

ELECTRICAL ABBREVIATIONS

A	-	AMPERES
A.F.F.	-	ABOVE FINISHED FLOOR
C	-	CONDUIT
D	-	DEEP
DC	-	DIRECT CURRENT
DISC.	-	DISCONNECT
DWG.	-	DRAWING
G.F.I.	-	GROUND FAULT INTERRUPTER
GRD.	-	GROUND
H	-	HIGH
HP	-	HORSEPOWER
KW	-	KILOWATT
mA	-	MILLIAMPERE
NO.	-	NUMBER
P	-	POLE
PH	-	PHASE
PR.	-	PAIR
SHLD.	-	SHIELDED
SN	-	SOLID NEUTRAL
S.S.	-	STAINLESS STEEL
TYP.	-	TYPICAL
V	-	VOLTS
W	-	WIRE, WATT, WIDE
WP	-	WEATHERPROOF

CONTROL WIRING LEGEND

	3 POSITION SELECTOR SWITCH (X INDICATES CLOSED POSITION)
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	CONTROL RELAY
	PUSH BUTTON
	SELECTOR SWITCH
	FUSE
	PILOT LIGHT - LENS COLOR IS INDICATED BY LETTER INSIDE
A	- AMBER
B	- BLUE
G	- GREEN
R	- RED
W	- WHITE

ELECTRICAL SYMBOL SCHEDULE

	-	LED LIGHT FIXTURE
	-	20A-120V DUPLEX RECEPTACLE
	-	20A-120V SINGLE RECEPTACLE
	-	MOTOR (NUMBER INDICATES HP)
	-	JUNCTION BOX
	-	THERMOSTAT
	-	TRANSFORMER
S	-	SINGLE POLE SWITCH
S ₃	-	THREE-WAY SWITCH
	-	HOME RUN TO PANEL
	-	TICKS INDICATE NUMBER OF WIRES - NOT INCLUDING GROUND CONDUCTOR
	-	WIRING CONCEALED IN CONDUIT
	-	CIRCUIT BREAKER

**GENERAL ELECTRICAL NOTES
(APPLICABLE TO ALL DRAWINGS)**

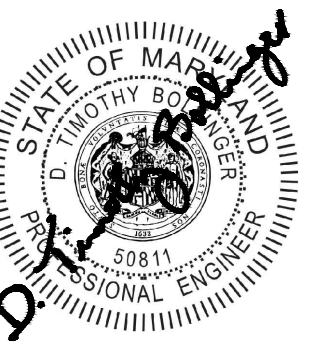
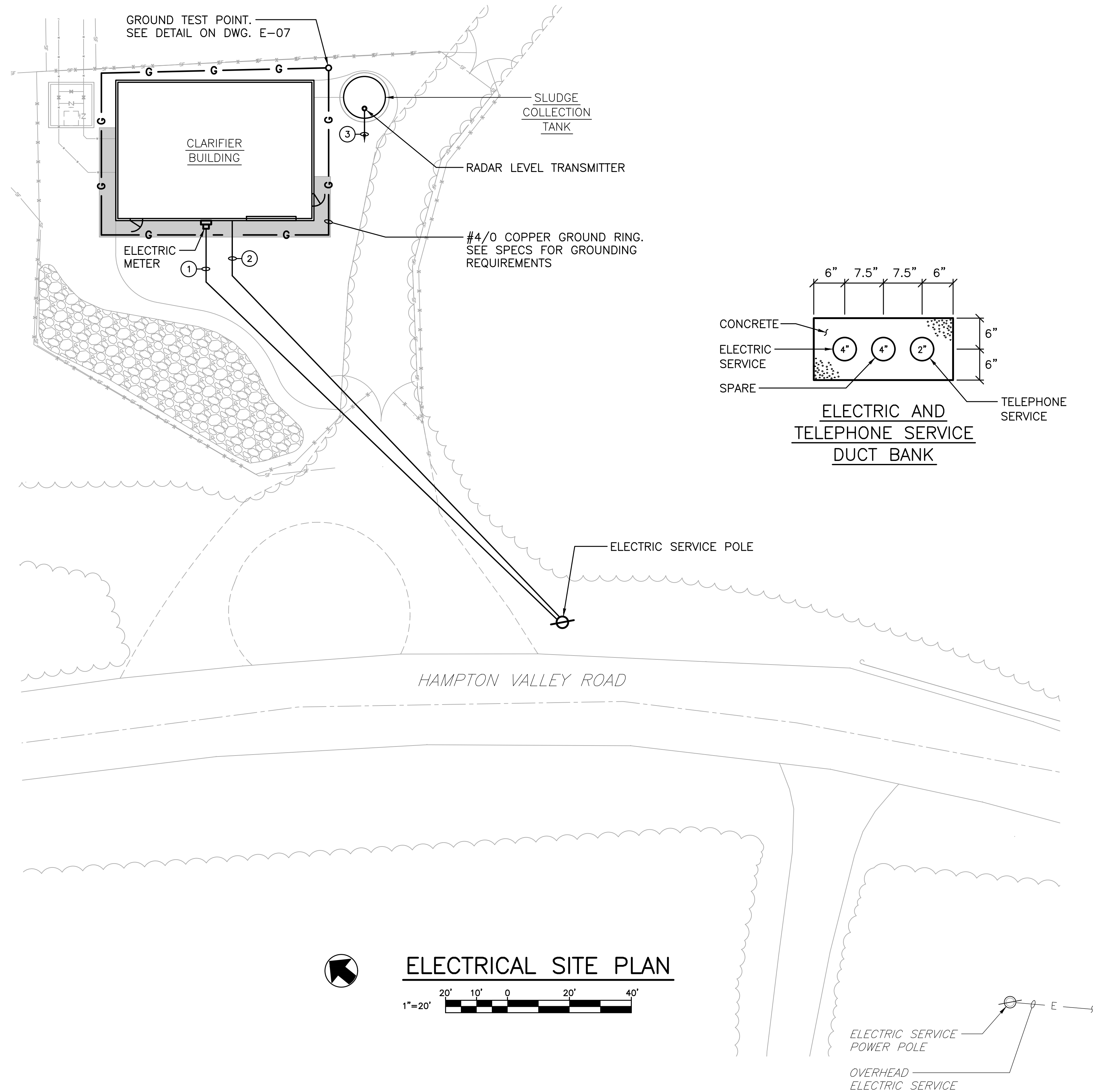
- ALL FASTENERS AND MOUNTING HARDWARE USED FOR THE INSTALLATION OF ALL ELECTRICAL ITEMS SHALL BE 316 STAINLESS STEEL.
- ALL ALUMINUM BACKBOARDS SHALL BE 3/16 INCH THICK, AND SIZED AS REQUIRED TO ACCOMMODATE EQUIPMENT. EDGES OF BACKBOARDS SHALL BE BEVELED SO THEY ARE SMOOTH.
- ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED WITH TWO COATS OF ZINC CHROMATE PRIMER OR BITUMINOUS PAINT TO PREVENT A REACTION BETWEEN THE ALUMINUM AND CONCRETE.
- WHERE ELECTRICAL EQUIPMENT IS SHOWN MOUNTED ON A CONCRETE PAD, THE PAD SHALL BE 3" HIGH WITH CHAMFERED EDGES. THE PAD SHALL EXTEND 2" BEYOND THE EDGES OF THE EQUIPMENT. SEE STRUCTURAL DWGS. FOR PAD DETAIL.
- CONTRACTOR SHALL FURNISH AND INSTALL A SEPARATE INSULATED GROUND CONDUCTOR IN ALL CONDUITS. ALL GROUND CONDUCTORS SHALL BE #12 UNLESS NOTED OTHERWISE ON DRAWINGS.
- CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL UNDERGROUND CONDUITS AND DUCT BANKS TO AVOID INTERFERENCES WITH UNDERGROUND PIPING.
- WHERE A WIRING LEGEND IS SHOWN ON A DRAWING, IT ONLY PERTAINS TO THAT DRAWING.
- WIRING SHOWN TO MOTOR DISCONNECT SWITCHES SHALL CONTINUE TO THE MOTOR.
- ALL CONDUITS SHALL BE LABELED INDICATING THE VOLTAGE OF THE WIRING IN THE CONDUIT.

