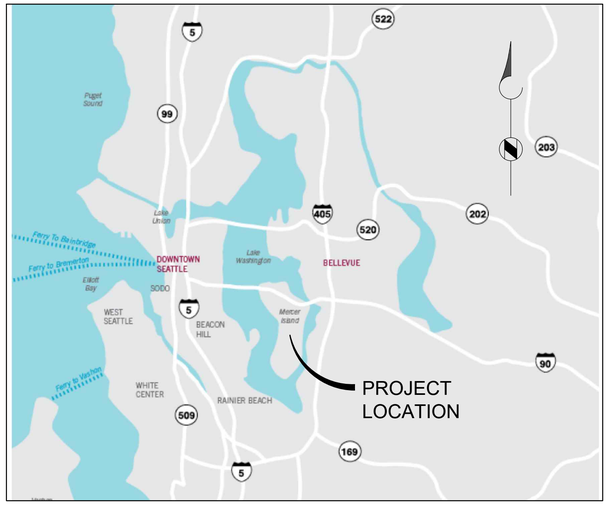

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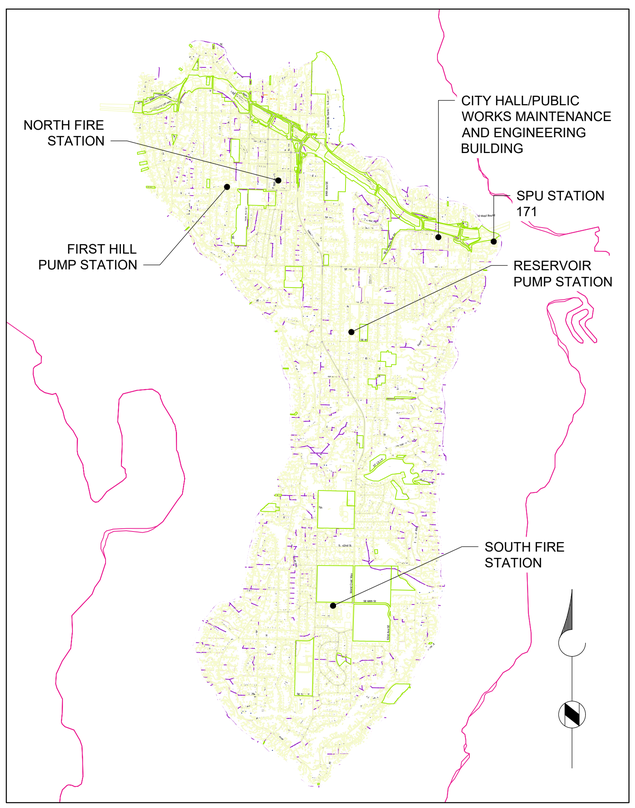
SCALE: NONE



PROJECT LOCATION MAP
SCALE: NONE

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

153585
BID NUMBER: 21-01

CAITLIN ANN BLIESNER
STATE OF WASHINGTON
55655
REGISTERED
PROFESSIONAL ENGINEER
2020.12.16 09:59:09-08'00'

BID SET

DECEMBER 2020

VOLUME 2 of 2

DRAWINGS

Brown AND Caldwell

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SHEET NUMBER	DRAWING NUMBER	DRAWING TITLE
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48	I-5201	RESERVOIR PUMP STATION - DIGITAL OUTPUT CARD 1
49	I-5202	RESERVOIR PUMP STATION - DIGITAL OUTPUT CARD 2
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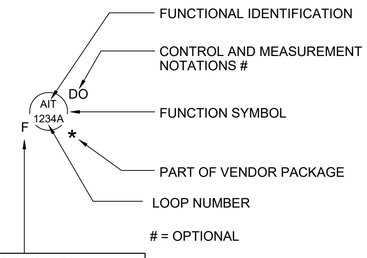
70	I-6001	INSTALLATION DETAILS

FUNCTIONAL IDENTIFICATION

VARIABLE	MEASURED OR INITIATING VARIABLE DESCRIPTION	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL			DEVIATION
E	VOLTAGE, SOLENOID		PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	FIRE, SMOKE		GLASS		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE, HUMIDITY, MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	EQUIPMENT STATUS				
O	DISSOLVED OXYGEN		ORIFICE		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL, PROBE		
X	UNCLASSIFIED	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

TYPICAL INSTRUMENT IDENTIFICATION

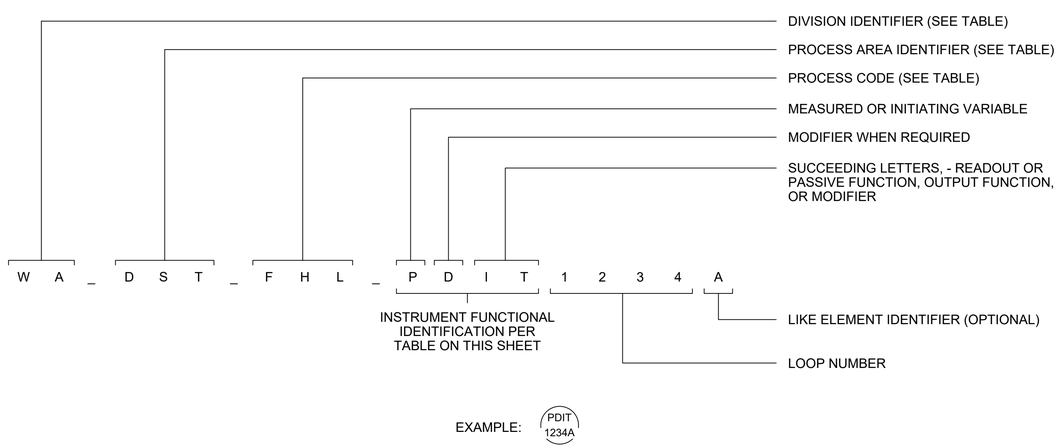


NETWORK TYPE	
F	FOUNDATION FIELDBUS
E	ETHERNET
P	PROFIBUS
PN	PROFINET
M-RTU	MODBUS RTU
M-TCP	MODBUS TCP
CIP	COMMON INDUSTRIAL PROTOCOL
E-SNMP	SIMPLE NETWORK MANAGEMENT PROTOCOL
DNP3	DISTRIBUTED NETWORK PROTOCOL 3

CONTROL AND MEASUREMENT NOTATIONS

ACK	ACKNOWLEDGE
AM	AUTO/MAN
BYP	BYPASS
CL	CLOSE
CL2	CHLORINE
CMAT	COMPUTER/MANUAL/AUTO/TRACKING
COMB	COMBUSTIBLE GAS
CP	CONTROL POWER
COND	CONDUCTIVITY
DEC	DECREASE
DO	DISSOLVED OXYGEN
ESP	EMERGENCY STOP
FWD	FORWARD
F/R	FORWARD/REVERSE
F/S	FAST/SLOW
HLOA	HIGH/LOW/OFF/AUTO
HOA	HAND/OFF/AUTO
HOAL	HAND/OFF/AUTO/LOCAL
HOR	HAND/OFF/REMOTE
INC	INCREASE
JOA	JOG/OFF/AUTO
LL	LEAD/LAG
LOR	LOCAL/OFF/REMOTE
LOS	LOCKOUT STOP
L/R	LOCAL/REMOTE
M/A LS	MAN/AUTO LOADING STATION
OCA	OPEN/CLOSE/AUTO
OHCA	OPEN/HOLD/CLOSE/AUTO
OCP	PURGE VALVE OP/CL/PC
OL	OVERLOAD
OP	OPEN
OSC/LP	OPEN/STOP/CLOSE WITH LOCAL/REMOTE SELECT
PA	PAUSE
PAL	LOW PRESSURE
PB	PUSH BUTTON
pH	pH
POT	POTENTIOMETER
RDY	READY
REV	REVERSE
RNG	RUNNING
ROF	REVERSE/OFF/FORWARD
RST	RESET
SO2	SULFUR DIOXIDE
SP	STOP
ST	START
TCP	TEST/CLOSE/PC
T/S	TEST/NORMAL/SILENCE
TBL	TROUBLE

INSTRUMENT TAG AND LOOP IDENTIFICATION



DIVISION IDENTIFIERS	
WA	WATER DISTRIBUTION SYSTEM
PROCESS AREA IDENTIFIERS	
WS	WATER SUPPLY
RES	RESERVOIR PUMP STATION
DST	DISTRIBUTION
PROCESS CODES	
SPU171	SPU STATION 171
RS	RESERVOIR STORAGE
BP	BOOSTER PUMPING
CL2	CHLORINE CONTROL
NFS	NORTH FIRE STATION
SFS	SOUTH FIRE STATION
FHL	FIRST HILL PUMP STATION

EQUIPMENT IDENTIFICATION SYSTEM

FIRST HILL PUMP 1 — EQUIPMENT DESCRIPTION

WA_DST_FHL_BP0101 — EQUIPMENT TAG NUMBER

GENERAL NOTES:

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME I-0001.DWG

BC PROJECT NUMBER 153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

LEGEND AND SYMBOLS - 1

DRAWING NUMBER

I-0001

SHEET NUMBER 1 OF 70

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Mercer Island logo_2.png

GENERAL

- EXTERNAL WIRING
- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- CONNECTION POINT
- TB ID / ID — TERMINAL POINT
- DEMOLITION
- EXISTING EQUIPMENT OR WIRING (SCREENED)
- SOFTWARE OR DATA LINK
- FUTURE EQUIPMENT OR WIRING

DISCONNECTS AND OVERCURRENT DEVICES

- TB ID / ID / AMPS — CIRCUIT BREAKER, THERMAL-MAGNETIC, 1 POLE
- DISCONNECT, 1 POLE, UON
- TB ID / ID / AMPS — ID / AMPS — FUSE TERMINAL BLOCK, 1 POLE
- BLOWN FUSE INDICATOR

PUSHBUTTONS

- ID — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN
- ID — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED
- ID — PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP, MAINTAINED CONTACT

SELECTOR SWITCHES

ID — 1 2 — OX
2 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPEN

ID — 1 2 — XO — OX
2 POSITION
SPRING RETURNED TO RIGHT
O = CONTACTS OPENED
X = CONTACTS CLOSED

ID — H O A — OXO — XOO
3 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPENED

ID — O C A H — XOOO OOOO — OXOO — OOXO
4 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPENED

INPUT SWITCHES

NORMALLY OPEN	NORMALLY CLOSED	INITIATING VARIABLE
FS-101	FS-102	FLOW
LS-101	LS-102	LEVEL
PS-101	PS-102	PRESSURE
SS-101	SS-102	SPEED
TS_1001	TS_1001	TEMPERATURE
WS-101	WS-102	FORCE OR TORQUE
ZS-101	ZS-102	POSITION (LIMIT)

CONTROL RELAYS

- 2 CR / FUNCTION — OPERATING COIL
  CR = CONTROL RELAY
  U = UNLATCH
  L = LATCH
- OL — THERMAL OVERLOAD RELAY
- 2CR 2CR — OUTPUT CONTACTS

INDICATING LIGHTS

INDICATING LIGHTS

L = LENS COLOR:
A = AMBER
B = BLUE
G = GREEN
R = RED
W = WHITE

- L / STATUS — DIRECT CONNECTION
- X1 — L / STATUS — PUSH TO TEST. TEST VOLTAGE TERMINAL SHOWN

OUTPUT LOADS AND DEVICES

- M — MOTOR
- 250 W — SPACE HEATER. WATTAGE SHOWN
- SOLENOID
- H — HOUR METER (ELAPSED TIME)
- KIC — TIME CONTROLLER

DEFINITIONS

A/R = AS REQUIRED

N/A = NOT APPLICABLE

X — BILL OF MATERIAL ITEM

TIMING RELAYS

3 TR / ON or OFF DELAY RANGE:SEC/MIN SET:SEC/MIN — OPERATING COIL

NORMALLY OPEN	NORMALLY CLOSED
3TR DESC	3TR DESC

ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION. NOTC = NORMALLY OPEN TIME CLOSE. NCTO = NORMALLY CLOSED TIME OPEN

3TR DESC	3TR DESC

OFF DELAY (DELAY ON COIL DE-ENERGIZATION) RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION. NOTO = NORMALLY OPEN TIME OPEN. NCTC = NORMALLY CLOSED TIME CLOSE

3TR DESC	3TR DESC

TIME DELAY RELAY INSTATANEOUS CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.

MISCELLANEOUS

- HORN
- 250 OHM / RES — RESISTOR
- RECTIFIER
- SURGE OR ARC SUPRESSOR
- KVAR — CAPACITOR
- CONNECTOR PLUG
- GROUND CONNECTION
- ETHERNET RJ-45 CONNECTION
- ANTENNA

GENERAL NOTES:

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WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-0002.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

LEGEND AND SYMBOLS - 2

DRAWING NUMBER
I-0002

SHEET NUMBER
2 OF 70

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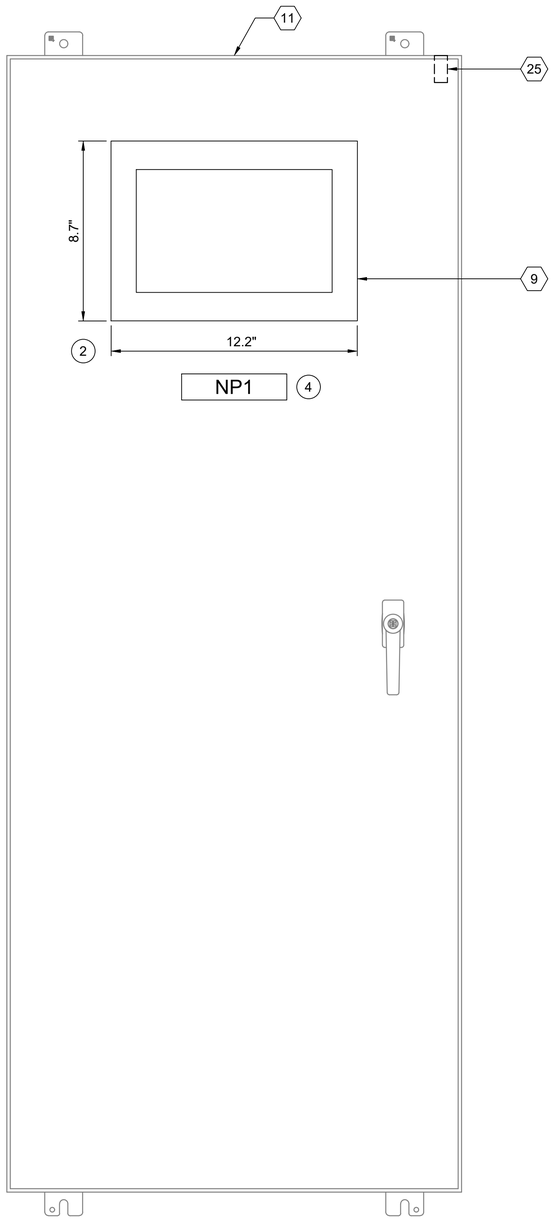
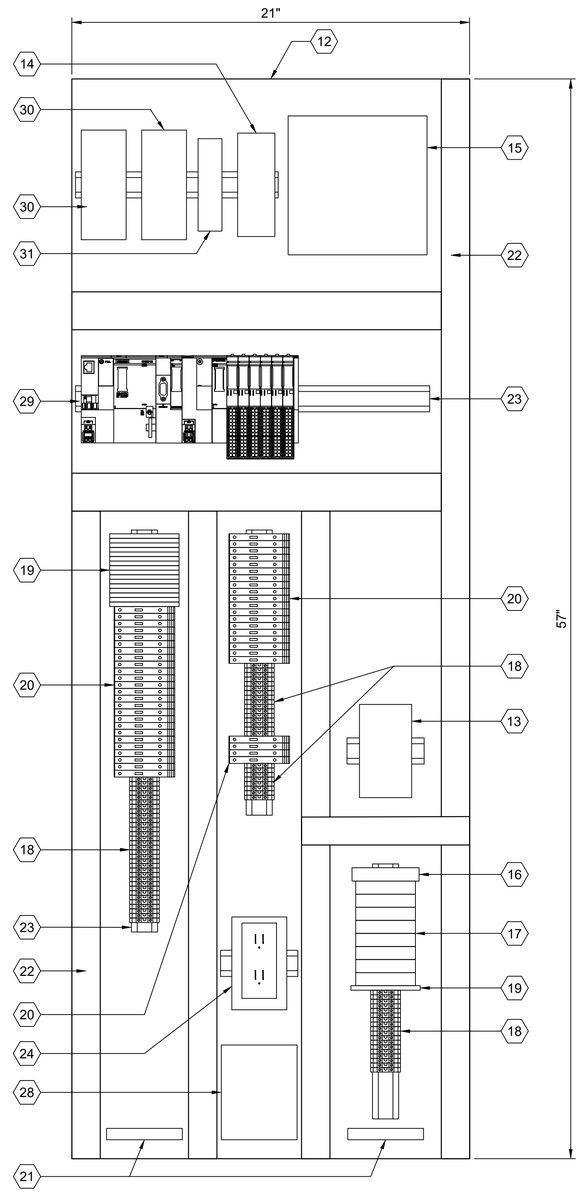


ENCLOSURE EXTERIOR

DETAIL A

SCALE: 1:4



INTERIOR BACK PANEL 1

DETAIL B

SCALE: 1:4

PANEL BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY
11	EXISTING ENCLOSURE	1
12	BACK PANEL	1
13	24 VDC POWER SUPPLY	1
14	24 VDC UPS	1
15	24 VDC UPS BATTERY	1
16	SURGE PROTECTION DEVICE	1
17	CIRCUIT BREAKER	A/R
18	TERMINAL BLOCK	A/R
19	CONTROL RELAY	A/R
20	FUSED TERMINAL BLOCK	A/R
21	GROUND BAR	2
22	WIREWAY (SIZE AS REQUIRED)	A/R
23	DIN RAIL, 35 MM	A/R
24	120 VAC RECEPTACLE	1
25	ENCLOSURE DOOR SWITCH	1
26	NOT USED	
27	NOT USED	
28	HEATER	1
29	SIEMENS PLC	KEY NOTE 3
30	MANAGED NETWORK SWITCH	2
31	DC TO DC CONVERTER, NEC CLASS 2 OUTPUT	1

PLC BILL OF MATERIALS 3

ITEM NO.	DESCRIPTION	QUANTITY
1	ET200SP CPU	1
2	DNP3 COMMUNICATION MODULE	1
3	16 CHANNEL DIGITAL INPUT MODULE	2
4	16 CHANNEL DIGITAL OUTPUT MODULE	1
5	4 CHANNEL ANALOG INPUT MODULE	2
6	4 CHANNEL ANALOG OUTPUT MODULE	1
7	IO MODULE BASE UNIT, SEPARATED	2
8	IO MODULE BASE UNIT, JUMPERED	4
9	12" OPERATOR INTERFACE TERMINAL	1
10	PROFIBUS COMMUNICATION MODULE	1

SLOT: 01	02	03	04	05	06	07	08	09
1 CPU	10 PROFIBUS COMMUNICATION MODULE	2 DNP3 COMMUNICATION MODULE	3 DIGITAL INPUT 16-CHANNEL	3 DIGITAL INPUT 16-CHANNEL	4 DIGITAL OUTPUT 16-CHANNEL	5 ANALOG INPUT 4-CHANNEL	5 ANALOG INPUT 4-CHANNEL	6 ANALOG OUTPUT 4-CHANNEL
			7 BASE UNIT SEPARATED	8 BASE UNIT JUMPERED	8 BASE UNIT JUMPERED	7 BASE UNIT SEPARATED	8 BASE UNIT JUMPERED	8 BASE UNIT JUMPERED

PLC RACK LAYOUT

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_DST_FHL_CAB7000	FIRST HILL PUMP STATION	PLC PANEL

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL PANEL LAYOUT AND FABRICATION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL. FABRICATE PANEL IN ACCORDANCE WITH SECTIONS 40 67 00 AND 40 63 43.
2. FOR DEMOLITION WORK ASSOCIATED WITH THIS SITE, REFER TO DRAWING I-1601.

KEY NOTES:

1. BACK PANEL TO BE INSTALLED IN EXISTING ENCLOSURE.
2. DIMENSIONS SHOWN ARE FOR OIT CUTOUT. COORDINATE OIT LOCATION WITH EXISTING FRONT ENCLOSURE CUTOUT. REFER TO DRAWING I-1601 FOR DETAILS.
3. PLC BILL OF MATERIALS LISTS MAIN PLC COMPONENTS. REFER TO SECTION 40 63 43 FOR DETAILS AND ACCESSORIES.
4. NEW NAMEPLATE TO BE PROVIDED BY CONTRACTOR FOR EXISTING ENCLOSURE. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.

