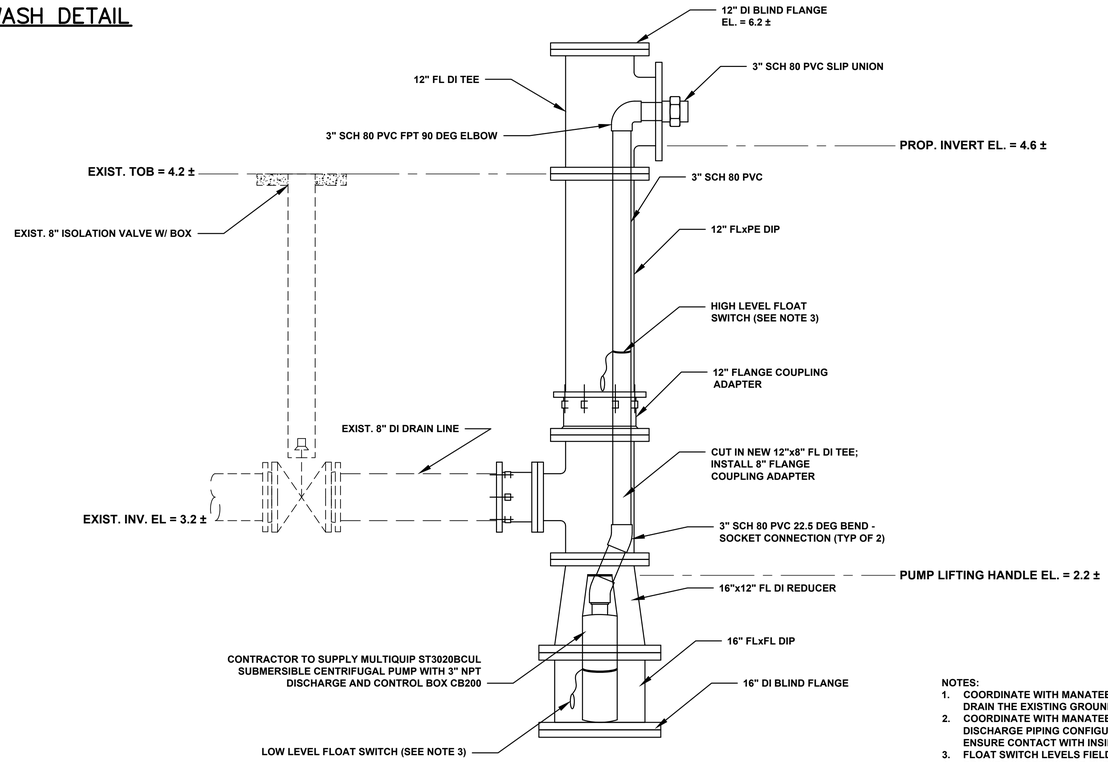


CHEMICAL INJECTION TRANSITION DETAIL
NTS



EMERGENCY SHOWER/EYEWASH DETAIL
NTS

EXISTING DRAIN LINE STAND-PIPE



PROPOSED DRAIN LINE STAND-PIPE ASSEMBLY
NOT TO SCALE

NOTES:
1. COORDINATE WITH MANATEE COUNTY TO COMPLETELY DRAIN THE EXISTING GROUND STORAGE TANK.
2. COORDINATE WITH MANATEE COUNTY FOR 3" PVC DISCHARGE PIPING CONFIGURATION. ROUTE PIPING TO ENSURE CONTACT WITH INSIDE OF DIP.
3. FLOAT SWITCH LEVELS FIELD DETERMINED.
4. PROVIDE SHEETING AND TURBIDITY BARRIERS, AS REQUIRED TO CONTAIN EXCAVATED MATERIAL FROM ENTERING THE STORMWATER POND.
5. CONTRACTOR SHALL PROVIDE WATER-TIGHT PENETRATION IN PIPE TO ALLOW FOR ROUTING OF POWER AND SIGNAL CABLES.

REV.NO.	DESCRIPTION	DATE
-	---	---

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

MECHANICAL

MECHANICAL DETAILS 2

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AST
DESIGNED	COD
CHECKED	OK
PROJ. MGR.	PJL

SCALE
HORIZONTAL: N/A
VERTICAL: N/A

M-6
DRAWING NUMBER
-
REVISION

STATUS: ISSUED FOR BID

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
AFF	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
DETD	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
EWC	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	FLUORESCENT
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
GFIC	GROUND FAULT CIRCUIT INTERRUPTER
HDG	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
IPC	INTEGRATED POWER CENTER
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 BEARINGDETECTOR
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
NO	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OFCI	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
ϕ, PH	PHASE
PIT	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	RIGIDREMOTE 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
UON	UNLESS OTHERWISE NOTED
UPS	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, WHERE APPLICABLE.

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.

5.6. VERIFY CHEMICAL COMPATIBILITY. THE USE OF METAL PRODUCTS OR COMPONENTS FOR ELECTRICAL ENCLOSURES, RACEWAYS AND SUPPORTS IN CHEMICAL AREAS IS STRICTLY FORBIDDEN.

8 GROUNDING AND BONDING

8.1. GROUNDING AND BONDING SYSTEMS SHALL COMPLY WITH NFPA 70 AND NFPA 780 TO INCLUDE THOSE REQUIREMENTS IN 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 LIGHTING SYSTEMS

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. EXPOSED CONDUIT IN CORROSIVE AREAS SHALL BE PVC-80.

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 RADII FITTINGS.

3.9. PROVIDE LIQUIDTIGHT FLEXIBLE RACEWAY CONNECTIONS TO ALL EQUIPMENT SUBJECT TO MOVEMENT AND/OR VIBRATION. CONTRACTOR SHALL MAKE RACEWAY CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS. USE NON-METALLIC FLEX (LFNC) IN PVC CONDUIT RUNS AND (LFMC) IN METALLIC CONDUIT RUNS. NO OTHER USES OF FLEXIBLE CONDUIT SHALL BE PERMITTED.

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 LEVELED 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. SPLICES 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 DENATURED 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 '4.7.1' AND '4.7.3'.

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-WRAPS' ARE ACCEPTABLE FOR HORIZONTAL RUNS AND STAINLESS-STEEL 'TY-WRAPS' 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. WIRE LABEL SHALL BE BRADY PERMASLEEVE HEAT SHRINK OR EQUAL.

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 POLYWATER 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

7.6. CONTROL/ INSTRUMENTATION

7.6.1. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL USE FERRULES FOR ALL CONTROL WIRING TERMINATIONS.

11 HARDWARE AND SUPPORTS

11.1. ALL FASTENERS AND HARDWARE SHALL BE STAINLESS-STEEL 316L OR ALUMINUM (FOR INDOOR NON-CORROSIVE AREAS ONLY).

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.

11.7. TAPCON OR SIMILAR CONCRETE SCREWS SHALL NOT BE PERMITTED. WHERE REQUIRED, USE STAINLESS STEEL WEDGE ANCHORS INSTEAD.

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

ELECTRICAL GENERAL NOTES AND ABBREVIATIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

E-1
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

1 ANY BLOCKS

MCC — ANY GENERAL PANEL

XX — ANY SQUARE

XX — ANY CIRCLE

FD — ANY FIRE BLOCK

3R, CB1, 30AF, 30AT, ELTU — ANY CIRCUIT BREAKER

A1, LP-100/15, a — ANY LIGHTING

A, A1, EM, LP-100/15 — ANY EMERGENCY LIGHTING

CCTV — ANY AUXILIARY

L21-30 — ANY OUTLET

M, O/C — ANY VALVE

ANY GROUND BLOCK

4 GENERAL ELECTRICAL SYMBOLS

LIGHTING, INSTRUMENT OR RECEPTACLE PANELBOARD

POWER PANELBOARD

CP — *CONTROL PANEL*

MCC — *MOTOR CONTROL CENTER*

PM — *POWER MONITOR*

A — *AMMETER*

AS — *AMMETER SWITCH*

V — *VOLTMETER*

VS — *VOLTMETER SWITCH*

FS — *FLOAT/FLOW SWITCH*

LS — *LIMIT SWITCH*

PS — *PRESSURE SWITCH*

T — *THERMOSTAT*

JB — *JUNCTION BOX, SIZE PER NEC*

E — *ELECTRICAL EQUIPMENT CONNECTION*

XXX — *ELECTRICAL MANHOLE / HANDHOLE AND THE LETTERS INDICATE THE TYPE OF THE HOLE*

2 POWER SYMBOLS

CLASS 1/2 DIVISION I/II
CONDUIT SEAL-OFF FITTING

LOCAL CONTROL STATION
WITH THREE OR MORE SELECTOR/PUSH SWITCHES
LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION

LOCAL CONTROL STATION
WITH TWO SELECTOR/PUSH SWITCHES
LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION

LOCAL CONTROL STATION
WITH ONE SELECTOR/PUSH SWITCH
LOWER-RIGHT SYMBOL INDICATES MOUNTING LOCATION

LOCATED AT FIELD DEVICE

LOCATED AT MAIN CONTROL PANEL

LOCATED AT LOCAL CONTROL PANEL

MOUNTED ON DOOR

PSR, 1200AT, 1600AF, EO — DRAW-OUT POWER CIRCUIT BREAKER
WITH PROGRAMMABLE SOLID STATE RELAY
'EO' DENOTES ELECTRICALLY OPERATED

ASR, 1200AT, 1600AF — FIXED-MOUNT POWER CIRCUIT BREAKER
WITH ADJUSTABLE SOLID STATE RELAY

300AT, 300AF, TMTU — CIRCUIT BREAKER, GENERIC FIXED-MOUNT
'TMTU' THERMAL-MAGNETIC TRIP UNIT
'ELTU' ELECTRONIC TRIP UNIT

CB1, ELTU — CIRCUIT BREAKER, GENERIC

FU1, 30A, 600V, FU1 — FUSE, GENERIC

MOTOR CONTACTOR

OVERLOAD DEVICE

SPD, LP1, 480V, 600A, 42 CKT, 3R — *PANELBOARD*

M, 1~, 15HP, 460V, 21.0 FLA, XXX — AC MOTOR
WITH INTEGRAL STARTER/ ACTUATOR

GENERATOR

ENCLOSURE FAN, 120VAC UON

XF1 — *TRANSFORMER, POWER*
TYPE AND RATINGS AS NOTED ON THE DRAWINGS

XF2 — *TRANSFORMER, SHIELDED ISOLATION*
TYPE AND RATINGS AS NOTED ON THE DRAWINGS

CT1, 100/5 — TRANSFORMER, CURRENT 'CT'
TYPE AND RATINGS AS NOTED ON THE DRAWINGS

PT1, 100:1 — TRANSFORMER, POTENTIAL 'PT' OR 'VT'
TYPE AND RATINGS AS NOTED ON THE DRAWINGS

N, E, L — AUTOMATIC OR MANUAL TRANSFER SWITCH, STAND-ALONE
TYPE AND RATINGS AS NOTED ON THE DRAWINGS

100AT, 200AF, 4X/SS — SAFETY / DISCONNECT SWITCH
TOP NUMBER DENOTES FUSE SIZE (NF=NON-FUSED)
BOTTOM NUMBER DENOTES FRAME SIZE
RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING

00, 21-70AT, 7AF, FVNR, 12 — 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

3% — LINE OR LOAD REACTOR
CENTER RIGHT NUMBER DENOTES PERCENT IMPEDANCE

dV/dT — MOTOR PROTECTION FILTER

M, 1~, 15HP, 460V, 21.0 FLA, XXX — AC MOTOR
SINGLE OR THREE PHASE AS NOTED

CABLE-TRAY
TYPE AS NOTED ON THE DRAWINGS

WIRE WAY
TYPE AS NOTED ON THE DRAWINGS

3 CONTROL DIAGRAM AND SCHEMATIC SYMBOLS

PB1 — MOMENTARY PUSH BUTTON
NORMALLY OPENED

PB2 — MOMENTARY PUSH BUTTON
NORMALLY CLOSED

PB3 — MUSHROOM PUSH BUTTON
NORMALLY OPENED

PB4 — MUSHROOM PUSH BUTTON
NORMALLY CLOSED

TG1 — TOGGLE SWITCH
NORMALLY OPENED

TG2 — TOGGLE SWITCH
NORMALLY CLOSED

SS1 — TWO-POSITION SWITCH
NORMALLY OPENED

SS2, O, H, A — THREE-POSITION BUTTON
NORMALLY OPENED

LS1 — LIMIT SWITCH
NORMALLY OPENED

LS2 — LIMIT SWITCH
NORMALLY CLOSED

LS3 — LIMIT SWITCH
HELD OPENED

LS4 — LIMIT SWITCH
HELD CLOSED

TS1 — TEMPERATURE SWITCH
NORMALLY OPENED

TS2 — TEMPERATURE SWITCH
NORMALLY CLOSED

FLS1 — FLOAT SWITCH
NORMALLY OPENED

FLS2 — FLOAT SWITCH
NORMALLY CLOSED

FS1 — FLOW SWITCH
NORMALLY OPENED

FS2 — FLOW SWITCH
NORMALLY CLOSED

PS1 — PRESSURE SWITCH
NORMALLY OPENED

PS2 — PRESSURE SWITCH
NORMALLY CLOSED

TD1 — ON DELAY TIME RELAY
NORMALLY OPENED TIMED CLOSED
NOTC

TD2 — ON DELAY TIME RELAY
NORMALLY CLOSED TIMED OPENED
NCTO

TD3 — OFF DELAY TIME RELAY
NORMALLY OPENED TIMED OPENED
NOTO

TD4 — OFF DELAY TIME RELAY
NORMALLY CLOSED TIMED CLOSED
NCTC

LT1, B — INDICATION LIGHT
W - WHITE G - GREEN A - AMBER
R - RED B - BLUE C - CLEAR

LT2, R — INDICATION LIGHT, PUSH-TO-TEST
W - WHITE G - GREEN A - AMBER
R - RED B - BLUE C - CLEAR

CR1 — CONTROL RELAY, GENERIC
DESIGNATIONS:
CR CONTROL RELAY
MX AUXILIARY RELAY
TR TIMING RELAY
AR ALARM RELAY
RR READY RELAY

LR1, L — CONTROL RELAY, LATCHING

CR1 — CONTACT, NORMALLY OPENED
TOP ID TAG DENOTES PARENT RELAY

LR1 — CONTACT, NORMALLY CLOSED
TOP ID TAG DENOTES PARENT RELAY

SOL1 — SOLENOID, GENERIC

R1 — HEATING ELEMENT, GENERIC

ETM — ELAPSED TIME METER, ELECTRONIC

AH2, A/V — HORN, ALARM
A/V INDICATES AUDIO AND VISUAL
ANNUNCIATION

XF3 — TRANSFORMER, CONTROL POWER
RATINGS AS NOTED ON THE DRAWINGS

BAT1 — BATTERY OR DC POWER SOURCE

M, O/C — *MOTOR ACTUATED VALVE*
M MODULATING
O/C OPEN/CLOSE

S — *SOLENOID VALVE*
O/C OPEN/CLOSE

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS. IF REQUIRED, IEC RATINGS WILL INCLUDE THE "IEC" AND "IP" PREFIX.