SITE PLAN NOTES

- COORDINATE INSTALLATION OF ELECTRIC SERVICE WITH POWER COMPANY.
- COORDINATE INSTALLATION OF TELEPHONE SERVICE WITH TELEPHONE COMPANY.

WIRING LEGEND

- 120/240V-1PH-3W ELECTRIC SERVICE IN 4" C PLUS ONE 4" SPARE CONDUIT
- TELEPHONE SERVICE IN 2" C
- 1 PR. #18 SHLD.-3/4" C TO DAF CONTROL PANEL IN CLARIFIER BUILDING



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 59811 EXPIRATION DATE 08/14/2025
RK&K 700 EAST PRATT STREET, SUITE 500 BALTIMORE, MARYLAND 21202 800.787.3755

NO.	DESCRIPTION	BY	DATE
1	REISSUED FOR BID - ADDENDUM NO. 3		02/08/2024

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
 ELECTRICAL ABBREVIATIONS, SYMBOLS, LEGEND, NOTES, AND SITE PLAN

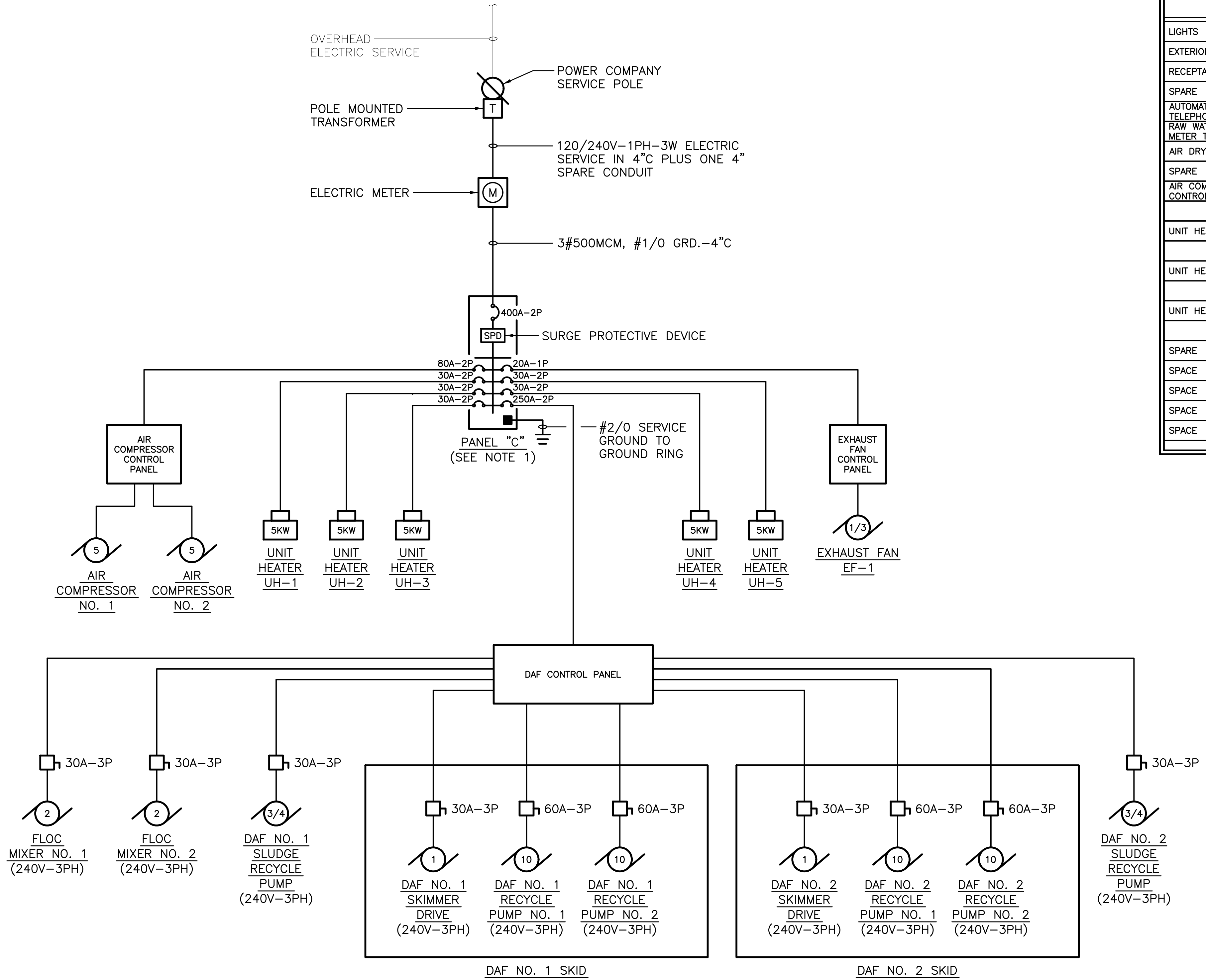
ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	1/2024
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
E-01
 SHEET NO. 36 OF 42

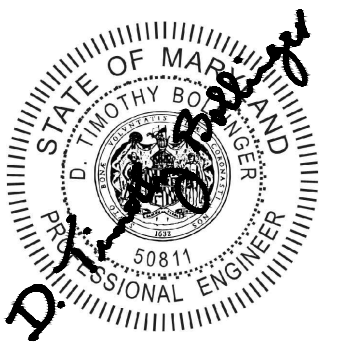
NOTES

1. NOT ALL PANELBOARD LOADS ARE SHOWN. SEE PANELBOARD SCHEDULE ON THIS DWG. FOR ALL LOADS POWERED FROM PANEL "C".
2. PANEL "C" SHALL BE INSTALLED IN A NEMA 4X STAINLESS STEEL ENCLOSURE.

