

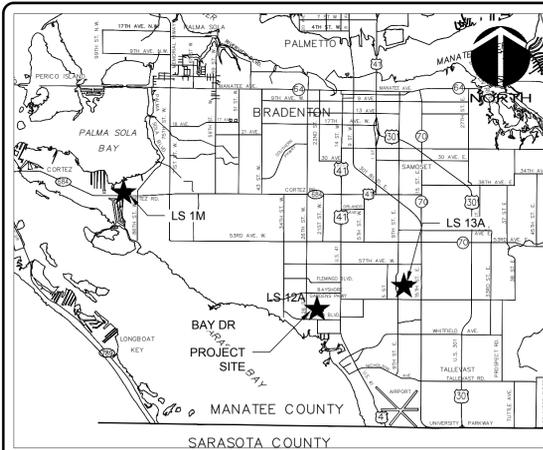
LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

MANATEE COUNTY

PROJ. NO. 01024-0181

DECEMBER 13, 2021

ISSUED FOR BID



VICINITY MAP

NOT TO SCALE

PROJECT NAME: LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

OWNER/DEVELOPER:
2007 BAY DRIVE
BRADENTON, FLORIDA
34207
EMAIL



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

CA Lic. No. 29588
www.mckimcreed.com

PROJECT INFORMATION



MITCHEL A. CHIAVAROLI, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 56335

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY MITCHEL A. CHIAVAROLI THE DATE INDICATED HERE: DECEMBER 13, 2021

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SHEET NUMBER	SHEET NAME
GENERAL	
G0.02	CIVIL-MECHANICAL- LEAD SHEET
DEMOLITION	
D0.00	DEMOLITION OF EQUIPMENT I
D0.01	DEMOLITION OF EQUIPMENT II
MECHANICAL	
M0.00	PROPOSED PUMPS AND PIPING I
M0.01	PROPOSED PUMPS AND PIPING II



WILLIAM F. BAND, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 67838

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SHEET NUMBER	SHEET TITLE
STRUCTURAL	
S00.0	STRUCTURAL GENERAL NOTES, DESIGN LOADS, CRITERIA & LEGEND
S1.00	LIFT STA. MODS & ELECTR. BLDG. FDN. PLAN, SECTIONS & DETAILS
S1.01	LIFT STA. MODS & ELECTR. BLDG. FRMG. PLAN, SECTIONS & DETAILS
S1.02	LIFT STA. MODS ADD'L SECTIONS & DETAILS



AUBREY A. HAUDRICOURT, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 66861

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SHEET NUMBER	SHEET NAME
GENERAL	
G0.01	GENERAL NOTES
G0.02	CIVIL-MECHANICAL- LEAD SHEET
CIVIL: CIVIL SITE	
C0.00	SITE PLAN
ELECTRICAL	
E0.00	SYMBOLS, ABBREVIATIONS AND NOTES
E0.01	SYMBOLS
E0.02	SYMBOLS
E1.00	DEMOLITION PLAN
E1.01	SINGLE LINE DIAGRAM
E1.02	ELECTRICAL SITE PLAN
E1.03	ELECTRICAL PARTIAL SITE PLAN
E1.04	ELECTRICAL BUILDING POWER PLAN
E1.05	ELECTRICAL BUILDING LAYOUT
E1.06	GROUNDING AND LIGHTNING PROTECTION PLAN
E1.07	MCB, ATS AND MCC ELEVATIONS
E1.08	LIGHTING PLAN
E1.09	ELECTRICAL INTERCONNECTION DIAGRAM
E1.10	PANELBOARD SCHEDULES
E1.11	DETAILS
E1.12	ELECTRICAL CONTROLS SCHEMATICS



MICHAEL FADINI, STATE OF FLORIDA, PROFESSIONAL ENGINEER, LICENSE NO. 87173

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SHEET NUMBER	SHEET TITLE
INSTRUMENTATION	
I0.00	INSTRUMENTATION SYMBOL SHEET 1
I0.01	INSTRUMENTATION SYMBOL SHEET 2
I1.00	PROCESS AND INSTRUMENT DIAGRAM
I1.01	CONTROL PANEL

SITE MAP

SCALE: 1" = 200'

SHEET INDEX TABLE	
Sheet Number	Sheet Title
GENERAL	
G0.00	COVER SHEET
G0.01	GENERAL NOTES
G0.02	CIVIL-MECHANICAL- LEAD SHEET
CIVIL: CIVIL SITE	
C0.00	SITE PLAN
DEMOLITION	
D0.00	DEMOLITION OF EQUIPMENT I
D0.01	DEMOLITION OF EQUIPMENT II
MECHANICAL	
M0.00	PROPOSED PUMPS AND PIPING I
M0.01	PROPOSED PUMPS AND PIPING II
STRUCTURAL	
S00.0	STRUCTURAL GENERAL NOTES, DESIGN LOADS, CRITERIA & LEGEND
S1.00	LIFT STA. MODS & ELECTR. BLDG. FDN. PLAN, SECTIONS & DETAILS
S1.01	LIFT STA. MODS & ELECTR. BLDG. FRMG. PLAN, SECTIONS & DETAILS
S1.02	LIFT STA. MODS ADD'L SECTIONS & DETAILS
ELECTRICAL	
E0.00	SYMBOLS, ABBREVIATIONS AND NOTES
E0.01	SYMBOLS
E0.02	SYMBOLS
E1.00	DEMOLITION PLAN
E1.01	SINGLE LINE DIAGRAM
E1.02	ELECTRICAL SITE PLAN
E1.03	ELECTRICAL PARTIAL SITE PLAN
E1.04	ELECTRICAL BUILDING POWER PLAN
E1.05	ELECTRICAL BUILDING LAYOUT
E1.06	GROUNDING AND LIGHTNING PROTECTION PLAN
E1.07	MCB, ATS AND MCC ELEVATIONS
E1.08	LIGHTING PLAN
E1.09	ELECTRICAL INTERCONNECTION DIAGRAM
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SHEET INDEX

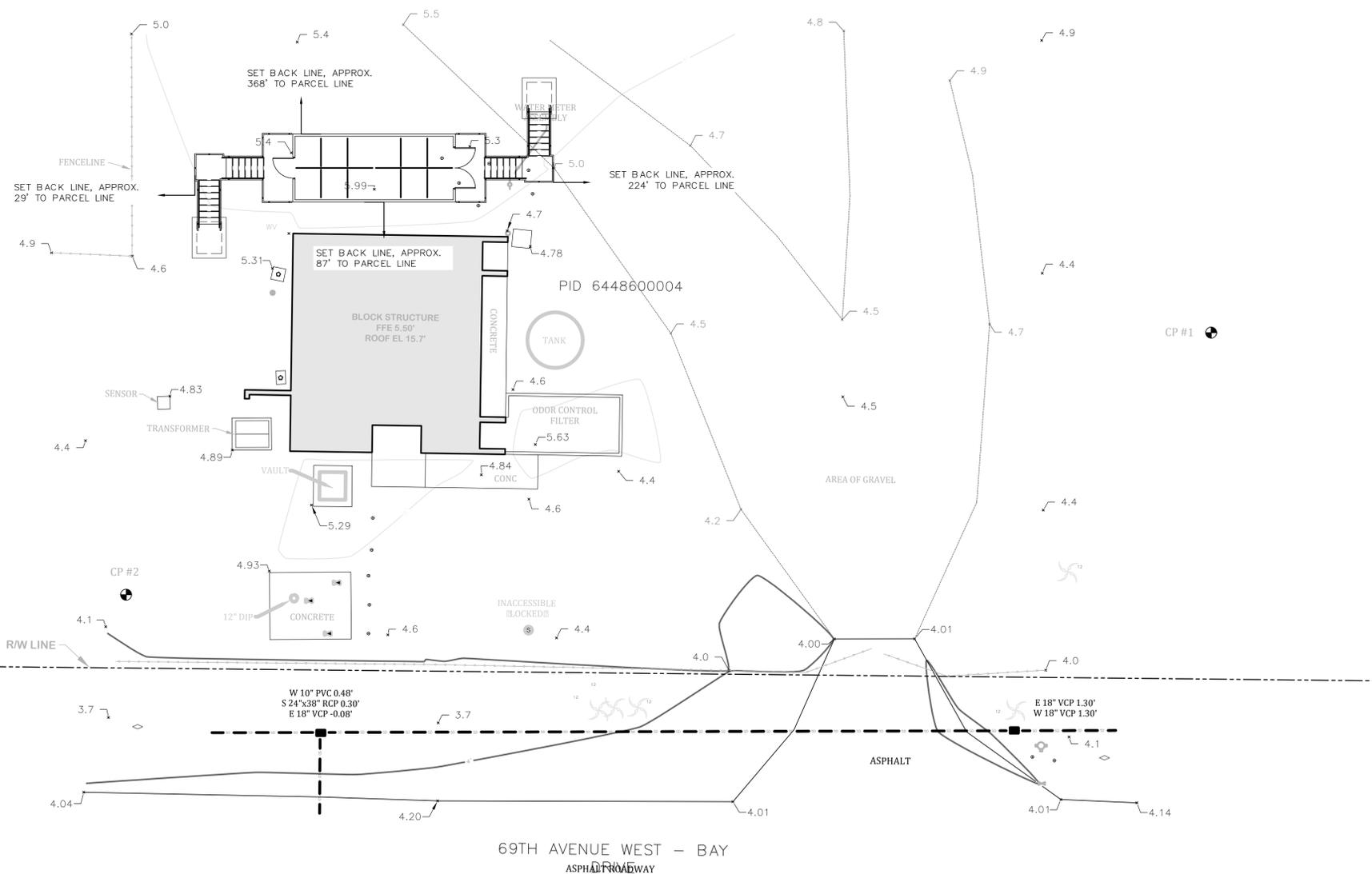


Know what's below.
Call before you dig.

"AMERICAN PARK"
PLAT BOOK 21, PAGE
14



5 0 5 10
SCALE: 1" = 10'



SITE CONTROL

DESIGNATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP #1	1121780.62	467360.95	5.20'	ND (LB 7203)
CP #2	1121742.13	467200.98	4.27'	IR (LB 7203)

LEGEND

PID	PARCEL IDENTIFICATION POINT		CONTROL POINT
CP	CONTROL POINT		UTILITY POLE
R/W	RIGHT OF WAY		GUY WIRE
ND	NAIL W/ DISC		SEWER VALVE
IR	IRON ROD		WATER VALVE
SR	STATE ROAD		SANITARY MANHOLE
EL	ELEVATION		LIGHT POLE
FFE	FINISHED FLOOR ELEVATION		BOLLARD
UNKN	UNKNOWN		AIR RELEASE VALVE
	PINE		UTILITY RISER
	PALM		BLOW OFF
			UTILITY BOX
			OUTLET
			SPIGOT
			ANTENNA
			FIRE HYDRANT
			GRATE INLET
			MONITOR WELL

GENERAL NOTES

1. THE FOLLOWING MANATEE COUNTY VERTICAL CONTROL MONUMENT WAS RECOVERED AND UTILIZED FOR THE ELEVATIONS INDICATED HEREON:
"26121 A" NAVD 1988 ELEVATION 7.65'
2. THIS SURVEY IS REFERENCED TO A GRID PROJECTION OF THE FLORIDA STATE PLANE COORDINATE SYSTEM (WEST ZONE NAD 1983/2011 ADJUSTMENT).
3. THIS IS NOT A BOUNDARY SURVEY. PARCEL AND R/W LINES INDICATED HEREON ARE APPROXIMATE.
4. THIS SURVEY IS SUBJECT TO PERTINENT EASEMENTS, RIGHTS-OF-WAY AND RESTRICTIONS OF RECORD, IF ANY.
5. THIS SURVEY DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF THE PARTY OR PARTIES CERTIFIED TO BELOW FOR THE EXPRESS PURPOSE STATED HEREON AND/OR CONTAINED IN THE CONTRACT BETWEEN HYATT SURVEY SERVICES, INC. AND THE CLIENT FOR THIS PROJECT. COPYING, DISTRIBUTING AND/OR USING THIS DRAWING, IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN ORIGINALLY INTENDED WITHOUT WRITTEN CONSENT FROM HYATT SURVEY SERVICES, INC. IS STRICTLY PROHIBITED AND RENDERS THE SURVEYOR'S CERTIFICATION, SIGNATURE AND SEAL NULL AND VOID. ANY QUESTIONS CONCERNING THE CONTENT OR PURPOSE OF THIS DRAWING SHOULD BE DIRECTED TO HYATT SURVEY SERVICES, INC.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