REV.NO	DESCRIPTION	DATE
—		—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

ELECTRICAL SYMBOLS AND ABBREVIATIONS 1

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

E-2
DRAWING NUMBER
REVISION

STATUS: **ISSUED FOR BID**

5 LIGHTING AND RECEPTACLE SYMBOLS

A1 / a — LP-100/15
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
"NL" DENOTES NIGHT LIGHT, CIRCUIT AHEAD OF CONTROL SWITCHES.

A1 — LP-100/15 A
LIGHT FIXTURE, VARIOUS TYPES
EMERGENCY / EGRESS BATTERY BACK-UP POWER

A1 a — LP-100/15
A1 a — LP-100/15
PENDANT OR CEILING MOUNTED LIGHTING FIXTURE

A / A1 — LP-100/15
WALL MOUNTED LIGHTING FIXTURE

A A1 — LP-100/15
POLE OR STANCHION MOUNTED LIGHTING FIXTURE

A A1 — LP-100/15
TWO (2) POLE OR STANCHION MOUNTED LIGHTING FIXTURE

GF A A1 — LP-100/15
POLE OR STANCHION MOUNTED LIGHTING FIXTURE WITH RECEPTACLE

A A1 EM — LP-100/15
TWO (2) LAMP EMERGENCY / EGRESS LIGHTING FIXTURE
LETTERS DENOTE TYPE

EXIT SIGN WALL MOUNTED (SINGLE FACE WITH INDICATING ARROWS) WITH BATTERY PACK ARROW INDICATES DIRECTION OF EXIT DOOR

EXIT SIGN PENDANT MOUNTED (DOUBLE FACE WITH INDICATING ARROWS) WITH BATTERY PACK ARROWS INDICATE DIRECTION OF EXIT DOOR

D / 150 — 10'-0" AFF
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.

a / S / 2
a,b / SS / 3 D
a,b,c / SSS / 2 3 4
WIRING DEVICE
LIGHTING CONTROL SWITCHES:
UPPER-LEFT CHARACTER "a" DENOTES SWITCH DESIGNATION.
LOWER-RIGHT CHARACTER "4" DENOTES SWITCH CONTROL
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

L21-30
WIRING DEVICE, POWER RECEPTACLE
WITH INTEGRAL DISCONNECT / LOAD BREAK
NEMA CONFIGURATION SHOWN LOWER RIGHT

PR1 / L21-30
WIRING DEVICE, POWER RECEPTACLE
NEMA CONFIGURATION SHOWN LOWER RIGHT

GF
WIRING DEVICE, SINGLE DUPLEX RECEPTACLE, TYPICAL
LOWER RIGHT CHARACTERS DENOTE THE FOLLOWING:
GF GROUND FAULT CIRCUIT INTERRUPTER
IG ISOLATED GROUND
SS SURGE PROTECTIVE
WP WEATHERPROOF IN-USE
GF/WP GROUND FAULT CIRCUIT INTERRUPTER / WEATHERPROOF

GF/WP
WIRING DEVICE, DUPLEX RECEPTACLE
GROUND FAULT CIRCUIT INTERRUPTER / WEATHERPROOF
NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, DUPLEX RECEPTACLE
SPLIT-WIRED / SWITCHED
NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, QUADPLEX RECEPTACLE
NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, QUADPLEX RECEPTACLE
FLOOR BOX MOUNTED
NEMA 5-20 125V 20A UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, HEAT-TRACE OR SPECIAL PURPOSE RECEPTACLE
REFERENCE DRAWINGS FOR ADDITIONAL DETAILS

WIRING DEVICE, TELEPHONE
RJ-11 UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, TELEPHONE AND DATA
RJ-11 AND RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, DATA
RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS

WIRING DEVICE, TELEPHONE AND DATA
FLOOR BOX MOUNTED
RJ-11 AND RJ-45 UNLESS OTHERWISE NOTED ON DRAWINGS

8 RACEWAY/LINE WEIGHTS

CONCEALED RACEWAY(S) IN FLOOR SLAB, UNDERGROUND, ETC.
EXISTING RACEWAY(S) AND/OR CABLES
RACEWAY TURNED DOWN
RACEWAY TURNED UP
RACEWAY TERMINATED / CAPPED OFF
RACEWAY REMOVED / ABANDONED

CT110
RACEWAY SYSTEM CALL-OUTS:
CT - CABLE TRAY
BD - BUS DUCT
DB - DUCTBANK
EC - EXPOSED CONDUIT
WW - WIRE WAY/TROUGH

042000
RACEWAY AND/OR CABLE ID NUMBER

LP-3
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).

TO PLC-1
9#14 #12G 0.75"C
CONDUCTOR/CABLE CALL-OUT WITHIN RACEWAY

1 / E-11
DUCTBANK CUT SECTION IDENTIFIER

E — *NEW ELECTRICAL RACEWAY(S)*
E — *EXISTING ELECTRICAL RACEWAY(S)*
T — *NEW TELEPHONE LINE(S)*
T — *EXISTING TELEPHONE LINE(S)*
OHE — *OVERHEAD ELECTRICAL UTILITY*
OHT — *OVERHEAD TELEPHONE UTILITY*
UGE — *UNDERGROUND ELECTRICAL UTILITY*
UGT — *UNDERGROUND TELEPHONE UTILITY*
G — *NEW GROUNDING / BONDING*
G — *EXISTING GROUNDING / BONDING*
L — *NEW LIGHTNING PROTECTION CONDUCTOR*

9 GROUNDING / BONDING SYMBOLS

GROUND ROD TEST WELL

GROUND ROD

GROUNDING / BONDING CONNECTION
EXOTHERMIC WELD

GROUNDING / BONDING CONNECTION
MECHANICAL

GROUND, EARTH

G — *GROUNDING / BONDING CONDUCTOR*
(REFERENCE CONTRACT DOCUMENTS FOR REQUIREMENTS)

L — L — *LIGHTNING PROTECTION CONDUCTOR*
(REFERENCE CONTRACT DOCUMENTS FOR REQUIREMENTS)

A — *AIR TERMINAL LIGHTNING PROTECTION*
(REFERENCE CONTRACT DOCUMENTS FOR REQUIREMENTS)

NOTES:
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REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

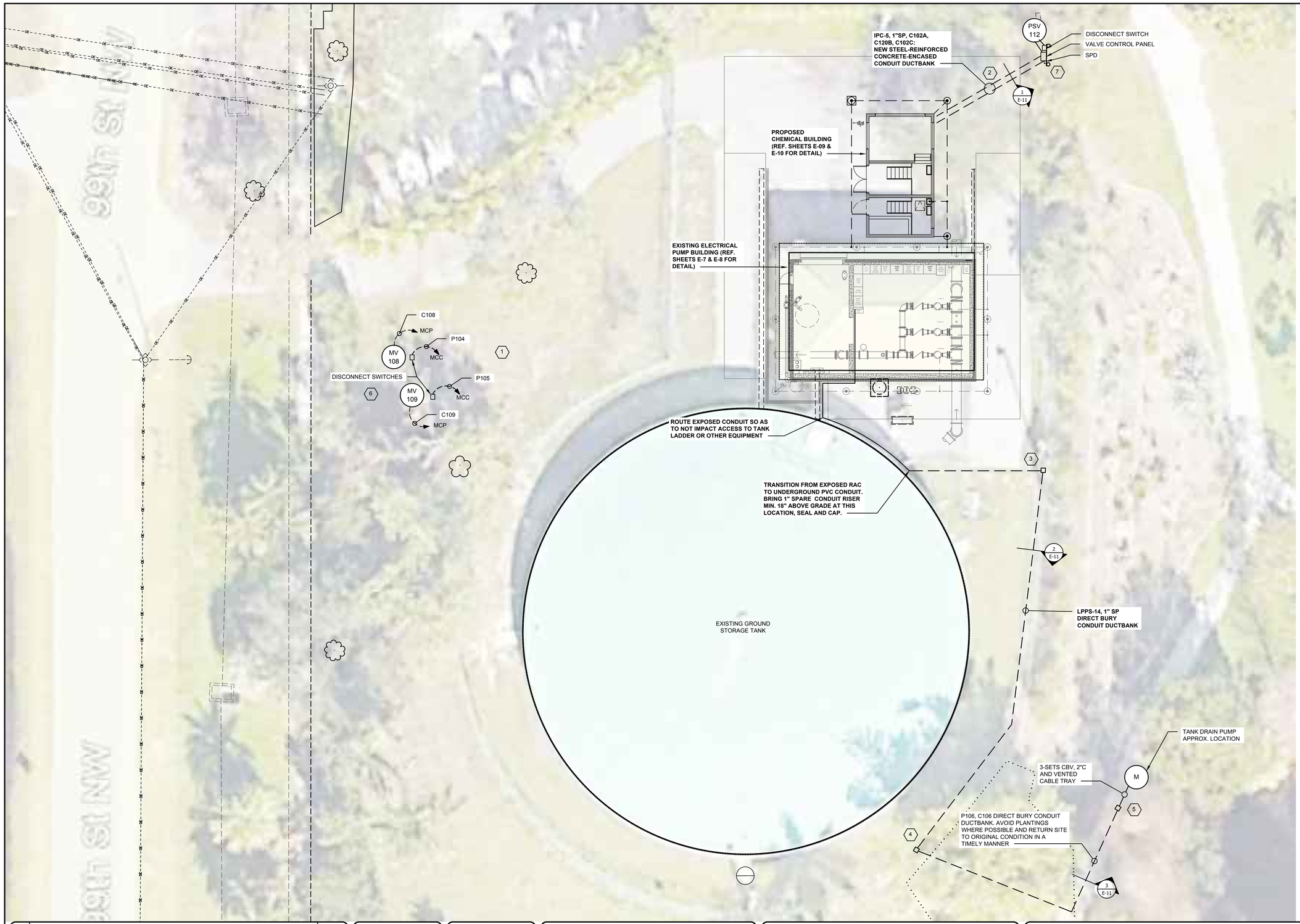
ELECTRICAL SYMBOLS AND ABBREVIATIONS 2

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

DRAWING NUMBER: E-3
REVISION

STATUS: ISSUED FOR BID



KEYNOTES:

1. USE EXISTING CONDUIT TO PULL NEW POWER/CONTROL CIRCUITS FOR MV-108 AND MV-109.
2. COORDINATE CONDUIT DUCTBANK DETAILS UNDER DRIVEWAY AND DRIVEWAY REPAIR WITH STRUCTURAL ENGINEER
3. NEW ELECTRICAL HAND HOLE, MINIMUM SIZE 6" x 6" x 6"
4. NEW STANCHION OR RACK MOUNT TANK DRAIN PUMP PANEL BY VENDOR. ROUTE CONDUIT ADJACENT TO EXISTING FENCE LINE
5. NEW STANCHION MOUNT NEMA 4X 316SS TERMINAL BOX FOR TANK DRAIN PUMP AND ASSOCIATED FLOAT SWITCHES. SEE SHEET E-15 FOR DETAILS.
6. EXISTING DISCONNECT SWITCHES SHALL BE PEDESTAL MOUNTED ADJACENT TO NEW VALVE ACTUATORS. INTERCEPT AND EXTEND EXISTING CONDUIT AS REQUIRED. SEE SHEET E-12 FOR MOUNTING DETAILS.
7. RACK MOUNT NEW PRESSURE SUSTAINING VALVE DISCONNECT, CONTROLLER AND ASSOCIATED ELECTRICAL EQUIPMENT. SEE SHEET E-12 FOR MOUNTING DETAILS.

NORTH

10' 0 10' 20'

SCALE: 1"=10' (Horiz.)

