

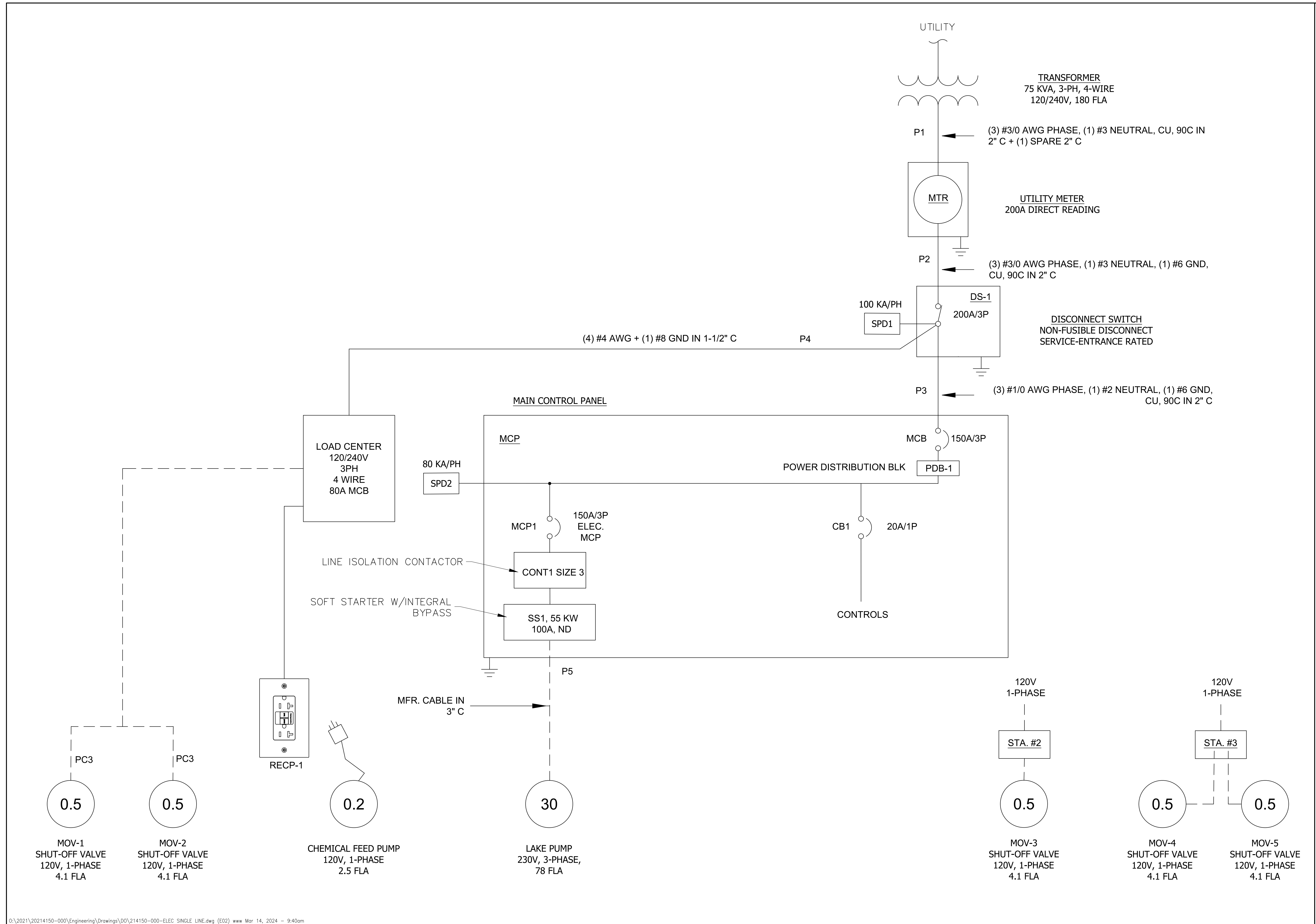
| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
| | | |
| | | |
| | | |
| | | |

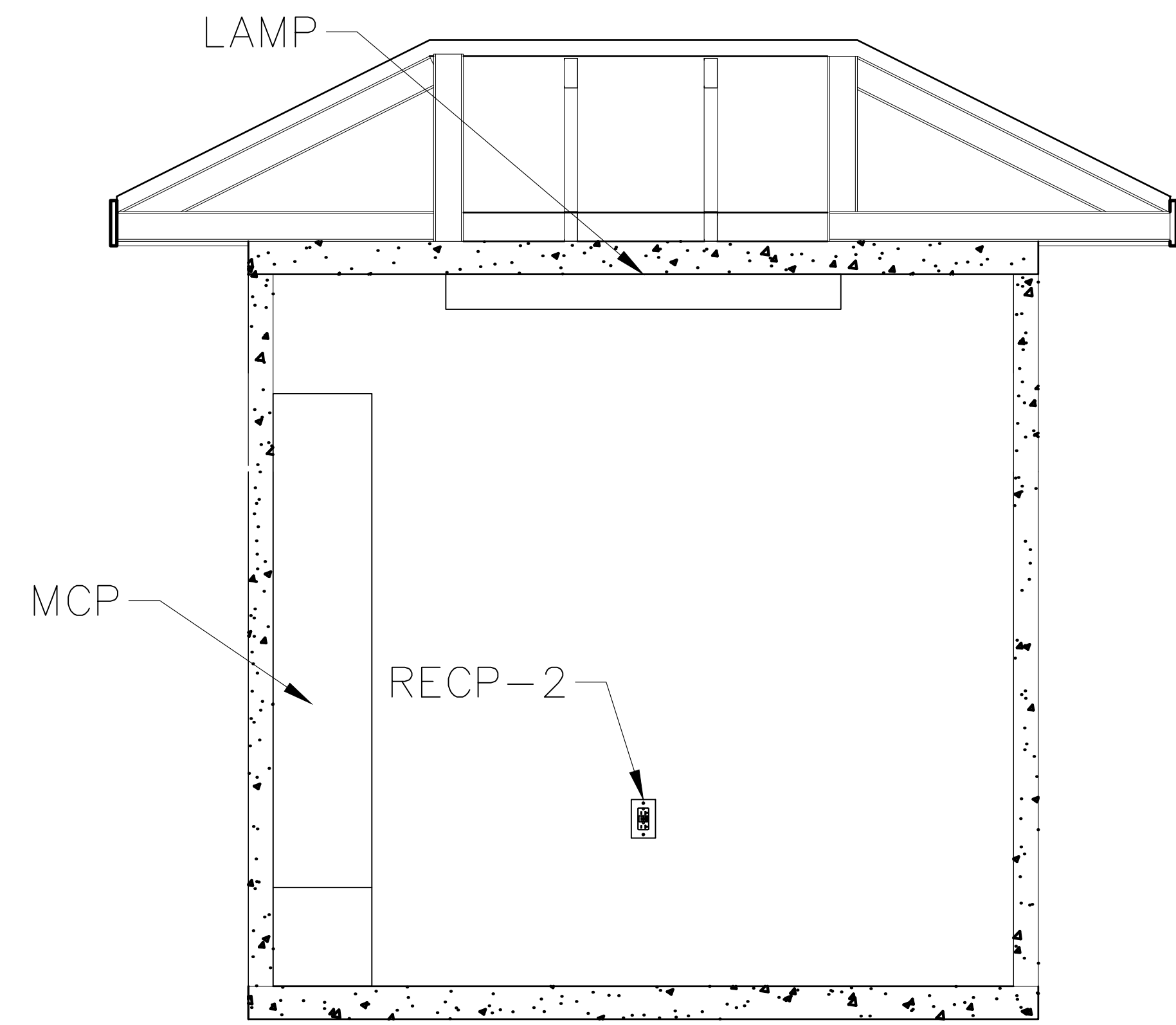
DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