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WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-1001.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP STATION - PANEL LAYOUT

DRAWING NUMBER
I-1001

SHEET NUMBER
3 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-1001.DWG PLOT DATE: 12/7/2020 4:05 PM CAD USER: BAMBANG NURSUWITO
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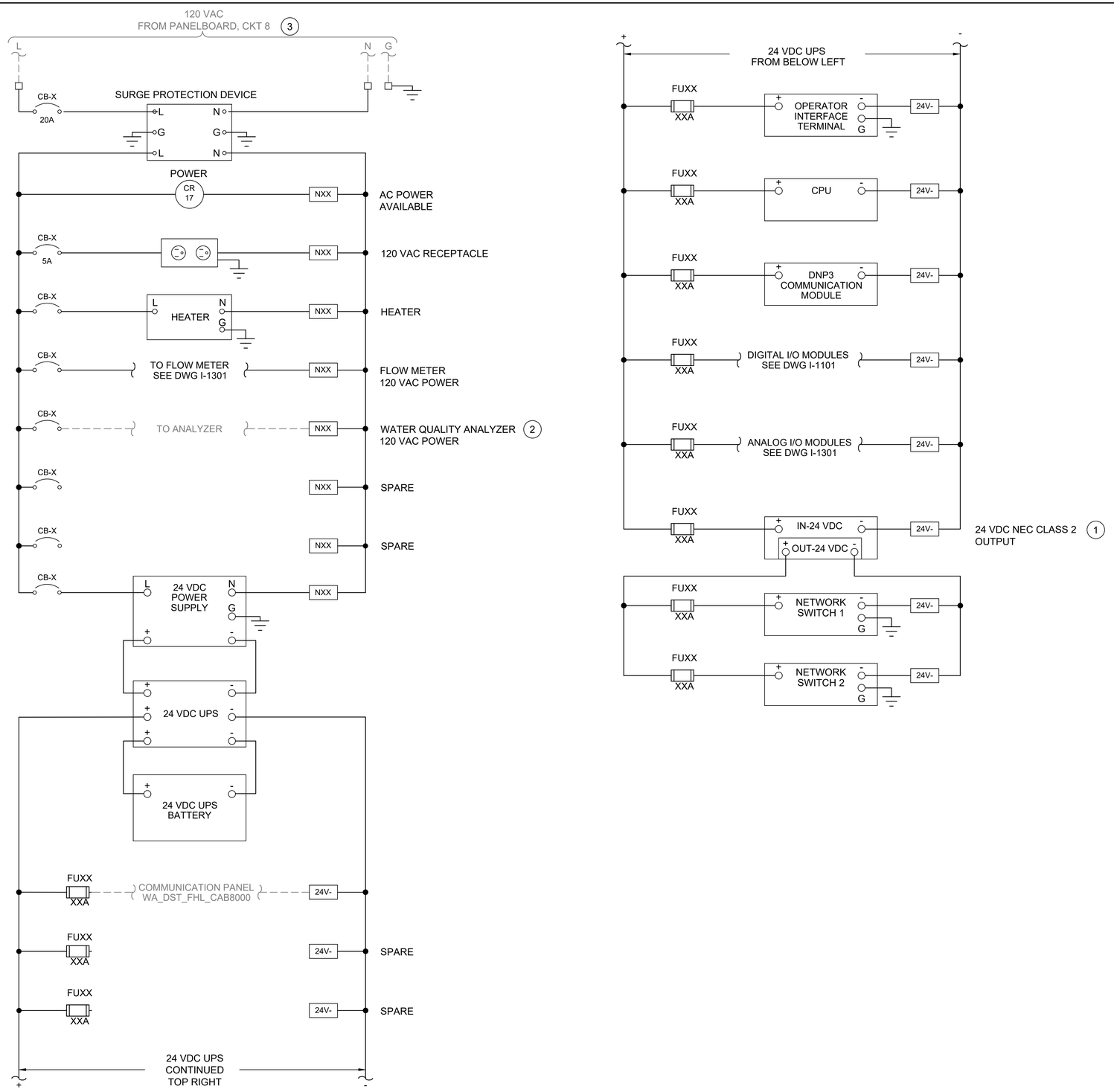
PLC PANEL



GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL POWER DISTRIBUTION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ON THE POWER DISTRIBUTION DRAWING(S), PROVIDE EACH CIRCUIT BREAKER (CB) AND FUSE (FU) WITH A UNIQUE ID NUMBER AND IDENTIFY AN AMP RATING, IF NOT SHOWN.

KEY NOTES:

1. PROVIDE NEC CLASS 2 POWER SUPPLY WHEN REQUIRED BY PRODUCT MANUFACTURER.
2. CONFIRM EXISTING POWER TO ANALYZER IS 120 VAC.
3. CONTRACTOR TO VERIFY POWER SOURCE AND CIRCUIT NUMBER. UPDATE SUBMITTAL DRAWINGS AS REQUIRED.

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REVISIONS

REV	DATE	DESCRIPTION

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CHECKED: LSL
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FILENAME
I-1002.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP STATION - PANEL POWER DISTRIBUTION

DRAWING NUMBER
I-1002

SHEET NUMBER
4 OF 70

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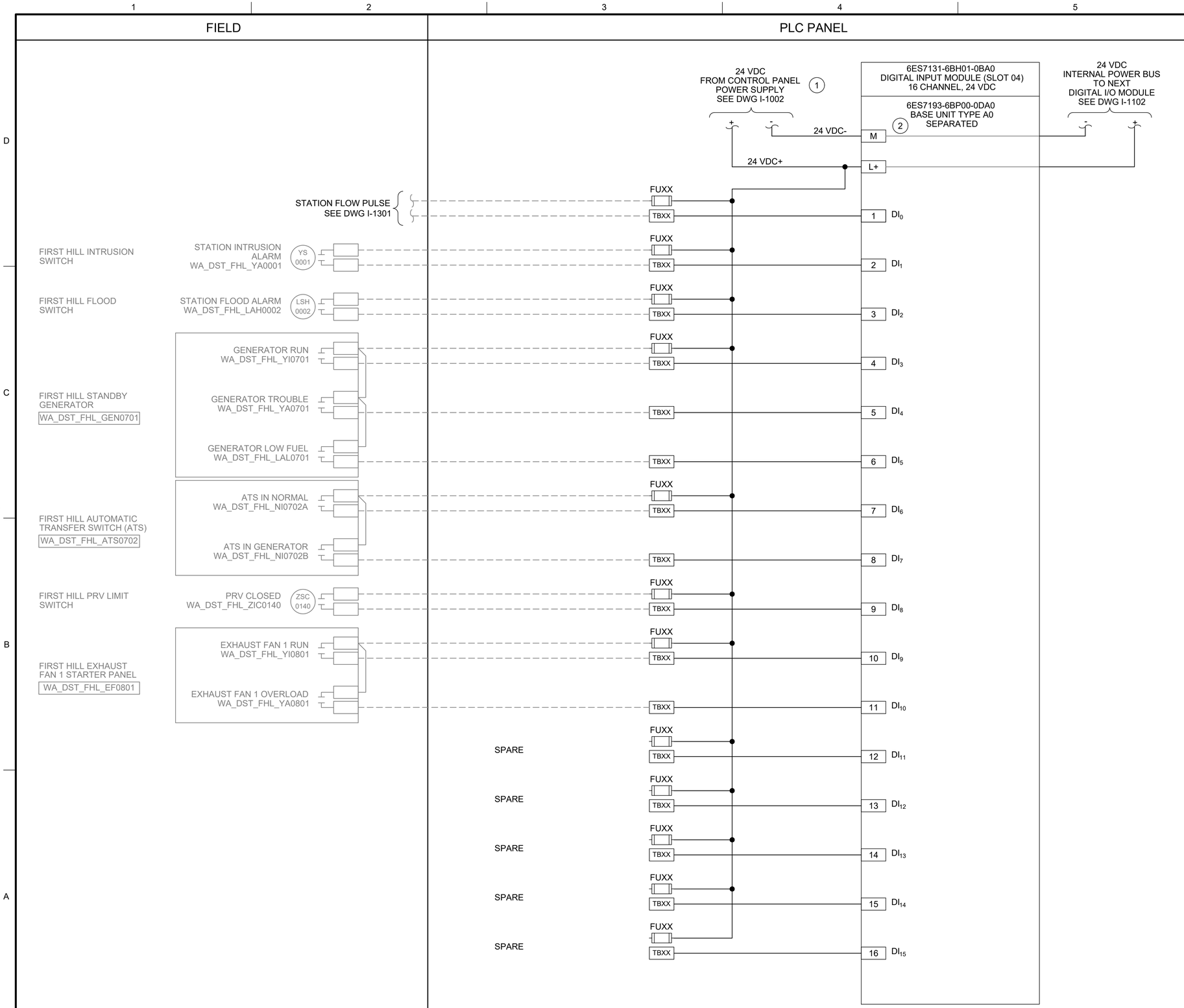
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_FHL_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. DIGITAL I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE DIGITAL I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

Brown AND Caldwell
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SUITE 1200
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BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:13:52-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-1101.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

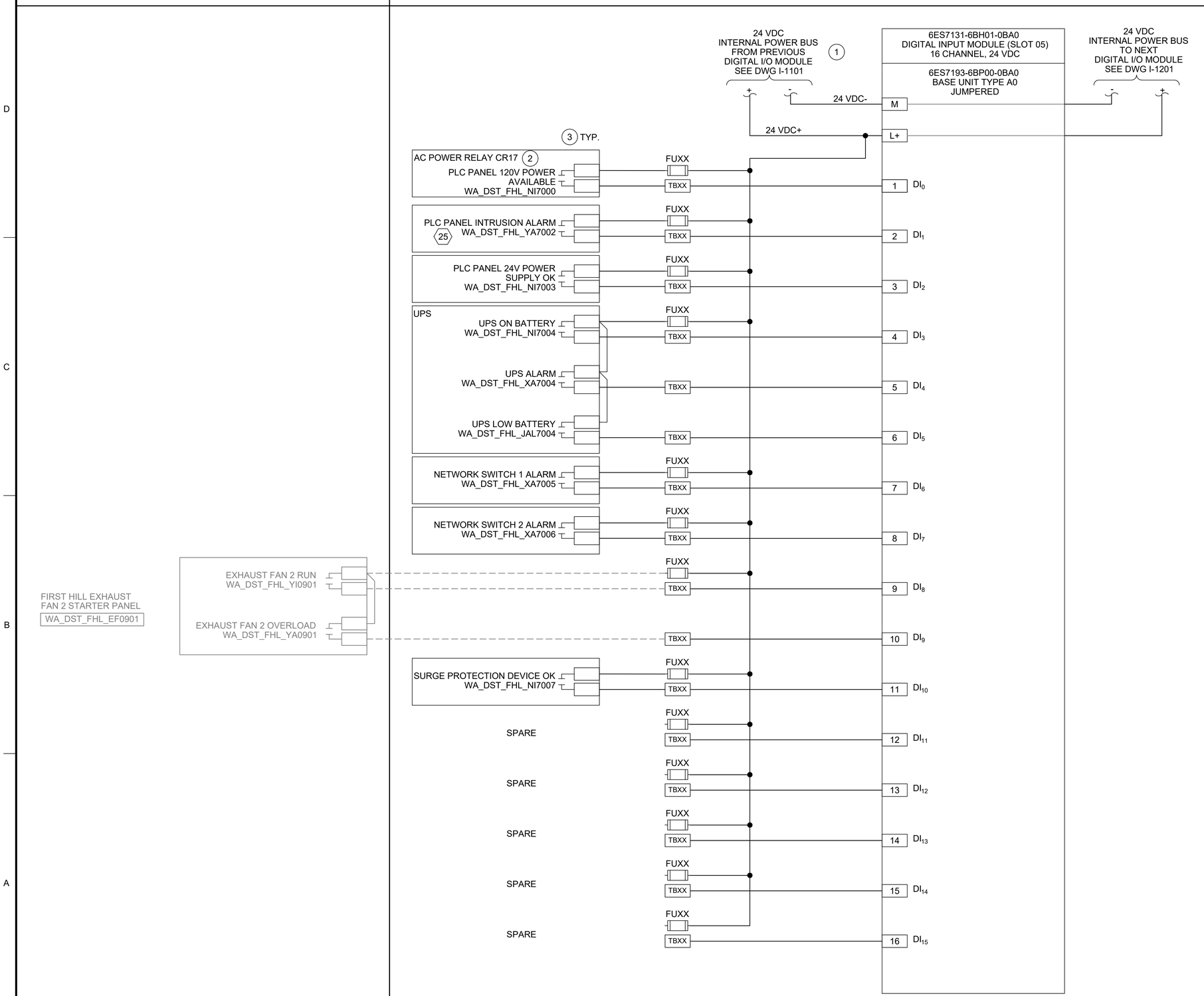
INSTRUMENTATION

FIRST HILL PUMP STATION - DIGITAL INPUT CARD 1

DRAWING NUMBER
I-1101

SHEET NUMBER
5 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1101.DWG PLOT DATE: 12/7/2020 12:24 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_FHL_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. REFER TO DRAWING I-1002 FOR AC POWER RELAY.
3. CONTRACTOR TO ADD MANUFACTURER TERMINAL NUMBERS FOR NEW PANEL COMPONENTS.

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-1102.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP STATION - DIGITAL INPUT CARD 2

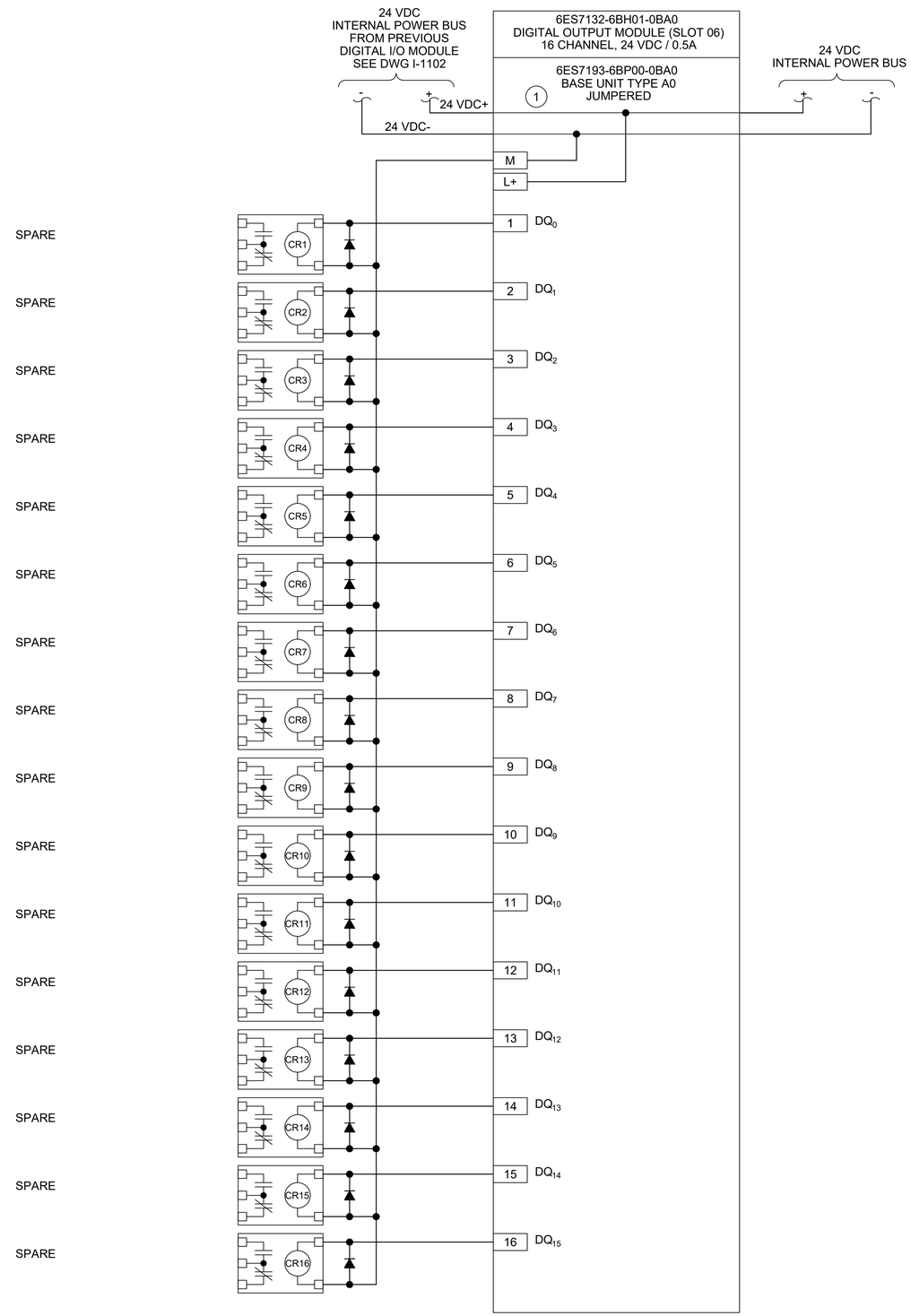
DRAWING NUMBER
I-1102

SHEET NUMBER
6 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1102.DWG PLOT DATE: 12/7/2020 12:24 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-1201.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

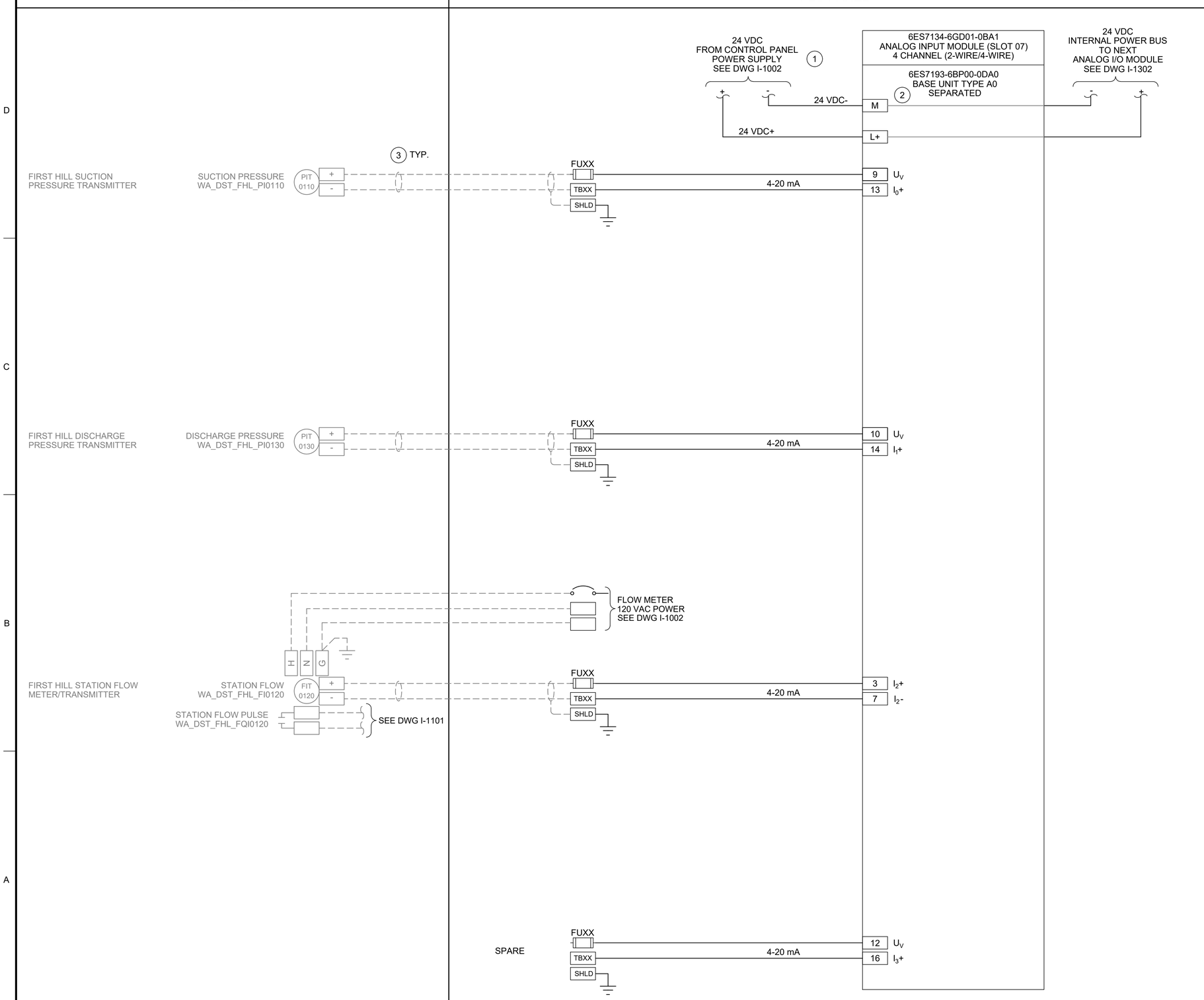
INSTRUMENTATION

FIRST HILL PUMP
STATION - DIGITAL
OUTPUT CARD

DRAWING NUMBER
I-1201

SHEET NUMBER
7 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1201.DWG PLOT DATE: 12/4/2020 12:27 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
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6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_FHL_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20MA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. ANALOG I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE ANALOG I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.
3. CUT AND TAPE SHIELD

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CAITLIN ANN BILLENER
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PROFESSIONAL ENGINEER
2020.12.16 10:15:10-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-1301.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP
STATION - ANALOG
INPUT CARD 1

DRAWING NUMBER
I-1301

SHEET NUMBER
8 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1301.DWG PLOT DATE: 12/7/2020 12:55 PM CAD USER: BAMBANG NURSUWITO
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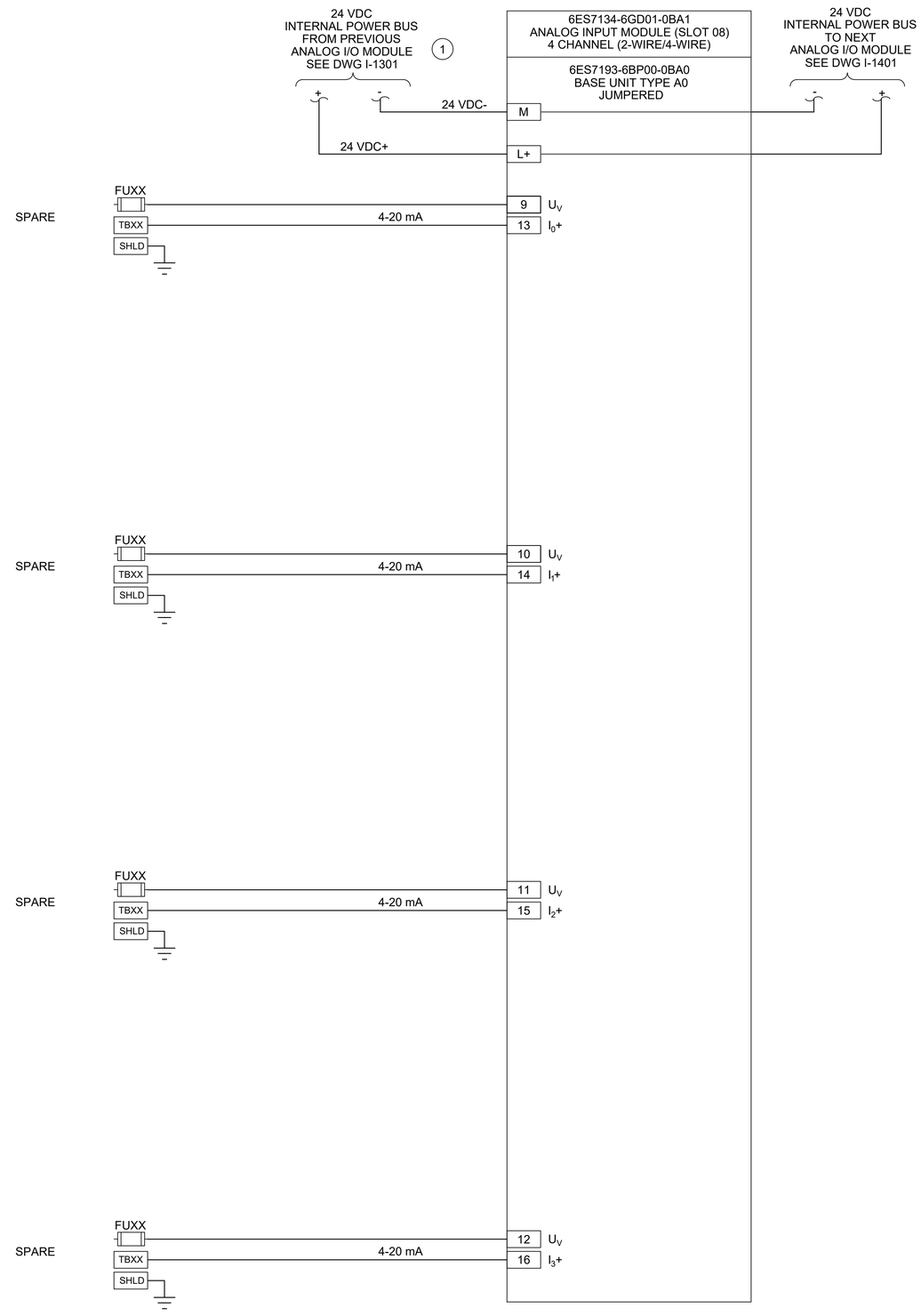
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BUSE UNIT.

