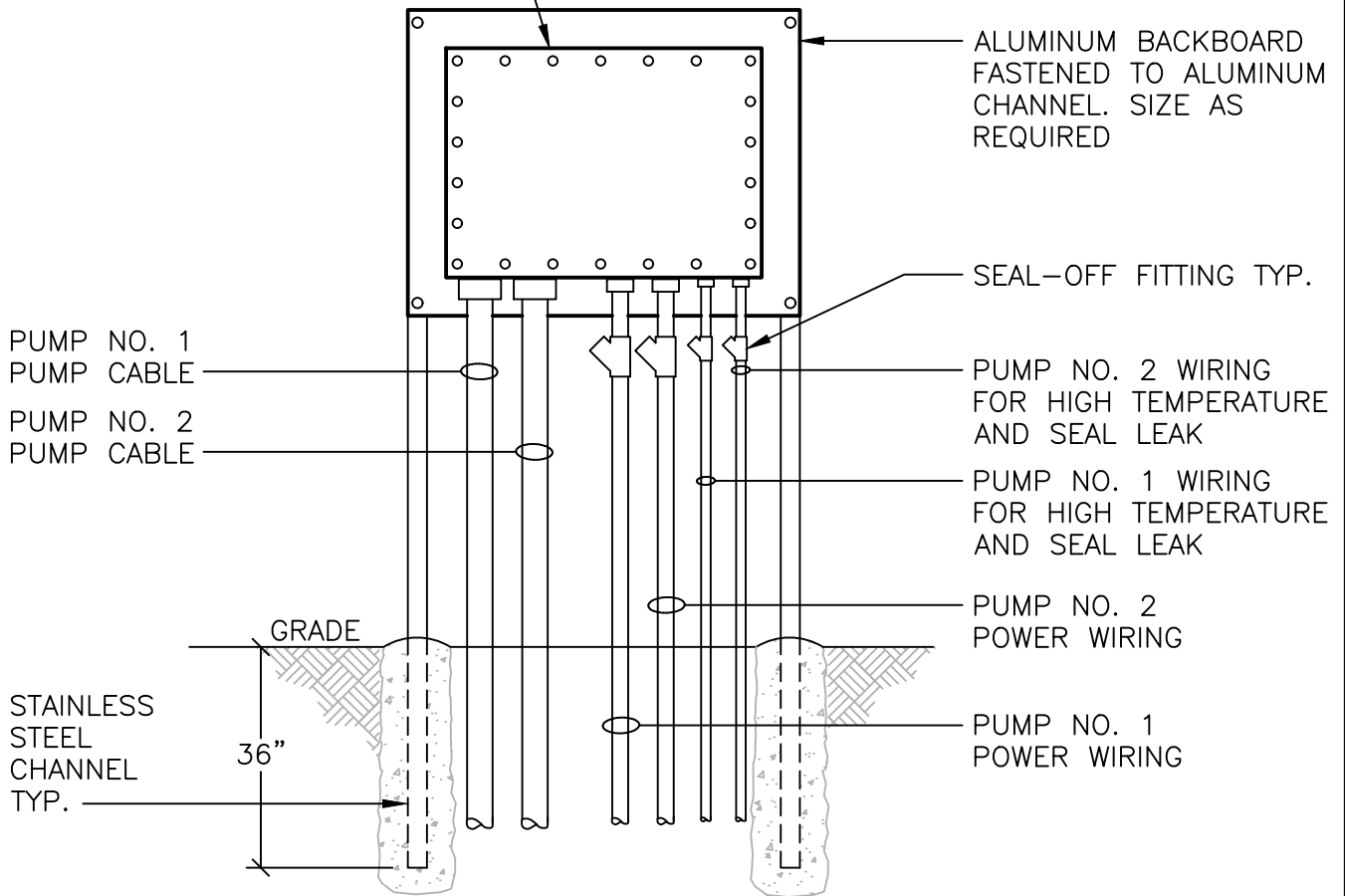


NEMA 7 POWER WIRING
JUNCTION BOX.
SIZE AS REQUIRED
(SEE NOTES 1 AND 2)



NOTES:

1. PUMP CABLE WIRES SHALL BE SPLICED IN THE POWER WIRING JUNCTION BOX USING INSULATED MECHANICAL LUGS.
2. PROVIDE A MINIMUM OF 2' OF CABLE SLACK IN THE JUNCTION BOX.
3. THE INSTRUMENT VAULT AND VALVE VAULT ARE CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP D AREA IN ACCORDANCE WITH NFPA 820. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONDUIT SHALL BE PERFORMED IN ACCORDANCE WITH THIS CLASSIFICATION.
4. ALL CONDUIT PENETRATIONS THROUGH CONCRETE STRUCTURES SHALL BE INSTALLED THROUGH SLEEVED PENETRATIONS WITH MODULAR SEALS AND 316 STAINLESS STEEL HARDWARE.

NOT TO SCALE



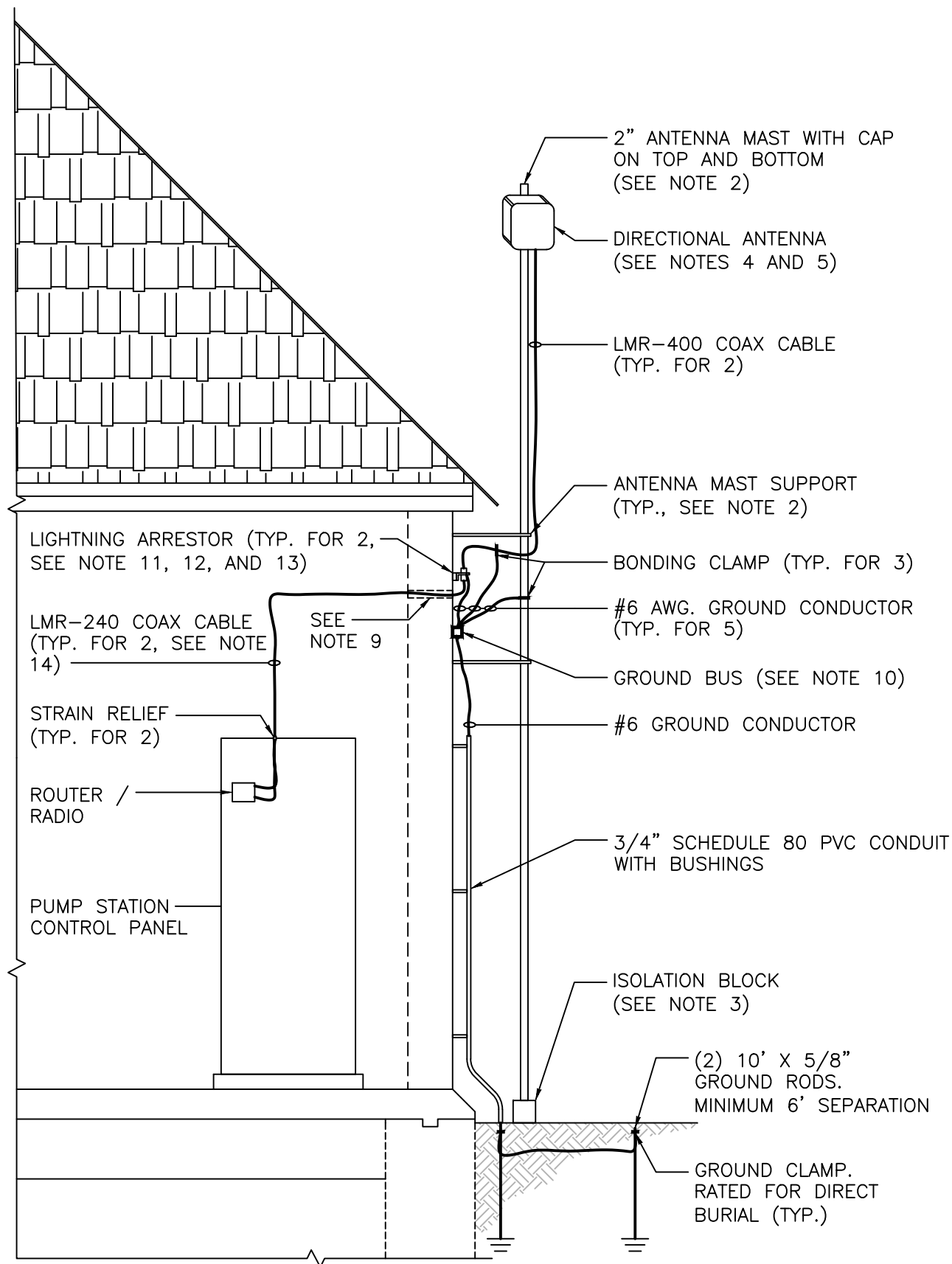
STANDARD DESIGN DETAIL

WET WELL PUMP WIRING
ELECTRICAL BACKBOARD

DRAWING NO.
700

SHEET
1 OF 1

DATE
7/2025



STANDARD DESIGN DETAIL

ANTENNA INSTALLATION

DRAWING NO.
701A

SHEET
1 OF 2

DATE
7/2025

NOTES:

1. ANY DEVIATIONS FROM THIS DETAIL SHALL BE COORDINATED WITH HRSD OR HRSD'S REPRESENTATIVE.
2. ALL FASTENERS AND MOUNTING HARDWARE USED FOR INSTALLATION OF ELECTRICAL ITEMS SHALL BE OF THE SAME MATERIAL, GALVANIZED STEEL OR STAINLESS STEEL.
3. GALVANIZED STEEL ANTENNA MASTS SHALL NOT COME IN DIRECT CONNECT WITH THE GROUND. PROVIDE A BLOCK FOR ISOLATION IF REQUIRED.
4. DIRECTIONAL ANTENNA SHALL BE INSTALLED AT THE PROPER HEIGHT AND AZIMUTH ACCORDING TO THE SITE SURVEY.
5. DIRECTIONAL ANTENNA SHALL BE MOBILE MARK #PND10-700/2700.
6. COAX CABLE CONNECTORS SHALL BE INSTALLED PER MANUFACTURER REQUIREMENTS. SOLDERED CONNECTIONS ARE PREFERRED, CRIMP AND CAPTIVATED CONNECTIONS WILL BE ACCEPTED WHEN NECESSARY.
7. COAX CABLE CONNECTORS SHALL BE WEATHERPROOFED USING HEAT SHRINK OR COLD SHRINK TUBING, ELECTRICAL TAPE IS NOT ACCEPTABLE.
8. SUPPORT CONDUIT, COAX CABLE, AND GROUND CONDUCTORS AS REQUIRED PER THE NEC.
9. THROUGH WALL PENETRATION SHALL INCLUDE A SUITABLE SLEEVE. SEAL BETWEEN WALL AND SLEEVE. SEAL INTERIOR OF SLEEVE AFTER INSTALLATION OF THE COAX CABLES.
10. RUN A #6 GROUND CONDUCTOR FROM THE GROUND BUS TO THE BUILDING GROUNDING ELECTRODE SYSTEM. CONNECTION TO A SUPPLEMENTAL GROUND IS NOT ACCEPTABLE.
11. LIGHTNING ARRESTORS SHALL BE POLYPHASER #TSX-DFF OR #TSX-NFF MOUNTED ON THE OUTSIDE OF THE PUMP STATION NEAREST TO THE COAX CABLE POINT OF ENTRY USING AN APPROVED MOUNTING BRACKET.
12. GROUND CONDUCTORS FROM THE LIGHTNING ARRESTOR TO THE GROUND BUS SHALL NOT EXCEED 36 INCHES.
13. LIGHTNING ARRESTORS TO BE MOUNTED ON OUTSIDE OF BUILDING.
14. LMR-240 CABLE SHALL NOT EXCEED 75 LINEAR FEET.
15. COAX CABLE CONNECTORS AT THE ROUTER / RADIO SHALL BE TNC MALE CONNECTORS.