PANELBOARD "C" SCHEDULE (SEE NOTE 2)													
VOLTAGE: 120/240V-1PH-3W						PANEL TYPE: ENCLOSURE MOUNTED, BREAKER							
MAIN BUS BARS AND LUGS: 400A						MIN. A.I.C. RATING: 18,000							
MAIN BREAKER: 400A-2P						LOCATION: CLARIFIER BUILDING							
NOTES	HP	WATTS	LOCATION	POLE	AMP/TRIP	1	2	AMP/TRIP	POLE	LOCATION	WATTS	HP	NOTES
LIGHTS		300	BLDG.	1	20	1	2	20	1	OUTSIDE	104		EXTERIOR LIGHT
EXTERIOR LIGHT		104	OUTSIDE	1	20	3	4	20	1	BLDG.	1200		RECEPTACLES
RECEPTACLES		400	BLDG.	1	20	5	6	20	1	OUTSIDE	200		RECEPTACLE
SPARE						7	8	20	1				SPARE
AUTOMATIC TELEPHONE DIALER		200	BLDG.	1	20	9	10	20	1	BLDG.	500		PACI FEED PUMP RECEPTACLE
RAW WATER FLOW METER TRANSMITTER		200	BLDG.	1	20	11	12	20	1	BLDG.	200		RAW WATER FLOW CTRL. VALVE CONTROLLER
AIR DRYER		500	BLDG.	1	20	13	14	20	1	BLDG.	200		CHEMICAL SCALE INDICATOR
SPARE						15	16	20	1				SPARE
AIR COMPRESSOR CONTROL PANEL	10		BLDG.	2	80	17	18	20	1	BLDG.		1/3	EXHAUST FAN EF-1 CONTROL PANEL
						19	20	20	1	BLDG.		1/4	CEILING FAN CF-1
UNIT HEATER UH-1		5000	BLDG.	2	30	21	22	30	2	BLDG.	5000		UNIT HEATER UH-2
UNIT HEATER UH-3		5000	BLDG.	2	30	25	26	30	2	BLDG.	5000		UNIT HEATER UH-4
UNIT HEATER UH-5		5000	BLDG.	2	30	29	30	20	1	BLDG.	200		DAF INFLUENT TURBIDIMETER
						32	33	20	1	BLDG.	200		DAF EFFLUENT TURBIDIMETER
SPARE						33	34	20	1				SPARE
SPACE						35	36						SPACE
SPACE						37	38						SPACE
SPACE						39	40	250	2	BLDG.	27.5		DAF CONTROL PANEL
SPACE						41							



CLARIFIER BUILDING ELECTRICAL ONE-LINE DIAGRAM



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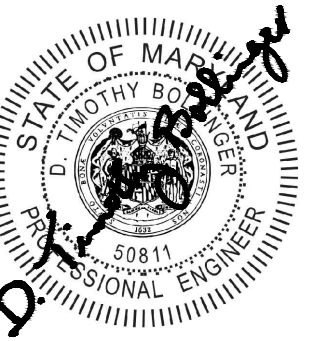
TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

CLARIFIER BUILDING ELECTRICAL ONE-LINE DIAGRAM AND PANELBOARD SCHEDULE

ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	1/2024
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
E-02
 SHEET NO. 37 OF 42

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RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

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 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

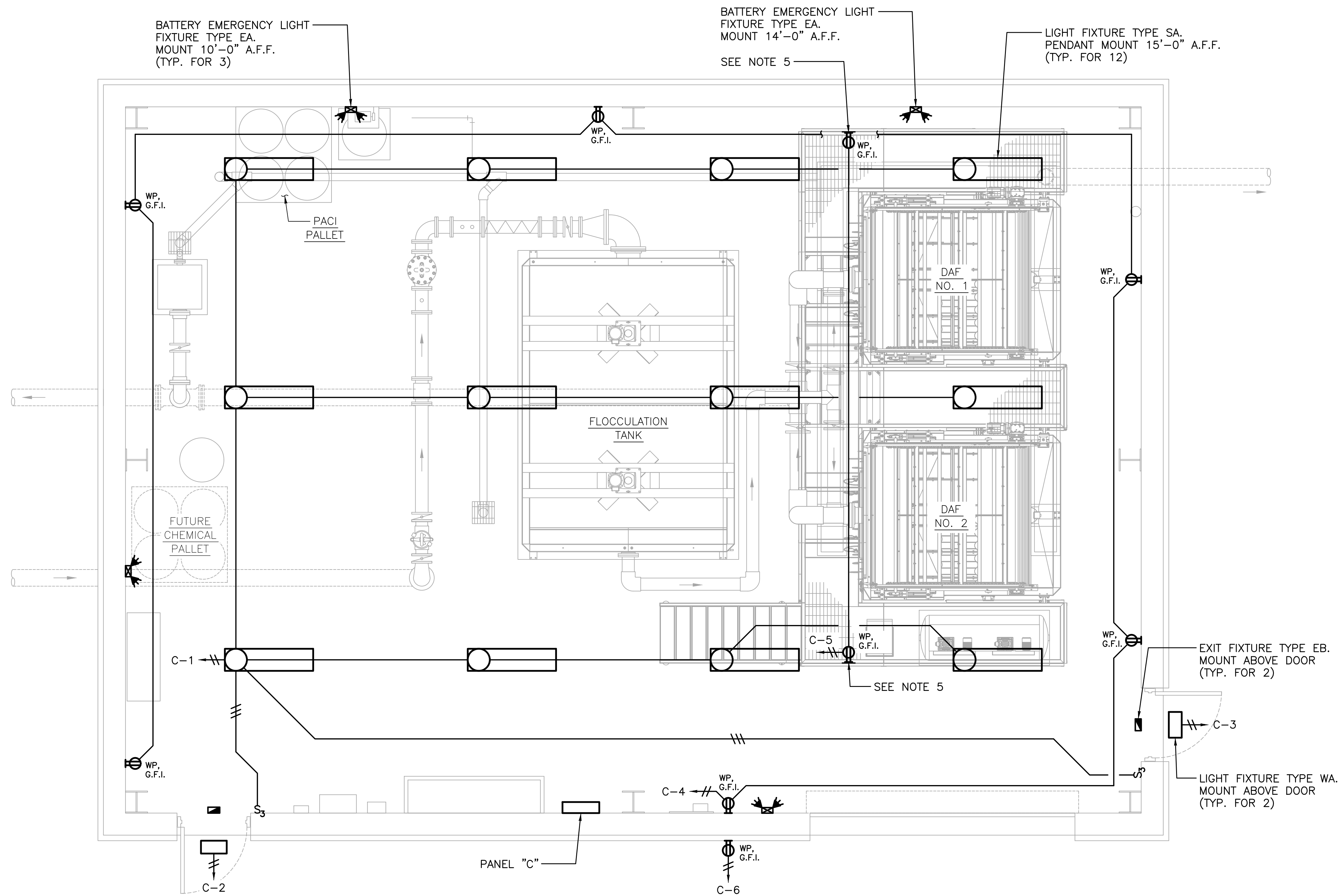
CLARIFIER BUILDING
 LIGHTING AND RECEPTACLE PLAN

ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	1/2024
RK&K PROJECT NUMBER	
20119	

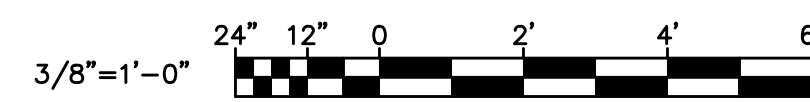
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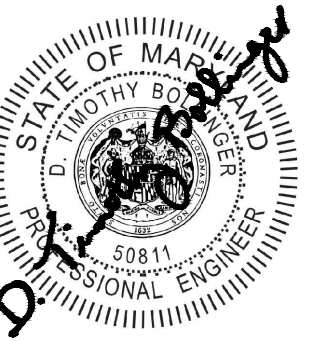
NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.
2. COORDINATE THE INSTALLATION OF THE LIGHT FIXTURES WITH ROOF BEAMS, PROCESS PIPING AND HVAC EQUIPMENT TO AVOID INTERFERENCES.
3. ALL EMERGENCY LIGHTS AND EXIT FIXTURES SHALL BE WIRED TO LIGHTING CIRCUIT IN ROOM WHERE THEY ARE LOCATED.
4. ALL RECEPTACLES SHALL BE MOUNTED 36" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
5. MOUNT RECEPTACLE ON AN ALUMINUM BACKBOARD FASTENED TO THE HANDRAIL. MOUNT RECEPTACLE 36" ABOVE GRATING.