Brown AND Caldwell
701 PIKE STREET
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BID SET

STATE OF WASHINGTON
CAITLIN ANN BILLENER
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:16:25-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSK
CHECKED: LSL
APPROVED: CAB

FILENAME
I-1302.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP
STATION - ANALOG
INPUT CARD 2

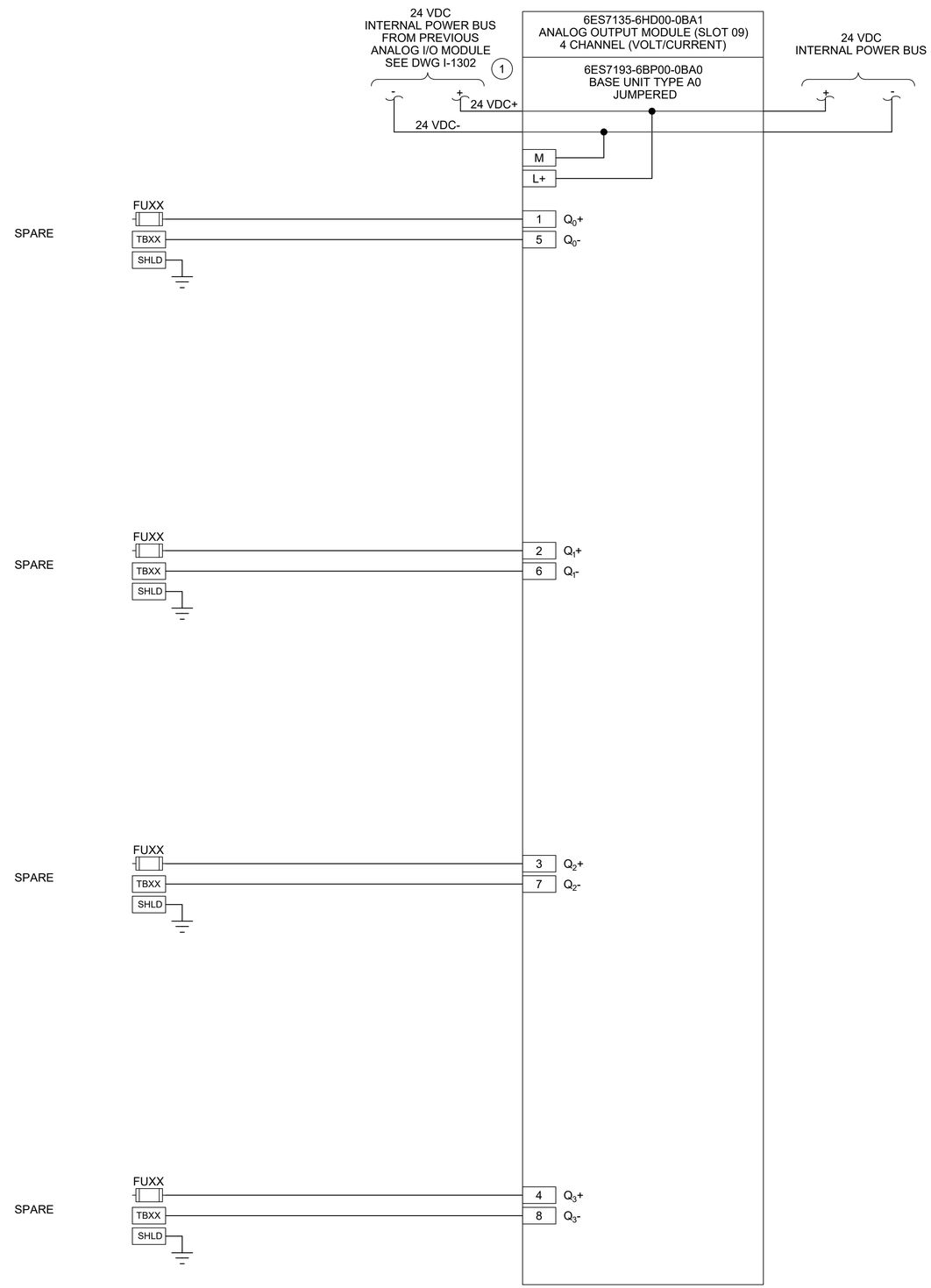
DRAWING NUMBER
I-1302

SHEET NUMBER
9 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1401.DWG PLOT DATE: 12/4/2020 12:39 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA CURRENT OUTPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-, 3- AND 4-WIRE VOLTAGE OUTPUTS AND DIFFERENT CURRENT OUTPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR OTHER OUTPUT OPTIONS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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SEATTLE, WASHINGTON

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55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:17:17-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

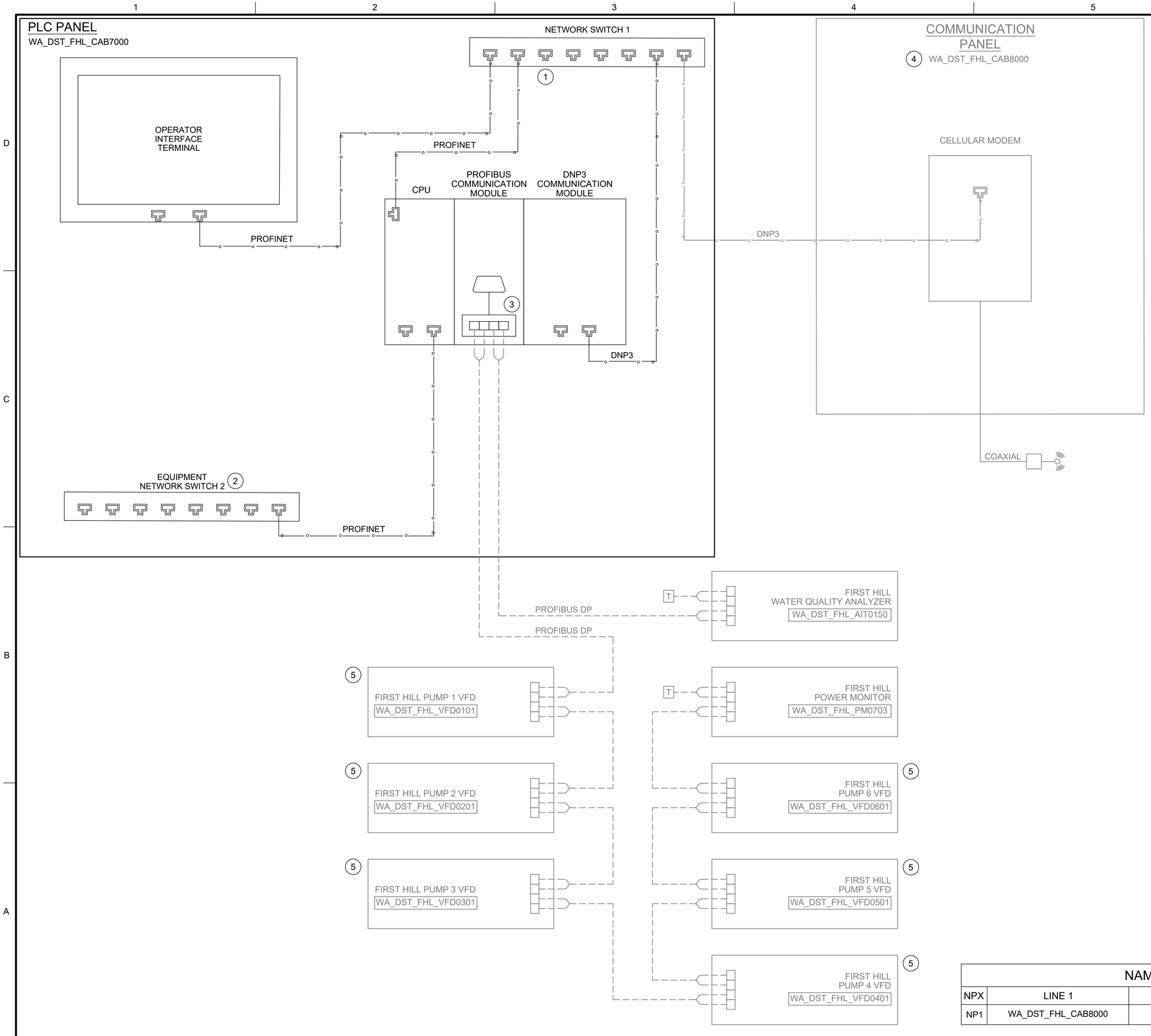
FILENAME
I-1401.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP
STATION - ANALOG
OUTPUT CARD

DRAWING NUMBER
I-1401

SHEET NUMBER
10 OF 70



KEY NOTES:

1. DEDICATED PORT FOR PROGRAMMING.
2. EQUIPMENT NETWORK SWITCH IS RESERVED FOR FUTURE NETWORK CONTROLLED DEVICES.
3. PROFIBUS BUS CONNECTOR FOR CONNECTION TO RS485 PORT.
4. CONTRACTOR TO PROVIDE NEW NAMEPLATE (NP1) FOR EXISTING COMMUNICATION PANEL. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.
5. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT UNDER THIS PROJECT. TAG NUMBERS SHOWN FOR FIRST HILL PUMP VFDS DO NOT MATCH NAMEPLATES IN THE FIELD. REFER TO SECTION 40 61 93A I/O LIST.

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_DST_FHL_CAB8000	FIRST HILL PUMP STATION	COMMUNICATION PANEL

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SEATTLE, WASHINGTON

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CAITLIN ANN BLESSNER
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2020.12.16 10:18:03-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-1501.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP STATION - NETWORK BLOCK DIAGRAM

DRAWING NUMBER
I-1501

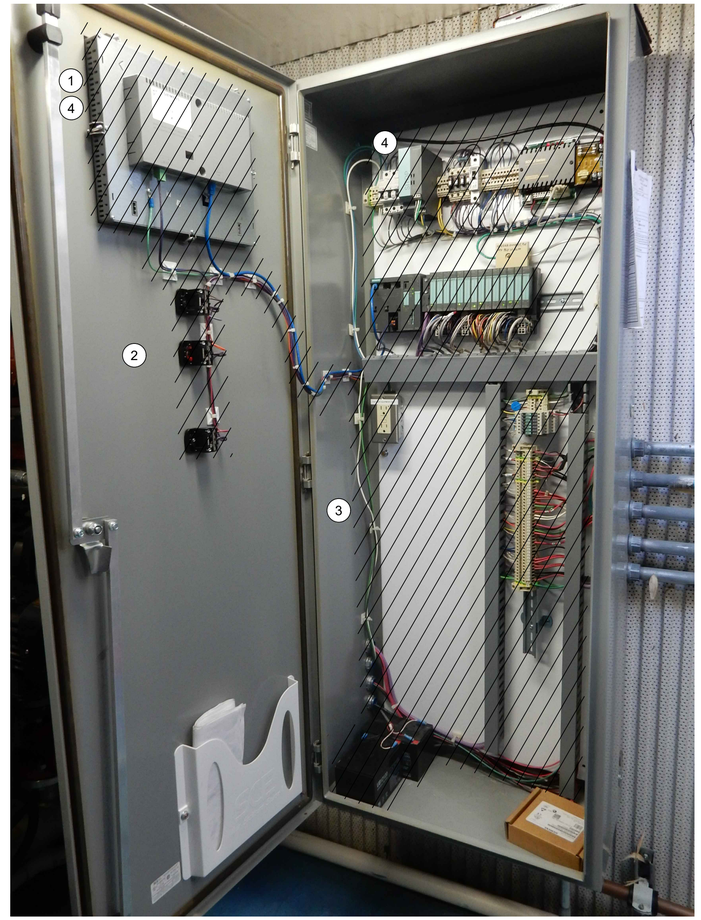
SHEET NUMBER
11 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-1501.DWG PLOT DATE: 12/7/2020 12:54 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

EXISTING
ENCLOSURE EXTERIOR

DETAIL A

SCALE: NONE



EXISTING
ENCLOSURE INTERIOR

DETAIL B

SCALE: NONE

GENERAL NOTES:

1. THIS DRAWING DEPICTS DEMOLITION IN THE EXISTING PLC PANEL (WA_DST_FHL_CAB7000) AT FIRST HILL PUMP STATION TO FACILITATE REPLACEMENT OF THE BACK PANEL AND OPERATOR INTERFACE TERMINAL.

KEY NOTES:

1. REMOVE EXISTING OPERATOR INTERFACE TERMINAL AND REPLACE WITH NEW OPERATOR INTERFACE TERMINAL. COORDINATE SIZE OF THE THE EXISTING CUTOUT WITH THE REQUIREMENTS OF THE NEW OPERATOR INTERFACE TERMINAL.
2. REMOVE FRONT PUSHBUTTONS (QTY: 2) AND SELECTOR SWITCH (QTY: 1) AND THE ASSOCIATED WIRING AND LABELS. PLUG/PATCH COMPONENT HOLES AFTER REMOVAL WITH A SUITABLE METHOD TO MAINTAIN THE NEMA RATING OF THE ENCLOSURE.
3. REMOVE EXISTING BACK PANEL AND ASSOCIATED COMPONENTS IN ENCLOSURE BOTTOM. REPLACE WITH NEW BACK PANEL. RE-TERMINATE EXISTING FIELD WIRING AT NEW BACK PANEL.
4. EXISTING OPERATOR INTERFACE TERMINAL AND 24 VDC POWER SUPPLY SHALL BE SALVAGED, INVENTORIED, TAGGED WITH LOCATION REMOVED FROM AND TURNED OVER TO OWNER.

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SEATTLE, WASHINGTON

BID SET

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STATE OF WASHINGTON
55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-1601.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

FIRST HILL PUMP
STATION -
DEMOLITION
DETAILS

DRAWING NUMBER
I-1601

SHEET NUMBER
12 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-1601.DWG PLOT DATE: 12/7/2020 12:53 PM CAD USER: BAMBANG NURSUWITO
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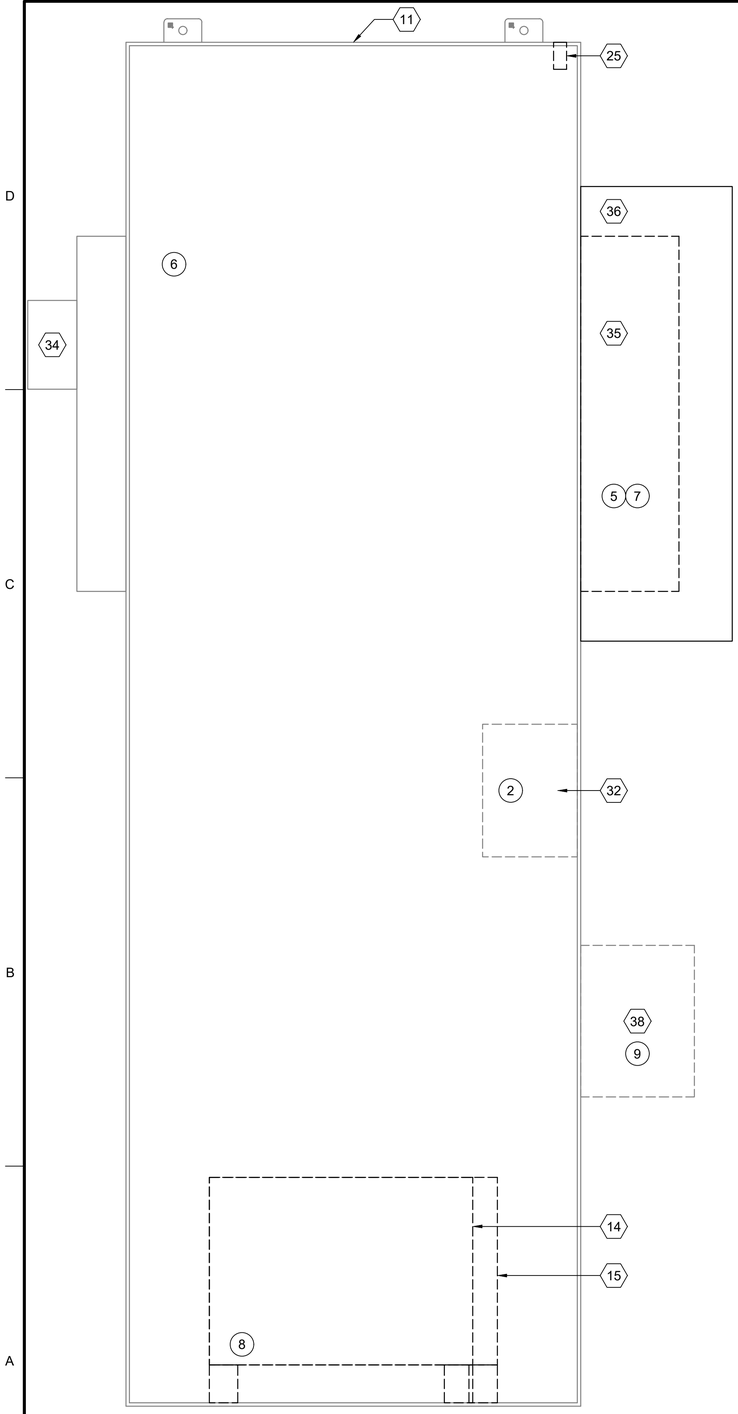
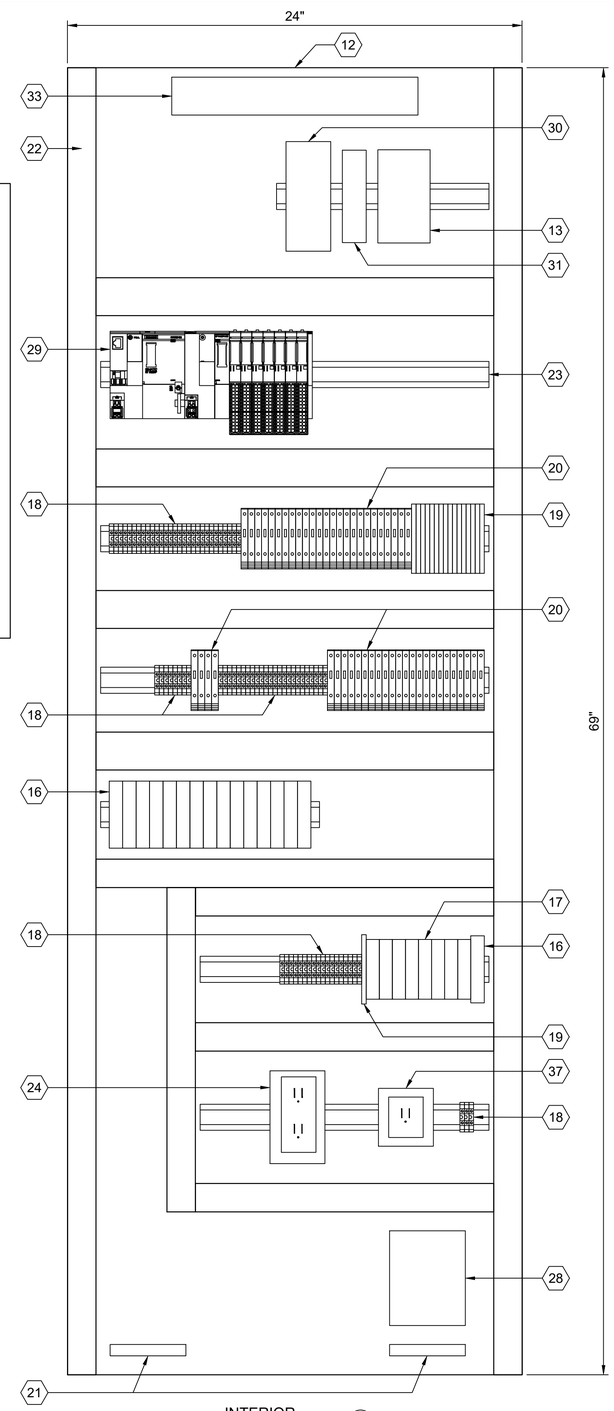


ENCLOSURE EXTERIOR

DETAIL A

SCALE: 1:4



INTERIOR
BACK PANEL

DETAIL B

SCALE: 1:4

PANEL BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY
11	EXISTING ENCLOSURE	1
12	BACK PANEL	1
13	24 VDC POWER SUPPLY	1
14	120 VAC UPS WITH PEDESTAL	1
15	UPS BATTERY	1
16	SURGE PROTECTION DEVICE	A/R
17	CIRCUIT BREAKER	A/R
18	TERMINAL BLOCK	A/R
19	CONTROL RELAY	A/R
20	FUSED TERMINAL BLOCK	A/R
21	GROUND BAR	2
22	WIREWAY (SIZE AS REQUIRED)	A/R
23	DIN RAIL, 35 MM	A/R
24	120 VAC RECEPTACLE	1
25	ENCLOSURE DOOR SWITCH	1
26	NOT USED	
27	NOT USED	
28	HEATER	1
29	SIEMENS PLC	KEY NOTE 3
30	MANAGED NETWORK SWITCH	1
31	DC TO DC CONVERTER, NEC CLASS 2 OUTPUT	1
32	FLOW TRANSMITTER (EXISTING)	1
33	ENCLOSURE LIGHT W/ SWITCH	1
34	PUGET SOUND ENERGY (PSE) METER (EXISTING)	1
35	120/240 V PANELBOARD	1
36	24" X 24" X 8" LOCKABLE ENCLOSURE	1
37	UPS RECEPTACLE	1
38	COMMUNICATION PANEL (EXISTING)	1

PLC BILL OF MATERIALS

3

ITEM NO.	DESCRIPTION	QUANTITY
1	ET200SP CPU	1
2	DNP3 COMMUNICATION MODULE	1
3	16 CHANNEL DIGITAL INPUT MODULE	2
4	16 CHANNEL DIGITAL OUTPUT MODULE	1
5	4 CHANNEL ANALOG INPUT MODULE	3
6	4 CHANNEL ANALOG OUTPUT MODULE	1
7	IO MODULE BASE UNIT, SEPARATED	2
8	IO MODULE BASE UNIT, JUMPERED	5
9	7" OPERATOR INTERFACE TERMINAL	1 (KEY NOTE 4)
10	NOT USED	

SLOT:	01	02	03	04	05	06	07	08	09
	1 CPU	2 DNP3 COMMUNICATION MODULE	3 DIGITAL INPUT 16-CHANNEL	3 DIGITAL INPUT 16-CHANNEL	4 DIGITAL OUTPUT 16-CHANNEL	5 ANALOG INPUT 4-CHANNEL	5 ANALOG INPUT 4-CHANNEL	5 ANALOG INPUT 4-CHANNEL	6 ANALOG OUTPUT 4-CHANNEL
			7 BASE UNIT SEPARATED	8 BASE UNIT JUMPERED	8 BASE UNIT JUMPERED	7 BASE UNIT SEPARATED	8 BASE UNIT JUMPERED	8 BASE UNIT JUMPERED	8 BASE UNIT JUMPERED

PLC RACK LAYOUT

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_WS_SPU171_PBD9000	SPU STATION 171	PANELBOARD

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL PANEL LAYOUT AND FABRICATION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL. FABRICATE PANEL IN ACCORDANCE WITH SECTIONS 40 67 00 AND 40 63 43.
2. FOR DEMOLITION WORK ASSOCIATED WITH THIS SITE, REFER TO DRAWING I-2601.
3. PROVIDE INTERIOR SWING-OUT PANEL WITHIN EXISTING ENCLOSURE FOR MOUNTING OPERATOR INTERFACE TERMINAL. REFER TO DRAWING I-6001 FOR DETAILS.

