

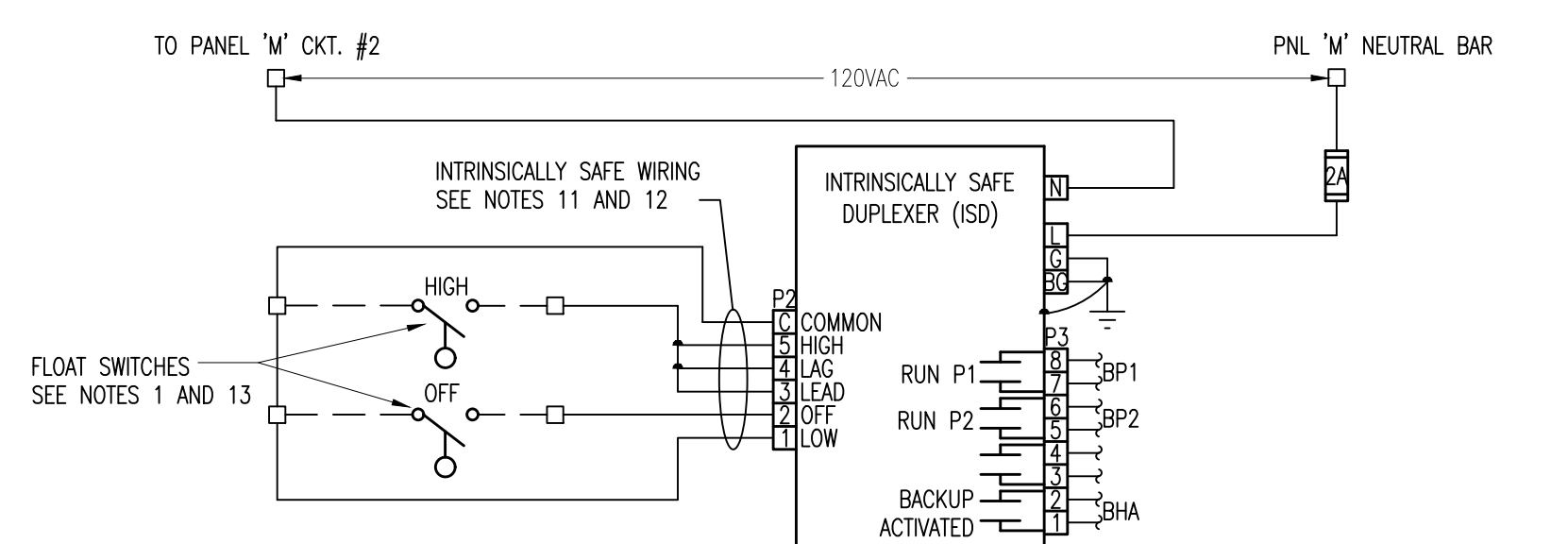
PROPOSED CONTROL WIRING DIAGRAM

MULTISMART PROGRAMMING NOTES:

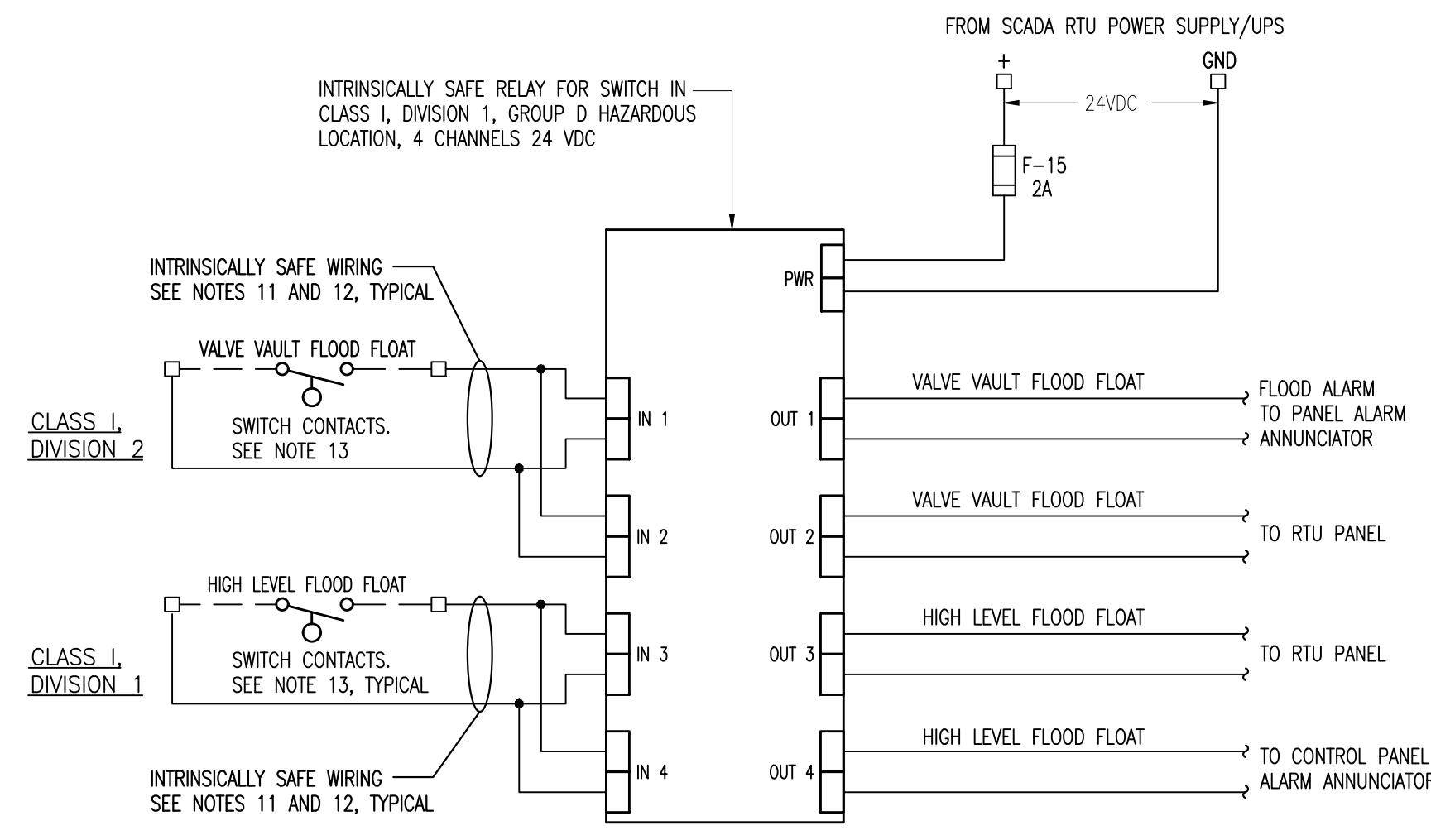
- PROVIDE MULTITRODE COMPANY WITH DESIGN FUNCTION OF EACH MULTISMART DIGITAL AND/OR ANALOG INPUT. SEE EXAMPLE BELOW.
- A- DI4 & DI6:
DESCRIPTION:
(0) STATION IS FUNCTIONING REGULARLY.
(1) SELECTOR SWITCH IS EITHER ON AUTO OR HAND POSITION.
FUNCTION:
(0) STANDARD FUNCTIONALITY.
(1) OUTPUT RELAYS "D01" AND "D02" HOLD OPEN.
- 2- DI13:
DESCRIPTION:
(0) STATION IS EITHER OFF POWER OR A SERVICE FAULT HAS BEEN DETECTED.
FUNCTION:
(0) STANDARD FUNCTIONALITY.
(1) OUTPUT RELAYS "D01" AND "D02" HOLD OPEN.

THESE ARE NOT CONSTRUCTION DRAWINGS. THE INFORMATION HEREIN CONTAINED SHALL ONLY BE USED AS GENERAL GUIDELINE OF THE INTENDED OPERATION AND FUNCTIONS AND SHALL NOT BE CONSTRUED AS ALL INCLUSIVE. ENGINEERS OF RECORD AND CONSULTANTS USING THESE GUIDELINES SHALL VERIFY AND MODIFY ANY REQUIREMENT NOT NECESSARILY SHOWN AS MAY BE REQUIRED BY ANY AND ALL APPLICABLE CODES AND STANDARDS.

