

Project Name	Kicking Horse River Dike Improvement Project
Project Number	5635
Client	Urban Systems Limited / Town of Golden
Prime Contractor	Tybo Contracting Limited
Decision Record	6
Date	July 2, 2021
Prepared By	David Kushner, P.Eng.
Reviewed By	
Engineer of Record	David Kushner, P.Eng.
Subject	Electrical installation of the ice monitoring station on the concrete dike wall including installation of panel and conduit
Background/Explanation	
An ice monitoring station is to be installed on the concrete wall. The panel is stored by the Town of Golden. Electrical installation including installation of the panel and conduit to be completed by the contractor.	
Description of Decision	
Complete the electrical installation of the ice monitoring station on the concrete dike wall per the attached markups, drawings, and details below.	
<ul style="list-style-type: none"> • Install the ice monitoring station control panel on the most upstream (easternmost) light standard on the concrete wall (panel and equipment in panel supplied by the Town of Golden). • Supply, install, and connect power supply circuit (15 Amp, 120 VAC, with other details as specified by the electrical engineer [MP&P]) to the control panel through underground conduit (included in the electrical design) and as directed by the electrical engineer. (for example, a hole for the power supply may be drilled through the light standard handhole cover). • Supply and install 3" (interior diameter) metal conduit or pipe on the concrete wall as indicated on the attached markups. • Connect pressure transducer cables to the control panel. • Supply and install any additional conduit or items required to protect or mount electrical, or pressure transducer cables to the control panel (for example, include water tight flexible conduit for the power supply wires from the light standard to the control panel). • Note: radio equipment supply and installation, pressure transducer and cables supply and installation, and station programming and commissioning by others. 	
Attachments	
<ul style="list-style-type: none"> • Markup dated 2021-06-30. • Control Panel Drawings, by Centrix Control Solutions, dated August 22, 2019. 	
References	
none	

1 SITE LIGHTING PLAN
EL1.01 SCALE 1:500

SYMBOL LEGEND:

- ⊗ POLE AND LUMINAIRE ON STRUCTURE WALL
- ⊗ SERVICE CABINET (NEW)
- ⊠ PLASTIC JUNCTION BOX
- E EXISTING LIGHT STANDARD TO REMAIN
- N NEW LIGHT STANDARD
- B BANNER ARM CONFIGURATION
- P PLANTER ARM CONFIGURATION

ATTENTION
This drawing is prepared for the sole use of
No representations of any kind are made by Urban Systems Ltd. or its employees to any party with whom Urban Systems Ltd. does not have a contract.

WARNING
Utilities or structures shown on this drawing were compiled from information supplied by various parties and may not be complete or accurate. Expose and conclusively confirm the location in the field all underground utilities and structures indicated on this drawing, all underground utilities in the area of the proposed work and any utilities or structures reasonably apparent from an inspection of the proposed work. Urban Systems Ltd. assumes no responsibility for loss or damage caused by third party negligence or failure to comply with the above.

SURVEY INFORMATION
Prepared by:
Coordinate System:
Compilation Date:

Ice Monitoring Equipment to be installed on the upstream most (eastermost) light standard.

NEW PANEL

DESCRIPTION	LOAD kW	BKR SIZE	CIRCUIT	BKR SIZE	LOAD kW	DESCRIPTION
DIKE WALL LIGHT STANDARD	0.20	15A	1	15A	1.20	WATER MONITORING SYSTEM
DIKE WALL LIGHT STANDARD	0.20	15A	3	15A	1.20	WATER MONITORING SYSTEM
DIKE WALL LIGHT STANDARD	0.20	15A	5	15A		SPARE
SPARE		15A	7	15A		SPARE
SPARE		15A	9			
SPARE		15A	11			
HEATER IN PANEL		15A	15	15A		RECEPTACLE
LIGHT IN PANEL		15A	17	15A		PHOTO ELECTRIC CELL

BUS AMPS: 225A VOLTS: 120/208V PHASE: 3ø, 4W LOCATION: AS SHOWN

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER SPECIFICATION NUMBER	LAMPS	VOLTS	POLE MANUFACTURER & BRACKET
⊗ B	NEW DECORATIVE POLE LUMINAIRE - MOUNT ON DIKE WALL	LUMEC DMS60-35W32LED3K-T-ACDR-LE3A-120-DMG-PH8-BKTX	35W LED	120V	C/W POLE SPR4V-10-DRI-BACD24-LBC2-BKTX
⊗ P	NEW DECORATIVE POLE LUMINAIRE - MOUNT ON DIKE WALL	LUMEC DMS60-35W32LED3K-T-ACDR-LE3A-120-DMG-PH8-BKTX	35W LED	120V	C/W POLE SPR4V-10-DRI-PSPCD-LBC2-BKTX

VOLTAGE DROP CALCULATION

CIRCUIT DESCRIPTION	CONDUCTOR SIZE	VOLTAGE V	CURRENT A	LENGTH m	CONDUCTOR MATERIAL	PHASE: 1 OR 3	VOLTAGE DROP V	%
CCT #1 4HEAD x 35W	#10	120V	1.28	222	CU	1	1	0.7
CCT #3 3HEAD x 35W	#10	120V	0.96	180	CU	1	1	0.5
CCT #5 3HEAD x 35W	#10	120V	0.96	201	CU	1	1	0.6

urbansystems.ca

Professional Seals



M. Plenzik
P-5027
JAN 13, 2020

MP&P
MASKELL PLENZIK & PARTNERS ENGINEERING

Suite 206, 6107-70th Avenue S.E. Phone: (403) 509-2000
Calgary, Alberta Fax: (403) 509-0006
Canada, T2B 2J6 Website: www.mppeng.ca

#	Date	Issue / Revision	App
1	2019/06/18	ISSUED FOR 90% REVIEW	HL
2	2019/07/05	ISSUED FOR TENDER	HL
3	2019/11/05	ISSUED FOR 100% REVIEW	HL
4	2020-01-13	ISSUED FOR TENDER	HL
-	-	-	-
-	-	-	-
-	-	-	-