**CLARIFIER BUILDING
 LIGHTING AND RECEPTACLE PLAN**





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 EXPIRATION DATE 06/14/2025
 LICENSE NO. 59811

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 CIP NO. 4-1600-40-160-1
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 CLARIFIER BUILDING
 POWER PLAN

ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	1/2024
RK&K PROJECT NUMBER	
20119	

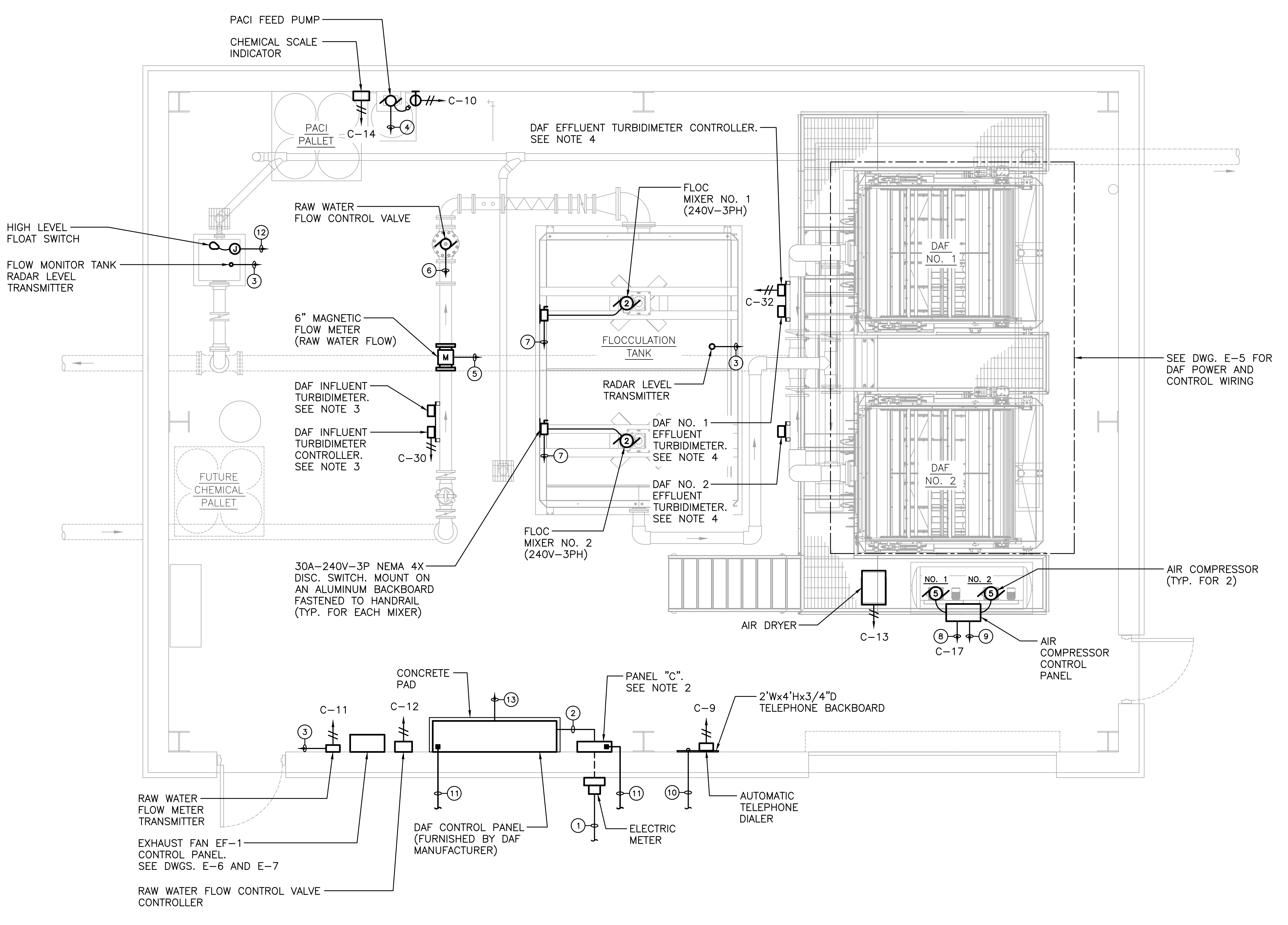
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 SHEET NO. 39 OF 42

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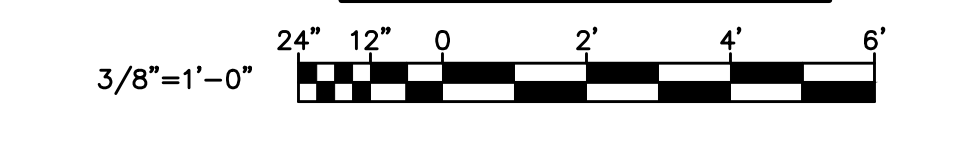
1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.
2. MOUNT PANEL "C" IN A NEMA 4X STAINLESS STEEL ENCLOSURE.
3. MOUNT THE DAF INFLUENT TURBIDIMETER AND CONTROLLER ON A FIBERGLASS BACKBOARD SUPPORTED BY FIBERGLASS UNI-STRUT.
4. MOUNT THE DAF EFFLUENT TURBIDIMETERS AND THE DAF EFFLUENT TURBIDIMETER CONTROLLER ON A FIBERGLASS BACKBOARD SUPPORTED BY FIBERGLASS UNI-STRUT.

WIRING LEGEND

- ① 120/240V-1PH-3W ELECTRIC SERVICE IN 4" C PLUS ONE 4" SPARE CONDUIT
- ② 3#250MCM, #4 GRD.-3"C
- ③ 1 PR. #18 SHLD.-3/4"C TO RAW WATER FLOW CONTROL VALVE CONTROLLER
- ④ 8#14 AND (2) 1 PR. #18 SHLD.-1/4"C TO DAF CONTROL PANEL
- ⑤ FLOW METER SIGNAL CABLES IN (2) 3/4"C TO RAW WATER FLOW METER TRANSMITTER
- ⑥ 4#14 AND 1 PR. #18 SHLD.-1"C TO RAW WATER FLOW CONTROL VALVE CONTROLLER
- ⑦ 3#12-3/4"C TO DAF CONTROL PANEL
- ⑧ 2#4, #8 GRD.-1/4"C TO PANEL "C"
- ⑨ 8#14-3/4"C TO DAF CONTROL PANEL
- ⑩ TELEPHONE SERVICE-2"C
- ⑪ #2/0 GRD.-1/4"C TO GROUND RING
- ⑫ 2#14-3/4"C TO DAF CONTROL PANEL
- ⑬ 10#14-3/4"C TO AUTOMATIC TELEPHONE DIALER