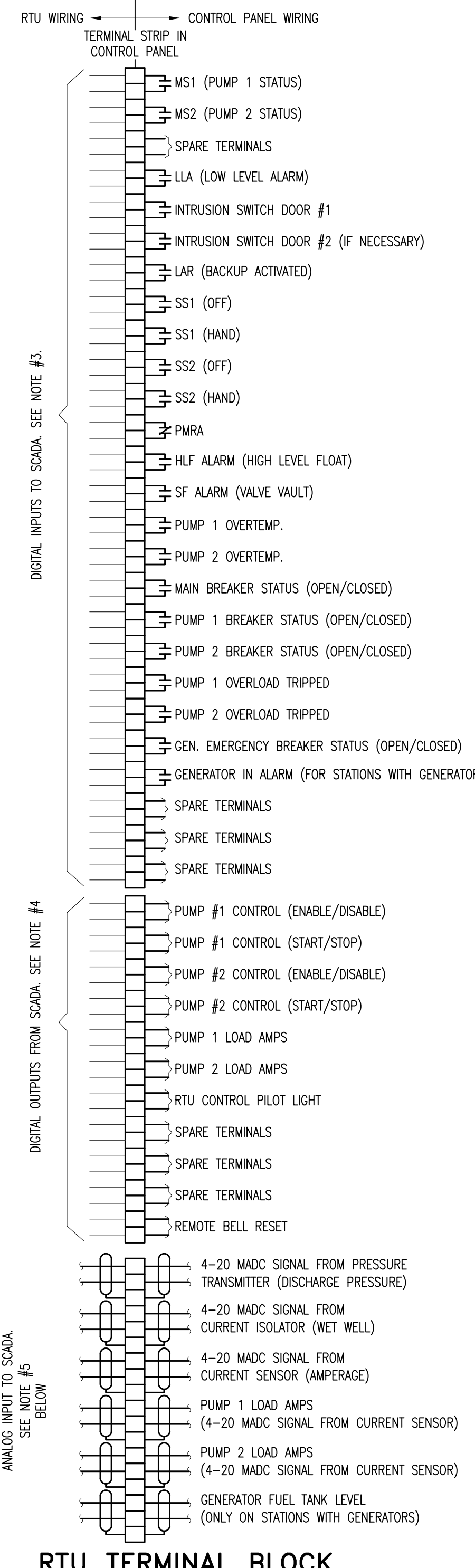
NOTE: THE DESIGNER SHALL USE EITHER SHEET E-4A OR E-4B FOR THE PROPOSED APPLICATION BASED ON THE CHOICE OF PUMP CONTROLLERS AND CORRESPONDING CONTROL WIRING DIAGRAM DEPICTED IN EACH SHEET.



INTRINSICALLY SAFE DUPLEXER FOR FLOAT SWITCH CONTACTS IN CLASS I, DIVISION 1, GROUP D HAZARDOUS LOCATIONS



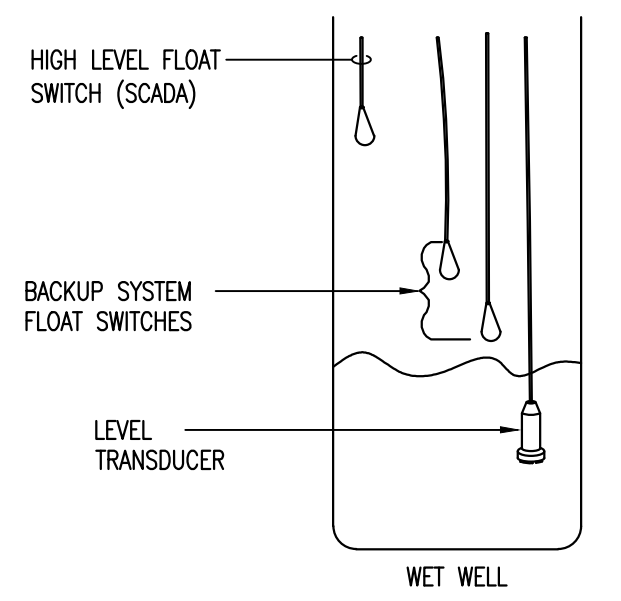
INTRINSICALLY SAFE RELAY FOR "VALVE VAULT FLOOD" AND "HIGH LEVEL FLOOD" SWITCH CONTACT IN GROUP D HAZARDOUS LOCATION



