ELECTRICAL SYMBOLS

F1 / 1 a	LINEAR LIGHTING FIXTURES "F1" INDICATES FIXTURE TYPE - TYPICAL FOR ALL FIXTURES "1" INDICATES CIRCUIT NUMBER - TYPICAL FOR ALL FIXTURE "a" INDICATES THE SWITCH CONTROL - TYPICAL FOR ALL FIXTURES
	WALL MOUNTED LIGHTING FIXTURE.
	SURFACE OR PENDANT MOUNTED FIXTURE.
	EMERGENCY EXIT SIGN
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LIGHT HEADS
	REMOTE EMERGENCY LIGHTING UNIT WITH TWO LIGHTING HEADS PROVIDE 3/4", 2#10, 1#10GND TO NEAREST THE EMERGENCY LIGHTING BATTERY UNIT
S_a	SINGLE POLE SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S_2	2-POLE SWITCH 120V, 20A 1 POLE FOR ROOM LIGHT FIXTURES, 1-POLE FOR EXHAUST FAN CONTROL
S_{3a}	3-WAY SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S_{4a}	4-WAY SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S^{BG}	BREAK GLASS STATION
TC	DIGITAL TIME CLOCK SWITCH
TM	MECHANICAL TIMER SWITCH
OC	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR/SWITCH
S	LOW VOLTAGE SWITCH
	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
$_1$	DUPLEX RECEPTACLE, WEATHER-RESISTANT 120V, 20A WITH WEATHERPROOF COVER "1" INDICATES CIRCUIT NUMBER - TYPICAL FOR ALL RECEPTACLES
	DUPLEX RECEPTACLE 120V, 20A
WP	(2) DUPLEX (QUAD) RECEPTACLES, 120V, 20A "WP" INDICATES WITH WEATHERPROOF COVER
TL	SIMPLEX RECEPTACLE, WEATHER-RESISTANT 120V, 20A WITH WEATHERPROOF COVER "TL" INDICATES TWIST LOCK TYPE
$_{30}$	UNFUSED DISCONNECT SWITCH, "30" INDICATES 30 AMP RATING, PROVIDE 3-POLE, UNLESS OTHERWISE INDICATED.
F $_{20}$	FUSED DISCONNECT SWITCH, "20" INDICATES 20 AMP FUSE RATING, PROVIDE 3-POLE UNLESS OTHERWISE INDICATED.
	3-PHASE RECEPTACLE

ELECTRICAL SYMBOLS

AR1	ALARM RELAY, "AR1" REFERS TO RELAY NAME DESIGNATION
CR1	CONTROL RELAY, "CR1" REFERS TO RELAY NAME DESIGNATION
M	MOTOR START RELAY
TR1	TIMING RELAY, "TR1" REFERS TO RELAY NAME DESIGNATION
	NORMALY OPEN RELAY CONTACT
	NORMALLY CLOSED RELAY CONTACT
	OPERATOR PUSH BUTTON NORMALLY OPEN CONTACT
	OPERATOR PUSH BUTTON NORMALLY CLOSED CONTACT
	PRESSURE SWITCH - CLOSES ON HIGH PRESSURE
	PRESSURE SWITCH - CLOSES ON LOW PRESSURE
OS–XXXX YYY	OPERATOR STATION (SUPPLIED BY OTHER DIV. 16 UNO), "XXXX" REFERS TO TAGNAME ID, "YYY" REFERS TO THE TYPE OF OPERATOR STATION
HS–XXXX	SPRING RETURN OPEN/CLOSE PUSHBUTTON, DUAL CONTACT FOR EACH POSITION (SUPPLIED BY OTHER DIV. 16 UNO), "XXXX" REFERS TO TAGNAME ID
XX–XXXX	UNLESS OTHERWISE NOTED INSTRUMENTATION OR PROCESS EQUIPMENT (SUPPLIED BY OTHER DIVISIONS) "XX-XXXX" REFERS TO TAGNAME ID
E	GENERATOR EMERGENCY STOP
MPCP	METERING PUMP CONTROL PANEL (SUPPLIED BY DIV. 13)
ISBP	INTRICATELY SAFE BARRIER PANEL (SUPPLIED BY DIV. 13)
O	OCCUPIED/UNOCCUPIED SELECTOR SWITCH. (SUPPLIED BY DIV. 15)
T	THERMOSTAT (SUPPLIED BY DIV. 15)
M	MOTOR OPERATED DAMPER (SUPPLIED BY DIV. 15)
S	MANUAL WALL SWITCH (BY DIV. 15)
S	REFRIGERANT SENSOR (BY DIV. 15)
F XKW	ELECTRIC UNIT HEATER, "X" INDICATES UNIT ELECTRIC COIL RATING (SUPPLIED BY DIV. 15)
CUH 1 P11-LP (21)	EQUIPMENT CIRCUIT NUMBER DESIGNATION TO PANEL PP1-LP CIRCUIT #21,
A A	UNDERGROUND DUCTBANK SECTION REFERENCE, "A" INDICATES THE REFERENCED DUCTBANK SECTION

ELECTRICAL SYMBOLS

	UNDERGROUND CONDUIT DUCT BANK
PP1(1)	HOMERUN DESIGNATION TO PANEL PP1 CIRCUIT #1, WITH THE FOLLOWING CONDUIT/WIRES UNLESS OTHERWISE NOTED: • 3/4"C WITH 2#12, 1#12GND FOR 20AMP SINGLE PHASE CIRCUITS. • 3/4"C WITH 3#12, 1#12GND FOR 20AMP THREE PHASE CIRCUITS. • 3/4"C WITH 2#10, 1#10GND FOR 30AMP SINGLE PHASE CIRCUITS. • 3/4"C WITH 3#10, 1#10GND FOR 30AMP THREE PHASE CIRCUITS. • 3/4"C WITH 2#8, 1#10GND FOR 40AMP & 50AMP SINGLE PHASE CIRCUITS. • 3/4"C WITH 3#8, 1#10GND FOR 40AMP & 50AMP THREE PHASE CIRCUITS.
	EYS TYPE CONDUIT SEAL, FILL WITH ELECTRICAL PUTTY SEAL FOR NON-NEMA 7 AREAS AND EXPLOSION PROOF PUTTY SEAL FOR NEMA 7 AREAS
SPD	SURGE PROTECTION DEVICE
	UTILITY POLE
20 / 100 GFCI	MOLDED CASE CIRCUIT BREAKER, 3-POLE UNLESS OTHERWISE INDICATED, "20" INDICATES TRIP AMPERE RATING, "100" INDCATES FRAME SIZE, "GFCI" INDICATES CIRCUIT BREAKER TO HAVE GROUND FAULT CIRCUIT INTERRUPT
	DRY TYPE TRANSFORMER
MCP FVNR	WALL MOUNTED COMBINATION MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR, "FVNR" INDICATES TYPE OF MOTOR STARTER
MCP FVNR	MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR, "FVNR" INDICATES TYPE OF MOTOR STARTER
VFD	ENCLOSED VARIABLE FREQUENCY DRIVE
Sm	MANUAL MOTOR STARTER 120V, 20A
J	JUNCTION BOX
H E	CONCRETE HANDHOLE, "E" REPRESENTS ELECTRICAL HANDHOLE, "U" REPRENT UTILITY HANDHOLE, "C" REPRESENT COMMUNICATION HANDHOLE
H E	ELECTRIC POLYMER CONCRETE HANDHOLE, "E" REPRESENTS ELECTRICAL HANDHOLE, "C" REPRESENT COMMUNICATION HANDHOLE
	3/4"Ø X 10'-0" COPPER CLAD GROUND ROD
	BUILDING GROUNDING SYSTEM
10	MOTOR, "10" INDICATES HORSEPOWER RATING
XX	CABLE/CONDUIT DESIGNATION, "XX" REFERS CABLE CONDUIT REFERENCE, REFER TO CABLE/CONDUIT SCHEDULES.

FIRE ALARM SYSTEM SYMBOLS

F	MANUAL FIRE ALARM STATION
F	FIRE ALARM AUDIO/VISUAL DEVICE
F V	FIRE ALARM VISUAL ONLY DEVICE
F	FIRE ALARM BEACON
S	SMOKE DETECTOR
S D	DUCT SMOKE DETECTOR
RTS	REMOTE TEST STATION AND ALARM FOR DUCT SMOKE DETECTOR
H	HEAT DETECTOR, COMBINATION RATE-OF-RISE AND FIXED TEMPERATURE
C	CARBON MONOXIDE DETECTOR
M	INPUT MONITORING MODULE
R	RELAY CONTROL MODULE
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
DACT	CELLUAR DIGITAL ALARM COMMUNICATOR TRANSMITTER, MOUNTED ABOVE FACP
F	RADIO MASTER BOX, MOUNTED ABOVE FACP
K	KEY DEPOSITORY - KNOX BOX
FS	FLOW SWITCH
TS	TAMPER SWITCH
B	24V ELECTRIC SPRINKLER BELL, PROVIDED BY FIRE PROTECTION FSB, PROVIDE AND MOUNT IN WEATHERPROOF BACKBOX
BDA	BIDIRECTION RADIO AMPLIFIER
BDPS	BIDIRECTION RADIO POWER SUPPLY, MOUNTED BELOW OR NEXT TO BDA
A	BIDIRECTION RADIO INDOOR ANTENNA
BDA	BIDIRECTION RADIO OUTOOR ANTENNA
BDAA	BIDIRECTION RADIO AMPLIFIER ANNUNCIATOR

CHEMICAL ALARM SYSTEM SYMBOLS

C	MANUAL CHEMICAL ALARM STATION
C	CHEMICAL ALARM AUDIO/VISUAL DEVICE
CACP	CHEMICAL ALARM CONTROL PANEL

TELE/DATA & CCTV SYMBOLS

1T 2D	WALL MOUNTED DATA OUTLET, 2D INDICATES (2) CAT6 TERMINAL DATA CONNECTORS, 1T INDICATES (1) CAT6 TERMINAL TELEPHONE CONNECTOR
CCTV	CLOSED CIRCUIT TELEVISION CAMERA
NAS	NETWORK SURVEILLANCE CCTV SERVER

ACCESS CONTROL SYMBOLS

CR	CARD READER WITH KEY PAD
DS	DOOR SWITCH
EL	ELECTRIC DOOR LOCK (PROVIDED BY DIV. 8)
PS	POWER SUPPLY (PROVIDED BY DIV. 8) - MOUNT ABOVE DOOR
ACGP	ACCESS CONTROL GATEWAY PANEL

TOWN OF EASTON MASS INCORPORATED 1725

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COMMONWEALTH OF MASSACHUSETTS
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MARK	DATE	DESCRIPTION

Scale	N.T.S.
Date	AUGUST 2021
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Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL LEGEND

FOR CONSTRUCTION

Sheet No.

E-1

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ABBREVIATIONS

(2)1"C, 3#8, #10GND	2, 1-INCH CONDUITS EACH CONDUIT CONTAINING 3-#8 AWG WIRES AND 1-#10 GROUND CONDUCTOR
3/4" CE	EMPTY CONDUIT. NUMERAL DENOTES SIZE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AR	ALARM RELAY
ATS	AUTOMATIC TRANSFER SWITCH
CR	CONTROL RELAY
CP	CONTROL PANEL
DRG. DWG.	DRAWING
EAN	EXCEPT AS NOTED
EC	ELECTRICAL CONTRACTOR
EOV	ELECTRICALY OPERATED VALVE
ETM	ELAPSED TIME METER
FE	FLOW ELEMENT
FIT	FLOW INDICATOR TRANSMITTER
FS	FLOW SWITCH
FSB	FILE SUB-BID CONTRACTOR
FT	FLOW TRANSMITTER
FVNR	FULL VOLTAGE NON-REVERSING
GND, GRD	GROUNDING CONDUCTOR (EQUIPMENT)
HOA	HAND-OFF-AUTOMATIC
HH	HANDHOLE
ISR	INTRINSICALLY SAFE RELAY
J OR JB	JUNCTION BOX
JPB	JOG PUSHBUTTON
LE	LEVEL ELEMENT
LIT	LEVEL INDICATOR TRANSMITTER
LL	LOW LEVEL
LS	LEVEL SWITCH
LT	LEVEL TRANSMITTER
MC	MOTOR CONTROLLER (STARTER)
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MFR	MANUFACTURER
MOV	MOTOR OPERATED VALVE
MPCP	METERING PUMP CONTROL PANEL
MS	MOTION SENSOR
NTS	NOT TO SCALE
OEM	ORIGINAL EQUIPMENT MANUFACTURER SUPPLIED
OH	OVERHEAD
OL	MOTOR OVERLOAD HEATER
OS	OPERATOR STATION
PB	PUSHBUTTON CONTROL STATION MOMENTARY CONTACT TYPE, STOP START
PBE	PUSHBUTTON CONTROL STATION MAINTAINED EMERGENCY STOP TYPE, TWIST TO RELEASE
PBL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP-START
PBM	PUSHBUTTON CONTROL STATION MAINTAINED CONTACT TYPE, STOP START
PIT	PRESSURE INDICATOR TRANSMITTER
PL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP
PS	PRESSURE SWITCH
PT	PRESSURE TRANSMITTER
RGS	RIGID GALVANIZED STEEL
RVNR	REDUCED VOLTAGE NON-REVERSING
SPD	SURGE SUPPRESSOR DEVICE
SOV	SOLENOID VALVE
S/S	SOFT STARTER
TB	TERMINAL BOX
TD	MOTOR TEMPERATURE DETECTOR
TR	TIMING RELAY
TS	TEMPERATURE SWITCH
TSH	TEMPERATURE SWITCH HIGH
TSL	TEMPERATURE SWITCH LOW
TSP	TWISTED SHEILDED PAIR
TSTW	TWO SPEED TWO WINDING
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
VFD	VARIABLE FREQUENCY DRIVE
WP	WATER PROOF
WHM	WATT HOUR UTILITY METER
XFMR	TRANSFORMER
ZS	POSITION SWITCH

GENERAL NOTES

1. GENERAL CONTRACTOR TO PROVIDE CONCRETE HOUSEKEEPING AND MOUNTING PADS ON ALL FLOOR AND GRADE MOUNTED ELECTRICAL EQUIPMENT, THE FOLLOWING EQUIPMENT IS THE MINIMUM REQUIREMENT FOR PADS. ADDITIONAL PADS MAYBE REQUIRED BASED ON THE ELECTRICAL CONTRACTORS MOUNTING METHODS, ELECTRICAL FSB SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL PAD SIZES AND LOCATIONS.
   - 1.1 UTILITY TRANSFORMER INCLUDING OIL CONTAINMENT CURB
   - 1.2 GENERATORS
   - 1.3 MAIN DISTRIBUTION BOARD
   - 1.4 MOTOR CONTROL CENTER
   - 1.5 DRY TYPE TRANSFORMERS
   - 1.6 FREE STANDING VFD, CONTROL, AND TERMINATION PANELS
2. ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
3. BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
4. EQUIPMENT & CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
5. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
6. NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
7. RECEPTACLES AND SWITCHES SHALL BE MOUNTED 45" AFF EXCEPT FOR RECEPTACLES IN THE CONTROL ROOM WHICH SHALL BE 18" UNDER DESKS AND OPEN WALL SPACE AND 6" ABOVE TOP OF COUNTERS. RECEPTACLES ASSOCIATED WITH TELE/COM RACK AND BACKBOARD SHALL BE MOUNTED 60"AFF.
8. THE WIRING AND BLOCK DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL AND PROCESS EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
9. CONDUITS SHALL NOT BE INSTALLED WITHIN SLAB STRUCTURE AND SHALL BE RUN UNDER THE SLAB.
10. CONDUITS SHALL NOT BE INSTALLED IN THE CLEAR WELL.

DEMOLITION NOTES

1. UNLESS OTHERWISE NOTED, ALL EXISTING ELECTRICAL SYSTEMS (POWER, LIGHTING, LOW VOLTAGE, CONTROLS, ETC) WITHIN HATCH MARKS AND ASSOCIATED EQUIPMENT IS TO BE DEMOLISHED OR SALVAGED. DISCONNECT AND DE-ENERGIZE THE EQUIPMENT. REMOVE THE EQUIPMENT TO BE DEMOLISHED OR SALVAGED PER SECTION 01900. ALL CONTROL DEVICES, CONDUIT, CABLING, BOXES, SUPPORTS, ETC, ASSOCIATED WITH THE DEMOLISHED EQUIPMENT SHALL BE REMOVED. THE CONDUIT AND CABLING SHALL BE REMOVED BACK TO SOURCE.
2. DISCONNECT AND REMOVE THE ELECTRICAL SERVICE BACK TO UTILITY POLE FOR WELL STATION 3 AND WELL STATION 5.
3. NO DEVICE OR EQUIPMENT INDICATED FOR DEMOLITION WILL BE REUSED OR SALVAGED UNLESS SPECIFICALLY NOTED AS SUCH. ALL EQUIPMENT REMOVED SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF, PRIOR TO REMOVAL OF EQUIPMENT COORDINATE WITH OWNER FOR ANY EQUIPMENT THE OWNER WILL KEEP.
4. EXISTING EQUIPMENT INDICATED ON THE DEMOLITION PLANS ARE BASED ON SITE OBSERVATIONS AND IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT AND MATERIALS TO BE DISCONNECTED AND/OR REMOVED.
5. ALL UNDERGROUND CONDUIT SHALL BE CUT BELOW GRADE, CAPPED AND BACKFILLED WITH DIRT TO MATCH GRADE. ALL CONDUIT STUBBING UP FROM CONCRETE SLAB SHALL BE CUT AND CAPPED AND SLAB LEVEL.
6. COORDINATE WITH NATIONAL GRID FOR DISCONNECTION OF SERVICES TO WELL STATION 3.

TOWN OF EASTON MASS INCORPORATED 1725

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40990
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	N.T.S.
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Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
GENERAL NOTES

FOR CONSTRUCTION

Sheet No.