SEAL

AUBREY A. HAUDRICOURT, P.E.
No. 66861

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

CIVIL SITE
SITE PLAN

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0181
DRAWN JG
DESIGNED AAH
CHECKED MAC
PROJ. MGR. AAH

SCALE
HORIZONTAL: 1"=10'-0"
VERTICAL: TBD

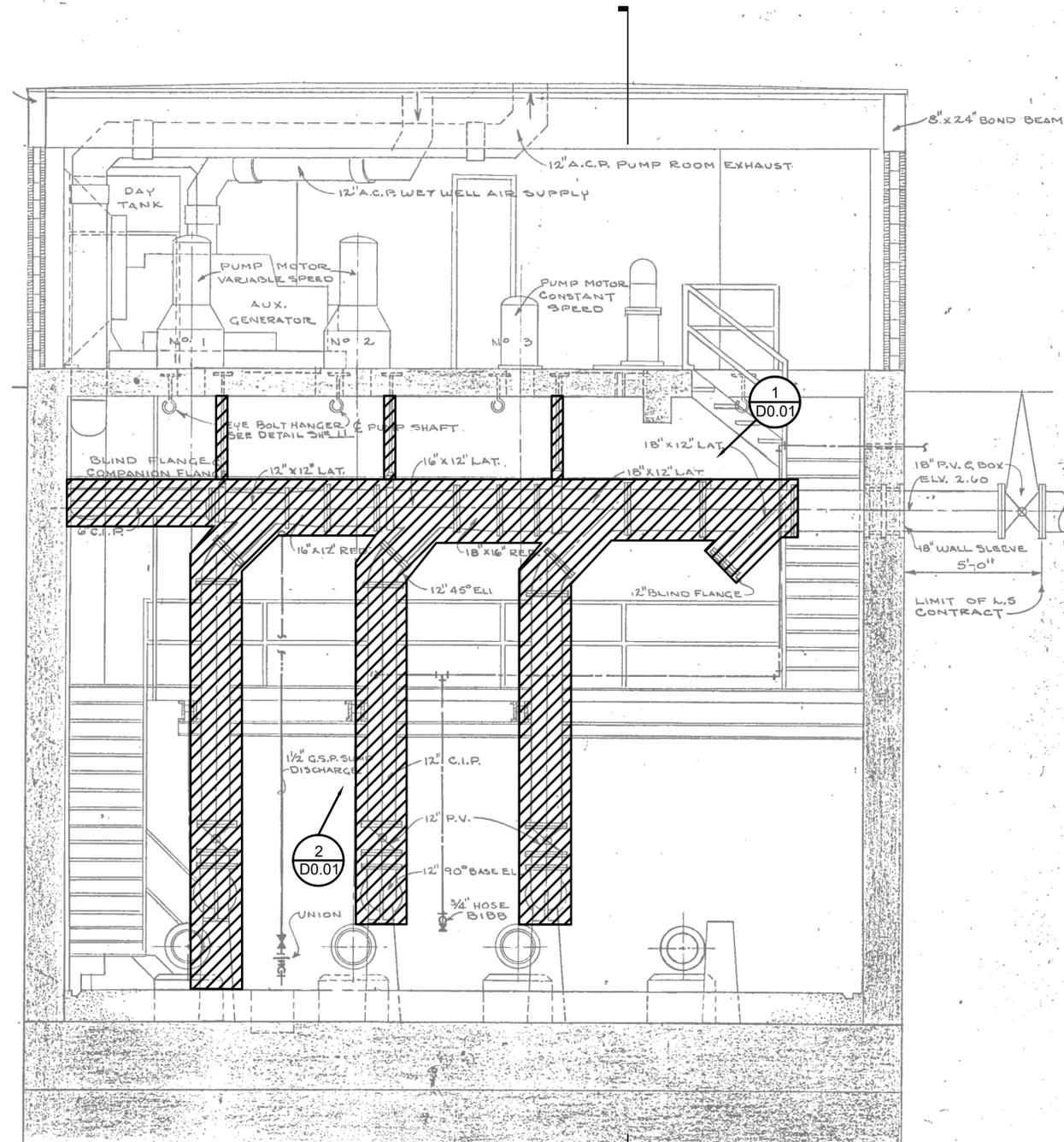
C0.00
DRAWING NUMBER
0
REVISION

STATUS: ISSUED FOR BID

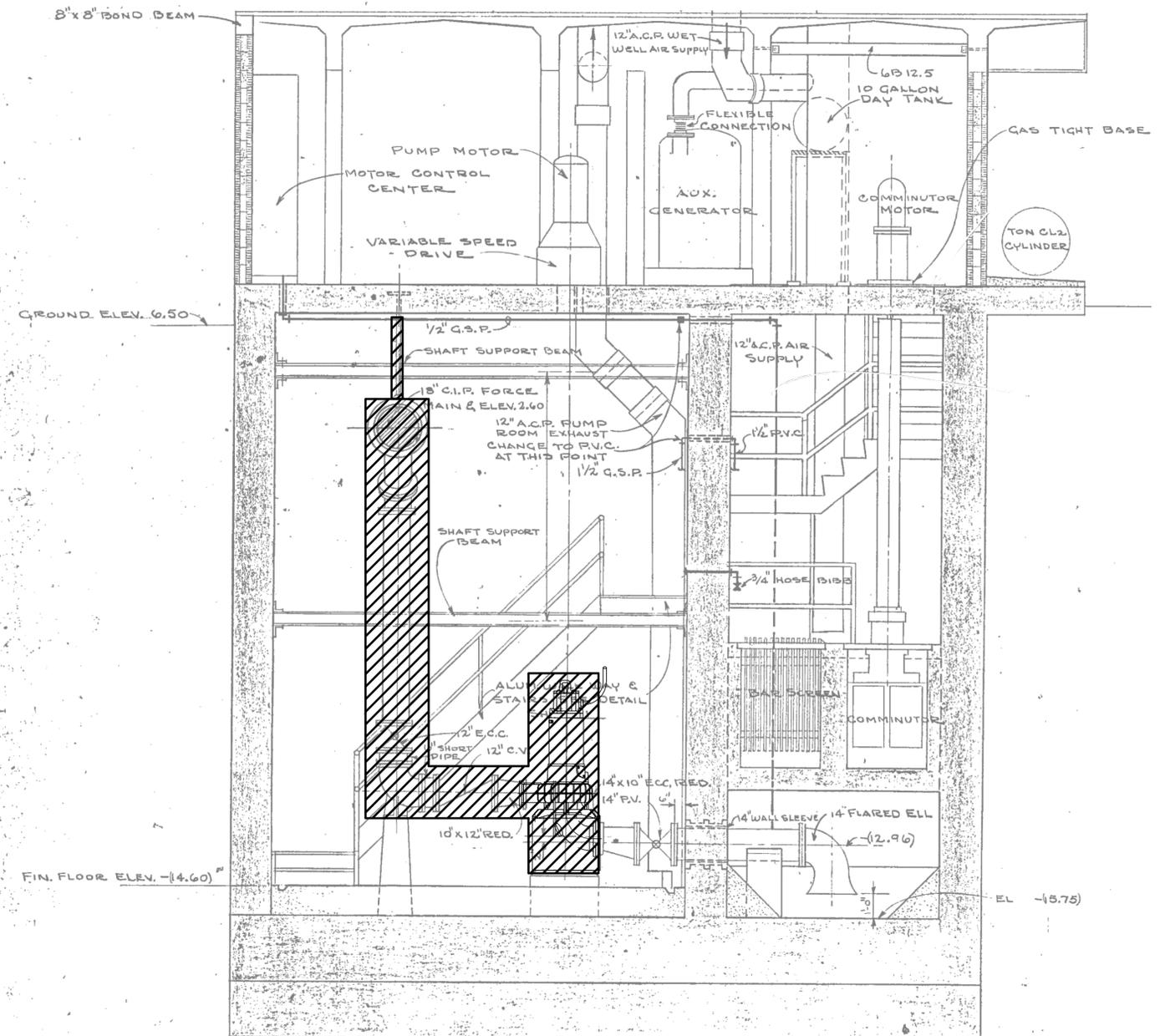
NOTES:

1. DRAWING OBTAINED FROM SANITARY SEWERAGE PROJECT, PART A, SECTION III--SEWAGE LIFT STATIONS DATED DECEMBER 1971. ACTUAL CONDITIONS MAY NOT MATCH EXISTING DRAWING. CONTRACTOR SHALL FIELD VERIFY AND NOTIFY OWNER OF ANY DIFFERENCES THAT MAY IMPACT THE WORK TO BE PERFORMED.
2. CONTRACTOR SHALL REMOVE ANY EXPOSED ANCHOR BOLTS.
3. CONTRACTOR SHALL APPLY PATCHWORK TO CONCRETE AND TOUCH-UP PAINT WHERE REQUIRED.

 - EQUIPMENT TO BE DEMOLISHED



SECTION 1/D0.01
SCALE: NTS



SECTION 1/D0.00
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL
MITCHEL A. CHIAVAROLI, P.E.
No. 56335

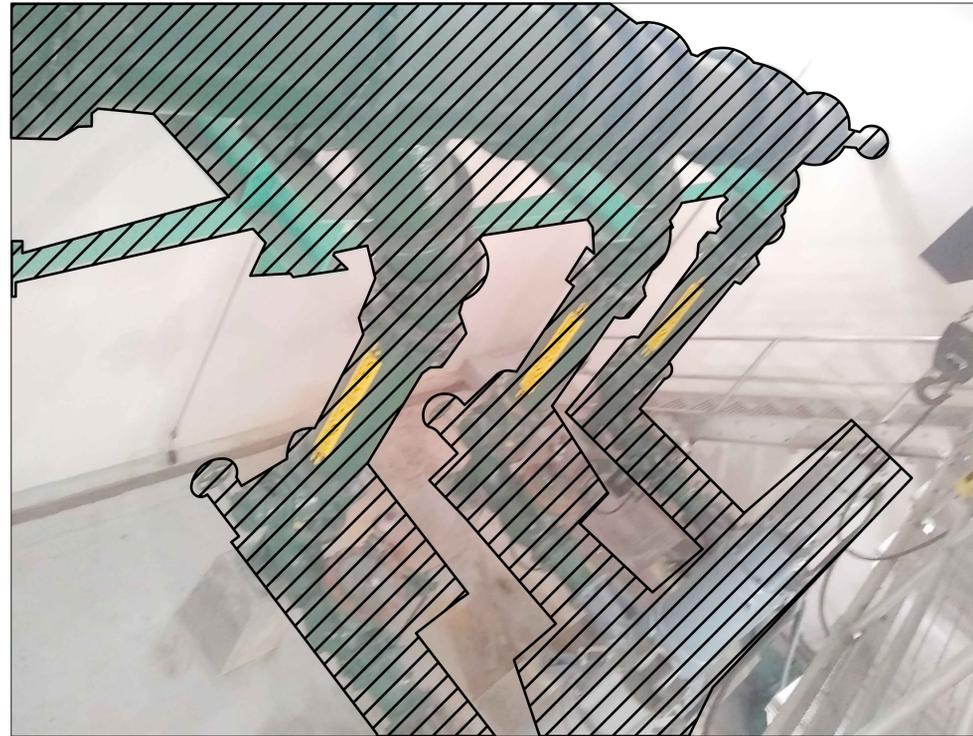
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION
DEMOLITION
DEMOLITION OF EQUIPMENT I

PROJ. START DATE: 2020 JUN	SCALE	D0.00 DRAWING NUMBER
MCE PROJ. # 01024-0181	HORIZONTAL: N/A	
DRAWN: DP	VERTICAL: TBD	
DESIGNED: DC	REVISION: 0	
CHECKED: MC		
PROJ. MGR: AAH		
STATUS: ISSUED FOR BID		

 - EQUIPMENT TO BE DEMOLISHED



DEMOLITION PHOTO 1/D0.01
SCALE: NTS



DEMOLITION PHOTO 2/D0.01
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
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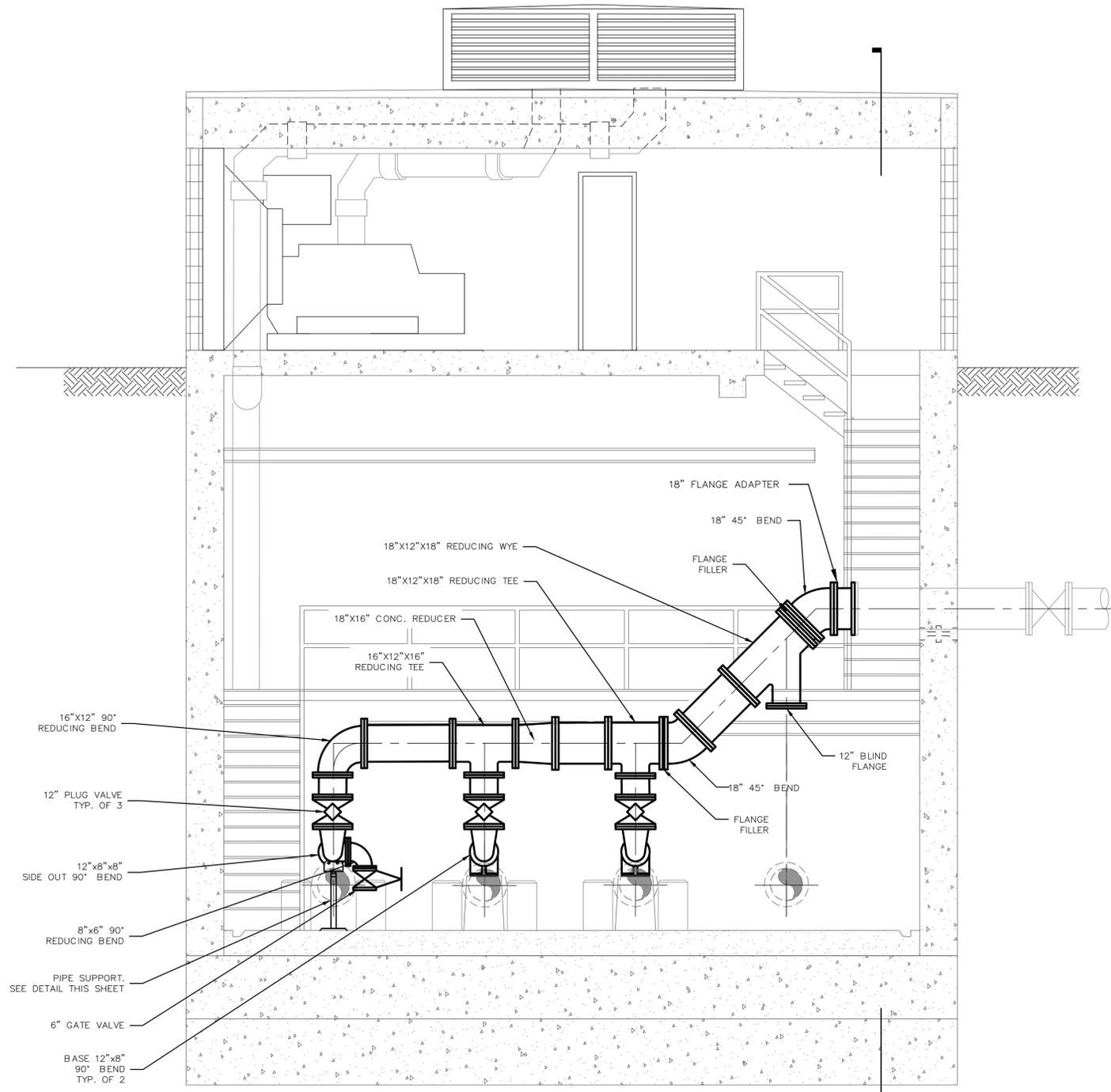
LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION
DEMOLITION
DEMOLITION OF EQUIPMENT II

PROJ. START DATE: 2020 JUN	SCALE
MCE PROJ. # 01024-0181	HORIZONTAL: N/A
DRAWN: DP	VERTICAL: TBD
DESIGNED: DC	
CHECKED: MC	
PROJ. MGR: AAH	
STATUS:	

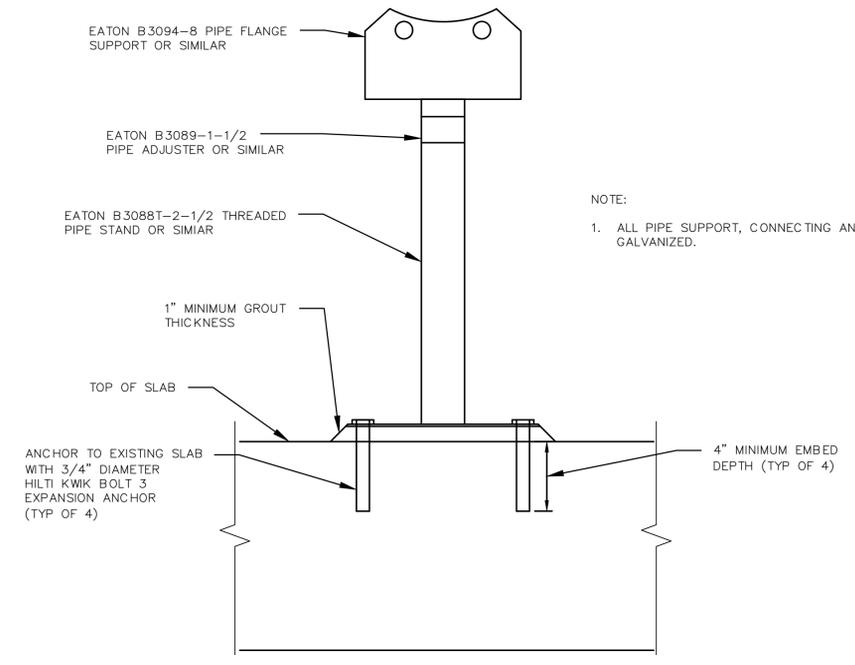
D0.01
DRAWING NUMBER
0
REVISION
ISSUED FOR BID

0 2 4
SCALE: 3/8" = 1'-0"

NOTES:
1. THERE ARE EXISTING FLOOR HATCHES THAT MAY BE USED BY THE CONTRACTOR TO REMOVE EXISTING AND INSTALL NEW PUMPS. REFER TO FLOOR PLAN ON SHEET E1.02.



SECTION



PIPE SUPPORT DETAIL

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL

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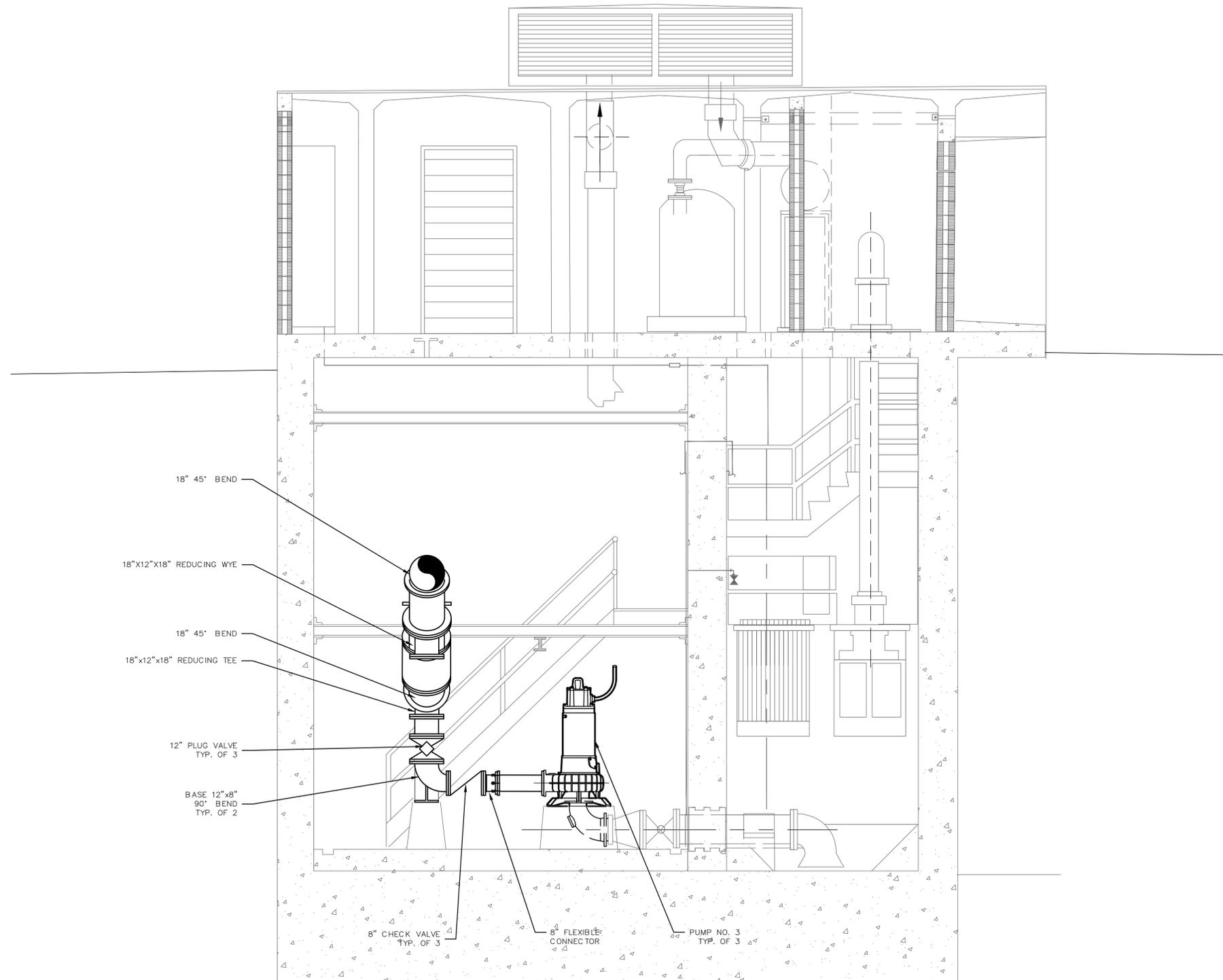
MECHANICAL