RTU TERMINAL BLOCK

SCADA WIRING INSTALLATION NOTES

- 1- WIRING TO SCADA RTU PANEL TO BE FURNISHED AND INSTALLED BY CONTRACTOR. TERMINATIONS TO BE PERFORMED BY MD-WASD ELECTRICIANS.
- 2- PROVIDE IN THE PANEL AT LEAST 20 SPARE TERMINALS, 1 POLE EACH.
- 3- 4-20 MILLIAMPERES DIRECT CURRENT SIGNAL CABLE SHALL BE BELDEN 9341 TWISTED PAIR OR EQUAL INSTALLED IN A SEPARATE CONDUIT.
- 4- LABEL INTERCONNECTING WIRES ACCORDING TO DRAWING.
- 5- CONNECT FIELD DEVICES PRESSURE TRANSMITTER AND FLOW METER (IF AVAILABLE) TO THE RTU PANEL. USE BELDEN CABLE 9341 IN 1-INCH CONDUIT AS REQUIRED



LEVEL SENSOR PLACEMENT IN WET WELL

NOTE: SEE MECHANICAL DRAWINGS FOR PROPOSED ELEVATIONS.

SLX 130-MIS-10-40-B

- SLX130: MODEL: 4-20mADC, INTRINSICALLY SAFE
MIS: PRESSURE
10: 5 FOR 0-11.5 FT.
10 FOR 0-23.1 FT.
15 FOR 0-34.6 FT.
30 FOR 0-69.3 FT.
40: FEET OF CABLE 10 FT INCREMENT
B: BREATHER SYSTEM ONLY

LEVEL TRANSDUCER MODEL NUMBER EXAMPLE (ORDERING INFORMATION)

NOTES:

- 1- BACKUP SYSTEM FLOAT SWITCHES SHOULD BE PLACED ABOVE NORMAL CONTROL RANGE OF THE LEVEL TRANSDUCER.
- 2- MAXIMUM DISTANCE BETWEEN INTRINSICALLY SAFE DUPLEXER (ISD) / INTRINSICALLY SAFE RELAYS (ISR) AND FLOAT SWITCHES IS 1000 FEET. FLOAT SWITCHES SHALL BE MERCURY FREE, INTERNALLY WEIGHTED WITH GOLD PLATED SWITCH CONTACTS AND SUITABLE FOR INTRINSICALLY SAFE APPLICATIONS SIMILAR TO ECO-FLOAT MODEL GS1-NONC-GOLD BY ANCHOR SCIENTIFIC OR APPROVED EQUAL. UNITS SHALL BE PROVIDED BY PANEL MANUFACTURER. FLOAT SWITCHES TO BE IDENTIFIED BY MEANS OF PERMANENT MARKING METHODS AS FOLLOWS:
BLACK - BACK-UP OFF
ORANGE - BACK-UP ON
RED - HIGH FLOAT LEVEL (SCADA)
- 3- TO PROTECT AGAINST TRANSIENTS CONNECT ALL GROUND CONDUCTORS TOGETHER AND RUN ONE WIRE TO CONTROL PANEL 'M' GROUND BAR.
- 4- PRESSURE TRANSDUCER MODEL NUMBER: SLX 130-MIS-10-##-B BY CONTEGRA OR APPROVED EQUAL. PRESSURE TRANSDUCER TO BE FURNISHED BY PANEL MANUFACTURER AND INSTALLED BY THE CONTRACTOR.
- 5- SIGNAL ISOLATOR VOLTAGE DROP AT INPUT TERMINALS SHALL NOT BE HIGHER THAN 5.5 VDC. ISOLATOR BY PHOENIX CONTACT OR APPROVED EQUAL. PROVIDE A POWERED SIGNAL ISOLATOR IN CASE RTU ASSEMBLY IS FAR FROM CONTROL PANEL.
- 6- POWER SUPPLY WITH BATTERY CHARGER ASTRODYNE MODEL A055-B/DRL OR APPROVED EQUAL. LOCATE AWAY FROM HEAT SOURCES AND PANEL WALLS. PROPOSED POWER SUPPLY INRUSH CURRENT WHEN COLD IS 20 A. SELECTED PROTECTIVE FUSE SHALL WITHSTAND SUCH CURRENT. PROVIDE 7 A/H MINIMUM BATTERY CAPACITY.
- 7- H-0-A SELECTOR SWITCHES SHALL HAVE SUFFICIENT NUMBER OF CONTACT BLOCKS WIRED TO THE SCADA TERMINAL BLOCK AND TO MULTISMART AS SHOWN.
- 8- PROVIDE A MINIMUM OF 3 N.O. AUXILIARY CONTACT ON MOTOR STARTER OR DUPLICATE CONTACT USING RELAYS.
- 9- PROVIDE FUSES WITH RATED FUSE HOLDERS.
- 10- USE SHIELDED WIRE BELDEN CABLE 9341 FOR ALL ANALOG WIRING. TO AVOID GROUND LOOPS GROUND SHIELD AT SOURCE END ONLY.
- 11- FOR ADDITIONAL INFORMATION CONSULT MPE-SC2000, CONTEGRA SLX AND ISD PRODUCT MANUALS.
- 12- ALL INTRINSICALLY SAFE WIRING SHALL BE SEPARATED FROM NON-INTRINSICALLY SAFE WIRING. REFER TO ARTICLE 504 OF THE NATIONAL ELECTRIC CODE (ANSI/NFPA 70). FOR INSTALLATION OF INTRINSICALLY SAFE WIRING.
- 13- MAXIMUM DISTANCE BETWEEN UNIT AND SWITCH CONTACTS IS 1000 FEET.
- 14- SWITCH CONTACT SHALL BE ANY NON-ENERGY STORING OR GENERATING SWITCH TYPE DEVICE CONTAINING NO CAPACITANCE OR INDUCTANCE.
- 15- PROVIDE 2[12V-6AH] SERIES CONNECTED BACK-UP BATTERIES.
- 16- CURRENT TRANSFORMER OUTPUT SHALL BE 0-5A. WIRE WITH THE CORRECT POLARITY AND MAKE SURE THAT THE CURRENT PHASE CORRESPONDS TO THE VOLTAGE PHASE.
- 17- USE SHIELD TWISTED PAIR CABLE BETWEEN CT'S AND MPB. DO NOT GROUND CURRENT TRANSFORMERS.
- 18- USE SHIELDED WIRE FOR ALL DISCRETE INPUT WIRING. GROUND SHIELD AT SOURCE END.
- 19- TO PROTECT AGAINST TRANSIENTS CONNECT ALL GROUND CONDUCTORS TOGETHER AND RUN ONE WIRE TO CONTROL PANEL ("PANEL ID") GROUND BAR.
- 20- FOR MORE INFORMATION CONSULT MULTITRODE-MULTISMART, MULTITRODE-MTR RELAYS, AND CONTEGRA SLX PRODUCT MANUAL.
- 21- MAXIMUM DISTANCE BETWEEN UNIT AND SWITCH CONTACTS IS 1000 FEET.

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MIAMI, FL 33133
786-552-4440

PCTS 0000/CONTRACT X-000 or RPQ/ERX0000
PUMPING STATION No. 0000 (STD. UPDATE 2019)
SUBMERSIBLE PUMPING STATION WITH GENERATOR
PROJECT OFFICIAL ADDRESS
CONTROL WIRING DIAGRAM
MULTISMART PUMP STATION MANAGER

DRAWING HISTORY

RELEASED FOR	DATE	BY
X	REVIEW 00%	xx/xx/xx xxx
X	REVIEW 00%	xx/xx/xx xxx
	PERMIT	
	BID	
	AS-BUILT	

REVISIONS

No.	DESCRIPTION	DATE	BY
Δ	xxxxxx xxxxxx	xx/xx/xx	xxxx

APPROVALS

DESIGNED: X.X.X. DRAWN: X.X.X.
UNIT HEAD: X.X.X.
PROJECT MGR.: X.X.X.

Xxxx Xxxxx, P.E.
Xxxxx Engineer
State of Florida-License No.00000
Date: _____

FILE NAME: XXXXXX04.DWG
DATE: xx/xx/20xx SCALE: AS NOTED
SHEET **E-4B**
DWG. No. **S-00000-D**