KEY NOTES:

1. BACK PANEL TO BE INSTALLED IN EXISTING ENCLOSURE.
2. EXISTING FLOW TRANSMITTER TO BE RELOCATED TO SIDE PANEL OF ENCLOSURE. REFER TO DRAWING I-2601 FOR DETAILS.
3. PLC BILL OF MATERIALS LISTS MAIN PLC COMPONENTS. REFER TO SECTION 40 63 43 FOR DETAILS AND ACCESSORIES.
4. MOUNT OPERATOR INTERFACE TERMINAL ON INTERIOR SWING-OUT PANEL. REFER TO DRAWING I-6001 FOR DETAILS.
5. INSTALL NEW LOCKABLE ENCLOSURE ON EXTERIOR OF EXISTING ENCLOSURE, USING 1 5/8" CHANNEL. POWER PANELBOARD (WA_WS_SPU171_PBD9000) TO BE MOUNTED WITHIN LOCKABLE ENCLOSURE. PROVIDE NAMEPLATE (NP1) ON PANELBOARD. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION. PROVIDE A MINIMUM 1/2 INCH SPACING BETWEEN PANELBOARD AND NEW ENCLOSURE USING NYLON SPACERS. PANELBOARD AND LOCKABLE ENCLOSURE ARE SPECIFIED IN SECTION 26 05 00. REFER TO DRAWING I-2602 FOR DETAILS.
6. PROVIDE AND INSTALL LABEL ON EXISTING ENCLOSURE: "ELECTRICAL SHOCK HAZARD, THIS EQUIPMENT IS POWERED BY MULTIPLE POWER SOURCES".
7. REFER TO DRAWING I-2002 FOR PANEL SCHEDULE FOR PANELBOARD WA_WS_SPU171_PBD9000.
8. UPS/BATTERY TO BE PHYSICALLY SECURED TO PANEL WHILE STILL ALLOWING ACCESS/REMOVAL FOR MAINTENANCE. ENCLOSURE HAS BOTTOM CONDUIT ENTRIES. UPS/BATTERY TO BE MOUNTED ON FEET/STANDS TO NOT INTERFERE WITH CONDUIT ENTRIES.
9. COMMUNICATION PANEL (WA_WS_SPU171_CAB8000) TO BE INSTALLED BY OWNER PRIOR TO PROJECT CONSTRUCTION. REFER TO DRAWING I-2602.

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SEATTLE, WASHINGTON

BID SET

NICKLAS JACK HAYENS
STATE OF WASHINGTON
55678
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:21:44-08'00'

CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:00:28-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-2001.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

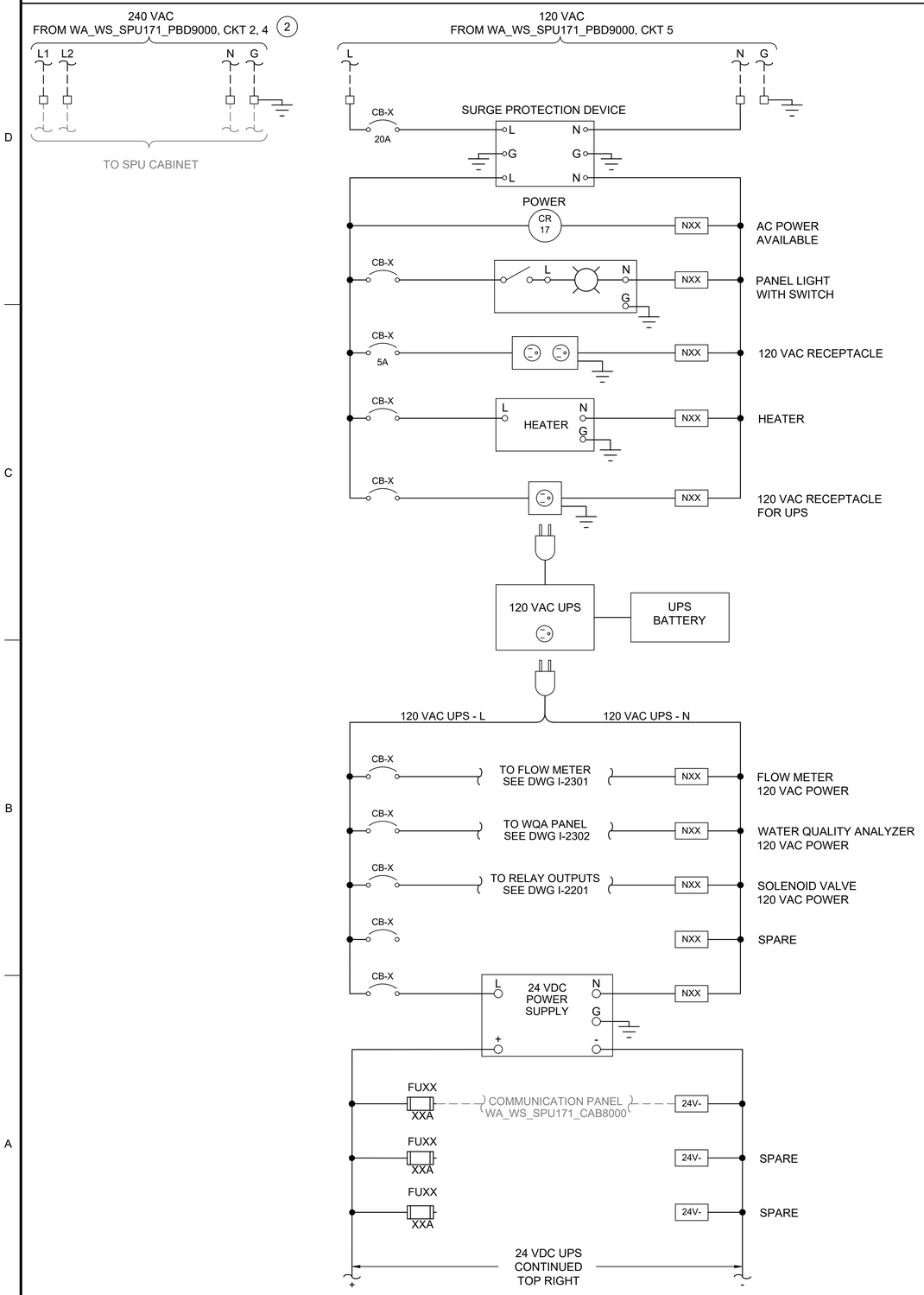
SPU STATION 171 -
PANEL LAYOUT

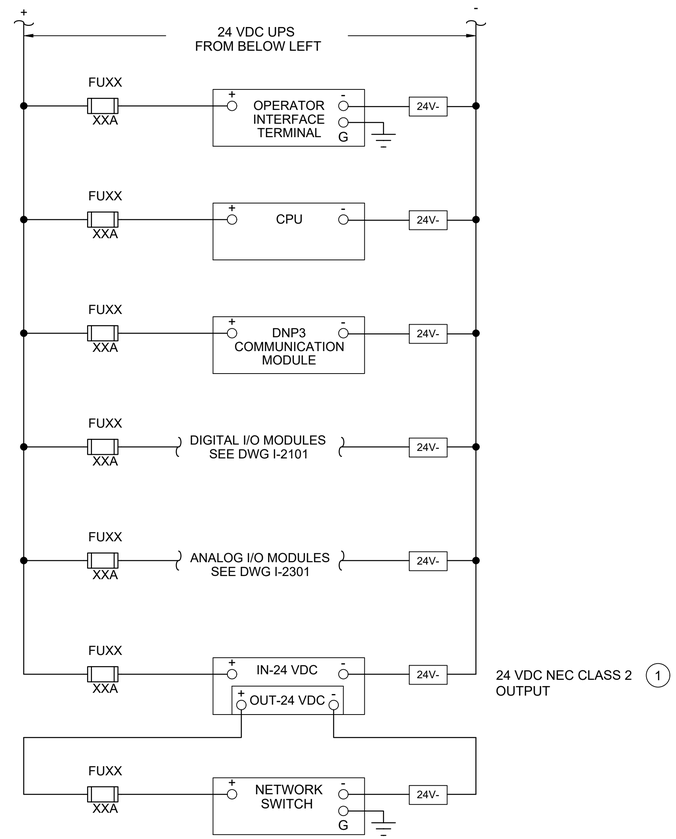
DRAWING NUMBER
I-2001

SHEET NUMBER
13 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DI\R\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-011\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-2001.DWG PLOT DATE: 12/7/2020 12:50 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

PLC PANEL





GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL POWER DISTRIBUTION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ON THE POWER DISTRIBUTION DRAWING(S), PROVIDE EACH CIRCUIT BREAKER (CB) AND FUSE (FU) WITH A UNIQUE ID NUMBER AND IDENTIFY AN AMP RATING, IF NOT SHOWN.

KEY NOTES:

1. PROVIDE NEC CLASS 2 POWER SUPPLY WHEN REQUIRED BY PRODUCT MANUFACTURER.
2. PANELBOARD FEEDS EXISTING SPU CABINET. INSTALL NEW WIRE FROM PANELBOARD TO TERMINALS IN THE PLC PANEL. USE EXISTING WIRE AND CONDUIT TO POWER THE SPU CABINET.

PANEL SCHEDULE — WA_WS_SPU171_PBD9000

240/120 VOLTS	NORMAL POWER	BUS RATING:	100 AMPS	LOCATION: CABINET	FEED-THRU LUGS	N
1 -PHASE	PNL. MFR.: -	MAIN BKR:	60 AMPS CB	MOUNTING: SURFACE	DOUBLE LUGS	N
3 -WIRE	CAT. NO.: -	A.I.C. RATING:	10 AIC SYM	FED FROM: TOP	ISOLATED GND	N
					200% NEUTRAL	N

CKT NO.	CIRCUIT DESCRIPTION	CODE	LOAD (Kva)	BKR AMPS	PH	BKR AMPS	LOAD (kVA)	CODE	CIRCUIT DESCRIPTION	CKT NO.
1	MAIN	-		60	-A-	40	3.80	Z	SPU CABINET	2
3		-			-B-		3.80	Z		4
5	PLC PANEL	z	1.92	20	-A-	20		-	SPARE	6
7	SPACE	-		-	-B-	-		-	SPACE	8
9	SPACE	-		-	-A-	-		-	SPACE	10
11	SPACE	-		-	-B-	-		-	SPACE	12

CODES:	CONNECTED LOAD		CALCULATED DEMAND LOAD		
H = HVAC LOADS	0.00	kVA	0.00	kVA	(100%)
K = KITCHEN EQUIPMENT	0.00	kVA	0.00	kVA	(100%)
L = LIGHTING LOADS	0.00	kVA	0.00	kVA	(125%)
LM = LARGEST SINGLE MOTOR	0.00	kVA	0.00	kVA	(125%)
M = OTHER MOTOR LOADS	0.00	kVA	0.00	kVA	(100%)
NC = NON-COINCIDENTAL LOADS	0.00	kVA	0.00	kVA	(0%)
R = GENERAL USE RECEPTACLES	0.00	kVA	0.00	kVA	(50%>10kVA)
S = DEDICATED RECEPTACLES	0.00	kVA	0.00	kVA	(100%)
Z = MISC. OR APPLIANCES	9.52	kVA	9.52	kVA	(100%)
TOTALS:	9.52	kVA	9.52	kVA	

REMARKS:
1. SUITABLE AS SERVICE EQUIPMENT

PHASE BALANCE ONLY
PHASE A 24 AMPS
PHASE B 16 AMPS

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SEATTLE, WASHINGTON

BID SET

NICKLAS JACK HAYENS — STATE OF WASHINGTON — 55678 — REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:40:19-08'00'

CAITLIN ANN BLIESNER — STATE OF WASHINGTON — 55655 — REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:01:12-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-2002.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

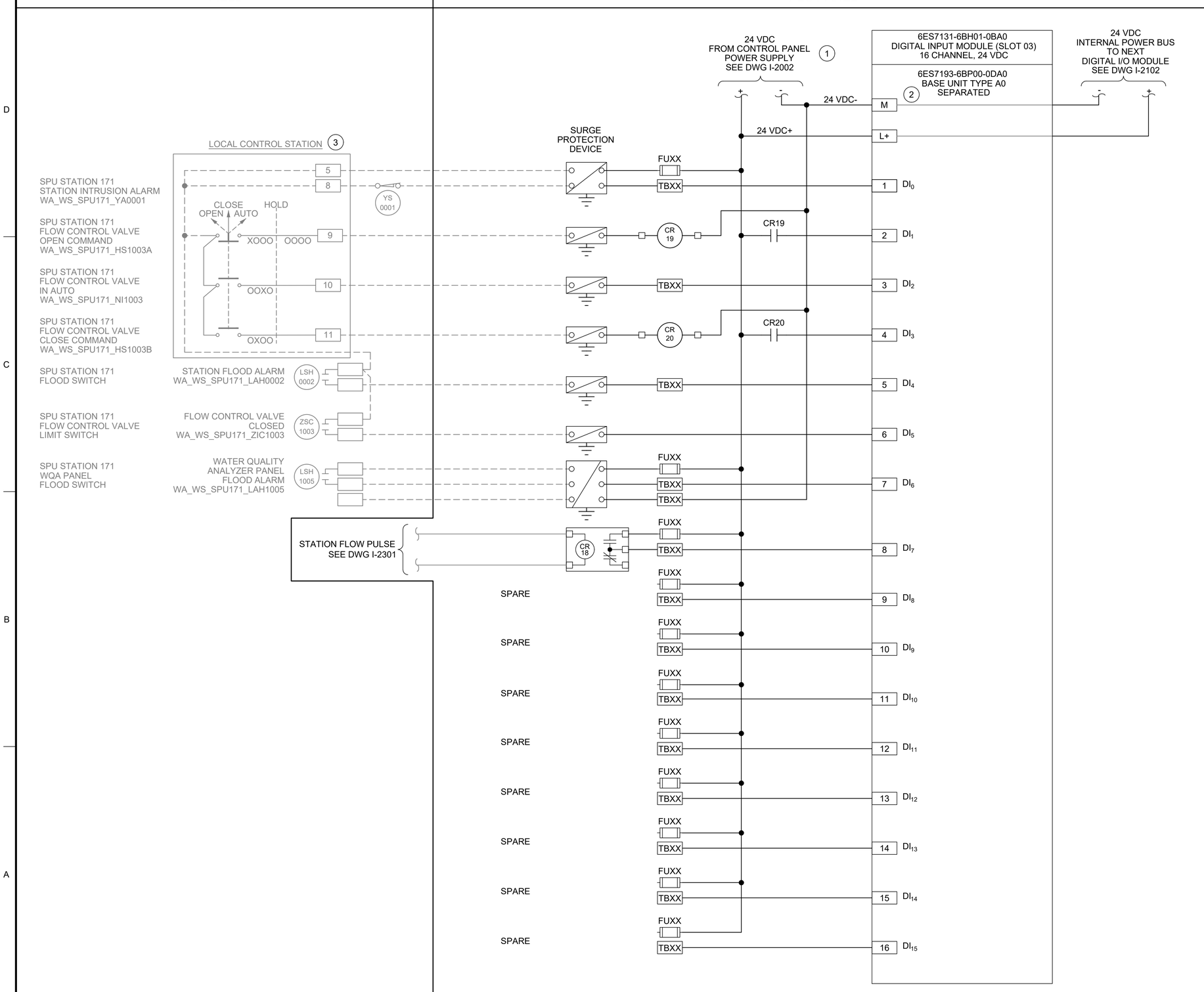
INSTRUMENTATION

SPU STATION 171 - PANEL POWER DISTRIBUTION

DRAWING NUMBER
I-2002

SHEET NUMBER
14 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD.COM\D0400357 FILENAME: I-2002.DWG PLOT DATE: 12/14/2020 10:37 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_WS_SPU171_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. THE LOCAL CONTROL STATION WIRING SHOWN ON THIS DRAWING IS BASED ON THE OWNER'S EXISTING WIRING DIAGRAM FOR SPU STATION 171 (DRAWING FILE NO. 12683-228-02). CONTRACTOR SHALL FIELD INVESTIGATE, VERIFY, AND DOCUMENT THE I/O CONNECTIONS FROM THE LOCAL CONTROL STATION.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. DIGITAL I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE DIGITAL I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.
3. REFER TO DEMOLITION DRAWING ON I-2601 FOR LOCAL CONTROL STATION MODIFICATIONS.

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55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2101.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 - DIGITAL INPUT CARD 1

DRAWING NUMBER
I-2101

SHEET NUMBER
15 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-2101.DWG PLOT DATE: 12/7/2020 12:49 PM CAD USER: BAMBANG NURSUWITO
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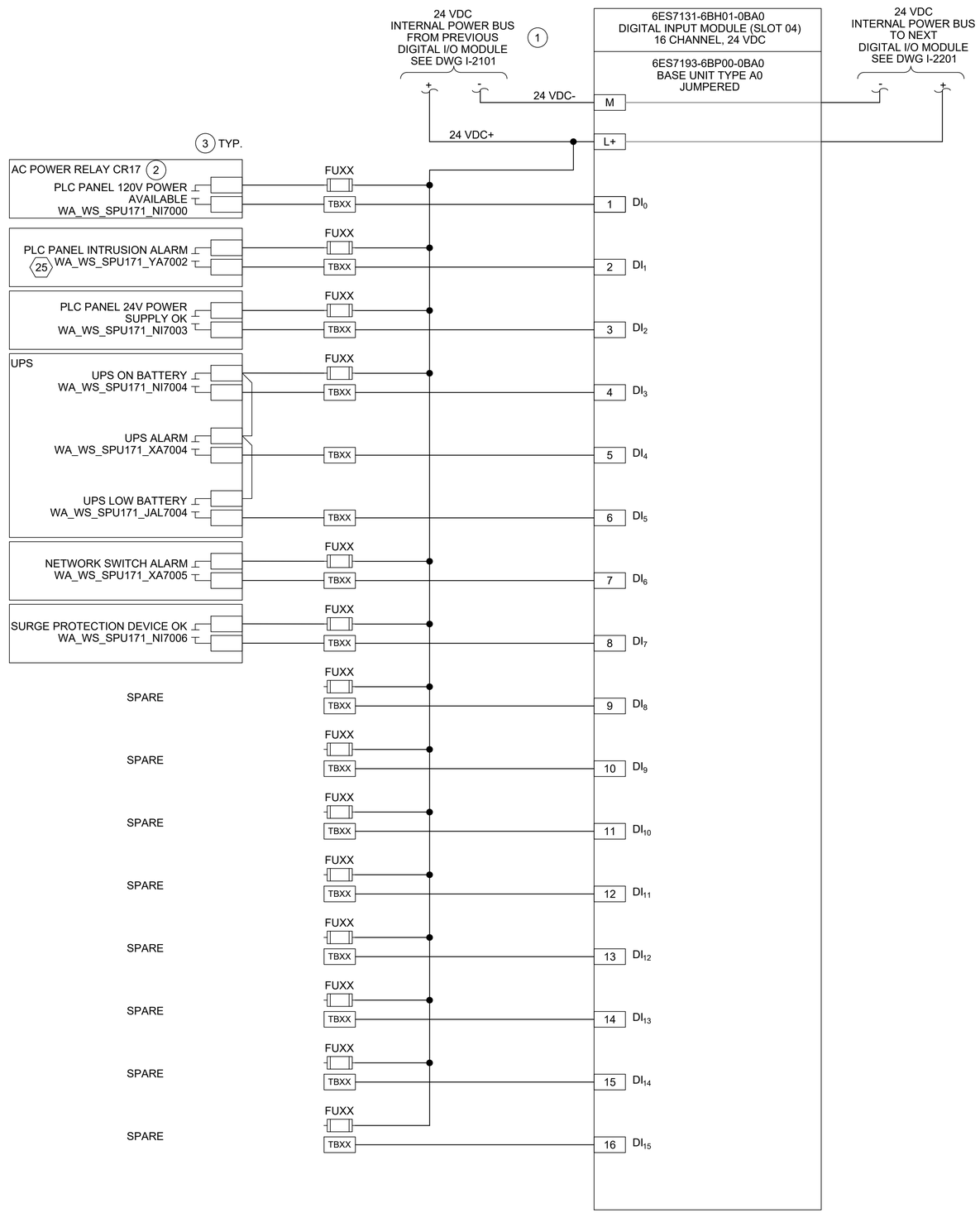
Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-2102.DWG PLOT DATE: 12/7/2020 12:58 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

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KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. REFER TO DRAWING I-2002 FOR AC POWER RELAY.
3. CONTRACTOR TO ADD MANUFACTURER TERMINAL NUMBERS FOR NEW PANEL COMPONENTS.