E-2

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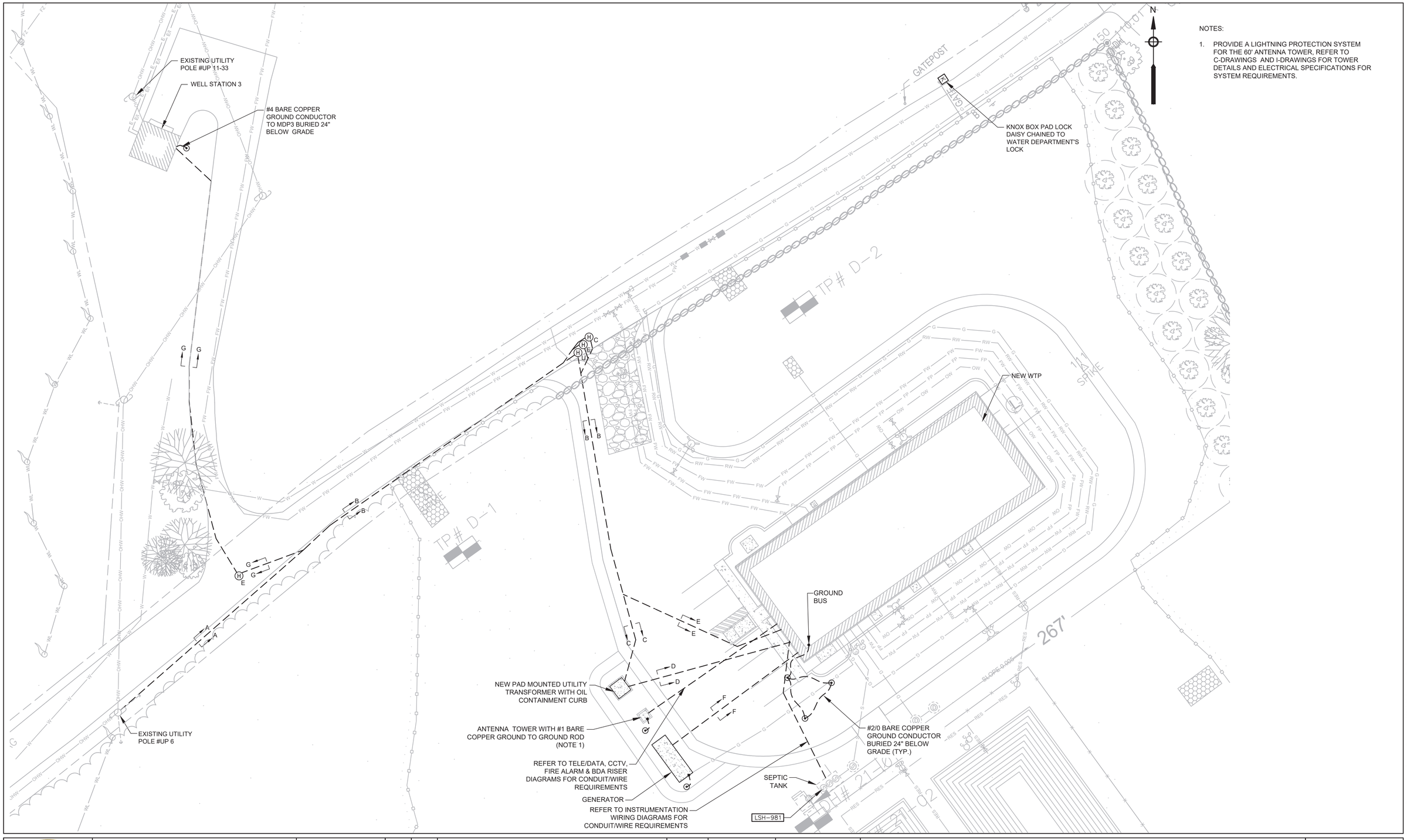

NOTES:

1. PROVIDE A LIGHTNING PROTECTION SYSTEM FOR THE 60' ANTENNA TOWER, REFER TO C-DRAWINGS AND I-DRAWINGS FOR TOWER DETAILS AND ELECTRICAL SPECIFICATIONS FOR SYSTEM REQUIREMENTS.

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
SITE PLAN - WTP AND WELL STATION 3

FOR CONSTRUCTION

Sheet No.

E-3

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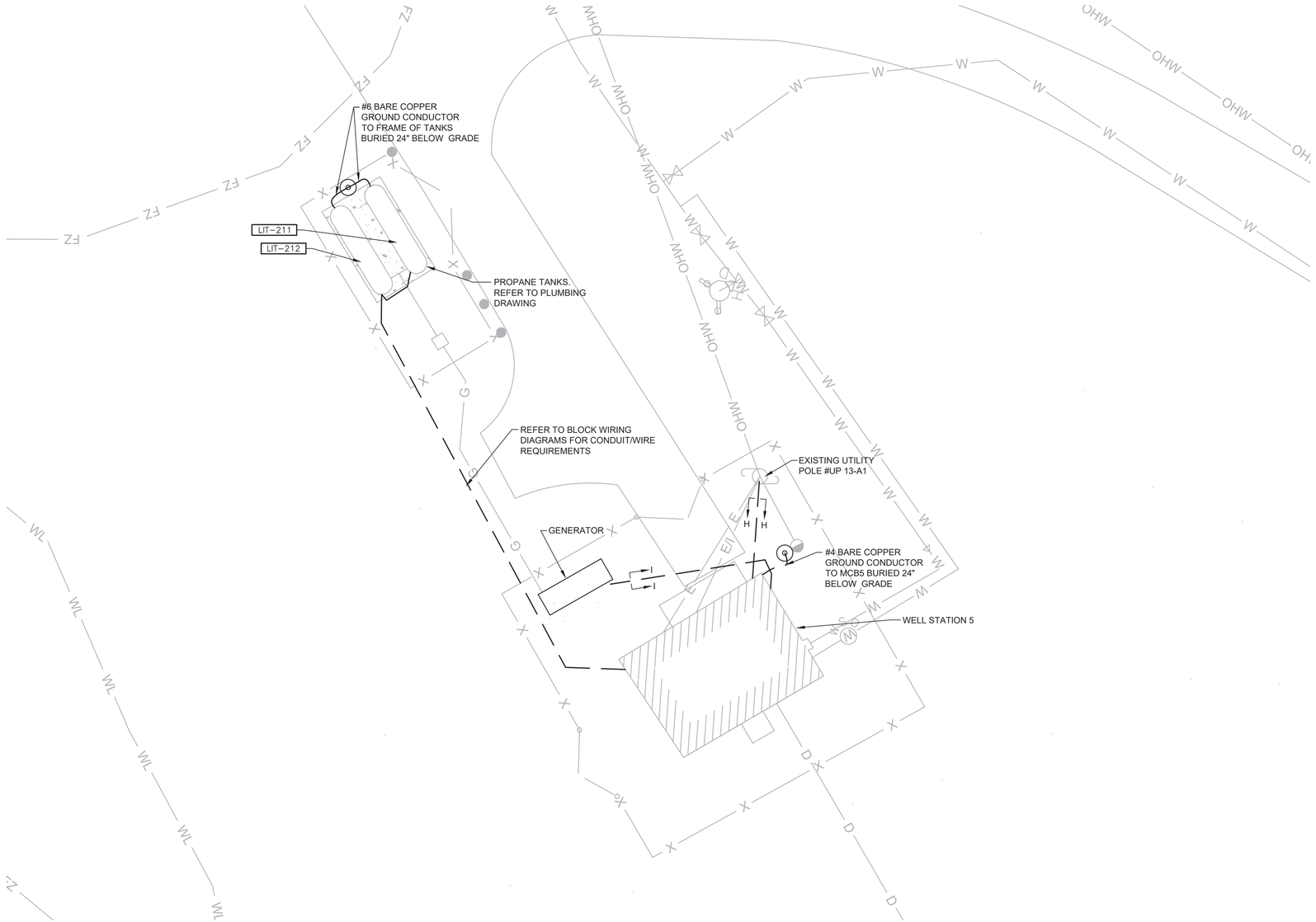

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
SITE PLAN - WELL STATION 5

FOR CONSTRUCTION

Sheet No.

E-4

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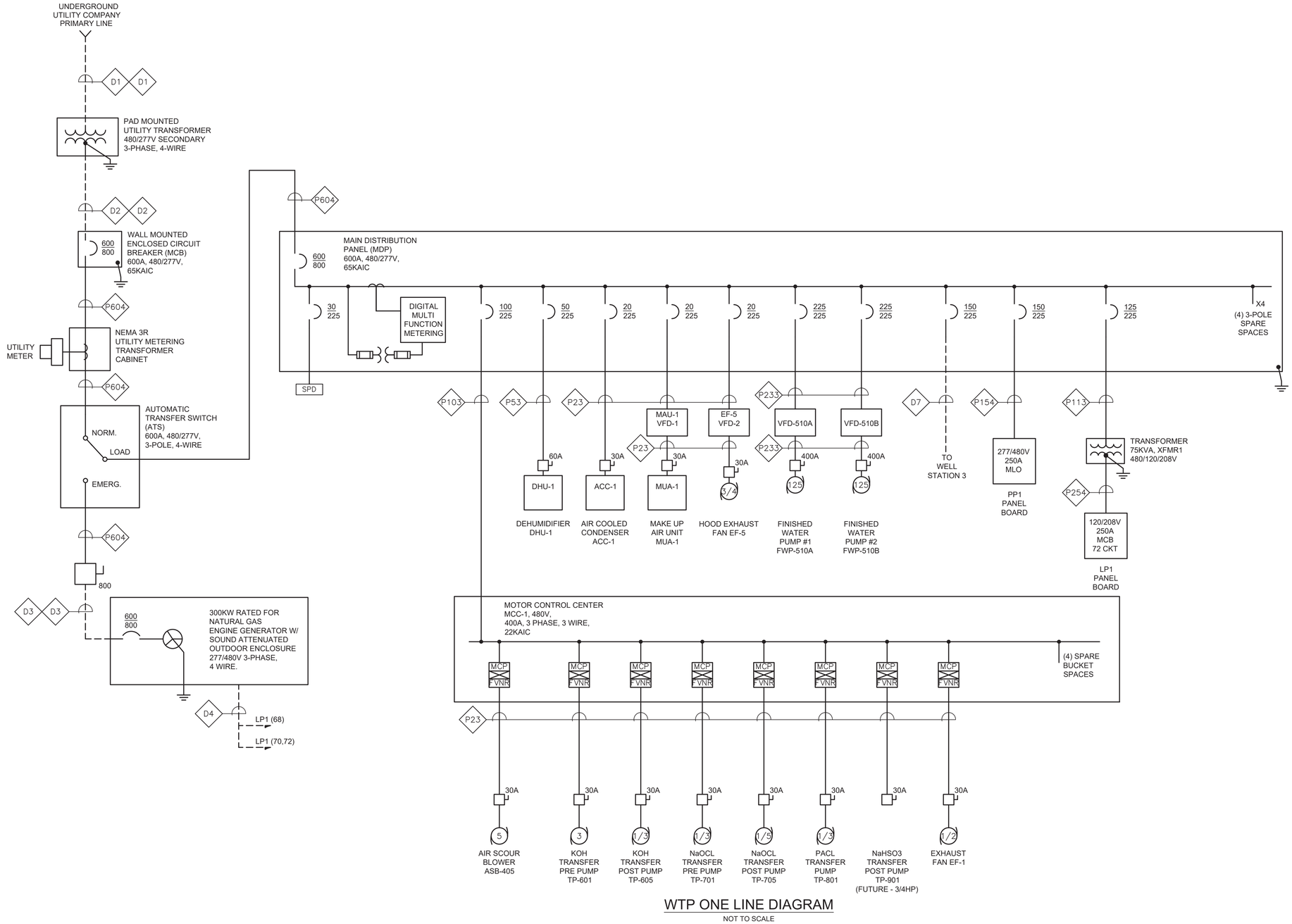

WTP ONE LINE DIAGRAM

NOT TO SCALE

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WTP ONE LINE DIAGRAM

FOR CONSTRUCTION

Sheet No.

E-5

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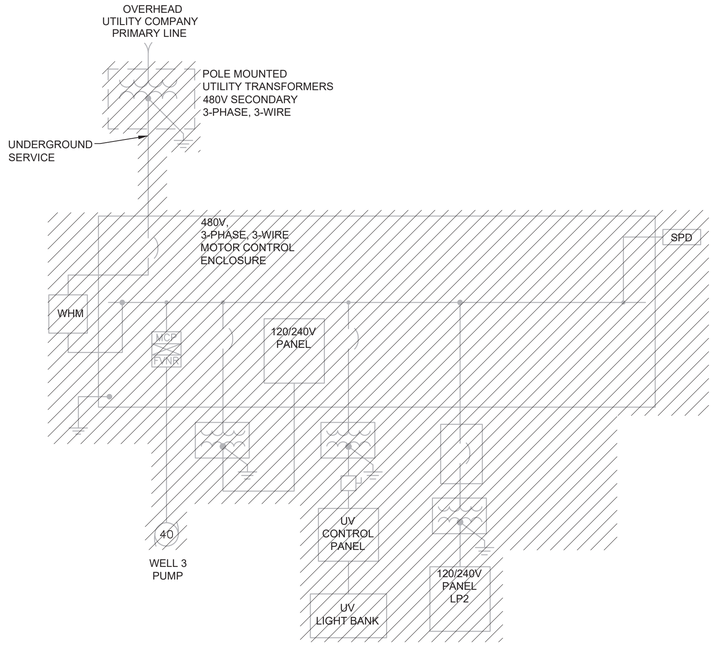
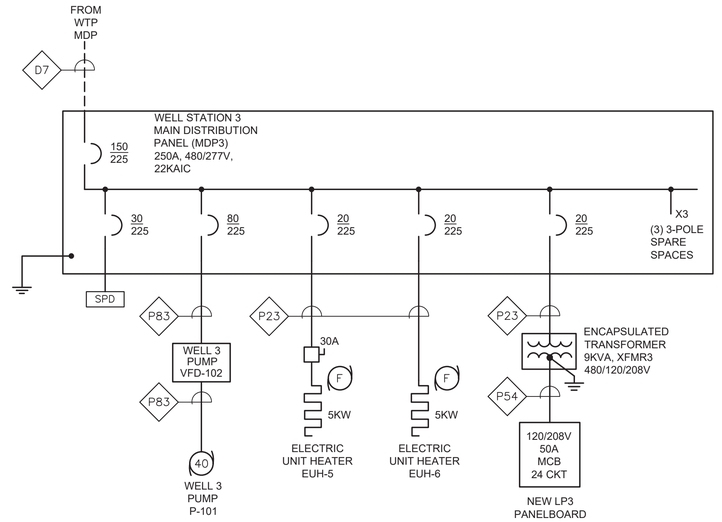


WELL STATION 3 DEMOLITION ONE LINE DIAGRAM

NOT TO SCALE



WELL STATION 3 ONE LINE DIAGRAM

NOT TO SCALE

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WELL STATION 3 ONE LINE DIAGRAMS

FOR CONSTRUCTION

Sheet No.

E-6

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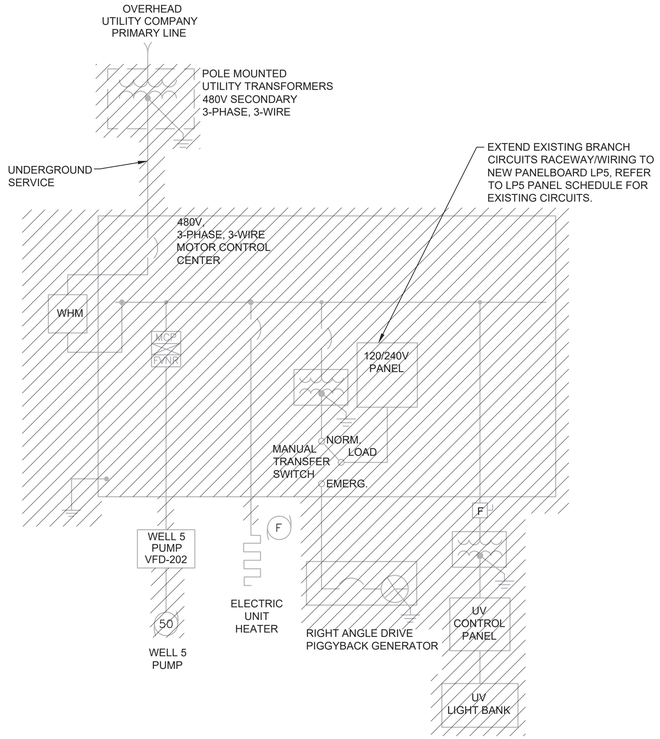
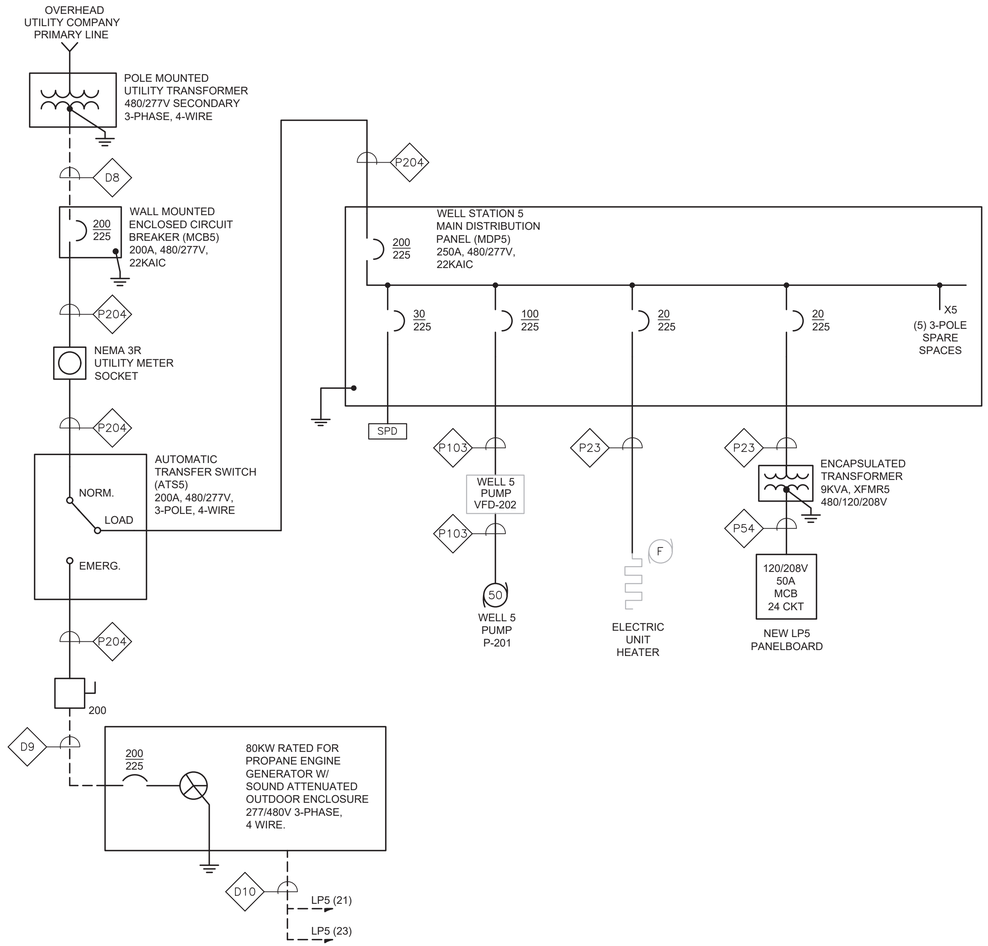


WELL STATION 5 DEMOLITION ONE LINE DIAGRAM

NOT TO SCALE



WELL STATION 5 ONE LINE DIAGRAM

NOT TO SCALE

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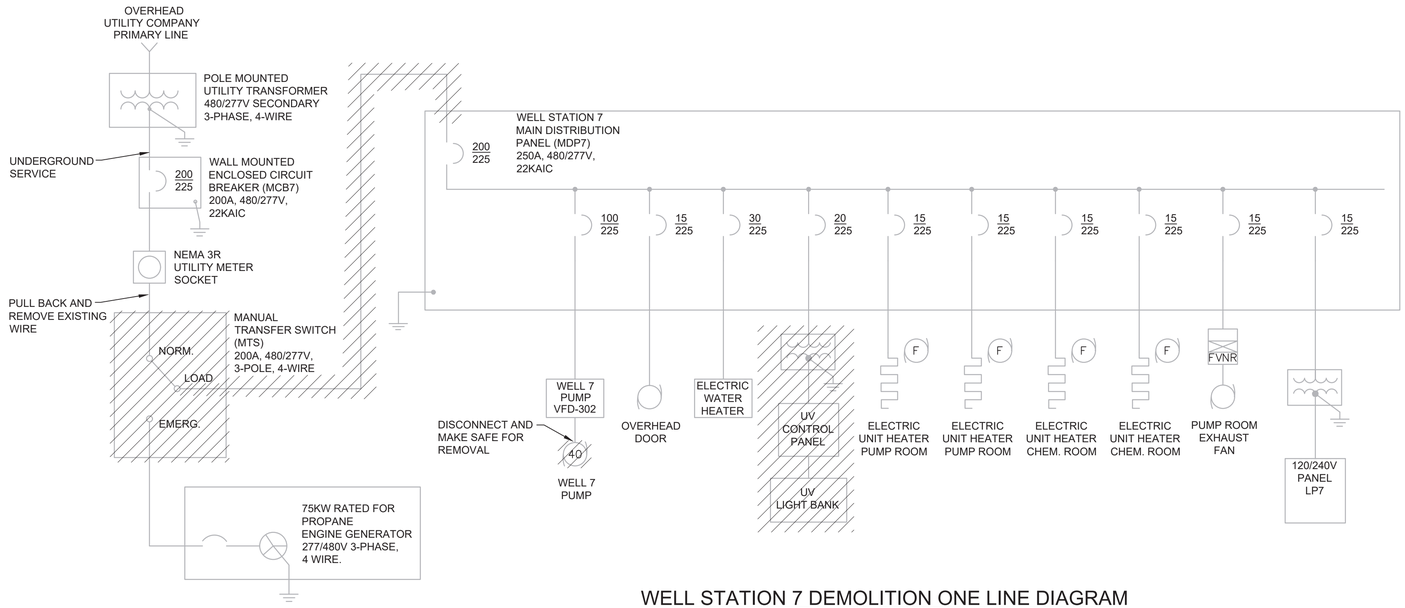
ELECTRICAL
WELL STATION 5 ONE LINE DIAGRAMS

FOR CONSTRUCTION

Sheet No.