SINGLE LINE DIAGRAM

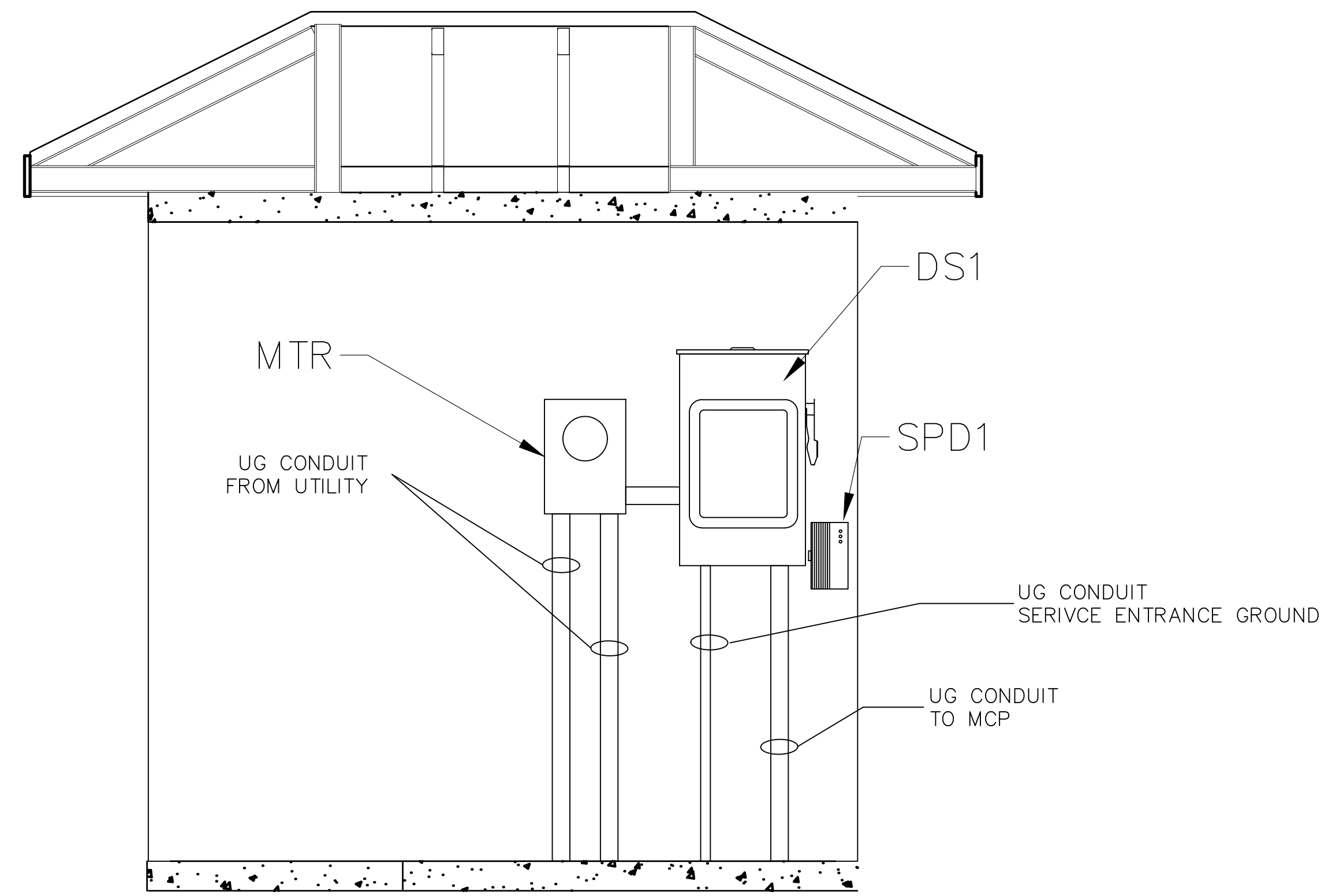
SHEET NUMBER

E02

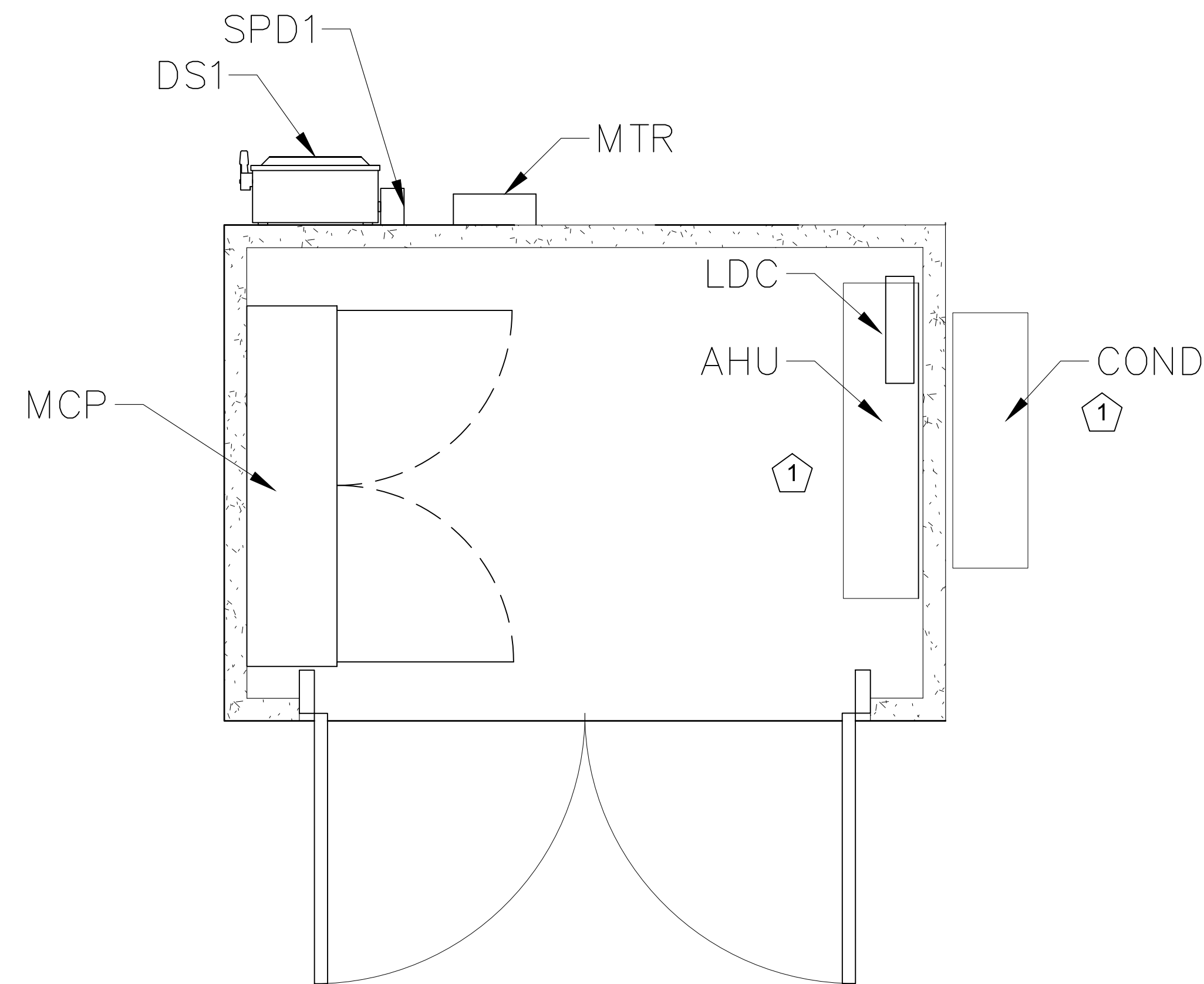




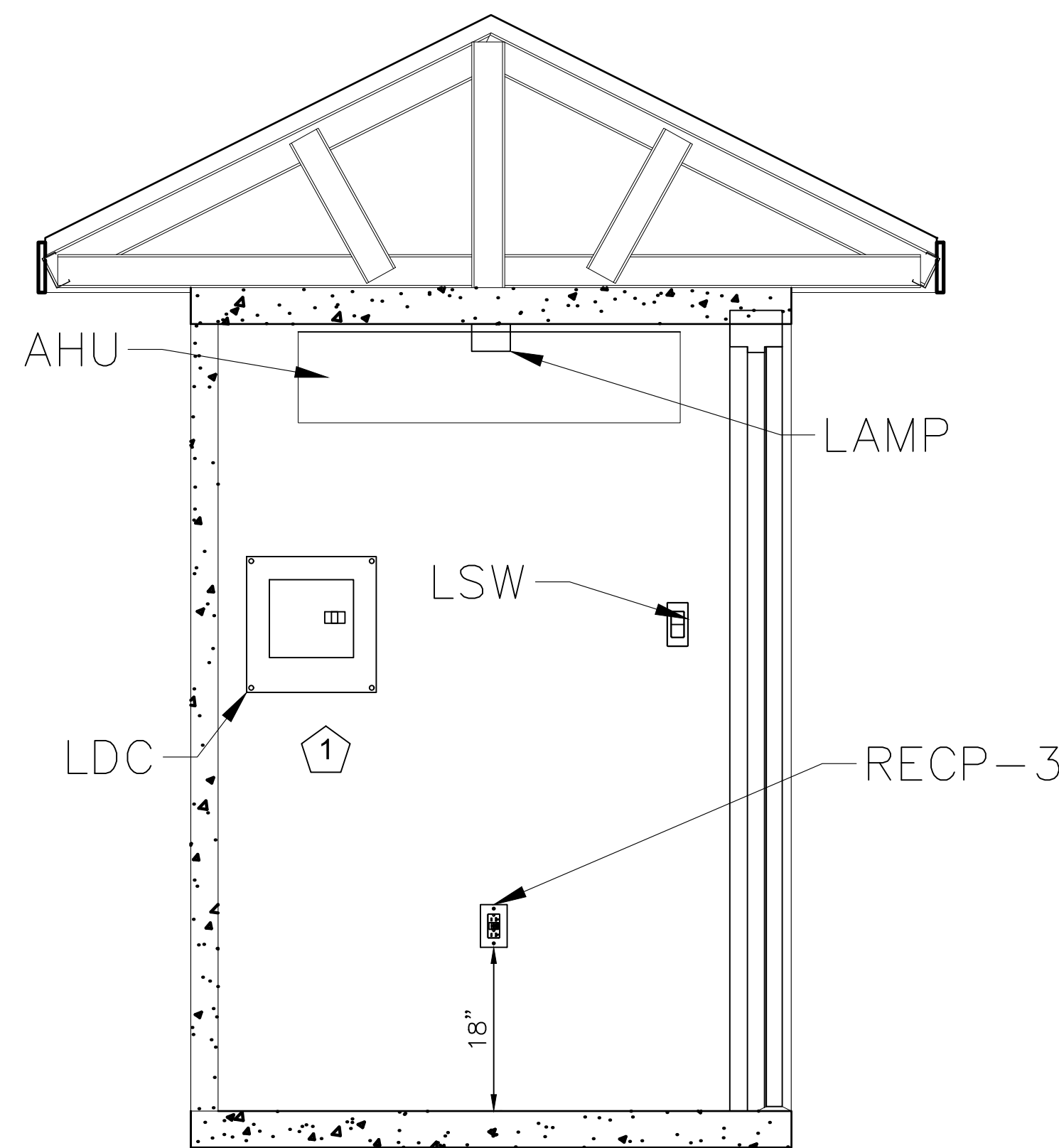
INTERIOR BACK WALL



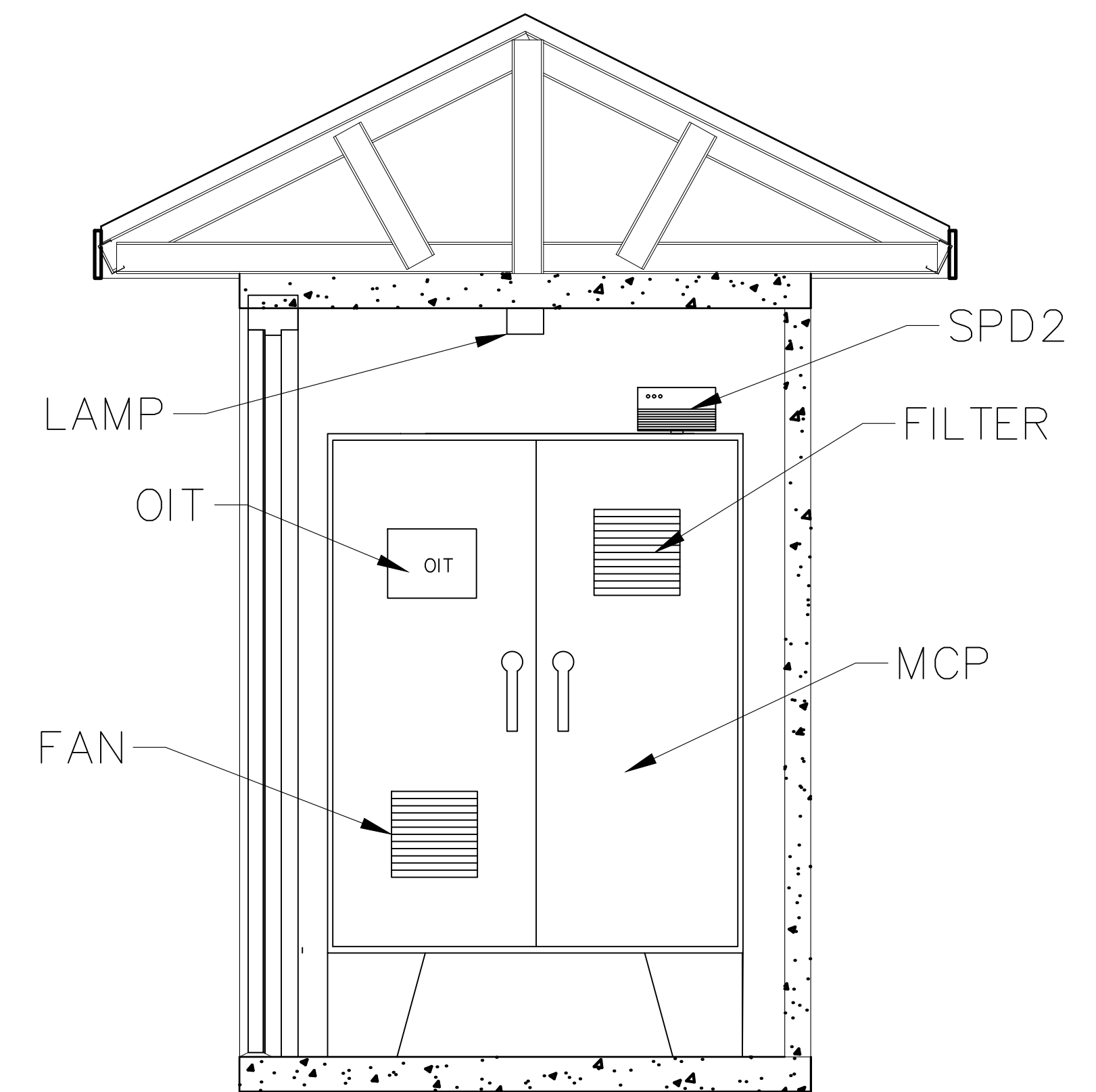
EXTERIOR BACK WALL



PLAN VIEW



INTERIOR RIGHT WALL



INTERIOR LEFT WALL

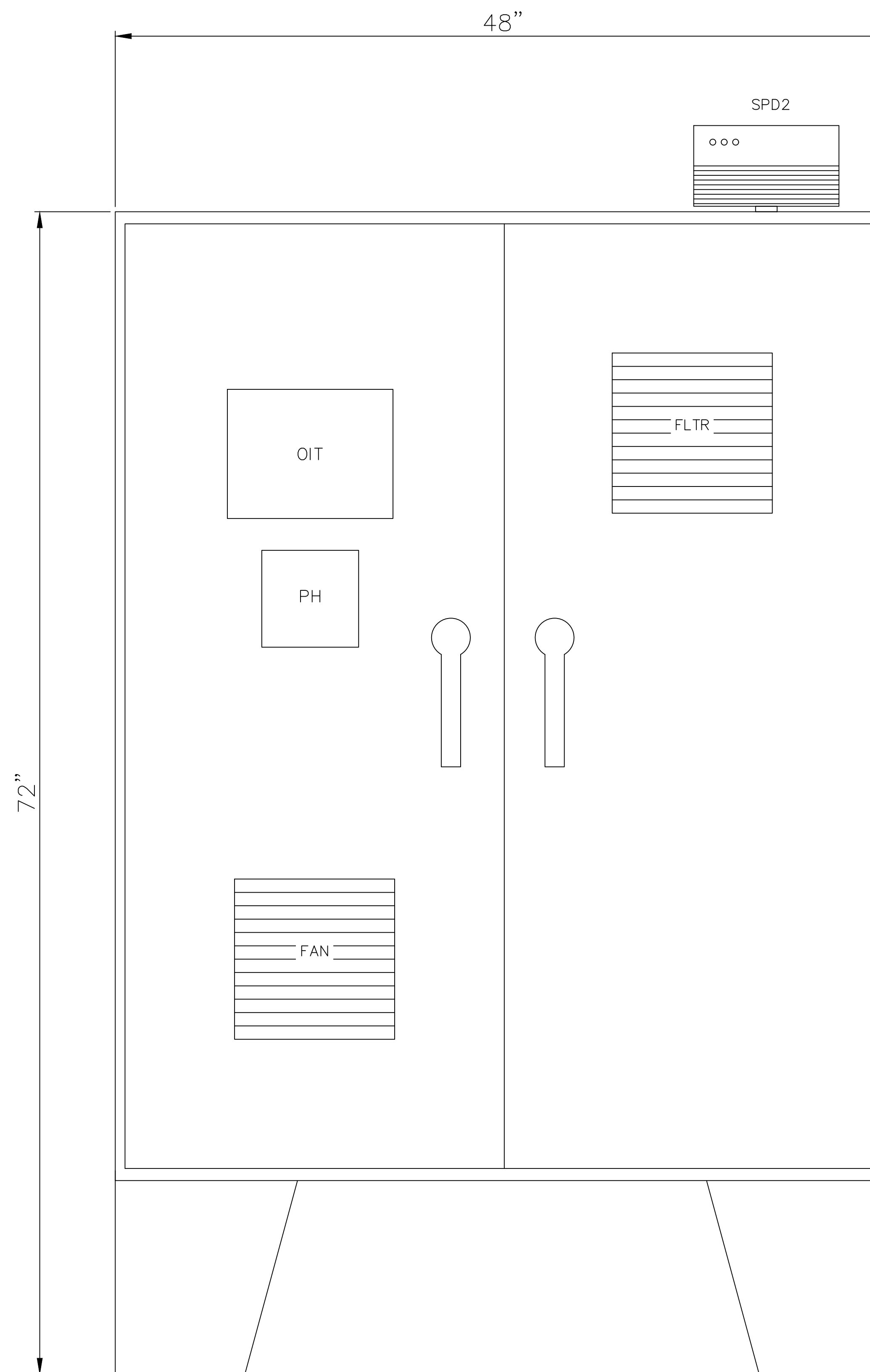
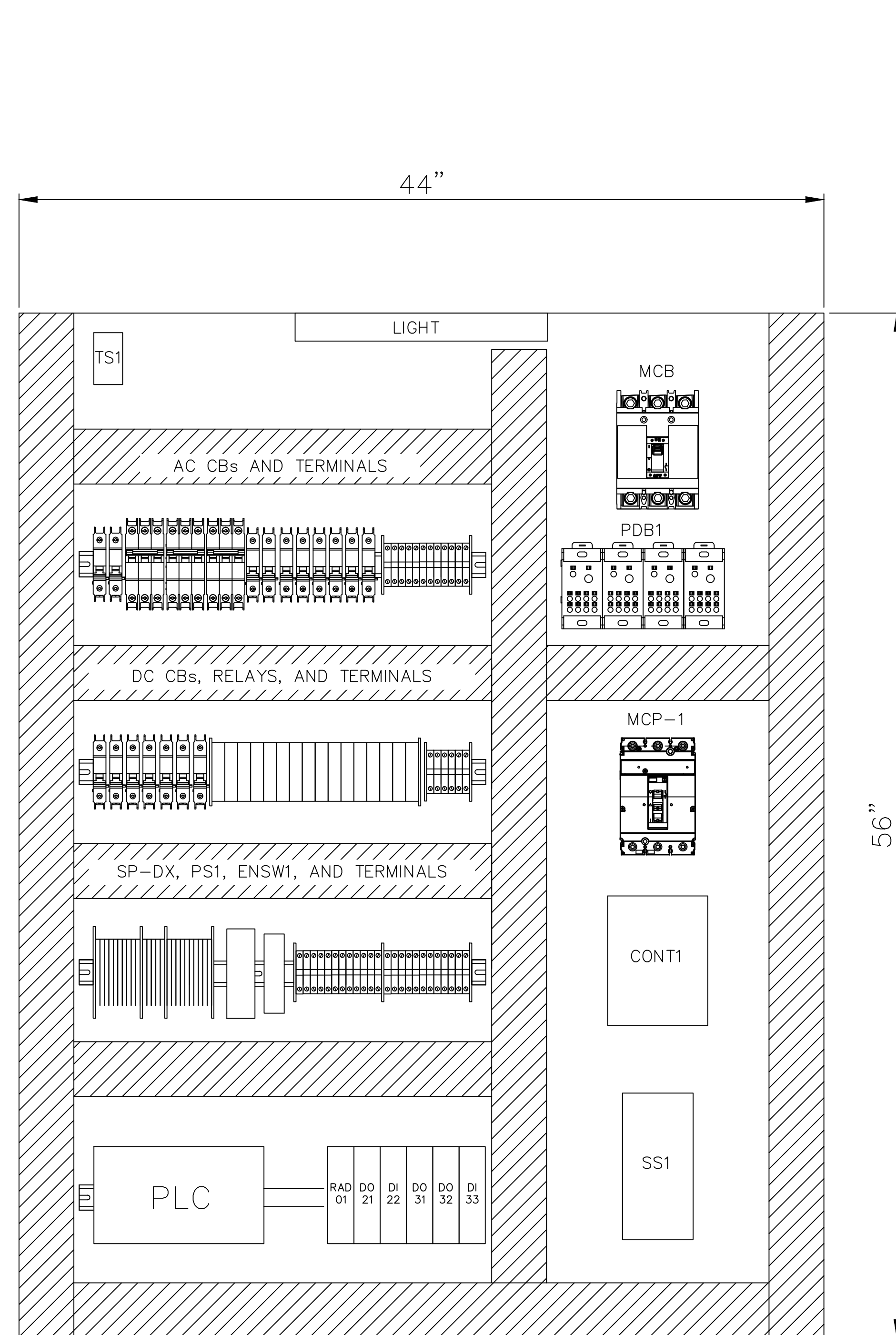
| NO. | DATE | REVISIONS DESCRIPTION |
|-----|------|-----------------------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

OPS BUILDING
ELECTRICAL
LAYOUT

SHEET NUMBER

E03



| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

CONTROL PANEL
INTERIOR AND
EXTERIOR

SHEET NUMBER

E04

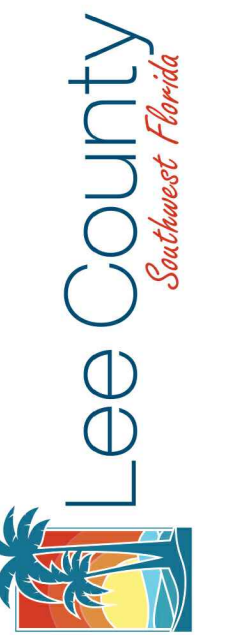
NOTES:

BILL OF MATERIAL FOR MAJOR COMPONENTS IS PROVIDED AS A BASIS FOR DESIGN. ALL REQUIRED COMPONENTS ARE NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONAL SYSTEM.