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

ELECTRICAL SITE PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

E-4
DRAWING NUMBER
REVISION

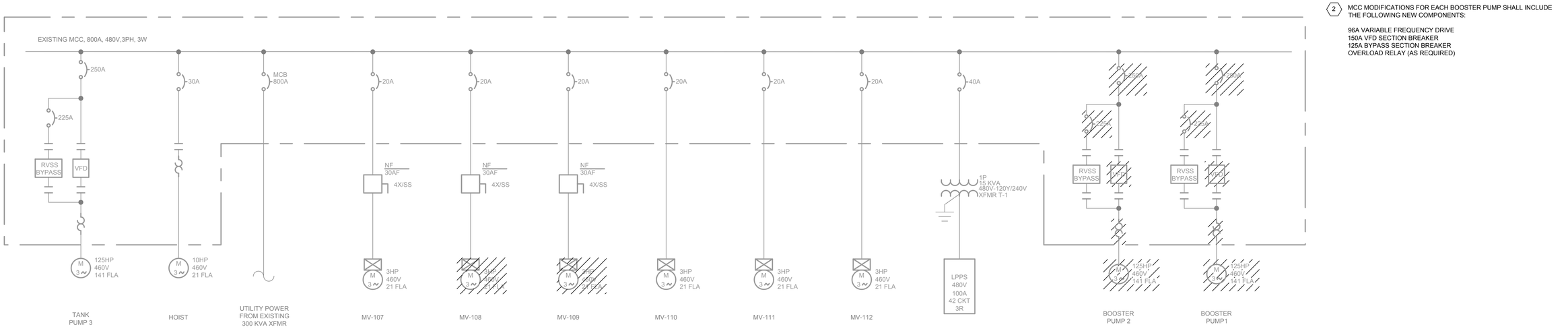
STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\ELECTRICAL\EB100-010240206-SITE PLAN.DWG 08/16/2024 15:52:59 AARON TURMAN

KEY NOTES:

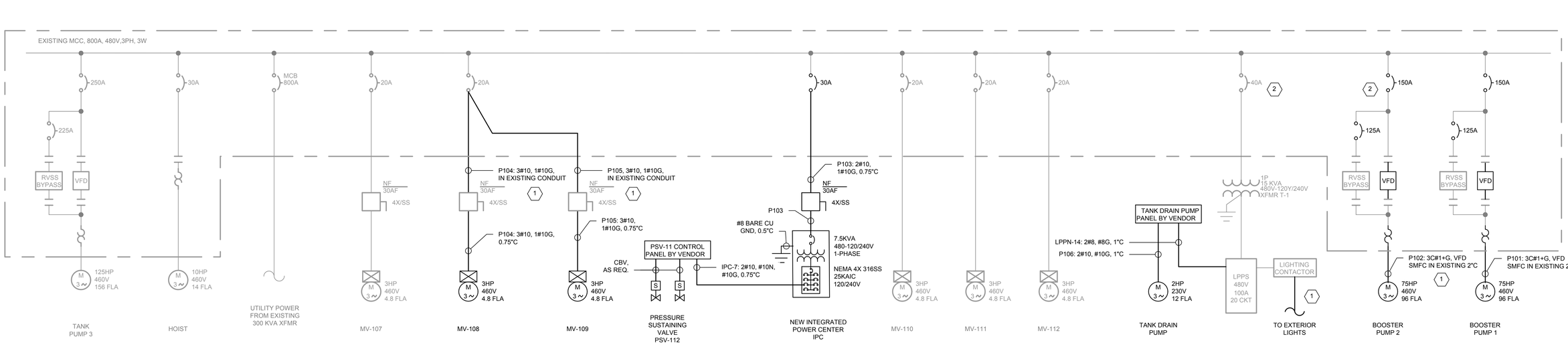
1. INTERCEPT AND EXTEND EXISTING CONDUIT WHERE PRACTICAL.
2. MCC MODIFICATIONS FOR EACH BOOSTER PUMP SHALL INCLUDE THE FOLLOWING NEW COMPONENTS:

   96A VARIABLE FREQUENCY DRIVE
   150A VFD SECTION BREAKER
   125A BYPASS SECTION BREAKER
   OVERLOAD RELAY (AS REQUIRED)



EXISTING ONE LINE DIAGRAM

SCALE: NTS



PROPOSED ONE LINE DIAGRAM

SCALE: NTS

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

ELECTRICAL ONE-LINE DIAGRAM

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

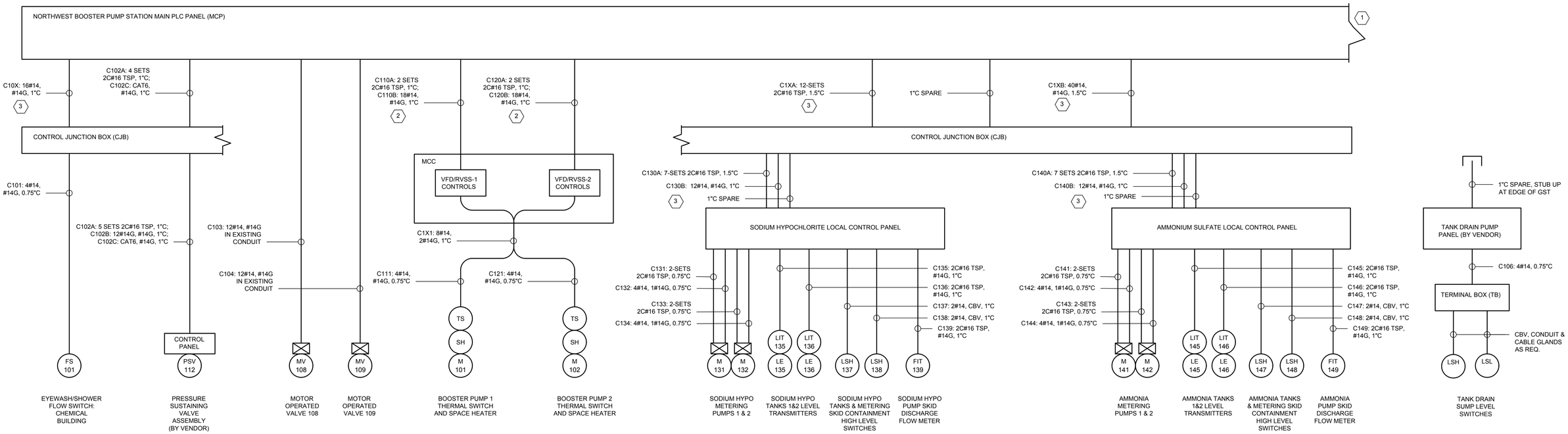
SCALE
HORIZONTAL: NA
VERTICAL: NA

E-5
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

KEYNOTES:

1. EXISTING PUMP AND INSTRUMENTATION TO REMAIN UNMODIFIED NOT SHOWN.
2. EXISTING CONTROL WIRING AND CONDUIT BETWEEN VFD PANEL AND MAIN PLC PANEL IS PERMITTED TO BE REUSED WHERE ABLE.
3. CIRCUIT CONSOLIDATION AS FOLLOWS:
   - C101 AND C102B SHALL ROUTE AS C10X BETWEEN NEW CJB AND THE PLC.
   - C131, C135 AND C136 SHALL ROUTE AS C130A BETWEEN SODIUM HYPO CONTROL PANEL AND NEW CJB.
   - C132, C134 AND C137 SHALL ROUTE AS C130B BETWEEN SODIUM HYPO CONTROL PANEL AND NEW CJB.
   - C141, C145 AND C146 SHALL ROUTE AS C140A BETWEEN AMMONIA PUMP CONTROL PANEL AND NEW CJB.
   - C142, C144 AND C147 SHALL ROUTE AS C140B BETWEEN AMMONIA PUMP CONTROL PANEL AND NEW CJB.
   - C131, C135, C136, C141, C145 AND C146 SHALL ROUTE AS C1XA BETWEEN NEW CJB AND THE PLC.
   - C132, C134, C137, C142, C144 AND C147 SHALL ROUTE AS C1XB BETWEEN NEW CJB AND THE PLC.
   - C111 AND C121 SHALL ROUTE AS C1X1 BETWEEN THE MCC AND BOOSTER PUMPS 1 AND 2.



INTERCONNECT DIAGRAM

SCALE: NTS

REV.NO	DESCRIPTION	DATE
-	—	—

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NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

INTERCONNECT DIAGRAM

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

E-6
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\ELECTRICAL\ES100-010240206-INTERCONNECT DIAGRAM.DWG 08/16/2024 15:53:12 AARON TURMAN

KEYNOTES:

1. EXISTING VFDS TO BE REMOVED AND REPLACED
2. EXISTING MCC SECTION TO BE MODIFIED.
3. EXISTING ANALYZERS AND SAMPLE PUMP TO REMAIN.
4. EXISTING CHEMICAL METERING PUMPS AND ASSOCIATED HOA PANELS TO BE DEMOLISHED, SEE SHEET E-14 FOR NEW EQUIPMENT DETAILS.
5. EXISTING CHEMICAL TANKS WITH ASSOCIATED LEVEL INSTRUMENTATION TO BE REPLACED.
6. PUMP BUILDING EXTERIOR LIGHT FIXTURES TO BE REMOVED AND REPLACED

MCB, FEED BRKS
PUMP NO.2 RVSS BYPASS
PUMP NO.2 MC
PUMP NO.2 VFD
PUMP NO.1 RVSS BYPASS
PUMP NO.1 MC
PUMP NO.1 VFD
MAIN CONTROL PANEL
LIGHTING CONTACTOR
SUMP PUMP
PUMP NO.3 VFD
PUMP NO.3 MC
PUMP NO.3 RVSS BYPASS
PNL LPPS
XFMR TPS
PUMP #1
PUMP #2
PUMP #3
EXISTING NaClO TANK DEMOLITION (SEE NOTE 5)
LIT
NAOH TANK
SAMPLE PUMP
EXISTING AIT
NH4 TANK
EXISTING AMMONIA TANK DEMOLITION (SEE NOTE 5)
HVAC
ELEC
UTILITY TRANSFORMER

NORTH

2 0 2

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

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

PUMP BUILDING DEMO PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

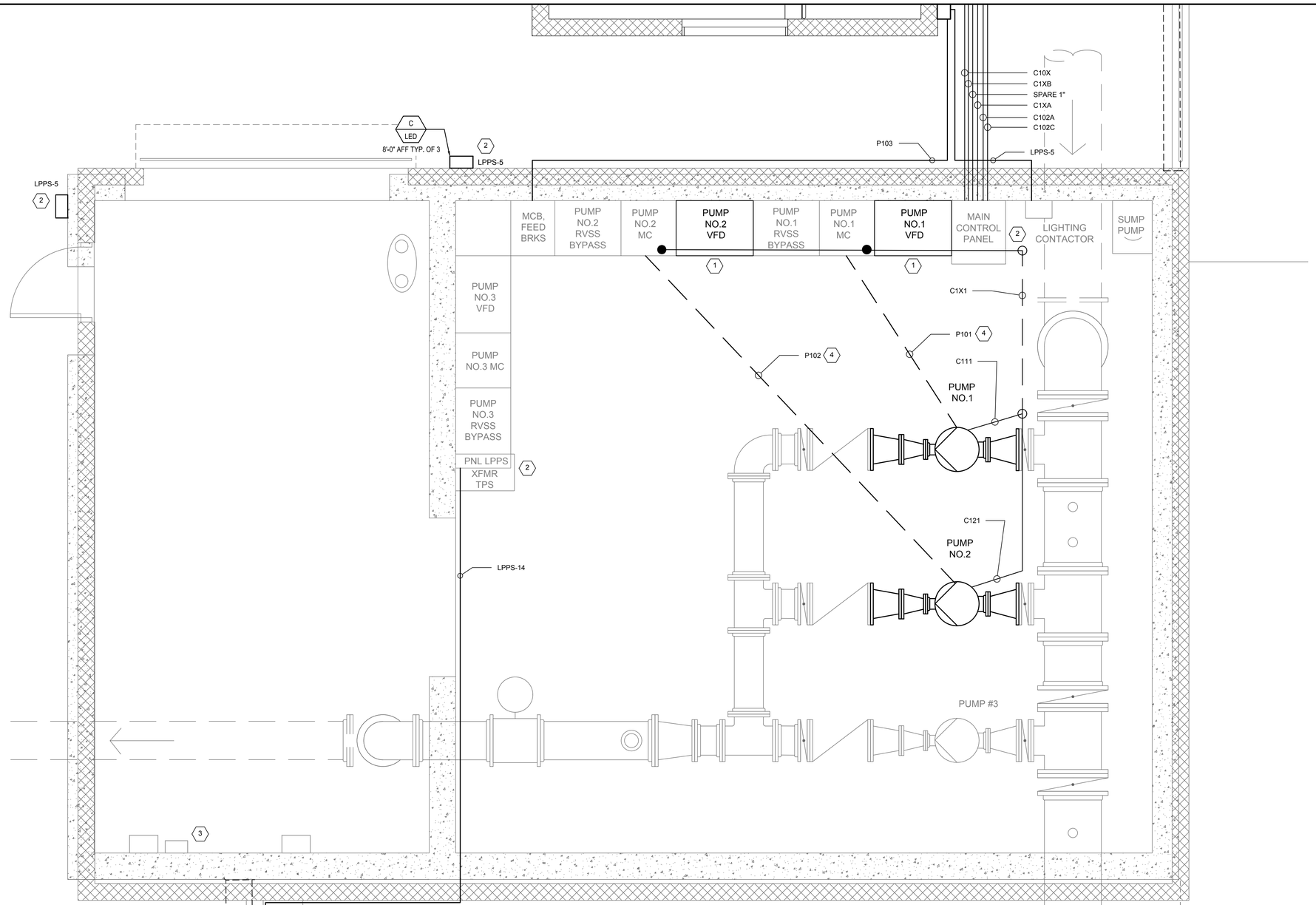
E-7
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\ELECTRICAL\EB100-010240206-PUMP ROOM.DWG 08/16/2024 15:53:26 AARON TURMAN

KEYNOTES:

1. INSTALL NEW VFD FOR PUMP 1 AND 2.
2. HOME RUN CIRCUITS IN EXISTING CONDUIT NOT SHOWN. REFER TO SITE PLAN FOR DETAIL.
3. REROUTE POWER FOR THE EXISTING CHEMICAL ANALYZERS AS REQUIRED DUE TO DEMO OF METERING PUMP EQUIPMENT.
4. UTILIZE EXISTING UNDERGROUND CONDUIT FOR NEW VFD SHIELDED MOTOR FEEDER CABLE
5. CUT AND PATCH EXISTING FLOOR AS REQUIRED TO INSTALL NEW CONTROL CONDUIT TO MOTORS. CONDUIT SHALL BE ROUTED SO AS TO NOT INTERFERE WITH EQUIPMENT ACCESS OR OVERHEAD CRANE OPERATION.