Quality Control by	HL
Designed by	HL
Drawn by	JK

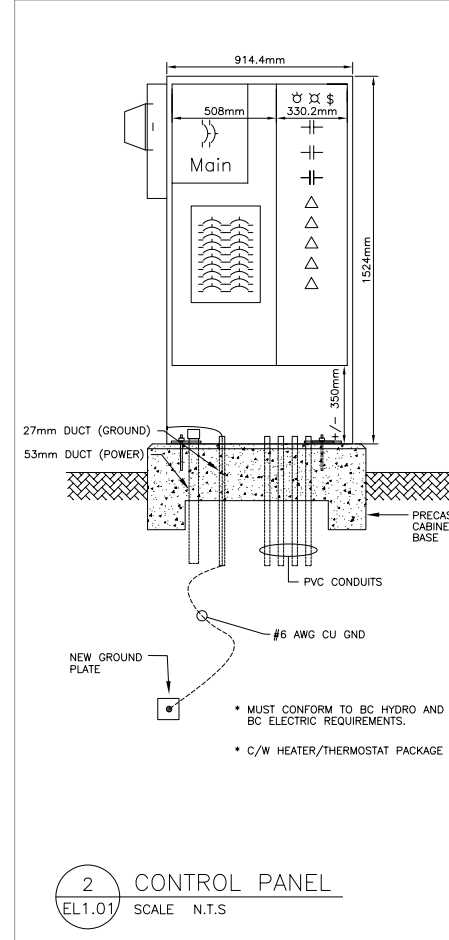
URBAN systems

Scale: 0 5m 10m 15m

Quality Control by HL
Designed by HL
Drawn by JK

TOWN OF GOLDEN BRIDGE TO BRIDGE DIKE UPGRADES
SITE LIGHTING PLAN

Sheet Number 1 of 9
Project Number Drawing Number Revision
xxxx.yyyy.zz EL1.01 4



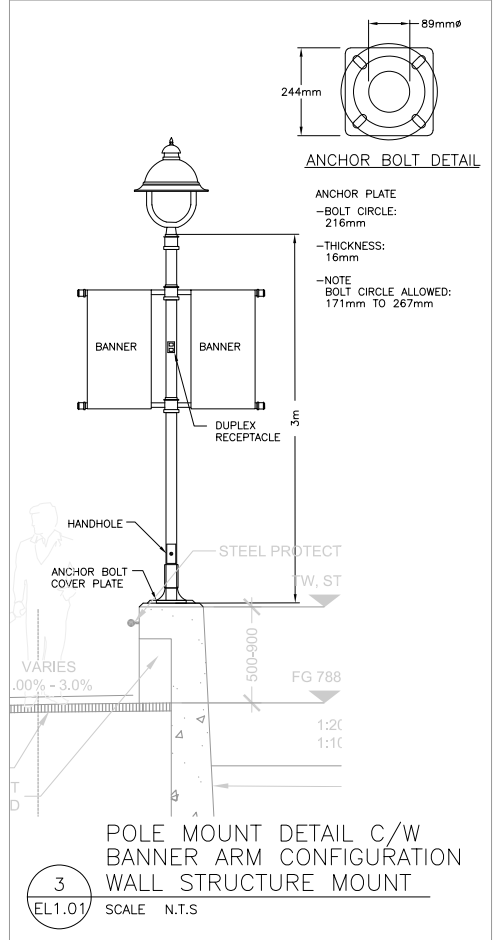
CONTROL PANEL

- NEW CONTROL PANEL SHALL BE AC DANDY MODEL #B1-DHP, 100A, 120/208V, 3-PHASE 4-WIRE, 18CCT. BRANCH CIRCUIT BREAKERS AS SHOWN.
- THE PANEL SHALL HAVE A MARINE GRADE ALUMINUM CONSTRUCTION, EEMAC 3R RATING, WITH A GREY TEXTURED POWDER FINISH.
- THE PANEL SHALL HAVE A FUSED DISCONNECT, COLD SEQUENCE METERING, AND A UTILITY METER SOCKET.
- THE PANEL SHALL HAVE A DUAL LOCK, PROVIDING INDEPENDENT ACCESS TO BC HYDRO.
- THE PANEL SHALL HAVE ONE (1) 100A, 8-POLES LIGHTING CONTACTOR, WITH PHOTOCELL AND A HAND-OFF-AUTO SWITCH.
- THE PANEL SHALL HAVE A CONVENIENCE GFCI PLUG, CONVENIENCE LIGHT AND SWITCH.
- THE PANEL SHALL BE MOUNTED ON A PRECAST BASE, ARMTEC #4-0045 OR APPROVED ALTERNATE.
- SERVICE CONDUCTORS SHALL BE STRANDED COPPER, RW90 XLPE.
- SERVICE ENTRANCE RATED MAIN BREAKER SECTION 229AIC AT 250V C/W SEALABLE & LOCKABLE COVER.
- 7 JAW, 100A METER SOCKET (COLD METERED)
- WINDOW TO VIEW METER 9"x7"
- PEC, TIME CLOCK, LIGHT SWITCH, RECEPTACLE, & HEATER.
- UTILITY/CUSTOMER DUAL PADLOCK KIT - "D-UCL"
- FULLY CSA CERTIFIED, ASSEMBLED, PREWIRED, & TESTED.