STANDARD DESIGN DETAIL

ANTENNA INSTALLATION

DRAWING NO.

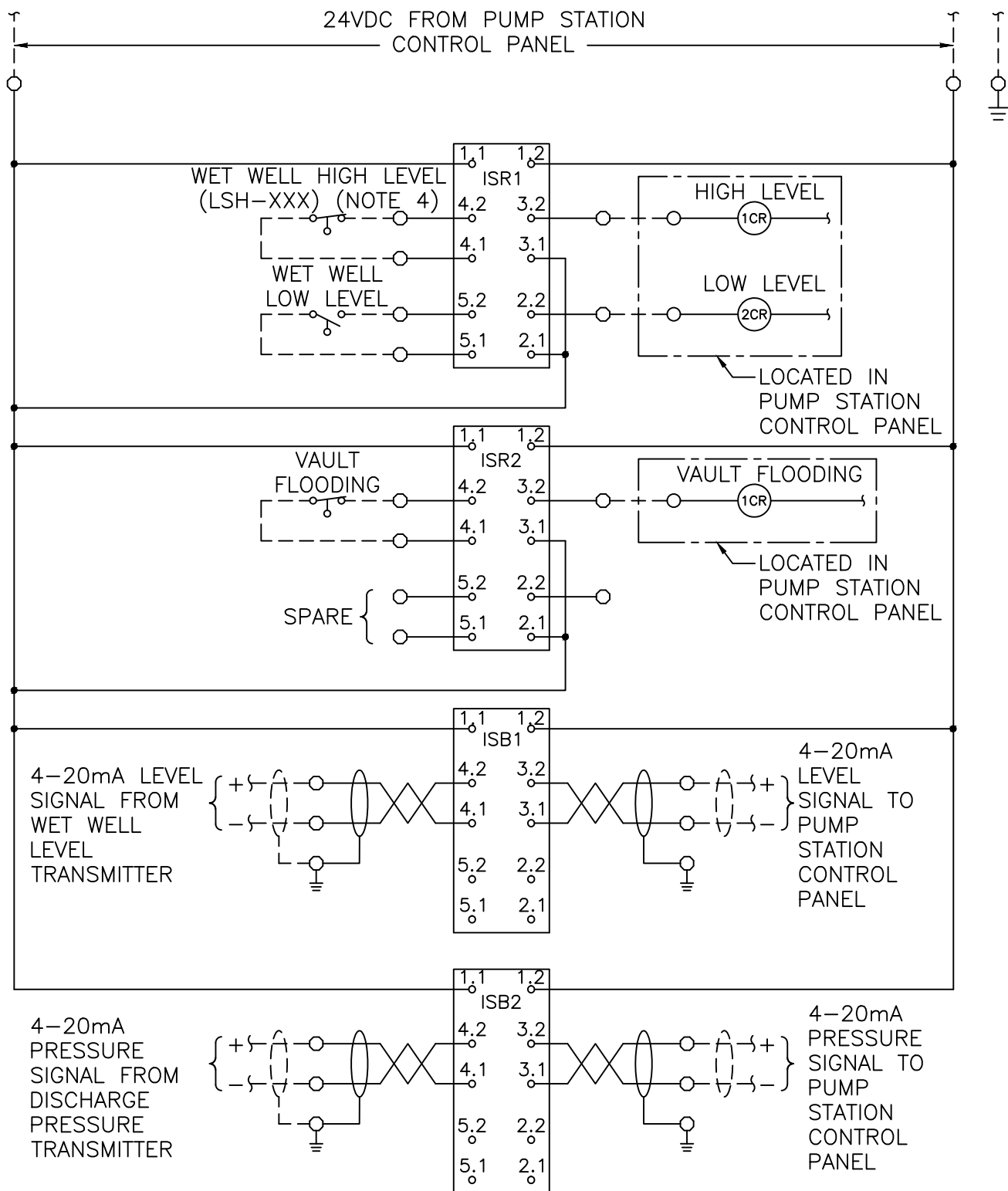
701B

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DATE

7/2025



**INTRINSIC SAFETY PANEL
WIRING DIAGRAM**



STANDARD DESIGN DETAIL

INTRINSIC SAFETY PANEL

DRAWING NO.

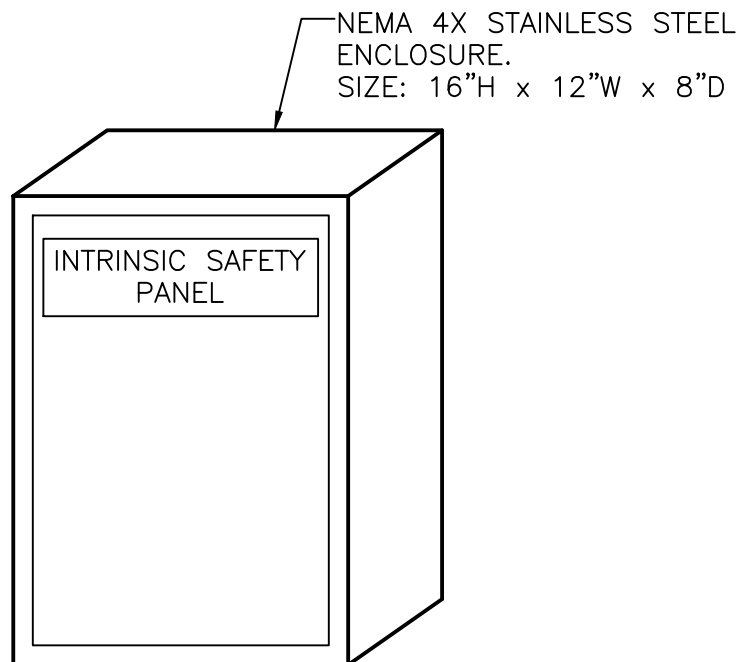
702A

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DATE

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INTRINSIC SAFETY PANEL
PANEL LAYOUT

NOTES:

1. INTRINSIC SAFETY PANEL SHALL BE MOUNTED ON OUTSIDE OF BUILDING OR EQUIPMENT RACK.
2. CONDUITS FROM TRANSDUCER AND FLOAT SWITCH CABLES ENTERING INTRINSIC SAFETY PANEL REQUIRE NO SEAL OFF FITTINGS.
3. INCLUDE SOURCE DESIGNATION (E.X. LSH-XXX) AS IT APPEARS IN THE P&ID IN ALL INPUT LABELS.

NOT TO SCALE



STANDARD DESIGN DETAIL

INTRINSIC SAFETY PANEL

DRAWING NO.

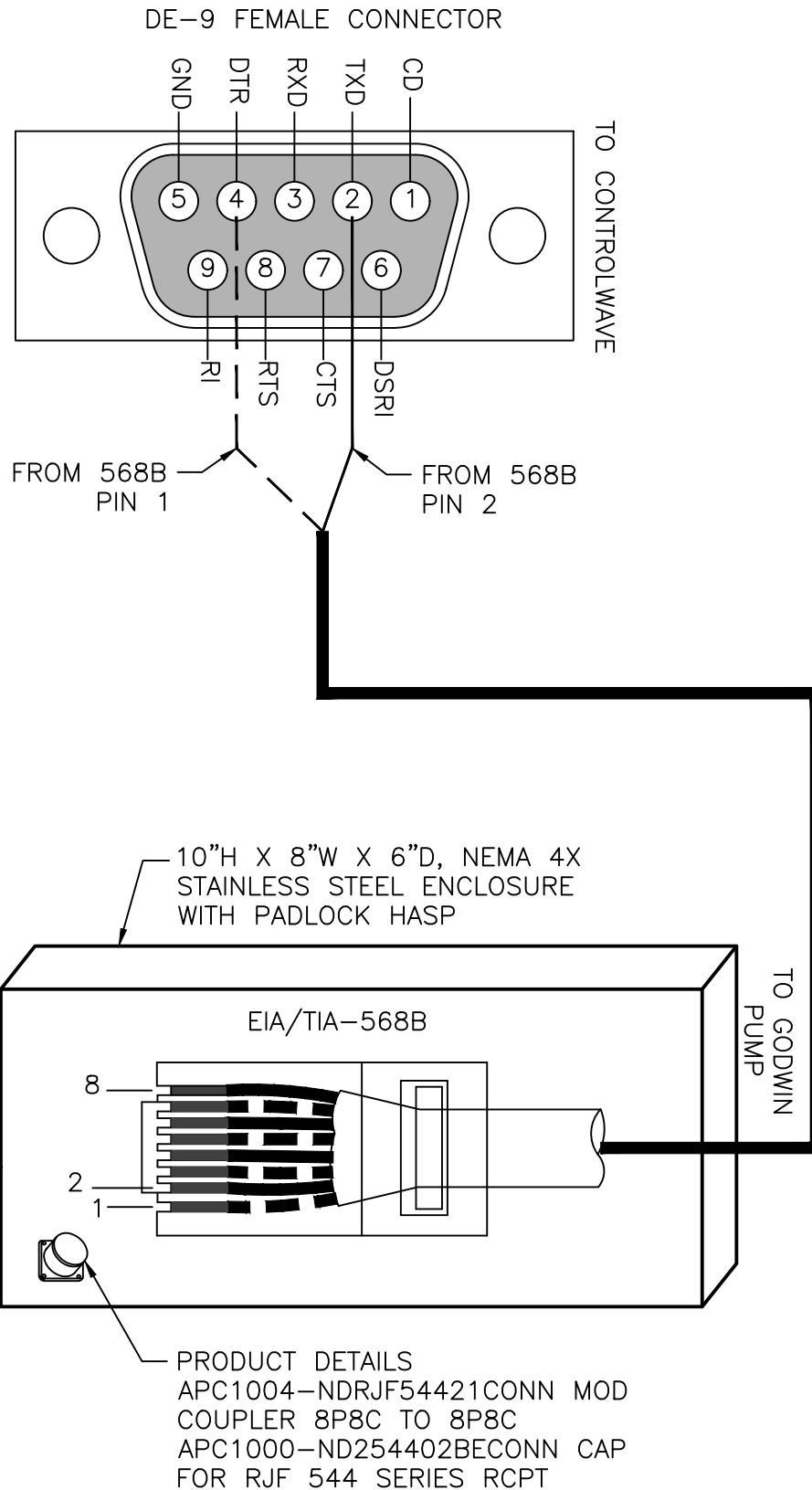
702B

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DATE

7/2025



NOT TO SCALE



STANDARD DESIGN DETAIL

TEMPORARY PUMP CONNECTION BOX, CONNECTOR
AND CONTROL WAVE SERIAL PORT

DRAWING NO.