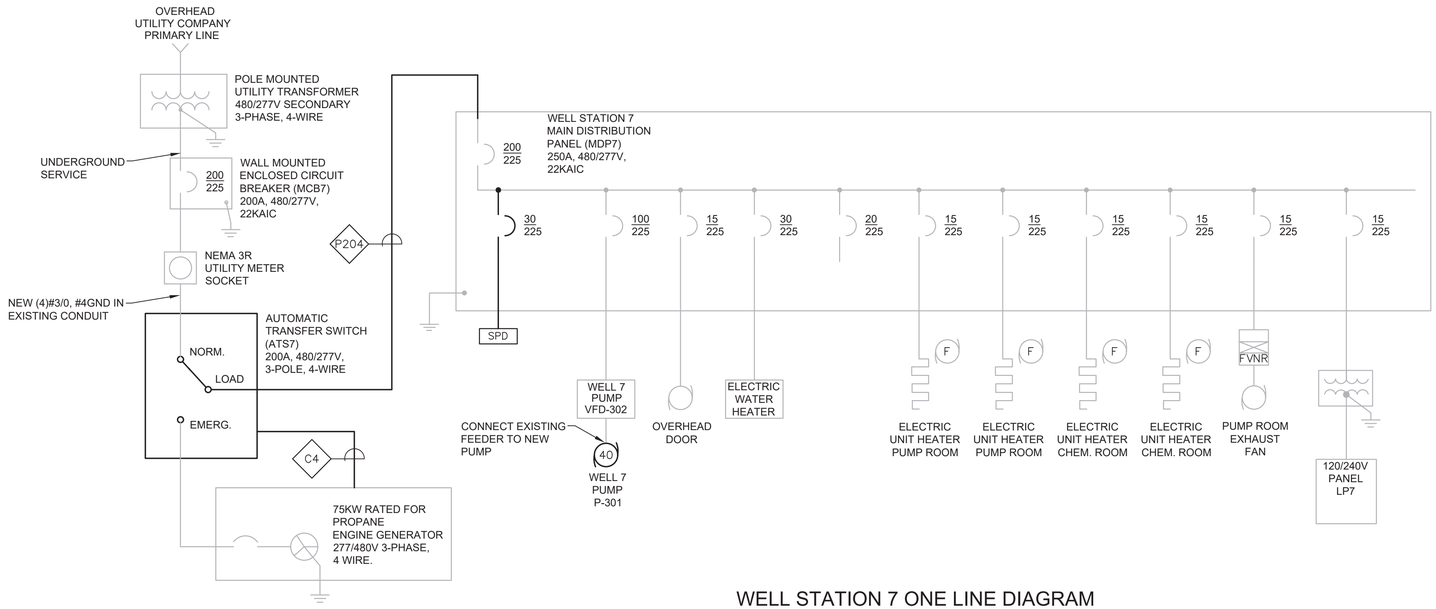
E-7

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans .dwg Plot Date: Sep 22,2021-9:15am



WELL STATION 7 DEMOLITION ONE LINE DIAGRAM

NOT TO SCALE



WELL STATION 7 ONE LINE DIAGRAM

NOT TO SCALE

TOWN OF EASTON MASS. INCORPORATED 1725

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 326-9215
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS — MICHAEL J. COTTER — ELECTRICAL No. 40990 — REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	N.T.S.
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WELL STATION 7 ONE LINE DIAGRAMS

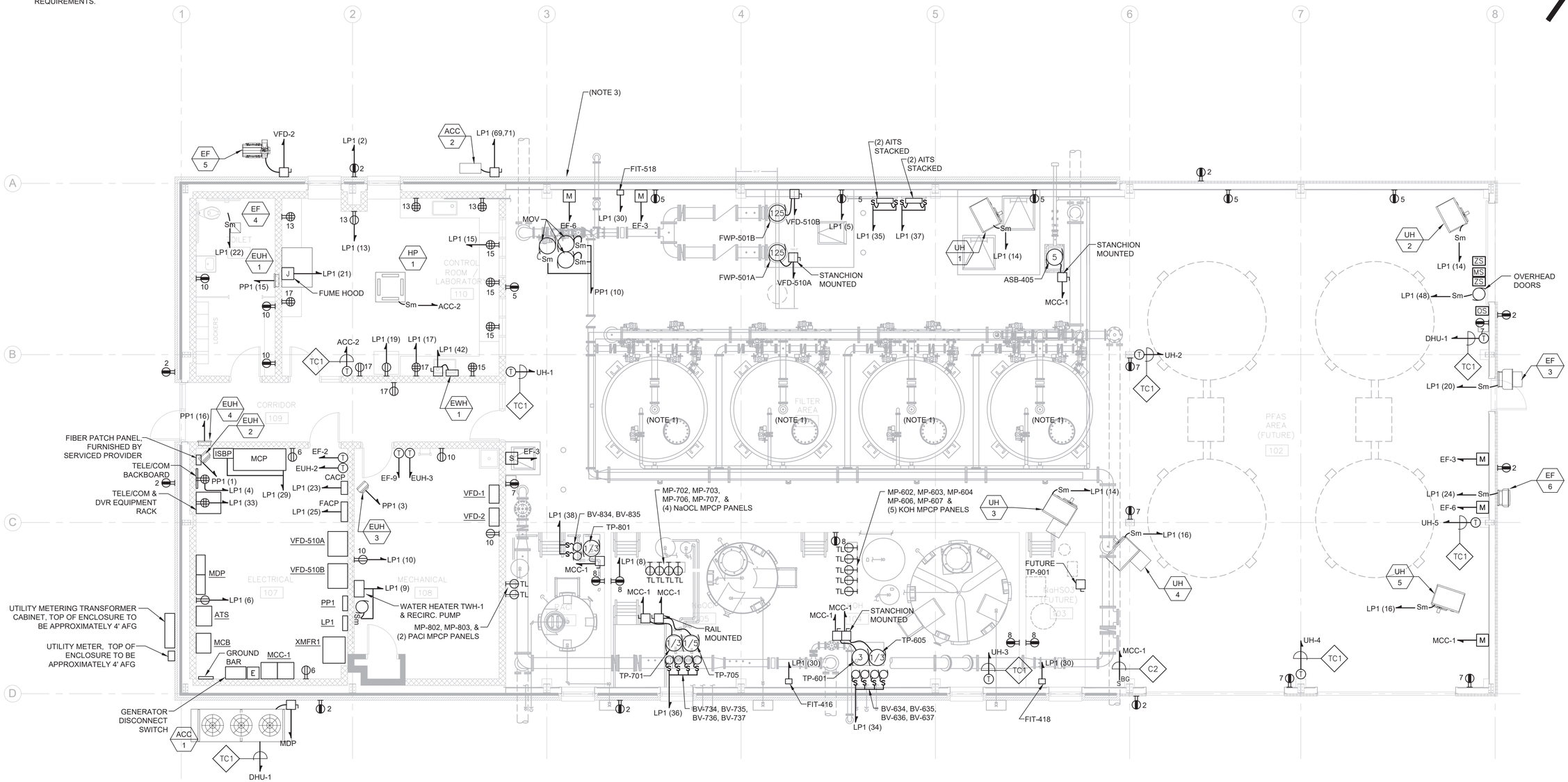
FOR CONSTRUCTION

Sheet No.

E-8

NOTES:

1. REFER TO M-DRAWINGS AND I-DRAWINGS FOR LOCATIONS OF FILTER VALVES AND INSTRUMENTATION
2. REFER TO M-DRAWINGS, P-DRAWINGS, FP-DRAWINGS AND H-DRAWINGS FOR EQUIPMENT LOCATIONS
3. PROVIDE A LIGHTNING PROTECTION SYSTEM FOR THE ENTIRE BUILDING, REFER TO SPECIFICATION 16601 FOR REQUIREMENTS.



PLAN

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

TOWN OF EASTON MASS INCORPORATED 1725

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-7215
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40999
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

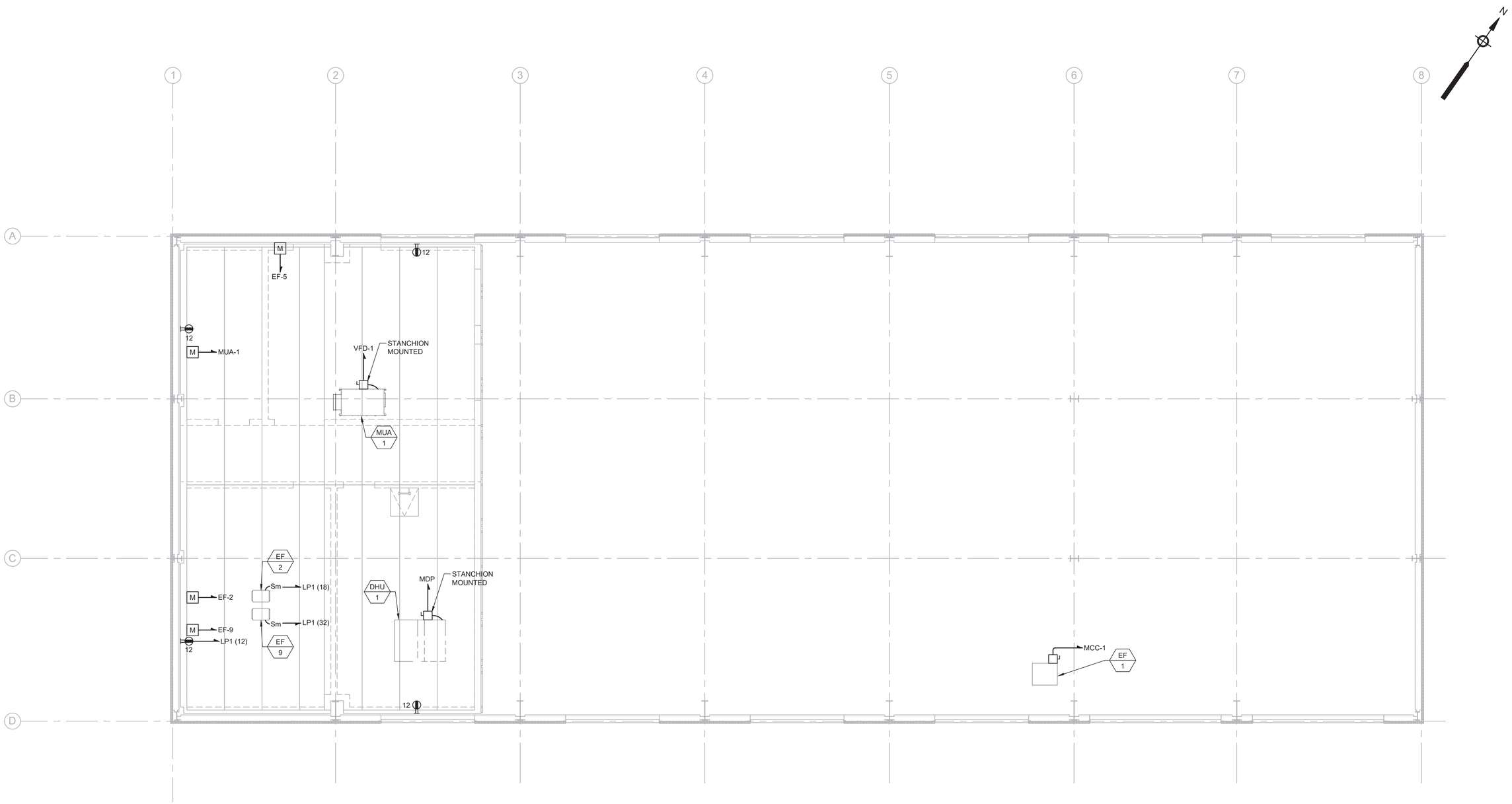
ELECTRICAL
WTP FIRST FLOOR POWER PLAN

FOR CONSTRUCTION

Sheet No.

E-9

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22, 2021-9:15am



PLAN

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

TOWN OF EASTON MASS INCORPORATED 1725

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40599
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

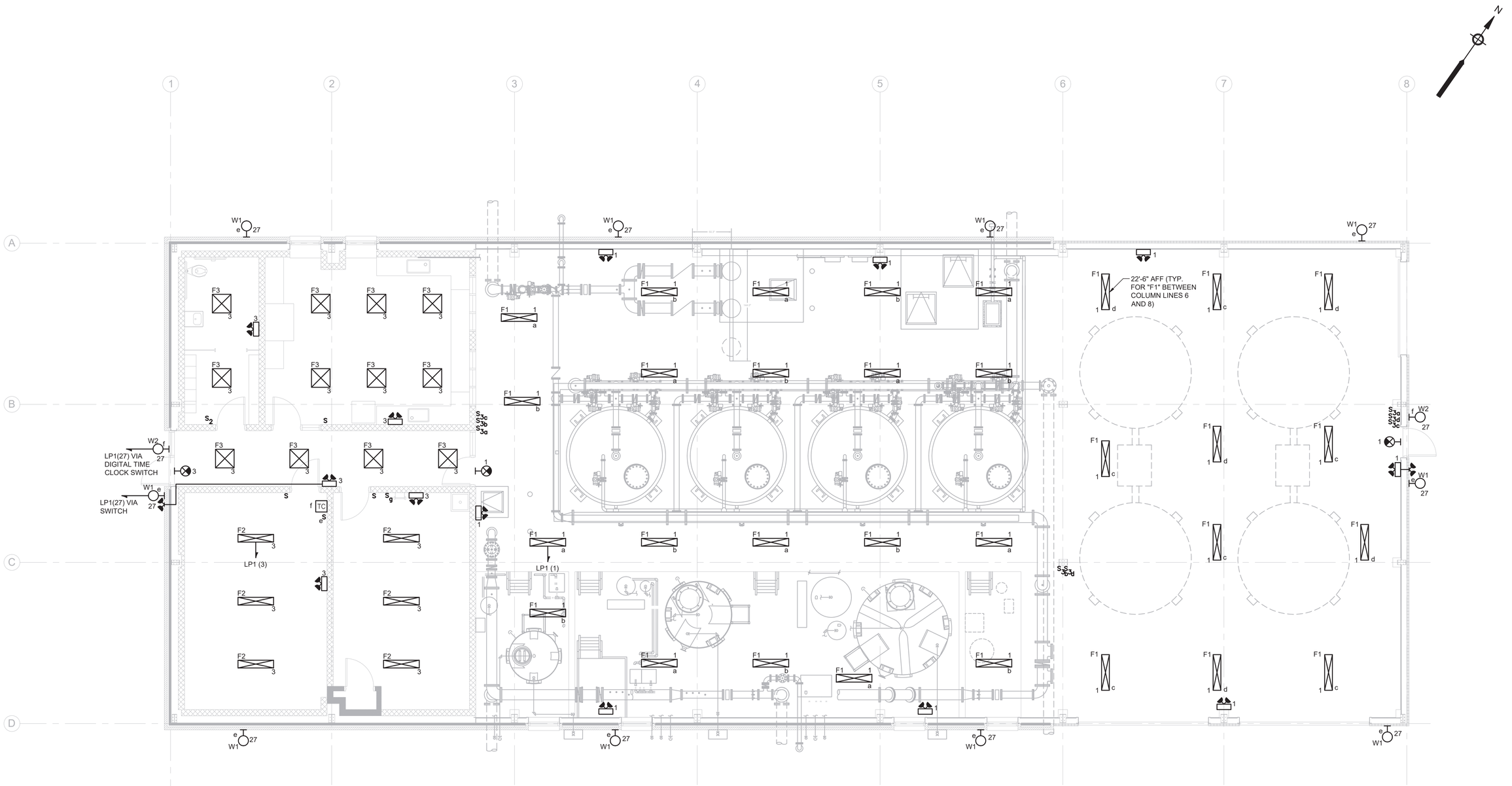
ELECTRICAL
WTP UPPER LEVEL POWER PLAN

FOR CONSTRUCTION

Sheet No.