NORTH

2 0 2

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

REV.NO.	DESCRIPTION	DATE
.	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

PUMP BUILDING PROPOSED PLAN

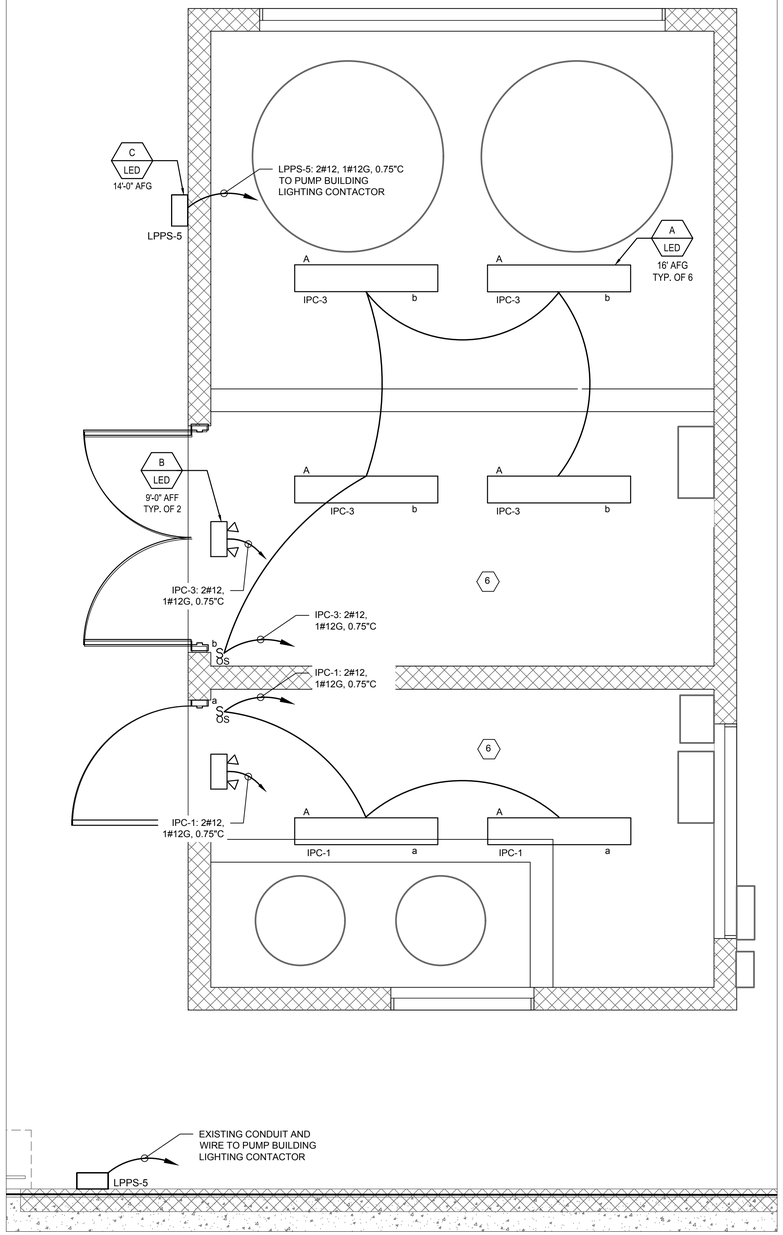
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

E-8
DRAWING NUMBER

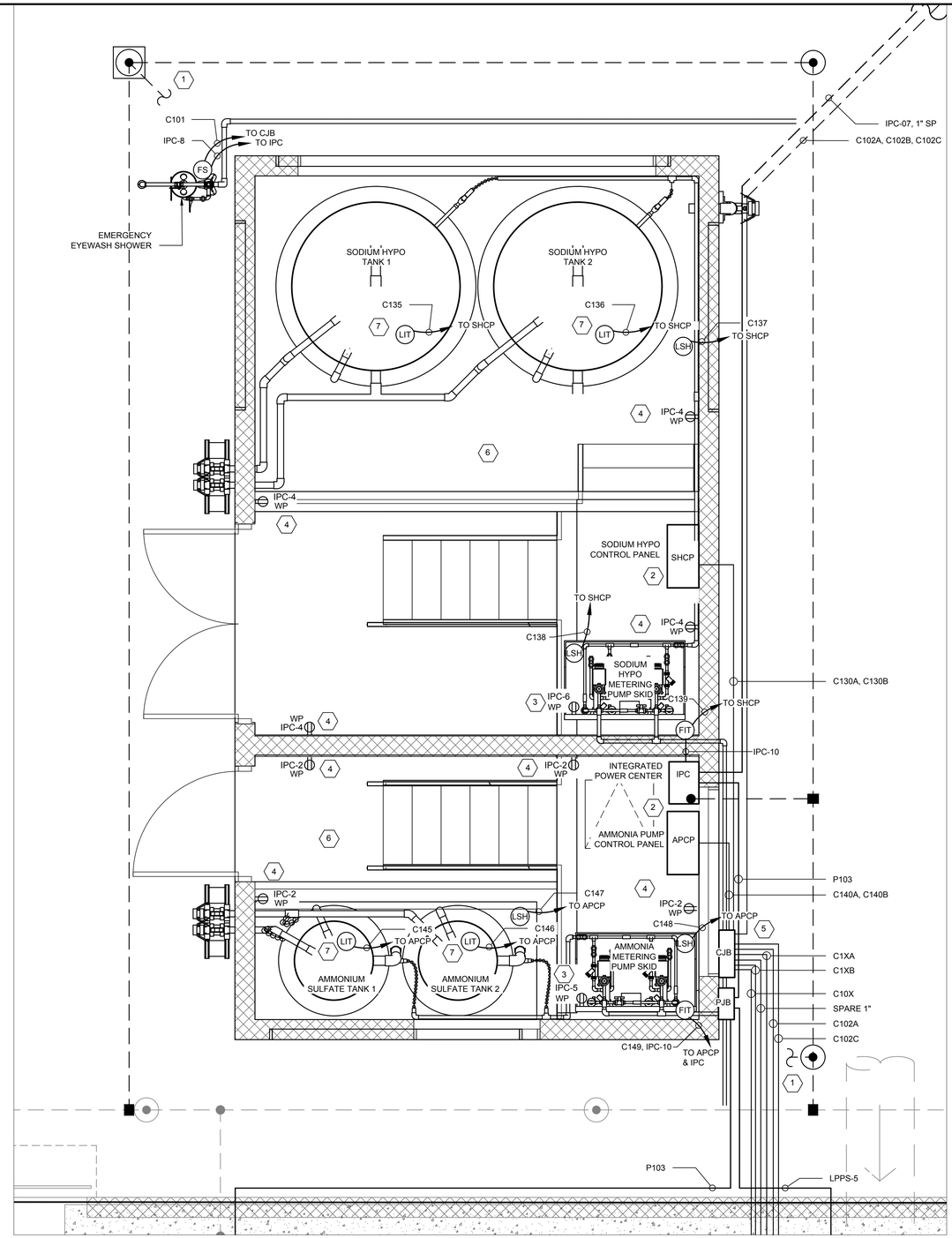
REVISION

STATUS: ISSUED FOR BID



CHEMICAL BUILDING LIGHTING PLAN

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



CHEMICAL BUILDING POWER PLAN

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

KEYNOTES:

1. SEE SHEET E-10 FOR CONTINUATION OF GROUNDING AND LIGHTNING PROTECTION SYSTEM PLANS
2. WALL OR STANCHION MOUNT CHEMICAL PUMP CONTROL PANELS AND IPC TOP OF ENCLOSURE AT EL. 14.0 (9.5' AFG). MAINTAIN 36" DEPTH WORKING SPACE IN FRONT OF PUMP CONTROL PANELS AND 42" DEPTH WORKING SPACE IN FRONT OF IPC.
3. MOUNT PUMP SKID RECEPTACLES TO THE BACK WALL OF THE PUMP SKID BASE.
4. INSTALL GENERAL USE RECEPTACLES AT EL. 11.0 (6.5' AFG)
5. PJB MINIMUM SIZE: 6" X 6" X 6"
   CJB MINIMUM SIZE: 12" X 12" X 6"
   NEMA 4X, 316SS.
6. CHLORINE AND AMMONIA ROOMS ARE CORROSIVE LOCATIONS. STAINLESS STEEL ENCLOSURE FOR IPC SHALL BE TYPE 316. NO OTHER ELECTRICAL PANELS, BOXES, OR STRUT OF METAL CONSTRUCTION SHALL BE PERMITTED IN THESE AREAS. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL MATERIAL REQUIREMENTS.
7. LIQUID-TIGHT FLEXIBLE NON-METALLIC CONDUIT SHALL BE USED FOR LAST 6 FEET OF OVERHEAD CONNECTION TO LEVEL TRANSMITTERS, TO AID IN CHEMICAL TANK REMOVAL/REPLACEMENT.

NORTH

2 0 2

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

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

CHEMICAL BUILDING POWER AND LIGHTING PLAN

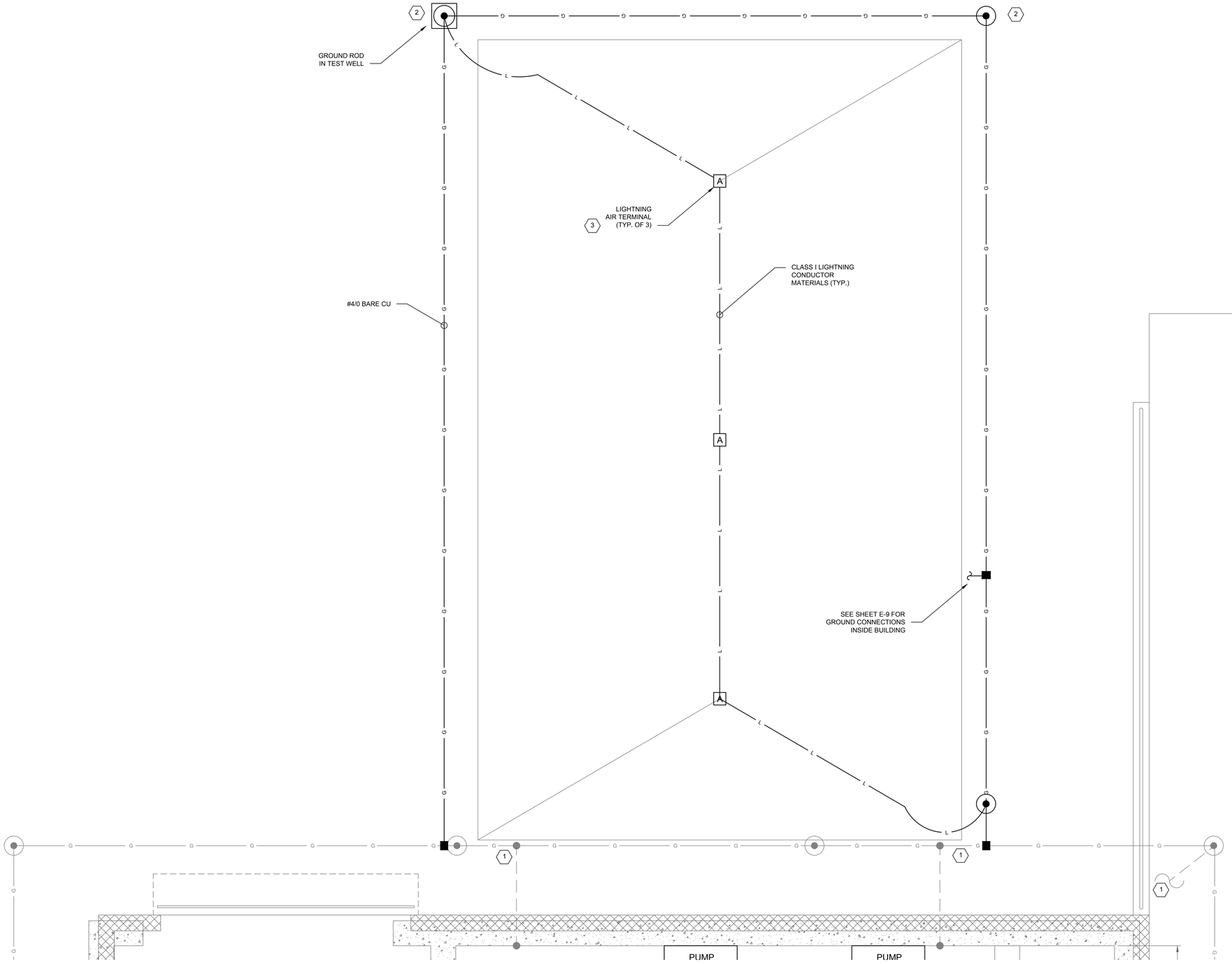
DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

E-9
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID



KEYNOTES:

1. EXISTING GROUND GRID AND LIGHTNING PROTECTION SYSTEM SHOWN GRAY. TEST EXISTING GRID AND ADD NEW COMPONENTS AS NEEDED TO MEET 25 OHM OR LESS RESISTANCE TO GROUND WHERE INDICATED.
2. NEW GROUNDING RODS SHALL BE COPPER CLAD RIGID STEEL, 3/4" DIAMETER X 10'. PROVIDE ADDITIONAL ROD LENGTH AS NEEDED TO MEET 5 OHM OR LESS RESISTANCE TO GROUND.
3. AIR TERMINALS SHALL BE STAINLESS STEEL, MIN. 3/4" X 18" LONG. COORDINATE ADHESIVE MATERIALS AND DOWN CONDUCTOR ROUTING WITH BUILDING MANUFACTURER.
4. SEE SHEET E-12 FOR LIGHTNING, GROUNDING AND BONDING DETAILS.