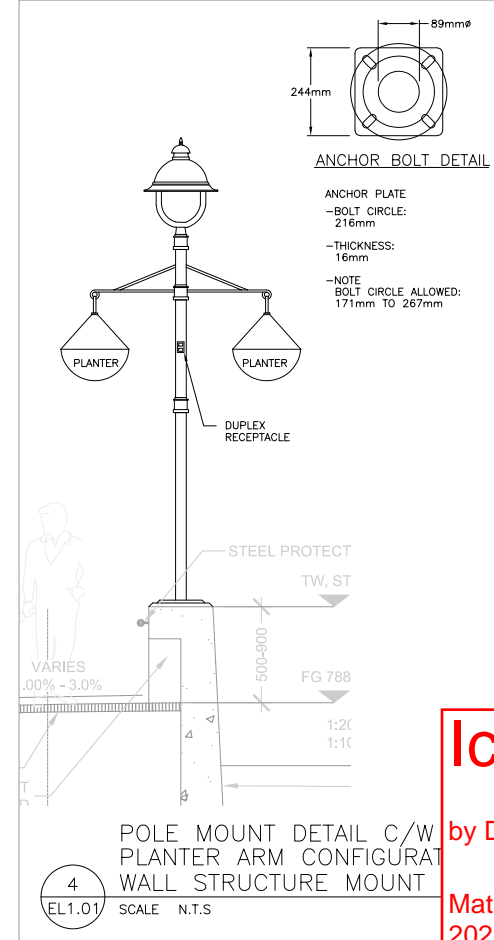
GROUNDING

- THE CONTRACTOR SHALL PERFORM GROUND RESISTANCE TESTS AND GROUND CONTINUITY TESTS USING METHOD APPROPRIATE TO SITE CONDITIONS BEFORE ENERGIZATION.
- TEST INSULATION RESISTANCE ("MEGGER") OF FEEDER AND BRANCH CIRCUITS WITH A 500V INSTRUMENT FOR VOLTAGES LOWER THAN 350V AND A 1000V INSTRUMENT FOR VOLTAGES RANGING BETWEEN 350V AND 600V. CIRCUITS WITH A RESISTANCE LESS THAN 4MΩ (MEGAOHMS), FOR CIRCUITS UP TO 100m IN LENGTH, WILL BE CONSIDERED A FAILURE AND SHALL REQUIRE THE CONTRACTOR REPLACE THE WIRING.

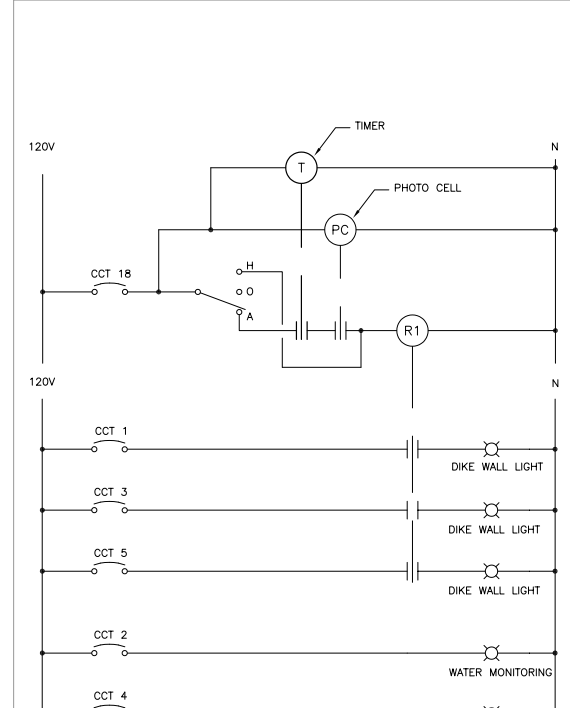
2 CONTROL PANEL
EL1.01 SCALE N.T.S



3 POLE MOUNT DETAIL C/W BANNER ARM CONFIGURATION WALL STRUCTURE MOUNT
EL1.01 SCALE N.T.S



4 POLE MOUNT DETAIL C/W PLANTER ARM CONFIGURATION WALL STRUCTURE MOUNT
EL1.01 SCALE N.T.S



Ice Monitoring Station

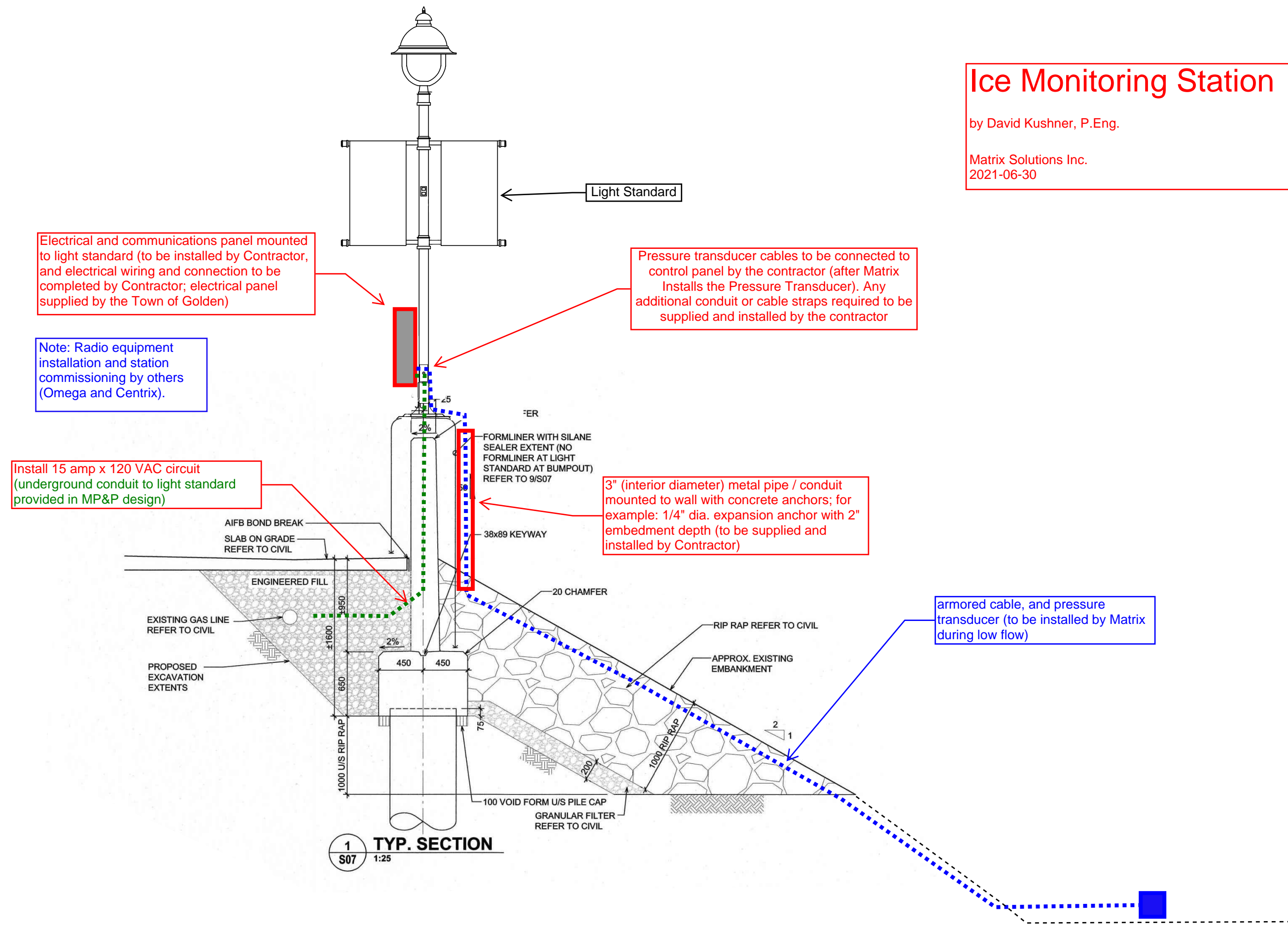
by David Kushner, P.Eng.