CONTROL PANEL TO BE UL508A LISTED WITH A SHORT CIRCUIT CURRENT RATING OF 10kA OR HIGHER

| MAIN CONTROL PANEL MAJOR BILL OF MATERIALS | | | | | |
|--|-----------|-------------|--|-----------------|--------------------|
| ITEM | QTY | ID | DESCRIPTION | MFR. | PART # |
| 1 | 1 | MCP | DOUBLE DOOR, TYPE 12, RIGHT FLANGE SUB PANEL (SPDD-6048) SIZE = 56" X 44" | Schaefer | SPN12D-604812 |
| 2 | 1 | TS1 | THERMOSTAT, NOC | | FLZ-530 |
| 3 | 1 | FAN | COOLING FAN, 120VAC | | PF-43000 |
| 4 | 1 | FLTR | COOLING FAN INLET FILTER | | PFA-40000 |
| 5 | 1 | LIGHT | ENCLOSURE, LED LIGHT 14" 120VAC, MOTION | | 21120 |
| 6 | 1 | SPD2 | SURGE PROTECTION DEVICE, 80KA, 241/120V HLD - 3PH, 4 WIRE | Square D | TVS3HWA80X |
| 7 | 4 | PDB1 | POWER DISTRIBUTION BLOCK, LINERGY, ENCLOSED, 335A CU, 270A AL, 600 V, 2 LINE SIDE LUG, 8 LOAD SIDE LUG, AL LUG, RAIL | | NSYEBAD13618 |
| 8 | 1 | MCB | MCB, 150A/3P, 240V, 65KAIC, LSI | | HGL34150U33X |
| 9 | 1 | MCP1 | SQUARE D POWERPACT ELECTRONIC MOTOR CIRCUIT PROTECTOR | | HJL36150M74 |
| 10 | 1 | CONT1 | CONTACTOR, SIZE 3, 90A, 120V COIL | | 8502-SEO2V02S |
| 11 | PER PLANS | CB | CIRCUIT BREAKERS, UL-489 OR UL-1077 | | MULTI 9 C60 series |
| 12 | -- | -- | -- | | -- |
| 13 | 1 | SW-1 | INDUSTRIAL ETHERNET SWITCH, 5 RJ45 PORTS, UNMANAGED, 24 VDC, FL SWITCH SFNB SERIES | | 2891001 |
| 14 | PER PLANS | CR- | CONTROL RELAY, 2-POLE 24VDC | | 2987943 |
| 15 | PER PLANS | | CONTROL RELAY BASE | | 2900931 |
| 16 | PER PLANS | | CONTROL RELAY, 2-POLE 120VAC | 2987969 | |
| 17 | 1 | SPD | ANALOG SURGE PROTECTION DEVICE, 1-CKT, 24VDC | 2856032/2856113 | |
| 18 | -- | -- | -- | -- | |
| 19 | 1 | RAD-01 | Radio Transceiver, 900 MHZ | 2901540 | |
| 20 | 2 | DI-22,33 | 4-channel DI module | 2901535 | |
| 21 | 3 | DO-21,31,32 | 4-channel DOR module | 2901536 | |
| 22 | 1 | -- | Coax cable | 2867377 | |
| 23 | 1 | -- | Coax SPD | 2803166 | |
| 24 | 1 | -- | Cable from radio to SPD | 2903265 | |
| 25 | 1 | -- | Omn antennae | 1361276 | |
| 26 | 1 | -- | Vulcanizing tape for coax connections | 2903182 | |
| 27 | 1 | -- | Programming cable | 2903447 | |

| FIELD DEVICES - BILL OF MATERIAL | | | | | | |
|----------------------------------|-----|----------|--|-------------------------|-----------------------|---------|
| ITEM | QTY | ID | DESCRIPTION | MFR. | PART # | |
| 1 | 1 | SPD1 | SURGE PROTECTION DEVICE, 100KA, 240/120V HLD, 3PH, 4 WIRE | SQUARE D | TVS3HWA10X | |
| 2 | 1 | DS1 | SAFETY SWITCH, HEAVY DUTY, NON-FUSIBLE, 200A, 3 POLES, 60HP, 240VAC/250VDC, NEMA 3R, SUITABLE FOR SERVICE ENTRANCE | | HU364RB | |
| 3 | 1 | DLK | CONNECTION ACCESSORY, HEAVY DUTY SAFETY SWITCH, DOUBLE LUG KIT, 200A | | AL20DTF | |
| 4 | 1 | LDC | LOAD CENTER, QO, 3 PHASE, 27 CKT, 80A MAIN BREAKER, NEMA1, SURFACE MTD. | | QO327M100 | |
| 5 | 1 | | LOAD CENTER COVER, QO, 12 CIRCUITS, SURFACE, GRAY | | QOC12US | |
| 6 | 1 | | PANELBOARD ACCESSORY, NQ, GROUND BAR KIT, 12 CIRCUITS, 225A MAX | | PK9GTA | |
| 7 | 1 | SPD-4 | SURGE PROTECTION DEVICE, SURGEBREAKER, 22.5KA, 120/240 VAC, 1 PHASE, 3 WIRE, SPD TYPE 2 | | QO2175SB | |
| 8 | 1 | LAMP | 4 FT. 32-WATT DOUBLE ROW T8 FLUORESCENT WHITE LINEAR STRIP LIGHT FIXTURE | | NICOR (OR EQUIVALENT) | 10395EB |
| 9 | 3 | RECP-1-3 | 20AMP GFCI RECEPTACLE | | --- | --- |
| 10 | 1 | LSW | 15AMP SINGLE POLE LIGHT SWITCH | | --- | --- |
| 11 | 1 | CFP | CHEMICAL FEED PUMP | BLUE-WHITE | C3V242XVA | |
| 12 | 1 | pH | Ph SENSOR, 5M FIXED CABLE, PT1000 | YOKOGAWA | FU-24-05-T1-NPT | |
| 13 | 1 | MTR | 200 AMP DIRECT READING. CHECK WITH LOCAL UTILITY FOR METER REQUIREMENTS | MILBANK (OR EQUIVALENT) | --- | |
| 14 | 5 | MOV | IQ SERIES, 120V 60HZ 1-PHASE, .43KW | ROTORK | IQT-500 | |
| 15 | 1 | PT-1 | LAKE PUMP DISCHARGE PRESSURE TRANSDUCER, 4-20MA, 0-100PSIG, 1/4" MNPT, 2M CABLE | PROSENSE | SPT25-20-0100A | |
| 16 | 1 | PT-2 | ALUM PUMP DISCHARGE PRESSURE TRANSDUCER, 4-20MA, 0-30PSIG, 1/4" MNPT, 2M CABLE | PROSENSE | SPT25-20-0030A | |
| 17 | | | | | | |