NORTH

2 0 2

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

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

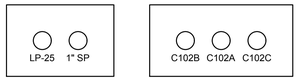
CHEMICAL BUILDING LIGHTNING AND GROUNDING PLAN

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

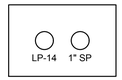
E-10
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID



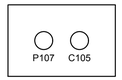
1 | E-4 | E-11 — ELECTRICAL DUCTBANK SECTION 1

SCALE: N.T.S.



2 | E-4 | E-11 — ELECTRICAL DUCTBANK SECTION 2

SCALE: N.T.S.



3 | E-4 | E-11 — ELECTRICAL DUCTBANK SECTION 3

SCALE: N.T.S.

NOTES:
1. INTERCEPT, EXTEND AND REWIRE EXISTING CIRCUITS AS REQUIRED.
2. COMBINATION EXIT SIGN AND EMERGENCY LIGHTING SHALL BE POWERED FROM THE SAME PANEL CIRCUIT AS OTHER LIGHT FIXTURES IN THE ROOM, BUT ROUTE AS UNSWITCHED CIRCUITS.
3. ALL EXTERIOR LIGHTING CIRCUITS SHALL ROUTE THROUGH THE EXISTING PUMP BUILDING LIGHTING CONTACTOR.
4. NEW/ MODIFIED PANELBOARD CIRCUITS SHALL BE 2#12, #12G, 0.75"C, EXCEPT AS NOTED ON SHEET E-5.

LIGHTING FIXTURE SCHEDULE

SYMBOL	LABEL	IMAGE	QUANTITY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	WATTAGE
▭	A		6	Lithonia Lighting	FEM L48 3000LM IMAFL MD 80CRI 40K STSL	4' PENDANT SUSPENDED LED LUMINAIRE, SUITABLE FOR WET, DAMP, AND/OR COLD LOCATIONS. ONE-PIECE ACRYLIC, LINEAR RIBBED FROSTED MEDIUM SPREAD DISTRIBUTION LENS, STAINLESS STEEL LATCHES, 4000K	18
▭	B		3	Lithonia Lighting	KAXW LED P2 40K R3 MVOLT	KAXW LED, PERFORMANCE PACKAGE 2, 4000K, TYPE 3, 120V, PHOTOCELL CONTROLLER	49
⊲▭	C		2	Lithonia Lighting	WLTC 1 R SD	WLTC - WET LOCATION EXIT/EMERGENCY LIGHT COMBO, 90 MIN. BATTERY BACKUP, CORROSION RESISTANT	7.0

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE A	KVA PER PHASE B	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	EXIT LIGHT	0.1	0.83	1	0.820		1	6.00	0.72	RECEPTACLES	20	2
3	20	PUMP BLDG LIGHTS	0.3	2.50	1		1.020	1	6.00	0.72	RECEPTACLES	20	4
5	20	**OUTSIDE BUILDING LIGHTS**	**0.2**	**1.67**	1	0.700		1	**4.17**	**0.5**	**OUTSIDE POLE LIGHTS**	20	6
7	20	OVERHEAD DOOR - OUTSIDE	0.7	5.83	1		1.900	1	10.00	1.2	MAIN CONTROL PANEL	20	8
9	20	PUMP BLDG LIGHTS	0.6	5.0	1	1.300		1	5.83	0.7	SUMP PUMP	20	10
11	40	AC COMP	4	16.7	2		2.100	1	0.8	0.1	EMERGENCY LIGHTS	20	12
						1.000		**2**	**8.3**	**2**	**TANK DRAIN PUMP PANEL**	**25****	14
15	20	AC UNIT	1.5	6.3	2		1.750						
						0.350		2	2.9	0.7	TANK MIXER	20	18
19	20	**CHEMICAL ANALYZERS & EQUIP**	**0.4**	**3.3**	1		0.750						
						TOTAL KVA	4.170	7.520					
						GRAND CONNECTED TOTAL KVA		11.690					

PANEL **LPPS**
LOCATION NORTHWEST BOOSTER PUMP STATION
BUILDING ELECTRICAL AND PUMP ROOM
NOTES: EXISTING PANELBOARD FED FROM MCC VIA EXISTING 15KVA TRANSFORMER

** INDICATES GFCI BREAKER

SERVICE CHARACTERISTICS
VOLTS: 240/120
PHASE: 1
WIRE: 3
A MLO
100 A MCB

LOAD TABLE		480V	300 KVA	XFR	95%
			KW	GEN	------
EXISTING MCC		3 Ph	800 AT	MCB	43%
NW BOOSTER PUMP STATION		4 WIRE	800 AF	BUSS	43%
NAME	CONTINUOUS?	#DUTY	#CONNECTED	KVA	HP	FLA
BOOSTER PUMPS	Y	1	2		75.0	96.0
TANK PUMP	Y	1	1		125.0	156.0
LP TRANSFORMER	Y	0.8	1	15.0		14.4
HOIST	N	1	1		10.0	14.0
MOTORIZED VALVES	N	3	6		3.0	14.4
MPC-CHEM	YY	0.8	1	7.5		7.2
						0.0
SUM				22.5	303.0	302.0
TOTAL CONNECTED LOAD (A)						417.8
TOTAL RUNNING LOAD				286.2		344.6

DUTY: 82% NEC 230.42 SE: 368.6 A

CIRCUIT DESIGNATION NWBPS UTILITY MAIN SHORT CIRCUIT CALCS

UTILITY TRANSFORMER

MAX XFMR RATING:	300 kVA
PRIMARY VOLTS:	13,200 V
SECONDARY VOLTS:	480 V
IMPEDANCE FACTOR:	2.95%
FLA:	360.9 A
MULTIPLIER	37.729

CABLE TO MAIN

NUMBER OF SETS	2
WIRE SIZE	500 kCMIL
CONDUIT TYPE	PVC
CONDUCTOR TYPE	Copper
C VALUE	22185
DIST XFMR TO MAIN	70 ft
F VALUE	0.0775
MULTIPLIER	0.9281

Isc SYM RMS @XFMR SECONDARY	13,615 A
	13.61 kA
Isc MOTOR CONTRB. @XFMR SECONDARY	1,443 A
	1.44 kA
TOTAL Isc SYM RMS @XFMR SECONDARY	15,058 A
	15.06 kA

Isc SYM RMS @MAIN BREAKER	12,635 A
	12.64 kA
Isc MOTOR CONTRIB. @MAIN BREAKER	1,443 A
	1.44 kA
Total Isc sym RMS @MAIN BREAKER	**14,079 A**
	14.08 kA

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE A	KVA PER PHASE B	POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	AMMONIA ROOM LIGHTS	0.2	1.67	1	0.920		1	6.00	0.72	AMMONIA ROOM RECEPT	20	2
3	20	SODIUM HYPO ROOM LIGHTS	0.4	3.33	1		1.120	1	6.00	0.72	SODIUM HYPO ROOM RECEPT	20	4
5	20	AMMONIA PUMPS & EQUIP PANEL	0.4	3.33	1	0.800		1	3.33	0.4	SODIUM HYPO PUMPS & EQUIP PANEL	20	6
7	20	PSV-112 CONTROL PANEL	0.5	4.17	1		0.600	1	0.83	0.1	CHEMICAL BLDG EYEWASH SHOWER	20	8
9	20	SPARE			2	0.400		1	3.33	0.4	CHEM PUMP SKID DSCHG FLOW METERS	20	10
							0.000	1			SPARE	7	12
						TOTAL KVA	2.120	1.720					
						GRAND CONNECTED TOTAL KVA		3.840					

PANEL **IPC**
LOCATION NORTHWEST BOOSTER PUMP STATION
BUILDING AMMONIA ROOM
NOTES: NEW INTEGRATED POWER CENTER PANELBOARD
NEMA 4X 316SS ENCLOSURE WITH INTERNAL 7.5KVA TRANSFORMER, FED FROM EXISTING MCC

SERVICE CHARACTERISTICS
VOLTS: 240/120
PHASE: 1
WIRE: 3
25k MIN AIC SYMM, FULLY RATED ASSEMBLY
A MLO
30 A MCB

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

SCHEDULES AND TABLES

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

E-11
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

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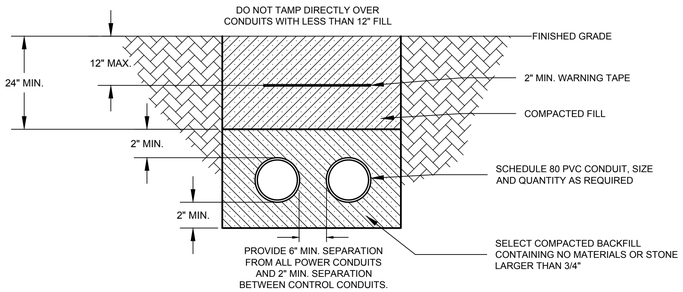
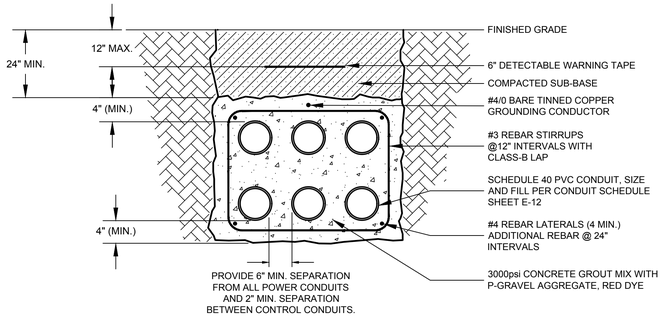


DIRECT BURIED DUCTBANK

SCALE: N.T.S.

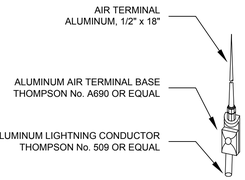


REINFORCED CONCRETE DUCTBANK

SCALE: N.T.S.

TYPICAL LEVEL SWITCH MOUNTING DETAIL

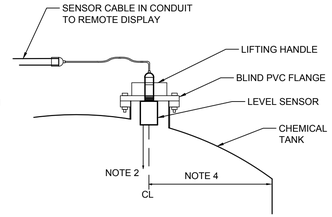
SCALE: NTS



AIR TERMINAL DETAIL

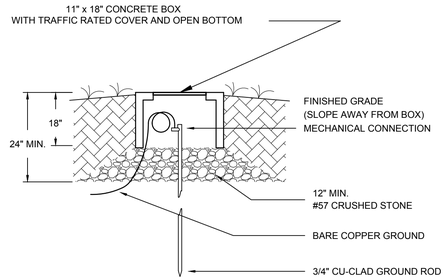
SCALE: N.T.S.

NOTES:
1. SEE SPECIFICATIONS FOR MOUNTING BRACKET INSTALLATION MATERIAL REQUIREMENTS.
2. MANUFACTURER'S MINIMUM BLANKING DISTANCE TO MAX HIGH LEVEL.
3. MOUNT SENSOR AWAY FROM TANK FILL AND OTHER OBSTRUCTIONS.
4. MANUFACTURER'S RECOMMENDED DISTANCE BETWEEN TANK SIDE WALL AND SENSOR.
5. USE LFNC FOR LAST 6FT OF CONDUIT TO TRANSMITTER.



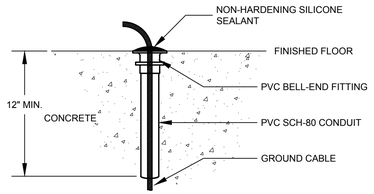
ULTRASONIC SENSOR TANK MOUNTING DETAIL

SCALE: NTS



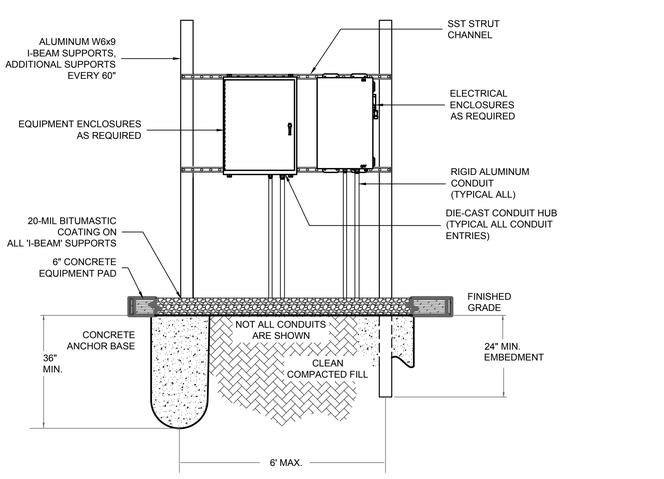
GROUND ROD TEST WELL

SCALE: N.T.S.



GROUND CABLE SLEEVE DETAIL

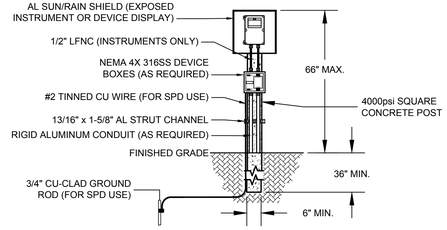
SCALE: N.T.S.