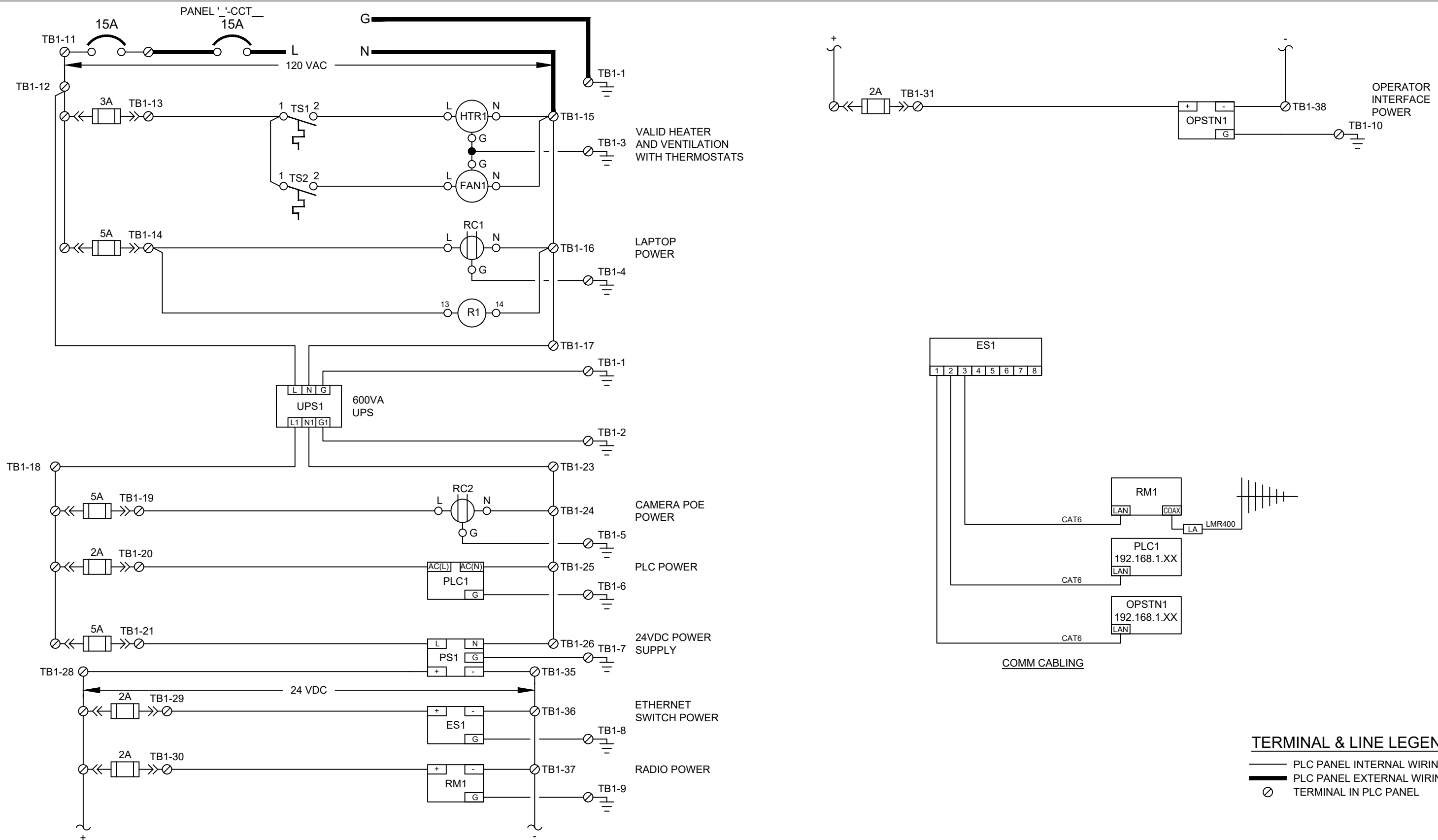
Matrix Solutions Inc.
2021-06-30

Ice Monitoring Station

by David Kushner, P.Eng.