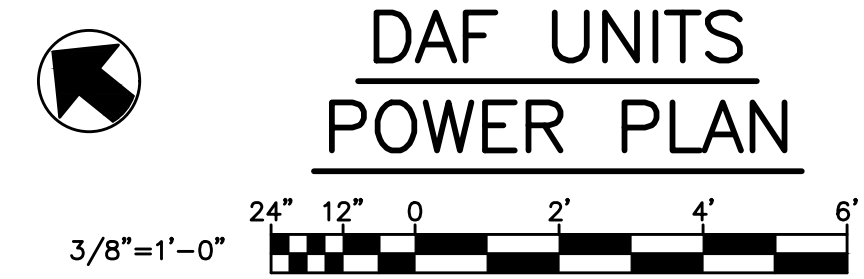
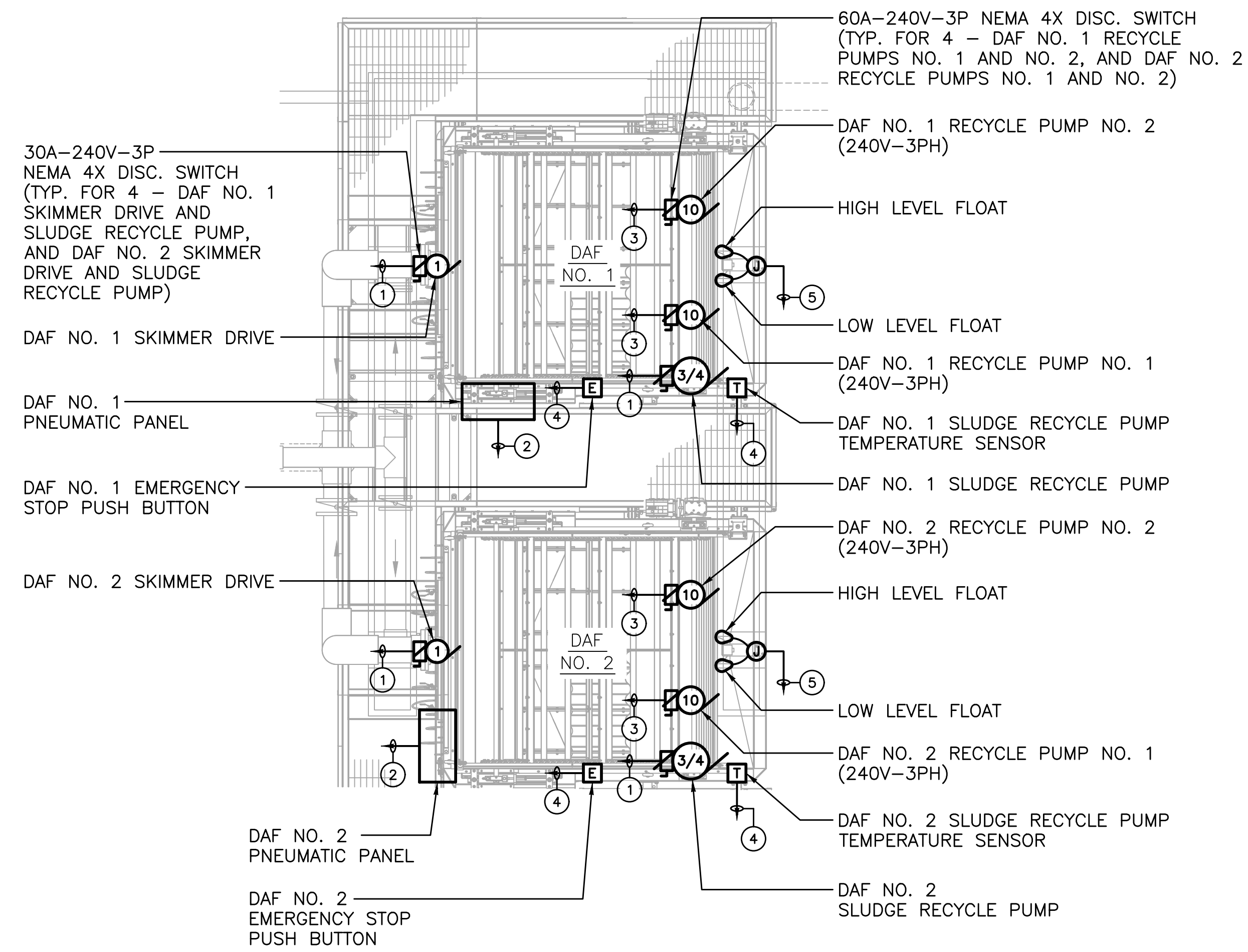


**CLARIFIER BUILDING
 POWER PLAN**



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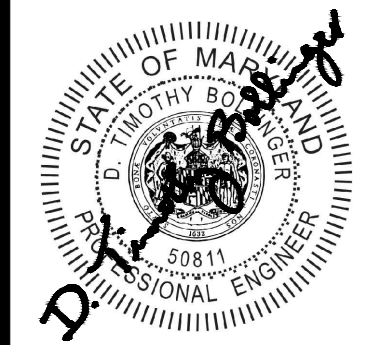


NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.
2. COORDINATE WIRING FOR EACH DAF WITH THE DAF MANUFACTURER.
3. THE EXACT LOCATION FOR ALL DAF EQUIPMENT DISCONNECT SWITCHES SHALL BE DETERMINED IN THE FIELD.

WIRING LEGEND

- ① 3#12-3/4" C TO DAF CONTROL PANEL
- ② 12#14-3/4" C TO DAF CONTROL PANEL
- ③ 3#8, #10 GRD.-1" C TO DAF CONTROL PANEL
- ④ 2#14-3/4" C TO DAF CONTROL PANEL
- ⑤ 4#14-3/4" C TO DAF CONTROL PANEL



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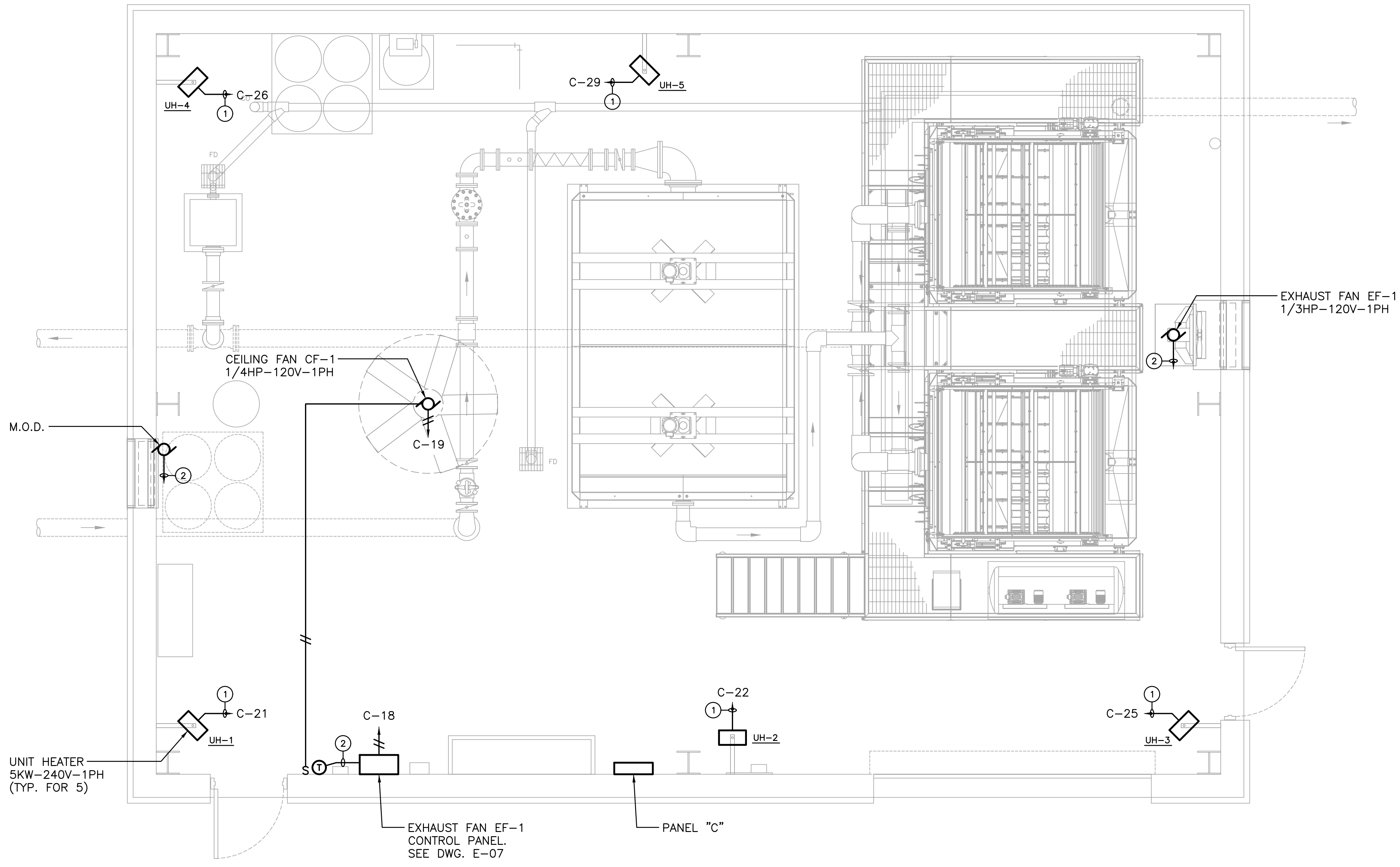
NO.	DESCRIPTION	BY	DATE
1	REISSUED FOR BID - ADDENDUM NO. 3		02/06/2024