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55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2102.DWG

BC PROJECT NUMBER
153585

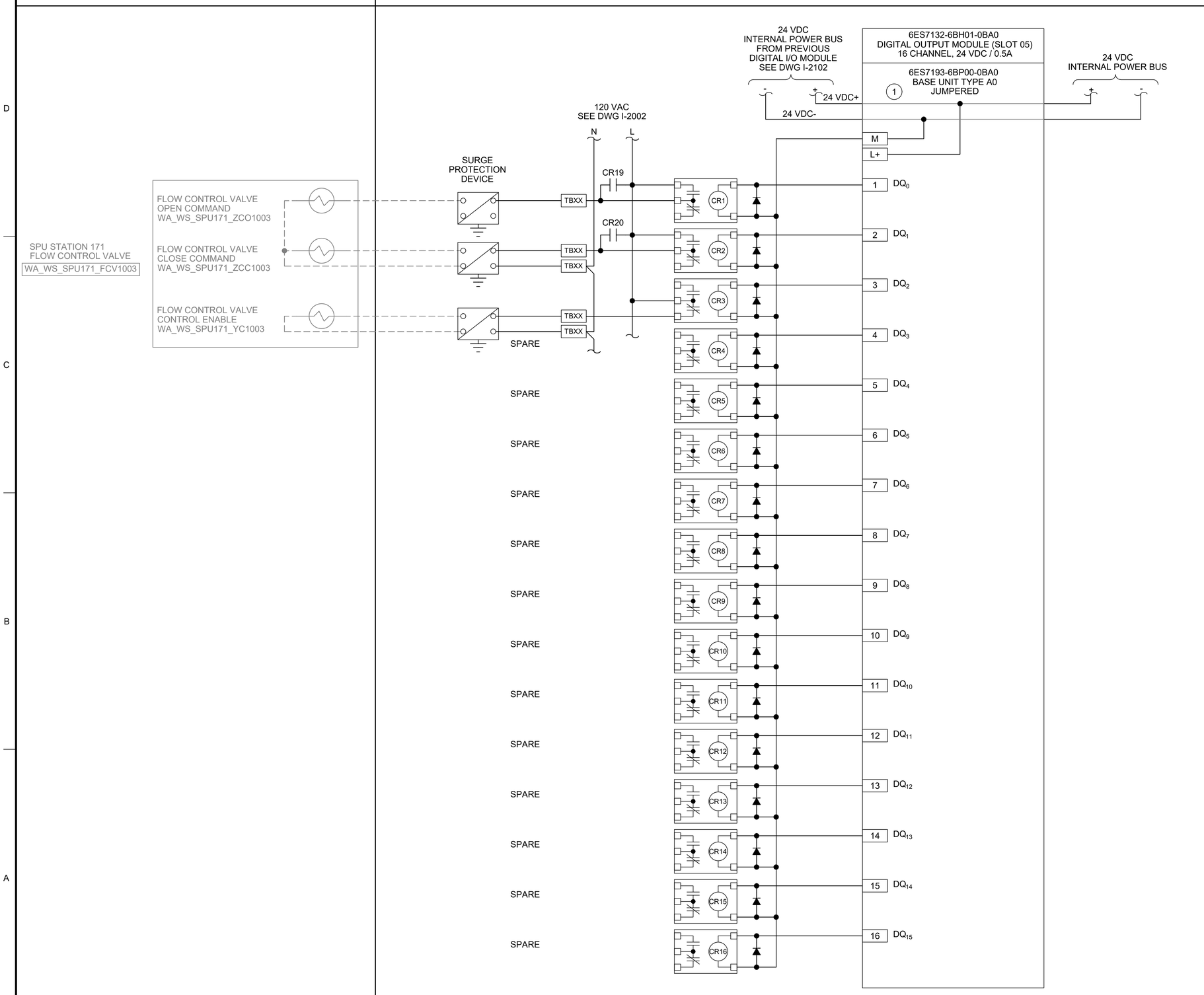
CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 - DIGITAL INPUT CARD 2

DRAWING NUMBER
I-2102

SHEET NUMBER
16 OF 70



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
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KEY NOTES:

(1) DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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STATE OF WASHINGTON
CAITLIN ANN BILLENER
55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
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DESIGNED: CAB
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CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-2201.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 -
DIGITAL OUTPUT
CARD

DRAWING NUMBER
I-2201

SHEET NUMBER
17 OF 70

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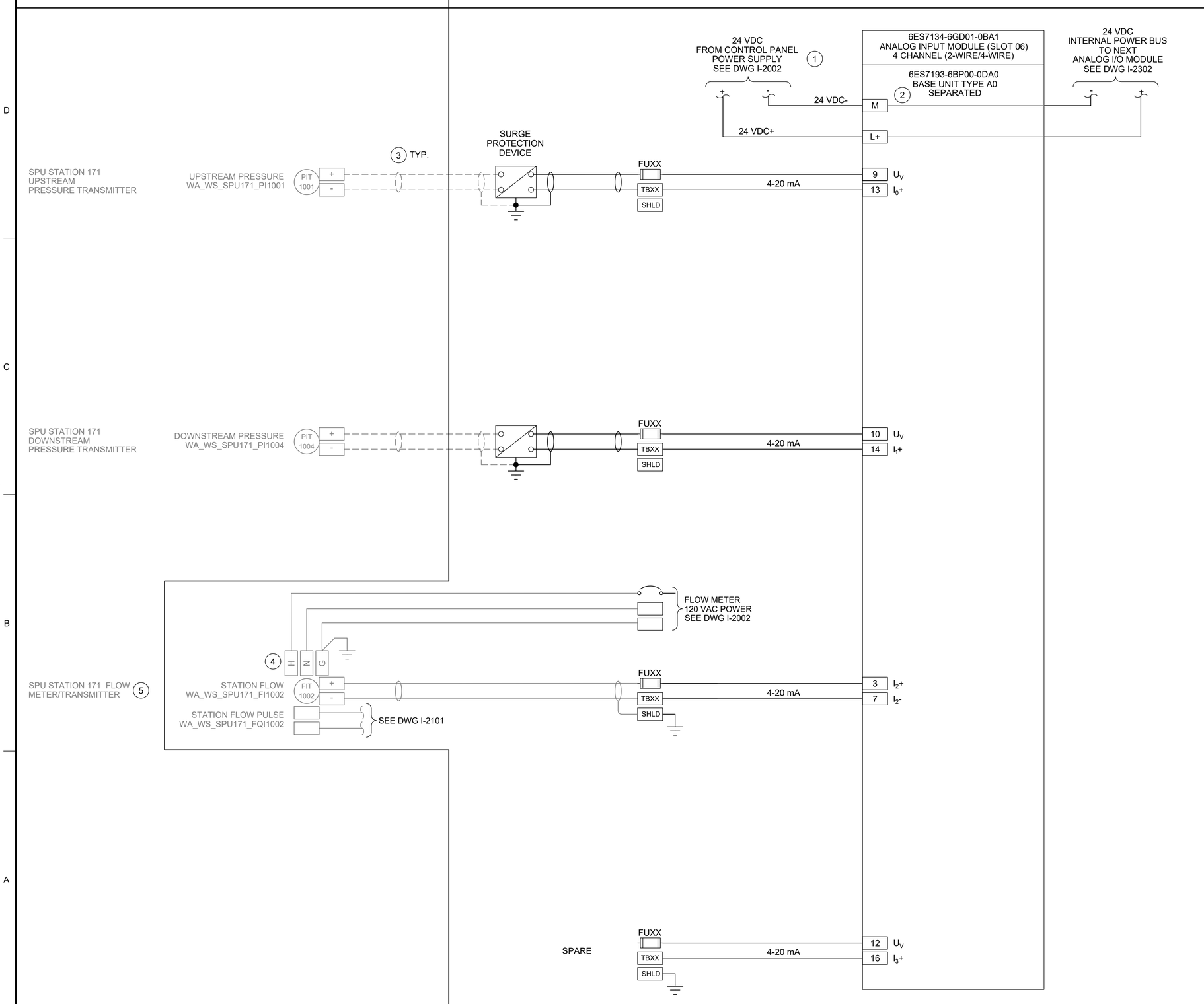

GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
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6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_WS_SPU171_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. ANALOG I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE ANALOG I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.
3. CUT AND TAPE SHIELD.
4. EXISTING FLOW TRANSMITTER TO BE RELOCATED TO RIGHT SIDE PANEL OF ENCLOSURE. REFER TO DRAWING I-2601.
5. WIRING TO FLOW METER IN THE FIELD IS NOT SHOWN.

Brown AND Caldwell
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SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:21:26-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2301.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

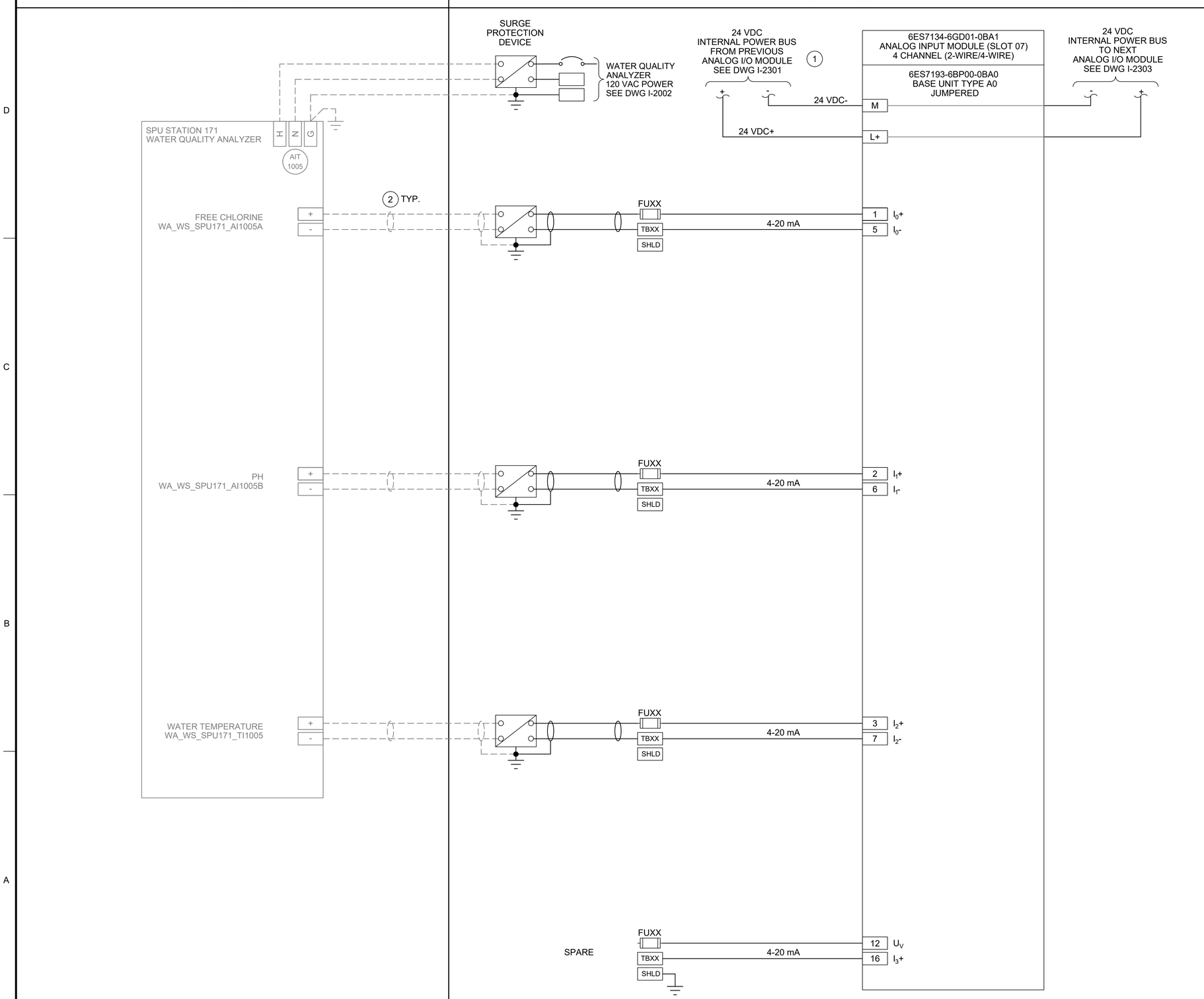
INSTRUMENTATION

SPU STATION 171 -
ANALOG INPUT
CARD 1

DRAWING NUMBER
I-2301

SHEET NUMBER
18 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-2301.DWG PLOT DATE: 12/11/2020 7:21 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

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7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. CUT AND TAPE SHIELD.

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2302.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 - ANALOG INPUT CARD 2

DRAWING NUMBER

I-2302

SHEET NUMBER
19 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-2302.DWG PLOT DATE: 12/7/2020 1:00 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

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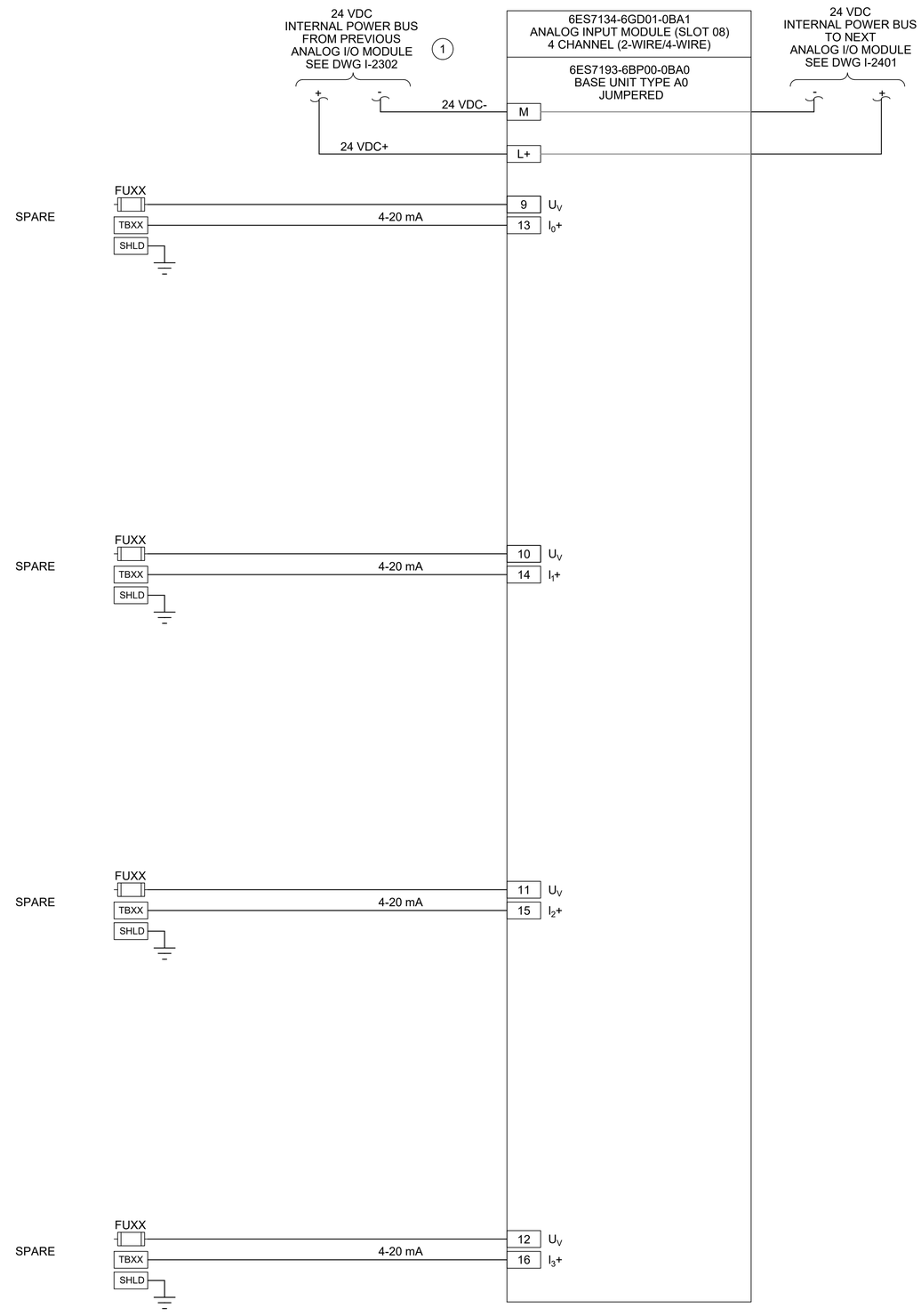
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED
PROFESSIONAL ENGINEER
2020.12.16 10:22:18-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-2303.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 -
ANALOG INPUT
CARD 3

DRAWING NUMBER
I-2303

SHEET NUMBER
20 OF 70

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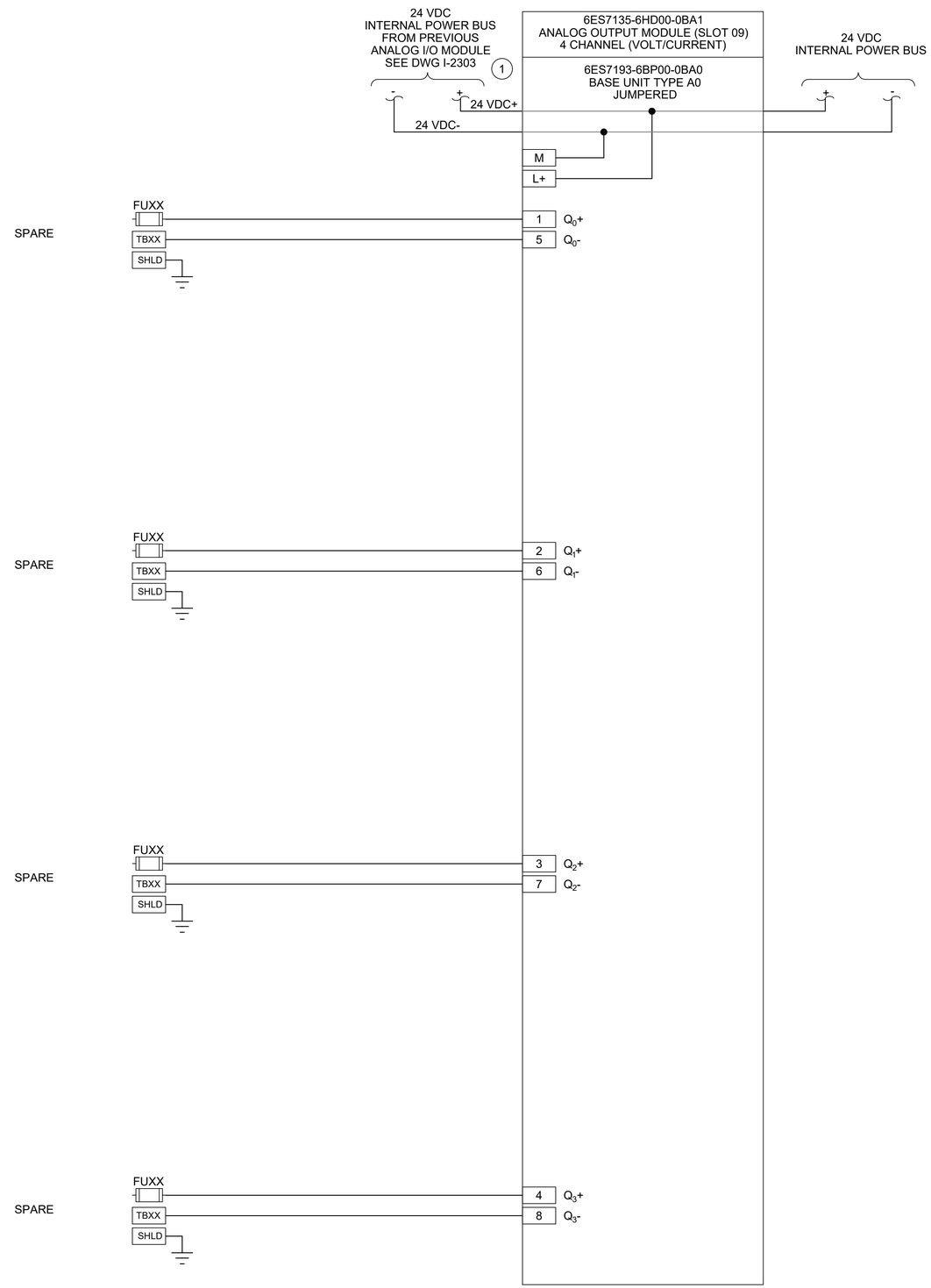
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA CURRENT OUTPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-, 3- AND 4-WIRE VOLTAGE OUTPUTS AND DIFFERENT CURRENT OUTPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR OTHER OUTPUT OPTIONS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CITY OF MERCER ISLAND
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REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