PROPOSED PUMPS AND PIPING I

PROJ. START DATE: 2020 JUN	SCALE: M0.00
MCE PROJ. # 01024-0181	HORIZONTAL: AS SHOWN
DRAWN: DP	VERTICAL: N/A
DESIGNED: DC	DRAWING NUMBER: 0
CHECKED: MAC	REVISION: 0
PROJ. MGR: AAH	

STATUS: ISSUED FOR BID

0 2 4
SCALE: 3/8" = 1'-0"



SECTION 1/M0.00

REV. NO.	DESCRIPTION	DATE
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

MECHANICAL

PROPOSED PUMPS AND PIPING II

PROJ. START DATE: 2020 JUN	SCALE	M0.01 DRAWING NUMBER 0 REVISION
MCE PROJ. # 01024-0181	HORIZONTAL: 3/8"=1'-0"	
DRAWN: DC	VERTICAL: N/A	
DESIGNED: DC		
CHECKED: MAC		
PROJ. MGR: AAH		
STATUS: ISSUED FOR BID		

1 ABBREVIATIONS	
NOTE: ALL ABBREVIATIONS MAY NOT BE UTILIZED FOR THIS PROJECT	
A, AMP	AMPERE
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
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
CKT	CIRCUIT
CLG	CEILING
CL2	CHLORINE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY, CORROSION RESISTANT
CS	CONTROL STATION
CT	CURRENT TRANSFORMER
CTRL	CONTROL
CU	COPPER
CV	CONTROL VALVE
DB	DECIBEL
DC	DIRECT CURRENT
DCS	DISTRIBUTED CONTROL SYSTEM
DET	DUAL ELEMENT TIME DELAY
DISC	DISCONNECT
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
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
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLOUR	FLUORESCENT
FMC	FLEXIBLE METALLIC CONDUIT
FS	FLOW SWITCH
FT	FEET OR FOOT
FUT	FUTURE
FWNR	FULL VOLTAGE NON-REVERSING STARTER
FWE	FURNISHED WITH EQUIPMENT
G, GND	GROUND
GALV	GALVANIZED
GEC	GROUNDING ELECTRODE CONDUCTOR
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
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
IMC	INTERMEDIATE METALLIC CONDUIT (GALVANIZED)
IMT	INTERMEDIATE METALLIC
IN, "	INCHES
ITB	INSTRUMENT TERMINAL BOX
JB	JUNCTION BOX
K	THOUSAND
KA	KILOVOLT AMPERE
KIAC	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
LFCM	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
LT	LEVEL INDICATION TRANSMITTER
LP	LIGHTING PANEL, LIGHT POLE
LS	LEVEL SWITCH
LTG	LIGHTING
LV	LOW VOLTAGE
M	MOTOR
MA	MILLIAMPERE
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
MSB	MAIN SWITCHBOARD
MTD	MOUNTED/MOUNTING
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
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
OFCL	OWNER FURNISHED, CONTRACTOR INSTALLED
OL	OVERLOAD RELAY
P	POLE
PA	PUBLIC ADDRESS
PB	PUSH BUTTON
P/B	PULL BOX
PCP	PUMP CONTROL PANEL
PF	POWER FACTOR
PFC	POWER FACTOR CORRECTION CAPACITORS
PFD	PULL FUSE DISCONNECT
PH	PHASE
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	RIGID REMOTE TELEMETRY UNIT
R/S	RUN/STOP HAND SWITCH
RVSS	REDUCED VOLTAGE SOFT STARTER
SCCR	SHORT CIRCUIT CURRENT RATING
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SEC	SECONDARY
SP	SPARE
SPEC	SPECIFICATION
SPD	SURGE PROTECTION DEVICE
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCH GEAR
TEL	TELEPHONE
TEMP	TEMPERATURE
TEW	THERMOUPLE EXTENSION WIRE
TMTU	THERMAL-MAGNETIC TRIP UNIT
TS	TEMPERATURE SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

2 FIRE ALARM SYSTEM	
 110	AUDIO/VISUAL ALARM INDICATOR (HORN/STROBE) NUMBER INDICATES STROBE CANDELLA RATING WHEN OTHER THAN 15
	HORN
	MANUAL PULL STATION
	FIRE ALARM CONTROL PANEL
	BELL
	FIRE ALARM ANNUNCIATOR STATION
	FLOW SWITCH
	VALVE TAMPER SWITCH
	END OF LINE RESISTOR
	FLAME DETECTOR
	SMOKE DETECTOR, MULTISENSOR
	SMOKE DETECTOR IONIZATION
	SMOKE DETECTOR PHOTOELECTRIC
	DUCT MOUNTED SMOKE DETECTOR
	THERMAL DETECTOR (FIXED AND RATE OF RISE) H-HIGH TEMPERATURE
	SIGNAL INPUT MODULE
	SIGNAL MODULE

4 GENERAL ELECTRICAL NOTES	
1. CONTRACTOR RESPONSIBILITIES:	
1.1.	THE CONTRACTOR SHALL READ AND UNDERSTAND THE ENTIRE SET OF CONSTRUCTION DOCUMENTS. THIS INCLUDES BUT IS NOT LIMITED TO THE PLANS AND SPECIFICATIONS FOR ALL DISCIPLINES. THIS WILL ENSURE THAT HE UNDERSTANDS THE FULL SCOPE OF WORK AND IS ABLE TO CONVEY THE REQUIRED MATERIALS AND METHODS OF INSTALLATION TO THE HIS ESTIMATORS, SUPPLIERS AND INSTALLERS.
1.2.	THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS.
1.3.	PROVIDE MEANS TO FURNISH AND INSTALL.
1.4.	THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. DO NOT SCALE FROM THESE DRAWINGS.
1.5.	WHERE JOB CONDITIONS REQUIRE CHANGES FROM THE CONTRACT DOCUMENTS THAT DO NOT CHANGE THE SCOPE OF INSTALLATION OR NATURE OF THE WORK REQUIRED, THE CONTRACTOR SHALL MAKE SUCH CHANGES WITHOUT ANY ADDITIONAL COST TO THE OWNER. NO OTHER CHANGES MAY BE MADE WITHOUT WRITTEN CONSENT FROM THE ENGINEER AND OWNER.
1.6.	MOUNTING HEIGHTS INDICATED ARE TO THE CENTER OF THE DEVICE U.O.N.
1.7.	REFERENCE ALL SPECIFICATIONS, DRAWINGS AND CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
1.8.	THE GENERAL NOTES STATED ON THIS DRAWING ARE APPLICABLE TO ALL DRAWINGS AND SCOPE OF WORK UNDER THIS CONTRACT UNLESS NOTED OTHERWISE.
1.9.	ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NFPA, NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
1.10.	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.
1.11.	THE ELECTRICAL INSTALLATION SHALL EXCEED THE REQUIREMENTS OF ALL APPLICABLE NECA/NEIS STANDARDS.
1.12.	CONTRACTOR SHALL PLAN AND COORDINATE ELECTRICAL CONSTRUCTION WITH ALL CRAFT/TRADE TO ACHIEVE AN EFFICIENT AND EFFECTIVE ELECTRICAL INSTALLATION.
1.13.	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.
2. ELECTRICAL EQUIPMENT:	
2.1.	600V RATED ELECTRICAL EQUIPMENT SHALL HAVE AN AMPERE INTERRUPTING CAPACITY (AIC) RATINGS AS SHOWN ON THE CONTRACT DRAWINGS.
2.2.	EQUIPMENT SHALL BE ARRANGED AND INSTALLED TO COMPLY WITH ALL CODE-REQUIRED, MANUFACTURER-RECOMMENDED AND HEAT-DISSIPATION CLEARANCES.
2.3.	EQUIPMENT INSTALLATIONS AND PLACEMENTS SHALL COMPLY WITH NEC ARTICLE 110 FOR ALL CLEARANCE REQUIREMENTS.
2.4.	EQUIPMENT SHALL FIT INTO THOSE SPACES AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR IS RESPONSIBLE TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENTS.
2.5.	CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTIONS FOR ALL EQUIPMENT INSTALLED AND/OR MODIFIED UNDER CONTRACT.
3. POWER AND CONTROL SYSTEM RACEWAYS:	
3.1.	EXPOSED CONDUIT SHALL BE RIGID ALUMINUM CONDUIT (RAC), GRS, IMC AND EMT ARE NOT ACCEPTABLE.
3.2.	CONCEALED CONDUIT EMBEDDED IN CONCRETE SHALL BE SCH-40 PVC
3.4.	DIRECT-BURIED CONDUIT SHALL BE DIRECT-BURIED SCH-80 PVC
3.5.	TRANSITIONS THROUGH FINISHED GRADE AND/OR CONCRETE SHALL BE PVC-COATED RAC CONDUIT.
3.6.	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.
3.7.	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.
3.8.	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.
3.9.	RACEWAYS SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED OR SHOWN. THESE SHALL RUN PARALLEL TO LANDSCAPE AND STRUCTURAL FEATURES WHILE THE BENDS AND TURNS SHALL BE MADE BY MEANS OF LARGE RADIUS FITTINGS.
3.10.	PROVIDE FLEXIBLE RACEWAY CONNECTIONS TO ALL EQUIPMENT SUBJECT TO MOVEMENT AND/OR VIBRATION. CONTRACTOR SHALL MAKE RACEWAY CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS.
3.11.	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.
3.12.	SPARE CONDUITS SHALL BE CAPPED OR PLUGGED WITH A PVC FITTING AND INCLUDE 200# TEST POLYPROPYLENE PULL STRING.
4. CABLES/CONDUCTORS/WIRES:	
4.1.	GENERAL
4.1.1.	QUANTITY AND SIZING OF CONDUCTORS, CABLING, WIRING AND RESPECTIVE RACEWAYS DEPICTED ON THE DRAWINGS ARE BASED UPON SELECTED STANDARD ELECTRICAL COMPONENTS OR EQUIPMENT WITH DIRECT ROUTED CONNECTIONS. 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.
4.1.2.	CONTRACTOR SHALL PROVIDE A CIRCUIT IDENTIFICATION LABEL AT EACH END OF EACH POWER, BRANCH, CONTROL AND INSTRUMENTATION CIRCUIT CABLE ASSEMBLY, CONDUCTOR OR WIRE.
4.2.	POWER/FEEDER
4.2.1.	CONTRACTOR SHALL NOT EXCEED CABLE MANUFACTURER SPECIFICATIONS FOR SIDE-WALL AND TENSION LIMITS WHEN DRAWING POWER CABLES INTO RACEWAYS.
4.2.2.	CONTRACTOR SHALL DRAW POWER CABLES AND CONDUCTORS WITHIN RACEWAYS UTILIZING POLYMER LUBRICANT J OR APPROVED EQUAL.
4.2.3.	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.
4.3.	POWER/BRANCH
4.3.1.	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
5. HARDWARE AND SUPPORTS:	
5.1.	ALL FASTENERS AND HARDWARE SHALL BE STAINLESS-STEEL 316L.
5.2.	STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
5.3.	MANUFACTURED STRUT-CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
5.4.	CONTRACTOR SHALL PROVIDE ALL SUPPORTS AND FASTENING HARDWARE FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CONTROL PANELS, ETC., AS REQUIRED IN THE SPECIFICATIONS.
5.5.	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.
5.6.	STRUCTURAL MEMBERS SHALL NOT BE DRILLED, CUT, WELDED TO, OR OTHERWISE MODIFIED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.
6. RECEPTACLES/SWITCHES:	
6.1.	GENERAL
6.2.0.2.	INDOORS OR NON PROCESS AREAS SHALL BE INSTALLED CONCEALED AND FLUSH WITH STAINLESS-STEEL DEVICE COVER PLATES.
6.2.0.3.	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.
6.3.	RECEPTACLES/GROUND FAULT CURRENT INTERRUPTING (GFCI)
6.3.1.	SHALL BE INDIVIDUAL GFCI RECEPTACLE DEVICES RATED FOR 20A/120V WITH LED POWER INDICATOR.
6.3.2.	GFCI RECEPTACLE DEVICES SHALL NOT SHARE NEUTRAL CONDUCTORS ON THREE-PHASE SYSTEMS