E-10

Drawing file: W:\Year - 2020\2020028.00 - Easton Water Treatment Plant\Electrical Department\2020\28.00 Electrical Plans.dwg Plot Date: Sep 22, 2021 - 9:15am



PLAN

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

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
web: www.sar.com

MICHAEL J. COTTER ELECTRICAL No. 40989 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

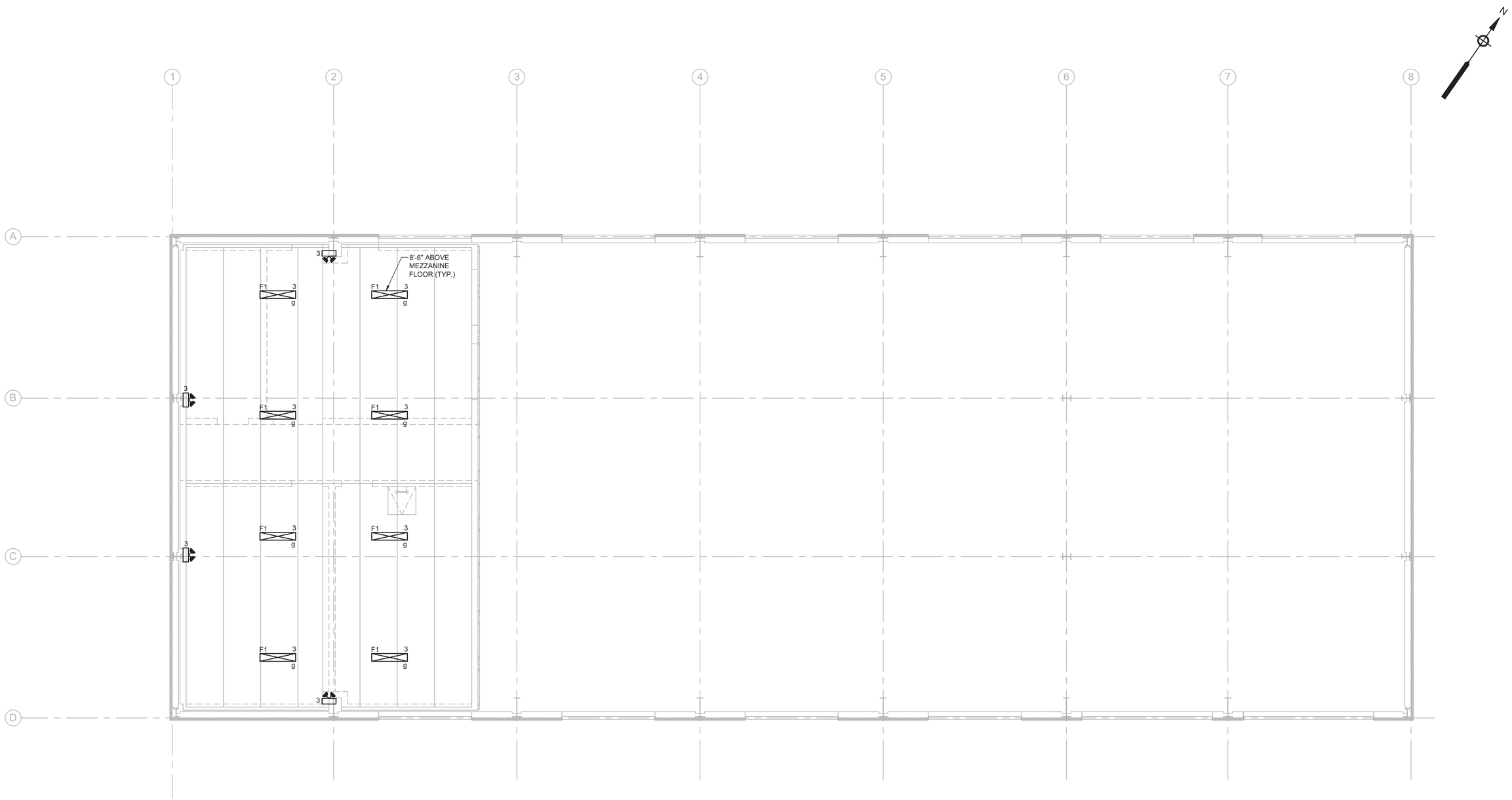
ELECTRICAL
WTP FIRST FLOOR LIGHTING PLAN

FOR CONSTRUCTION

Sheet No.

E-11

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:16am



PLAN

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

TOWN OF EASTON MASS INCORPORATED 1725

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 338-9315
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40999
REGISTERED
PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WTP UPPER LEVEL LIGHTING PLAN

FOR CONSTRUCTION

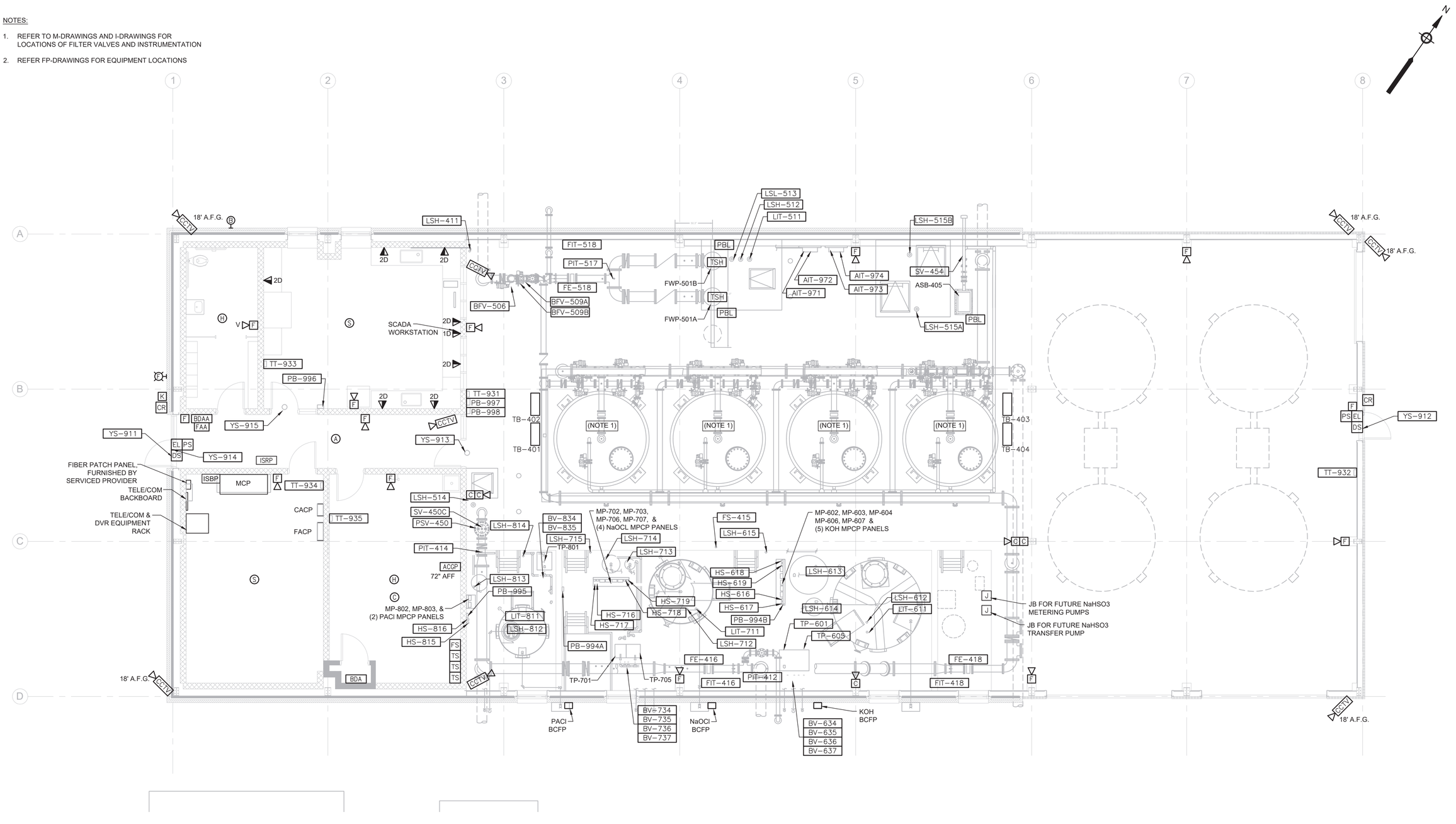
Sheet No.

E-12

Drawing file: W:\(Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot: Date: Sep 22, 2021 - 9:16am

NOTES:

1. REFER TO M-DRAWINGS AND I-DRAWINGS FOR LOCATIONS OF FILTER VALVES AND INSTRUMENTATION
2. REFER FP-DRAWINGS FOR EQUIPMENT LOCATIONS



PLAN

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

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.
Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40950
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

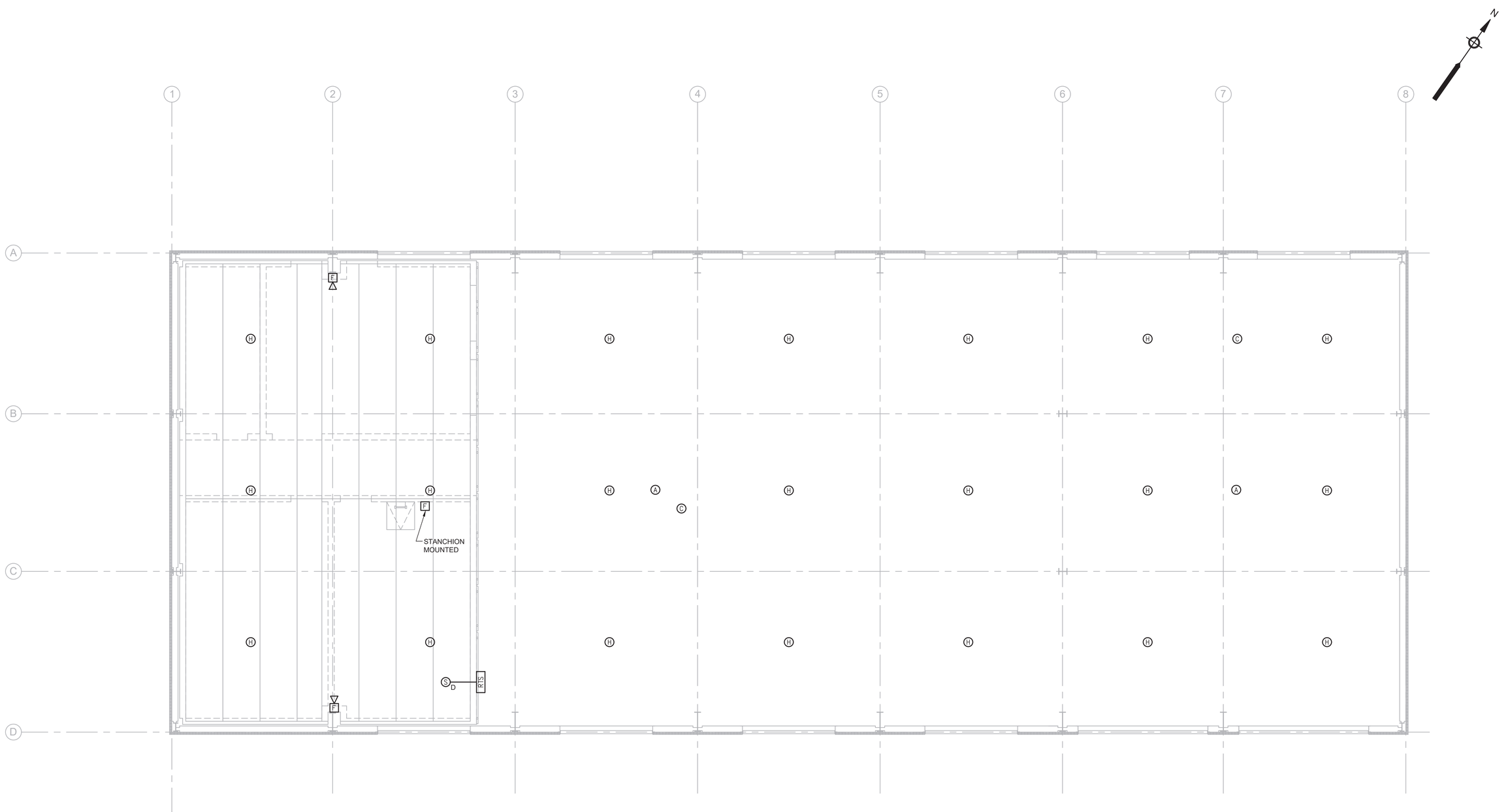
ELECTRICAL
WTP FIRST FLOOR LOW VOLTAGE PLAN

FOR CONSTRUCTION

Sheet No.

E-13

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plants.dwg Plot Date: Sep 22,2021-9:16am



PLAN

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

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
web: www.sar.com

COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40599
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

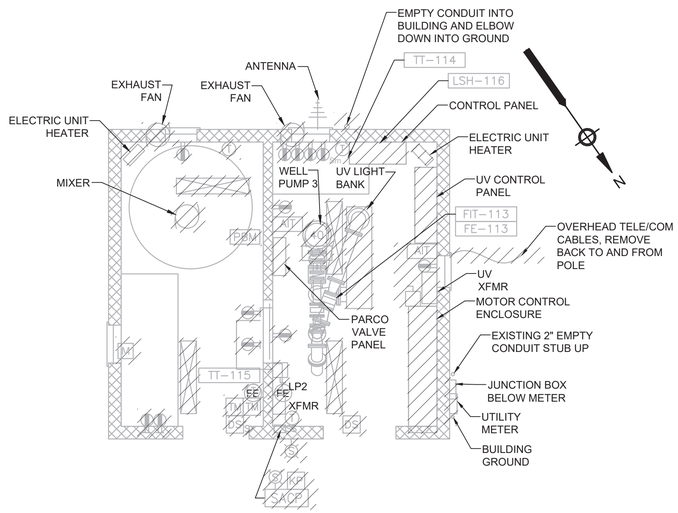
ELECTRICAL
WTP UPPER LEVEL LOW VOLTAGE PLAN

FOR CONSTRUCTION

Sheet No.

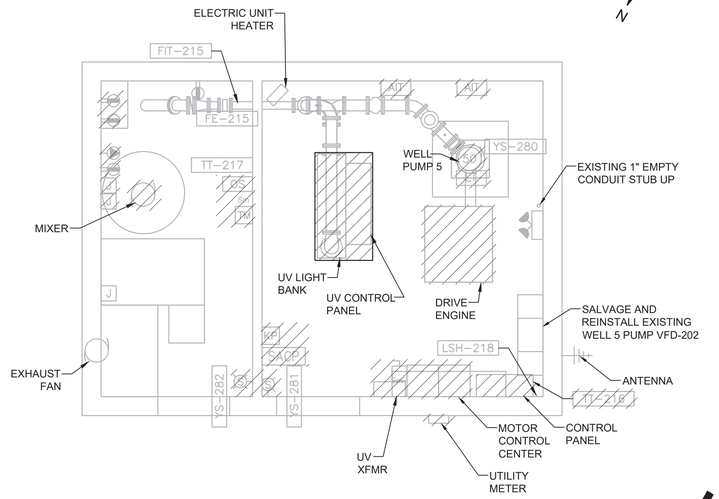
E-14

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22, 2021 - 9:16am



WELL STATION 3 DEMOLITION PLAN

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

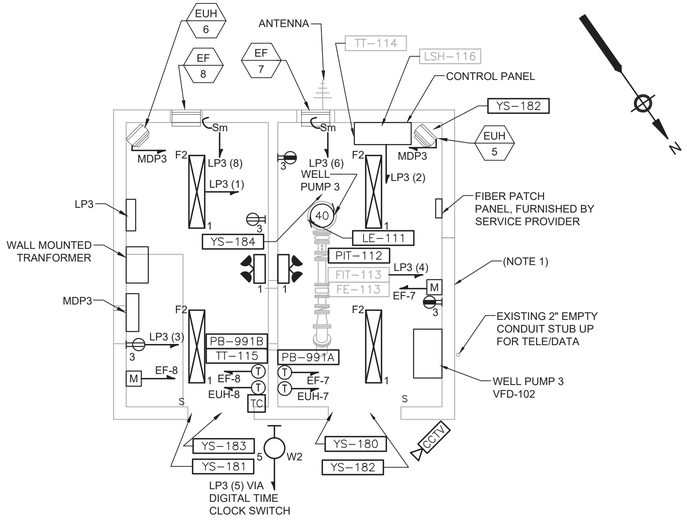


WELL STATION 5 DEMOLITION PLAN

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

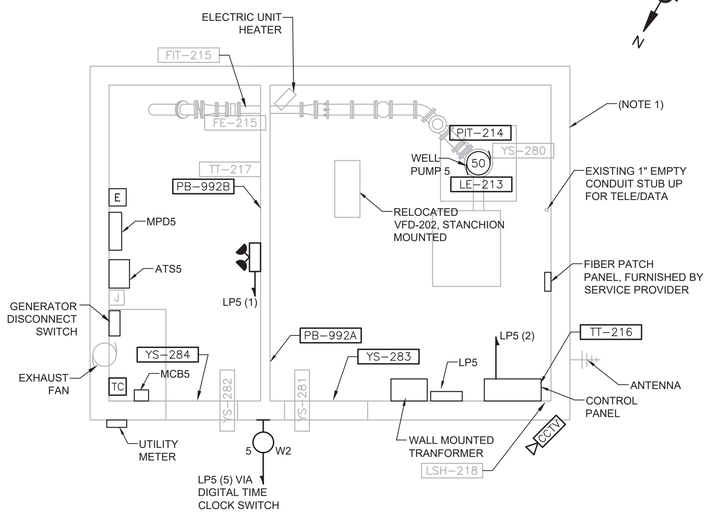
NOTES:

1. PROVIDE A LIGHTNING PROTECTION SYSTEM FOR THE ENTIRE BUILDING, REFER TO SPECIFICATION 16601 FOR REQUIREMENTS.



WELL STATION 3 MODIFICATION PLAN

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



WELL STATION 5 MODIFICATION PLAN

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

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.

Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40999
REGISTERED
PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	AS NOTED
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WELL STATION 3 & 5 MODIFICATIONS PLAN

FOR CONSTRUCTION

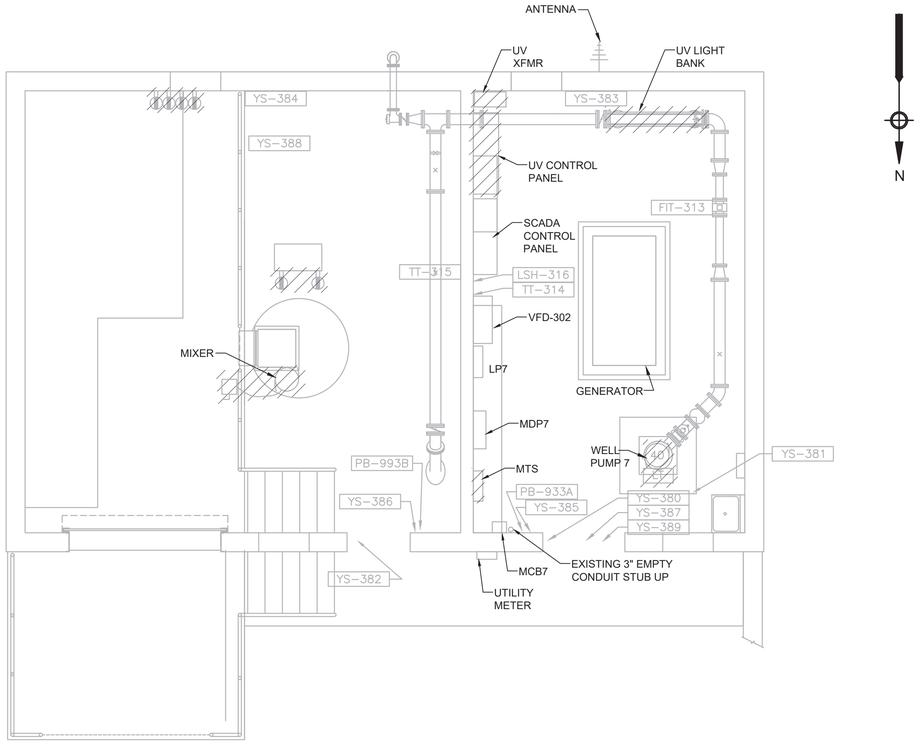
Sheet No.