Matrix Solutions Inc.
2021-06-30





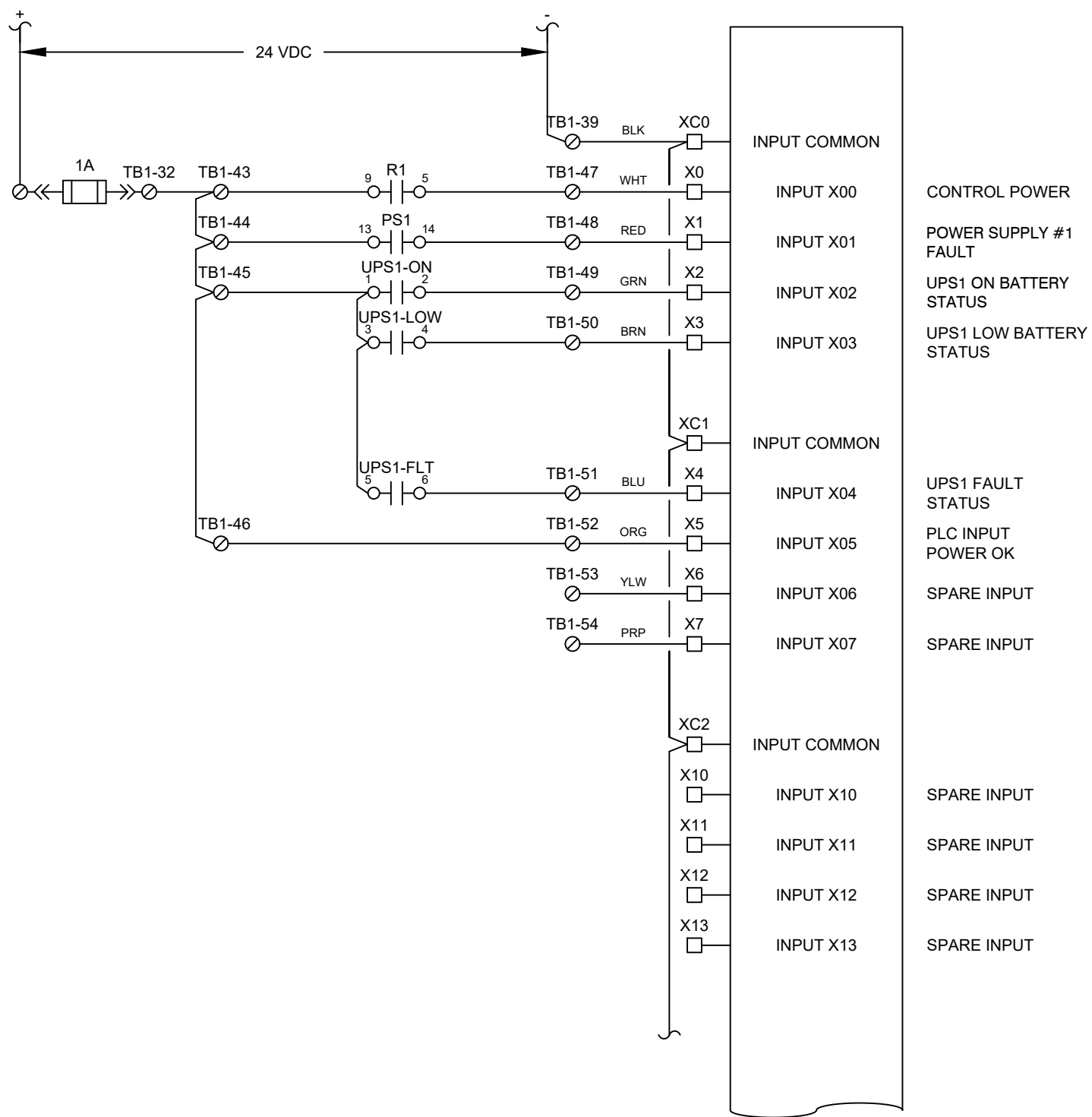
No.	REVISION	BY	DATE
1	SHOP AS BUILT	KA	OCT 16/19
0	FOR APPROVAL	JE	SEP 11/19

SEAL	DWN	JE
	DATE	AUG 22/19
	DSG.	JE
	CHK.	LB
	SCALE	N.T.S.
	PROJ.	S018273

CENTRIX
control solutions
1115 St. Paul Street, Kelowna, BC V1Y 2C6
Phone: 250.717.8813 FAX: 250.717.8814