REVNO	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

SEAL
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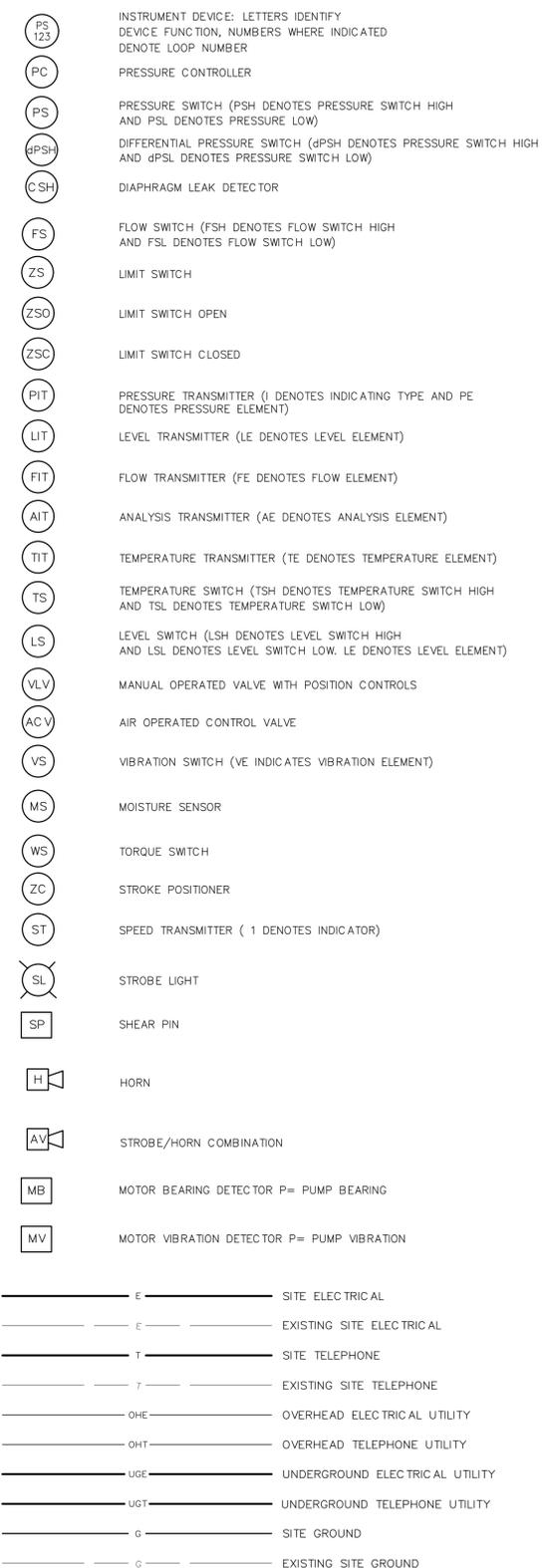
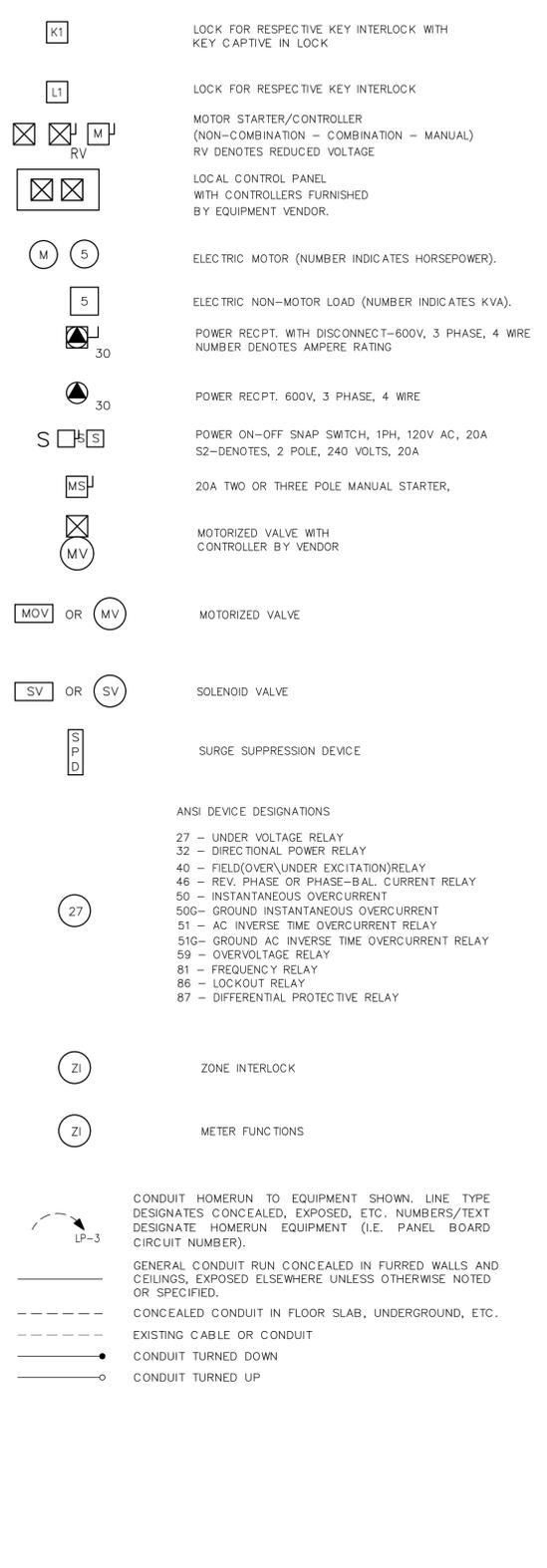
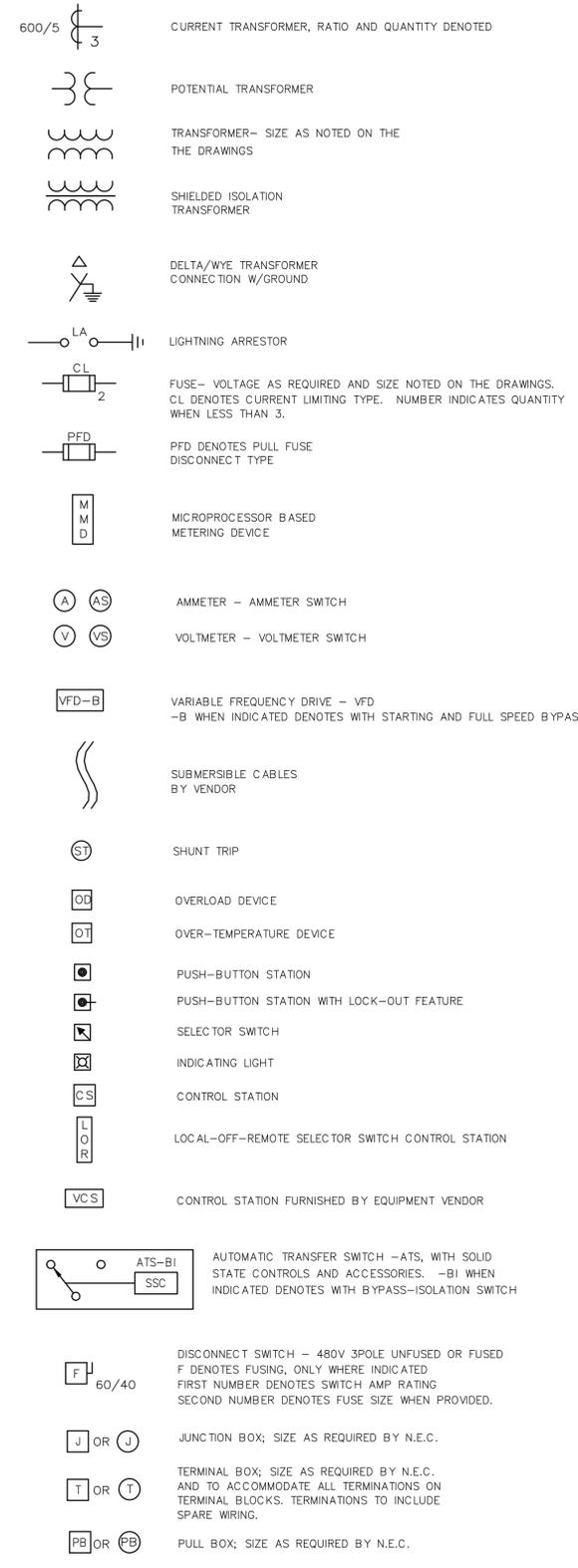
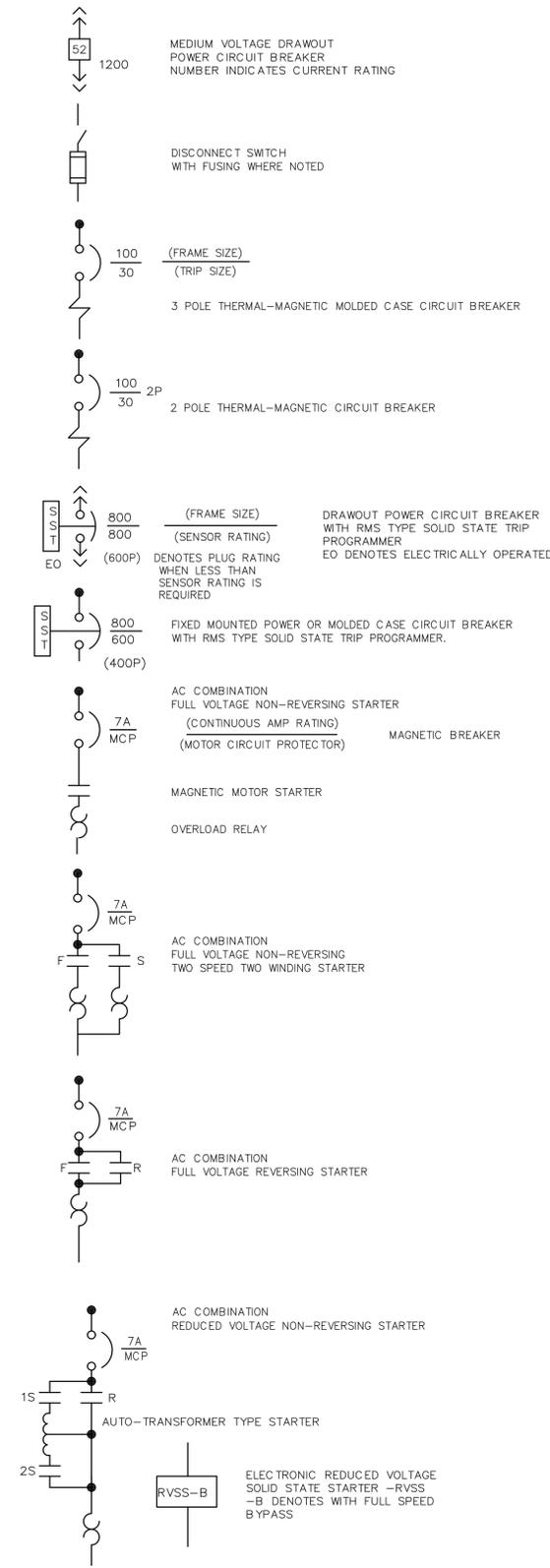


LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

SYMBOLS, ABBREVIATIONS AND NOTES

PROJ. START DATE: 2020 JUN	SCALE	<table border="1"> <tr> <td>HORIZONTAL:</td> <td>E0.00</td> </tr> <tr> <td>VERTICAL:</td> <td>0</td> </tr> </table>	HORIZONTAL:	E0.00	VERTICAL:	0
HORIZONTAL:	E0.00					
VERTICAL:	0					
MCE PROJ. # 01024-0181	DRAWN JG					
DESIGNED SS	CHECKED MAC					
PROJ. MGR. AAH						
STATUS:		ISSUED FOR BID				



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL SYMBOLS

PROJ. START DATE: 2020 JUN	SCALE	E0.02
MCE PROJ. # 01024-0181	HORIZONTAL: N/A	
DRAWN: JG	VERTICAL: TBD	DRAWING NUMBER: 0
DESIGNED: SS		REVISION
CHECKED: MAC		
PROJ. MGR. AAH		

STATUS: ISSUED FOR BID

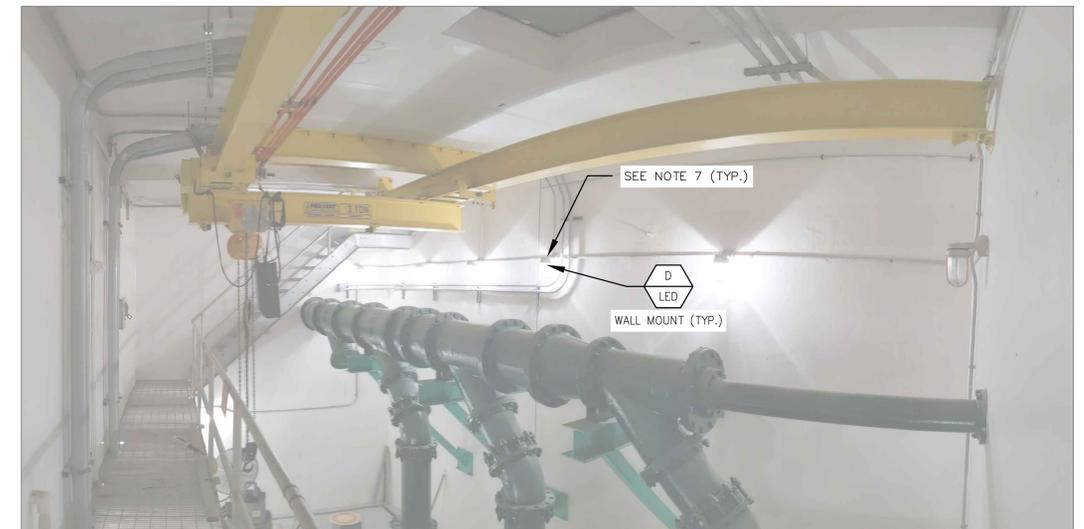
NOTES:

1. PROVIDE TEMPORARY POWER FOR CONSTRUCTION. REFER TO BYPASS PUMP SPECIFICATIONS.
2. EXISTING ATS SHALL BE RELOCATED TO NEW ELECTRICAL BUILDING.
3. REMOVE ALL EXPOSED CONDUIT AND WIRE NOT USED PER EQUIPMENT DEMOLITION.
4. REMOVE ALL WIRING IN UNDERGROUND CONDUIT THAT IS TO BE ABANDONED. CAP ALL ABANDONED CONDUIT.
5. INTERCEPT EXISTING CONDUIT BY INSTALLING NEMA 4X SS 42 CKT PANELBOARD. REPULL ALL NEW WIRE.
6. REMOVE EQUIPMENT PADS UNDERNEATH EQUIPMENT BEING DEMOLISHED. INSTALL NEW PADS UNDER NEW EQUIPMENT, SUCH AS NEW VFD JUNCTION BOXES. REFER TO STRUCTURAL DRAWINGS.
7. REPLACE EXISTING FLUORESCENT BULBS WITH LED. IN THE EVENT THE GUARD AND GLOBE CAN NOT BE REMOVED, WITHOUT DAMAGE, A NEW REPLACEMENT LED FIXTURE SHALL BE INSTALLED.

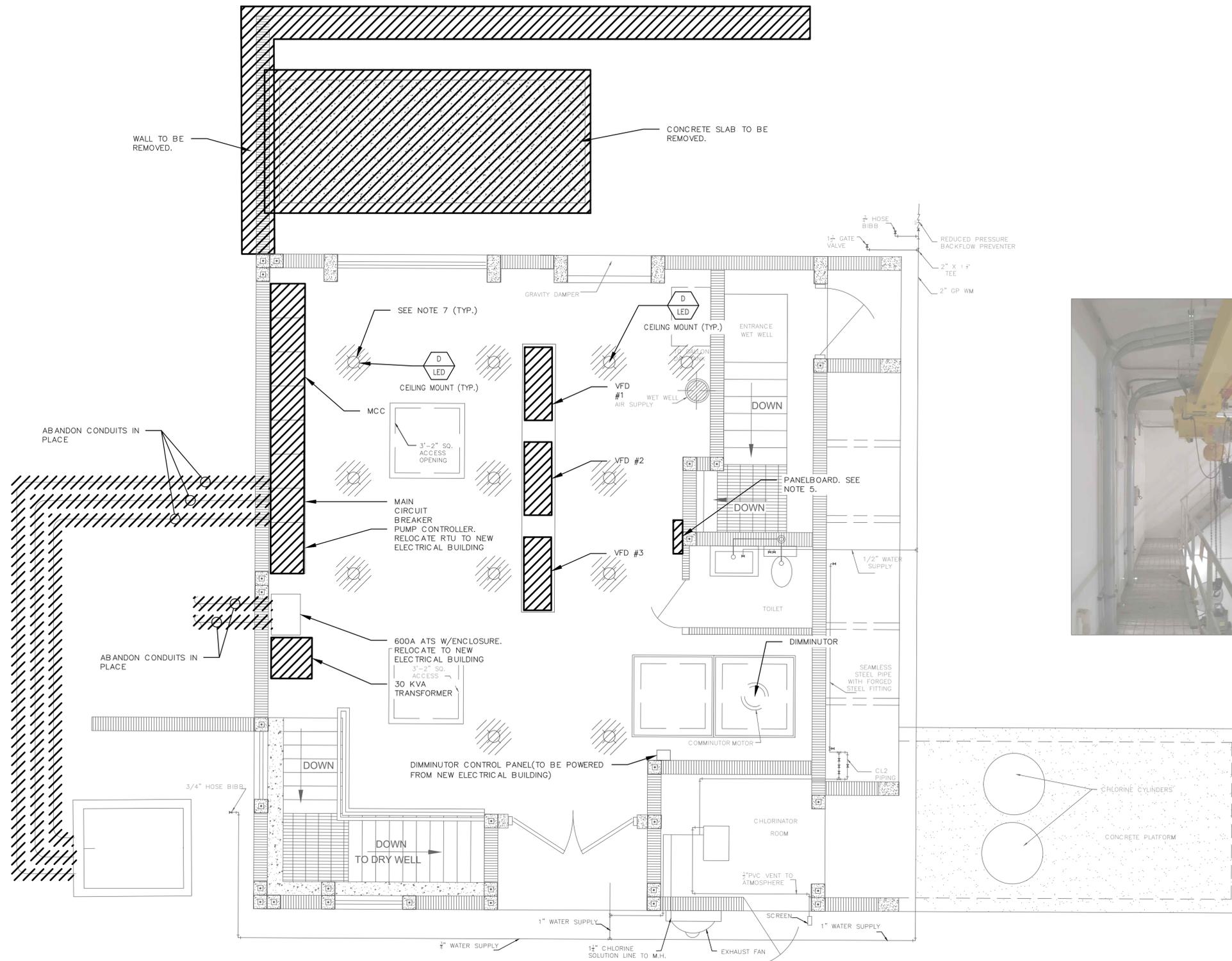


SCALE: 3/8" = 1'-0"

- EQUIPMENT TO BE DEMOLISHED OR RELOCATED.