703

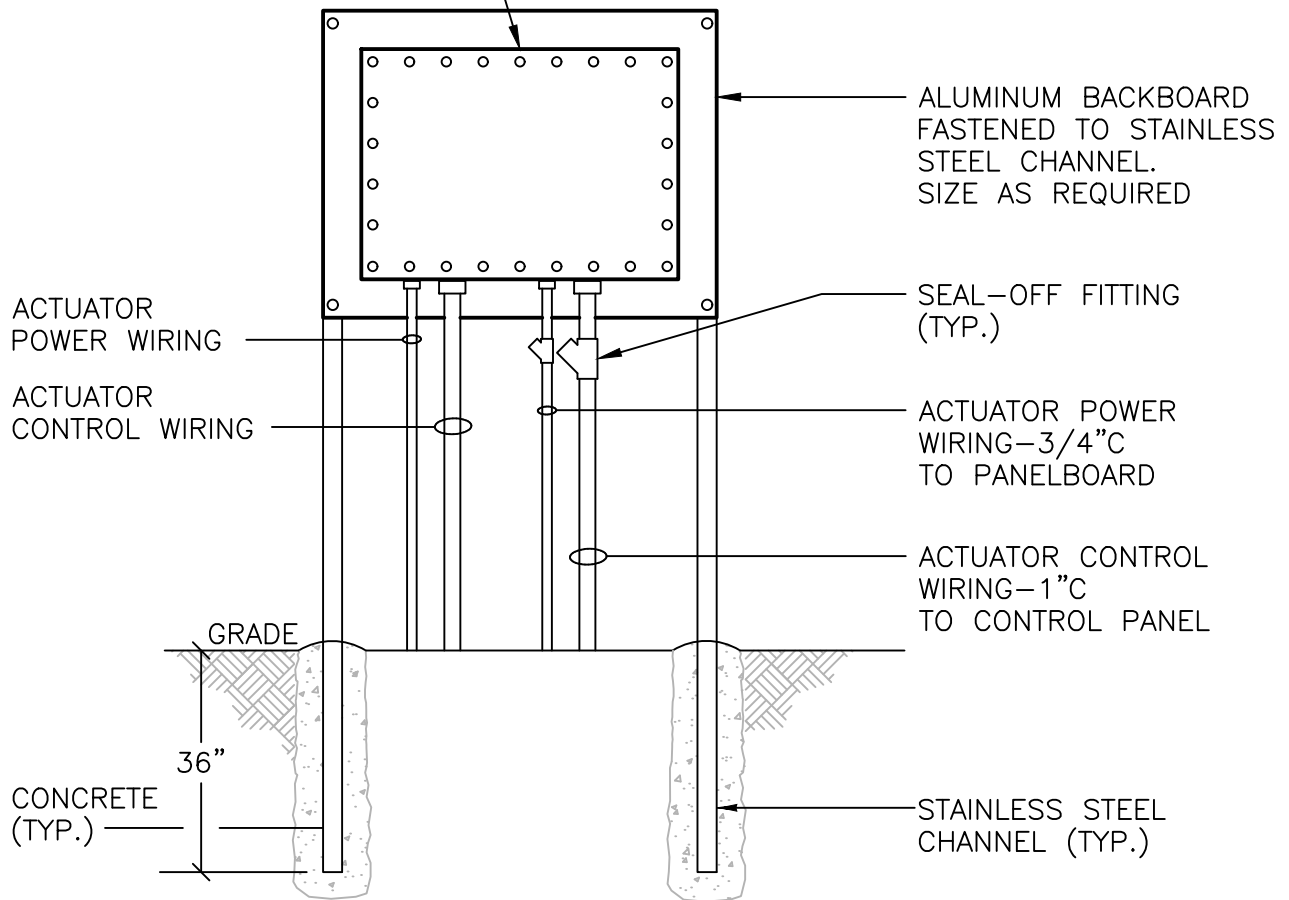
SHEET

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7/2025

NEMA 7 ACUTATOR VAULT
JUNCTION BOX.
SIZE AS REQUIRED
(SEE NOTE 3)



NOTES:

1. THE INSTRUMENT VAULT AND VALVE VAULT ARE CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP D AREA IN ACCORDANCE WITH NFPA 820. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONDUIT SHALL BE PERFORMED IN ACCORDANCE WITH THIS CLASSIFICATION.
2. ALL CONDUIT PENETRATIONS THROUGH CONCRETE STRUCTURES SHALL BE INSTALLED THROUGH SLEEVED PENETRATIONS WITH MODULAR SEALS AND 316 STAINLESS STEEL HARDWARE.
3. PROVIDE A BARRIER BETWEEN POWER AND CONTROL WIRING.

NOT TO SCALE



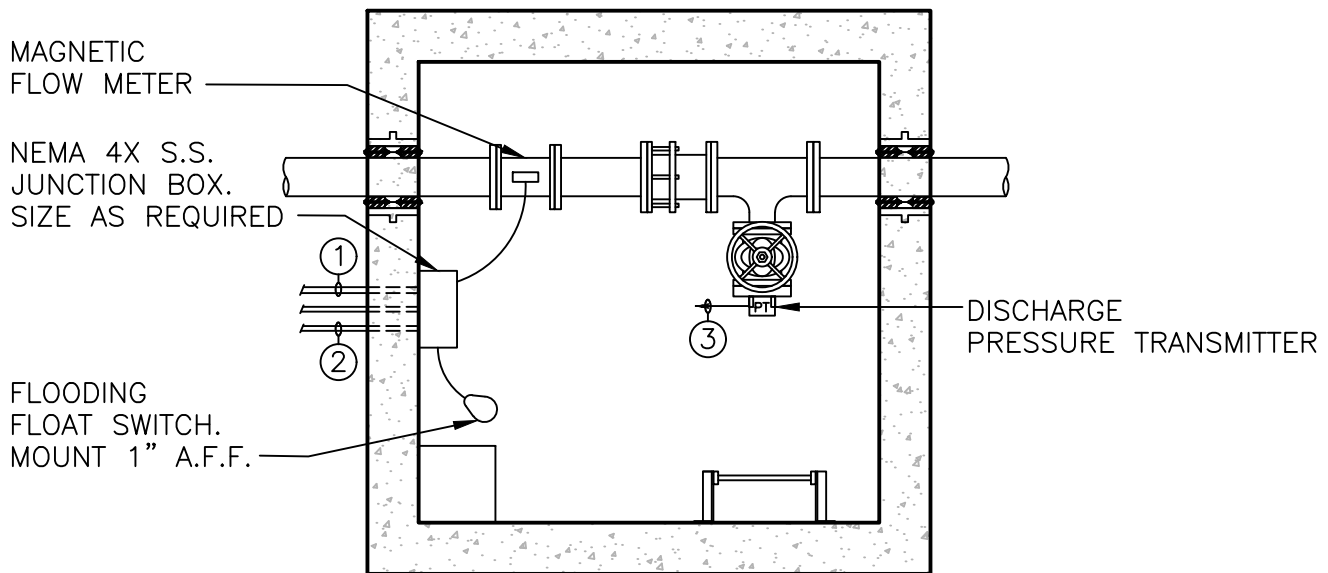
STANDARD DESIGN DETAIL

ACTUATOR VAULT
ELECTRICAL BACKBOARD

DRAWING NO.
704

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WIRING LEGEND:

- ① DISCHARGE FLOW METER TRANSDUCER CABLES—1" C TO DISCHARGE FLOW METER TRANSMITTER
- ② 2#14—3/4" C TO INTRINSIC SAFETY PANEL
- ③ 1 PR. #18 SHLD. TO INTRINSIC SAFETY PANEL. RUN IN 3/4" C TO JUNCTION BOX IN INSTRUMENT VAULT AND IN 3/4" TO INTRINSIC SAFETY PANEL

NOTES:

1. THE INSTRUMENT VAULT AND VALVE VAULT ARE CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP D AREA IN ACCORDANCE WITH NFPA 820. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONDUIT SHALL BE PERFORMED IN ACCORDANCE WITH THIS CLASSIFICATION.
2. ALL CONDUIT PENETRATIONS THROUGH CONCRETE STRUCTURES SHALL BE INSTALLED THROUGH SLEEVED PENETRATIONS WITH MODULAR SEALS AND 316 STAINLESS STEEL HARDWARE.
3. PROVIDE A BARRIER BETWEEN POWER AND CONTROL WIRING.
4. ENSURE THAT THE MINIMUM STRAIGHT-PIPE DISTANCE BEFORE AND AFTER THE FLOW METER AS SPECIFIED BY THE EQUIPMENT MANUFACTURER IS MET.
5. MAGNETIC FLOW METERS MUST BE DIRECT BURIAL TYPE AND INSTALLED TO THE MANUFACTURERS REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM STRAIGHT PIPE DISTANCES. AS THESE WILL BE INSTALLED IN VAULTS, THEY WILL REQUIRE THE ABILITY TO BE SUBMERGED.
6. DISCHARGE PRESSURE TRANSMITTERS MUST BE INSTALLED TO THE MANUFACTURERS REQUIREMENTS. AS THESE WILL BE INSTALLED IN VAULTS, THEY WILL REQUIRE THE ABILITY TO BE SUBMERGED.