LAKES PARK WATER
QUALITY - PHASE 3
LEE COUNTY FLORIDA

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

MCP AND FIELD
DEVICE BOMs

SHEET NUMBER
E05

4.1 Dimensions

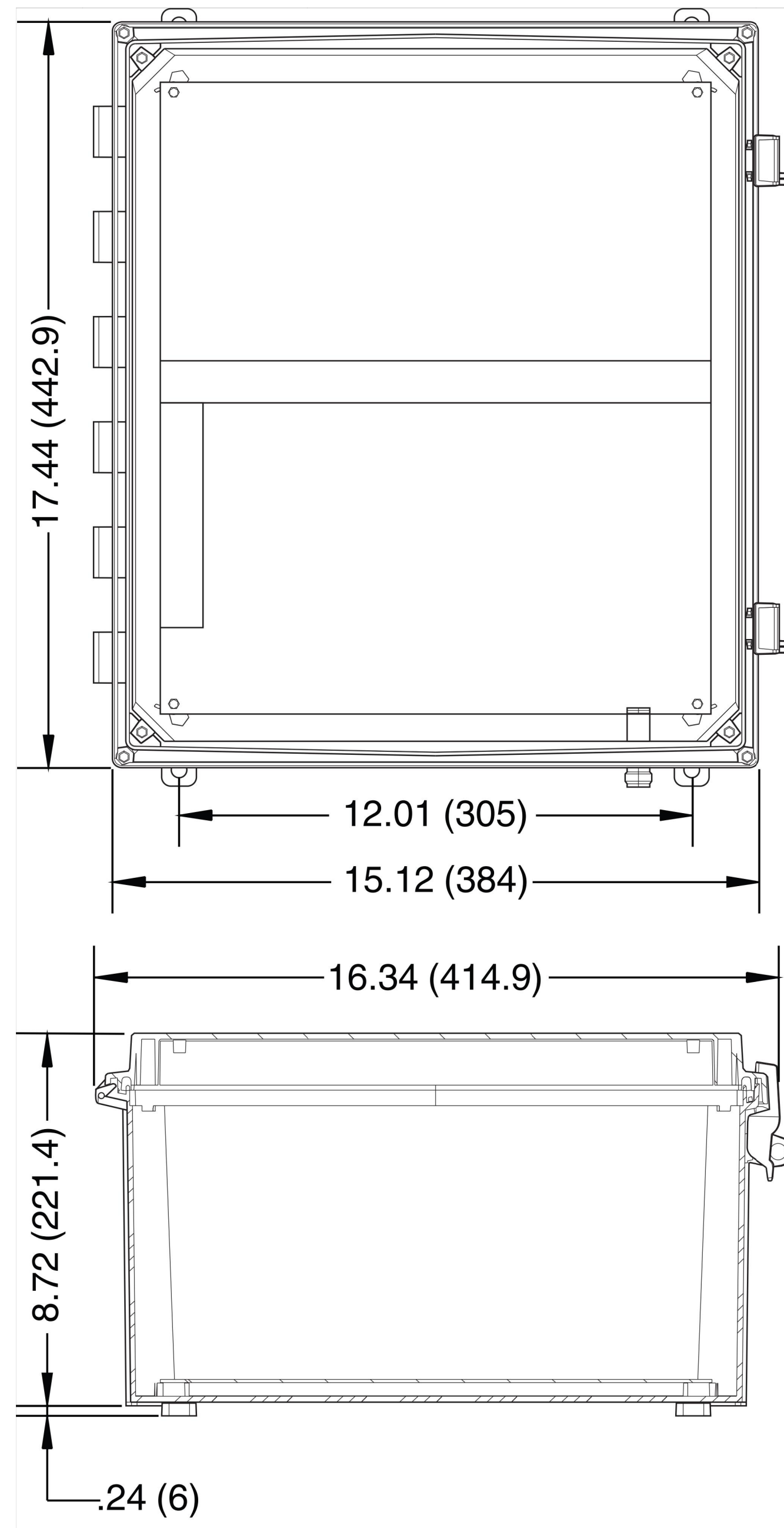


Figure 1 Overall and mounting dimensions

5 Structure

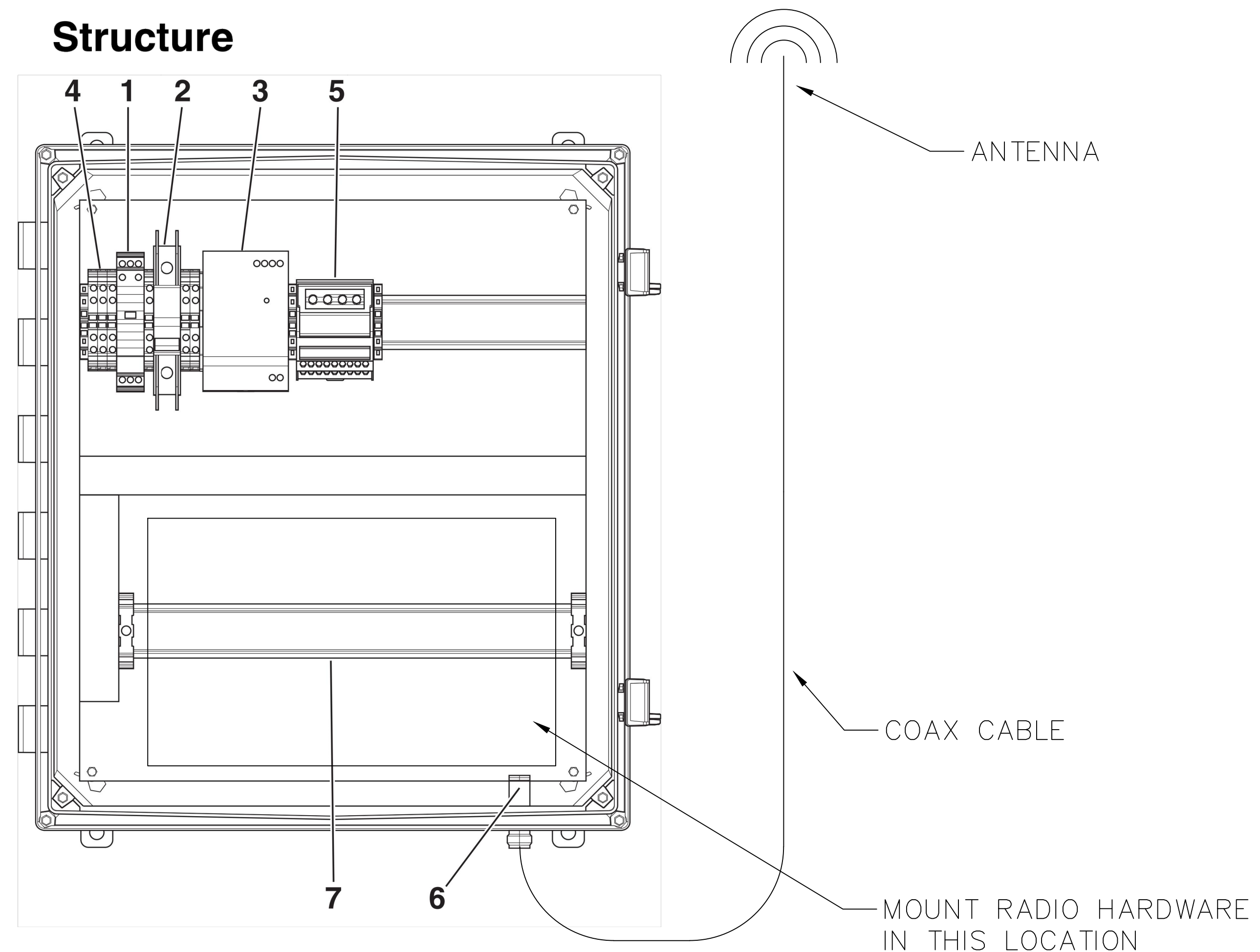


Figure 2 RTU READY 161408 components

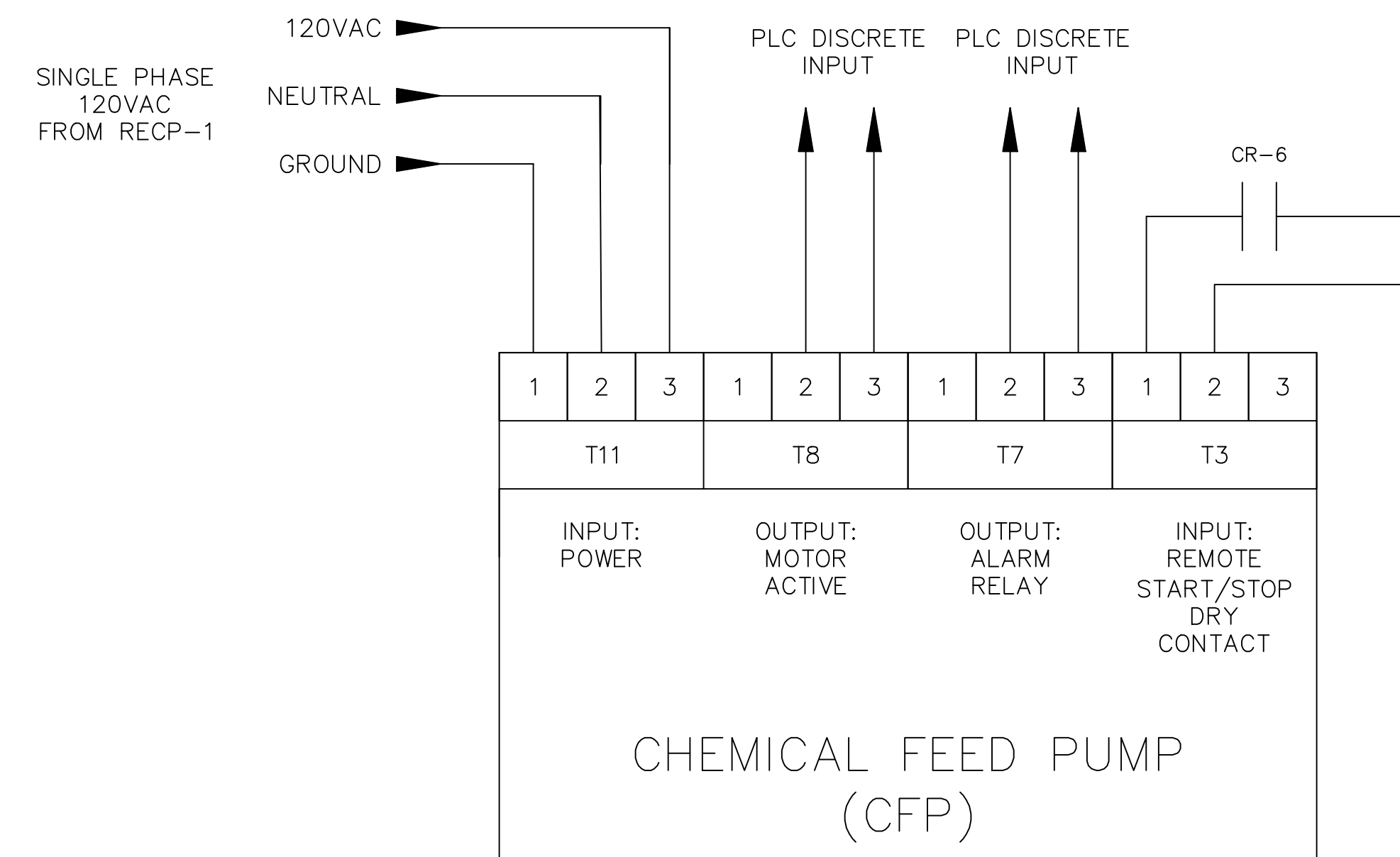
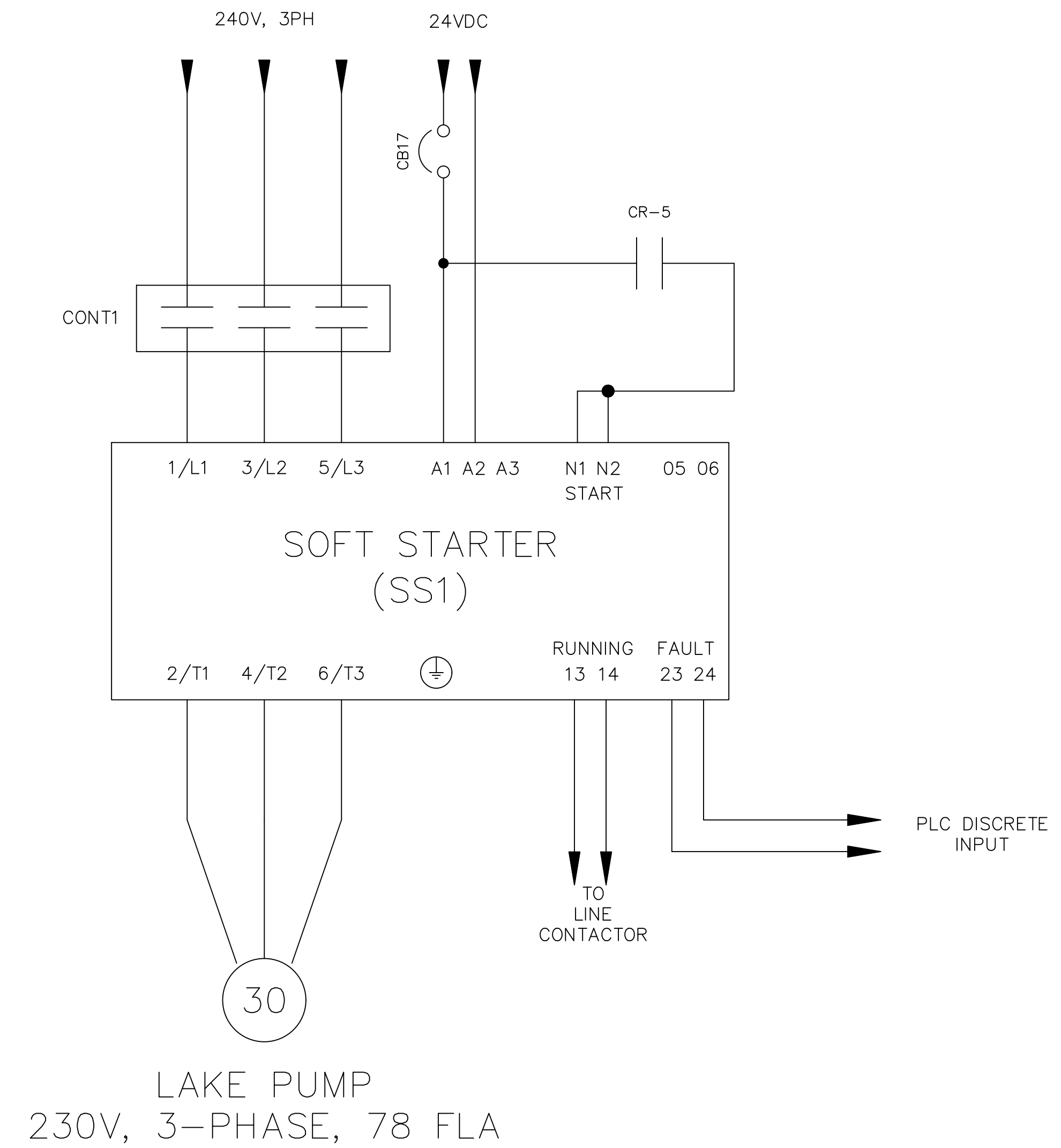
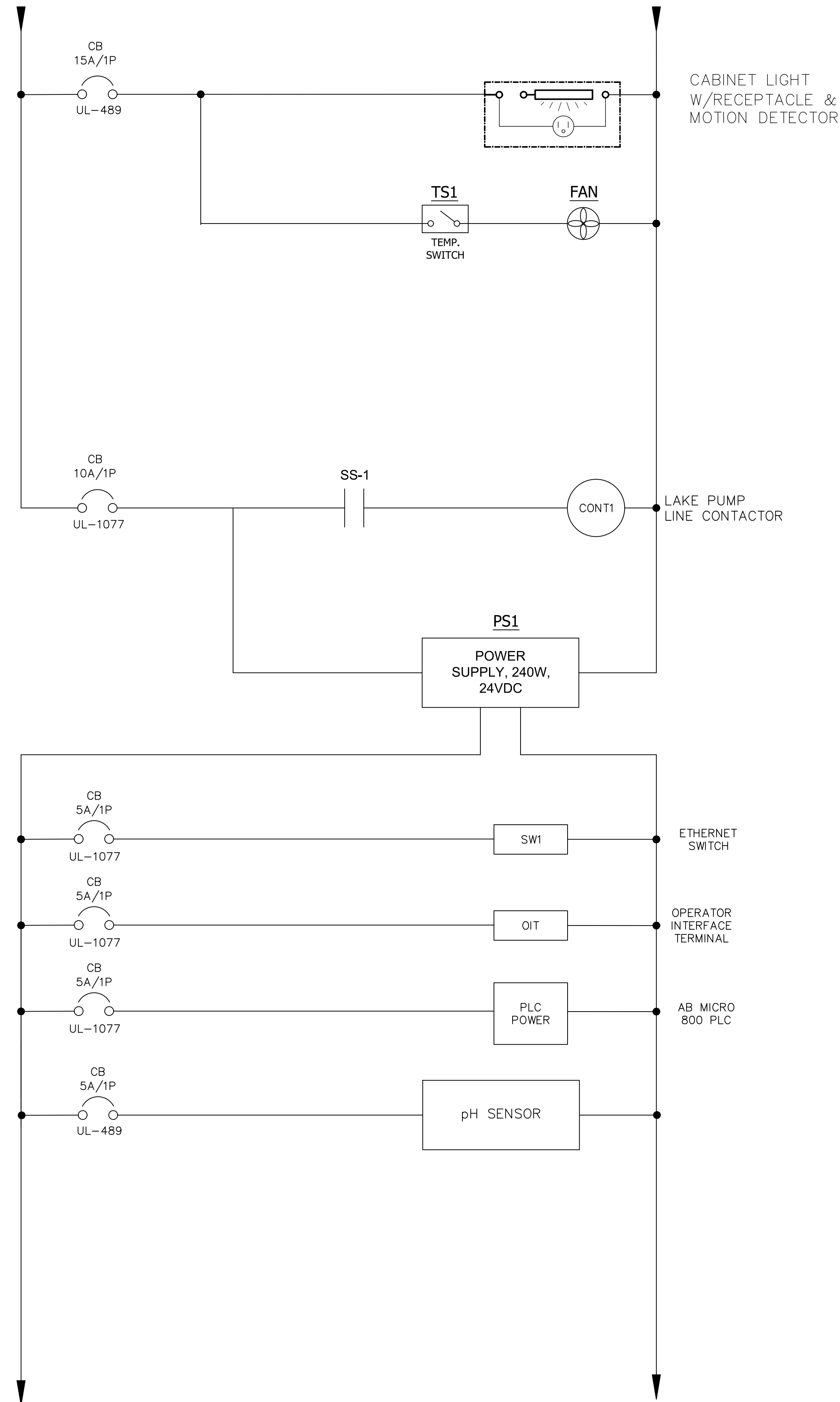
- 1 Surge protective device
- 2 Circuit breaker
- 3 Power supply
- 4 120 V AC supply connections
- 5 24 V DC power distribution terminal block
- 6 Antenna surge protective device
- 7 DIN rail for mounting of devices

| STATION #2 BILL OF MATERIAL | | | | |
|-----------------------------|--------|-----|---|---------|
| ITEM | ID | QTY | DESCRIPTION | PART # |
| 1 | RAD-02 | 1 | Radio Transceiver | 2901540 |
| 2 | DI-21 | 1 | 4-channel DI module | 2901535 |
| 3 | DO-22 | 1 | 4-channel DOR module | 2901536 |
| 4 | STA2 | 1 | RTU Ready Enclosure (w/ PS, SPD for power/coax) 16x14x8, Padlockable | 1094594 |
| 5 | -- | 1 | Cable from radio to SPD | 2903263 |
| 6 | -- | 1 | Coax cable | 5606125 |
| 7 | -- | 1 | Omni antenna | 1361276 |
| 8 | -- | 5 | SPDs for 120 VAC signals | 1109673 |
| 9 | | | | |
| 10 | | | | |

| STATION #3 BILL OF MATERIAL | | | | |
|-----------------------------|----------|-----|---|---------|
| ITEM | ID | QTY | DESCRIPTION | PART # |
| 1 | RAD-03 | 1 | Radio Transceiver | 2901540 |
| 2 | DI-31,32 | 2 | 4-channel DI module | 2901535 |
| 3 | DO-33 | 1 | 4-channel DOR module | 2901536 |
| 4 | STA3 | 1 | RTU Ready Enclosure (w/ PS, SPD for power/coax) 16x14x8, Padlockable | 1094594 |
| 5 | -- | 1 | Cable from radio to SPD | 2903263 |
| 6 | -- | 1 | Coax cable | 5606125 |
| 7 | -- | 1 | Yagi antenna | 2867814 |
| 8 | -- | 10 | SPDs for 120 VAC signals | 1109673 |
| 9 | | | | |
| 10 | | | | |

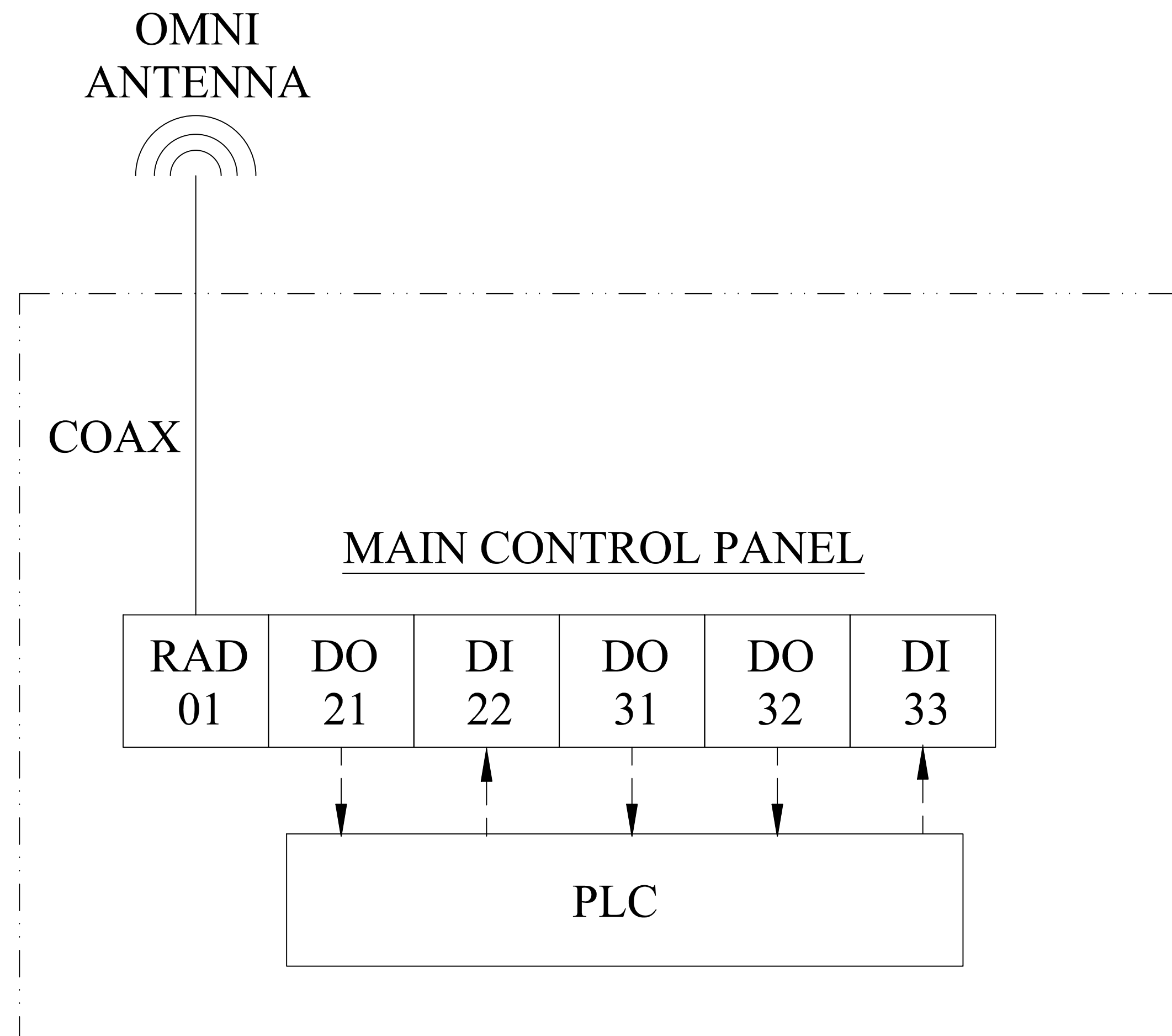
| NO. | DESCRIPTION | DATE |
|-----|-------------|------|
| | | |
| | | |
| | | |

120VAC CONTROL POWER



| NO. | REVISIONS | DESCRIPTION | DATE |
|-----|-----------|-------------|------|
| | | | |
| | | | |
| | | | |

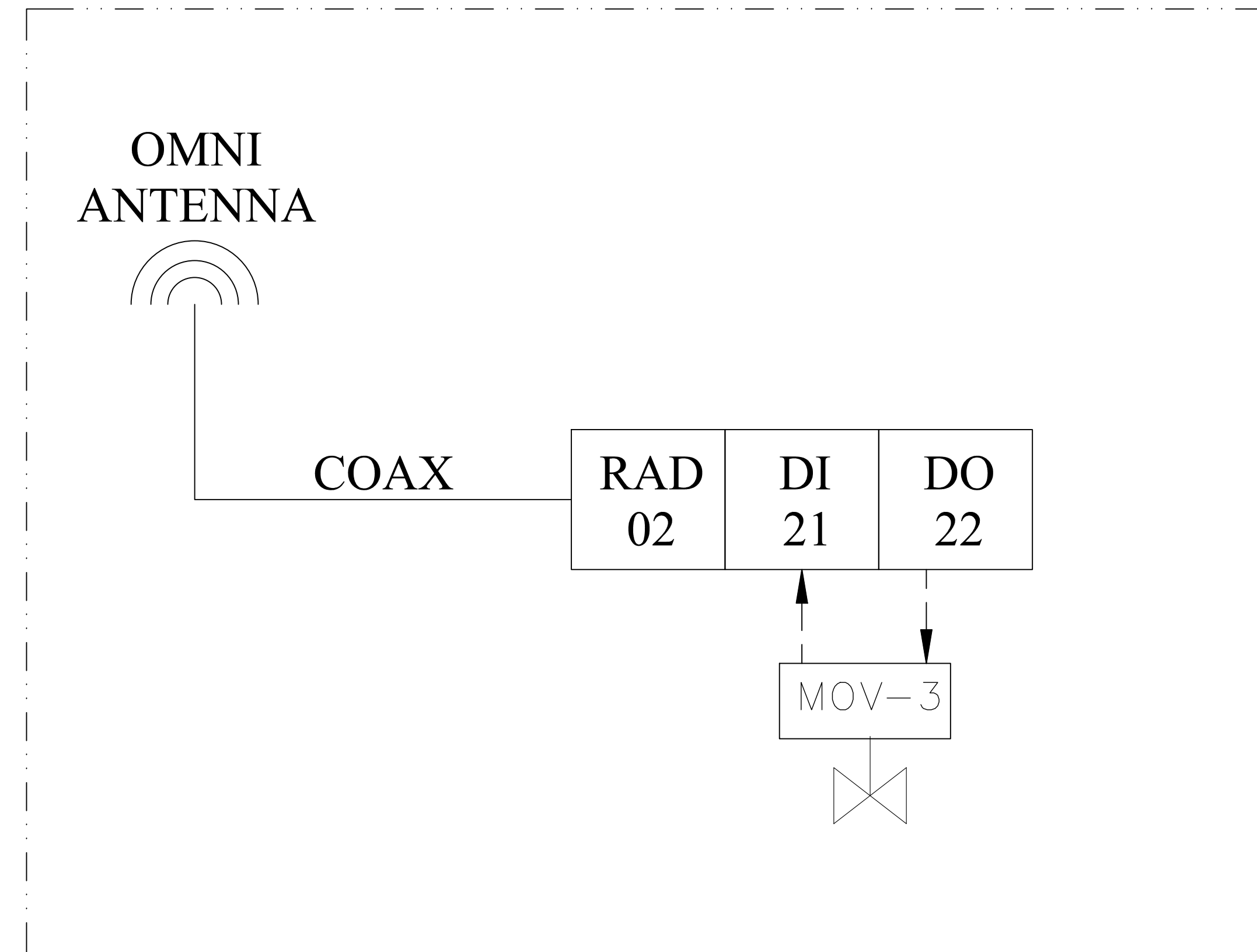
| | |
|--------------|--------------|
| DATE: | MARCH 2024 |
| PROJECT NO.: | 20214150-000 |
| FILE NO.: | 26-45-24 |
| SCALE: | AS SHOWN |