TOWN OF GOLDEN
SITE #4 DIKE UPGRADE ICE MONITORING PROJECT
CONTROL PANEL MISCELLANEOUS WIRING

DRAWING NUMBER	REV
E502	1



PLC DIGITAL INPUTS
ON BASE UNIT

DL06 INPUTS

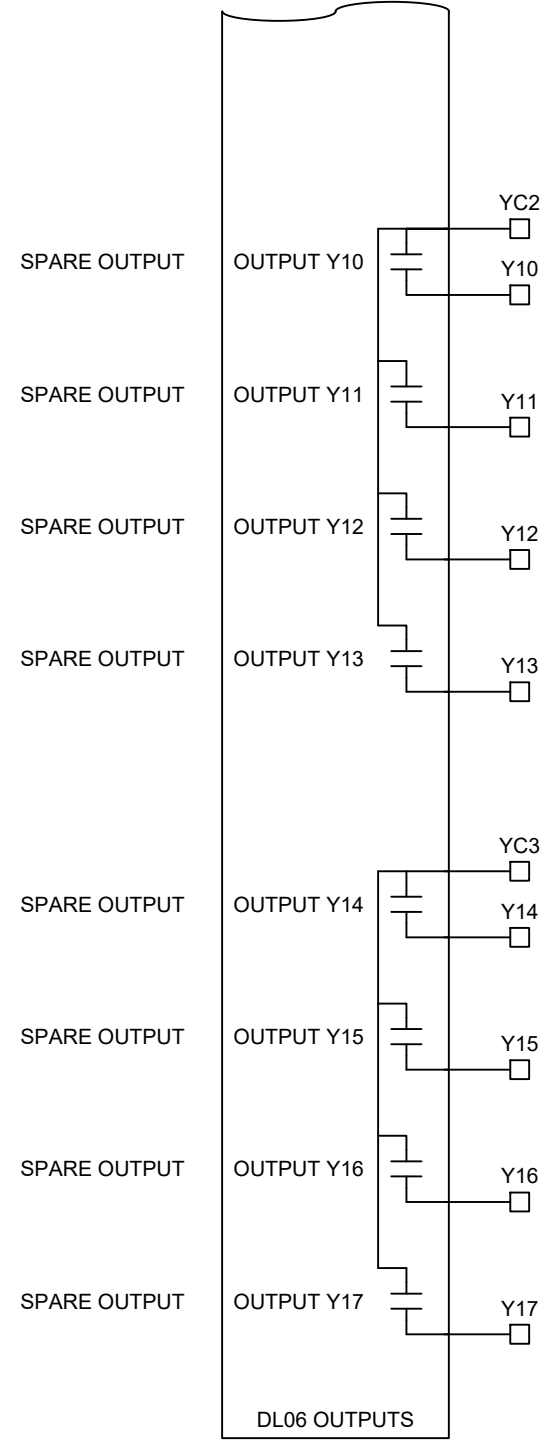
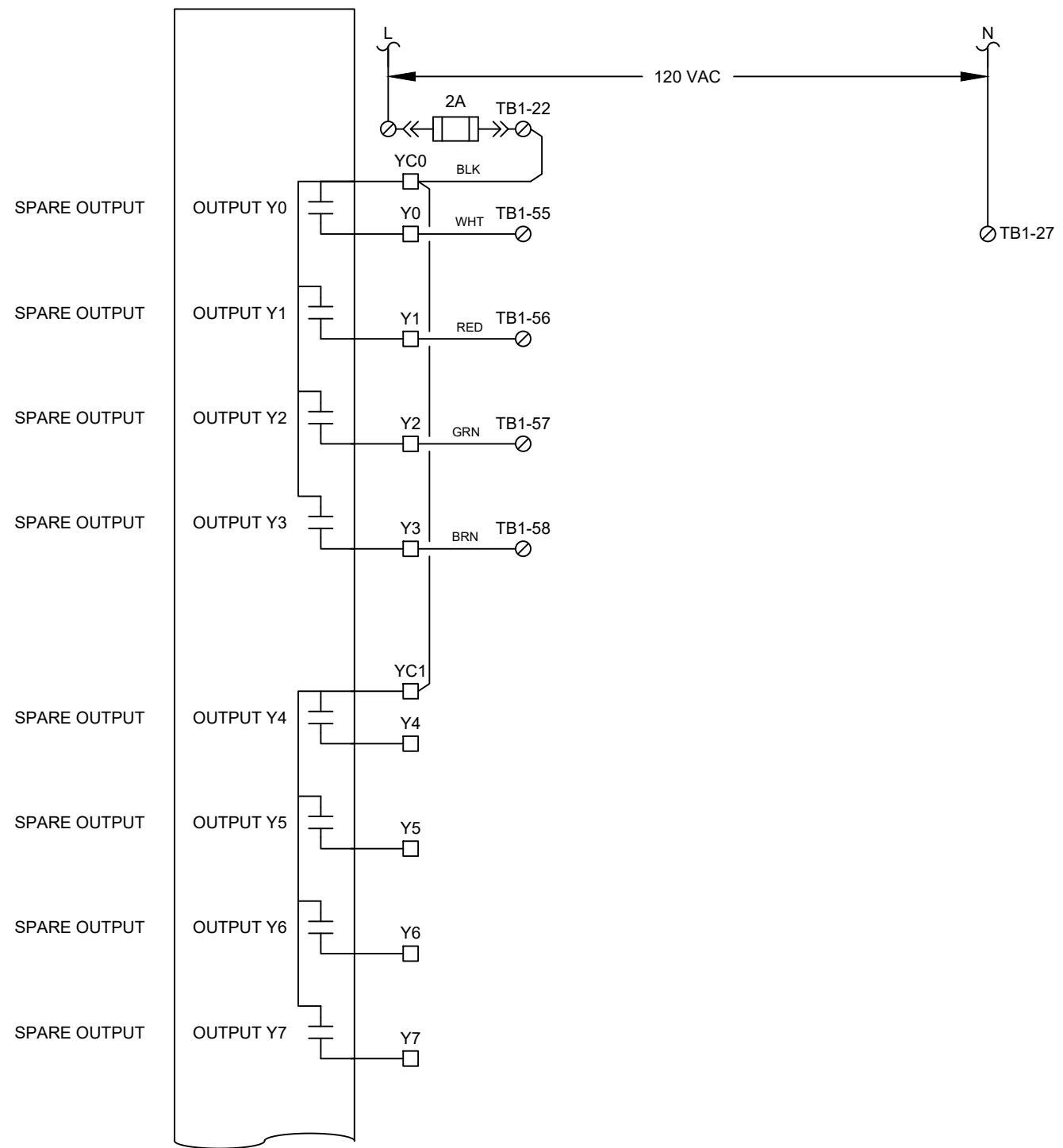
No.	REVISION	BY	DATE
1	SHOP AS BUILT	KA	OCT 16/19
0	FOR APPROVAL	JE	SEP 11/19

DWN	JE