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
DAF UNITS
POWER PLAN

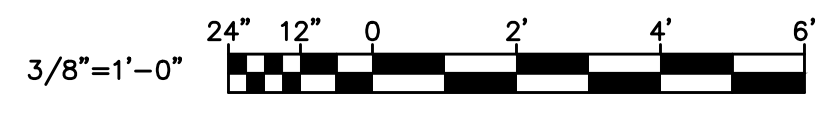
ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	1/2024
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
E-05
 SHEET NO. 40 OF 42

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**CLARIFIER BUILDING
HVAC ELECTRICAL PLAN**

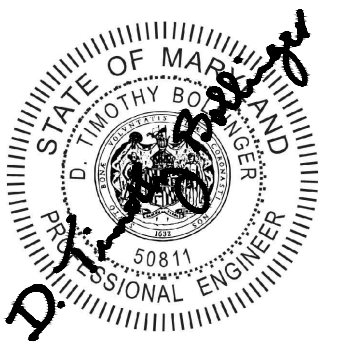


NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.

WIRING LEGEND

- ① 2#10, #10 GRD.-3/4"C TO PANEL "C"
- ② 2#12-3/4"C TO EXHAUST FAN EF-1 CONTROL PANEL



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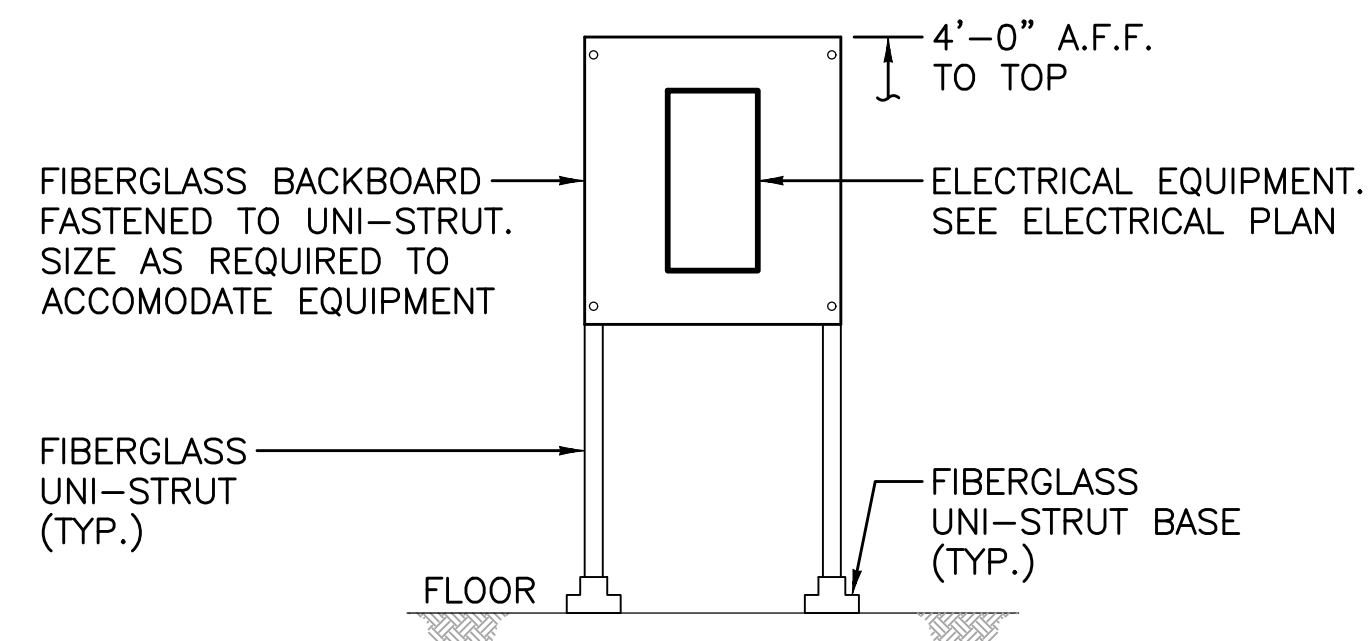
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 CLARIFIER BUILDING
 HVAC ELECTRICAL PLAN