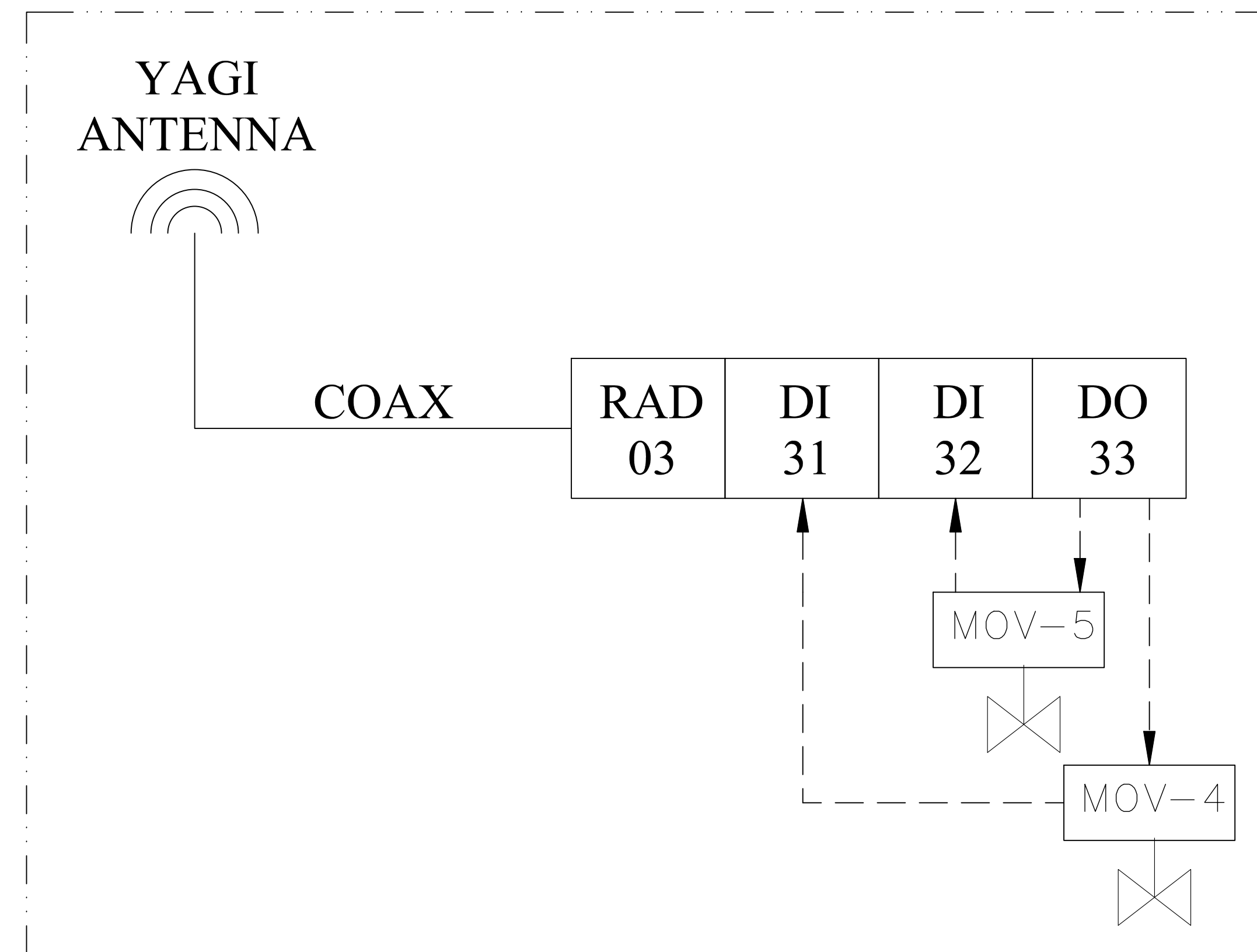
NOTES:

1. INSTALL MAIN CONTROL PANEL ANTENNA ON EXTERIOR OF ELECTRICAL BLDG.

VALVE STATION #2



VALVE STATION #3



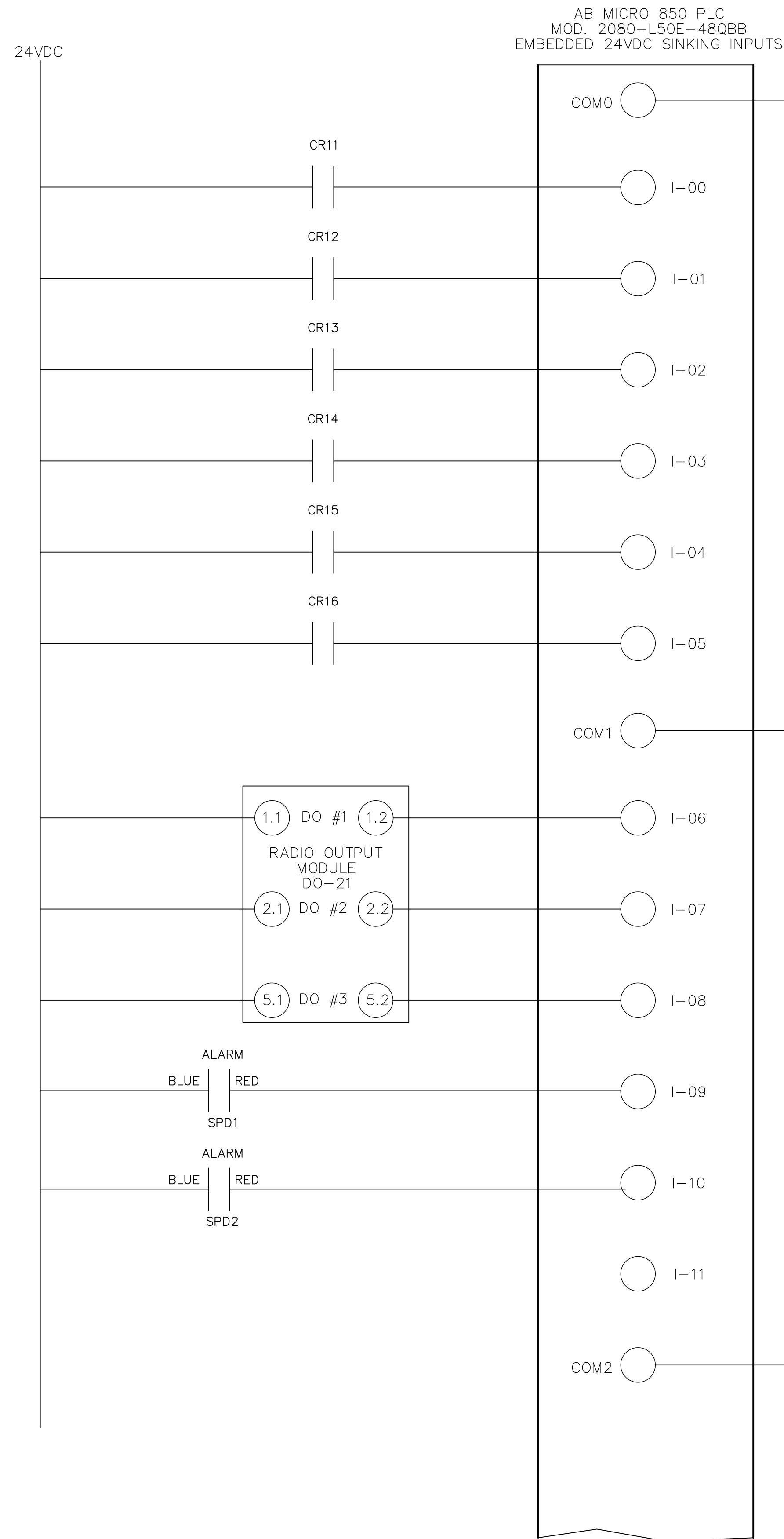
| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

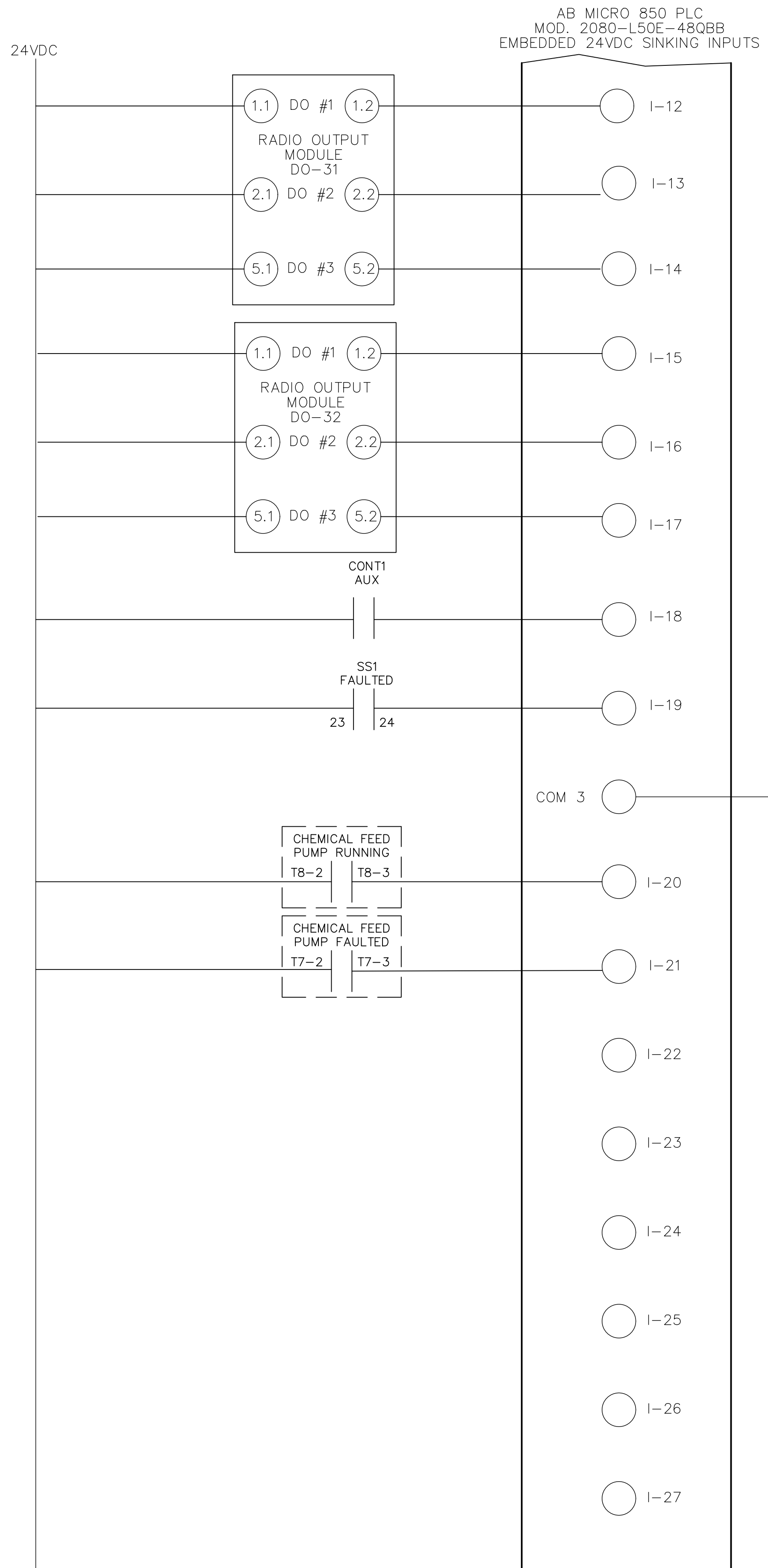
900 MHZ RADIO NETWORK SCHEMATIC

SHEET NUMBER

E08



- DC COM
- MOV1 FULLY CLOSED
 - MOV1 FULLY OPEN
 - MOV1 STATUS
 - MOV2 FULLY CLOSED
 - MOV2 FULLY OPEN
 - MOV2 STATUS
 - MOV3 FULLY CLOSED
 - MOV3 FULLY OPEN
 - MOV3 STATUS
 - SPD1 STATUS
 - SPD2 STATUS
 - SPARE



- DC COM
- MOV4 FULLY CLOSED
 - MOV4 FULLY OPEN
 - MOV4 STATUS
 - MOV5 FULLY CLOSED
 - MOV5 FULLY OPEN
 - MOV5 STATUS
 - LAKE PUMP RUNNING
 - LAKE PUMP FAULTED
 - CHEMICAL FEED PUMP RUNNING
 - CHEMICAL FEED PUMP FAULTED
 - SPARE
 - SPARE
 - SPARE
 - SPARE
 - SPARE
 - SPARE