EXISTING BUILDING DRY WELL LIGHTING
SCALE: NTS



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

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
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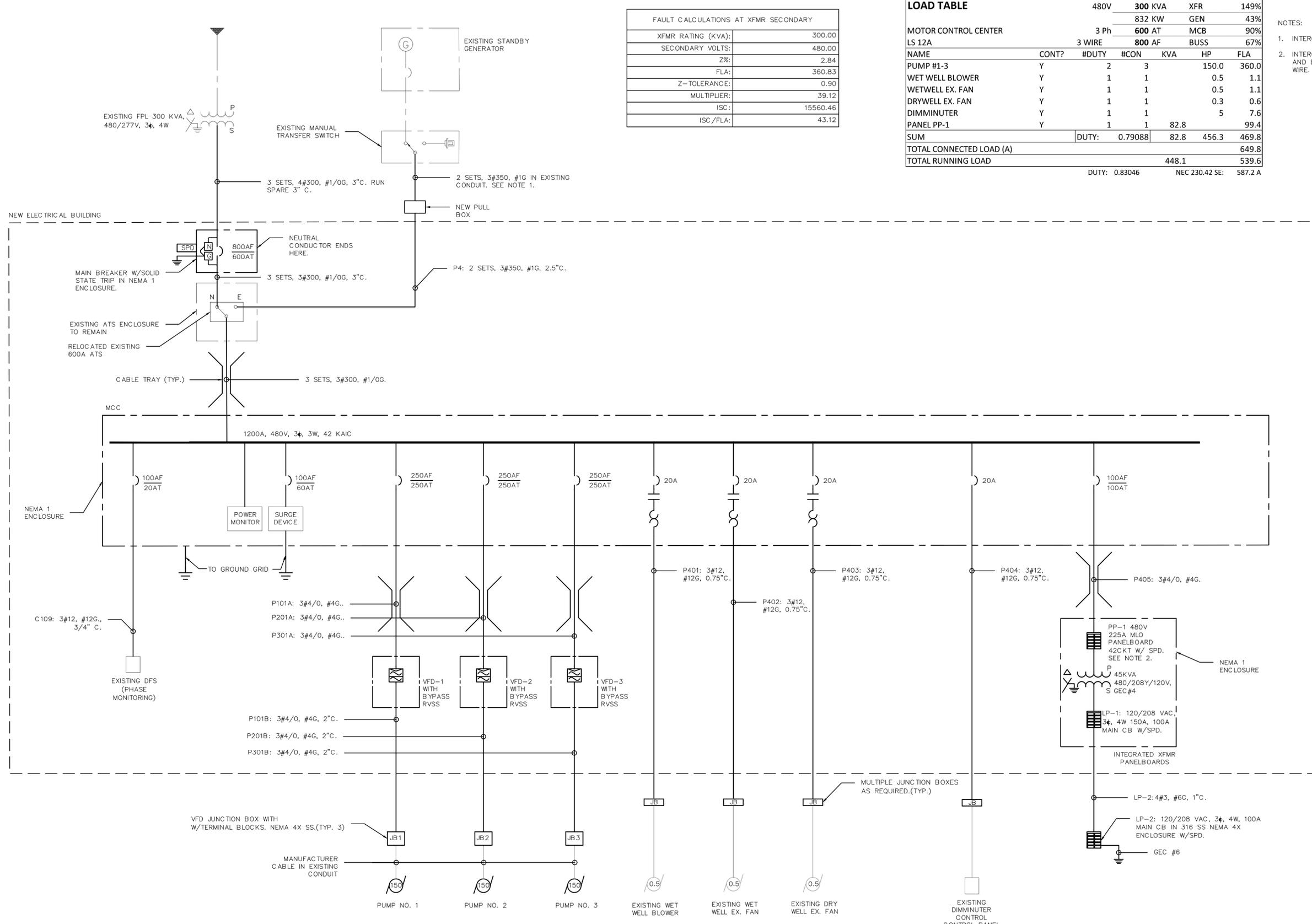
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Manatee County
FLORIDA

LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

**ELECTRICAL
DEMOLITION PLAN**

PROJ. START DATE: 2020. JUN	SCALE	E1.00
MCE PROJ. # 01024-0181	HORIZONTAL: 3/8"=1'-0"	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS	REVISION	
CHECKED MAC		0
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		



FAULT CALCULATIONS AT XFRM SECONDARY	
XFMR RATING (KVA):	300.00
SECONDARY VOLTS:	480.00
Z%:	2.84
FLA:	360.83
Z-TOLERANCE:	0.90
MULTIPLIER:	39.12
ISC:	15560.46
ISC/FLA:	43.12

LOAD TABLE		480V	300 KVA	XFR	149%	
MOTOR CONTROL CENTER		3 Ph	832 KW	GEN	43%	
LS 12A		3 WIRE	600 AT	MCB	90%	
			800 AF	BUSS	67%	
NAME	CONT?	#DUTY	#CON	KVA	HP	FLA
PUMP #1-3	Y	2	3		150.0	360.0
WET WELL BLOWER	Y	1	1		0.5	1.1
WETWELL EX. FAN	Y	1	1		0.5	1.1
DRYWELL EX. FAN	Y	1	1		0.3	0.6
DIMMINUTER	Y	1	1		5	7.6
PANEL PP-1	Y	1	1	82.8		99.4
SUM		DUTY:	0.79088	82.8	456.3	469.8
TOTAL CONNECTED LOAD (A)						649.8
TOTAL RUNNING LOAD				448.1		539.6
		DUTY:	0.83046	NEC 230.42 SE:	587.2 A	

- NOTES:
1. INTERCEPT EXISTING CONDUITS AND PULL NEW WIRES.
 2. INTERCEPT CONDUIT FOR GENERATOR BATTERY CHARGER AND BLOCK HEATER AND ROUTE TO PP-1, PULL NEW WIRE.

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL SINGLE LINE DIAGRAM

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0181
DRAWN JG
DESIGNED SS
CHECKED MAC
PROJ. MGR. AAH

SCALE: HORIZONTAL: N/A, VERTICAL: TBD

E1.01
DRAWING NUMBER
0 REVISION

STATUS: ISSUED FOR BID



NORTH

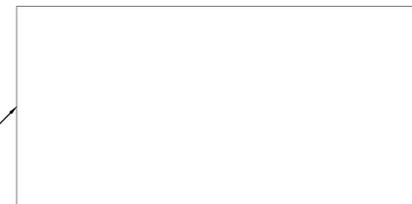
30 0 30 60

SCALE: 1" = 60'

NOTES:

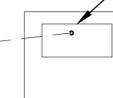
- 1. VERIFY LOCATION AND INTERCEPT MANUAL TRANSFER SWITCH CONDUIT. RE-PULL NEW WIRE TO EXISTING MANUAL TRANSFER SWITCH.

EXISTING GENERATOR SET



18"x18"x10" PULL BOX UNDERGROUND PULL BOX. SEE NOTE 1.

EXISTING MANUAL TRANSFER SWITCH



2 SETS 3#350, #1G IN EXISTING CONDUIT. SEE ALSO SHEET E1.01 NOTE 2.

2 SETS, 3#350, #1G, 2.5" C. IN NEW CONDUIT.

TO GENERATOR: PP-1, CKT 8: 3#8, #8G, 3/4" C.

PROPOSED ELECTRICAL BUILDING

UTILITY FEED 3 SETS, 4#300, #1/0G, 3" C. RUN SPARE 3" C.

EXISTING RAIN GAUGE

FPL 300 KVA XFMR, 3φ, 4W

C200

EXISTING RTU ANTENNA

NEW DOOR

TANK

VAULT

ELECTRICAL SITE PLAN

SCALE: 1"=60'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

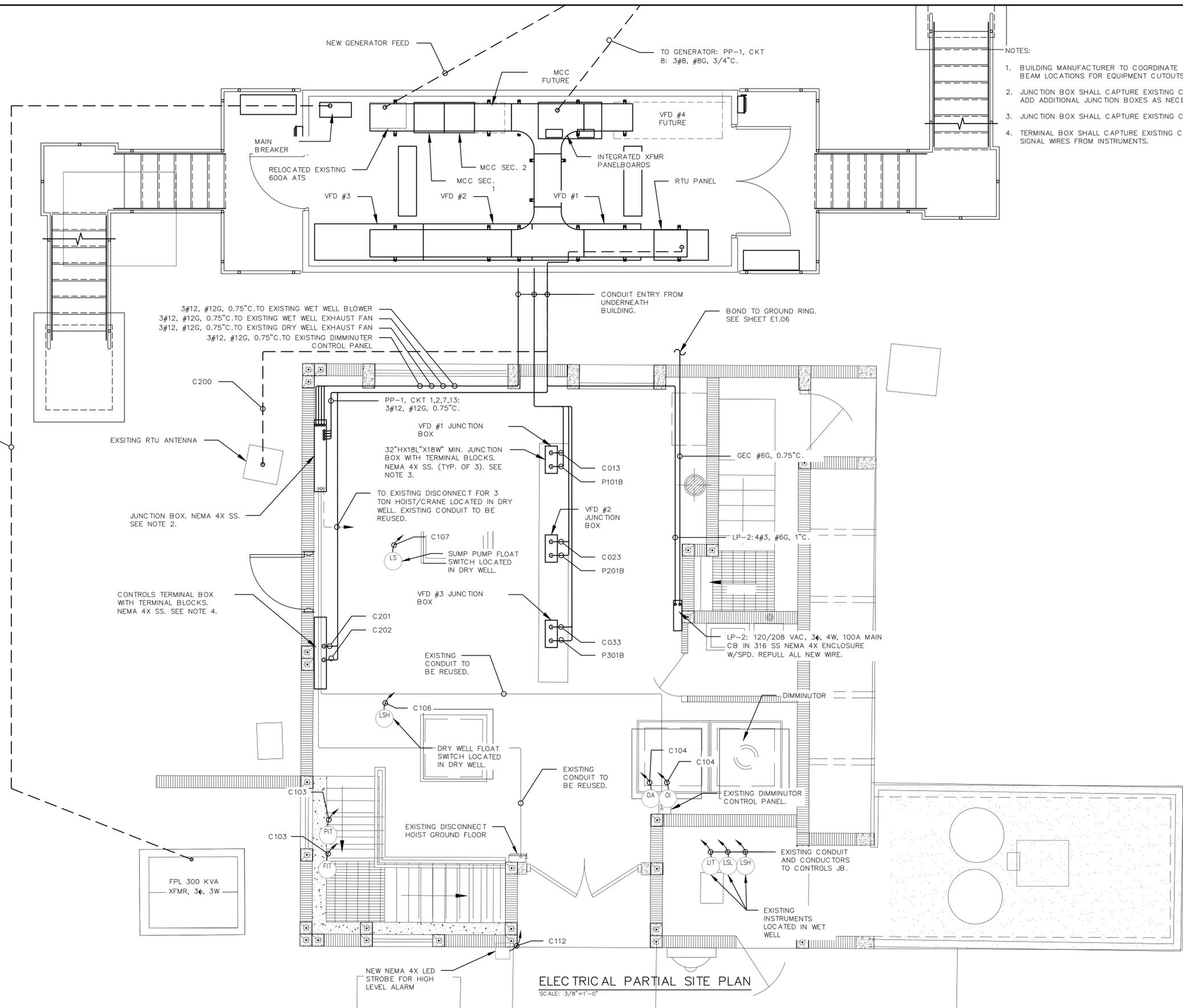
ELECTRICAL SITE PLAN

PROJ. START DATE: 2020 JUN
MCE PROJ. # 01024-0181
DRAWN JG
DESIGNED SS
CHECKED MAC
PROJ. MGR. AAH

SCALE
HORIZONTAL: 1"=60'-0"
VERTICAL: TBD

E1.02
DRAWING NUMBER
0
REVISION

STATUS: ISSUED FOR BID



NOTES:

- BUILDING MANUFACTURER TO COORDINATE W/STRUCTURAL ON BEAM LOCATIONS FOR EQUIPMENT CUTOUTS.
- JUNCTION BOX SHALL CAPTURE EXISTING CONDUITS TO EQUIPMENT. ADD ADDITIONAL JUNCTION BOXES AS NECESSARY.
- JUNCTION BOX SHALL CAPTURE EXISTING CONDUIT TO DRY WELL.
- TERMINAL BOX SHALL CAPTURE EXISTING CONDUITS. INTERCEPT SIGNAL WIRES FROM INSTRUMENTS.

0 2 4
SCALE: 3/8" = 1'-0"

NORTH

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

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL
ELECTRICAL PARTIAL SITE PLAN

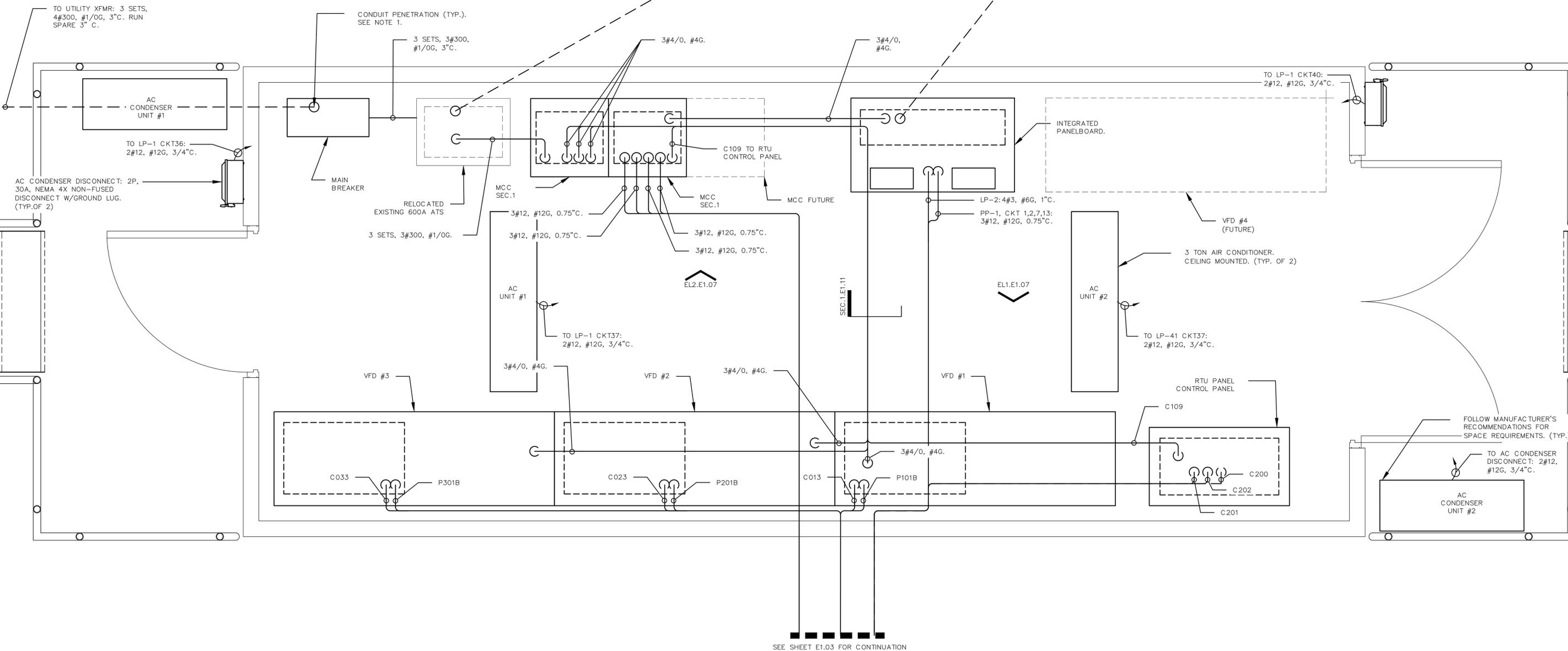
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MCE PROJ. # 01024-0181	HORIZONTAL: 3/8"=1'-0"	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS	REVISION	
CHECKED MAC		0
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		

NOTES:

- CONTRACTOR TO CORE DRILL ALL CONDUIT PENETRATIONS THROUGH CONCRETE AND SEAL AFTER INSTALLATION WITH ECOFLEX PRODUCT OR EQUAL. DUCT SEAL NOT ALLOWED. SEE SHEET E1.08 - LIGHTING PLAN FOR EQUIPMENT CUTOUT LOCATIONS.
- CABLE TRAY REMOVED FOR CLARITY. SEE E1.05
- EXISTING ATS TO BE MOUNTED IN 91.5"H X 30"W X 24"D, NEMA 1 ENCLOSURE BY UL CERTIFIED PANEL SHOP W/LABEL.