NOT TO SCALE



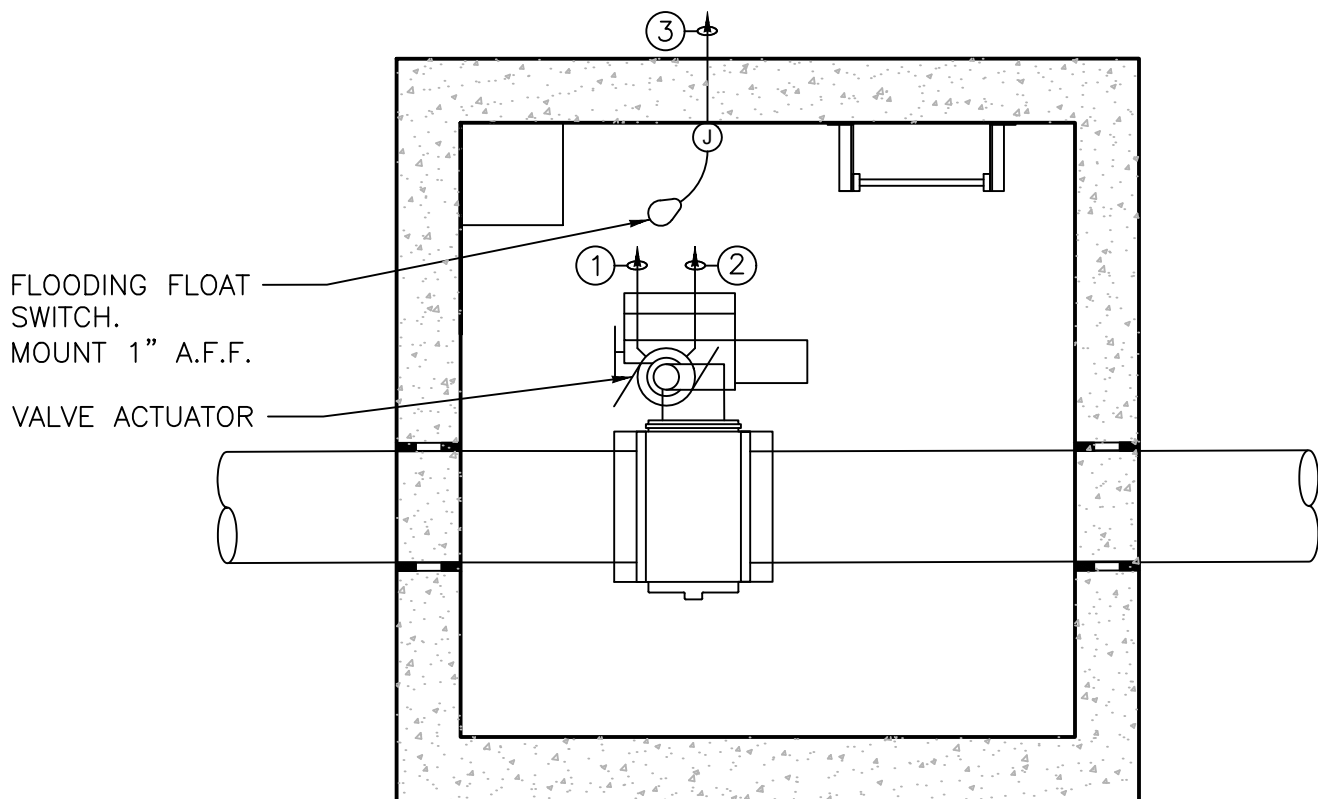
STANDARD DESIGN DETAIL

FLOW METER AND PRESSURE VAULT ELECTRICAL PLAN

DRAWING NO.
705

SHEET
1 OF 1

DATE
7/2025



WIRING LEGEND:

- ① ACTUATOR POWER WIRING—3/4" C TO ACTUATOR VAULT JUNCTION BOX
- ② ACTUATOR CONTROL WIRING—1" C TO ACTUATOR VAULT JUNCTION BOX
- ③ 2#14—3/4" C TO INTRINSIC SAFETY PANEL

NOTES:

1. THE INSTRUMENT VAULT AND VALVE VAULT ARE CLASSIFIED AS A CLASS 1, DIVISION 2, GROUP D AREA IN ACCORDANCE WITH NFPA 820. THE INSTALLATION OF ALL ELECTRICAL EQUIPMENT AND CONDUIT SHALL BE PERFORMED IN ACCORDANCE WITH THIS CLASSIFICATION.
2. ALL CONDUIT PENETRATIONS THROUGH CONCRETE STRUCTURES SHALL BE INSTALLED THROUGH SLEEVED PENETRATIONS WITH MODULAR SEALS AND 316 STAINLESS STEEL HARDWARE.
3. PROVIDE A BARRIER BETWEEN POWER AND CONTROL WIRING.

NOT TO SCALE



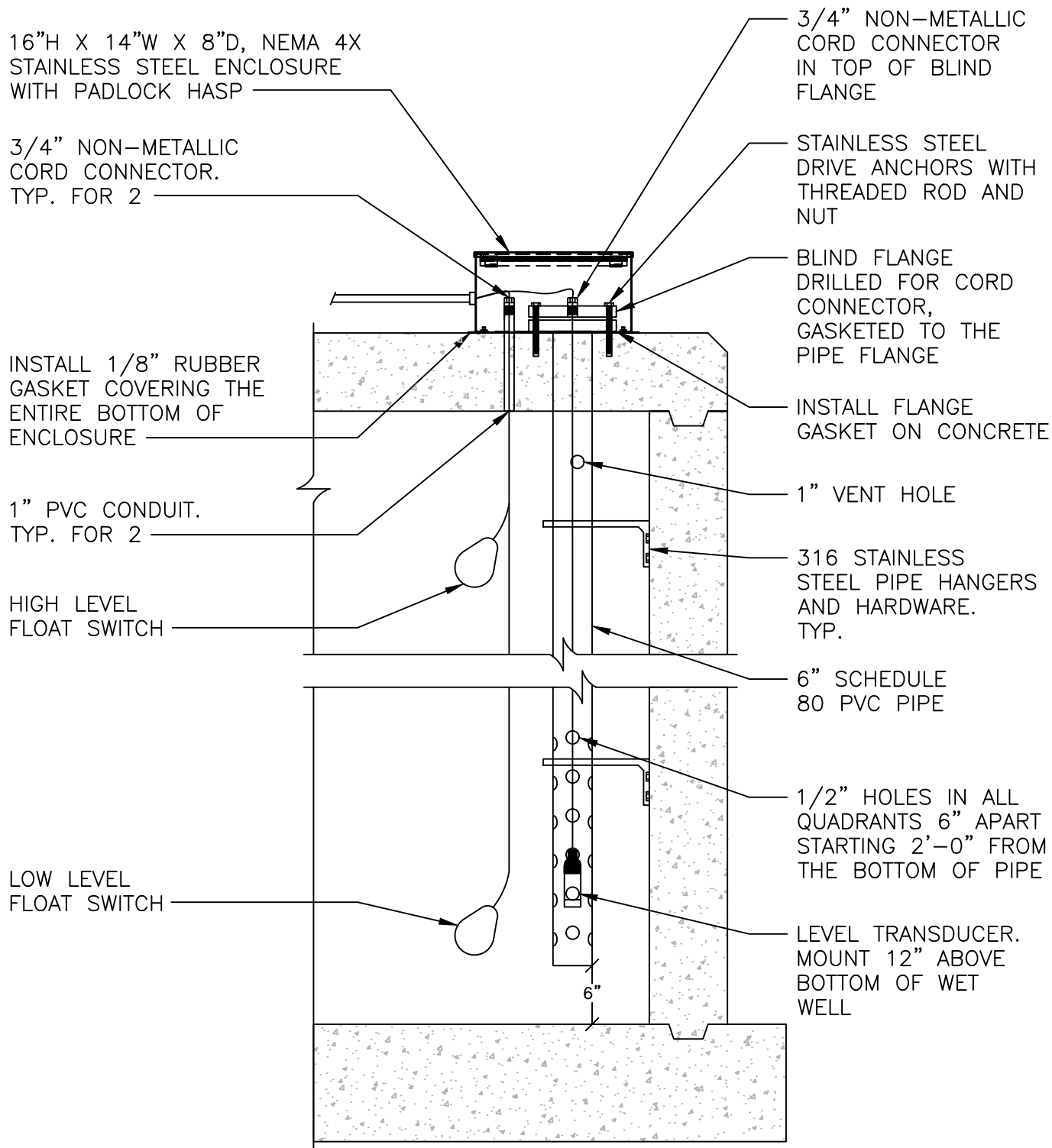
STANDARD DESIGN DETAIL

ACTUATOR VAULT ELECTRICAL PLAN

DRAWING NO.
706

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1 OF 1

DATE
7/2025



NOT TO SCALE



STANDARD DESIGN DETAIL

WET WELL INSTRUMENTATION INSTALLATION

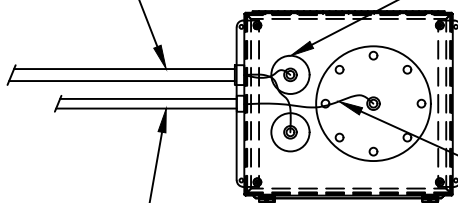
DRAWING NO.
707A

SHEET
1 OF 2

DATE
7/2025

FLOAT SWITCH CABLES
RUN IN 1" CONDUIT
TO INTRINSIC SAFETY
PANEL.

LEVEL TRANSDUCER
CABLE RUN IN 3/4"
CONDUIT TO INTRINSIC
SAFETY PANEL.



PLAN VIEW

SLEEVED
PENETRATION
WITH MODULAR
SEAL AND 316
STAINLESS STEEL
HARDWARE. TYP.

PROVIDE 2' OF
EXTRA CABLE IN
THE ENCLOSURE.
TYP.

NOT TO SCALE



STANDARD DESIGN DETAIL

WET WELL
INSTRUMENTATION INSTALLATION

DRAWING NO.