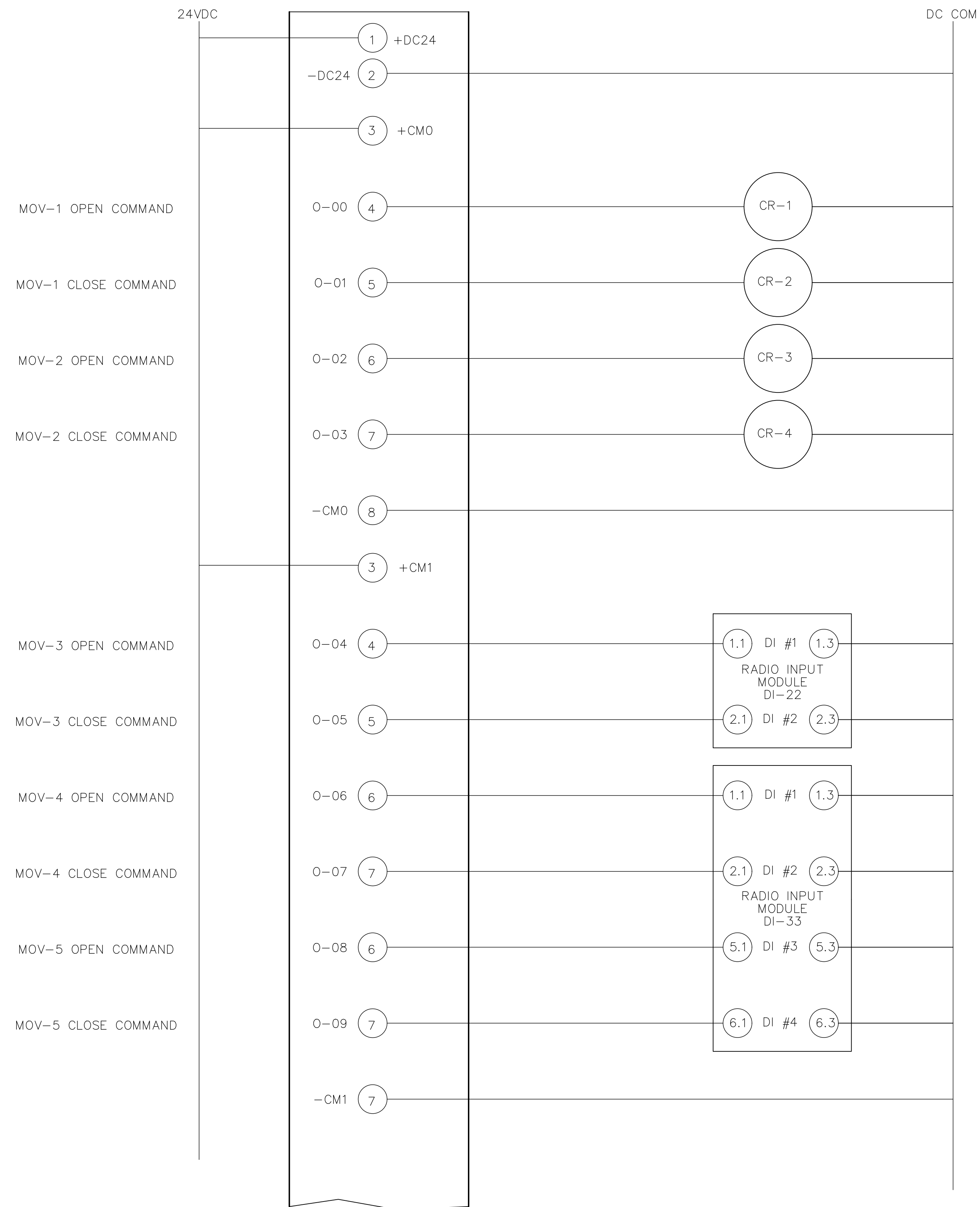
LAKES PARK WATER QUALITY - PHASE 3 LEE COUNTY FLORIDA

| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

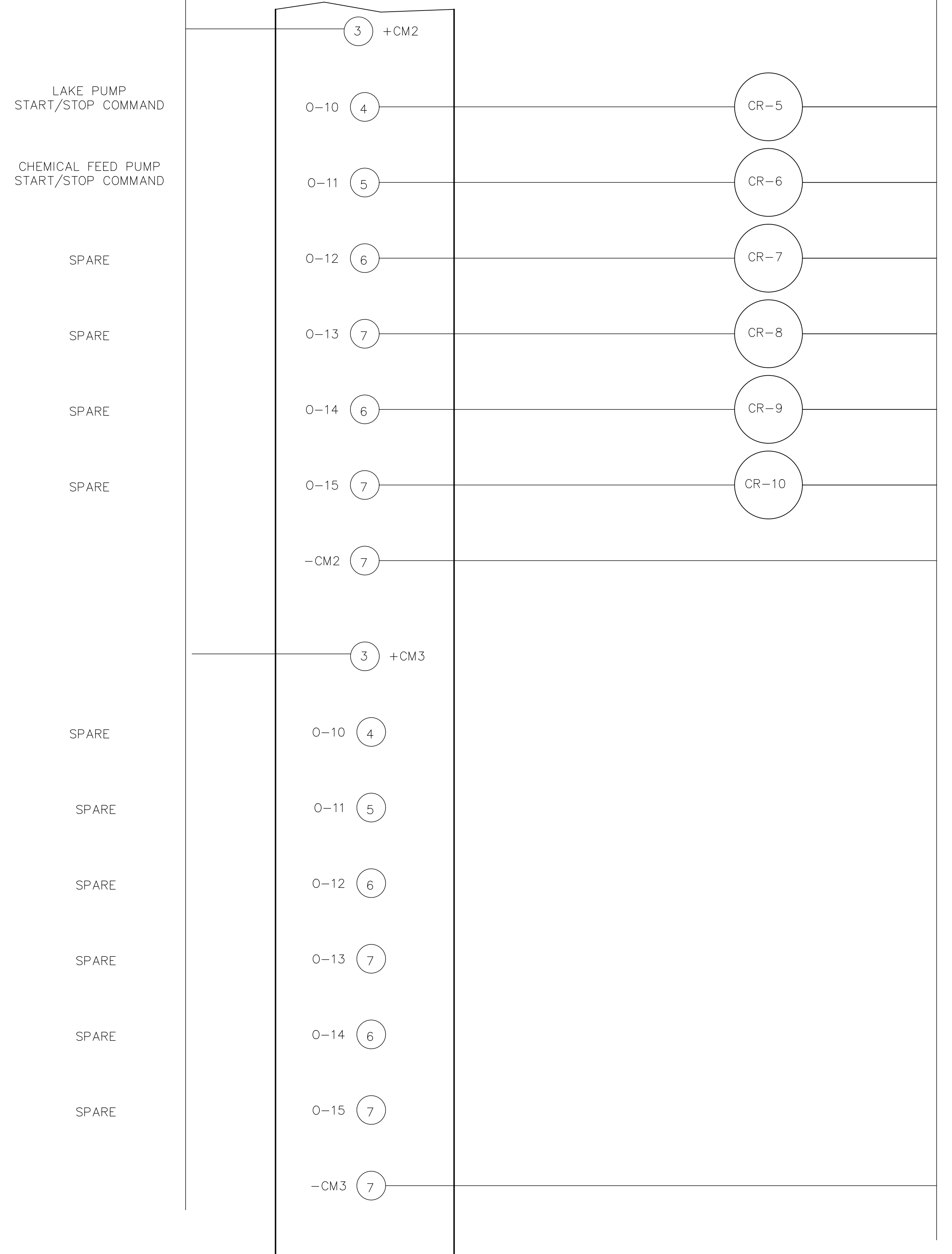
PLC DISCRETE INPUTS

AB MICRO 850 PLC
 MOD. 2080-L50E-48QBB
 EMBEDDED 24VDC SOURCING OUTPUTS



24VDC

AB MICRO 850 PLC
 MOD. 2080-L50E-48QBB
 EMBEDDED 24VDC SOURCING OUTPUTS



JOHNSON ENGINEERING
 JOHNSON ENGINEERING, INC.
 2122 JOHNSON STREET
 FORT MYERS, FLORIDA 33901
 PHONE: (239) 334-0046
 E.B. #642 & L.B. #642

ERD
 Water Quality Engineering

ENVIRONMENTAL RESEARCH & DESIGN, INC.
 3419 TRENTWOOD BLVD., SUITE 102
 BELLE ISLE, FLORIDA 32812
 PHONE: (407) 855-9465
 E.B. #6244

WAYNE WILDEY WRIGHT, PE
 FL License No. 58220



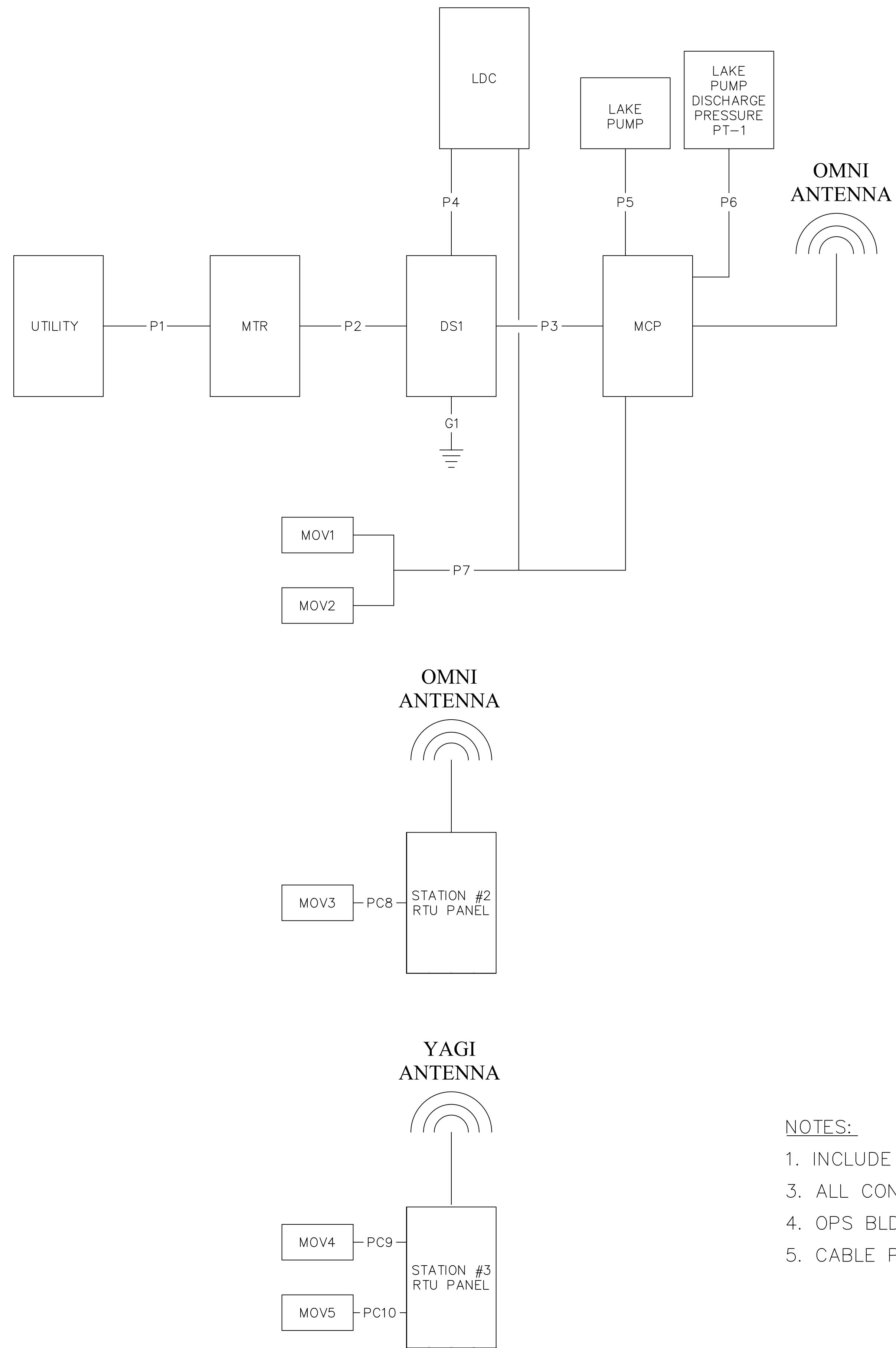
LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |
| | | |

DATE: MARCH 2024
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

PLC DISCRETE OUTPUTS

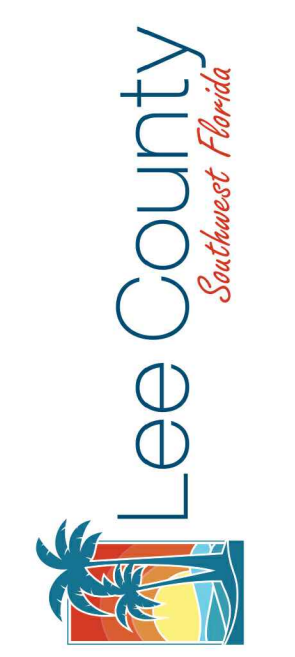
SHEET NUMBER
E10



| CONDUIT SCHEDULE | | | | |
|------------------|------------|---------------|---|--|
| # | CONDUIT | LENGTH [FT] * | WIRES | DESCRIPTION |
| P1 | (2) 2" PVC | 300 | (3) #3/0 AWG PH (1) #3 AWG N | FROM THE SECONDARY OF THE UTILITY TRANSFORMER. RUN UNDERGROUND WITH A SPARE 2" CONDUIT TO THE METER MOUNTED ON THE OUTSIDE OF THE OPS BUILDING |
| P2 | 2" PVC | 6 | (3) #3/0 AWG PH (1) #3 AWG N | FROM METER MTR TO DISCONNECT DS1. |
| P3 | 2" PVC | 20 | (3) #1/0 AWG PH (1) #2 AWG N (1) #6 AWG GROUND | DISCONNECT DS1 UG TO THE MAIN CONTROL PANEL. |
| P4 | 1-1/2" PVC | 15 | (4) #4 AWG (1) #8 AWG GROUND | FROM DISCONNECT DS1 UG TO THE LOAD CENTER LDC. |
| P5 | 3" PVC | 15 | (1) MFR'S CABLE | FROM LAKE PUMP UG TO CONTROL PANEL |
| P6 | 3/4" PVC | 20 | (1) TSP | PRESSURE SIGNAL UG FROM PT-1 TO MCP |
| P7 | 3" PVC | 20 | (2) 2C W/GND #14 AWG (2) 10C/#16 AWG OMNICAL AS11610 | POWER CONDUCTORS FOR MOV-1 AND MOV-3 FROM LOAD CENTER CONTROL CONDUCTORS UG FOR MOV 1 AND 2 FROM MCP |
| P8 | | | | |

- NOTES:**
1. INCLUDE NYLON PULL CORD IN ALL RACEWAYS.
 3. ALL CONDUIT RUNS EXCEPT WITHIN THE OPS BLDG. SHALL BE SCHEDULE 80 PVC.
 4. OPS BLDG. INTERNAL CONDUIT SHALL BE EMT.
 5. CABLE PULLING LUBRICANT SHALL BE UTILIZED ON ALL CABLE RUNS.

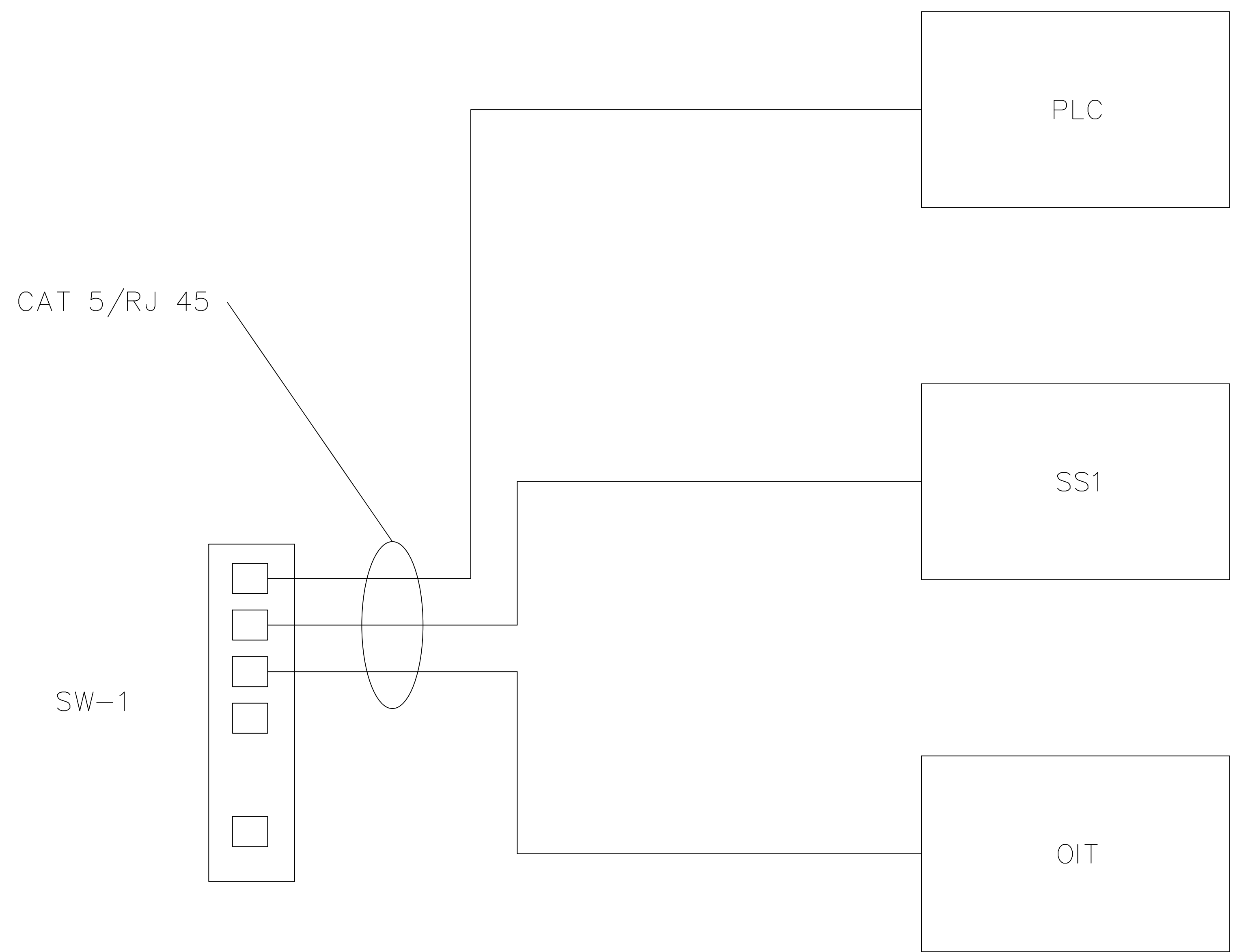
WAYNE WILDEY WRIGHT, PE
 FL License No. 56220