E-15

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:17am

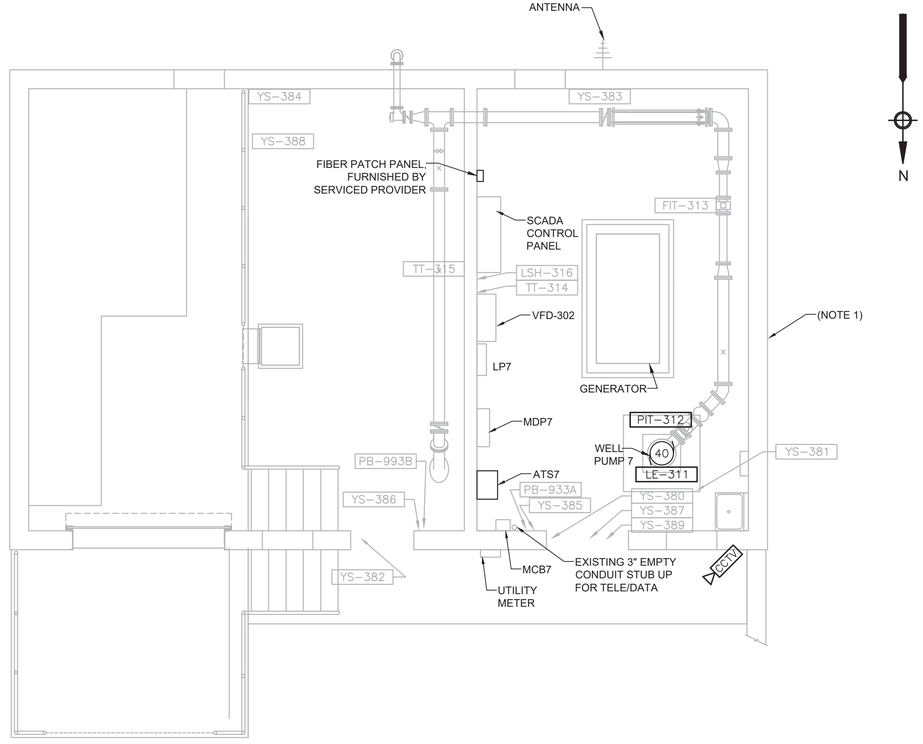
NOTES:

1. PROVIDE A LIGHTNING PROTECTION SYSTEM FOR THE ENTIRE BUILDING, REFER TO SPECIFICATION 16601 FOR REQUIREMENTS.



WELL STATION 7 DEMOLITION PLAN

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



WELL STATION 7 MODIFICATION PLAN

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

			Scale	AS NOTED
			Date	AUGUST 2021
			Job No.	307-2002
			Designed by	RLB
			Drawn by	RLB
			Checked by	MC
MARK	DATE	DESCRIPTION	Approved by	MC

ENVIRONMENTAL PARTNERS

SAR ENGINEERING, INC.
Mechanical/Electrical Engineers
150 Grossman Drive, Suite 309
Braintree, Massachusetts 02184
617 328-9215
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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40999
REGISTERED PROFESSIONAL ENGINEER

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

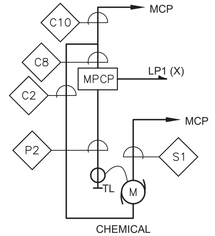
ELECTRICAL
WELL STATION 7 MODIFICATIONS PLAN

FOR CONSTRUCTION

Sheet No.

E-16

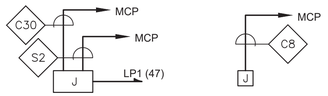
Drawing file: W:\Year - 2020\20026.00 - Easton Water Treatment Plant\Electrical Department\20026.00 Electrical Plans.dwg Plot: Date: Sep 22,2021-9:17am



TYPICAL FOR: MP-602 - LP1(39), MP-603 - LP1(41), MP-604 - LP1(39), MP-606 - LP1(41), MP-607 - LP1(39), MP-702 - LP1(43), MP-703 - LP1(45), MP-706 - LP1(43), MP-707 - LP1(45), MP-802 - LP1(41), MP-803 - LP1(43)

BLOCK WIRING DIAGRAM
CHEMICAL METERING PUMPS

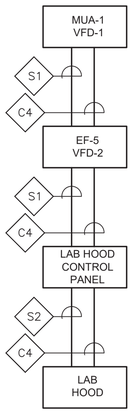
NOT TO SCALE



BLOCK WIRING DIAGRAM
FUTURE NaHSO3
CHEMICAL METERING AND TRANSFER PUMPS

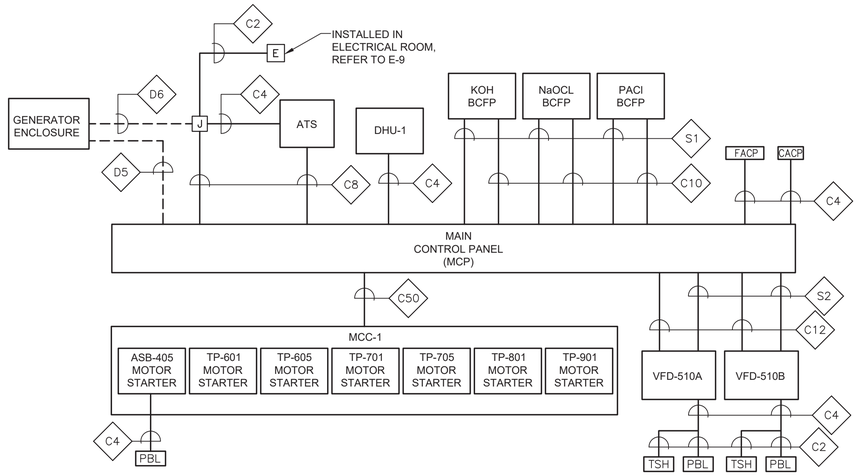
NOT TO SCALE

NOTES:
1. PROVIDE 36" OF EACH WIRE IN THE JUNCTION BOX FOR FUTURE USE.



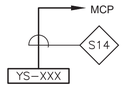
CONTROL BLOCK WIRING DIAGRAM
FUME HOOD

NOT TO SCALE

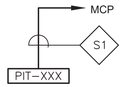


MAIN CONTROL PANEL
BLOCK WIRING DIAGRAM

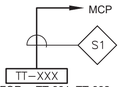
NOT TO SCALE



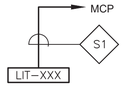
TYPICAL FOR: YS-913, YS-914 YS-915



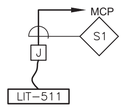
TYPICAL FOR: PIT-412, PIT-414, PIT-517

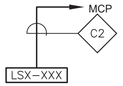


TYPICAL FOR: TT-931, TT-932, TT-933, TT-934, TT-935

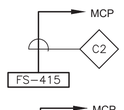


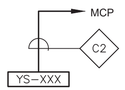
TYPICAL FOR: LIT-611, LIT-711, LIT-811



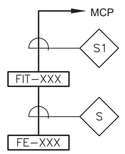


TYPICAL FOR: LSH-411, LSH-612, LSH-613, LSH-614,LSH-615, LSH-712, LSH-713, LSH-714, LSH-715, LSH-812, LSH-813, LSH-814

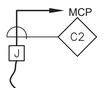




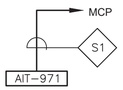
TYPICAL FOR: YS-911, YS-912

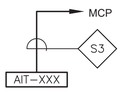


TYPICAL FOR: FE/FIT-416, FE/FIT-418 FE/FIT-518



TYPICAL FOR: LSH-512, LSL-513, LSH-514, LSH-515A, LSH-515B,

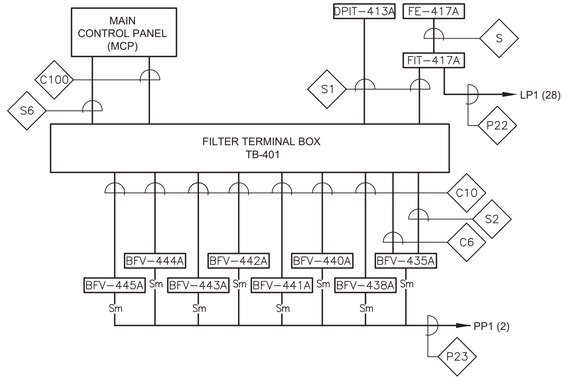




TYPICAL FOR: AIT-972, AIT-973 AIT-974

INSTRUMENTATION
BLOCK WIRING DIAGRAMS

NOT TO SCALE



NOTES
1. FILTER TERMINAL BOX TB-401 IS TYPICAL FOR TB-402, TB-403, AND TB-404. TERMINAL BOXES TO BE NEMA 4X STAINLESS STEEL, 60"X30"X12"DP, WITH BACK PANEL AND TERMINAL BLOCKS FOR CONTROL WIRING TERMINATIONS. ALL HARDWARE TO BE STAINLESS STEEL.
2. REFER TO FILTER EQUIPMENT SCHEDULE FOR PRESSURE FILTER PF-401, PF-402, PF-403, AND PF-404 EQUIPMENT NAMES.

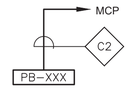
FILTER CELL 401 BLOCK DIAGRAM

NOT TO SCALE
(TYPICAL FOR FILTER CELL PF-401, PF-402, PF-403, PF-404)

FILTER PF-401										
EQUIP.	BFV-435A	BFV-438A	BFV-440A	BFV-441A	BFV-442A	BFV-443A	BFV-444A	BFV-445A	FE/FIT-417A	DPIT-413A
CIRCUIT	PP1 (2)	PP1 (2)	PP1 (2)	PP1 (2)	PP1 (2)	PP1 (2)	PP1 (2)	PP1 (2)	LP1 (28)	-
FILTER PF-402										
EQUIP.	BFV-435B	BFV-438B	BFV-440B	BFV-441B	BFV-442B	BFV-443B	BFV-444B	BFV-445B	FE/FIT-417B	DPIT-413B
CIRCUIT	PP1 (4)	PP1 (4)	PP1 (4)	PP1 (4)	PP1 (4)	PP1 (4)	PP1 (4)	PP1 (4)	LP1 (28)	-
FILTER PF-403										
EQUIP.	BFV-435C	BFV-438C	BFV-440C	BFV-441C	BFV-442C	BFV-443C	BFV-444C	BFV-445C	FE/FIT-417C	DPIT-413C
CIRCUIT	PP1 (6)	PP1 (6)	PP1 (6)	PP1 (6)	PP1 (6)	PP1 (6)	PP1 (6)	PP1 (6)	LP1 (28)	-
FILTER PF-404										
EQUIP.	BFV-435D	BFV-438D	BFV-440D	BFV-441D	BFV-442D	BFV-443D	BFV-444D	BFV-445D	FE/FIT-417D	DPIT-413D
CIRCUIT	PP1 (8)	PP1 (8)	PP1 (8)	PP1 (8)	PP1 (8)	PP1 (8)	PP1 (8)	PP1 (8)	LP1 (28)	-

FILTER EQUIPMENT SCHEDULE

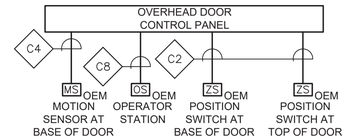
(FOR EXACT LOCATION OF EQUIPMENT - SEE M-DRAWINGS AND I- DRAWINGS)



TYPICAL FOR: PB-994A, PB-994B, PB-995, PB-996, PB-997, PB-998

MAN-DOWN/E-STOP PUSHBUTTONS
BLOCK WIRING DIAGRAM

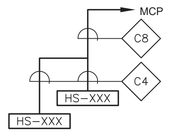
NOT TO SCALE



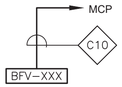
NOTES
1. COORDINATE WITH ELECTRIC DOOR OPERATOR AS SPECIFIED IN SECTION 08331.

CONTROL BLOCK WIRING DIAGRAM
OVERHEAD DOOR

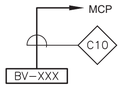
NOT TO SCALE



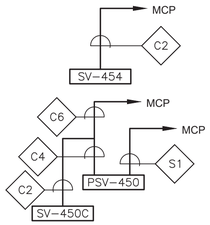
TYPICAL FOR: HS-616/HS-617, HS-618/HS-619, HS-716/HS-717, HS-718/HS-719, HS-815/HS-816



TYPICAL FOR: BFV-506, BFV-509A, BFV-509B



TYPICAL FOR: BV-634, BV-635, BV-636, BV-637, BV-734, BV-735, BV-736, BV-737, BV-834, BV-835,



CHEMICAL TRANSFER PUMP HAND SWITCHES
BLOCK WIRING DIAGRAM

NOT TO SCALE

VALVES
BLOCK WIRING DIAGRAMS

NOT TO SCALE

ENVIRONMENTAL PARTNERS

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MARK	DATE	DESCRIPTION

Scale	N.T.S.
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

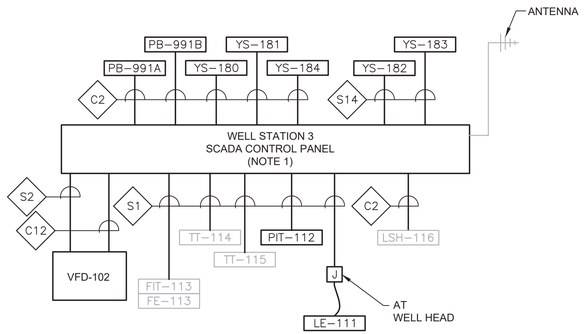
ELECTRICAL
BLOCK DIAGRAMS I

FOR CONSTRUCTION

Sheet No.

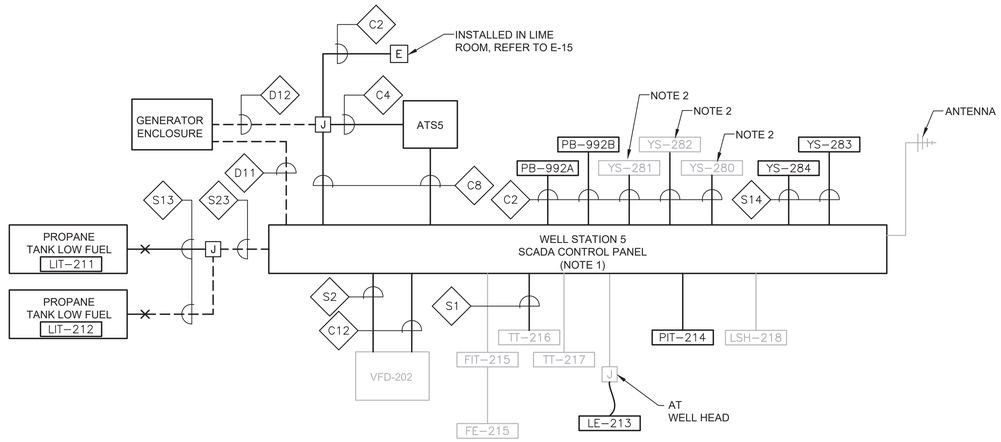
E-17

Drawing file: W:\Year - 2020\2002028.00 - Easton Water Treatment Plant\Electrical Department\2002B.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:17am



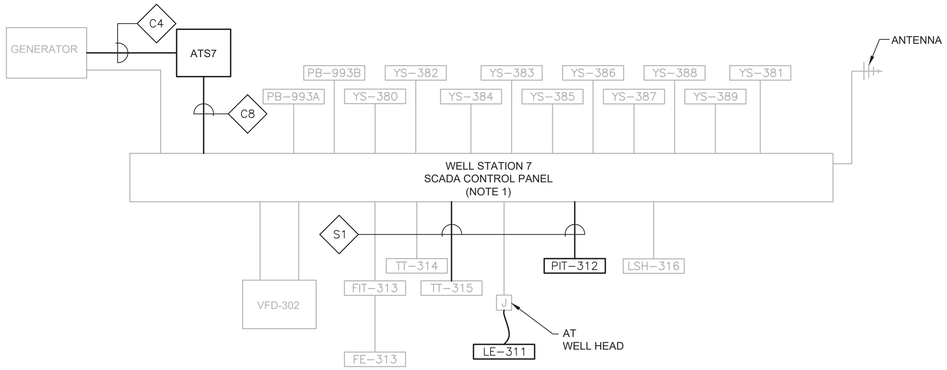
WELL STATION 3
BLOCK WIRING DIAGRAM

NOT TO SCALE



WELL STATION 5
BLOCK WIRING DIAGRAM

NOT TO SCALE



WELL STATION 7
BLOCK WIRING DIAGRAM

NOT TO SCALE

NOTES:

1. EXISTING SCADA CONTROL PANELS IN WELL STATIONS #3 & #5 ARE BEING REPLACED WITH NEW SCADA CONTROL PANELS. CONDUIT/WIRE INTERCONNECTIONS INDICATED AS EXISTING (LIGHT GREY) SHALL BE DISCONNECTED FROM THE EXISTING SCADA CONTROL PANELS AND RECONNECTED TO THE NEW CONTROL PANELS. REFER TO THE I-DRAWINGS FOR THE INSTRUMENTATION TYPES AND QUANTITY OF INTERCONNECTIONS INTO THE SCADA CONTROL PANELS.
2. EXISTING INTRUSION DETECTION SYSTEM IS BEING DEMOLISHED, REMOVE AND REPLACE ALL EXISTING CONDUIT/WIRE TO THE EXISTING DOOR SWITCHES.

TOWN OF EASTON MASS INCORPORATED 1725

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40599
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Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

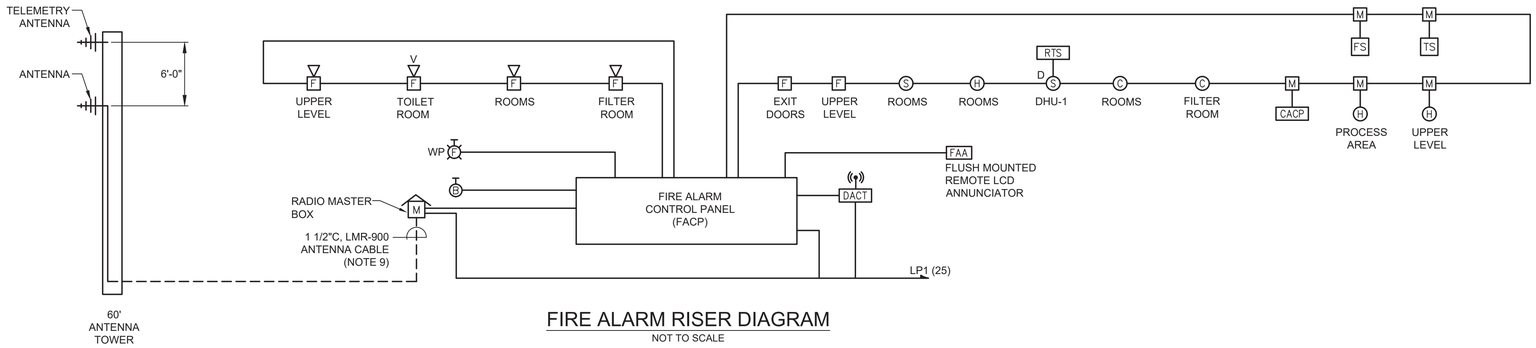
ELECTRICAL
BLOCK DIAGRAMS II

FOR CONSTRUCTION

Sheet No.

E-18

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Dipartment\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:17am

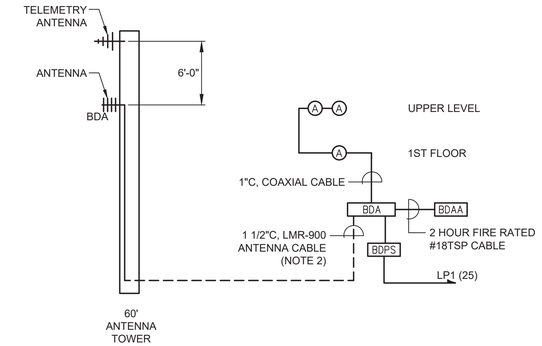


FIRE ALARM RISER DIAGRAM

NOT TO SCALE

FIRE ALARM NOTES:

1. RISER DIAGRAM ONLY REPRESENTS TYPE OF DEVICES WITHIN AN AREA AND DOES NOT REPRESENT ACTUAL QUANTITIES. REFER TO PLAN DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS OF DEVICES.
2. FLOW AND TAMPER SWITCH LOCATIONS ON PLAN DRAWINGS ARE SHOWN FOR QUANTITY PURPOSES ONLY AND MAY NOT REPRESENT ACTUAL LOCATIONS. COORDINATE WITH FIRE PROTECTION SPRINKLER CONTRACTOR FOR EXACT LOCATIONS.
3. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
4. SYSTEM CONDUIT/CABLING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
5. PROVIDE RED COLORED CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT. HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP, BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
6. REFER TO THE HVAC AND FIRE PROTECTION DRAWINGS FOR EXACT LOCATION OF ALL EQUIPMENT REQUIRING FIRE ALARM SYSTEM INTERFACE.
7. ALL COMPONENTS OF THE SYSTEM SHALL BE MOUNTED IN ACCORDANCE WITH ADA REQUIREMENTS.
8. THE FIRE ALARM SYSTEM SHALL BE ADDRESSABLE TYPE. CONTRACTOR TO PROVIDE THE NECESSARY INTERFACE MODULES FOR THE FIRE ALARM DEVICES THAT REQUIRES THEM.
9. PRIOR TO CABINET ENTRANCE POINT PROVIDE ANTENNA SURGE SUPPRESSION POLYPHASOR WITH A #6 GROUND CONDUCTOR IN 1/2"C CONNECTION TO GROUND BUS IN ELECTRICAL ROOM.