SCALE: 1" = 1'-0"



ELECTRICAL BUILDING POWER PLAN

SCALE: 1"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

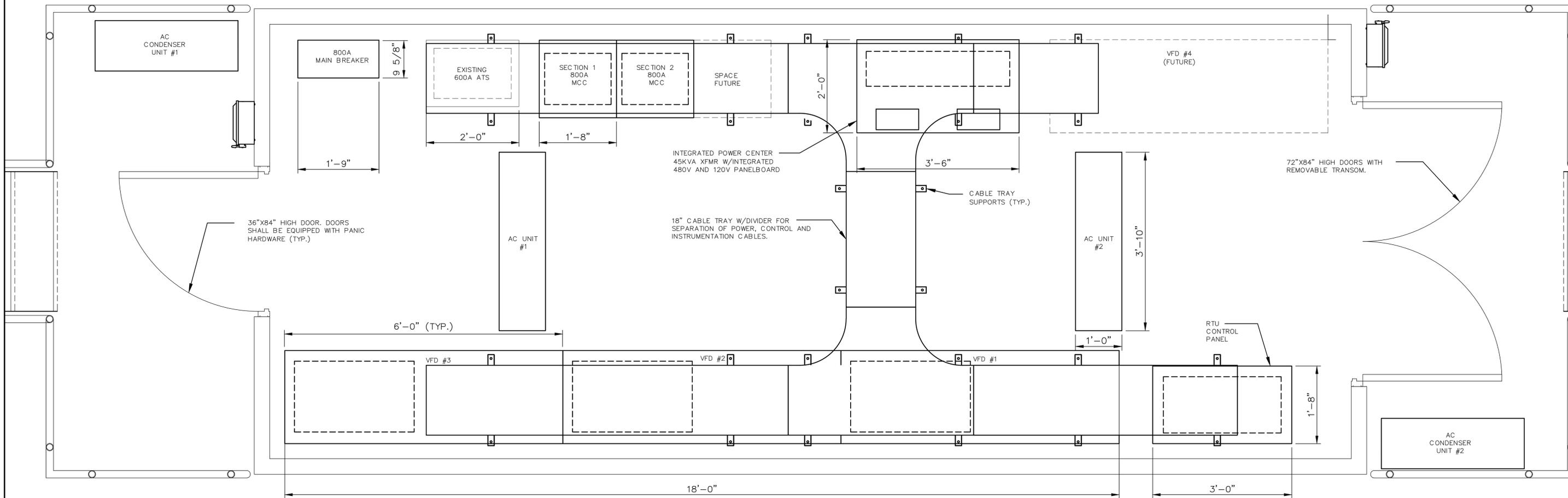
ELECTRICAL BUILDING POWER PLAN

PROJ. START DATE: 2020. JUN	SCALE: 1"=1'-0"	E1.04 DRAWING NUMBER
MCE PROJ. # 01024-0181	HORIZONTAL: 1"=1'-0"	
DRAWN: JG	VERTICAL: TBD	0 REVISION
DESIGNED: SS	STATUS: ISSUED FOR BID	
CHECKED: MAC		
PROJ. MGR: AAH		



NORTH

SCALE: 1" = 1'-0"



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

ELECTRICAL BUILDING LAYOUT

PROJ. START DATE: 2020 JUN	SCALE	E1.05 DRAWING NUMBER
MCE PROJ. # 01024-0181	HORIZONTAL: 1"=1'-0"	
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DESIGNED SS	REVISION	
CHECKED MAC	0	
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		

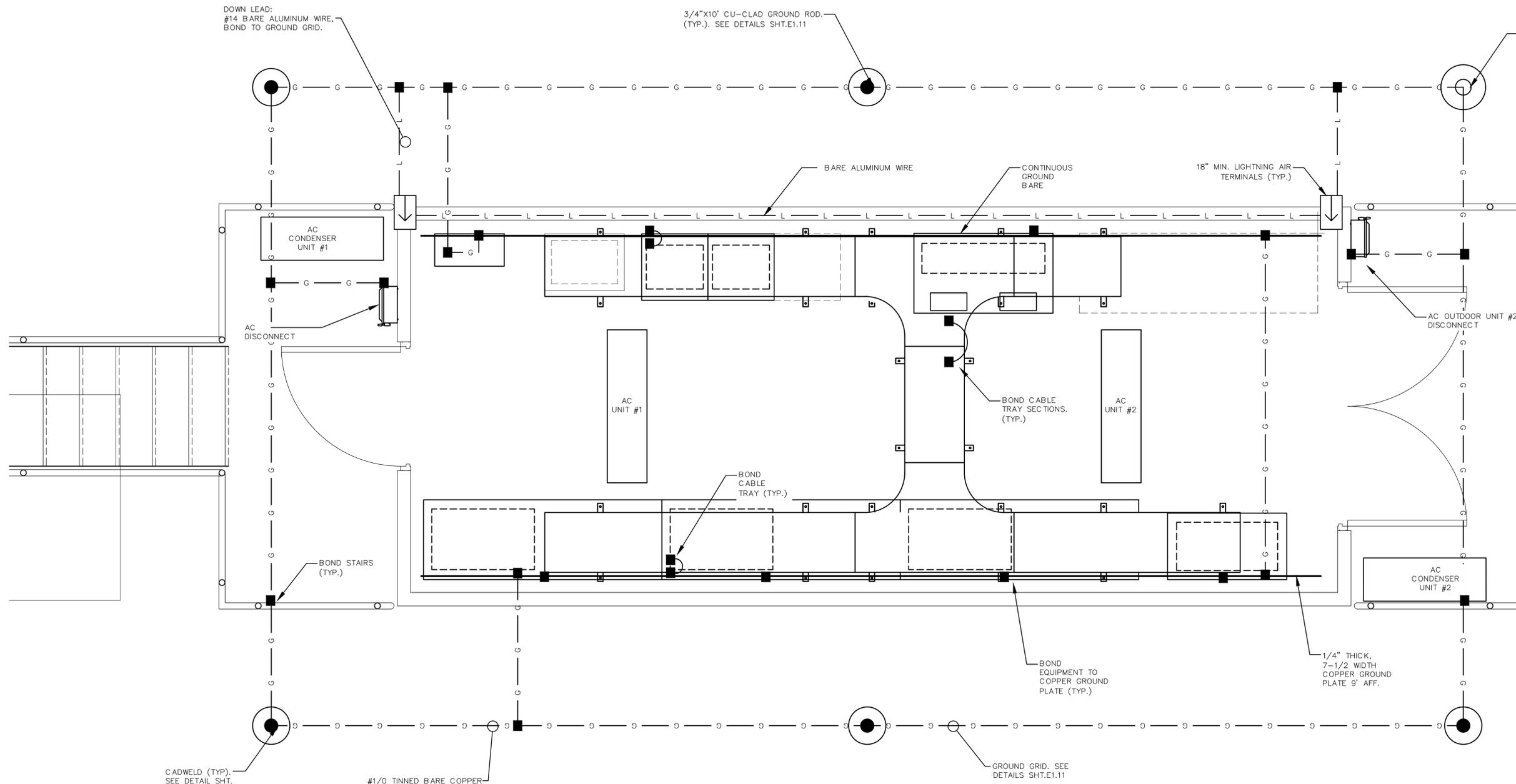


SCALE: 3/4" = 1'-0"

DOWN LEAD:
#14 BARE ALUMINUM WIRE,
BOND TO GROUND GRID.

3/4"X10' CU-CLAD GROUND ROD,
(TYP.). SEE DETAILS SHT.E1.11

GROUND TEST WELL.



GROUNDING AND LIGHTNING PROTECTION PLAN
SCALE: 3/4"=1'-0"

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

SEAL

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

GROUNDING AND LIGHTNING PROTECTION PLAN

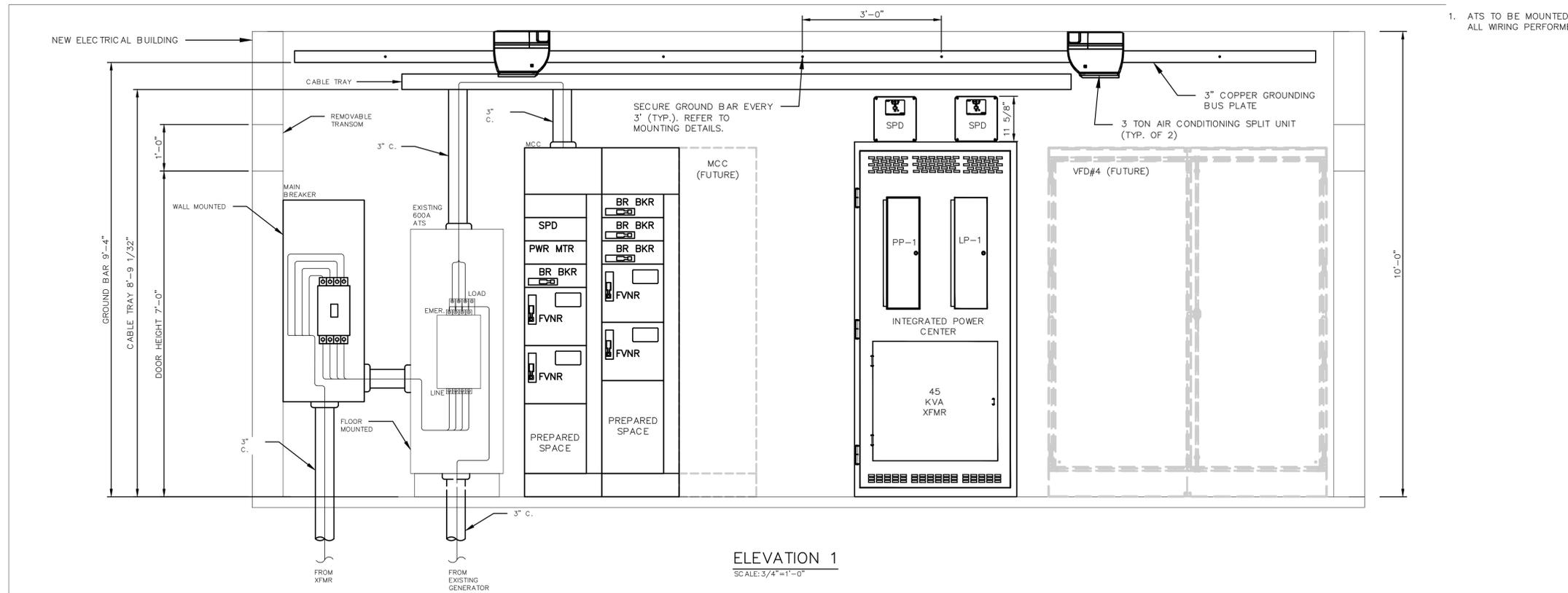
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DRAWN: JG	VERTICAL: TBD
DESIGNED: SS	
CHECKED: MAC	
PROJ. MGR. AAH	
STATUS:	ISSUED FOR BID

E1.06

DRAWING NUMBER

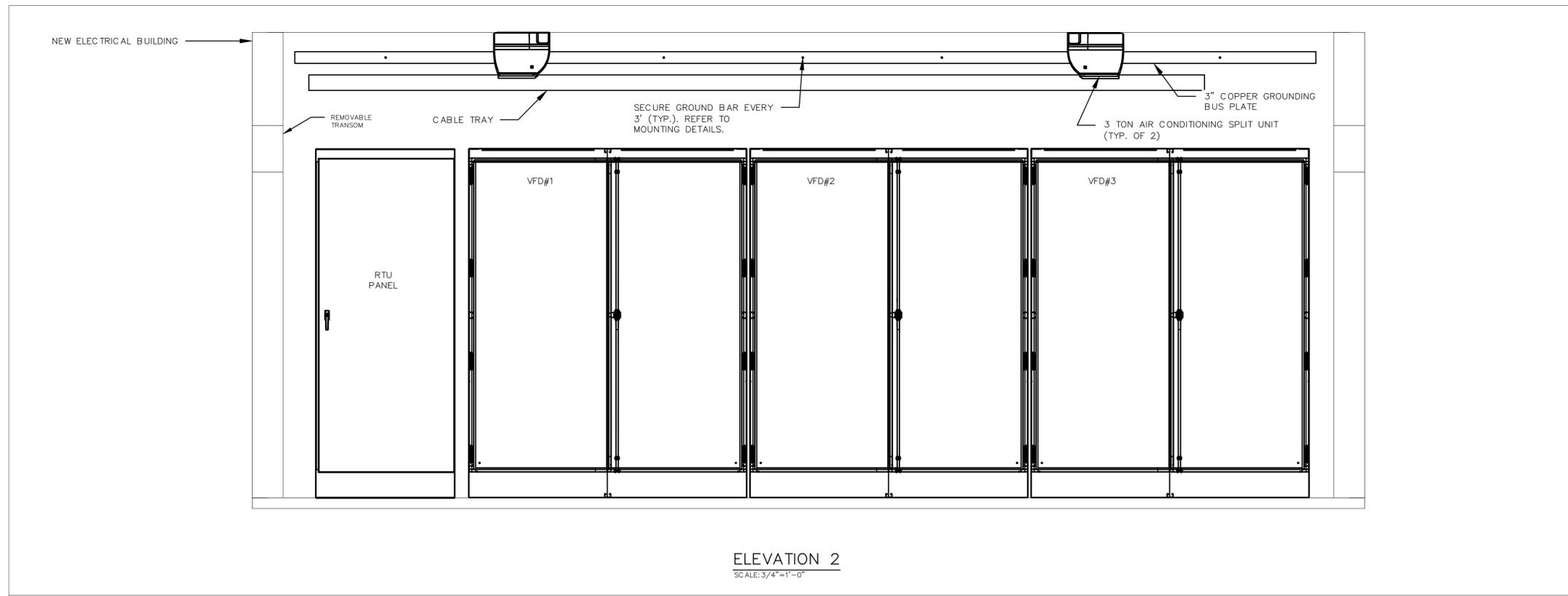
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REVISION



NOTES:

- ATS TO BE MOUNTED IN THE FIELD BY UL CERTIFIED PANEL SHOP. ALL WIRING PERFORMED IN FIELD BY CONTRACTOR.



REV. NO.	DESCRIPTION	DATE
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL

MCB, ATS AND MCC ELEVATIONS

PROJ. START DATE: 2020. JUN	SCALE
MCE PROJ. # 01024-0181	HORIZONTAL: N/A
DRAWN JG	VERTICAL: TBD
DESIGNED SS	
CHECKED MAC	
PROJ. MGR. AAH	

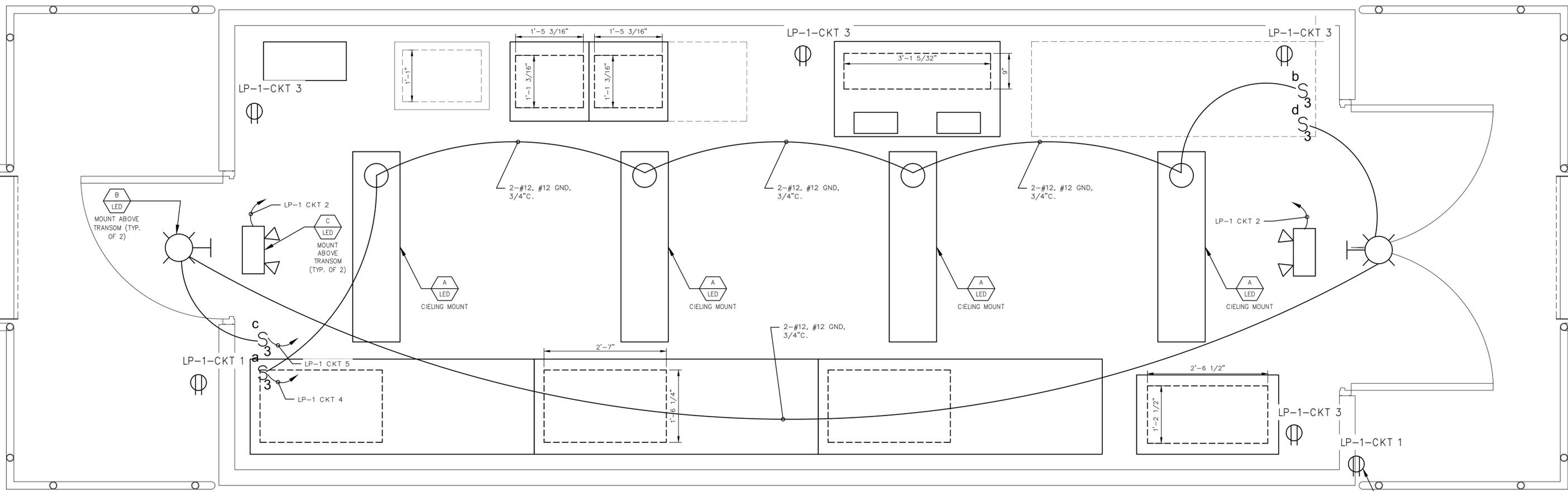
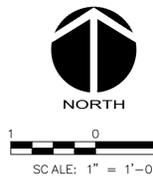
E1.07

DRAWING NUMBER

0

REVISION

ISSUED FOR BID



LIGHTING SCHEDULE

LETTER	DESCRIPTION	LAMPS	REMARKS	SYMBOL
A	4' SURFACE MOUNT LED LUMINAIRE. ROLLED STEEL HOUSING. IMPACT MODIFIED LINEAR FACETED REFRACTOR. INTEGRAL OCCUPANCY SENSOR.	LED MIN CRI 82, L90/60,000HRS, 39W, 4000K	LITHONIA LIGHTING MOD. WL4-40L-LP840-NES7-SC OR APPROVED EQUAL.	
B	LED OUTDOOR RATED WALL PACK. TYPE II/WIDE DISTRIBUTION. INTEGRAL BALLAST & PHOTOCELL. FULL CUTOFF. DARK BRONZE.	20 LED 73W 4000K	LITHONIA LIGHTING DSXW2 LED, LSI INDUSTRIES XGBWM3, OR APPROVED ALTERNATE	
C	WALL MOUNT EMERGENCY EXIT LIGHT W/SIGN. INJECTION-MOLDED, FLAME-RETARDANT, HIGH-IMPACT, THERMOPLASTIC HOUSING. BATTERY BACKUP. TEST SWITCH FOR MANUAL ACTIVATION OF 30-SECOND DIAGNOSTIC TESTING. SELF DIAGNOSTIC TESTING EVERY 30 DAYS.	LED, RED LENS <1W, 120V	LITHONIA LIGHTING MOD. LHQM OR APPROVED EQUAL	
D	LED, CLASS 1, DIV 2 RATED, EXPLOSION PROOF FIXTURE WITH DOME REFLECTOR AND GLOBE GUARD.	LED, 40W, 120V.	KILLARK MODEL NO. EMLC-50-30 OR APPROVED EQUAL. WALL MOUNT AND CEILING MOUNT AS NECESSARY.	