LAKES PARK WATER QUALITY - PHASE 3
 LEE COUNTY FLORIDA

| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

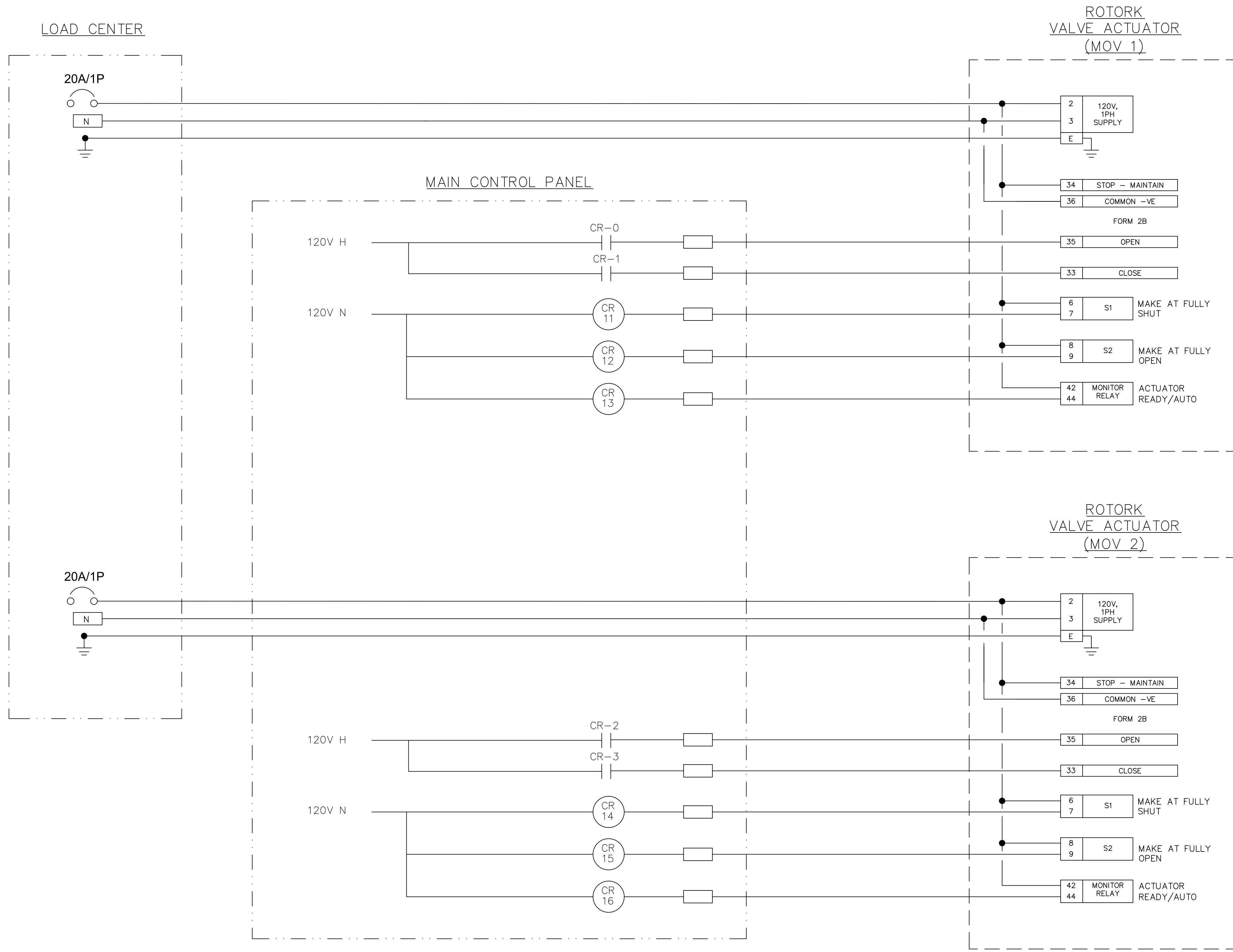
DATE: MARCH 2024
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN



| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

NETWORK DIAGRAM



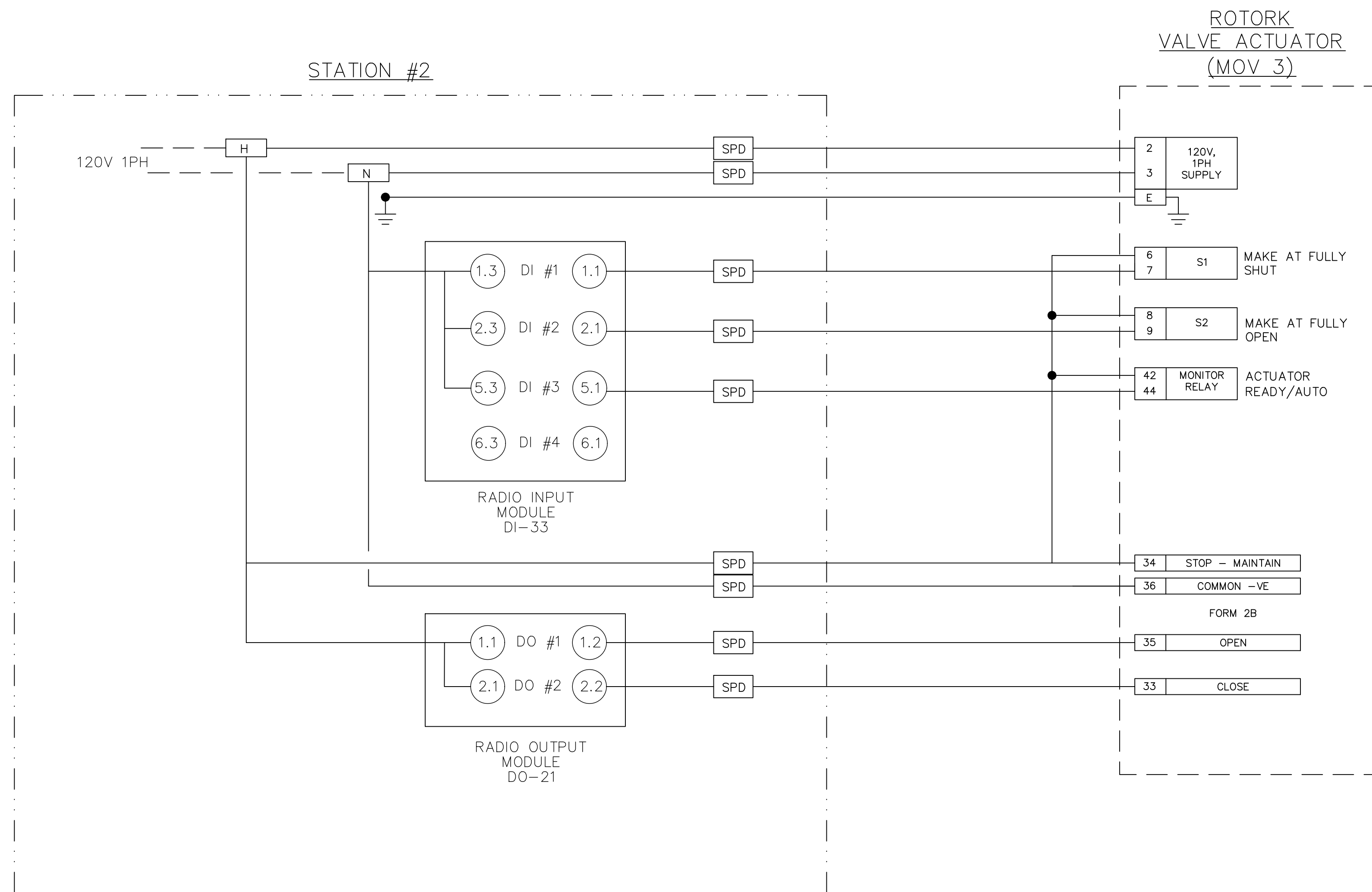
| NO. | REVISIONS | DESCRIPTION | DATE |
|-----|-----------|-------------|------|
| | | | |
| | | | |
| | | | |
| | | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

MOV1 & MOV2
BLOCK DIAGRAM

SHEET NUMBER

E14



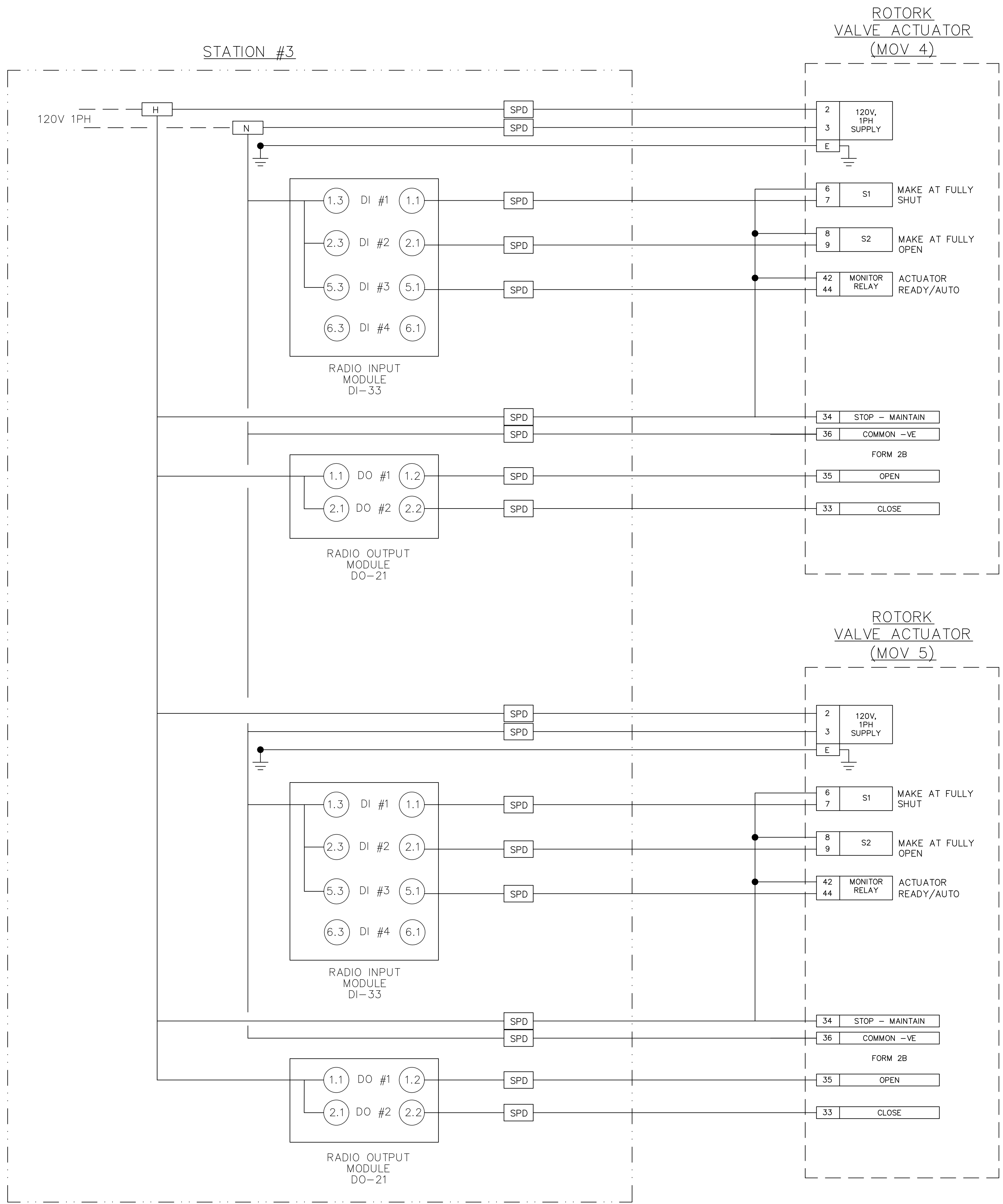
| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

MOV3 BLOCK DIAGRAM

SHEET NUMBER

E15



| NO. | REVISIONS | DESCRIPTION | DATE |
|-----|-----------|-------------|------|
| | | | |
| | | | |
| | | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