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DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2401.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

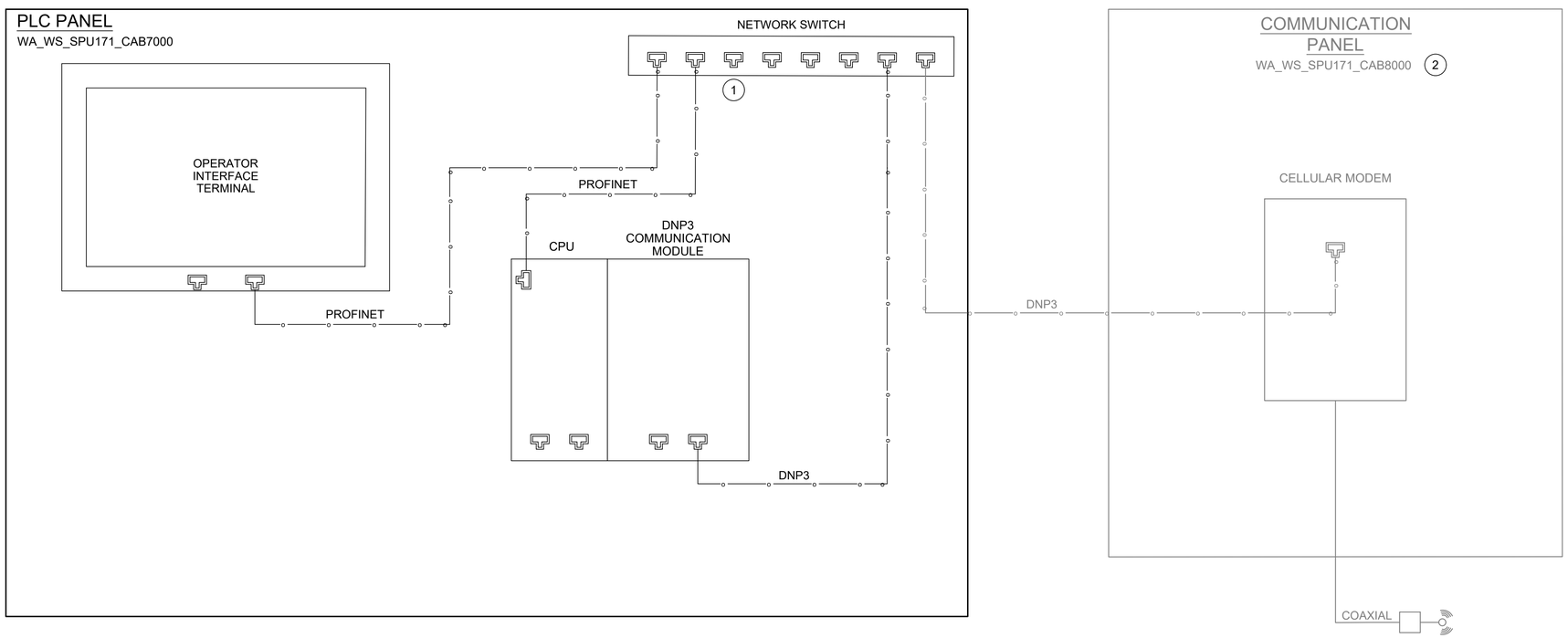
SPU STATION 171 -
ANALOG OUTPUT
CARD

DRAWING NUMBER
I-2401

SHEET NUMBER
21 OF 70

KEY NOTES:

1. DEDICATED PORT FOR PROGRAMMING.
2. CONTRACTOR TO PROVIDE NEW NAMEPLATE (NP1) FOR EXISTING COMMUNICATION PANEL. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.



NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_WS_SPU171_CAB8000	SPU STATION 171	COMMUNICATION PANEL

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WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-2501.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 - NETWORK BLOCK DIAGRAM

DRAWING NUMBER
I-2501

SHEET NUMBER
22 OF 70

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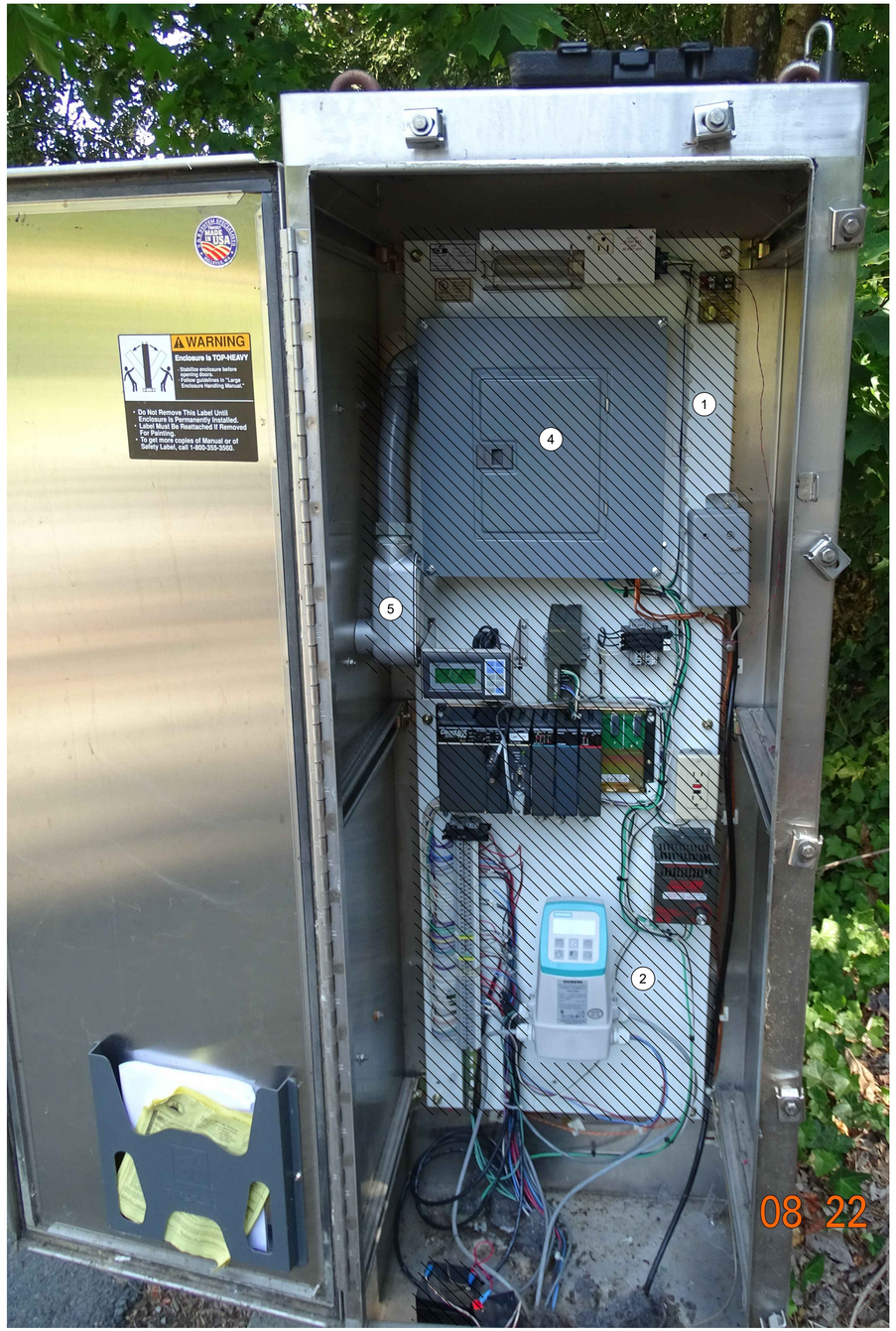
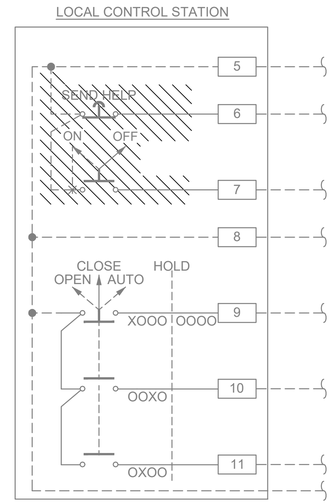


EXISTING
ENCLOSURE INTERIOR

DETAIL A



LOCAL CONTROL STATION
IN METERING VAULT
WIRING DIAGRAM (3)

DETAIL B

LOCAL CONTROL STATION
IN METERING VAULT

DETAIL C

GENERAL NOTES:

1. THIS DRAWING DEPICTS DEMOLITION IN THE EXISTING PLC PANEL (WA_WS_SPU171_CAB7000) AT SPU STATION 171 TO FACILITATE REPLACEMENT OF THE BACK PANEL AND OPERATOR INTERFACE TERMINAL, AND DEMOLITION ASSOCIATED WITH THE LOCAL CONTROL STATION IN THE METERING VAULT.
2. THE LOCAL CONTROL STATION WIRING SHOWN ON THIS DRAWING IS BASED ON THE OWNER'S EXISTING WIRING DIAGRAM FOR SPU STATION 171 (DRAWING FILE NO. 12683-228-02). CONTRACTOR SHALL FIELD INVESTIGATE, VERIFY, AND DOCUMENT THE I/O CONNECTIONS FROM THE LOCAL CONTROL STATION.

KEY NOTES:

1. REMOVE EXISTING BACK PANEL AND ASSOCIATED COMPONENTS IN ENCLOSURE BOTTOM. REPLACE WITH NEW BACK PANEL. RE-TERMINATE EXISTING FIELD WIRING AT NEW BACK PANEL.
2. RELOCATE EXISTING FLOW TRANSMITTER TO RIGHT SIDE PANEL OF ENCLOSURE.
3. REMOVE ON/OFF SELECTOR SWITCH AND 'SEND HELP' PUSHBUTTON AND THE ASSOCIATED WIRING AND LABELS. PLUG/PATCH COMPONENT HOLES AFTER REMOVAL WITH A SUITABLE METHOD TO MAINTAIN THE NEMA RATING OF THE ENCLOSURE.
4. REMOVE EXISTING PANEL BOARD. REFER TO DRAWING I-2602 FOR NEW PANEL BOARD LOCATION.
5. REMOVE EXISTING CONDUIT FROM PSE METER TO PANEL BOARD. USE ELECTRICAL ENCLOSURE HOLE SEALS AS SPECIFIED IN SECTION 26 05 00 TO SEAL ENCLOSURE.

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NICKLAS JACK HAYENS
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55678
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2020.12.16 12:47:09-08'00'

CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:01:44-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2601.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 -
DEMOLITION
DETAILS

DRAWING NUMBER
I-2601

SHEET NUMBER
23 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-2601.DWG PLOT DATE: 12/7/2020 1:03 PM CAD USER: BAMBANG NURSUWITO
WITO@BRWNCALD.COM\D0400357\I-2601.DWG
BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM
DSCN0287.JPG
Modified: Friday, December 11, 2020 1:03:18 PM
CAD PROFILE: BENTLEY CONNECT - 2020 - 2 (2.00)

EXISTING PSE METER ON ENCLOSURE EXTERIOR

DETAIL A

SCALE: NONE

POWER PANELBOARD LOCATION

DETAIL B

SCALE: NONE

GENERAL NOTES:

1. THIS DRAWING SHOWS DETAILS FOR INSTALLATION OF A NEW PANELBOARD ON THE PLC PANEL ENCLOSURE EXTERIOR.

KEY NOTES:

1. INSTALL NEW CONDUIT AND WIRE AND ROUTE THROUGH BOTTOM OF PSE METER AND AROUND OUTSIDE OF ENCLOSURE TO NEW PANELBOARD LOCATION. COORDINATE WORK AT METER WITH PUGET SOUND ENERGY.
2. LOCATION FOR NEW POWER PANELBOARD ENCLOSURE (WA_WS_SPU171_PBD9000). REFER TO DRAWING I-2002 FOR PANELBOARD SCHEDULE. ROUTE POWER CABLES TO EXISTING PLC PANEL ENCLOSURE FROM PANELBOARD. PROVIDE 2-#8, 1-#8N, #10G, AND 2-#12, #12G TO EXISTING PLC PANEL ENCLOSURE. UTILIZE EXISTING CABLE BETWEEN PLC PANEL ENCLOSURE AND SPU CABINET.
3. LOCATION OF COMMUNICATION PANEL (WA_WS_SPU171_CAB8000). COMMUNICATION PANEL TO BE INSTALLED BY OWNER PRIOR TO PROJECT CONSTRUCTION. LOCATION IS SHOWN FOR REFERENCE TO THE CONTRACTOR.

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55678
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:47:21-08'00'

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:03:47-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-2602.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SPU STATION 171 -
POWER DETAILS

DRAWING NUMBER
I-2602

SHEET NUMBER
24 OF 70

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BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\I0400357 FILENAME: I-2602.DWG PLOT DATE: 12/7/2020 1:03 PM CAD USER: BAMBANG NURSUWITO

PANEL BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY
11	ENCLOSURE	1
12	BACK PANEL	1
13	24 VDC POWER SUPPLY	1
14	24 VDC UPS	1
15	24 VDC UPS BATTERY	1
16	SURGE PROTECTION DEVICE	1
17	CIRCUIT BREAKER	A/R
18	TERMINAL BLOCK	A/R
19	CONTROL RELAY	A/R
20	FUSED TERMINAL BLOCK	A/R
21	GROUND BAR	2
22	WIREWAY (SIZE AS REQUIRED)	A/R
23	DIN RAIL, 35 MM	A/R
24	NOT USED	
25	ENCLOSURE DOOR SWITCH	1
26	NOT USED	
27	NOT USED	
28	NOT USED	
29	SIEMENS PLC	KEY NOTE 2
30	MANAGED NETWORK SWITCH	1
31	DC TO DC CONVERTER, NEC CLASS 2 OUTPUT	1

PLC BILL OF MATERIALS (2)

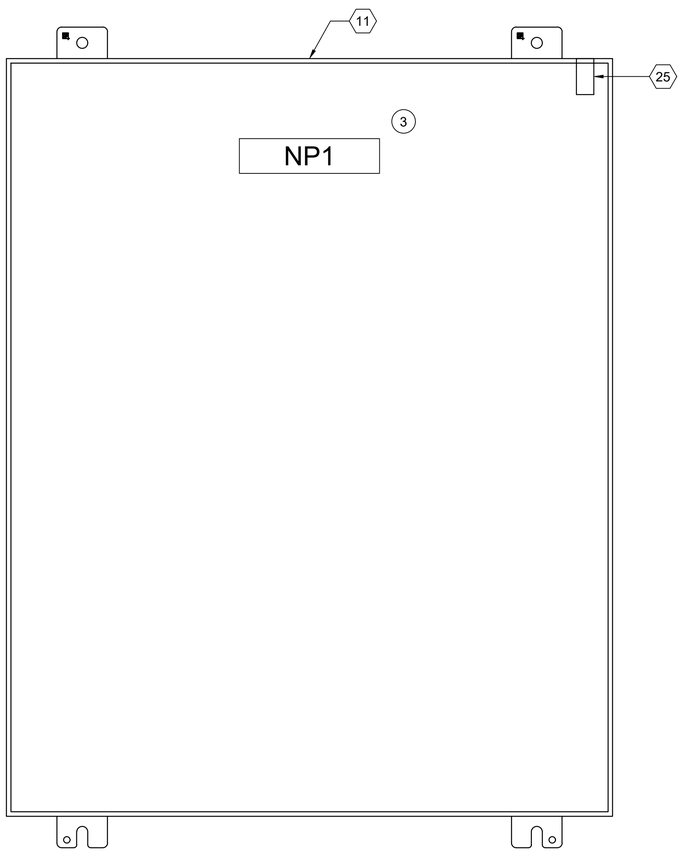
ITEM NO.	DESCRIPTION	QUANTITY
1	ET200SP CPU	1
2	DNP3 COMMUNICATION MODULE	1
3	16 CHANNEL DIGITAL INPUT MODULE	1
4	NOT USED	
5	4 CHANNEL ANALOG INPUT MODULE	1
6	NOT USED	
7	IO MODULE BASE UNIT, SEPARATED	2
8	NOT USED	
9	NOT USED	
10	NOT USED	

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL PANEL LAYOUT AND FABRICATION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL. FABRICATE PANEL IN ACCORDANCE WITH SECTIONS 40 67 00 AND 40 63 43.
2. FOR DEMOLITION WORK ASSOCIATED WITH THIS SITE, REFER TO DRAWING I-3601.

KEY NOTES:

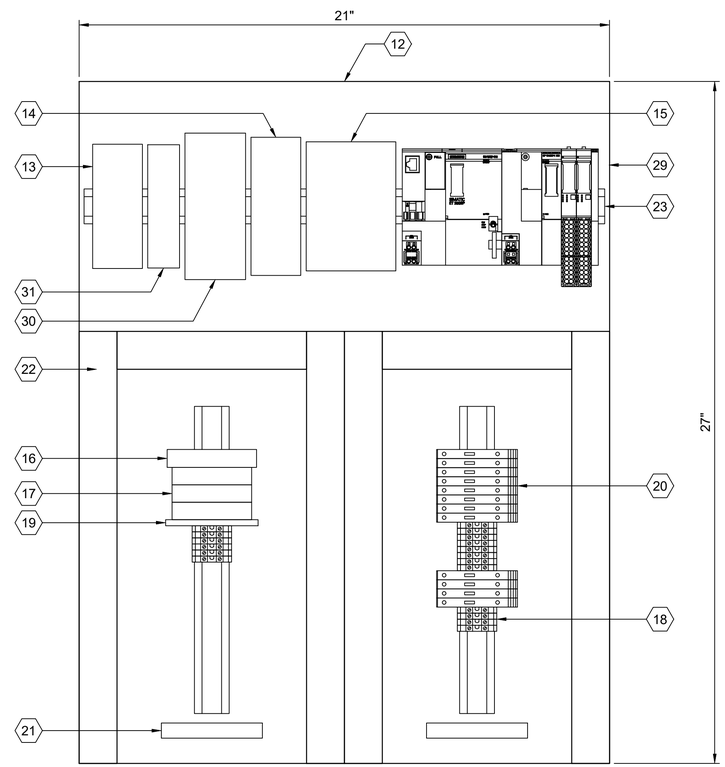
1. BACK PANEL TO BE INSTALLED IN NEW ENCLOSURE.
2. PLC BILL OF MATERIALS LISTS MAIN PLC COMPONENTS. REFER TO SECTION 40 63 43 FOR DETAILS AND ACCESSORIES.
3. NAMEPLATE TO BE PROVIDED BY CONTRACTOR FOR NEW ENCLOSURE. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.



ENCLOSURE EXTERIOR

DETAIL A

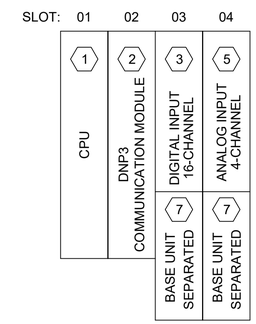
SCALE: 1:3



INTERIOR BACK PANEL (1)

DETAIL B

SCALE: 1:3



PLC RACK LAYOUT

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_DST_SFS_CAB7000	SOUTH FIRE STATION	PLC PANEL

Brown AND Caldwell
701 PIKE STREET
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CAITLIN ANN BILLENER
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55655
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2020.12.16 10:24:58-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

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WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-3001.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

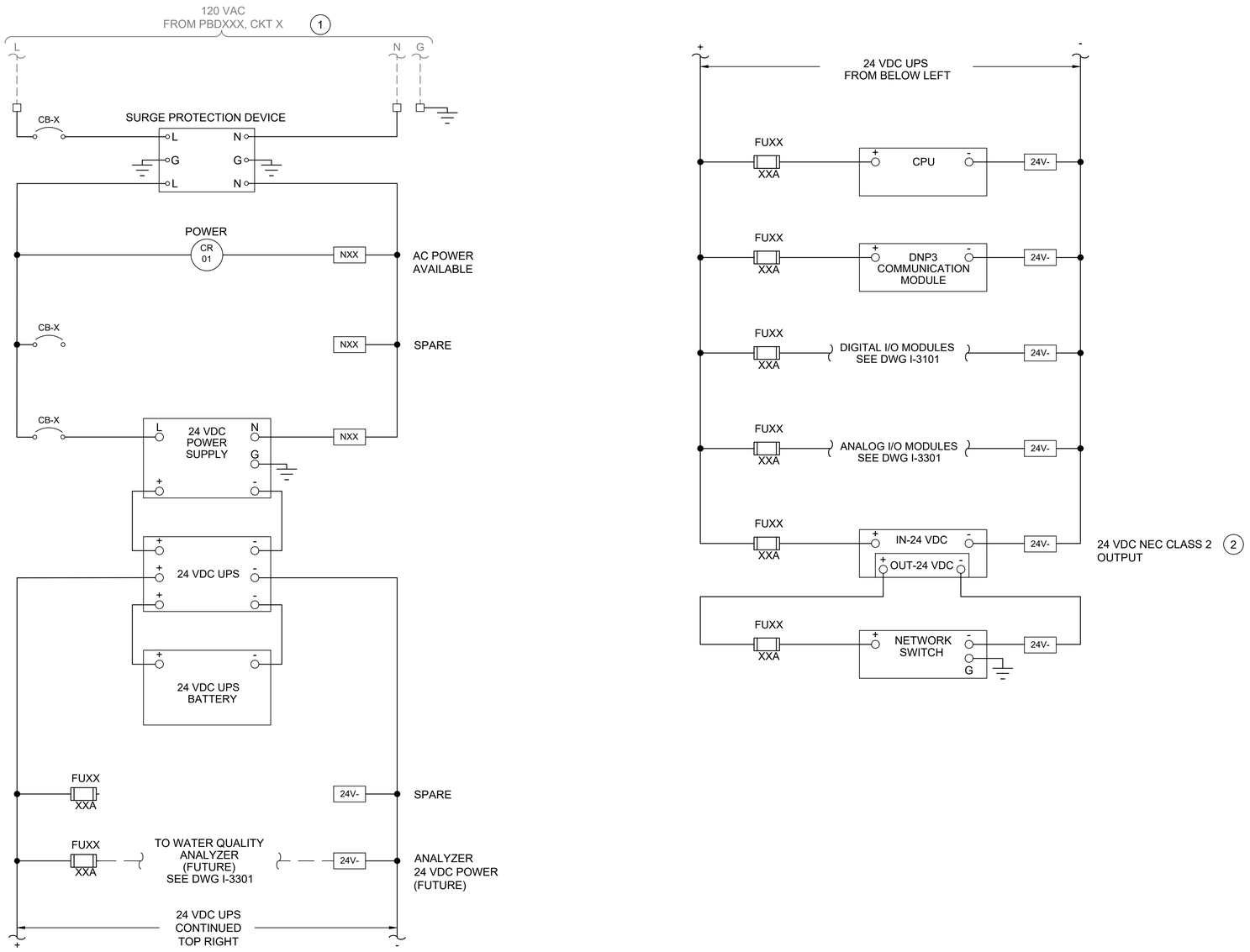
SOUTH FIRE STATION - PANEL LAYOUT

DRAWING NUMBER
I-3001

SHEET NUMBER
25 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON\D0400357 FILENAME: I-3001.DWG PLOT DATE: 12/14/2020 9:12 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

PLC PANEL



GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL POWER DISTRIBUTION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ON THE POWER DISTRIBUTION DRAWING(S), PROVIDE EACH CIRCUIT BREAKER (CB) AND FUSE (FU) WITH A UNIQUE ID NUMBER AND IDENTIFY AN AMP RATING.