LIGHTING PLAN
SCALE: 1"=1'-0"

GFCI IN WEATHERPROOF ENCLOSURE WITH INUSE COVER (TYP.)

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021

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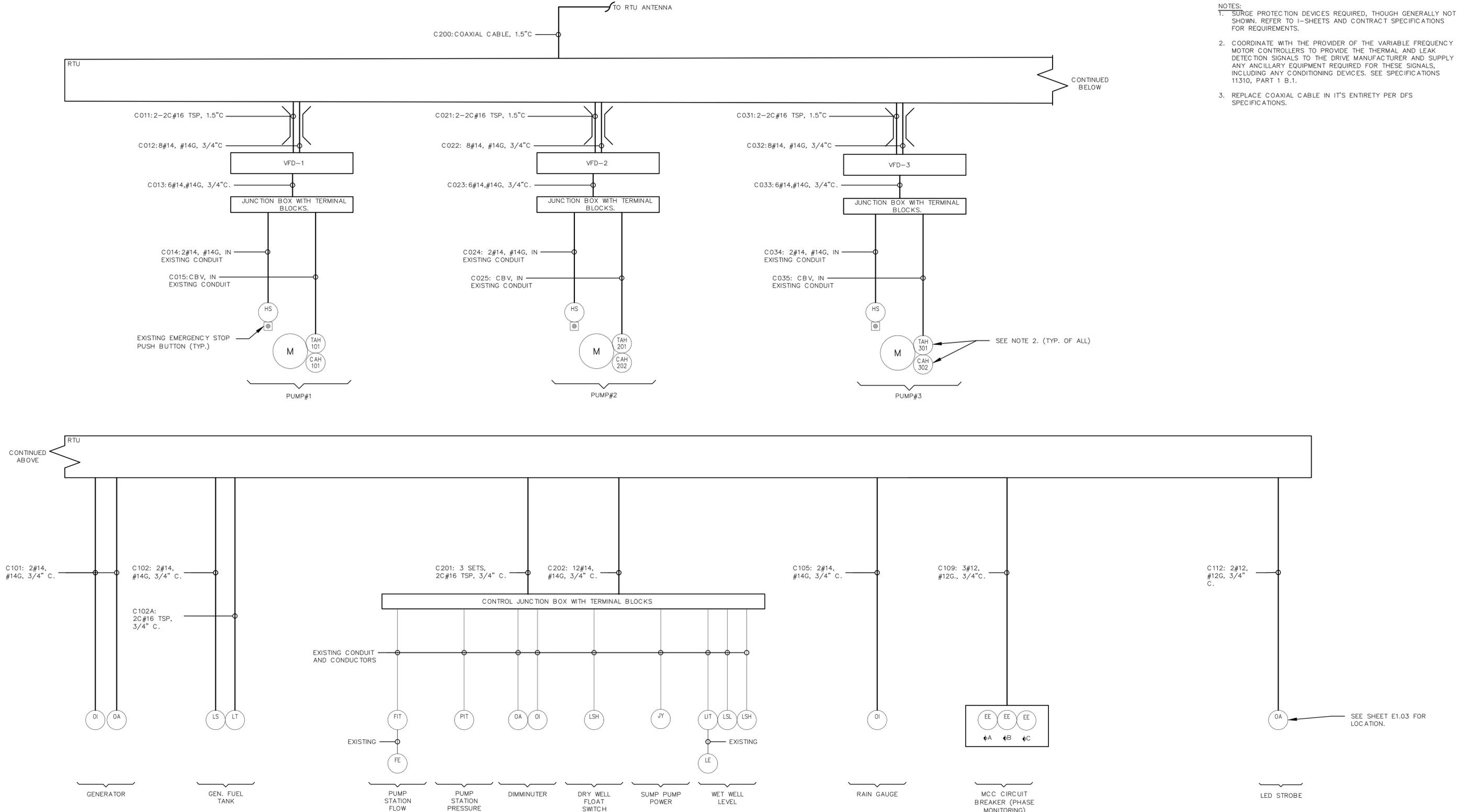
Manatee County
FLORIDA

LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL LIGHTING PLAN

PROJ. START DATE: 2020 JUN	SCALE: 1"=1'-0"	E1.08 DRAWING NUMBER
MCE PROJ. # 01024-0181	HORIZONTAL: 1"=1'-0"	
DRAWN: JG	VERTICAL: TBD	0 REVISION
DESIGNED: SS		
CHECKED: MAC		
PROJ. MGR: AAH		
STATUS: ISSUED FOR BID		

- NOTES:
1. SURGE PROTECTION DEVICES REQUIRED, THOUGH GENERALLY NOT SHOWN. REFER TO I-SHEETS AND CONTRACT SPECIFICATIONS FOR REQUIREMENTS.
 2. COORDINATE WITH THE PROVIDER OF THE VARIABLE FREQUENCY MOTOR CONTROLLERS TO PROVIDE THE THERMAL AND LEAK DETECTION SIGNALS TO THE DRIVE MANUFACTURER AND SUPPLY ANY ANCILLARY EQUIPMENT REQUIRED FOR THESE SIGNALS, INCLUDING ANY CONDITIONING DEVICES. SEE SPECIFICATIONS 11310, PART 1 B.1.
 3. REPLACE COAXIAL CABLE IN IT'S ENTIRETY PER DFS SPECIFICATIONS.



ELECTRICAL INTERCONNECTION
DIAGRAM
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL INTERCONNECTION DIAGRAM

PROJ. START DATE: 2020 JUN	SCALE	E1.09 DRAWING NUMBER 0 REVISION
MCE PROJ. # 01024-0181	HORIZONTAL: N/A	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS		
CHECKED MAC		
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	HOIST DRY WELL	0.27	1.0	3	2.1			3	6.5	1.8	ODOR CONTROL	20	2
			0.27				2.1			1.8				
			0.27					2.1		1.8				
7	20	HOIST GROUND FLOOR	0.27	1.0	3	10.3			3	36.1	10	30KVA EXISTING GENERATOR TRANSFORMER	50	8
			0.27				10.3			10				
			0.27					10.3		10				
13	20	HOIST OVER WET WELL	0.27	1.0	3	15.3			3	54.1	15	45KVA TRANSFORMER	70	14
			0.27				15.3			15				
			0.27					15.3		15				
19	20	SPARE			3	0.0			3			SURGE PROTECTION DEVICE	20	20
							0.0							
								0.0						
25	30	SPARE			3	0.0			3				20	26
							0.0							
								0.0						
31	30	SPARE			3	0.0			3			SPARE	30	32
							0.0							
								0.0						
37		SPACE			3	0.0			3			SPACE		38
							0.0							
								0.0						
PANEL PP-1 LOCATION MANATEE COUNTY LS12A BUILDING ELECTRICAL BUILDING NOTES: INTEGRATED PANELBOARD			TOTAL KVA 27.6 27.6 27.6			GRAND CONNECTED TOTAL KVA 82.8			SERVICE CHARACTERISTICS VOLTS: 480 225 A MLO PHASE: 3 0 A MCB WIRE: 3 10K MIN AIC SYMM, FULLY RATED ASSEMBLY					

PANEL SCHEDULE PP-1
SCALE: NTS

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	ELEC. BUILDING RECEPTACLES OUTSIDE	0.36	3.0	1	0.5			1	1.5	0.18	ELEC. BUILDING EMERG. EXIT LIGHT	20	2
3	20	ELEC. BUILDING RECEPTACLES INSIDE	0.72	6.0	1		1.5		1	6.7	0.8	ELEC. BUILDING LIGHTING INSIDE	20	4
5	20	ELEC. BUILDING OUTSIDE WALL PACKS	0.5	4.2	1			2.1	2	15.4	1.6	ELEC. BUILDING AC OUTDOOR UNIT #1	25	6
7	15	ELEC. BUILDING AC INDOOR UNIT #1	0.1	1.0	2	1.7			2	15.4	1.6	ELEC. BUILDING AC OUTDOOR UNIT #2	25	10
			0.1				1.7			1.6				
11	15	ELEC. BUILDING AC INDOOR UNIT #2	0.1	1.0	2			1.7	3	61.7	7.4	PANEL LP-2	100	14
			0.1			7.5				7.4				
15	20	SURGE PROTECTION DEVICE			3			7.4						
								7.4						
						1.5			1	12.5	1.5	RTU CONTROL PANEL	20	20
21	20	SPARE			1		0.0		1			SPARE	20	22
23	20	SPARE			1			0.0	1			SPARE	20	24
25	20	SPARE			1	0.0			1			SPARE	20	26
27	20	SPARE			1		0.0		1			SPARE	20	28
29	20	SPARE			1			0.0	1			SPARE	20	30
31	20	SPARE			1	0.0			1			SPARE	20	32
33	20	SPARE			1		0.0		1			SPARE	20	34
35	20	SPARE			1			0.0	1			SPARE	20	36
37	20	SPARE			1	0.0			1			SPARE	20	38
39	20	SPARE			1		0.0		1			SPARE	20	40
41	20	SPARE			1			0.0	1			SPARE	20	42
PANEL LP-1 LOCATION MANATEE COUNTY LS12A BUILDING NEW ELECTRICAL BUILDING NOTES: INTEGRATED PANELBOARD			TOTAL KVA 11.3 10.6 11.2			GRAND CONNECTED TOTAL KVA 33.1			SERVICE CHARACTERISTICS VOLTS: 208Y/120 150 A MLO PHASE: 3 150 A MCB WIRE: 4 10K MIN AIC SYMM, FULLY RATED ASSEMBLY					

PANEL SCHEDULE LP-1
SCALE: NTS

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD KVA	AMPS	POLES	KVA PER PHASE			POLES	AMPS	LOAD KVA	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	30	UNKNOWN	0.18	1.5	1	0.4			1	1.5	0.18	UNKNOWN	15	2
3	15	BATTERY CHARGER	0.06	0.5	1		1.2		1	9.2	1.1	#1 PUMP SPEED CONTROLLER	15	4
5	30	#2 PUMP SPEED CONTROLLER	1.1	9.2	1			2.2	1	9.2	1.1	#4 PUMP SPEED CONTROLLER	15	6
7	20	SUMP PUMP	0.07	0.6	1	1.6			1	12.5	1.5	WET WELL LIGHTS	20	8
9	20	OPER FLOOR LIGHTS	1.2	10.0	1		2.4		1	10.0	1.2	OPER FLOOR LIGHTS	20	10
11	20	OUTDOOR FLOODLIGHTS	1.2	10.0	1			2.2	1	8.3	1	OUTDOOR FLOODLIGHTS	20	12
13	20	CHLOR STORAGE LIGHTS			1	0.1			1	0.7	0.08	OPER FLOOR RECEPTACLES	20	14
15	20	OPER FLOOR RECEPTACLES	1	8.3	1		2.4		1	11.7	1.4	DRY WELL LIGHTS	20	16
17	20	DRY WELL LIGHTS	1.4	11.7	1			1.4	1	0.1	0.01	TOILET LIGHTS	20	18
19	20	CHLORINATOR HEATER	0.05	0.4	1	0.1			2			SPARE	20	20
21	20	SURGE PROTECTION DEVICE	0.1	0.8	3		0.1							
			0.1					0.1	3			SPARE	30	24
			0.1			0.1								
27					1		0.0							
29	20	SPARE			1			0.0	1			SPARE	20	30
31	20	SPARE			1	0.0			1			SPARE	20	32
33	20	SPARE			1		0.0		1			SPARE	20	34
35	20	SPARE			1			0.0	1			SPARE	25	36
37	20	SPARE			1	0.0			1			SPARE	20	38
39	20	SPARE			1		0.0		1			SPARE	20	40
41	20	SPARE			1			0.0	1			SPARE	20	42
PANEL LP-2 LOCATION MANATEE COUNTY BUILDING OLD PUMP BUILDING NOTES:			TOTAL KVA 2.2 6.1 5.9			GRAND CONNECTED TOTAL KVA 14.1			SERVICE CHARACTERISTICS VOLTS: 208Y/120 100 A MLO PHASE: 3 100 A MCB WIRE: 4 10K MIN AIC SYMM, FULLY RATED ASSEMBLY					

PANEL SCHEDULE LP-2
SCALE: NTS

REV. NO.	DESCRIPTION	DATE
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

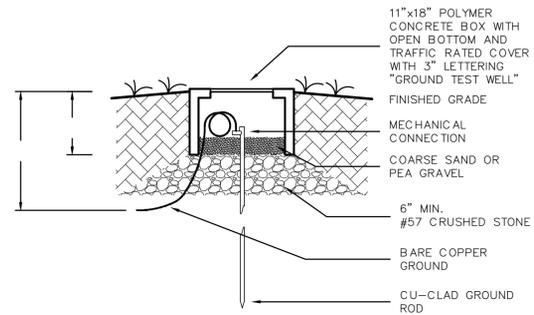
ELECTRICAL
PANELBOARD SCHEDULES

PROJ. START DATE: 2020. JUN
MCE PROJ. # 01024-0181
DRAWN: JG
DESIGNED: SS
CHECKED: MAC
PROJ. MGR: AAH

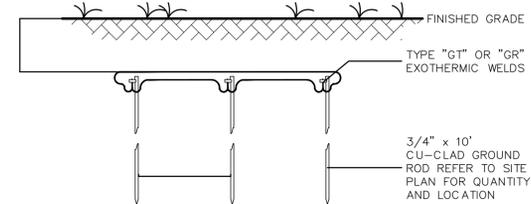
SCALE: HORIZONTAL: N/A, VERTICAL: TBD

E1.10
DRAWING NUMBER
0 REVISION

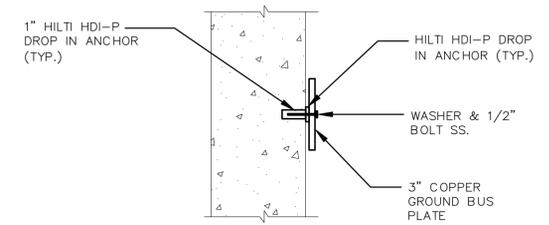
STATUS: ISSUED FOR BID



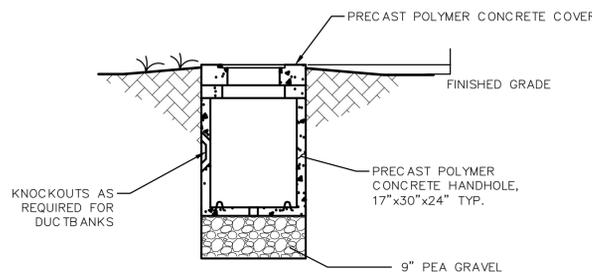
GROUND ROD TEST WELL
SCALE: N.T.S.



BELOW GRADE GROUND ROD/CABLE CONNECTION DETAIL
SCALE: N.T.S.

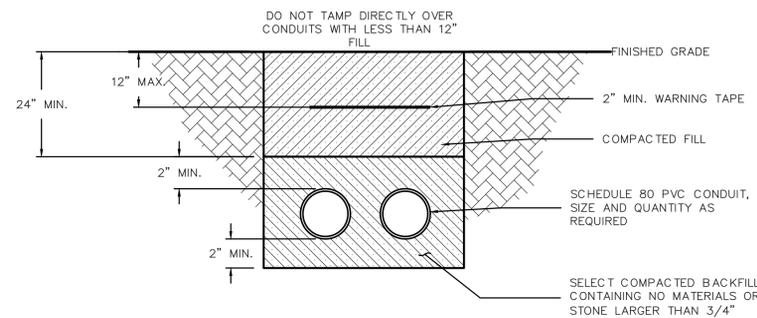


COPPER GROUND BUS PLATE MOUNTING DETAIL
SCALE: N.T.S.