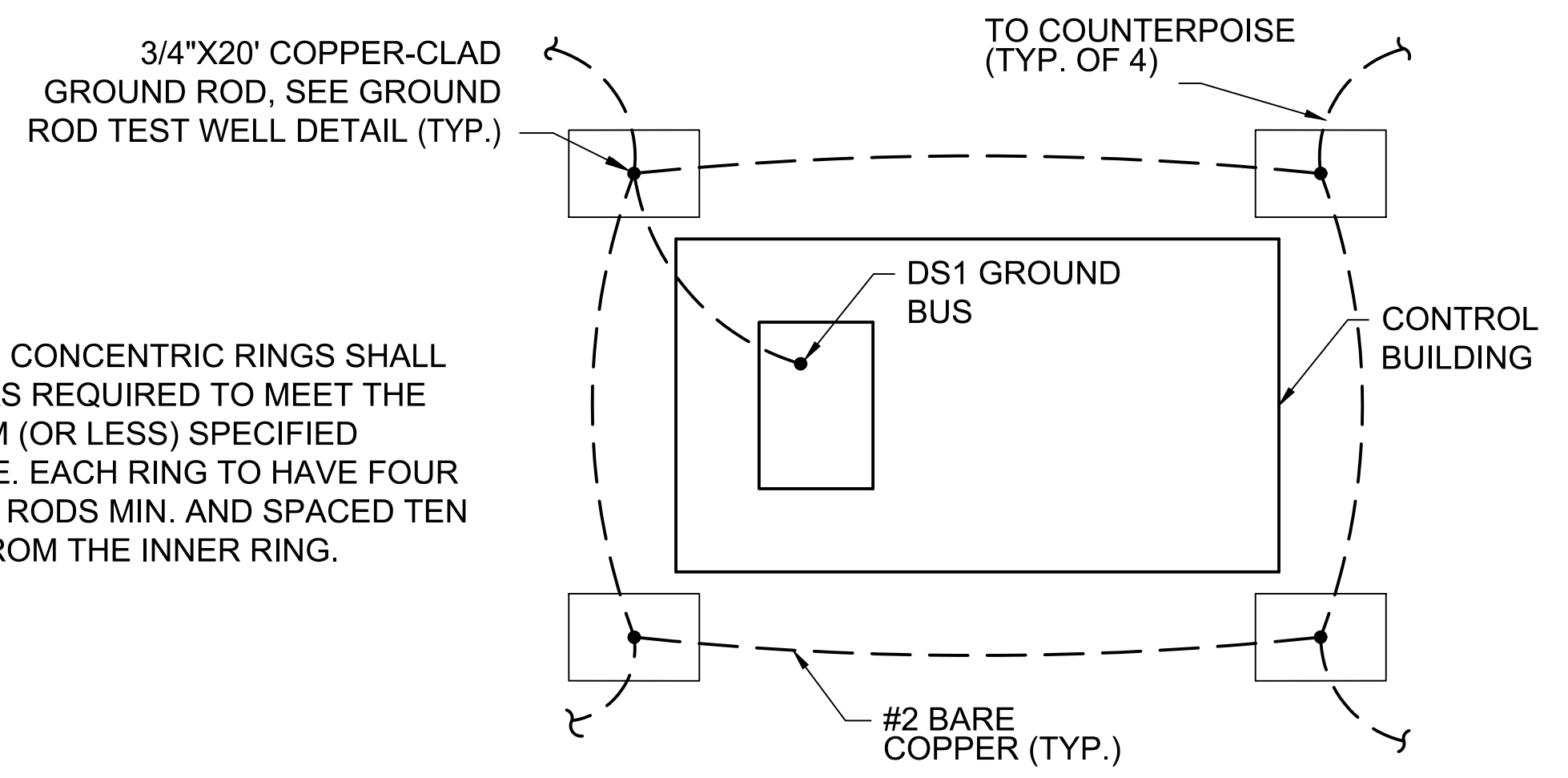
MOV4 & MOV5
BLOCK DIAGRAM

SHEET NUMBER

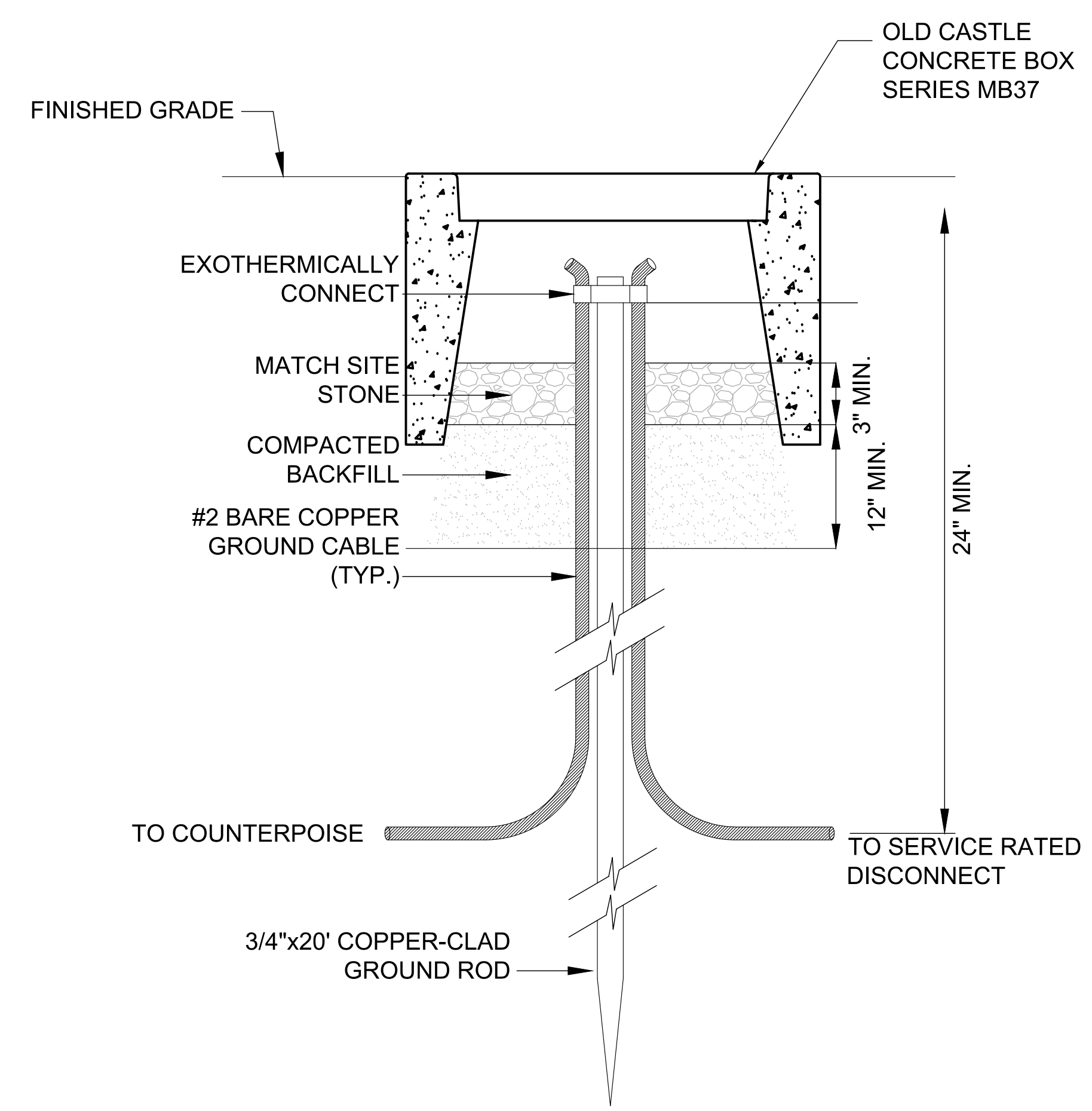
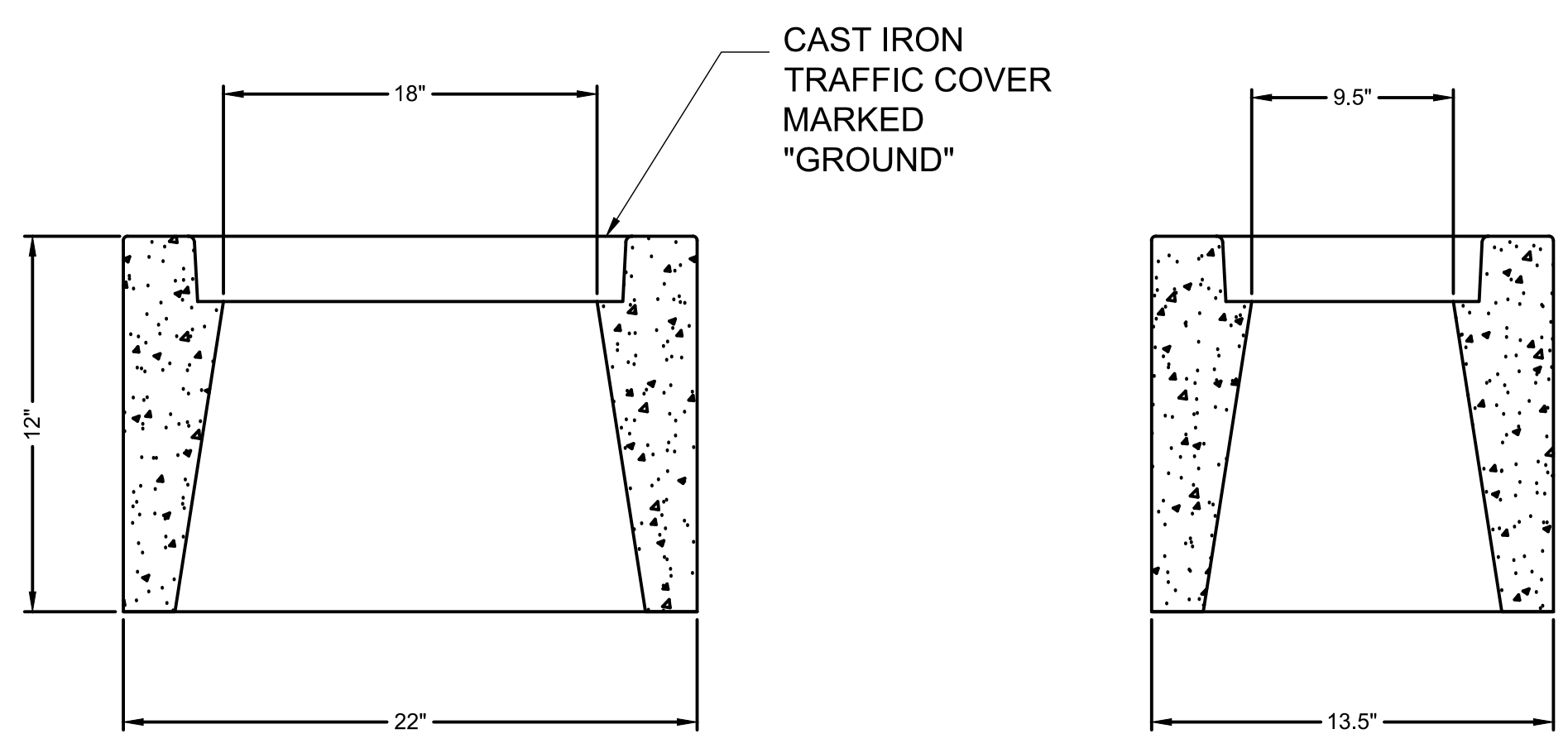
E16

NOTES:

- ADDITIONAL CONCENTRIC RINGS SHALL BE ADDED AS REQUIRED TO MEET THE FIVE (5) OHM (OR LESS) SPECIFIED RESISTANCE. EACH RING TO HAVE FOUR (4) GROUND RODS MIN. AND SPACED TEN (10) FEET FROM THE INNER RING.



GROUND MAT DETAIL
NOT TO SCALE



GROUND TEST WELL DETAIL
NOT TO SCALE

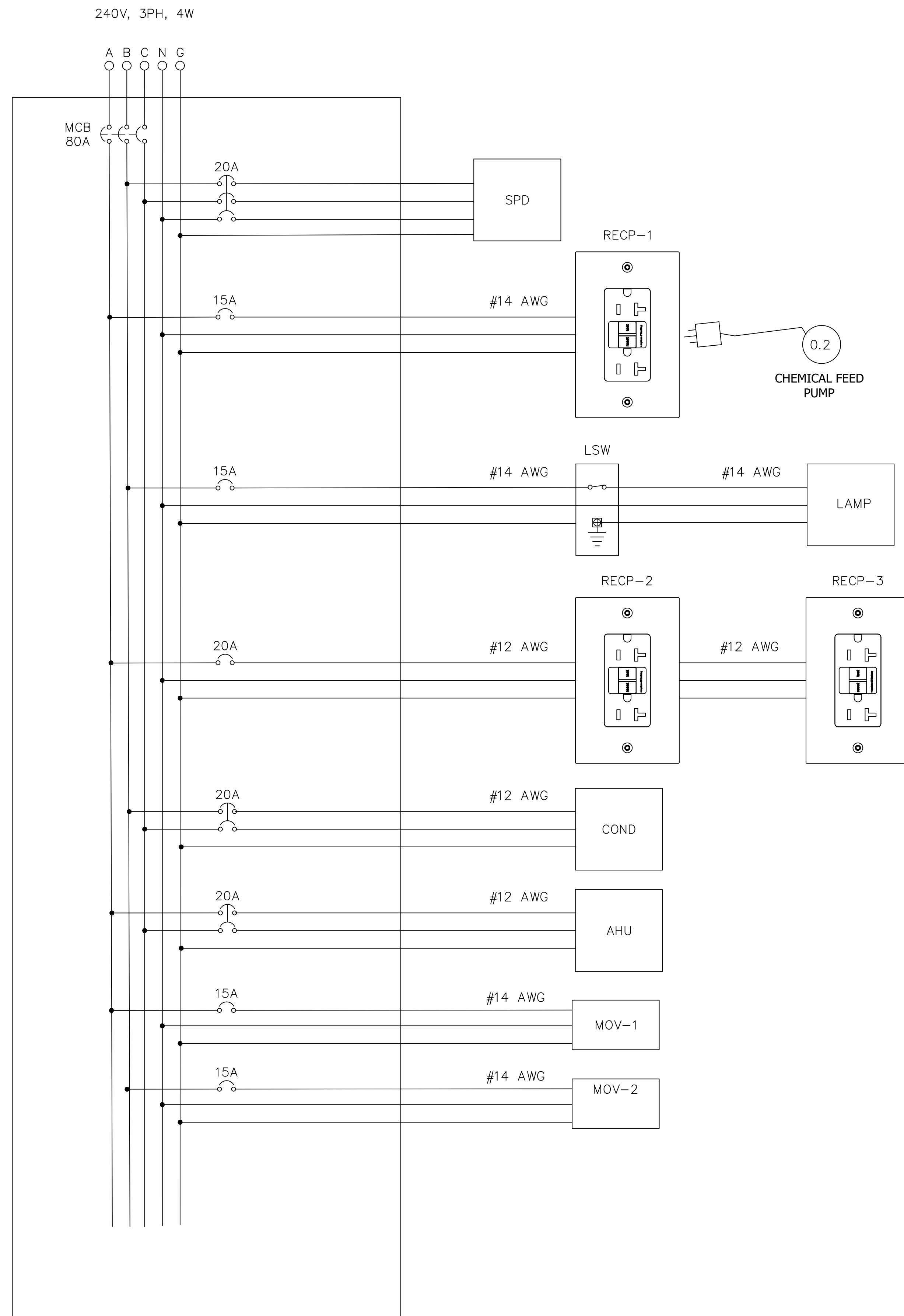
| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

GROUNDING DETAILS

SHEET NUMBER

ED01



LOAD CENTER

OPS ROOM LOAD CENTER

| LOCATION | OPS BLDG | | | | TYPE | MCB | | | | | |
|--------------------------|---|------------|------------|------|------------|------------------|------------|------------|--------------------|----------|----|
| MOUNTING | SURFACE | | | | VOLTAGE | 120/240, 3PH, 4W | | | | | |
| MFR/MODEL: | SQUARE D MOD. QO327M100 | | | | ENCLOSURE | NEMA 1 | | | | | |
| BRACING | 10K AIC | | | | BRANCH C/B | PLUG-ON | | | | | |
| CKT. NO. | LOAD DESCRIPTION | BRKR. SIZE | DEMAND KVA | PH A | PH B | PH C | DEMAND KVA | BRKR. SIZE | LOAD DESCRIPTION | CKT. NO. | |
| 1 | MAIN | 80 | 0.0 | 3.8 | | | 3.8 | 20 | A/C CONDENSER UNIT | 2 | |
| 3 | | | 0.0 | | 3.8 | | 3.8 | | | 4 | |
| 5 | | | 0.0 | | | 3.8 | | | | 3.8 | 6 |
| 7 | SURGE PROTECTION DEVICE | 20 | 0.0 | 3.8 | | | 3.8 | 15 | MOV-1 | 8 | |
| 9 | | | 0.0 | | 0.5 | | 0.5 | | | 10 | |
| 11 | | | 0.0 | | | 0.5 | | | | 0.5 | 12 |
| 13 | INTERIOR LIGHT | 15 | 0.2 | 0.2 | | | 0.0 | 20 | SPARE | 14 | |
| 15 | RECP-2,3 | 20 | 1.6 | | 1.6 | | 0.0 | 20 | SPARE | 16 | |
| 17 | RECP-1 / CHEMICAL FEED PUMP | 15 | 0.3 | | | 0.3 | 0.0 | 20 | SPARE | 18 | |
| 19 | --- | - | 0.0 | 0.0 | | | 0.0 | | --- | 20 | |
| 21 | --- | - | 0.0 | | 0.0 | | 0.0 | | --- | 22 | |
| 23 | --- | - | 0.0 | | | 0.0 | 0.0 | | --- | 24 | |
| 25 | --- | - | 0.0 | 0.0 | | | 0.0 | | --- | 26 | |
| 27 | --- | - | 0.0 | | 0.0 | | 0.0 | - | --- | 28 | |
| 29 | --- | - | 0.0 | | | 0.0 | 0.0 | - | --- | 30 | |
| CONNECTED LOAD PER PHASE | | | | 7.6 | 4.3 | 4.3 | KVA | | | | |
| TOTAL LOAD | | | | 16.2 | | | KVA | | | | |
| NOTES: | 1. SPD: SQUARE D MOD. SDSA4040 SURGE PROTECTOR, 3PH, 4W, 40KAIC SURGE CURRENT/PHASE | | | | | | | | | | |

JOHNSON ENGINEERING
 JOHNSON ENGINEERING, INC.
 2122 JOHNSON STREET
 FORT MYERS, FLORIDA 33901
 PHONE: (239) 334-0046
 E.B. #642 & L.B. #642

ERD
 Water Quality Engineering

ENVIRONMENTAL RESEARCH & DESIGN, INC.
 3419 TRENTWOOD BLVD., SUITE 102
 BELLE ISLE, FLORIDA 32812
 PHONE: (407) 855-9465
 E.B. #6244

WAYNE WILDEY WRIGHT, PE
 FL License No. 58220

Lee County
 Southwest Florida

LAKES PARK WATER
 QUALITY - PHASE 3
 LEE COUNTY FLORIDA

| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |
| | | |

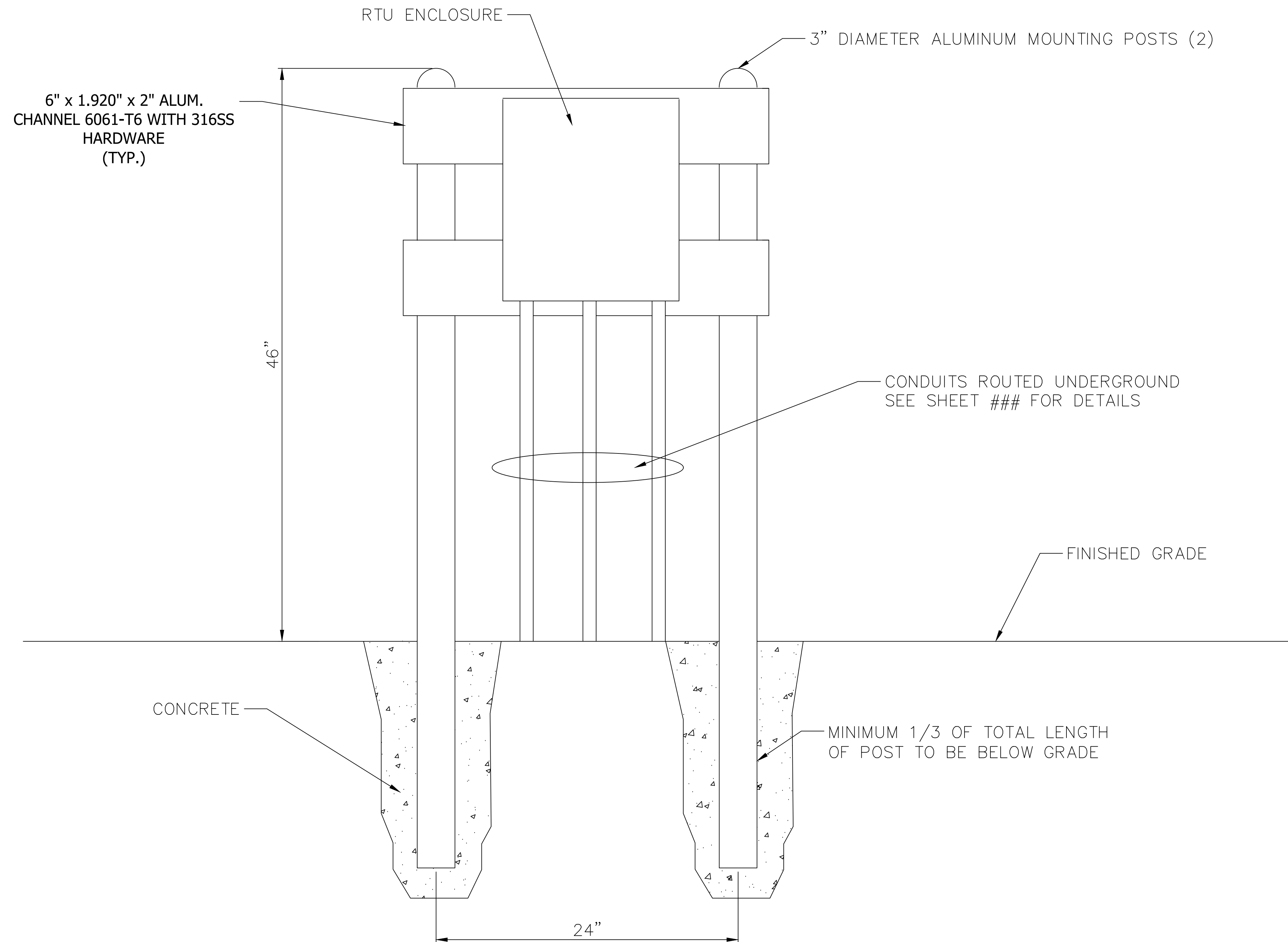
DATE: MARCH 2024
 PROJECT NO. 20214150-000
 FILE NO. 26-45-24
 SCALE: AS SHOWN

LOAD CENTER
 SCHEDULE &
 DETAILS

SHEET NUMBER
ED02

TYPICAL INSTALLATION FOR VALVE STATION #2 AND #3

SEE SHEETS C11 AND C12 FOR VALVE MANIFOLD LOCATIONS



| NO. | REVISIONS DESCRIPTION | DATE |
|-----|-----------------------|------|
| | | |
| | | |
| | | |

DATE: MARCH 2024
PROJECT NO. 20214150-000
FILE NO. 26-45-24
SCALE: AS SHOWN

TERMINAL BOX
MOUNTING
DETAILS

SHEET NUMBER
ED03