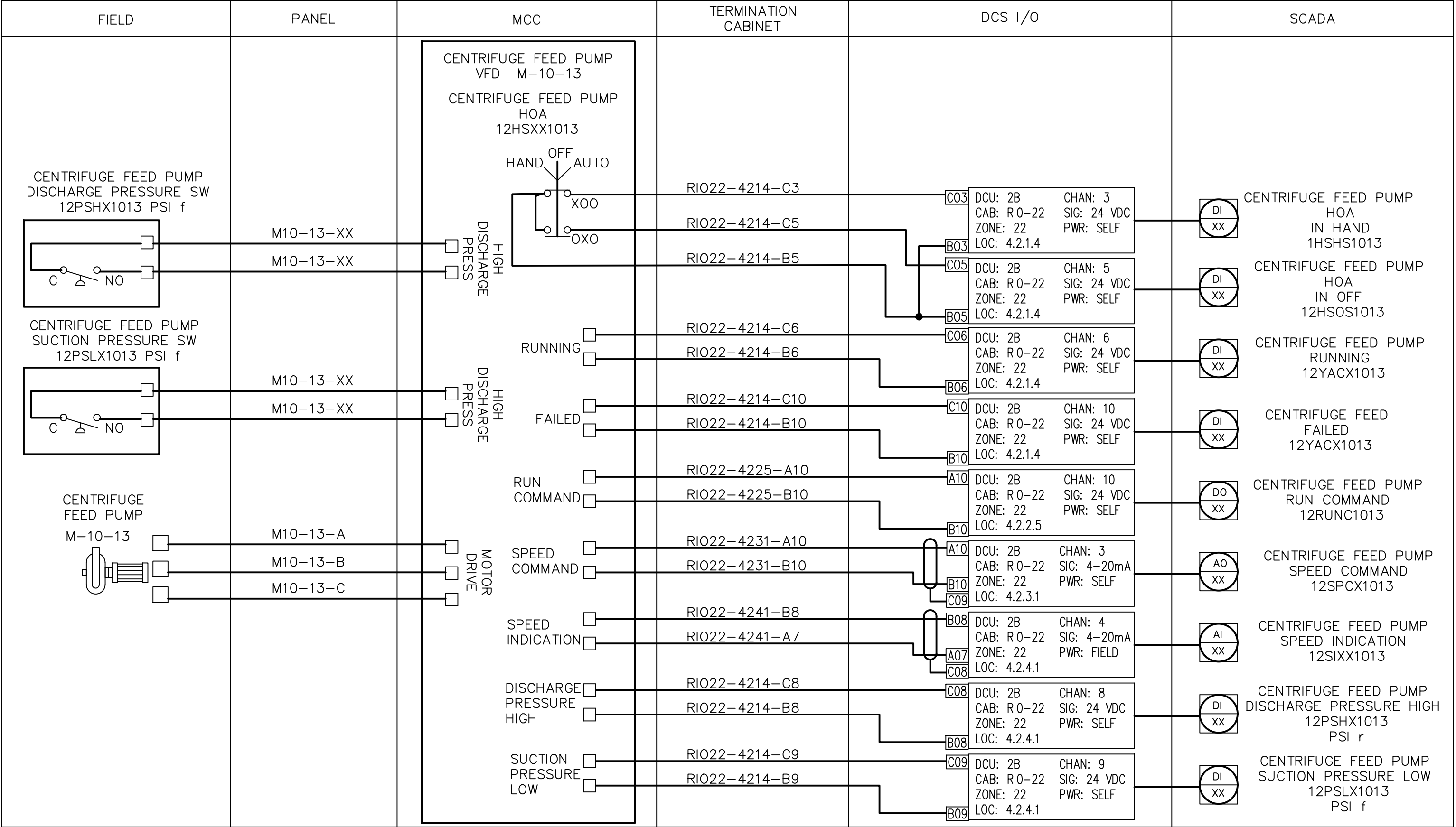
707B

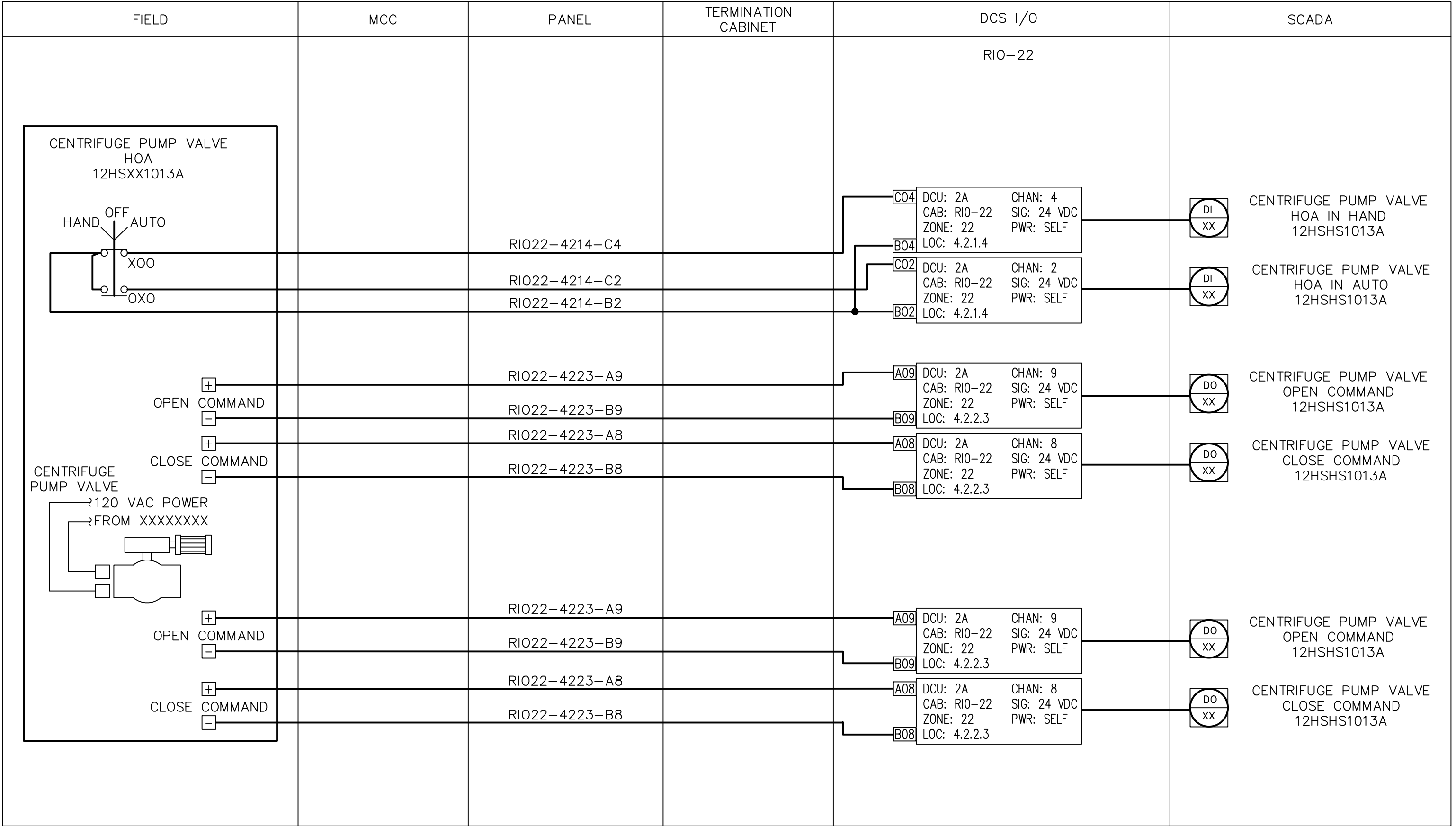
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DATE

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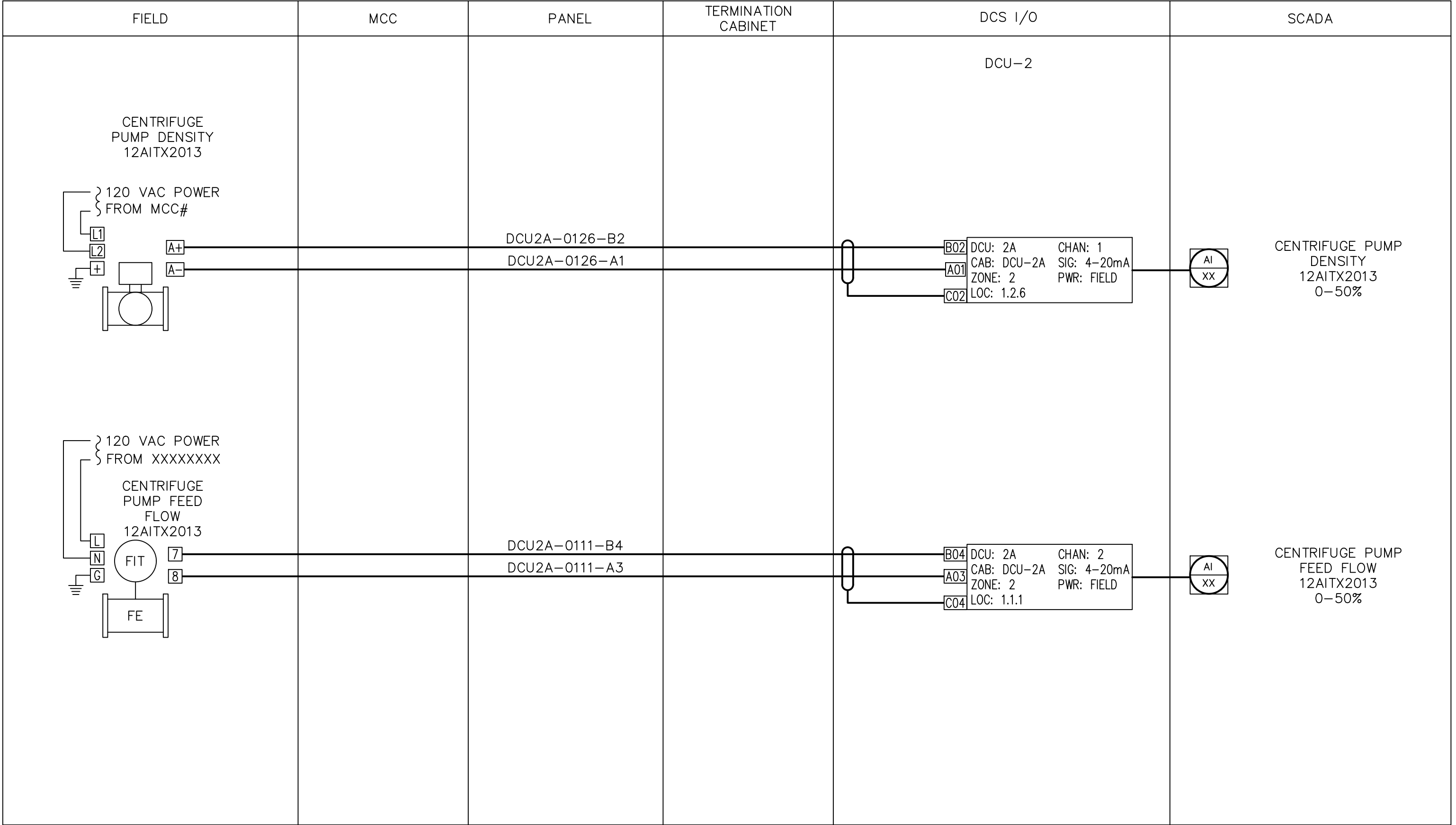
NOTES:



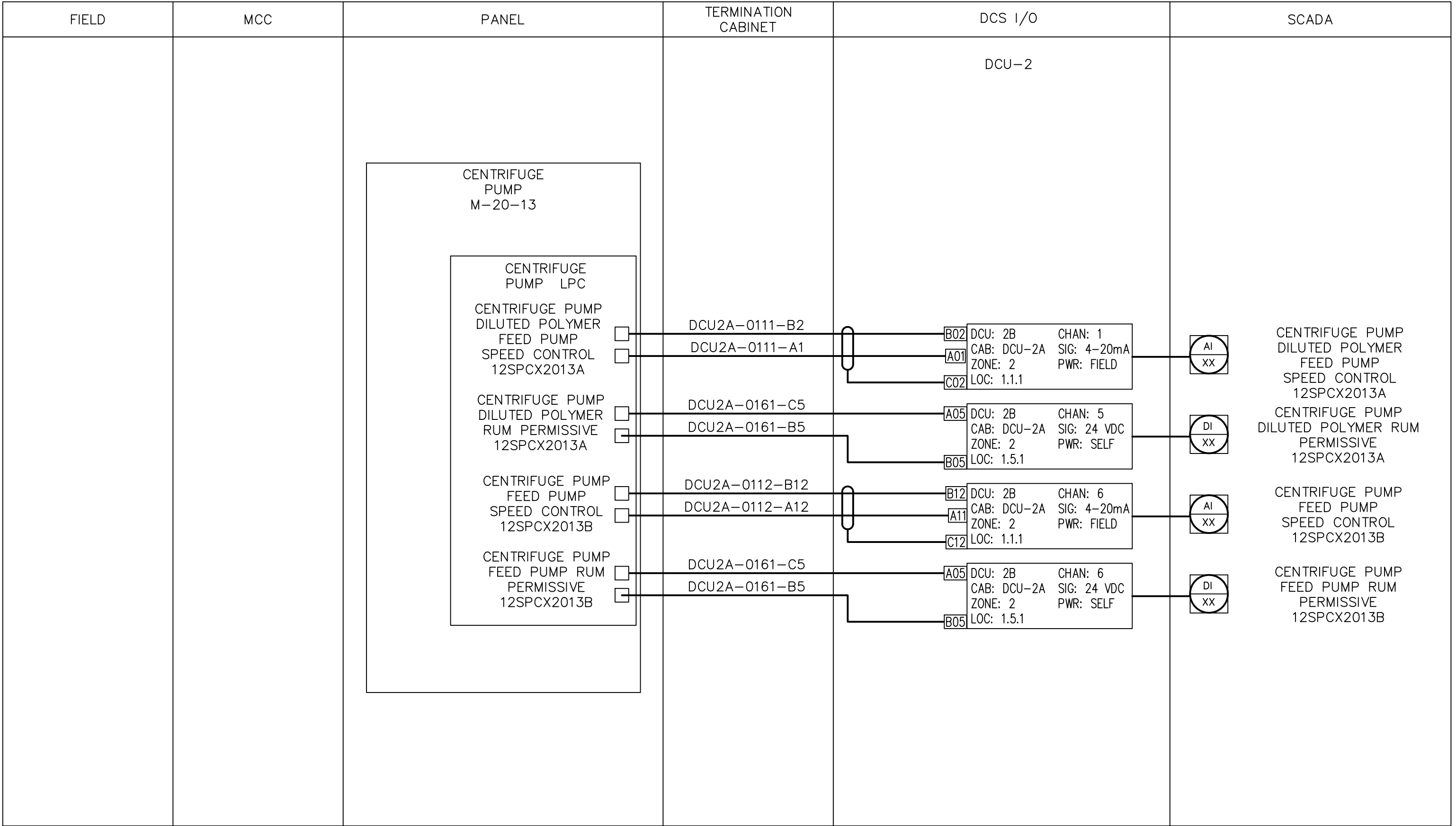
STANDARD DESIGN DETAIL

STANDARD LOOP SCHEMATIC FOR
CENTRIFUGE PUMP VALVE

DRAWING NO.
709
SHEET
1 OF 1
DATE
7/2025



NOTES:



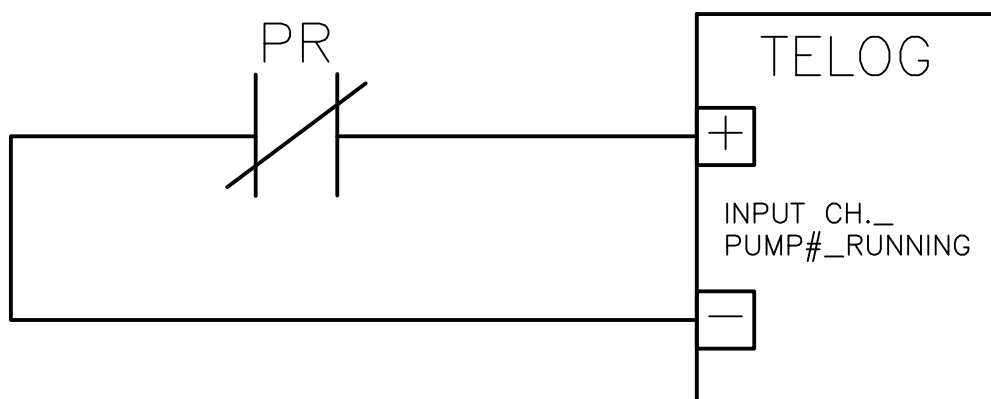
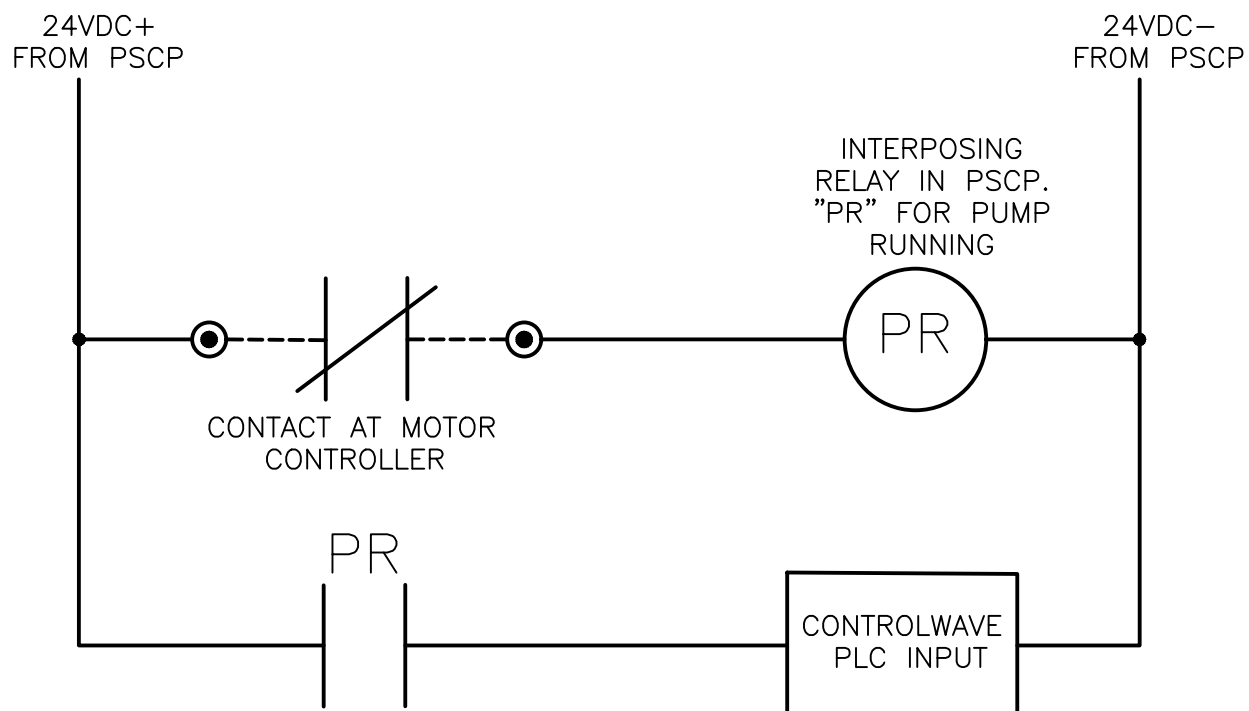
NOTES:



STANDARD DESIGN DETAIL

STANDARD LOOP SCHEMATIC FOR
CENTRIFUGE PUMP CONTROL

DRAWING NO. 711
SHEET 1 OF 1
DATE 7/2025



NOTE: ALL CONTACTS ARE SHOWN IN THE DE-ENERGIZED STATE

NOT TO SCALE



STANDARD DESIGN DETAIL

SCHEMATIC FOR PUMP RUN
STATUS WIRING TO LOCAL PLC

DRAWING NO.

713

SHEET

1 OF 1

DATE

7/2025

FREE STANDING EQUIPMENT MOUNTING RACK FOR MOTORS LESS THAN 100HP

1/2" UV-RESISTANT
FRP BOARD,
SIZE AS REQUIRED

BACK-TO-BACK TYPE
STRUT (TYP.)

INSTRUMENTATION
CABLE JUNCTION
BOX. SEE SHEET 4
(DETAIL 714D)

MOTOR
EMERGENCY
STOP BUTTON

EQUIPMENT
(JUNCTION BOX)
MOUNTED TO BOARD
WITH STAINLESS
STEEL HARDWARE

5-HOLE CORNER
GUSSET PLATE,
FRONT & BACK
(TYP.)

6" CLEAR, ALL
AROUND

1/2" DIA.
STAINLESS STEEL
BOLT, CHANEL
NUT, AND
WASHERS (TYP.)

EDGE OF
CONCRETE
(AS APPLICABLE)

POST BASE
(TYP.)

8'-0"

4"

MOTOR CABLE PER
MANUFACTURER

1/2" DIA. STAINLESS STEEL
BOLT, CHANEL NUT, AND
WASHERS (TYP. 4 PLACES
PER POST BASE)

* SEE SHEET 3 (DETAIL 714C)
FOR NOTES

NOT TO SCALE



STANDARD DESIGN DETAIL

FREE STANDING EQUIPMENT
MOUNTING RACK

DRAWING NO.
714A

SHEET
1 OF 4

DATE
7/2025

FREE STANDING EQUIPMENT
MOUNTING RACK FOR 150HP MOTORS

1/2" UV-RESISTANT
FRP BOARD,
SIZE AS REQUIRED

BACK-TO-BACK TYPE
STRUT (TYP.)