DETAIL NOTES:
1. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES OR QUANTITIES. CONTRACTOR SHALL REFERENCE ALL CONTRACT DRAWINGS FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS.
2. ALL EXPOSED CONDUIT SHALL BE RIGID ALUMINUM CONDUIT, EXCEPT FOR CONDUIT IN CHEMICAL AREAS WHICH SHALL BE PVC-80.
3. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES AND SIDE ENTRIES ARE NOT ACCEPTABLE.
4. ALL CONDUIT ENTRIES SHALL HAVE MOISTURE SEALANT APPLIED AFTER ACCEPTED START-UP AND COMMISSIONING WITH IDEAL INDUSTRIES DUCT-SEAL OR APPROVED EQUAL.
5. ALL CONDUIT SUPPORTS, CLAMPS, HANGERS, ETC. SHALL BE STAINLESS STEEL.
6. ALL STRUT-CHANNEL SHALL BE STAINLESS-STEEL.
7. STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
8. MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
9. ALL FASTENERS, BOLTS, NUTS, SCREWS, WASHERS, ETC. SHALL BE STAINLESS STEEL
10. ALL THROUGH-BOLT FASTENINGS SHALL HAVE SST. FENDER AND LOCK WASHERS.
11. I-BEAM SUPPORT POSTS SHALL BE ALUMINUM W6x9 120" MINIMUM.
    A. ALL DRILLED HOLES SHALL BE DE-BURRED, FILED SMOOTH, CLEANED, DE-GREASED AND OIL FREE PRIOR TO APPLYING ZINC RICH AEROSOL SPRAY
    B. I-BEAM SUPPORT POSTS SHALL HAVE 20-MIL CURED COAL-TAR EPOXY COATING PRIOR TO EMBEDMENT INTO CONCRETE ANCHOR BASE, BITUMASTIC 50 OR APPROVED EQUAL
    C. ALL I-BEAM SUPPORT POSTS SHALL BE CONNECTED TO "GROUNDING RING" WITH MECHANICAL LUG CONNECTIONS WITH ANTI-VIBRATION SST. FASTENERS.

TYPICAL OUTSIDE ELECTRICAL EQUIPMENT RACK (FRONT ELEVATION)

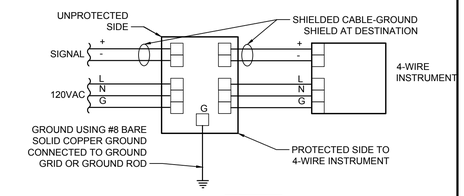
SCALE: N.T.S.

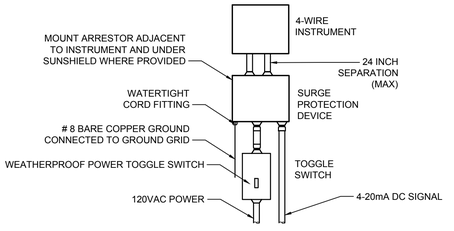


NOTES:
1. FILE AND ROUND ALL CORNERS SMOOTH, REAM ALL HOLES.
2. USE 316-SST FASTENERS, HARDWARE AND CONDUIT STRAPS.
3. FACE INSTRUMENT STAND NORTH WHEREVER POSSIBLE.
4. NYLON SPACERS SHALL BE USED ON ALL ALUMINUM MATERIALS IN CONTACT WITH CONCRETE OR COATED WITH BITUMASTIC PAINT.

OUTSIDE STANCHION MOUNT DETAIL

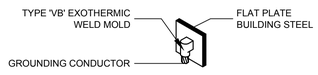
SCALE: NTS





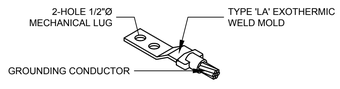
4-WIRE INSTRUMENT SURGE ARRESTOR FOR INSTALLATION

SCALE: NTS



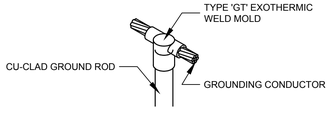
EXOTHERMIC WELD 'VB' CONNECTION

SCALE: N.T.S.



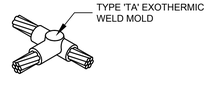
EXOTHERMIC WELD 'LA' CONNECTION

SCALE: N.T.S.



EXOTHERMIC WELD 'GT' CONNECTION

SCALE: N.T.S.



EXOTHERMIC WELD 'TA' CONNECTION

SCALE: N.T.S.

REV.NO.	DESCRIPTION	DATE
-	---	---

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

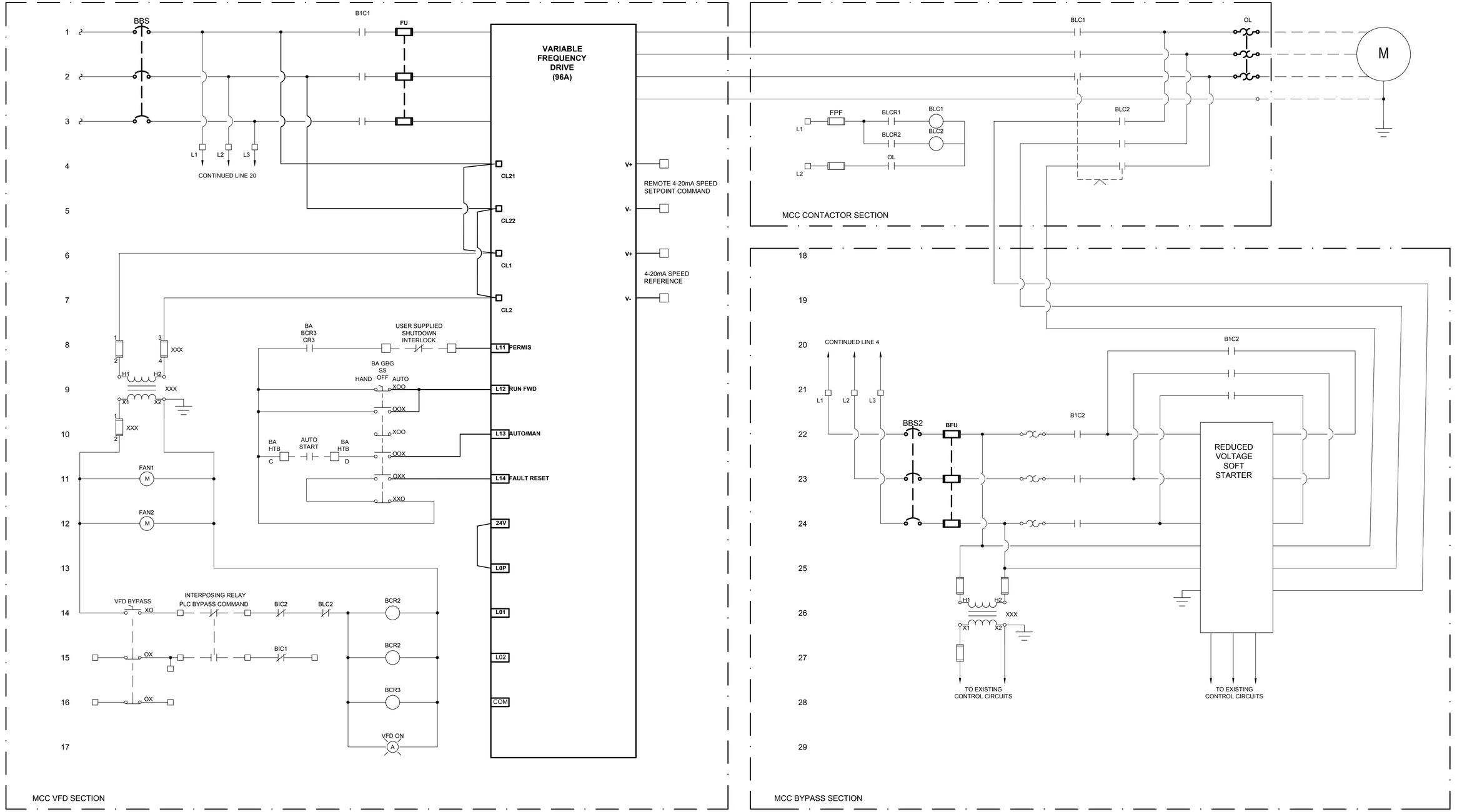
ELECTRICAL DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	JG
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: AS SHOWN

E-12
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID



NOTES:
1. COMPONENTS SHOWN IN BOLD ARE NEW WORK, SIZE AS SHOWN ON SHEET E-5 AND AS PER MANUFACTURER REQUIREMENTS.
2. EXISTING WIRING INTERNAL TO THE MCC IS PERMITTED TO BE REUSED WHERE PRACTICAL.

MCC MODIFICATION - TRANSFER PUMP VFD SCHEMATIC

SCALE: NTS

REV.NO.	DESCRIPTION	DATE
-	—	—

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

MCC TRANSFER PUMP VFD MODIFICATIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	LLS
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

E-13
DRAWING NUMBER
REVISION

STATUS: ISSUED FOR BID

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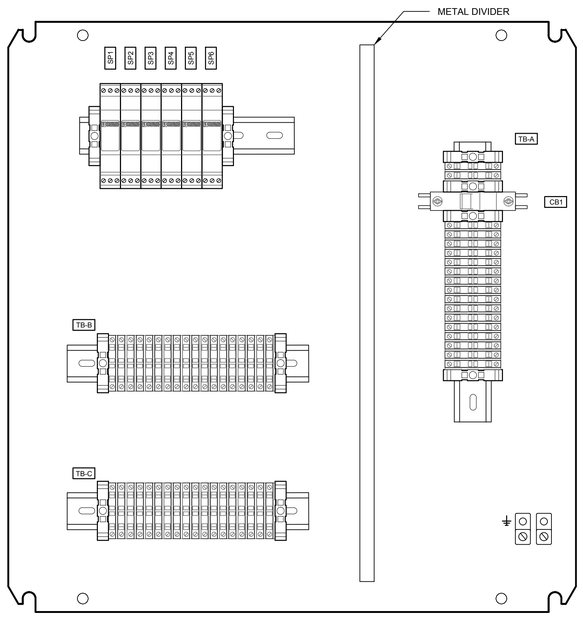
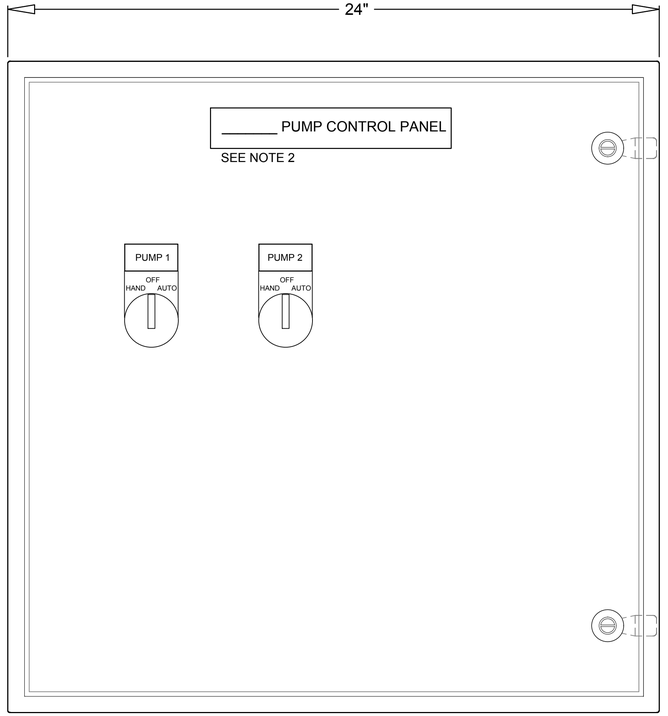
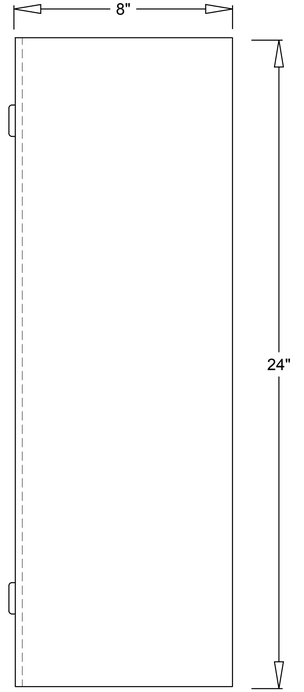


BACKPANEL VIEW



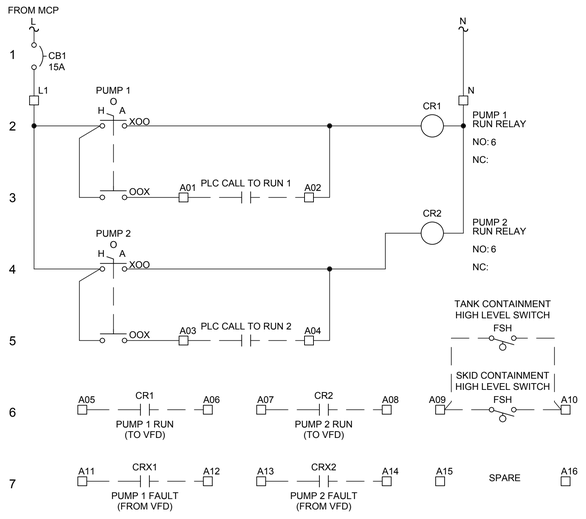
FRONT VIEW

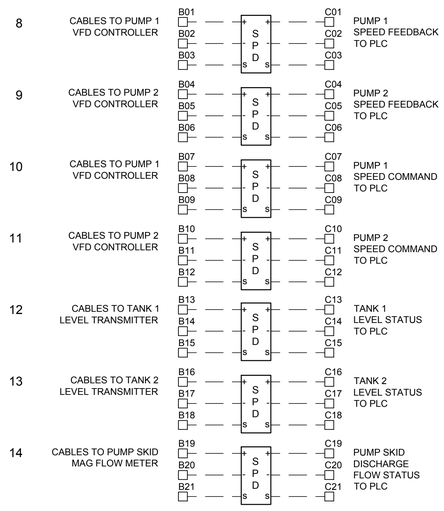


SIDE VIEW

NOTES:

1. TYPICAL OF (2) PANELS
2. PANEL NAMEPLATES: SODUIM HYPOCHLORITE PUMP CONTROL PANEL, AND AMMONIA PUMP CONTROL PANEL





SODIUM HYPO & AMMONIA PUMP CONTROL PANEL DETAILS

SCALE: NTS

REV NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

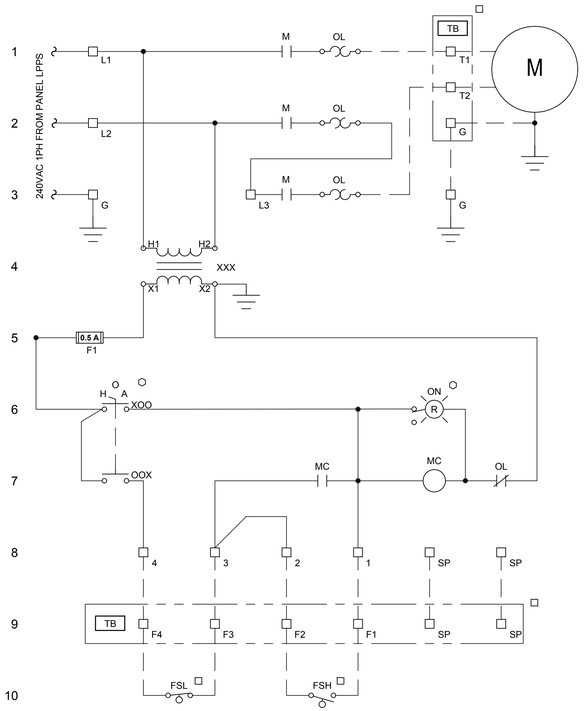
CHEMICAL PUMP CONTROL PANEL DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	AA
DESIGNED	LLS
CHECKED	AAH/MF
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NTS
VERTICAL: NA

E-14
DRAWING NUMBER
REVISION

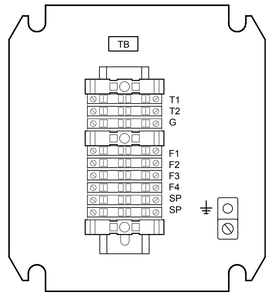
STATUS: ISSUED FOR BID



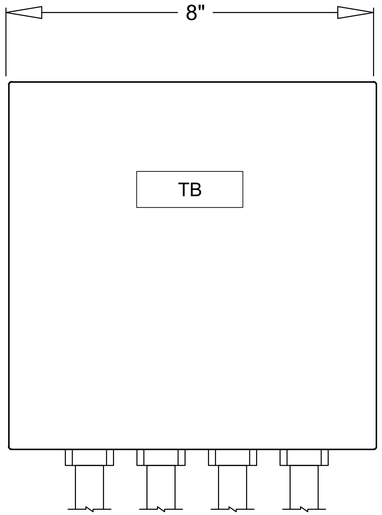
TANK DRAIN PUMP CONTROL PANEL SCHEMATIC

NOTES:

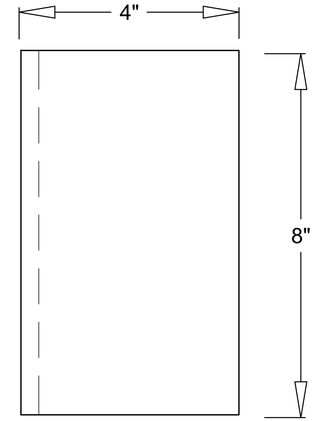
1. CONTROL PANEL BY VENDOR, MINIMUM SIZE 12"X12"X6"
2. UV-RESISTANT WEATHER TIGHT ENCLOSURE
3. TYPICAL WIRING SCHEMATIC SHOWN. REFER TO VENDOR DOCUMENTATION FOR DETAILS.



TERMINAL BOX BACKPANEL VIEW



TERMINAL BOX FRONT VIEW



TERMINAL BOX SIDE VIEW

NOTES:

1. NEMA 4X 316SS ENCLOSURE
2. SUBMERSIBLE CABLES FROM TERMINAL BOX TO EQUIPMENT SHALL BE ROUTED VIA ABOVE GRADE CONDUIT AND VENTED CABLE TRAY OR SIMILAR RACEWAY SYSTEM WHICH PROTECTS CABLES AND PREVENTS MOISTURE FROM ENTERING THE TERMINAL BOX. CIRCUITS TO CONTROL PANEL SHALL BE ROUTED UNDERGROUND IN CONDUIT.

REV.NO.	DESCRIPTION	DATE
-	—	—

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

ELECTRICAL

TANK DRAIN PUMP PANEL AND TERMINAL BOX DETAILS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	LLS
DESIGNED	LLS
CHECKED	AAH
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NTS
VERTICAL: NTS

E-15
DRAWING NUMBER

REVISION

STATUS: **ISSUED FOR BID**

1 INSTRUMENT/FUNCTION SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILLARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL DEVICES OR FUNCTIONS
FIELD/PANEL EQUIPMENT	XX 30	XX 30	XX 30	XX 30
SHARED DISPLAY, SHARED CONTROL (DIT)	XX 123	XX 123	XX 123	XX 123
PROGRAMMABLE LOGIC CONTROLLER	XX 123	XX 123	XX 123	XX 123
SUPERVISORY COMPUTER FUNCTION (HMI/SERVER)	XX 123	XX 123	XX 123	XX 123

SINGLE INSTRUMENT OR OTHER DEVICE HAVING MULTIPLE FUNCTIONS OR SHARING A COMMON HOUSING

XX YY SOFTWARE LOGIC OR CONTROL MODULE XX AND SUB-MODULE YY RESIDENT IN DISTRIBUTED CONTROL SYSTEM (DCS) OR PROGRAMMABLE LOGIC CONTROLLER (PLC) REFER TO CONTRACT DOCUMENTS FOR CONTROL AND MODULE DESCRIPTIONS.

ZZ DESIGNATIONS OF CONTROL FUNCTIONS (ZZ) ASSOCIATED WITH INSTRUMENT OR OTHER DEVICES. CONTROL FUNCTION DESIGNATOR IS SHOWN AT DEVICE NEAR ANY SIDE.

INSTRUMENT PANEL MOUNTED WITH COMPUTING OR CONVERTING FUNCTION

CONVERT

E - VOLTAGE
I - CURRENT
P - PNEUMATIC
A - ANALOG
B - BINARY

H - HYDRAULIC
O - ELECTROMAGNETIC, SONIC
R - RESISTANCE (ELECT.)
D - DIGITAL

COMPUTE

- SUMMING
- SUBTRACTOR
- MULTIPLYING
- DIVIDING
- ROOT EXTRACTION
- PROPORTIONAL
- DERIVATIVE
- INTERLOCK
- EXPONENTIAL
- AVERAGING
- RATIO
- HIGH SELECTING
- LOW SELECTING
- INTEGRAL
- PID

XXX 000 PANEL MOUNTED PILOT LIGHT

AIT 000 XXX ANALYZER, XXX = TYPE

ALK - ALKALINITY
CL_2 - CHLORINE CONCENTRATION
COMB - COMBUSTIBLE GAS
COND - CONDUCTIVITY
DO - DISSOLVED OXYGEN
H_2S - HYDROGEN SULFIDE
LEL - LOWER EXPLOSIVE LIMIT
O_2 - OXYGEN CONCENTRATION
O_3 - OZONE
ORP - OXIDATION/REDUCTION POTENTIAL
pH - HYDROGEN ION CONCENTRATION
TH - TOTAL HARDNESS
UV - ULTRAVIOLET
TURB - TURBIDITY
TCL2 - TOTAL CHLORINE

∗ ASTERISK IDENTIFIES INSTRUMENT/PANEL FURNISHED BY EQUIPMENT VENDOR.

∗∗ DOUBLE ASTERISK IDENTIFIES INSTRUMENT FURNISHED INTEGRAL EQUIPMENT OF A MOTOR, DISCONNECT OR A VALVE.

2 VALVE AND ACTUATOR SYMBOLS

GENERIC VALVE OR GATE VALVE
PLUG VALVE
GLOBE VALVE
BALL VALVE
BALL VALVE (3-WAY)
3-WAY VALVE (GENERAL)
PINCH VALVE
COMBINATION VACUUM/ PRESSURE RELIEF VALVE
BUTTERFLY VALVE
SWING CHECK VALVE
BALL CHECK VALVE
DIAPHRAGM VALVE
NEEDLE VALVE
ANGLE VALVE
ROTARY VALVE
THROUGH PLUG VALVE
PRESSURE RELEIF OR SAFETY VALVE
VACUUM RELIEF VALVE
PRESSURE-REDUCING REGULATOR
BACKPRESSURE REGULATOR
BACKFLOW PREVENTER
SLUICE GATE
STOP/SLIDE GATE
STRAINER
BACKFLOW PREVENTER
ELECTRIC ACTUATOR
SOLENOID ACTUATOR
PNEUMATIC ACTUATOR
ELECTROPNEUMATIC ACTUATOR
ELECTROHYDRAULIC ACTUATOR
HAND WHEEL
EDUCTOR

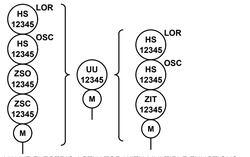
3 PUMP AND EQUIPMENT SYMBOLS

CENTRIFUGAL PUMP
CENTRIFUGAL WET PIT PUMP (SUBMERSIBLE)
BLOWER (CENTRIFUGAL)
GEAR PUMP (POSITIVE DISPLACEMENT)
PROGRESSIVE CAVITY PUMP
CHEMICAL FEED PUMP
MIXER
BLOWER (POSITIVE DISPLACEMENT)
VERTICAL PUMP
HYDROPNEUMATIC TANK
CLOSED TOP TANK
EMERGENCY SHOWER/EYEWASH
MEMBRANE FILTER
MECHANICAL SCREEN
DIAPHRAGM SEAL
VIBRATION DAMPNER

4 INSTRUMENT SYMBOLS

MAGNETIC FLOW METER
VENTURI FLOW TUBE
TURBINE FLOW METER
ROTAMETER
ULTRASONIC FLOW METER
PADDLE WHEEL FLOW METER
VORTEX FLOW METER
POSITIVE DISPLACEMENT FLOW METER
PITOT TUBE
PARSHALL FLUME
THERMAL FLOW METER
ORIFICE PLATE
STRAIGHTENING VANES
ULTRASONIC LEVEL SENSOR
SUBMERSIBLE LEVEL SENSOR
FLOAT TYPE LEVEL SWITCH
TAPPED RING SEAL
DIAPHRAGM SEAL
FULL LINE RING SEAL
VALVED TAP
RTD AND THERMOWELL
RADAR LEVEL SENSOR (UNGUIDED)
RADAR LEVEL SENSOR (GUIDED)
CAPACITANCE LEVEL SENSOR

5 VALVE ACTUATOR CONTROLS



VALVE ELECTRIC ACTUATOR WITH MULTIPLE FUNCTIONS:
FV: LOCAL/OFF/REMOTE HANDSWITCH, OPEN/STOP/CLOSE PUSHBUTTONS, OPEN/CLOSED STATUS LIGHTS
FCV: LOCAL/OFF/REMOTE HANDSWITCH, OPEN/STOP/CLOSE PUSHBUTTONS, POSITION INDICATOR

6 MISCELLANEOUS

MISCELLANEOUS SYMBOLS

PLC OR DCS ANALOG INPUT
PLC OR DCS ANALOG OUTPUT
PLC OR DCS DISCRETE INPUT
PLC OR DCS DISCRETE OUTPUT
SILENCER
COARSE SCREEN
VENT
DRAIN
FILTER
AIR FILTER
PULSATION DAMPENER
FINE SCREEN
HORN
REDUCER
PIPE MATERIAL CHANGE
QUICK CONNECT
BLIND FLANGE
VIDEO CAMERA

7 INSTRUMENT/DEVICE IDENTIFICATION LETTERS

	FIRST-LETTER		SUCCEEDING-LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C				CONTROL	CLOSE/CLOSED
D		DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M		MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE				
O			ORIFICE, RESTRICTION		OPEN/OPENED
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RUN		RECORD & STORE	REPORT	
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, VOLUME MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	FAILURE OR TROUBLE	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		COMPUTE, CONVERT, RELAY	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

NOTES:
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REV.NO.	DESCRIPTION	DATE

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION

INSTRUMENTATION & CONTROL SYMBOLS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