DATE	AUG 22/19
DSG.	JE
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TOWN OF GOLDEN
 SITE #4 DIKE UPGRADE ICE MONITORING PROJECT
 PLC I/O WIRING SHEET 1 OF 3

DRAWING NUMBER	REV
E503	1



PLC DIGITAL OUTPUTS
BASE UNIT

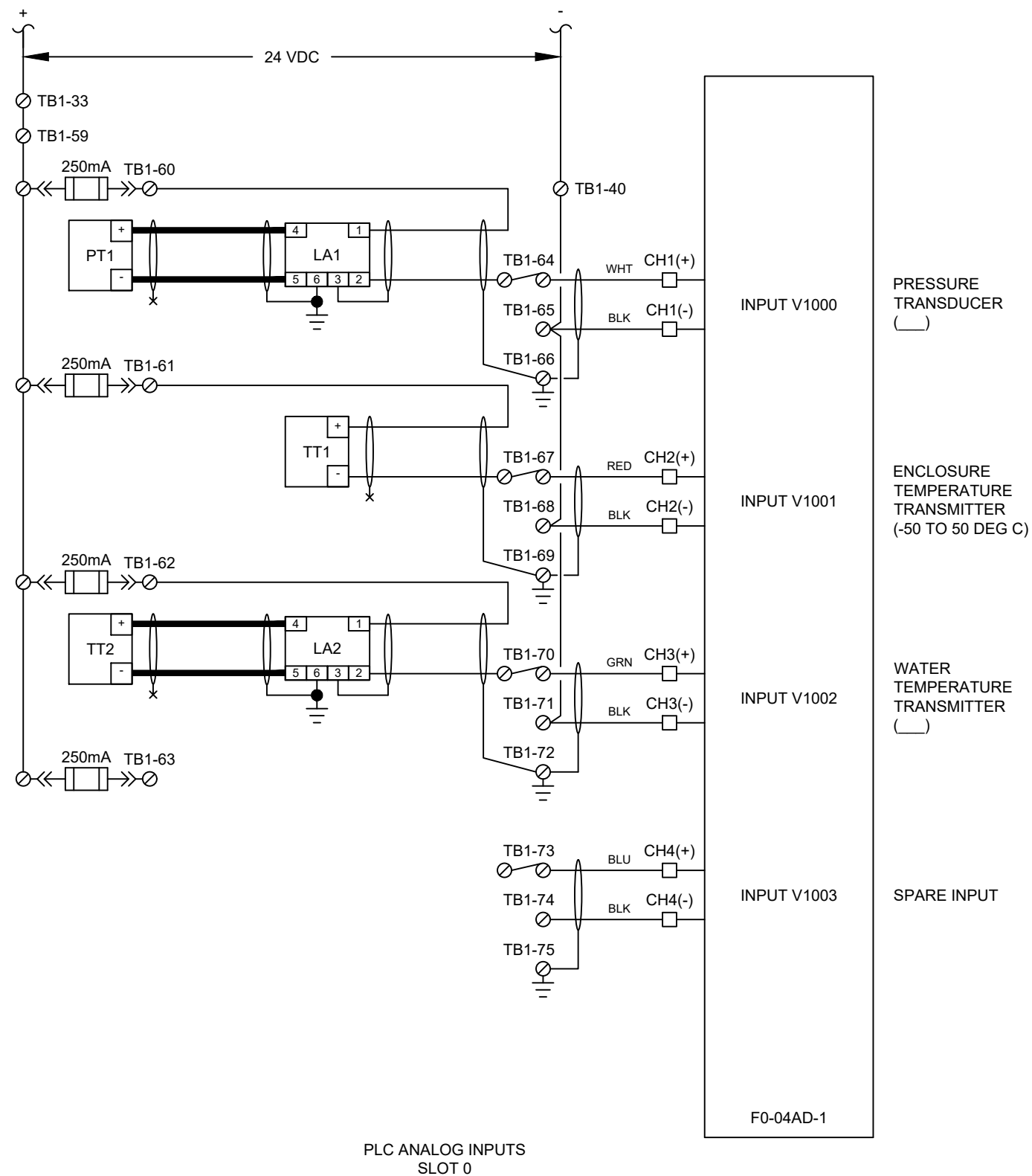
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0	FOR APPROVAL	JE	SEP 11/19