INSTRUMENTATION
CABLE JUNCTION
BOX. SEE SHEET 4
(DETAIL 714D)

MOTOR
EMERGENCY
STOP BUTTON

EQUIPMENT
(JUNCTION BOX)
MOUNTED TO BOARD
WITH STAINLESS
STEEL HARDWARE

5-HOLE CORNER
GUSSET PLATE,
FRONT & BACK
(TYP.)

6" CLEAR, ALL
AROUND

1/2" DIA.
STAINLESS STEEL
BOLT, CHANEL
NUT, AND
WASHERS (TYP.)

EDGE OF
CONCRETE
(AS APPLICABLE)

POST BASE
(TYP.)

8'-0"

4"

MOTOR CABLE PER
MANUFACTURER

1/2" DIA. STAINLESS STEEL
BOLT, CHANEL NUT, AND
WASHERS (TYP. 4 PLACES
PER POST BASE)

* SEE SHEET 3 (DETAIL 714C)
FOR NOTES

NOT TO SCALE



STANDARD DESIGN DETAIL

FREE STANDING EQUIPMENT
MOUNTING RACK

DRAWING NO.
714B

SHEET
2 OF 4

DATE
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FREE STANDING EQUIPMENT MOUNTING RACK FOR MOTORS LESS THAN 100 HP
NOTES:

1. ANCHOR POST BASES TO CONCRETE WITH MINIMUM 4 3/8" DIA STAINLESS STEEL EXPANSION ANCHOR BOLTS (HILTI "KWIK II", OR EQUAL) PER BASE AT MINIMUM 2" EMBEDMENT.
2. PROVIDE MELTRIC PLUG AND RECEPTACLE, SIZED FOR MOTOR HORSE POWER, SWITCH RATED DISCONNECTING MEANS, WITH 6 AUXILIARY CONTACTS. PROVIDE CABLE STRAIN RELIEF.
3. JUNCTION BOX FOR MOUNTING OF MELTRIC PLUG AND RECEPTACLE SHALL BE SIZED PER NEC FOR BENDING RADIUS OF THE CONDUCTORS.

FREE STANDING EQUIPMENT MOUNTING RACK FOR 150HP MOTORS NOTES:

1. ANCHOR POST BASES TO CONCRETE WITH MINIMUM 4 3/8" DIA STAINLESS STEEL EXPANSION ANCHOR BOLTS (HILTI "KWIK II", OR EQUAL) PER BASE AT MINIMUM 2" EMBEDMENT.
2. PROVIDE MELTRIC PLUG AND RECEPTACLE RATED FOR AMPERAGE OF MOTOR WITH 6 AUXILIARY CONTACTS. PROVIDE CABLE STRAIN RELIEF.
3. JUNCTION BOX FOR MOUNTING MELTRIC PLUG AND RECEPTACLE SHALL BE SIZED PER NEC FOR BENDING RADIUS OF THE CONDUCTORS.

NOT TO SCALE



STANDARD DESIGN DETAIL

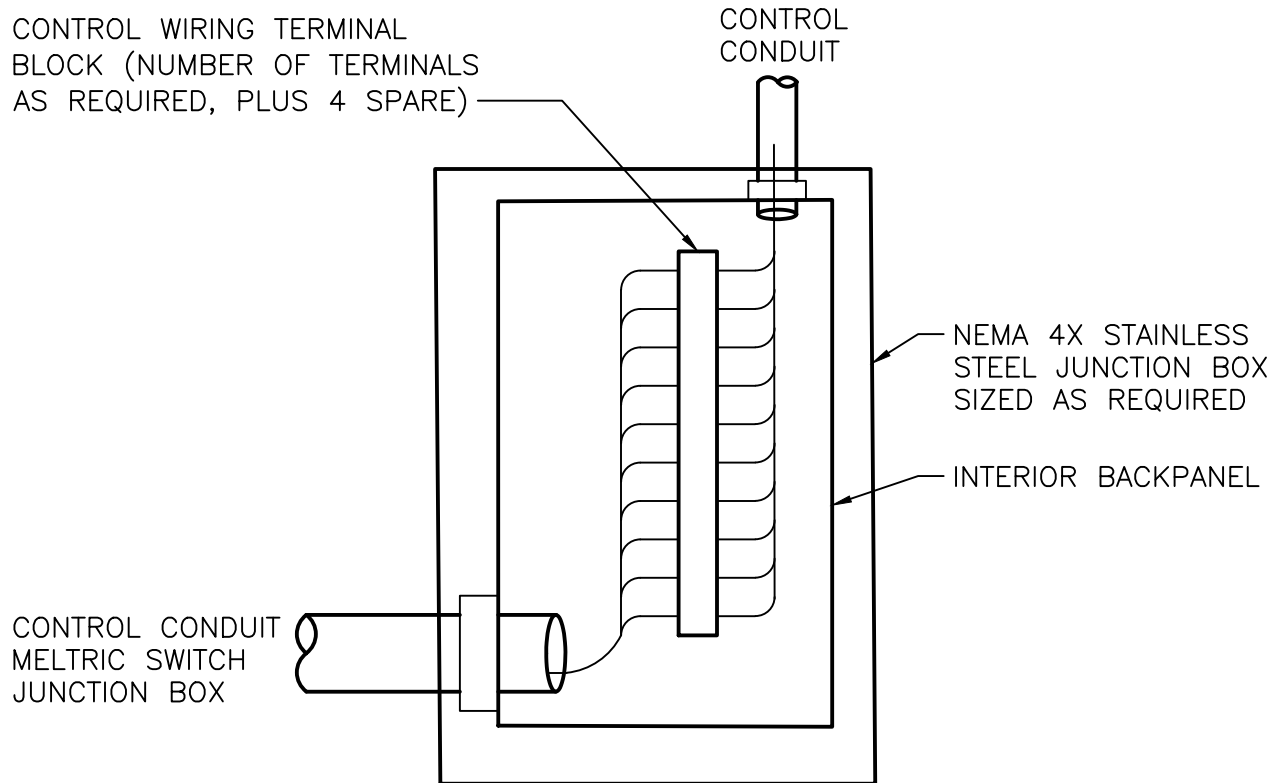
FREE STANDING EQUIPMENT
MOUNTING RACK

DRAWING NO.
714C

SHEET
3 OF 4

DATE
7/2025

INSTRUMENTATION CABLE JUNCTION BOX



NOTES:

1. PROVIDE COMPRESSION LUGS FOR ALL WIRING. TERMINAL BLOCKS TO BE STUD TYPE FOR USE WITH COMPRESSION LUGS.
2. SIZE JUNCTION BOX TO PROVIDE SPACE FOR PUMP MONITORING DEVICE PROVIDED BY PUMP MANUFACTURER.
3. WIRE BENDING SPACE AT TERMINALS SHALL BE PER NEC ARTICLE 312.
4. PROVIDE CONDUIT SEAL-OFF FITTINGS WHERE REQUIRED.

NOT TO SCALE



STANDARD DESIGN DETAIL

FREE STANDING EQUIPMENT
MOUNTING RACK

DRAWING NO.
714D

SHEET
4 OF 4

DATE
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AIR TERMINAL AND BASE
MOUNTED ON ROOF PECK

LIGHTING PROTECTION
DOWN LEAD CONDUCTOR

LIGHTING PROTECTION
DOWN LEAD
CONDUCTOR
SHALL BE
INSTALLED
IN 1-1/2"
PVC CONDUIT

FINISH
GRADE

DOWNLEAD AND
GROUDING

AIR TERMINAL 3/8"x12"
SOLID ALUMINUM.
PROVIDE GUARD ON
ALL POINTS

ADHESIVE ALUMINUM
BASE

ADHESIVE AIR
TERMINAL BASE

ADHESIVE ALUMINUM
BASE

ALUMINUM
CONDUCTOR

ADHESIVE CABLE
HOLDER BASE

VENT PIPE
CONNECTION

ALUMINUM
CONDUCTOR

VENT PIPE
BONDING

NOT TO SCALE



STANDARD DESIGN DETAIL

LIGHTING PROTECTION

DRAWING NO.

715

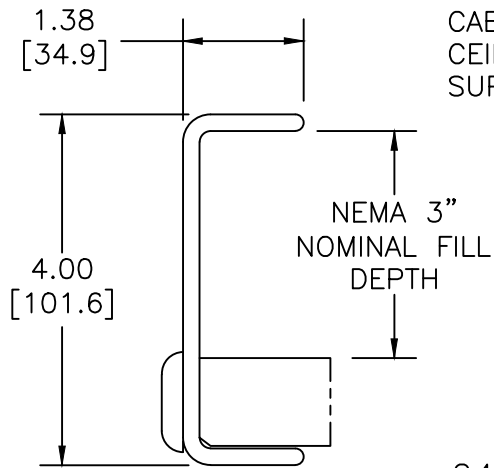
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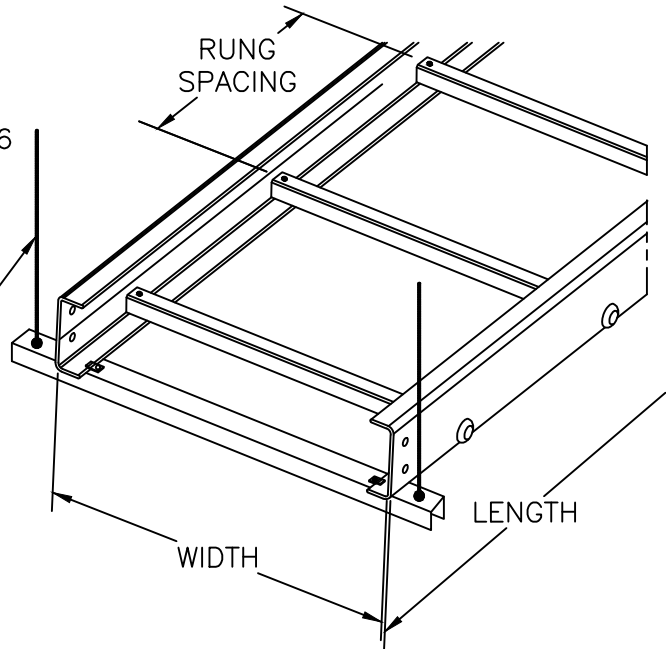
DATE

7/2025

- SERIES 24 FIBERGLASS TYPE CABLE TRAY
- 4" NOMINAL OUTSIDE DEPTH
- 3" NEMA LOADING DEPTH
- LOADING – NEMA 12C TESTED PER NEMA FG-1, 12" RUNG SPACING
- UTILIZES 9*–4004 SPLICE PLATES WITH SS6 (316 STAINLESS STEEL) HARDWARE