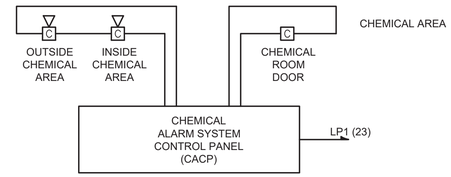


RADIO REPEATER RISER DIAGRAM (BDA)

N.T.S.

RADIO REPEATER NOTES:

1. PROVIDE AN EMERGENCY RESPONDER BUILDING RADIO FREQUENCY SYSTEM TO AMPLIFY THE LOCAL MUNICIPAL FIRE DEPARTMENT AND POLICE DEPARTMENT RADIO COVERAGE WITHIN THE BUILDING TO A MINIMUM OF THE 780 CMR CHAPTER 9 REQUIRED LEVELS. THE SYSTEM SHALL BE DESIGNED, FURNISHED, INSTALLED AND CERTIFIED BY A LOCAL COMMUNICATIONS COMPANY WITH AT LEAST FIVE YEARS EXPERIENCE IN THE DESIGN AND INSTALLATION OF BUILDING RADIO FREQUENCY SYSTEMS. THE SYSTEM WILL CONSIST OF AT A MINIMUM A ROOF ANTENNA WITH GROUND, A BI-DIRECTIONAL AMPLIFIER, CABLE SPLITTERS, CABLE TAPS, INDOOR ANTENNAS, AND INTERCONNECTING COAXIAL CABLE INSTALLED IN CONDUIT. THE SYSTEM SHALL CONFORM TO ALL LOCAL AND STATE CODES AND NFPA 72.
2. PRIOR TO CABINET ENTRANCE POINT PROVIDE ANTENNA SURGE SUPPRESSION POLYPHASOR WITH A #6 GROUND CONDUCTOR IN 1/2"C CONNECTION TO GROUND BUS IN ELECTRICAL ROOM.

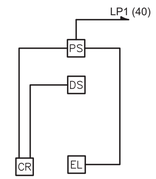


CHEMICAL ALARM RISER DIAGRAM

NOT TO SCALE

FIRE ALARM NOTES:

1. RISER DIAGRAM ONLY REPRESENTS TYPE OF DEVICES WITHIN AN AREA AND DOES NOT REPRESENT ACTUAL QUANTITIES. REFER TO PLAN DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS OF DEVICES.
2. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
3. SYSTEM CONDUIT/CABLING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
4. PROVIDE RED COLORED CIRCUIT BREAKER HANDLE LOCK ON POWER CIRCUIT. HANDLE LOCK SHALL ALLOW THE CIRCUIT BREAKER TO TRIP, BUT PREVENT SWITCHING OF THE CIRCUIT BREAKER TO THE "OFF" POSITION.
5. ALL COMPONENTS OF THE SYSTEM SHALL BE MOUNTED IN ACCORDANCE WITH ADA REQUIREMENTS.
6. THE CHEMICAL ALARM SYSTEM SHALL BE UL LISTED 4-ZONE CONVENTIONAL TYPE FIRE ALARM SYSTEM.

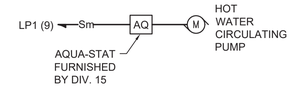


ACCESS CONTROL TYPICAL DOOR RISER DIAGRAM

NOT TO SCALE

ACCESS CONTROL NOTES:

1. MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS NOTED OTHERWISE.
2. SYSTEM CONDUIT/CABLING SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT SUPPLIERS APPROVED SHOP DRAWINGS AND WIRING DIAGRAMS.
3. ALL COMPONENTS OF THE SYSTEM SHALL BE MOUNTED IN ACCORDANCE WITH ADA REQUIREMENTS.



– PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

CONTROL WIRING DIAGRAM DOMESTIC HOT WATER CIRCULATING PUMP

NOT TO SCALE

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS

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Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

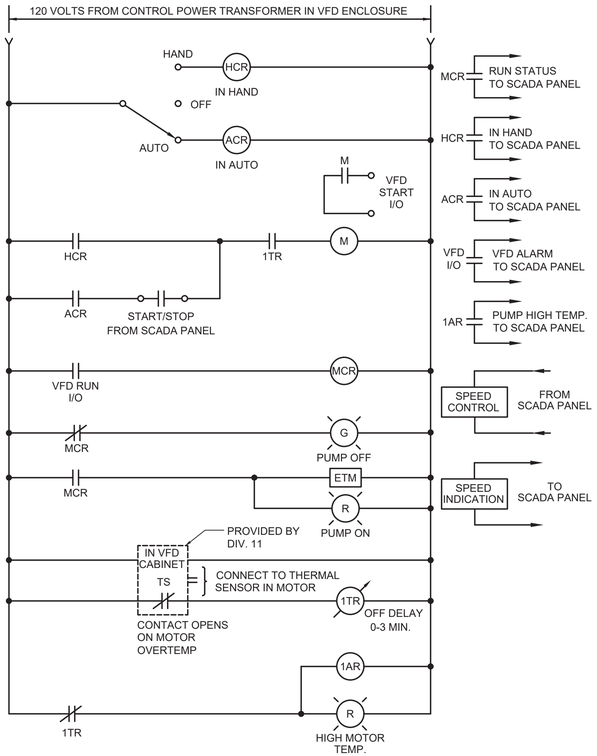
ELECTRICAL
CONTROLS AND RISER DIAGRAMS

FOR CONSTRUCTION

Sheet No.

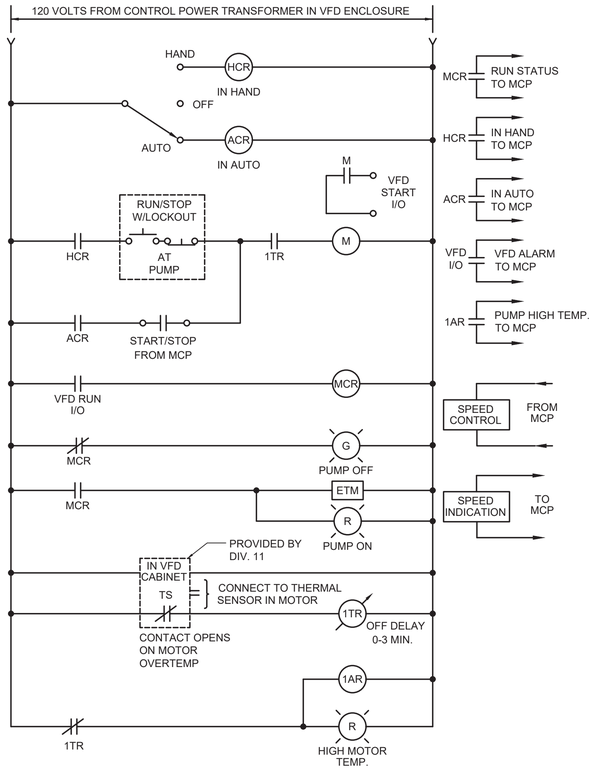
E-19

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Dipartment\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:18am



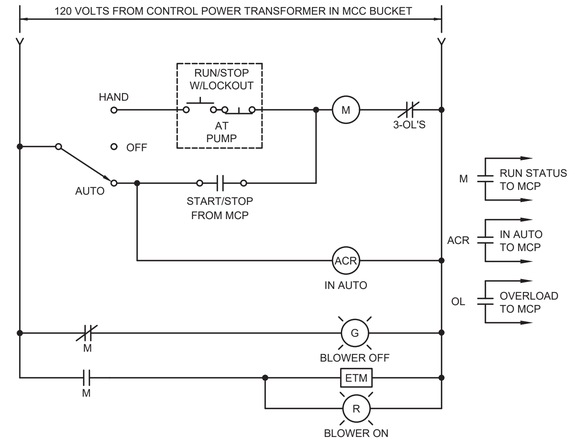
CONTROL WIRING DIAGRAM
WELL PUMP 3

NOT TO SCALE



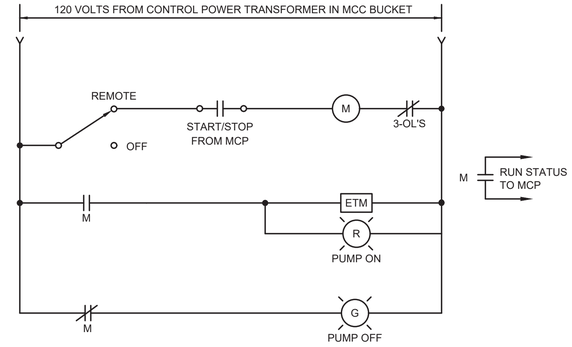
CONTROL WIRING DIAGRAM
FINISHED WATER PUMPS

NOT TO SCALE



CONTROL WIRING DIAGRAM
AIR BLOWER

NOT TO SCALE



CONTROL WIRING DIAGRAM
CHEMICAL TRANSFER PUMPS

NOT TO SCALE

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS
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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

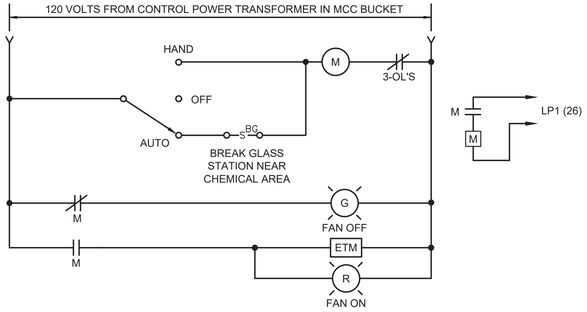
ELECTRICAL
CONTROL WIRING DIAGRAMS I

FOR CONSTRUCTION

Sheet No.

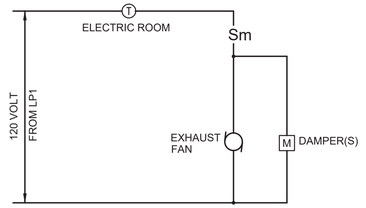
E-20

Drawing file: W:\Year - 2020\200028.00 - Easton Water Treatment Plant\Electrical Department\200028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:18am



CONTROL WIRING DIAGRAM
EXHAUST FAN EF-1

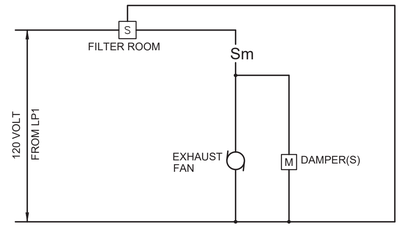
NOT TO SCALE



- PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

EF-2 & EF-9 EXHAUST FAN WIRING DIAGRAM

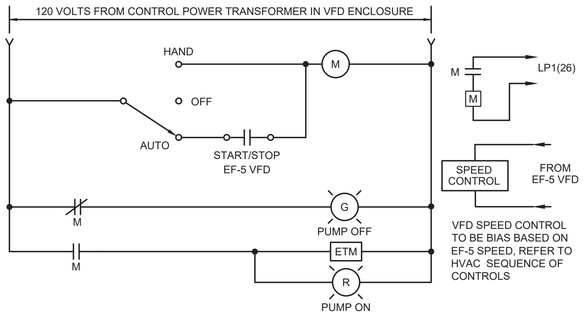
NOT TO SCALE



- PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

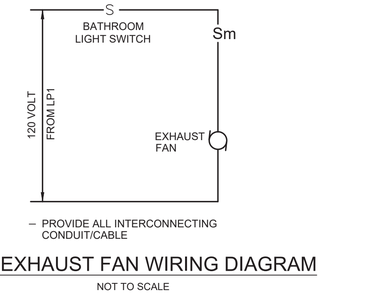
EF-3 EXHAUST FAN WIRING DIAGRAM

NOT TO SCALE



CONTROL WIRING DIAGRAM
MAKE UP AIR UNIT MUA-1

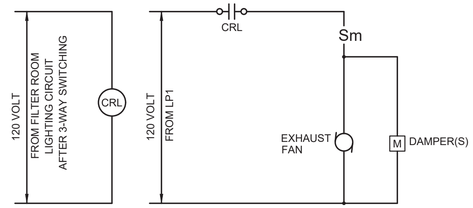
NOT TO SCALE



– PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

EF-4 EXHAUST FAN WIRING DIAGRAM

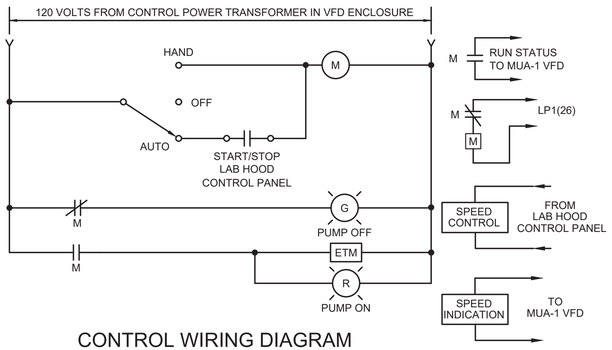
NOT TO SCALE



- PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

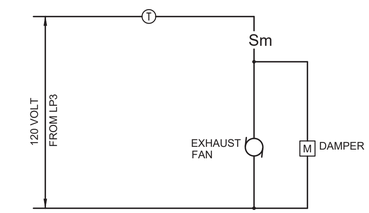
EF-6 EXHAUST FAN WIRING DIAGRAM

NOT TO SCALE



CONTROL WIRING DIAGRAM
EXHAUST FAN EF-5

NOT TO SCALE



- PROVIDE ALL INTERCONNECTING CONDUIT/CABLE

EF-7 & EF-8 EXHAUST FAN WIRING DIAGRAM

NOT TO SCALE

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

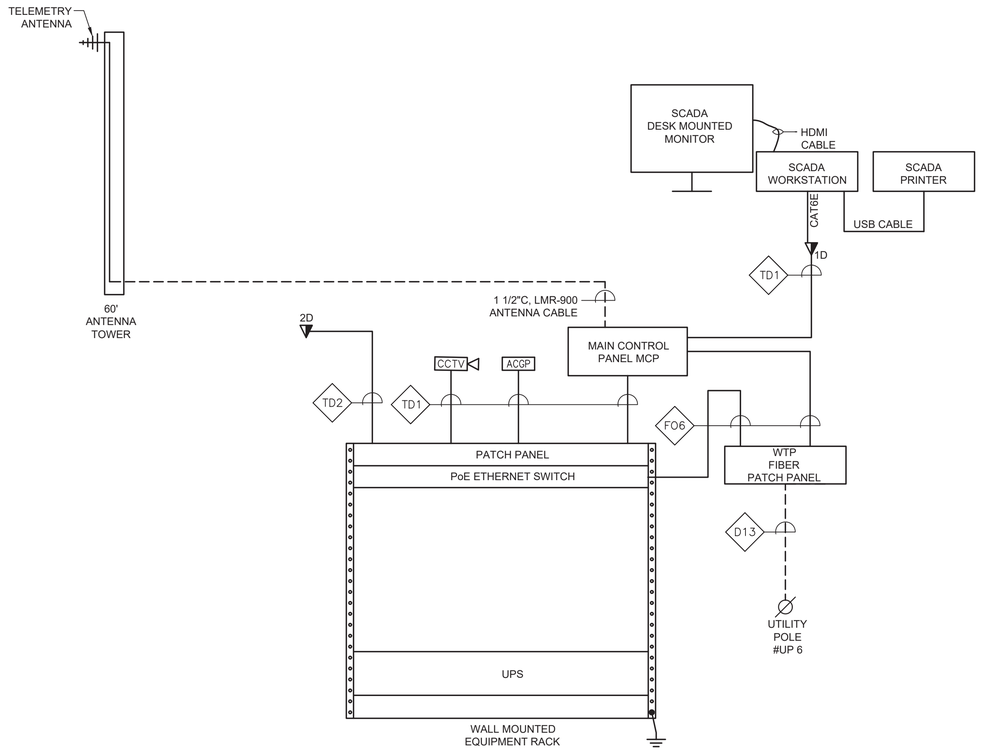
ELECTRICAL
CONTROL WIRING DIAGRAMS II

FOR CONSTRUCTION

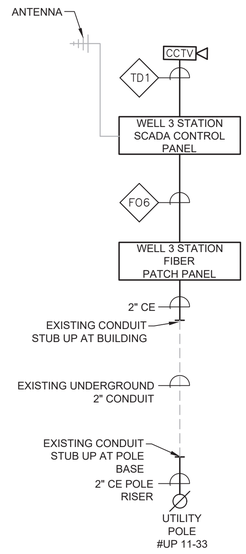
Sheet No.

E-21

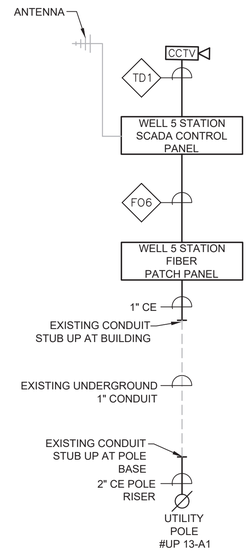
Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:18am



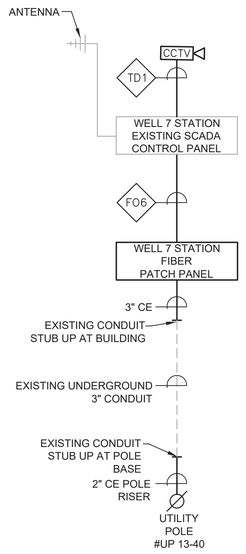
WTP



WELL STATION 3



WELL STATION 5



WELL STATION 7

TELE/DATA & CCTV RISER DIAGRAMS

NOT TO SCALE

NOTES:

1. RISER DIAGRAM ONLY REPRESENTS TYPE OF DEVICES AND DOES NOT REPRESENT ACTUAL QUANTITIES. REFER TO PLAN DRAWINGS QUANTITIES AND LOCATIONS OF DEVICES.
2. MINIMUM SIZE CONDUIT SHALL BE 1" UNLESS NOTED OTHERWISE.
3. MAIN CONTROL PANEL AND SCADA CONTROL PANELS ARE PROVIDED BY INSTRUMENTATION/CONTROLS SUB-CONTRACTOR. ELECTRICAL FSB TO PROVIDE ALL MOUNTING.
4. FIBER PATCH PANELS ARE PROVIDED BY THE TOWN'S COMMUNICATIONS VENDOR. ELECTRICAL FSB TO PROVIDE ALL MOUNTING, COORDINATE WITH VENDOR FOR FINAL LOCATIONS.
5. SCADA WORK STATION, SCADA MONITOR, AND SCADA PRINTER ARE PROVIDED BY APPLICATION ENGINEER.