KEY NOTES:

1. CONTRACTOR TO VERIFY POWER SOURCE AND CIRCUIT NUMBER. UPDATE SUBMITTAL DRAWINGS AS REQUIRED.
2. PROVIDE NEC CLASS 2 POWER SUPPLY WHEN REQUIRED BY PRODUCT MANUFACTURER.

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WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-3002.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SOUTH FIRE STATION - PANEL POWER DISTRIBUTION

DRAWING NUMBER
I-3002

SHEET NUMBER
26 OF 70

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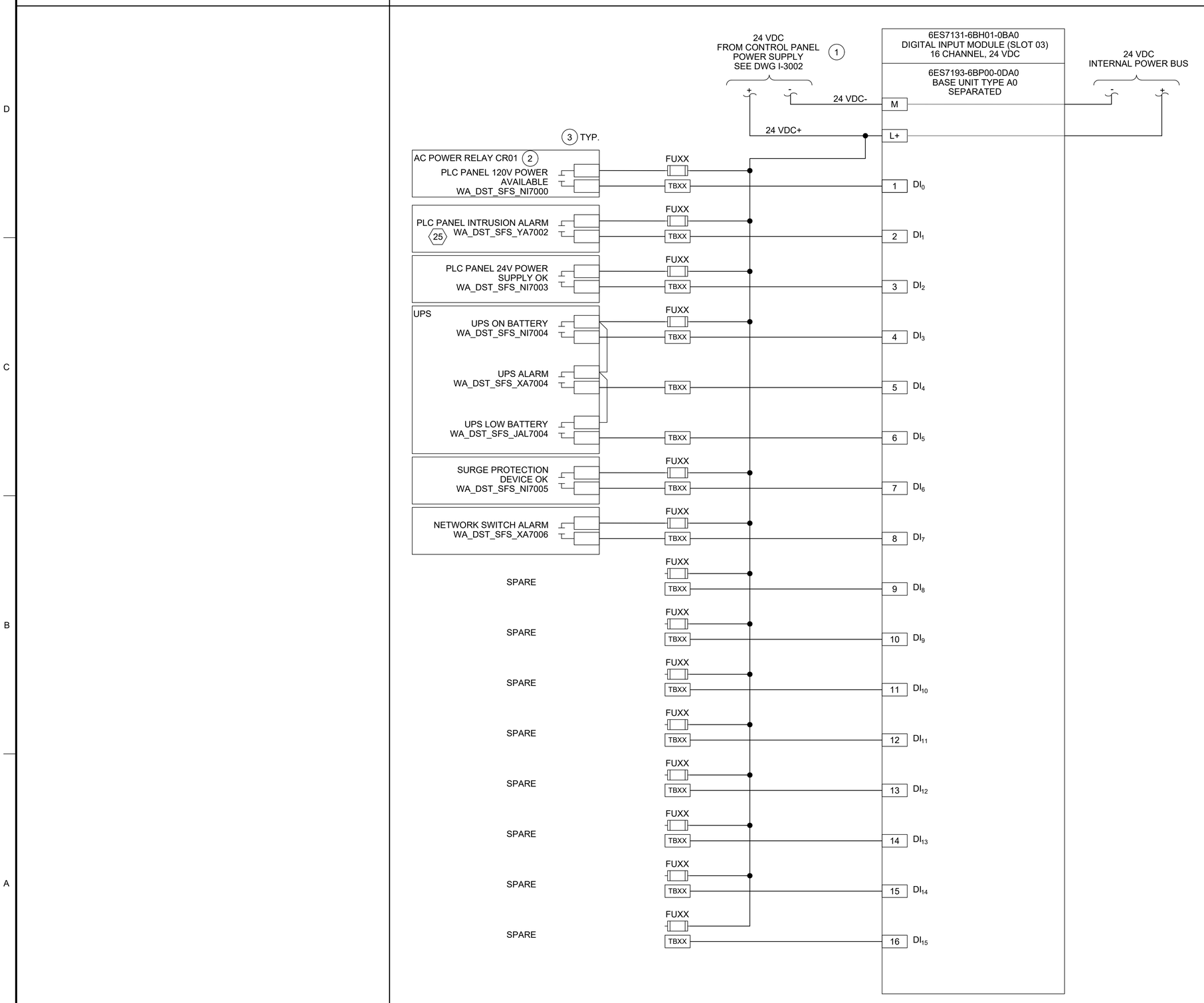

GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_SFS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. REFER TO DRAWING I-3002 FOR AC POWER RELAY.
3. CONTRACTOR TO ADD MANUFACTURER TERMINAL NUMBERS FOR NEW PANEL COMPONENTS.

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CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-3101.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SOUTH FIRE
STATION - DIGITAL
INPUT CARD

DRAWING NUMBER
I-3101

SHEET NUMBER
27 OF 70

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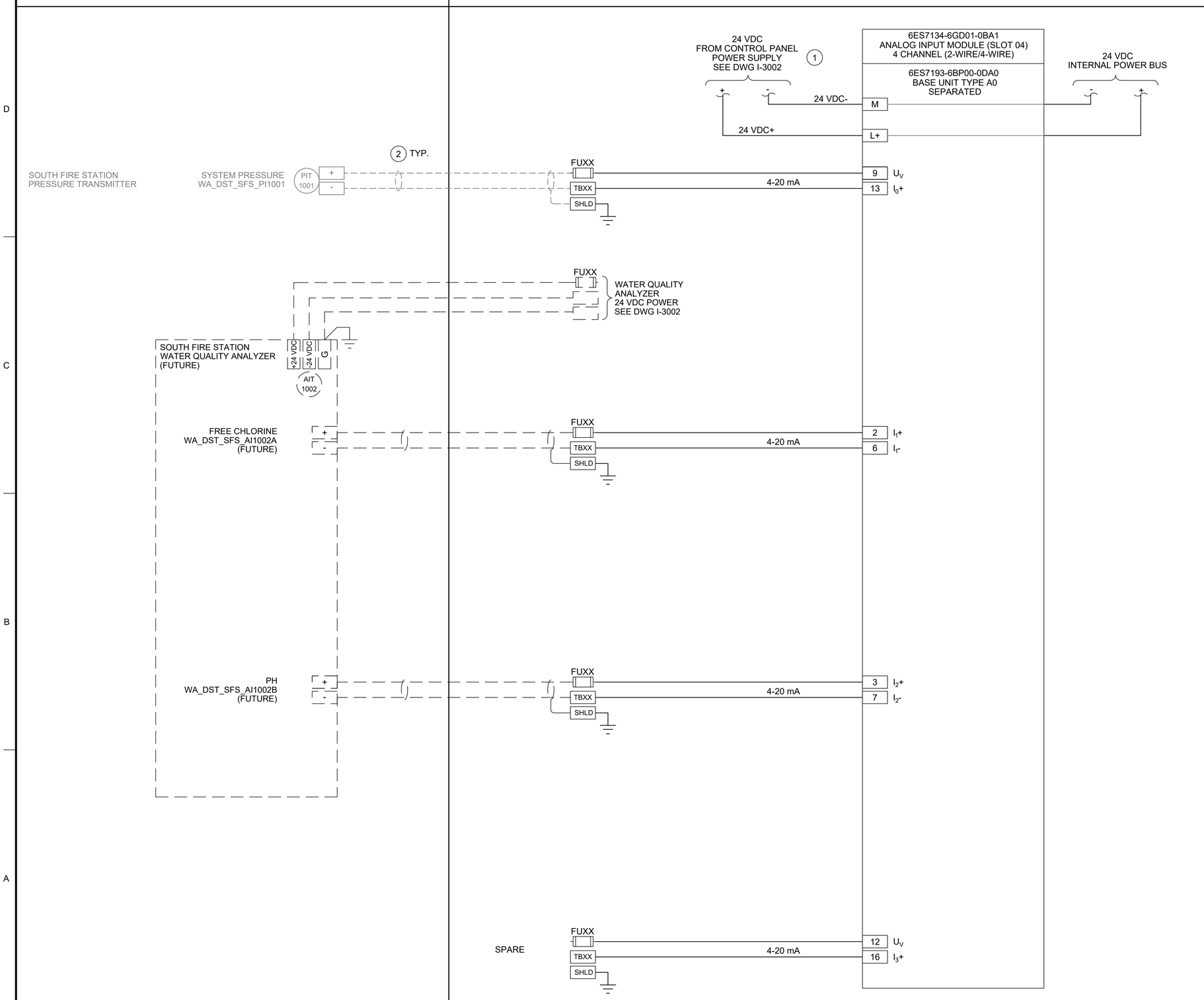

GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT NEW BACK PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_SFS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. CUT AND TAPE SHIELD

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:27:24-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-3301.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

SOUTH FIRE STATION - ANALOG INPUT CARD

DRAWING NUMBER
I-3301

SHEET NUMBER
28 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-3301.DWG PLOT DATE: 12/11/2020 7:46 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

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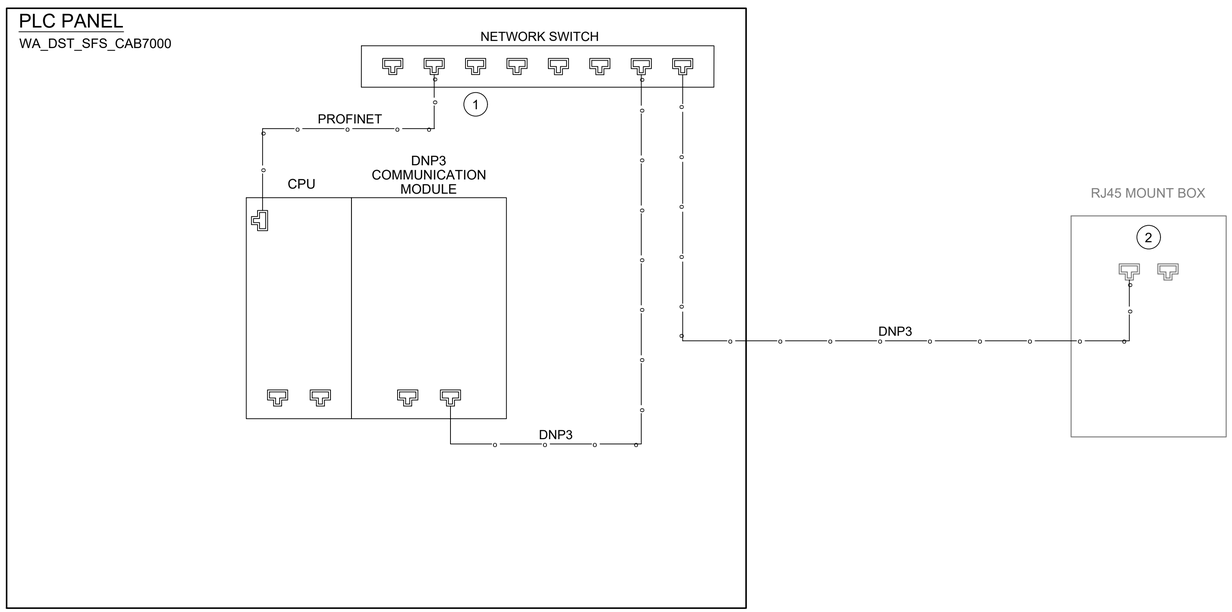
Mercer Island logo_2.png

KEY NOTES:

1. DEDICATED PORT FOR PROGRAMMING.
2. OWNER-PROVIDED RJ45 MOUNT BOX FOR TIE-IN TO CITY NETWORK. COORDINATE WITH OWNER (CITY IT) FOR CONNECTION TO RJ45 MOUNT BOX.



Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED
PROFESSIONAL ENGINEER
2020.12.16 10:29:26-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

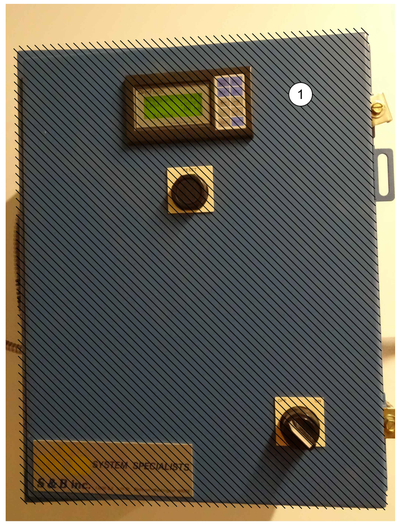
FILENAME
I-3501.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

SOUTH FIRE
STATION -
NETWORK BLOCK
DIAGRAM

DRAWING NUMBER
I-3501

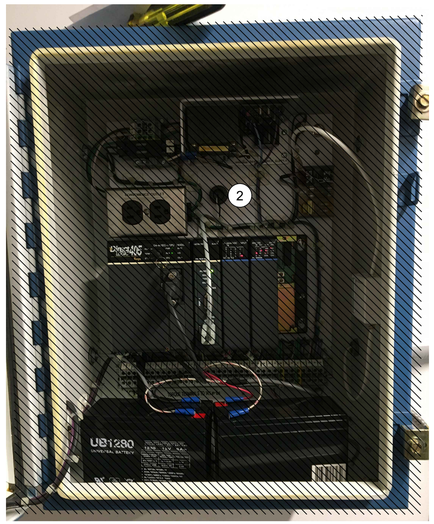
SHEET NUMBER
29 OF 70



EXISTING
ENCLOSURE EXTERIOR

DETAIL A

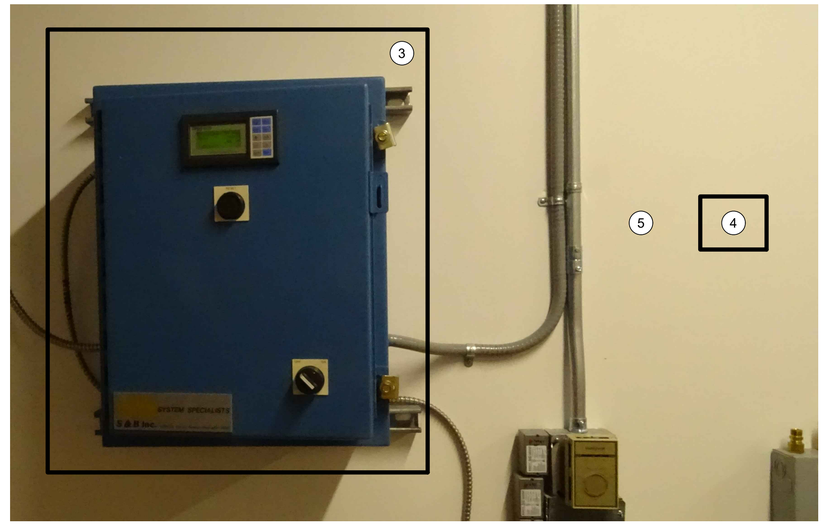
SCALE: NONE



EXISTING
ENCLOSURE INTERIOR

DETAIL B

SCALE: NONE



PLC PANEL LOCATION AND
COMMUNICATION
INTERFACE

DETAIL C

SCALE: NONE

GENERAL NOTES:

1. THIS DRAWING DEPICTS DEMOLITION OF THE EXISTING PLC PANEL AT SOUTH FIRE STATION TO FACILITATE REPLACEMENT WITH NEW ENCLOSURE (WA_DST_SFS_CAB7000) AND BACK PANEL IN EXISTING PLC PANEL LOCATION.

KEY NOTES:

1. REMOVE EXISTING ENCLOSURE. PULL BACK EXISTING FIELD WIRING FOR REUSE.
2. REMOVE EXISTING BACK PANEL AND ASSOCIATED COMPONENTS IN ENCLOSURE BOTTOM. RE-TERMINATE EXISTING FIELD WIRING AT BACK PANEL, IN NEW ENCLOSURE.
3. LOCATE NEW ENCLOSURE IN EXISTING PLC PANEL LOCATION. APPROXIMATE SIZE OF NEW ENCLOSURE IS SHOWN.
4. LOCATION OF OWNER-PROVIDED RJ45 MOUNT BOX FOR TIE-IN TO CITY NETWORK. COORDINATE WITH OWNER (CITY IT) ON FINAL RJ45 MOUNT BOX LOCATION.
5. ROUTE CONDUIT AND WIRE FROM NEW PLC ENCLOSURE TO OWNER-PROVIDED RJ45 MOUNT BOX. FOR BID PURPOSES ASSUME 5 FEET OF CONDUIT AND CABLE BETWEEN PLC ENCLOSURE AND RJ45 MOUNT BOX.

   CABLE BETWEEN PLC ENCLOSURE AND RJ45 MOUNT BOX:
   DATA - 1 CAT6

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

NICKLAS JACK HAYENS
STATE OF WASHINGTON
55678
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:47:32-08'00'

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:04:44-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-3601.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

SOUTH FIRE
STATION -
DEMOLITION
DETAILS

DRAWING NUMBER
I-3601

SHEET NUMBER
30 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD.COM\D0400357 FILENAME: I-3601.DWG PLOT DATE: 12/14/2020 9:18 AM CAD USER: DAN JACKSON
DSC09515.JPG
DSC09515.JPG
DRAWING REF: BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM
Mercer Island logo_2.jpg

PANEL BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY
11	ENCLOSURE	1
12	BACK PANEL	1
13	24 VDC POWER SUPPLY	1
14	24 VDC UPS	1
15	24 VDC UPS BATTERY	1
16	SURGE PROTECTION DEVICE	1
17	CIRCUIT BREAKER	A/R
18	TERMINAL BLOCK	A/R
19	CONTROL RELAY	A/R
20	FUSED TERMINAL BLOCK	A/R
21	GROUND BAR	2
22	WIREWAY (SIZE AS REQUIRED)	A/R
23	DIN RAIL, 35 MM	A/R
24	NOT USED	
25	ENCLOSURE DOOR SWITCH	1
26	NOT USED	
27	NOT USED	
28	NOT USED	
29	SIEMENS PLC	KEY NOTE 2
30	MANAGED NETWORK SWITCH	1
31	DC TO DC CONVERTER, NEC CLASS 2 OUTPUT	1

PLC BILL OF MATERIALS (2)

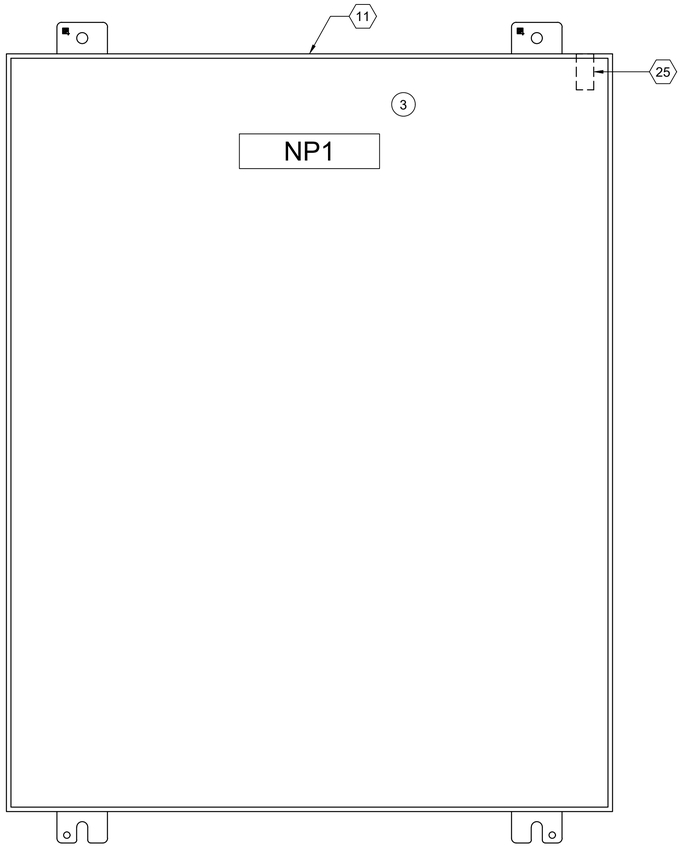
ITEM NO.	DESCRIPTION	QUANTITY
1	ET200SP CPU	1
2	DNP3 COMMUNICATION MODULE	1
3	16 CHANNEL DIGITAL INPUT MODULE	1
4	NOT USED	
5	4 CHANNEL ANALOG INPUT MODULE	1
6	NOT USED	
7	IO MODULE BASE UNIT, SEPARATED	2
8	NOT USED	
9	NOT USED	
10	NOT USED	

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL PANEL LAYOUT AND FABRICATION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL. FABRICATE PANEL IN ACCORDANCE WITH SECTIONS 40 67 00 AND 40 63 43.
2. FOR DEMOLITION WORK ASSOCIATED WITH THIS SITE, REFER TO DRAWING I-4601.