CABLE TRAY
CEILING
SUPPORT



24 F 09 – 18 – 120

SERIES
24=FRP SERIES 24
4" HEIGHT CABLE
TRAY

MATERIALS*
F=POLYESTER
FV=VINYLESTER
FA=ZERO HALOGEN/DIS-STAT

RUNG SPACING
06=6" RUNG SPACING
09=9" RUNG SPACING
12=12" RUNG SPACING

WIDTH
06=6"
09=9"
12=12"
18=18"
24=24"
30=30"
36=36"

LENGTH
120=120"
240–240"

B-LINE SERIES	SAFETY FACTOR	SPAN (FT)	6	8	10	12
24F 24FV	1.5	LOAD (LBS/FT)	627	353	226	157
		DEFLECTION MULTIPLIER	0.001	0.004	0.011	0.022
24FA	1.5	LOAD (LBS/FT)	400	226	144	100
		DEFLECTION MULTIPLIER	–	–	–	–

TO DETERMINE DEFLECTION (INCHES) AT ANY LESSER LOAD, MULTIPLY
THE ACTUAL LOAD (LBS/FT) BY THE DEFLECTION MULTIPLIER

NOTE:

VALUES ARE BASED ON SIMPLE BEAM TESTS PER NEMA VE-1 ON 36" WIDE CABLE TRAY WITH RUNGS SPACED ON 12" CENTERS. THE PUBLISHED LOAD SAFETY FACTOR IS 1.5. TO CONVERT 1.5 SAFETY FACTOR TO 2.0, MULTIPLY THE PUBLISHED LOAD BY 0.75. TO OBTAIN MID-SPAN DEFLECTION, MULTIPLY THE LOAD BY THE DEFLECTION MULTIPLIER. CABLE TRAY MUST BE SUPPORTED ON SPANS SHORTER THAN OR EQUAL TO THE LENGTH OF THE TRAY.

NOT TO SCALE



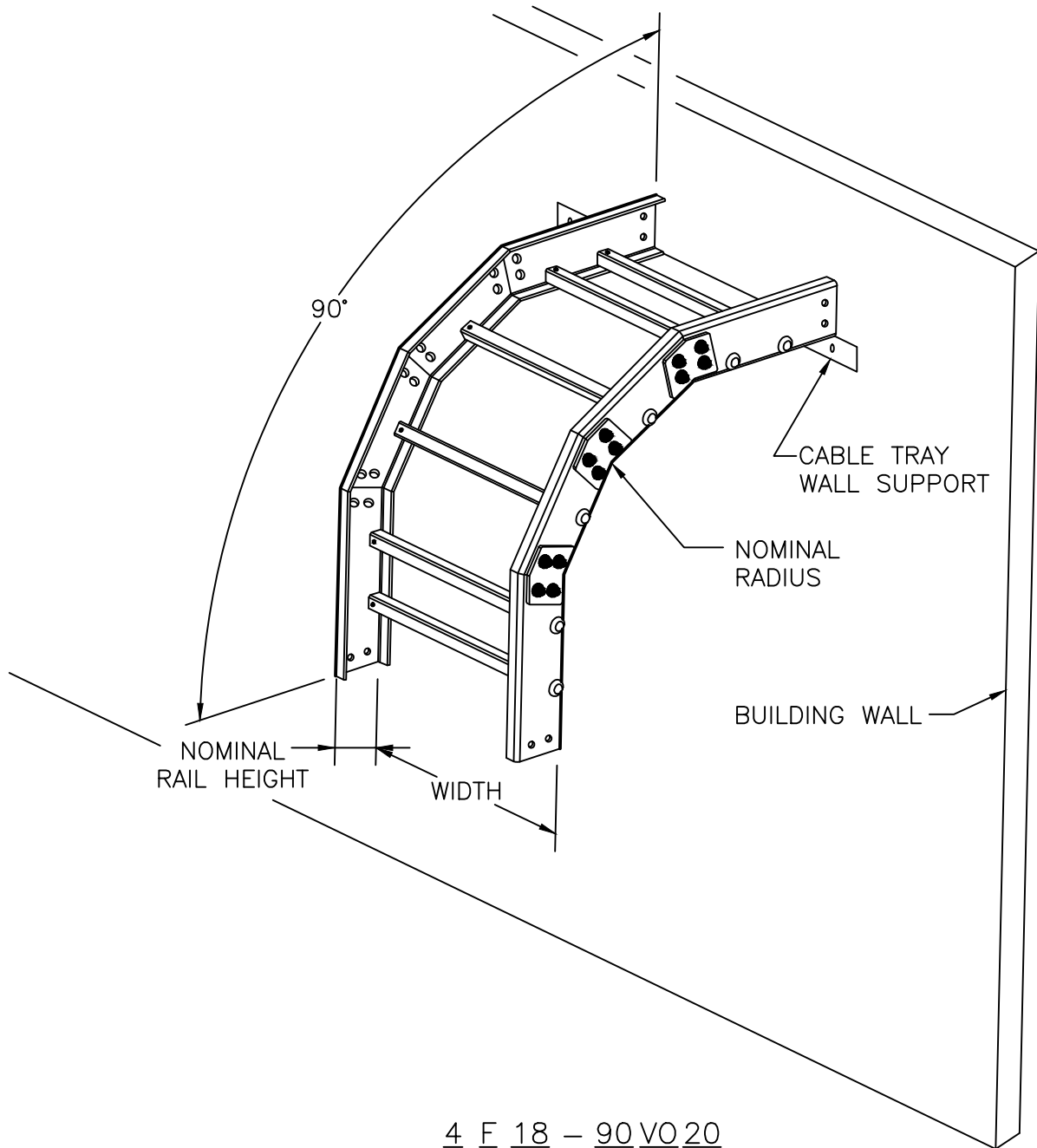
STANDARD DESIGN DETAIL

FRP CABLE TRAY
STRAIGHT SECTION ASSEMBLY

DRAWING NO.
716A

SHEET
1 OF 2

DATE
7/2025



4 F 18 - 90 VO 20

NOMINAL
RAIL HEIGHT
3(2" CABLE FILL)
4(3" CABLE FILL)
6(5" CABLE FILL)

MATERIAL
F=POLYESTER
FV=VINYLESTER
FA-ZERO HALOGEN/
DIS-STAT

WIDTH
06=6"
09=9"
12=12"
18=18"
24=24"
30=30"
36=36"

ANGLE
90=90 DEG

FITTING TYPE
VO=VERTICAL
OUTSIDE

NOMINAL
RADIUS
12=12"
24=24"
36=36"

NOT TO SCALE



STANDARD DESIGN DETAIL

FRP CABLE TRAY 90 DEGREE VERTICAL OUTSIDE BEND ASSEMBLY

DRAWING NO.

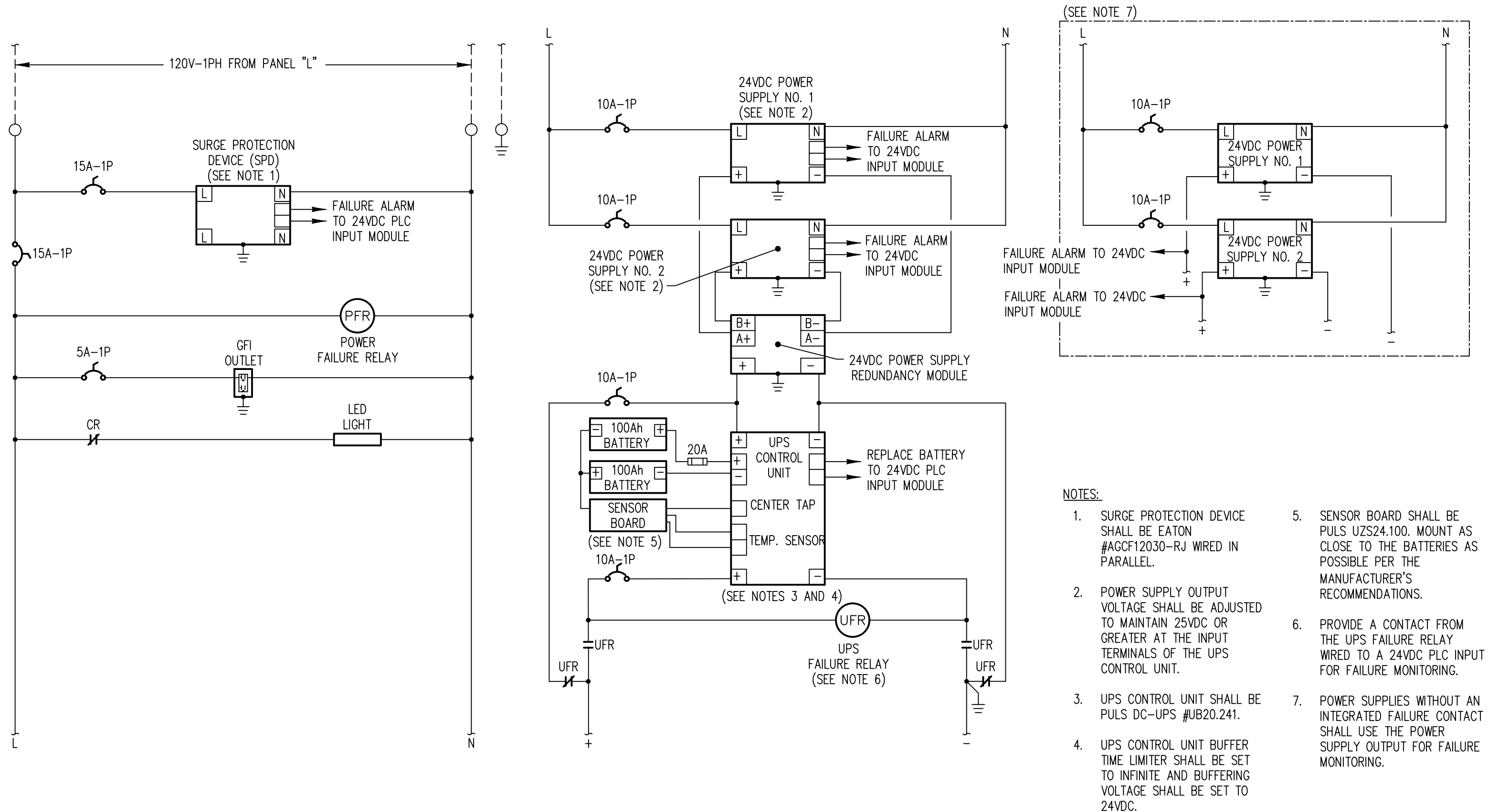
716B

SHEET

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STANDARD DESIGN DETAIL

STANDARD PUMP STATION CONTROL PANEL POWER WIRING

DRAWING NO.

717

SHEET

1 OF 1

DATE

7/2025