DWN	JE
DATE	AUG 22/19
DSG.	JE
CHK.	LB
SCALE	N.T.S.
PROJ.	S018273


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TOWN OF GOLDEN
 SITE #4 DIKE UPGRADE ICE MONITORING PROJECT
 PLC I/O WIRING SHEET 2 OF 3

DRAWING NUMBER	REV
E504	1



No.	REVISION	BY	DATE
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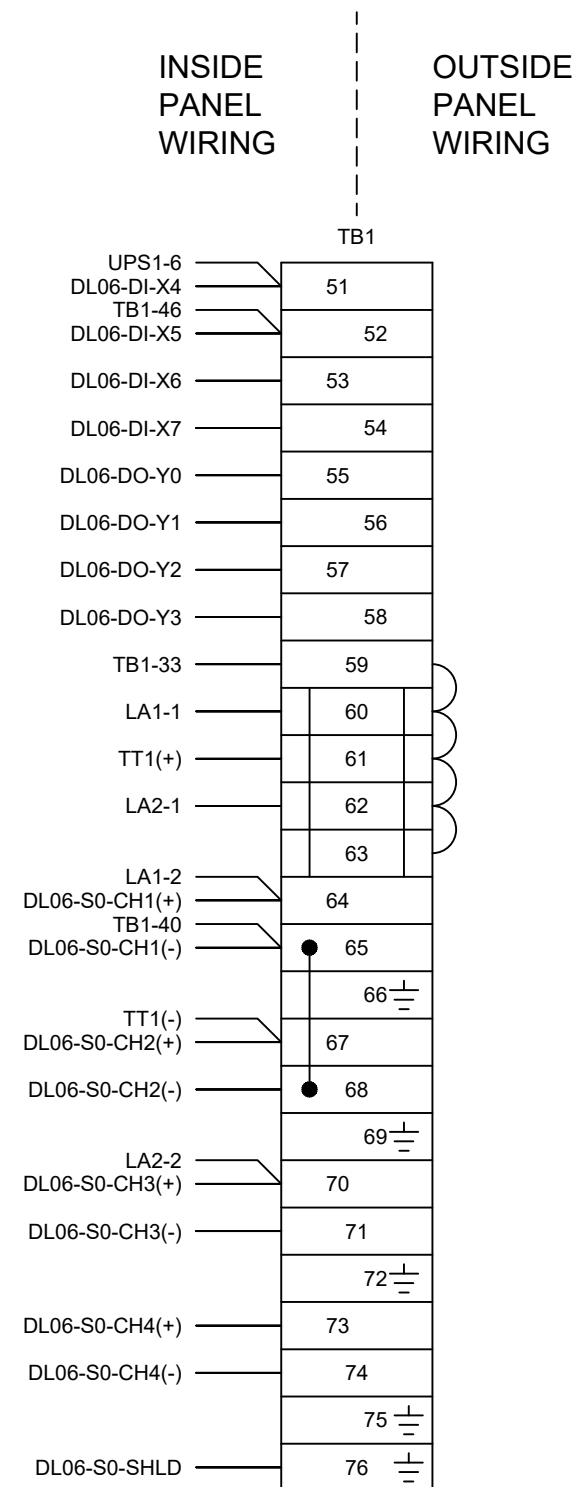
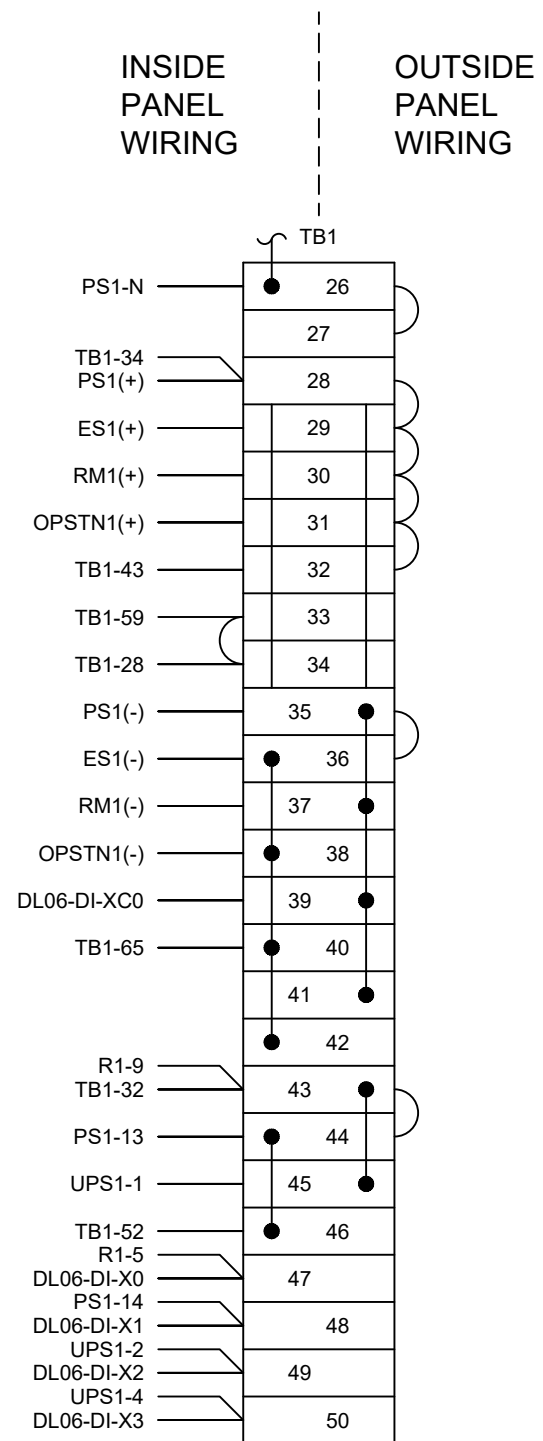
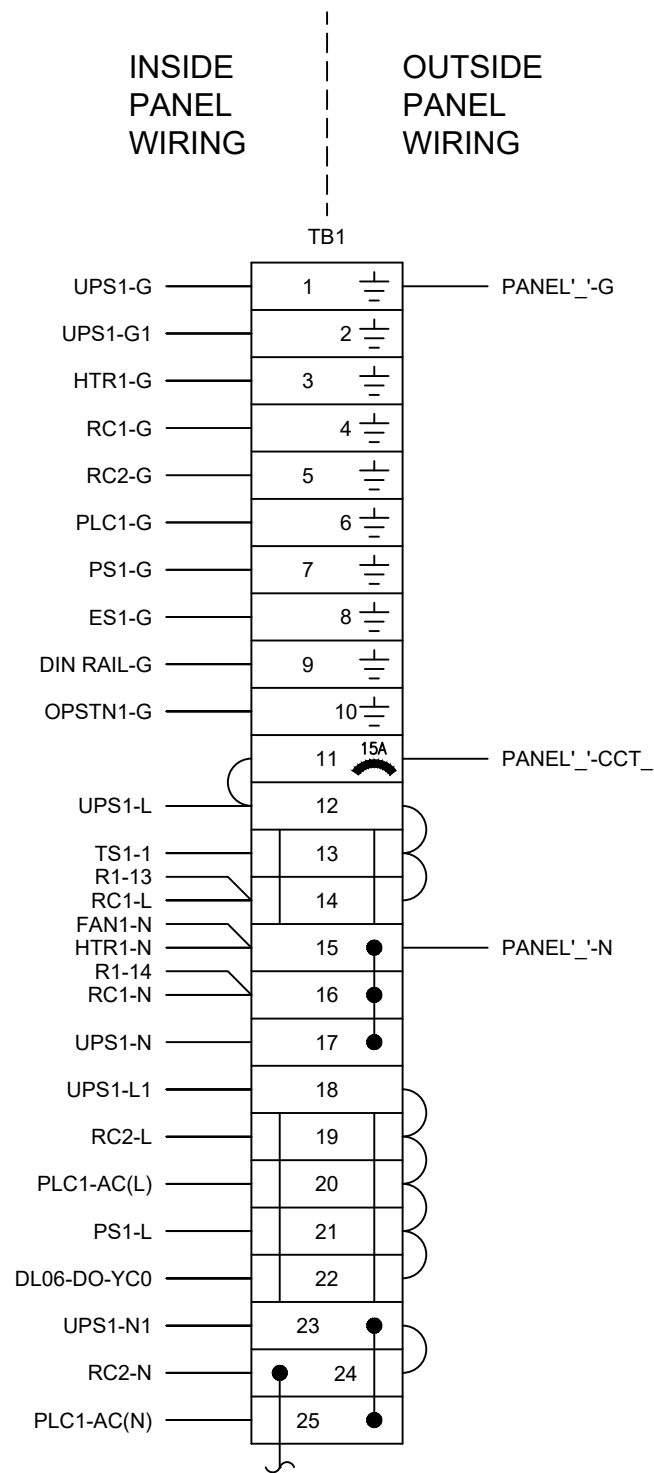
SEAL

DWN	JE
DATE	AUG 22/19
DSG.	JE
CHK.	LB
SCALE	N.T.S.
PROJ.	S018273

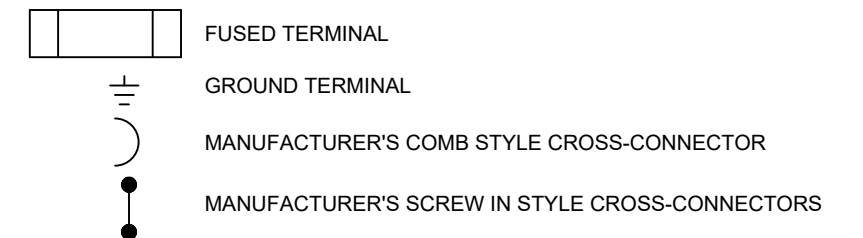
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TOWN OF GOLDEN
SITE #4 DIKE UPGRADE ICE MONITORING PROJECT
PLC I/O WIRING SHEET 3 OF 3

DRAWING NUMBER	REV
E505	1



TERMINAL BLOCK LEGEND



No.	REVISION	BY	DATE
1	SHOP AS BUILT	KA	OCT 16/19
0	FOR APPROVAL	JE	SEP 11/19

DWN	JE
DATE	AUG 22/19
DSG.	JE
CHK.	LB
SCALE	N.T.S.
PROJ.	S018273


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TOWN OF GOLDEN
 SITE #4 DIKE UPGRADE ICE MONITORING PORJECT
 CONTROL PANEL TB1 LAYOUT SHEET 1 OF 1

DRAWING NUMBER	REV
E506	1