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MARK	DATE	DESCRIPTION

Scale	N.T.S.
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
TELE/DATA & CCTV RISER DIAGRAMS

FOR CONSTRUCTION

Sheet No.

E-22

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plants.dwg Plot Date: Sep 22,2021-9:18am

PANELBOARD SCHEDULE

NO. LP1 LOCATION: WTP ELECTRICAL ROOM

208/120 V, 3 PH, 4 W, 250 A MAINS 250 A SOLID NEUTRAL; 250 A MCB

22,000 AIC AT 120 V 250 GROUND BUS - A MLO SURFACE MOUNTING

CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	DESCRIPTION OF LOAD	CIRCUIT
1	FILTER ROOM LIGHTING	1.51			20	1	1	20	1.80			EXTERIOR RECEPTACLES	2 *
3	ROOM LIGHTING		0.95		20	1	1	20		0.40		TELE/DATA BACKBOARD	4
* 5	FILTER ROOM RECEPTACLES			1.20	20	1	1	20			0.60	ELECTRIC ROOM RECEPTACLES	6
* 7	FILTER ROOM RECEPTACLES	1.20			20	1	1	20	1.0			CHEM. ROOMS RECEPTACLES	8
9	WATER HEATERS & RECIRC. PUMP		0.20		20	1	1	20		1.20		MECH & REST RM RECEPTACLES	10
11	SPARE			-	20	1	1	20			0.80	UPPER LEVEL RECEPTACLES	12
13	LAB RECEPTACLES	1.40			20	1	1	20	1.50			UH-1, UH-2, UH-3	14
15	LAB RECEPTACLES		1.60		20	1	1	20		1.0		UH-4,UH-5	16
17	LAB RECEPTACLES			1.20	20	1	1	20			0.53	EXHAUST FAN EF-2	18
19	LAB REFRIG.	0.40			20	1	1	20	1.66			EXHAUST FAN EF-3	20
21	FUME HOOD		1.0		20	1	1	20		0.10		EXHAUST FAN EF-4	22
23	CHEMICAL ALARM CONTROL PANEL (CACP)			0.50	20	1	1	20			0.53	EXHAUST FAN EF-6	24
25	FIRE ALARM CONTROL PANEL (FACP) & BDA	1.0			20	1	1	20	0.10			MOTORIZED DAMPERS	26
27	EXTERIOR LIGHTING		0.72		20	1	1	20		1.0		FILTER FLOW METERS	28
29	MAIN CONTROL PANEL			0.50	20	1	1	20			0.75	PLANT FLOW METERS	30
31	REFRIGERATION MONITOR	0.10			20	1	1	20	0.53			EXHAUST FAN EF-9	32
33	TELE/COMM EQUIPMENT RACK		0.75		20	1	1	20		0.50		KOH BALL VALVES	34
35	ANALYZERS AIT-971 & AIT-972			0.4	20	1	1	20			0.50	NaOCL BALL VALVES	36
37	ANALYZERS AIT-973 & AIT-974	0.4			20	1	1	20	0.25			PACI BALL VALVES	38
39	METERING PUMPS MP-602, MP-604, MP-607		0.75		20	1	1	20		0.2		ELECTRIC DOOR POWER SUPPLIES	40
41	METERING PUMPS MP-603, MP-606, MP-802			0.75	20	1	1	30			2.4	EWH-1	42
43	METERING PUMPS MP-702, MP-706, MP-803	0.75			20	1	1	20	-			SPARE	44
45	METERING PUMPS MP-703, MP-707		0.50		20	1	1	20		-		SPARE	46
47	FUTURE NaHSO3 METERING PUMPS			0.50	20	1	1	20			1.20	OVERHEAD DOOR	48
49	SPARE	-			20	1	1	20	-			SPARE	50
51	SPARE		-		20	1	1	20		-		SPARE	52
53	SPARE			-	20	1	1	20			-	SPARE	54
55	SPARE	-			20	1	1	20	-			SPARE	56
57	SPARE		-		20	1	1	20		-		SPARE	58
59	SPARE			-	20	1	1	20			-	SPARE	60
61	SPARE	-			20	1	1	20	-			SPARE	62
63	SPARE		-		20	1	1	20		-		SPARE	64
65	SPARE			-	20	1	1	20			-	SPARE	66
67	SPARE	-			20	1	1	20	1.0			GENERATOR BATTERY CHARGER & STATOR HEATER	68
69	ACC-2 & HP-1		1.34		20	2	2	40		3.0		GENERATOR JACKET HEATER	70
71				1.34							3.0		72
SUB-TOTAL CONNECTED		6.76	7.81	6.39					7.59	7.40	9.11	SUB-TOTAL CONNECTED	

* PROVIDE GFCI BREAKER

SUB-TOTAL CONNECTED	KVA AØ =	14.35
SUB-TOTAL CONNECTED	KVA BØ =	15.21
SUB-TOTAL CONNECTED	KVA CØ =	15.50
TOTAL CONNECTED	KVA =	45.06

PANELBOARD SCHEDULE

NO. PP1 LOCATION: WTP ELECTRICAL ROOM

277/480 V, 3 PH, 4 W, 225 A MAINS 225 A SOLID NEUTRAL - A MCB

10,000 AIC AT 277 V 225 A GROUND BUS 225 A MLO SURFACE MOUNTING

CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	DESCRIPTION OF LOAD	CIRCUIT
1	ELECTRIC UNIT HEATER EUH-2 - 3KW	1.0			20	3	3	20	2.5			FILTER PF-401 VALVES	2
			1.0							2.5			
				1.0							2.5		
3	ELECTRIC UNIT HEATER EUH-3 - 3KW	1.0			20	3	3	20	2.5			FILTER PF-402 VALVES	4
			1.0							2.5			
				1.0							2.5		
5	SPARE	-			20	3	3	20	2.5			FILTER PF-403 VALVES	6
			-							2.5			
				-							2.5		
7	SPARE	-			20	3	3	20	2.5			FILTER PF-404 VALVES	8
			-							2.5			
				-							2.5		
9	SPACE	-			-	-	3	20	1.2			PLANT VALVES	10
			-							1.2			
				-							1.2		
11	SPACE	-			-	-	3	20	-			SPARE	12
			-							-			
				-							-		
13	SPACE	-			-	-	3	20	-			SPARE	14
			-							-			
15	ELECTRIC UNIT HEATER EUH-1 - 3KW			3.0	20	1					3.0	ELECTRIC UNIT HEATER EUH-4 - 3KW	16
SUB-TOTAL CONNECTED		2.0	2.0	5.0					11.2	11.2	14.2	SUB-TOTAL CONNECTED	

* PROVIDE GFCI BREAKER

SUB-TOTAL CONNECTED	KVA AØ =	13.2
SUB-TOTAL CONNECTED	KVA BØ =	13.2
SUB-TOTAL CONNECTED	KVA CØ =	19.2
TOTAL CONNECTED	KVA =	45.60

TOWN OF EASTON MASS INCORPORATED 1725

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MARK	DATE	DESCRIPTION

Scale	N.T.S.
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Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
WATER TREATMENT PANELBOARD SCHEDULES

FOR CONSTRUCTION

Sheet No.

E-23

PANELBOARD SCHEDULE

NO. LP3 LOCATION: WELL STATION 3

208/120 V, 3 PH, 4 W, 100 A MAINS 100 A SOLID NEUTRAL; 50 A MCB

10,000 AIC AT 120 V 100 GROUND BUS - A MLO SURFACE MOUNTING

CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	DESCRIPTION OF LOAD	CIRCUIT
1	LIGHTING	0.13			20	1	1	20	0.50			SCADA CONTROL PANEL	2
3	RECEPTACLES		0.80		20	1	1	20		0.25		FLOW METER	4
5	EXTERIOR LIGHT			0.10	20	1	1	20			0.50	EF-7 AND DAMPER	6
7	SPARE	-			20	1	1	20	0.50			EF-8 AND DAMPER	8
9	SPARE		-		20	1	1	20		-		SPARE	10
11	SPARE			-	20	1	1	20			-	SPARE	12
13	SPARE	-			20	1	1	20	-			SPARE	14
15	SPARE		-		20	1	1	20		-		SPARE	16
17	SPARE			-	20	1	1	20			-	SPARE	18
19	SPARE	-			20	1	1	20	-			SPARE	20
21	SPACE		-		-	-	-	-		-		SPACE	22
23	SPACE			-	-	-	-	-			-	SPACE	24
SUB-TOTAL CONNECTED		0.13	0.80	0.10					1.00	0.25	0.50	SUB-TOTAL CONNECTED	

* PROVIDE GFCI BREAKER

SUB-TOTAL CONNECTED	KVA AØ =	1.13	
SUB-TOTAL CONNECTED	KVA BØ =	1.05	
SUB-TOTAL CONNECTED	KVA CØ =	0.60	
TOTAL CONNECTED	KVA =	2.78	

PANELBOARD SCHEDULE

NO. LP5 LOCATION: WELL STATION 5

208/120 V, 3 PH, 4 W, 100 A MAINS 100 A SOLID NEUTRAL; 50 A MCB

10,000 AIC AT 120 V 100 GROUND BUS - A MLO SURFACE MOUNTING

CIRCUIT	DESCRIPTION OF LOAD	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	BREAKER TRIP	BREAKER POLE	BREAKER POLE	BREAKER TRIP	LOAD (KVA) AØ	LOAD (KVA) BØ	LOAD (KVA) CØ	DESCRIPTION OF LOAD	CIRCUIT
1	EXISTING LIGHTING CIRCUIT - LIME ROOM	1.0			20	1	1	20	0.50			SCADA CONTROL PANEL	2
3	EXISTING LIGHTING CIRCUIT - PUMP ROOM		1.0		20	1	1	20		0.25		EXISTING CIRCUIT FLOW METER	4
5	EXTERIOR LIGHT			0.10	20	1	1	20			-	EXISTING CIRCUIT	6
7	EXISTING CIRCUIT	-			20	1	1	20	-			EXISTING CIRCUIT	8
9	EXISTING CIRCUIT		-		20	1	1	20		-		EXISTING CIRCUIT	10
11	EXISTING CIRCUIT			-	20	1	1	20			-	EXISTING CIRCUIT	12
13	EXISTING CIRCUIT	-			20	1	1	20	-			SPARE	14
15	EXISTING CIRCUIT		-		20	1	1	20		-		SPARE	16
17	EXISTING CIRCUIT			-	20	1	1	20			-	SPARE	18
19	SPARE	-			20	1	1	20	-			SPARE	20
21	GENERATOR BATTERY CHARGER & STATOR HEATER		1.0		20	1	2	20		-		EXISTING CIRCUIT - LIME ROOM HEATER	22
23	GENERATOR JACKET HEATER			1.5	20	1					-		24
SUB-TOTAL CONNECTED		1.0	1.0	0.10					0.50	0.25	0.00	SUB-TOTAL CONNECTED	

* PROVIDE GFCI BREAKER

SUB-TOTAL CONNECTED	KVA AØ =	1.50	
SUB-TOTAL CONNECTED	KVA BØ =	1.25	
SUB-TOTAL CONNECTED	KVA CØ =	0.10	
TOTAL CONNECTED	KVA =	2.85	

TOWN OF EASTON MASS INCORPORATED 1725

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Scale	N.T.S.
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
PUMP STATION PANELBOARD SCHEDULES

FOR CONSTRUCTION

Sheet No.

E-24

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22, 2021-9:19am

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER & CATALOG SERIES	LAMPS		VOLTS	WATTS	MOUNTING		REMARKS
			TYPE	LUMENS			TYPE	HEIGHT	
F1	48" LED ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE.	LITHONIA FEM-L48-6000LM-IMAFL-MVOLT-35K-80CRI	LED 3500K	6000lm	120	45	PENDANT	16'-0"ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED	
F2	48" LED ENCLOSED AND GASKETED INDUSTRIAL LIGHTING FIXTURE.	LITHONIA FEM-L48-4000LM-IMAFL-MVOLT-35K-80CRI	LED 3500K	4000lm	120	31	SURFACE		
F3	2'X2' RECESSED ALUMINUM LED LIGHTING FIXTURE	LITHONIA 2BLT2-33LHE-ADP-LP830	LED 3500K	3300lm	120	26	RECESSED		
F4	CONTEMPORARY SQUARE VANITY LED LIGHTING FIXTURE	TERON LIGHITNG VCY24-L12.0-120-TE350-35K	LED 3500K	2350lm	120	18	WALL		
W1	EXTERIOR BUILDING MOUNTED LED WALL PACK LIGHT FIXTURE DARK BRONZE. DARK SKY COMPLIANT	LITHONIA WDGE2-LED-P4 30K-80CRI-VF	LED 3000K	4247lm	120	35	WALL	18'-0"ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED	INTEGRAL PHOTOCELLL CONTROLLED
W2	EXTERIOR BUILDING MOUNTED LED MINI WALL PACK LIGHT FIXTURE DARK BRONZE. DARK SKY COMPLIANT	LITHONIA WDGE1-LED-P1-30K 80CRI-VF	LED 3000K	1161lm	120	10	WALL	8'-0"ABOVE FINISHED GRADE UNLESS OTHERWISE NOTED	
	SELF CONTAINED EMERGENCY LIGHTING BATTERY UNIT NEMA 4 WITH TWO LIGHTING HEADS	REFER TO SPECIFICATIONS			120	8W	WALL		INSTALL 3/4"C, 2#12, 1#12GND TO REMOTE HEADS
	SEALED-BEAM WEATHERPROOF REMOTE LIGHTING FIXTURE WITH TWO LIGHTING HEADS	REFER TO SPECIFICATIONS			120	8W	WALL		
	EMERGENCY EXIT SIGN LED TYPE WITH BATTERY BACK-UP NEMA 4X	REFER TO SPECIFICATIONS			120		WALL		

LIGHTING FIXTURE SCHEDULES NOTES:

1. THE CATALOG NUMBERS LISTED ARE GIVEN AS A GUIDE TO THE DESIGN AND QUALITY OF FIXTURE DESIRED. EQUIVALENT DESIGNS, MATERIALS, DIMENSIONS, COEFFICIENT OF UTILIZATIONS AND EQUAL QUALITY FIXTURES OF OTHER MANUFACTURERS WILL BE ACCEPTABLE.

POWER CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS	GND
P22	3/4"	(2)#12	(1)#12
P23	3/4"	(3)#12	(1)#12
P26	3/4"	(6)#12	(1)#12
P32	3/4"	(2)#10	(1)#10
P33	3/4"	(3)#10	(1)#10
P53	3/4"	(3)#8	(1)#10
P54	3/4"	(4)#8	(1)#10
P63	1"	(3)#6	(1)#8
P64	1"	(4)#6	(1)#8
P83	1 1/4"	(3)#4	(1)#8
P84	1 1/4"	(4)#4	(1)#8
P103	1 1/2"	(3)#3	(1)#6
P104	1 1/2"	(4)#3	(1)#6
P113	1 1/2"	(3)#2	(1)#6
P114	1 1/2"	(4)#2	(1)#6
P133	2"	(3)#1	(1)#6
P134	2"	(4)#1	(1)#6
P153	2"	(3)#1/0	(1)#6
P154	2"	(4)#1/0	(1)#6
P173	2 1/2"	(3)#2/0	(1)#6
P174	2 1/2"	(4)#2/0	(1)#6
P204	2 1/2"	(4)#3/0	(1)#4
P604	(2)3"	(8)350KCMIL	(2)#1

TELE/DATA CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CABLES
TD1	1"	1-CAT6E
TD2	1"	2-CAT6E
FO6	1"	6 STRAND FIBER OPTIC
FO12	2"	12 STRAND FIBER OPTIC

SIGNAL CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS
S	1"	OEM PROVIDED
S1	3/4"	1-2/C#16 TSP
S13	3/4"	1-3/C#16 TSP
S14	3/4"	1-4/C#16 TSP
S2	3/4"	2-2/C#16 TSP
S23	3/4"	2-3/C#16 TSP
S3	1"	3-2/C#16 TSP
S33	1"	3-3/C#16 TSP
S4	1"	4-2/C#16 TSP
S5	1"	5-2/C#16 TSP
S6	1 1/2"	6-2/C#16 TSP
S7	1 1/2"	7-2/C#16 TSP
S8	1 1/2"	8-2/C#16 TSP
S9	1 1/2"	9-2/C#16 TSP
S10	2"	10-2/C#16 TSP
TC1	3/4"	8/C#18

CONTROL CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE	CONDUCTORS
C2	3/4"	2#14
C4	3/4"	4#14
C5	3/4"	5#14
C6	3/4"	6#14
C7	3/4"	7#14
C8	3/4"	8#14
C9	3/4"	9#14
C10	3/4"	10#14
C12	3/4"	12#14
C16	1"	16#14
C20	1"	20#14
C30	1 1/4"	30#14
C50	1 1/2"	50#14
C60	1 1/2"	60#14
C80	2"	80#14
C100	2 1/2"	100#14

NOTES:

1. CONDUIT AND CONDUCTOR SIZES ARE TO BE PER THE ABOVE SCHEDULES UNLESS OTHERWISE NOTED.
2. CONDUITS SHALL NOT BE INSTALLED WITHIN SLAB STRUCTURE AND SHALL BE RUN UNDER THE SLAB.
3. A "E" DESIGNATION IN FRONT OF THE SYMBOL INDICATES CONDUIT AND WIRE/CABLE ARE EXISTING TO REMAIN AND ARE TO BE DISCONNECTED FROM EXISTING PANELS AND RECONNECTED INTO NEW PANELS. (I.E. EC2 REPRESENTS EXISTING 3/4"C WITH 2/14 WIRES)

TOWN OF EASTON MASS. INCORPORATED 1725

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
LIGHTING AND CABLE/CONDUIT SCHEDULES

FOR CONSTRUCTION

Sheet No.