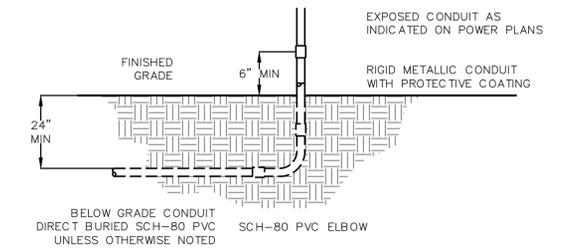


- SMALL HANDHOLE NOTES:**
1. PROVIDE PRODUCTS OF ONE OF THE FOLLOWING:
 - A. STRONGWELL QUAZITE
 - B. OLD CASTLE
 - C. OR APPROVED EQUAL
 2. MATERIAL: PRECAST POLYMER CONCRETE.
 3. DUCT ENTRANCES SIZED AND LOCATED TO SUIT DUCTBANKS.
 4. ENCLOSURES AND COVERS SHALL BE UL-LISTED.
 5. ENCLOSURES, BOXES, AND COVERS SHALL COMPLY WITH TEST PROVISIONS OF ANSI/SC77 FOR TIER 15 & 22 APPLICATIONS.
 6. COVERS SHALL HAVE COEFFICIENT OF FRICTION OF NOT LESS THAN 0.50, IN ACCORDANCE WITH ASTM C1028.

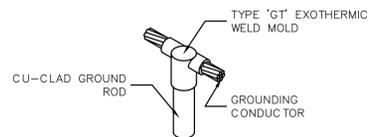
SMALL HANDHOLE DETAIL
SCALE: N.T.S.



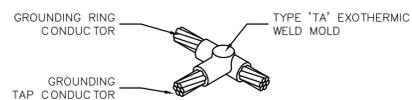
DIRECT BURIED DUCT BANK
SCALE: N.T.S.



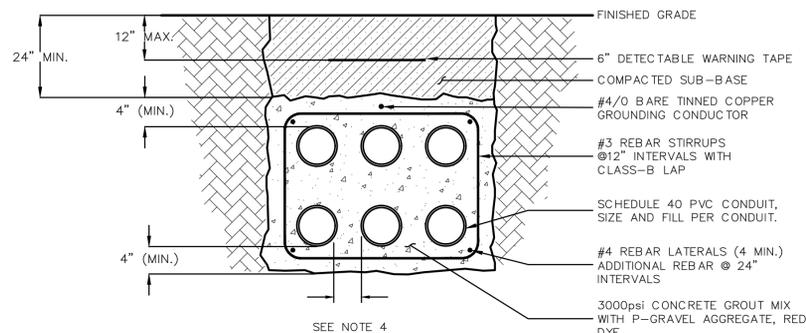
CONDUIT TRANSITION DETAIL
SCALE: N.T.S.



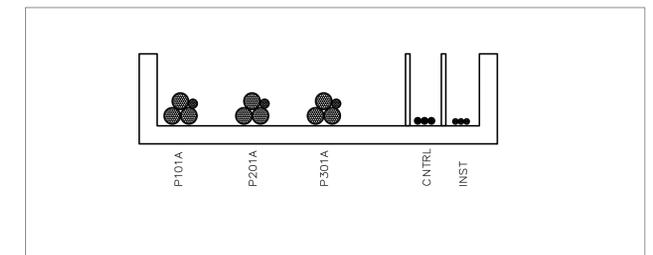
EXOTHERMIC WELD 'GT' CONNECTION
SCALE: N.T.S.



EXOTHERMIC WELD 'TA' CONNECTION
SCALE: N.T.S.



REINFORCED CONCRETE DUCT BANK
SCALE: N.T.S.



SECTION 1
NTS

NOTES:

1. MINIMUM WIRE SIZE FOR ALL POWER CIRCUITS IS #12AWG CU UNLESS OTHERWISE NOTED.
2. MINIMUM CONDUIT SIZE IS 3/4" TRADE SIZE.
3. SWAB CLEAN EXISTING CONDUITS PRIOR TO PULLING NEW CIRCUITS.
4. FOR LOW VOLTAGE DUCTBANKS MINIMUM SEPARATION BETWEEN CONDUITS SHALL BE 2".

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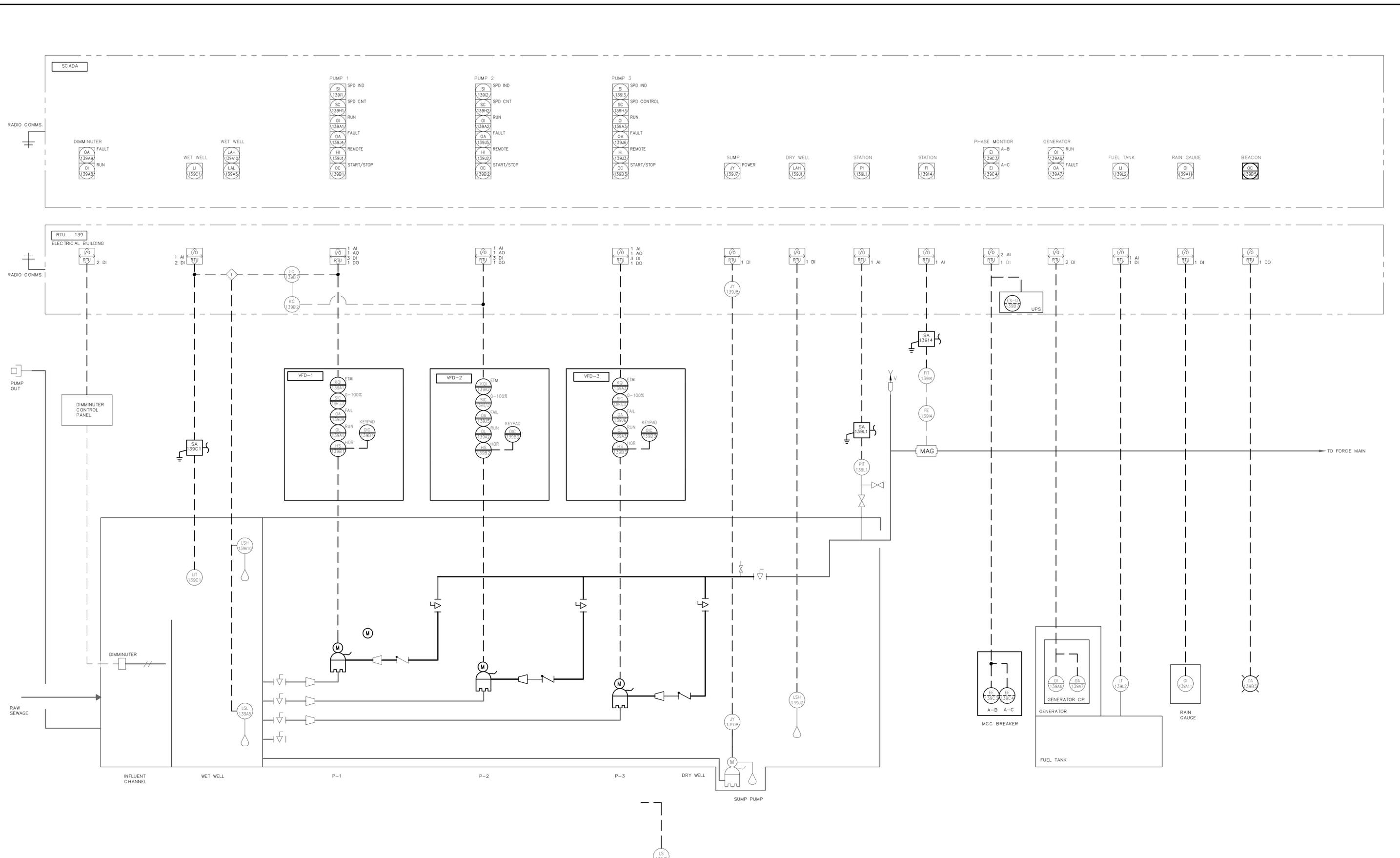
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

ELECTRICAL DETAILS

PROJ. START DATE: 2020 JUN	SCALE	E1.11 DRAWING NUMBER 0 REVISION
MCE PROJ. # 01024-0181	HORIZONTAL: N/A	
DRAWN JG	VERTICAL: TBD	
DESIGNED SS		
CHECKED MAC		
PROJ. MGR. AAH		
STATUS: ISSUED FOR BID		



REV. NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	DEC 2021
REVISIONS		

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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

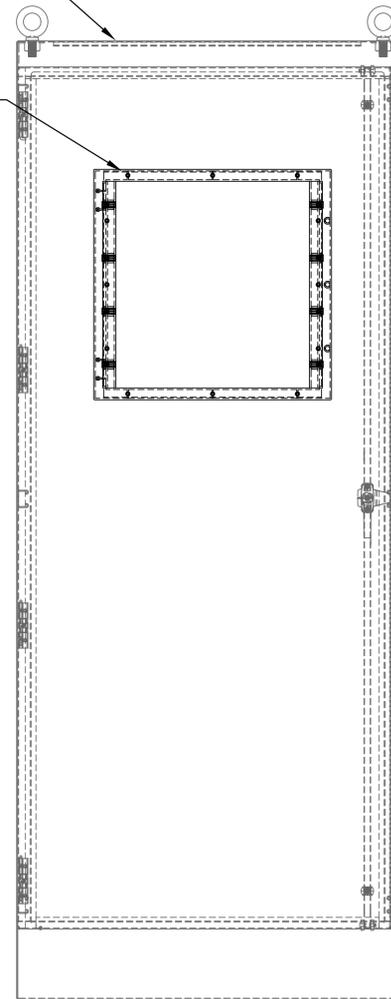
INSTRUMENTATION

PROCESS AND INSTRUMENT DIAGRAM

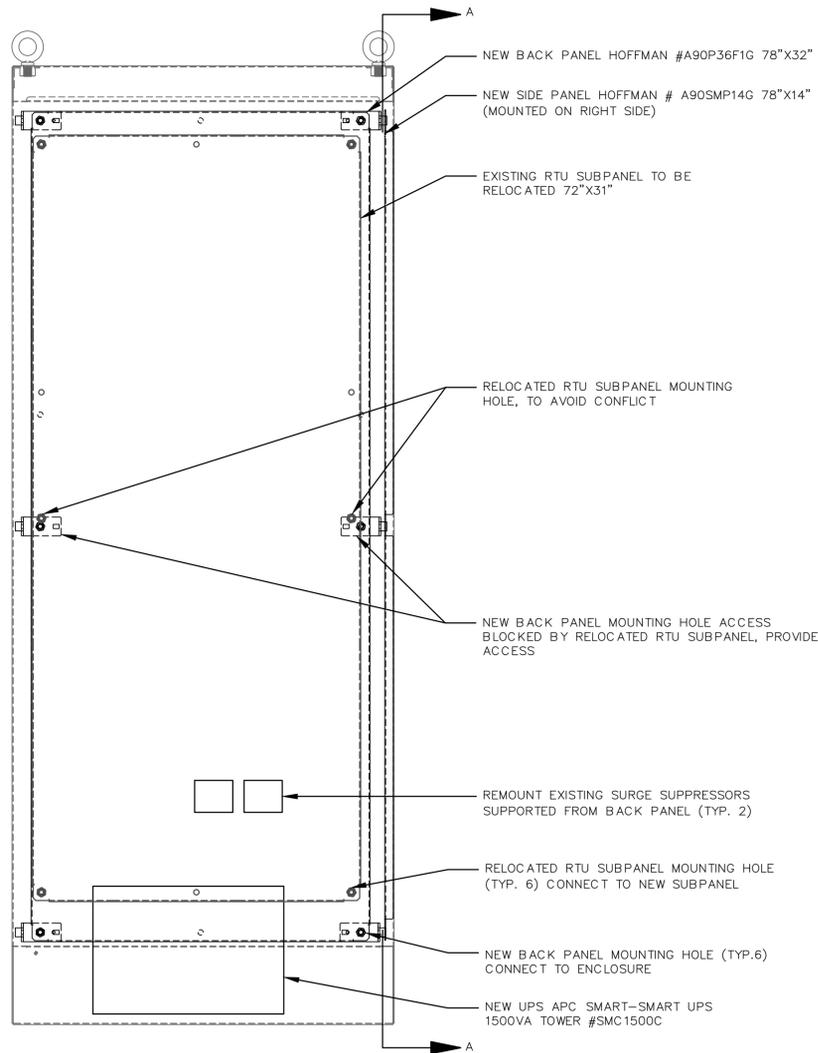
PROJ. START DATE: 2020 JUN	SCALE: 11.00
MCE PROJ. # 01024-0181	HORIZONTAL: N/A
DRAWN: JG	VERTICAL: TBD
DESIGNED: MFF	DRAWING NUMBER: 0
CHECKED: MAC	REVISION: 0
PROJ. MGR: AAH	
STATUS: ISSUED FOR BID	

NEW ENCLOSURE HOFFMAN#A903620FS,
NEMA 12 FREE STANDING 90"X36"X20"

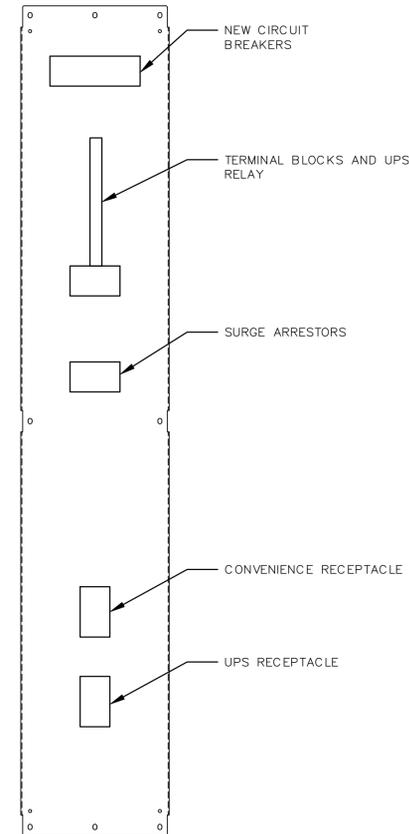
HOFFMAN # CWF5557,
SEE NOTE 1.



FRONT ELEVATION
SCALE: NTS



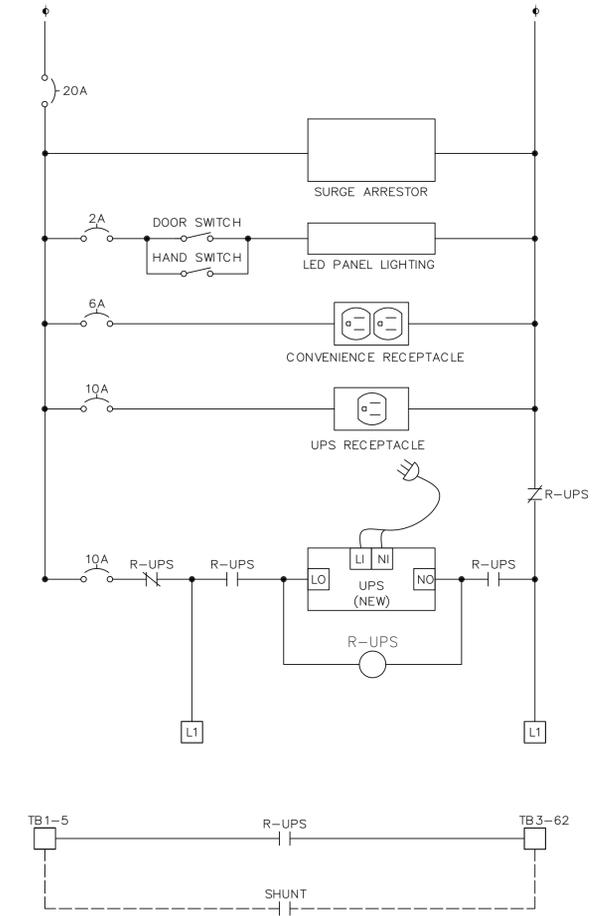
BACK PANEL
SCALE: NTS, SEE NOTE 2.



SIDE PANEL ELEVATION A
SCALE: NTS, SEE NOTE 2.

NOTES:

1. LOCATE WINDOW IN POSITION WHICH ALLOWS DFS-RTU TO BE VISIBLE WITHOUT OPENING THE PANEL DOOR
2. SUBPANEL LAYOUT AND SCHEMATIC ARE DIAGRAMATIC TO CONVEY MINIMUM REQUIREMENTS FOR FABRICATION AND INSTALLATION.
3. NEW SHUNT AND UPS COMMON ALARM SHALL BE WIRED TO SPARE INPUT B7. B7 IS NORMALLY CONFIGURED FOR ALARM IS SILENCED INDICATION AND SHALL BE CHANGED IN DFS SOFTWARE.



CONTROL PANEL SCHEMATIC DIAGRAM
SCALE: NTS, SEE NOTE 2.

REV. NO.	DESCRIPTION	DATE
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LIFT STATION 12A ELECTRICAL PUMP & VFD REHABILITATION

INSTRUMENTATION CONTROL PANEL

PROJ. START DATE: 2020 JUN	SCALE	11.01
MCE PROJ. # 01024-0181	HORIZONTAL: N/A	
DRAWN JG	VERTICAL: TBD	0
DESIGNED MFF		REVISION
CHECKED MAC		
PROJ. MGR. AAH		

STATUS: **ISSUED FOR BID**