ENGINEER SMJ	CHECKED BY DTB
DRAWN BY SMJ	DATE 1/2024
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
E-06

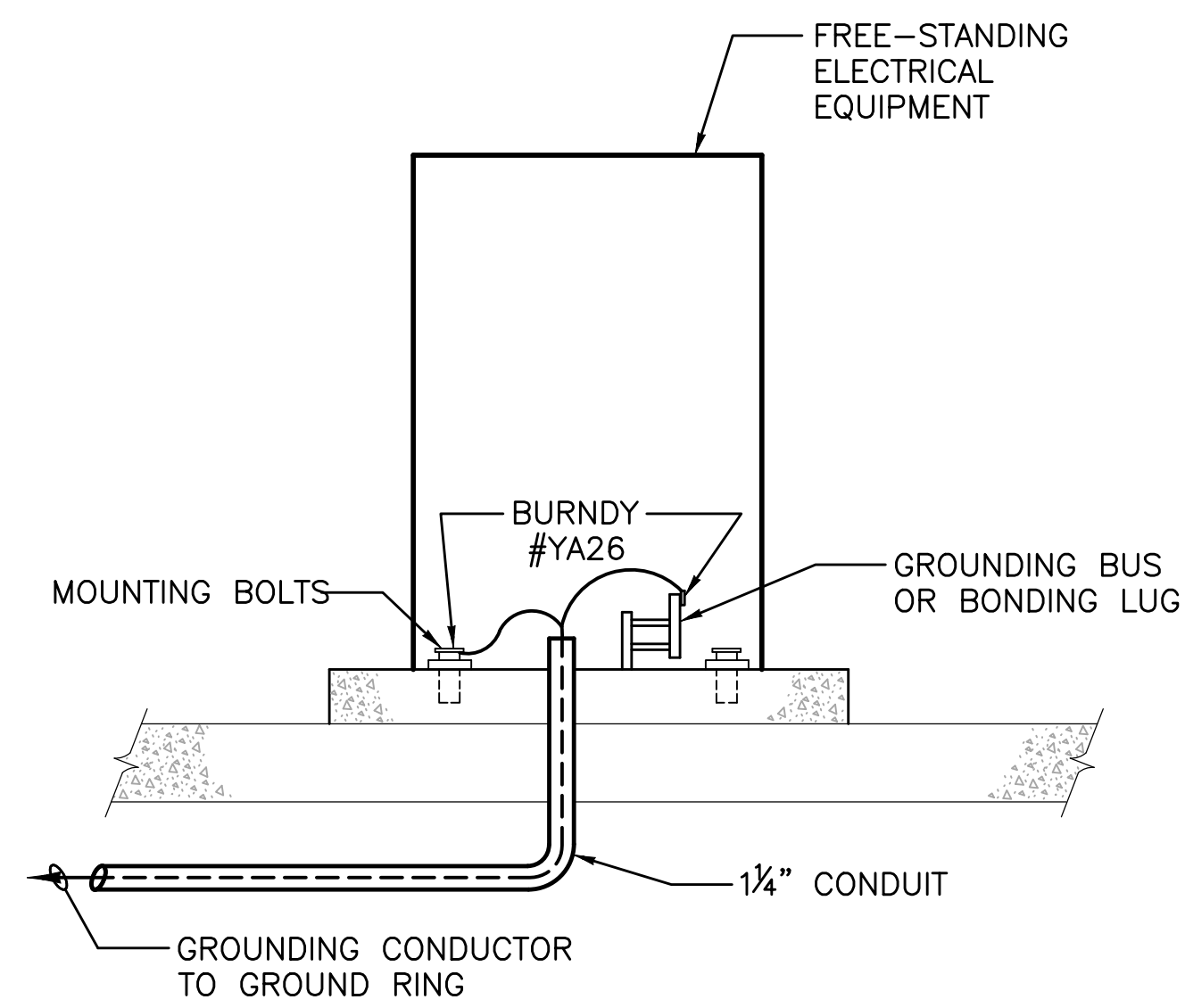
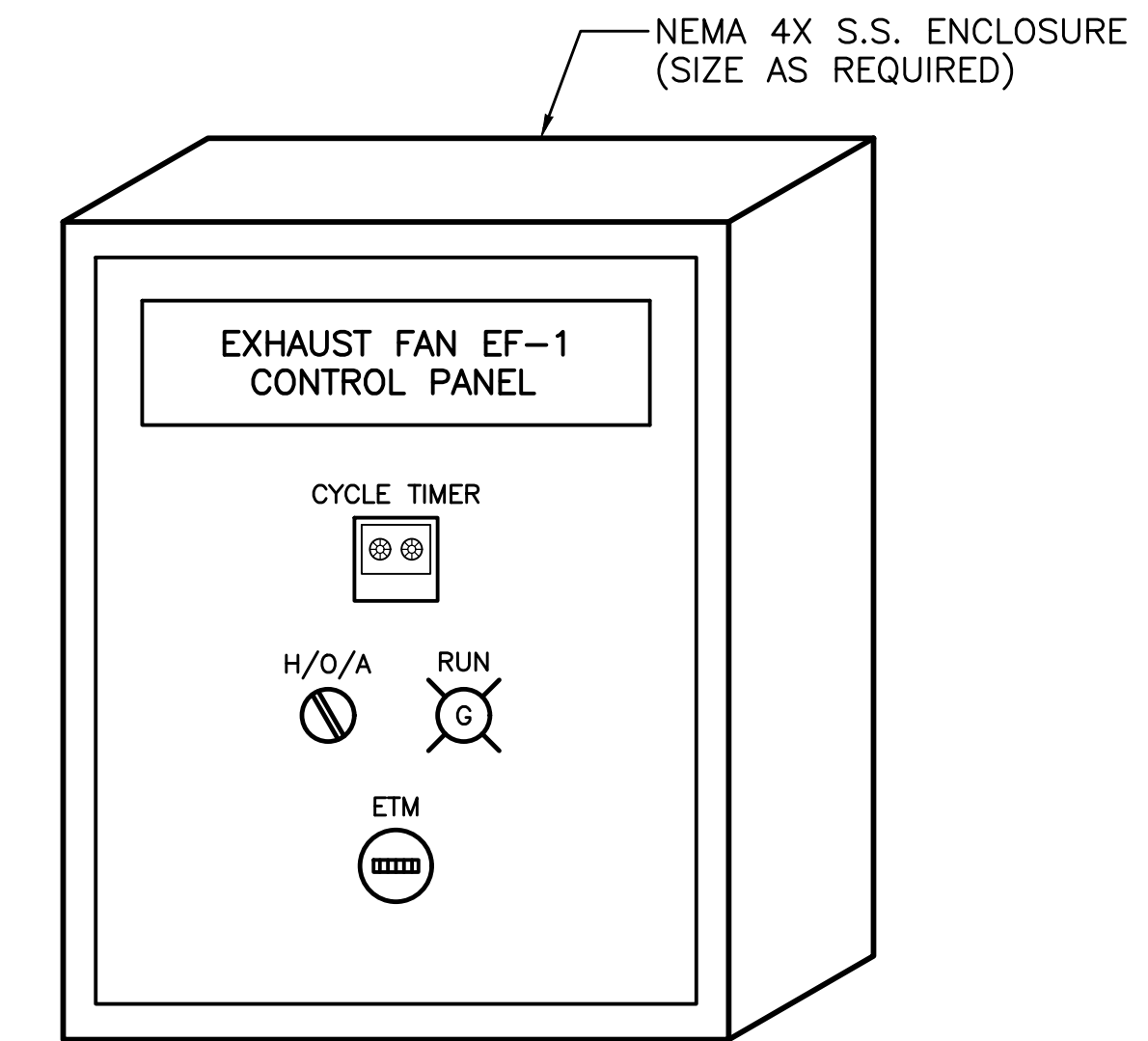
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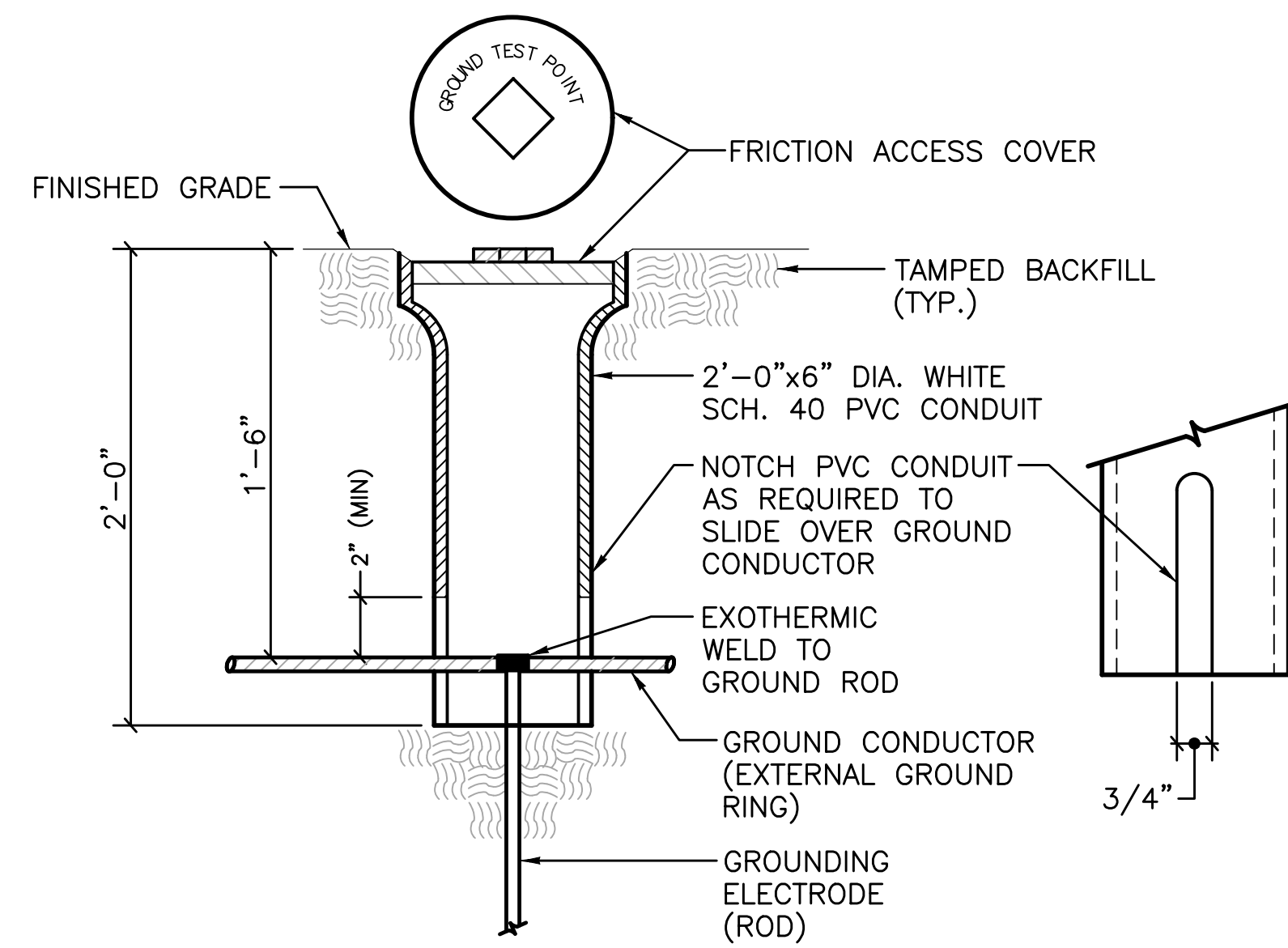
**ELECTRICAL EQUIPMENT
BACKBOARD DETAIL**
NO SCALE