E-25

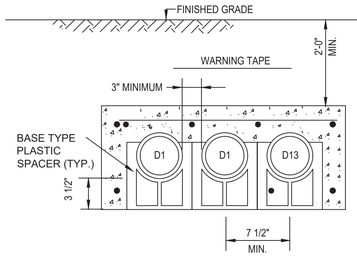
Drawing file: W:\Year - 2020\200028.00 - Easton Water Treatment Plant\Electrical Department\200028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:19am

DUCT / CABLE SCHEDULE

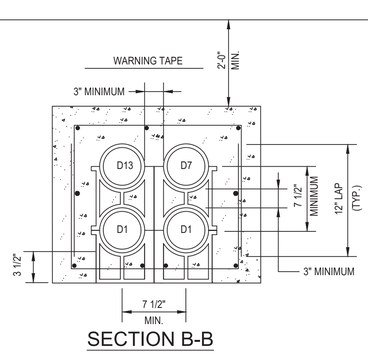
DUCT NO.	SIZE	CONDUCTORS	FROM	TO
D1	5"	PULL STRING FOR PRIMARY SERVICE	UTILITY POLE	UTILITY TRANSFORMER
D2	4"	(4) 350kcmiL	UTILITY TRANSFOMER	MCB
D3	4"	(4) 350kcmiL, #1 GND	GENERATOR	GENERATOR DISCONNECT SWITCH
D4	1"	(4) #12, #12GND, (2) #8, #10GND	LP1	GENERATOR AUXILLARY SYSTEMS.
D5	1"	(20) #14	GENERATOR	MAIN CONTROL PANEL
D6	1"	(6) #14	GENERATOR	ATS & EMERGENCY STOP
D7	3"	(4) 2/0kcmiL, #6 GND	MDP3	WELL STATION 3
D8	3"	(4) 3/0kcmiL	MCB5	WELL STATION 5
D9	3"	(4) 3/0kcmiL, #4 GND	GENERATOR	WELL STATION 5 GENERATOR DISCONNECT SWITCH
D10	1"	(6) #12, #12GND,	LP5	WELL STATION 5 GENERATOR AUXILLARY SYSTEMS.
D11	1"	(20) #14	GENERATOR	WELL STATION 5 SCADA RTU CONTROL PANEL
D12	1"	(6) #14	GENERATOR	WELL STATION 5 ATS & EMERGENCY STOP
D13	3"	PULL STRING FOR SERVICE PROVIDER	UTILITY POLE	STUB UP BELOW BELOW FIBER PATCH PANEL

DUCTBANK SECTION NOTES:

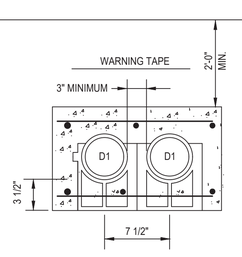
1. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE RED DUCT BANK MARKER TAPES, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
2. A MINIMUM OF 12" SEPARATION SHALL BE KEPT BETWEEN DUCT BANK SECTIONS WITHIN SAME TRENCH.
3. TRENCHING, CONCRETE WORK, AND BACKFILLING SHALL BE PERFORMED BY GENERAL CONTRACTOR.
4. SINGLE ROW DUCTBANK HEIGHT IS NOT TO EXCEED 16" AND DOUBLE ROW DUCTBANK HEIGHT IS NOT TO EXCEED 24".



SECTION A-A



SECTION B-B



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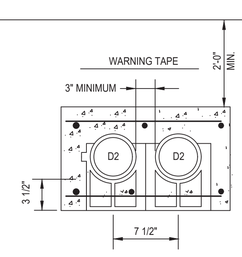

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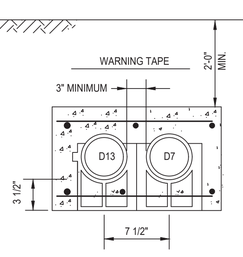

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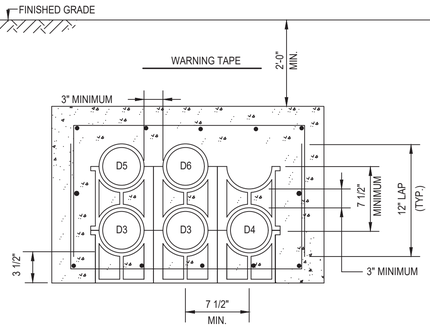
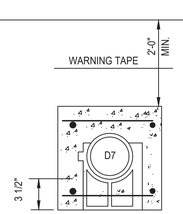
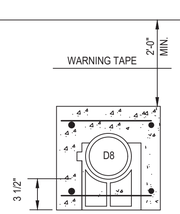


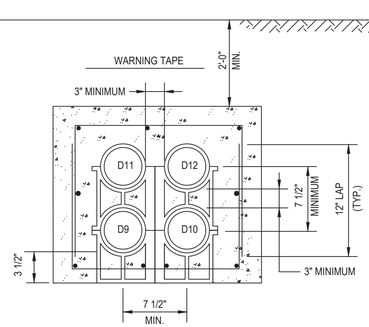
SECTION F-F



SECTION G-G



SECTION H-H



SECTION I-I

DUCTBANK SECTIONS

NO SCALE

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL J. COTTER
ELECTRICAL
No. 40599
REGISTERED PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION

Scale	N.T.S.
Date	AUGUST 2021
Job No.	307-2002
Designed by	RLB
Drawn by	RLB
Checked by	MC
Approved by	MC

THIS LINE IS ONE INCH LONG WHEN PLOTTED AT FULL SCALE ON A 22" X 34" DRAWING

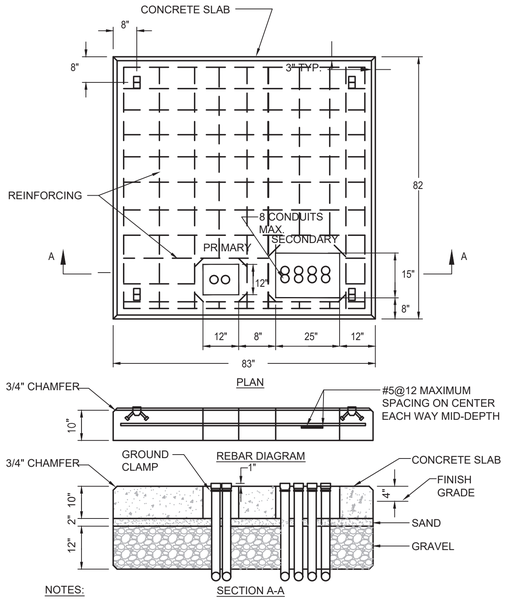
RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL
DUCT BANK SECTIONS

FOR CONSTRUCTION

Sheet No.
E-26

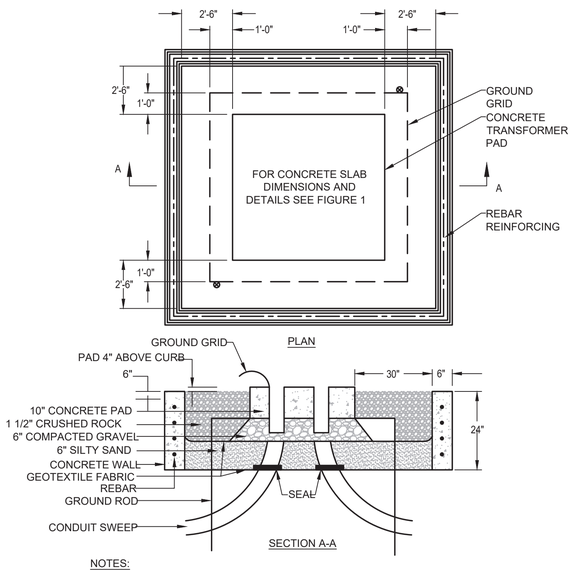
Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:19am



1. SEAL SECONDARY CONDUITS WITH EXPANDING FOAM AND GROUT PRIMARY AND SECONDARY CONDUIT OPENINGS ON PAD.

TRANSFORMER PAD

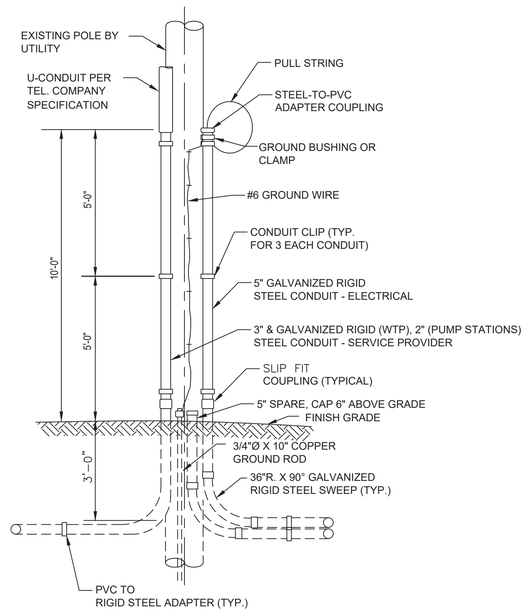
NO SCALE



1. GENERAL CONTRACTOR TO PROVIDE AND INSTALL PRE-CAST OIL CONTAINMENT CURB.

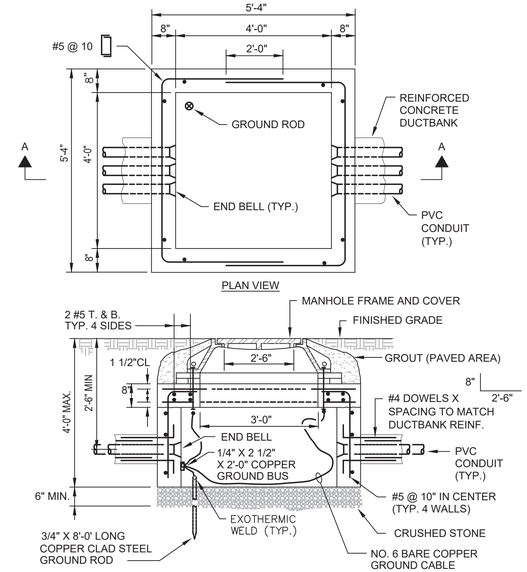
TRANSFORMER OIL CONTAINMENT CURB

NO SCALE



UTILITY POLE SERVICE RISER DETAIL

NOT TO SCALE

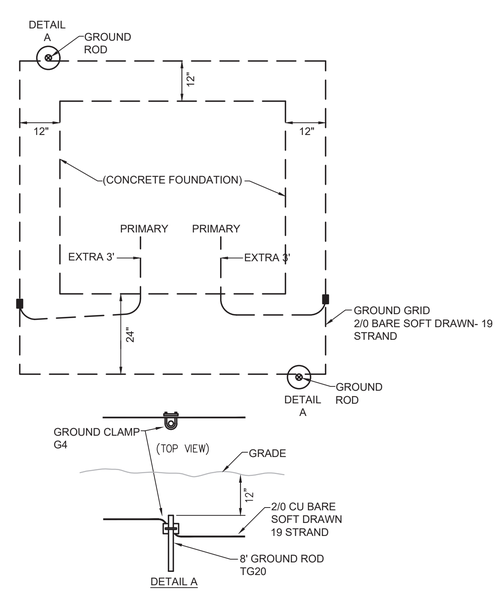


NOTES:

1. CHIMNEY HEIGHT IS KEPT TO MINIMUM TO FACILITATE PLACING COMPLETED SPLICES IN HANDHOLE FROM ABOVE GRADE
2. CONCRETE PER SPECIFICATIONS WITH MINIMUM STRENGTH OF 5,000 PSI AT 28 DAYS
3. PROVIDE HANDHOLE FRAME, RING AND COVER.
4. REFER TO DUCTBANK SECTIONS FOR THE REQUIRED NUMBER OF CONDUIT ENTRANCES. PROVIDE CONDUIT ENTRY SPACE ON NON-USED SIDES FOR A MINIMUM (8) 4" FUTURE CONDUITS.
5. GENERAL CONTRACTOR TO PROVIDE AND INSTALL ALL UTILITY HANDHOLES.

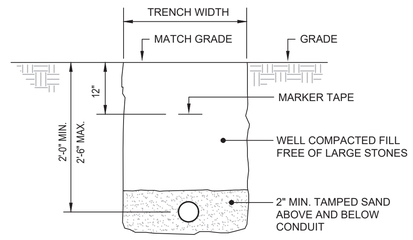
UTILITY HANDHOLE DETAIL

NO SCALE



PAD MOUNTED TRANSFORMER GROUNDING PLAN

NO SCALE



NOTES:

1. BACKFILL IN LAYERS AND MANUALLY TAMP. PROVIDE RED DUCT BANK MARKER TAPE, READING "CAUTION - ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPE 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
2. TRENCHING AND BACKFILLING SHALL BE PERFORMED BY GENERAL CONTRACTOR.

SINGLE UNDERGROUND CONDUIT SECTION

NOT TO SCALE

TOWN OF EASTON MASS. INCORPORATED 1725

ENVIRONMENTAL PARTNERS

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COMMONWEALTH OF MASSACHUSETTS
MICHAEL A. COTTER
ELECTRICAL
No. 40999
REGISTERED PROFESSIONAL ENGINEER

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

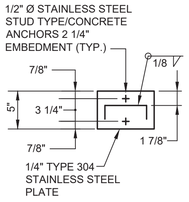
ELECTRICAL
SITE DETAILS

FOR CONSTRUCTION

Sheet No.

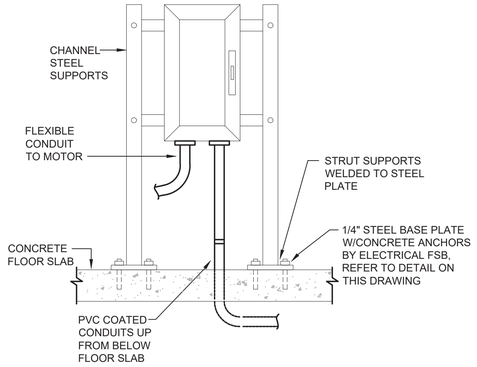
E-27

Drawing file: W:\Year - 2020\2020028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:20am



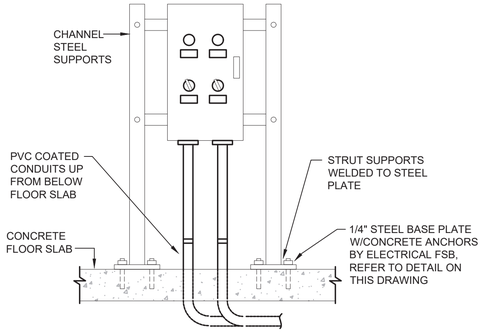
1/4" STEEL BASE PLATE DETAIL

NOT TO SCALE



DISCONNECT SWITCH STANCHION MOUNTING DETAIL

NOT TO SCALE



CONTROL PANEL AND JUNCTION BOX STANCHION MOUNTING DETAIL

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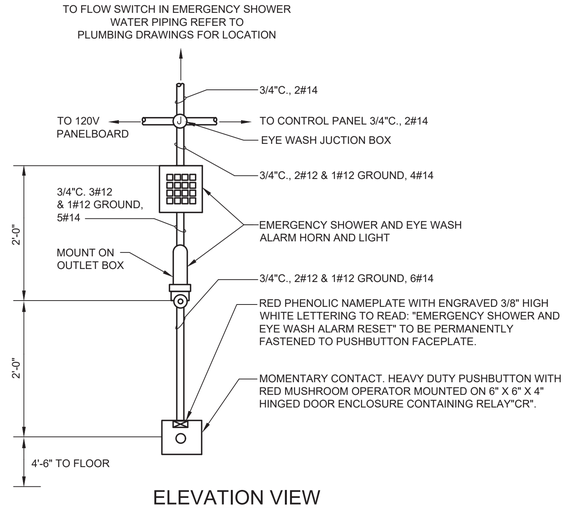
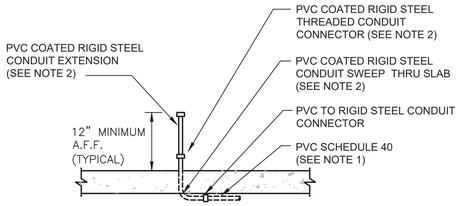


ELEVATION VIEW

NOT TO SCALE

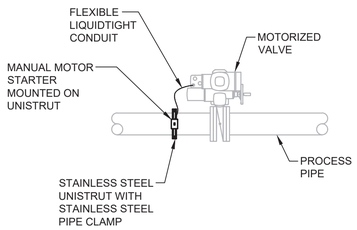


CONDUIT STUB-UP

NOT TO SCALE

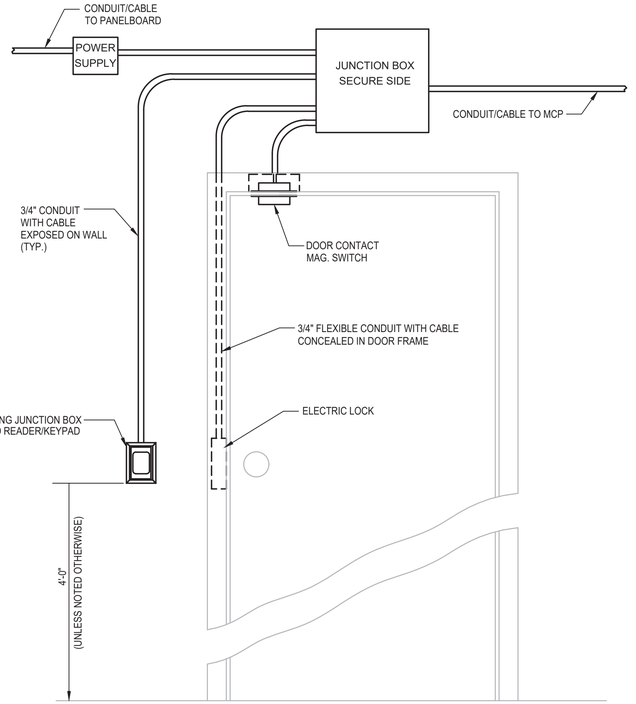
NOTES:

1. ALL CONDUIT INSTALLED BELOW SLAB SHALL BE PVC SCHEDULE 40.
2. ALL PVC COATED RIGID STEEL CONDUIT WHICH HAS BEEN FIELD CUT OR DAMAGED SHALL BE SPRAYED OR PAINTED WITH A PVC COATING ACCEPTABLE FOR USE TO REPAIR OR SEAL PVC COATED RIGID STEEL CONDUIT. ONLY MANUFACTURER APPROVED PVC COATING SEALANT SHALL BE ACCEPTABLE.



MOTORIZED VALVE MANUAL MOTOR STARTER MOUNTING

NOT TO SCALE

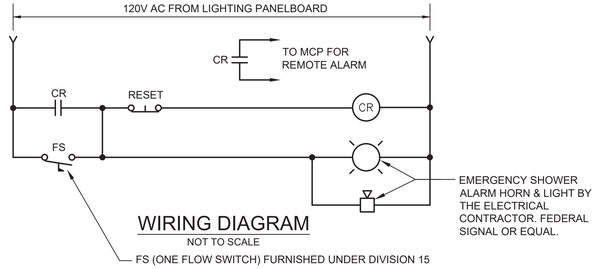


TYPICAL DOOR WITH ACCESS CONTROL

NOT TO SCALE

NOTES:

1. REFER TO PLAN DRAWINGS FOR DEVICES REQUIRED AND THEIR APPROXIMIATE LOCATIONS AT EACH DOOR



WIRING DIAGRAM

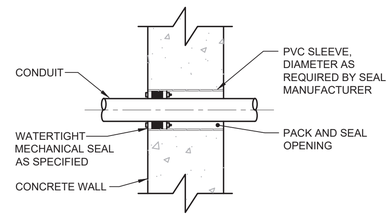
NOT TO SCALE

NOTE:
1. ALL EXPOSED SURFACES OF COMPONENTS SHALL HAVE A YELLOW ENAMEL FINISH, INCLUDING CONDUIT (WITHIN 10'-0" RADIUS OF THE STATION, BOXES, ENCLOSURE AND HORN GRILLE.

2. ALARM STATION TO BE MOUNTED OUTSIDE OF EACH CHEMICAL ROOM CONTAINING A EMERGENCY SHOWER. REFER TO PLAN DRAWINGS FOR EYEWASH JUNCTION BOX LOCATIONS.

EMERGENCY SHOWER AND EYE WASH ALARM STATION

NOT TO SCALE



WATERTIGHT CONDUIT PENETRATION THROUGH NEW CONCRETE WALL

NOT TO SCALE

TOWN OF EASTON MASS INCORPORATED 1725

ENVIRONMENTAL PARTNERS

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RED MILL ROAD WATER TREATMENT PLANT
TOWN OF EASTON, MA

ELECTRICAL DETAILS

FOR CONSTRUCTION

Sheet No.

E-28

Drawing file: W:\Year - 2020\20028.00 - Easton Water Treatment Plant\Electrical Department\20028.00 Electrical Plans.dwg Plot Date: Sep 22,2021-9:20am