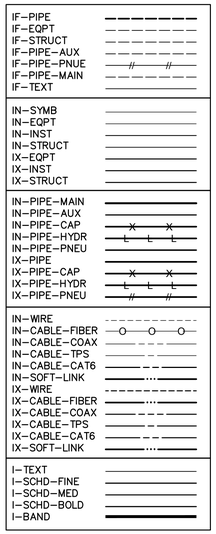
SCALE
HORIZONTAL: NA
VERTICAL: NA

I-1
DRAWING NUMBER

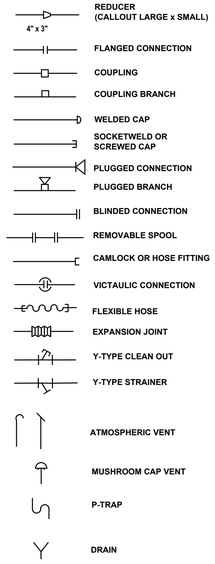
REVISION

STATUS: ISSUED FOR BID

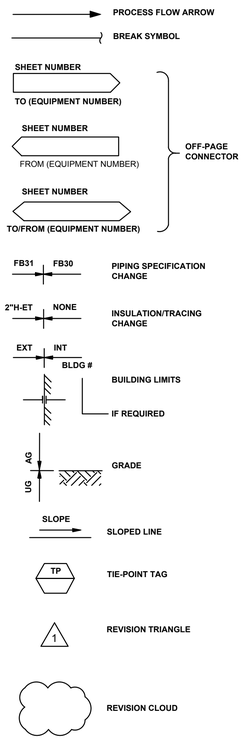
8 LINE TYPES



9 FITTINGS/CONNECTIONS



10 MISCELLANEOUS SYMBOLS



11 ABBREVIATIONS

AHC	- AUTO/HOLD/CLOSE
AKN	- ACKNOWLEDGE
AM	- AUTO/MANUAL
ALM	- ALARM
ALT	- ALTERNATE
ATM	- ATMOSPHERE
AUTO	- AUTOMATIC
CL2	- SODIUM HYPOCHLORITE
COM	- COMMUNICATION
CE	- CLARIFIER EFFLUENT
COMP	- COMPRESSOR
CPT	- CONTROL POWER TRANSFORMER
DEV	- DEVIATION
DIS	- DISABLE
DISC	- DISCONNECT
DR	- DRAIN
DO	- DISSOLVED OXYGEN
EN	- ENABLE
ES	- EMERGENCY STOP
ETM	- ELAPSED TIME METER
EQ	- EQUALIZATION BASIN
EXER	- EXERCISE
FAIL	- FAILURE
FE	- FILTRATE EFFLUENT
FLT	- FAULT
FPP	- FIBER PATCH PANEL
FTC	- FAILED TO CLOSE
FTO	- FAILED TO OPEN
FTS	- FAILED TO START
HOA	- HAND/OFF/AUTO
HOR	- HAND/OFF/REMOTE
HP	- HIGH PRESSURE
HHTRQ	- HI HI TORQUE
HTRQ	- HI TORQUE
INF	- INFLUENT
IR	- INTERNAL RECYCLE
LAH	- LEVEL ALARM HIGH
LAL	- LEVEL ALARM LOW
LCP	- LOCAL CONTROL PANEL
LOS	- LOCKOUT STOP
LR	- LOCAL/REMOTE
LOR	- LOCAL/OFF/REMOTE
LP	- LOW PRESSURE
ML	- MIXED LIQUOR
MOV	- MOTOR OPERATED VALVE
MV	- MOTOR OPERATED VALVE
MOA	- MANUAL/OFF/AUTO
NPW	- NON POTABLE WATER
NTS	- NOT TO SCALE
OC	- OPEN/CLOSE
OD	- ON/REMOTE DISABLED
OCA	- OPEN/CLOSE/AUTO
OIT	- OPERATOR INTERFACE TERMINAL
OF	- ON/OFF / OVER FLOW
ORM	- OFF/REMOTE/MANUAL
OVLD	- OVERLOAD
PD	- PLANT DRAIN SYSTEM
PID	- PROPORTIONAL INTEGRATOR DERIVATIVE
PLC	- PROGRAMMABLE LOGIC CONTROLLER
POT	- POTENTIOMETER
PS	- PRESSURE SWITCH / PUMP STATION(S)
PSV	- PRESSURE SUSTAINING VALVE
PW	- POTABLE WATER
PWR	- POWER
RCW	- RECLAIMED WATER
RAS	- RETURN ACTIVATED SLUDGE
REM	- REMOTE
REC	- RECEIVER
RL	- RAISE/LOWER
ROF	- REVERSE/OFF/FORWARD
RS	- RUN/STOP
RSL	- RAISE/STOP/LOWER
RTD	- RESISTANCE TEMPERATURE DETECTOR
RST	- RESET
RUN	- RUNNING
SC	- SCUM
SD	- SHUTDOWN
SEL	- SELECT
SL	- SLUDGE
SLG	- SLIDE GATE
SIL	- SILENCE
SIM	- SIMILAR
SP	- SET POINT
SR	- START/RESET
SS	- START/STOP
SV	- SOLENOID VALVE
TURB	- TURBIDITY
TEMP	- TEMPERATURE
TYP	- TYPICAL
UON	- UNLESS OTHERWISE NOTED
V	- VENT
VFD	- VARIABLE FREQUENCY DRIVE
WG	- WEIR GATE
WAS	- WASTE ACTIVATED SLUDGE
WW	- WASTE WATER
ZS	- ZERO SPEED
ZVM	- ZOMBIE VALVE MODULE

12 CONTROL FUNCTIONS

1. ALL PLC FUNCTION BLOCKS, TAG STRUCTURE, LOGIC, AND PLC PROGRAMMING SHALL FOLLOW MANATEE COUNTY STANDARDS DEVELOPED MY MCKIM AND CREED FOR THE WATER TREATMENT FACILITIES.
2. ALL SCADA, DATABASE, ALARMS, AND REPORTS SHALL FOLLOW MANATEE COUNTY STANDARDS DEVELOPED BY MCKIM AND CREED FOR THE WATER TREATMENT FACILITIES.
3. EXISTING MANATEE COUNTY STANDARDS MAY NOT MEET THE NEEDS OF THIS PROJECT. SYSTEM INTEGRATOR IS RESPONSIBLE FOR ANY MODIFICATIONS AND HARDWARE ADDITIONS, AS NEEDED, TO COMPLETE THIS PROJECT.
4. ANY MODIFICATIONS TO THE MANATEE COUNTY STANDARDS SHALL BE SUBMITTED AT THE END OF THE PROJECT.
5. DEVELOPMENT OF THE SCADA APPLICATION IS INTENDED AS "INCLUDED PROJECT" TO THE NORTHWEST BOOSTER STATION UPGRADE PROJECT AND IS THE RESPONSIBILITY OF THE SYSTEM INTEGRATOR.
6. ALL ADDITIONS, MODIFICATIONS, AND CONFIGURATION OF EXISTING SCADA PANEL RTU-46 ARE THE FULL RESPONSIBILITY OF THE SYSTEM INTEGRATOR.
7. COORDINATION WITH THE VALVE MANUFACTURERS, VFD MANUFACTURERS, CHEMICAL SKID PROVIDERS, AND ANY OTHER VENDORS SHALL BE PERFORMED BY THE SYSTEM INTEGRATOR TO TO PROVIDE A COMPLETE SYSTEM OF LOCAL OPERATION AND REMOTE OPERATION FROM SCADA.

NOTES:
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REV NO.	DESCRIPTION	DATE

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION

INSTRUMENTATION & CONTROL ABBREVIATIONS

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

I-2
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

SCADA

SEE CONTROL FUNCTION NOTES ON SHEET I-2.
REFER TO PROJECT SPECIFICATIONS.

NW BOOSTER PS
RTU-46

TYPICAL EXISTING MOTORIZED VALVES
OPENED ZSO 107 | CLOSED ZSC 107 | OPEN ZCO 107 | CLOSE ZCC 107

TYPICAL MV-108 & MV-109
NEW MOV I/O: AUTO OL 108 | FAULT OA 108
EXISTING MOV I/O: OPEN ZSO 108 | CLOSED ZSC 108 | OPEN ZCO 108 | CLOSE ZCC 108

PRESSURE SUSTAINING VALVE
* INTEGRATOR TO COORDINATE WITH MANATEE COUNTY ON FUNCTIONS OF PRESSURE SUSTAINING VALVE SOFT I/O
NEW PSV I/O: OPEN ZCO 112 | FAULT OA 112 | PRESSURE PIT 112-1 | PRESSURE PIT 112-2 | FLOW FIT 112 | POSITION ZS 112 | POSITION ZC 112
EXISTING SOL I/O: CLOSE ZCC 112 | OPENED ZSO 112 | CLOSED ZSC 112

LEVEL LIT 104

CAT6

CAT6

** S
PSV-112
NWB_200_PSV-001

M
MV-107
NBW_100_MOV_007

FROM WATER DISTRIBUTION SYSTEM

GST

PE/LT 104

TYP
M
MV-109
NBW_100_MOV_009

I-4
FROM BOOSTER PUMP STATION FIT-100

POND DRAIN

I-4
TO BOOSTER PUMP STATION MV-112

I-4
TO BOOSTER PUMP STATION MV-110

M
MV-108
NBW_100_MOV_008

TO WATER DISTRIBUTION SYSTEM

REV.NO.	DESCRIPTION	DATE

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION

P&ID GROUND STORAGE TANK AREA

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

I-3
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\INSTRUMENTATION\IP100_01024-0206_P&ID.DWG 08/16/2024 15:54:24 AARON TURMAN

SCADA

SEE CONTROL FUNCTION NOTES ON SHEET I-2.
REFER TO PROJECT SPECIFICATIONS.

NW BOOSTER PS
RTU-46

MCC

TYPICAL EXISTING MOTORIZED VALVES

OPENED	CLOSED	OPEN	CLOSE
ZSO 110	ZSC 110	ZCO 110	ZCC 110

TYPICAL BOOTSTER PUMPS 1 & 2, AND TANK PUMP 3
EXISTING PUMP I/O

RUNNING	FAULT	BYPASS	START	SPEED	AMPS	SPEED
OL 100-1	OA 100	OL 100-2	HS 100	SI 100	II 100	SC 100

TYPICAL OF
3 CHECK VALVES

OPEN ZSC 100

FLOW FI 100

EXISTING MCC/VFD
CONTROLLER

VFD | RVSS

I-3
FROM YARD
PIPING
MV-107, PSV-112

M
MV-110

PI 100

ZS 100

BOOSTER PUMP 1
NBW_100_PMP_100

I-6
FROM PROPOSED
AMMONIA METERING
PUMP SKID

TYP

PI 101

ZS 101

BOOSTER PUMP 2
NBW_100_PMP_101

I-5
FROM PROPOSED
SODIUM HYPOCHLORITE
METERING PUMP SKID

TYP

M
MV-111

PI 102

ZS 102

FIT 100

SAMPLE LINE TO EXISTING
CHEMICAL ANALYZERS
(BY OTHERS)

TANK PUMP 3
NBW_100_PMP_102

I-3
TO YARD PIPING
MV-108, MV-109

I-3
FROM GST

M
MV-112

REV.NO.	DESCRIPTION	DATE

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION
P&ID BOOSTER PUMP AREA

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

I-4
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

I:\01024\0206\ENG\80-DRAWINGS\INSTRUMENTATION\IP100_01024-0206_P&ID.DWG 08/16/2024 15:54:25 AARON TURMAN

SCADA

SEE CONTROL FUNCTION NOTES ON SHEET I-2.
REFER TO PROJECT SPECIFICATIONS.

NW BOOSTER PS
RTU-46

EYEWASH OA 101

LEVEL LT 135

LEVEL LT 136

LEAK OA 137

LEAK OA 138

SODIUM HYPO METERING PUMP 1: FAULT OA 131 | START HS 131 | SPEED SI 131 | SPEED SC 131

SODIUM HYPO METERING PUMP 2: FAULT OA 132 | START HS 132 | SPEED SI 132 | SPEED SC 132

FLOW FT 139

SODIUM HYPOCHLORITE LCP

PUMP 1 HOA HS 131

PUMP 2 HOA HS 132

FS -

PW

D

EMERGENCY EYEWASH/SHOWER CHEMICAL BUILDING

∗ SUPPLIED BY VENDOR

V

PI -

M

SODIUM HYPOCHLORITE METERING PUMP 1

PI -

D

M

SODIUM HYPOCHLORITE METERING PUMP 2

FIT 139

M

I-4
TO BOOSTER PUMP STATION

LT 135

LE 135

LT 136

LE 136

SODIUM HYPOCHLORITE FILL STATION 2

SODIUM HYPOCHLORITE FILL STATION 1

CONTAINMENT DRAIN CONNECTION

SODIUM HYPOCHLORITE TANK 1

SODIUM HYPOCHLORITE TANK 2

LSH 137

LSH 138

REV.NO.	DESCRIPTION	DATE

REVISIONS

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Manatee County FLORIDA

NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION

P&ID CHLORINE METERING AREA

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

I-5
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID

SCADA

SEE CONTROL FUNCTION NOTES ON SHEET I-2.
REFER TO PROJECT SPECIFICATIONS.

NW BOOSTER PS
RTU-46

LEVEL LI 145
LEVEL LI 146
LEAK OA 147
LEAK OA 148

AMMONIA METERING PUMP 1: FAULT OA 141, START HS 141, SPEED SI 141, SPEED SC 141
AMMONIA METERING PUMP 2: FAULT OA 142, START HS 142, SPEED SI 142, SPEED SC 142

FLOW FI 149

AMMONIUM SULFATE LCP

PUMP 1 HOA HS 141
PUMP 2 HOA HS 142

∗SUPPLIED BY VENDOR

V

PI -

M

AMMONIA METERING PUMP 1

PI -

D

M

AMMONIA METERING PUMP 2

FIT 149

M

I-4
TO BOOSTER PUMP STATION

LT 145
LE 145

LT 146
LE 146

AMMONIA FILL STATION 2

AMMONIA FILL STATION 1

CONTAINMENT DRAIN CONNECTION

AMMONIUM SULFATE TANK 1

AMMONIUM SULFATE TANK 2

LSH 147

LSH 148

REV.NO.	DESCRIPTION	DATE

REVISIONS

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NORTHWEST BOOSTER PUMP STATION UPGRADES

INSTRUMENTATION

P&ID AMMONIA METERING AREA

DATE:	AUGUST 2024
MCE PROJ. #	01024-0206
DRAWN	RMS
DESIGNED	LLS
CHECKED	EEB
PROJ. MGR.	PJL

SCALE
HORIZONTAL: NA
VERTICAL: NA

I-6
DRAWING NUMBER

REVISION

STATUS: ISSUED FOR BID