NOTES

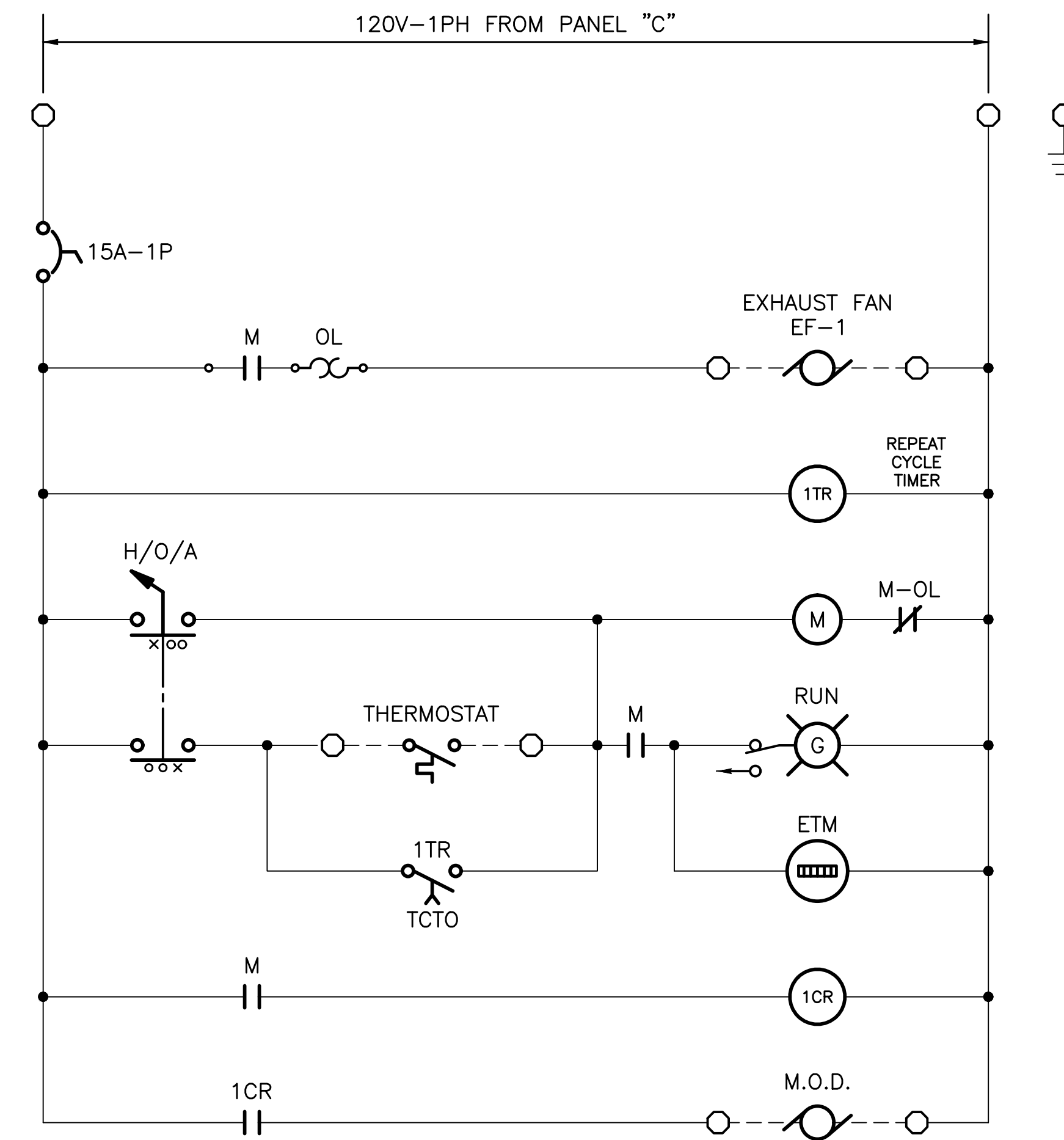
1. THE EXHAUST FAN CONTROL PANEL MAIN NAMEPLATE SHALL BE ENGRAVED WITH 1/2" HIGH LETTERS.



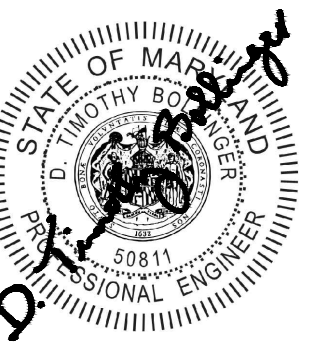
**TYPICAL ENCLOSURE
GROUNDING DETAIL**
NO SCALE



GROUND TEST POINT DETAIL
NO SCALE



**EXHAUST FAN EF-1 CONTROL PANEL
PANEL LAYOUT AND WIRING DIAGRAM**



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ELECTRICAL DETAILS AND
EXHAUST FAN EF-1 CONTROL PANEL

ENGINEER SMJ	CHECKED BY DTB
DRAWN BY SMJ	DATE 1/2024
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
E-07
SHEET NO. 42 OF 42