KEY NOTES:

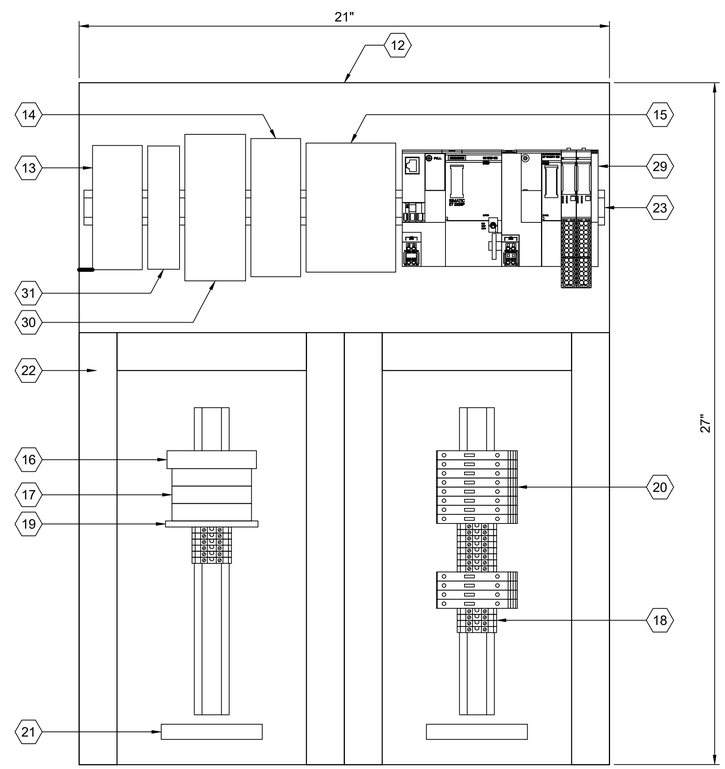
1. BACK PANEL TO BE INSTALLED IN NEW ENCLOSURE.
2. PLC BILL OF MATERIALS LISTS MAIN PLC COMPONENTS. REFER TO SECTION 40 63 43 FOR DETAILS AND ACCESSORIES.
3. NAMEPLATE TO BE PROVIDED BY CONTRACTOR FOR NEW ENCLOSURE. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.



ENCLOSURE EXTERIOR

DETAIL A

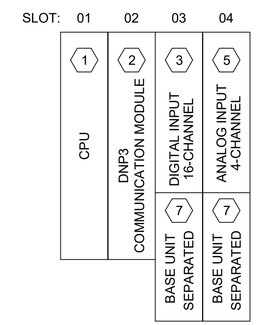
SCALE: 1:3



INTERIOR BACK PANEL (1)

DETAIL B

SCALE: 1:3



PLC RACK LAYOUT

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_DST_NFS_CAB7000	NORTH FIRE STATION	PLC PANEL

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CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:36:36-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-4001.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

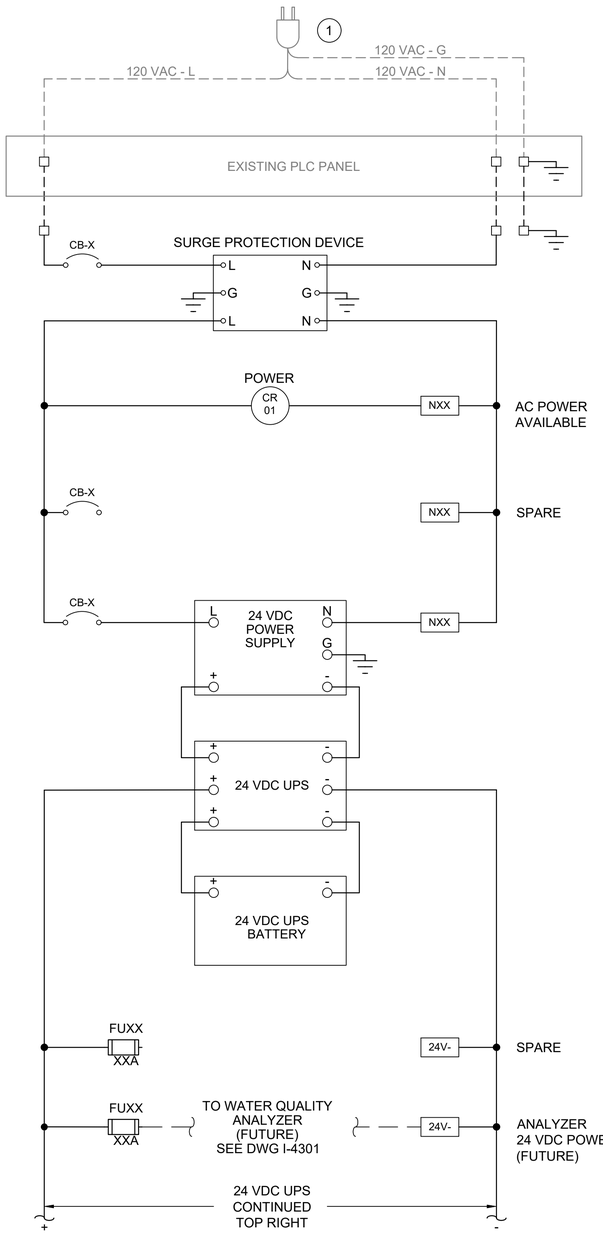
NORTH FIRE STATION - PANEL LAYOUT

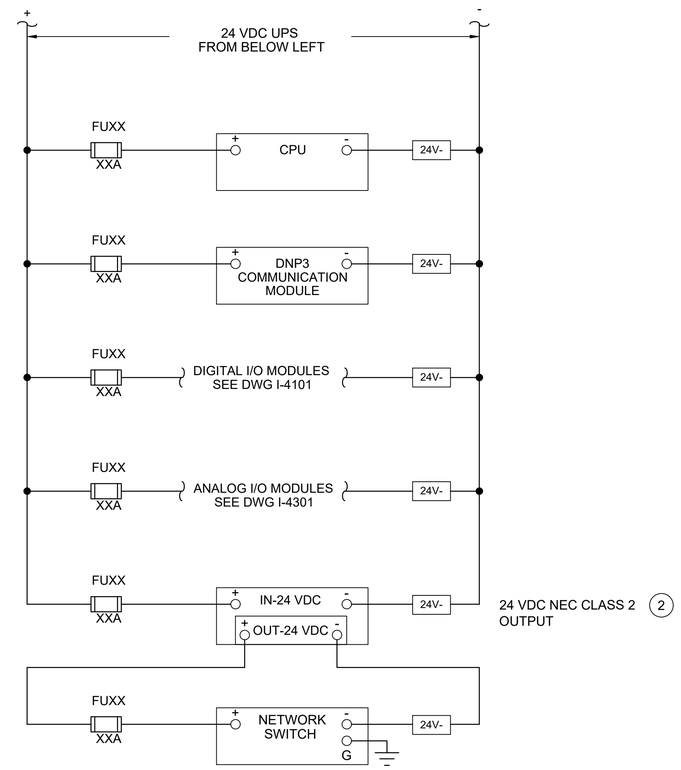
DRAWING NUMBER
I-4001

SHEET NUMBER
31 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD.COM\D0400357 FILENAME: I-4001.DWG PLOT DATE: 12/14/2020 9:22 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

PLC PANEL





GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL POWER DISTRIBUTION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ON THE POWER DISTRIBUTION DRAWING(S), PROVIDE EACH CIRCUIT BREAKER (CB) AND FUSE (FU) WITH A UNIQUE ID NUMBER AND IDENTIFY AN AMP RATING.

KEY NOTES:

1. CONTRACTOR TO VERIFY POWER SOURCE. UPDATE SUBMITTAL DRAWINGS AS REQUIRED.
2. PROVIDE NEC CLASS 2 POWER SUPPLY WHEN REQUIRED BY PRODUCT MANUFACTURER.

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CAITLIN ANN BLESNER
55655
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2020.12.16 10:37:05-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-4002.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

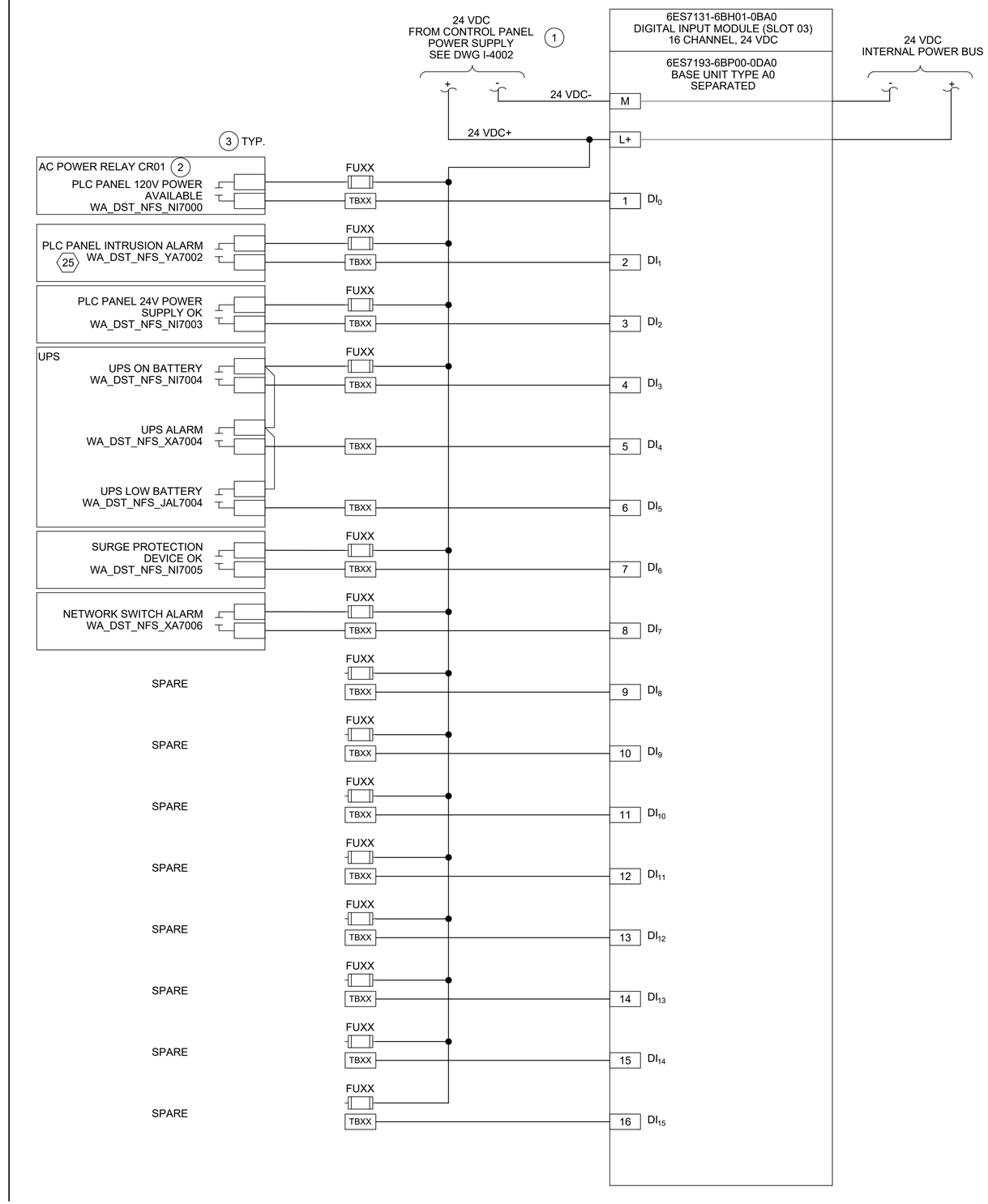
INSTRUMENTATION

NORTH FIRE STATION - PANEL POWER DISTRIBUTION

DRAWING NUMBER
I-4002

SHEET NUMBER
32 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO\D0400357 FILENAME: I-4002.DWG PLOT DATE: 12/11/2020 8:01 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_NFS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. REFER TO DRAWING I-4002 FOR AC POWER RELAY.
3. CONTRACTOR TO ADD MANUFACTURER TERMINAL NUMBERS FOR NEW PANEL COMPONENTS.

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55655
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CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-4101.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

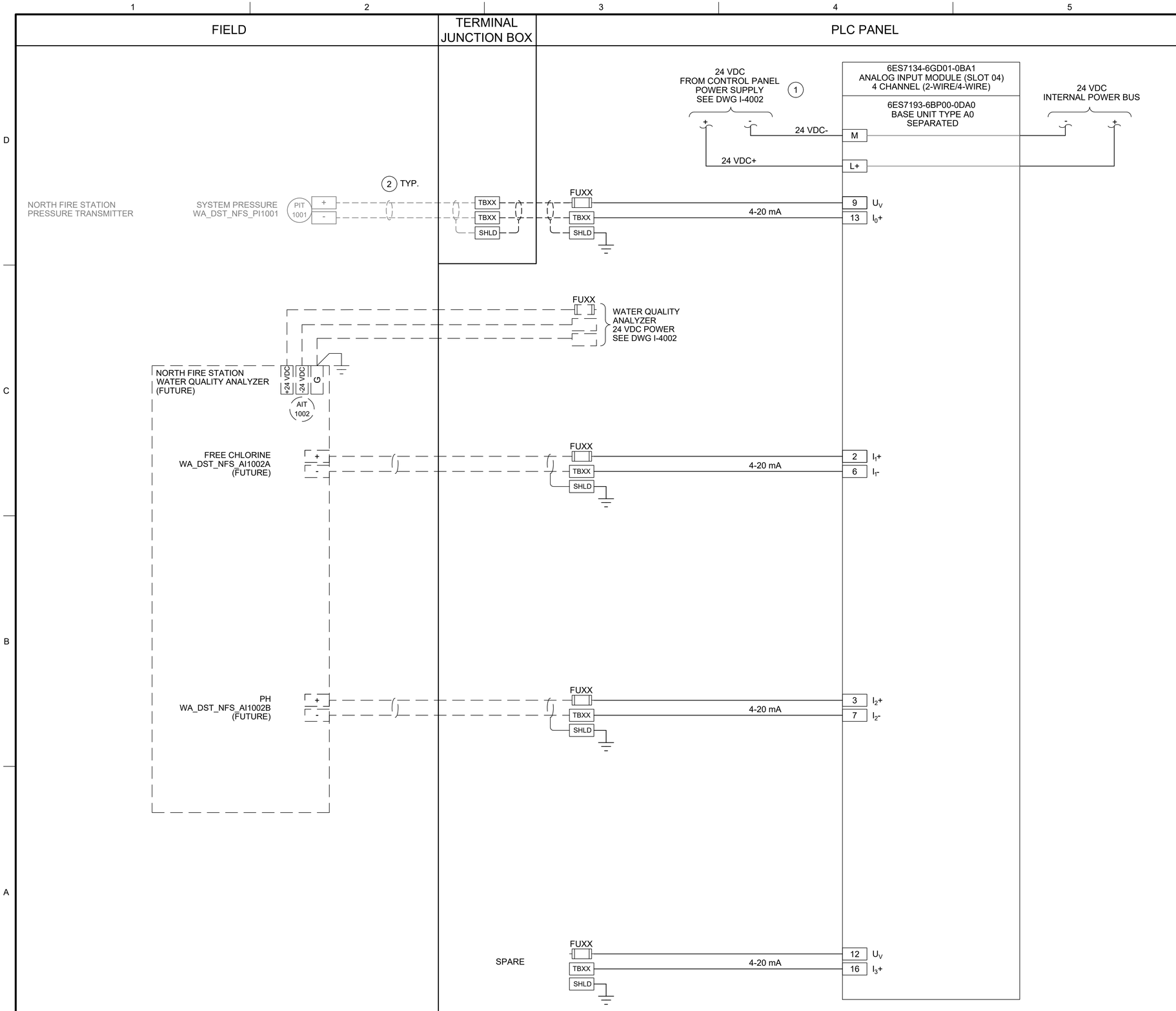
INSTRUMENTATION

NORTH FIRE
STATION - DIGITAL
INPUT CARD

DRAWING NUMBER
I-4101

SHEET NUMBER
33 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-4101.DWG PLOT DATE: 12/1/2020 6:54 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_DST_NFS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. CUT AND TAPE SHIELD

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:37:59-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME I-4301.DWG

BC PROJECT NUMBER 153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

NORTH FIRE STATION - ANALOG INPUT CARD

DRAWING NUMBER

I-4301

SHEET NUMBER 34 OF 70

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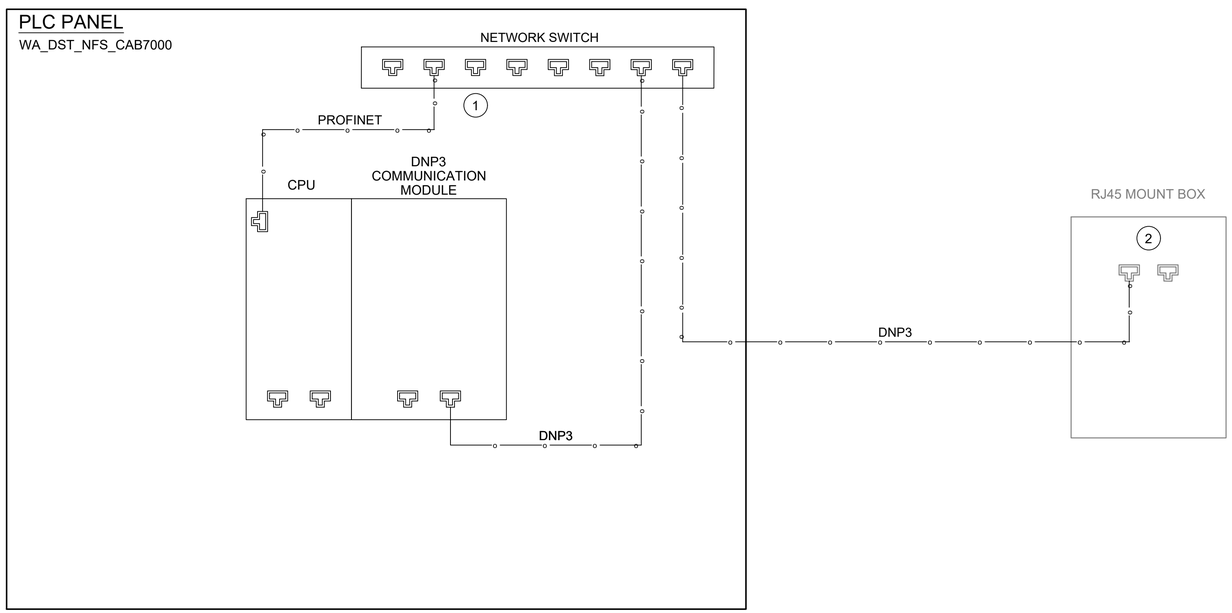
Mercer Island logo_2.png

KEY NOTES:

1. DEDICATED PORT FOR PROGRAMMING.
2. OWNER-PROVIDED RJ45 MOUNT BOX FOR TIE-IN TO CITY NETWORK. COORDINATE WITH OWNER (CITY IT) FOR CONNECTION TO RJ45 MOUNT BOX.



Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED
PROFESSIONAL ENGINEER
2020.12.16 10:38:30-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-4501.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

NORTH FIRE
STATION -
NETWORK BLOCK
DIAGRAM

DRAWING NUMBER
I-4501

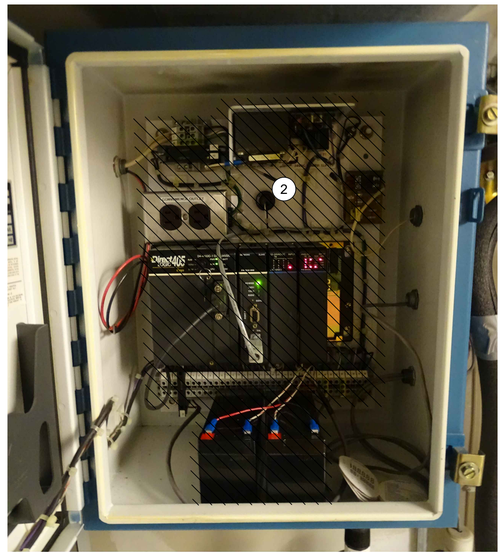
SHEET NUMBER
35 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-4501.DWG PLOT DATE: 12/1/2020 7:15 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png

EXISTING
ENCLOSURE EXTERIOR

DETAIL A

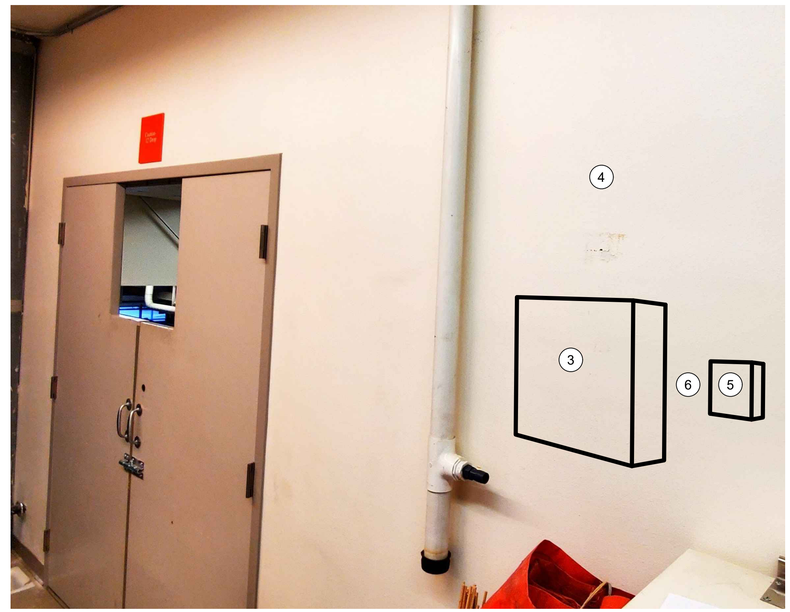
SCALE: NONE



EXISTING
ENCLOSURE INTERIOR

DETAIL B

SCALE: NONE



PLC PANEL LOCATION
AND
COMMUNICATION INTERFACE

DETAIL C

SCALE: NONE

GENERAL NOTES:

1. THIS DRAWING DEPICTS DEMOLITION IN THE EXISTING PLC PANEL AT NORTH FIRE STATION AND RE-PURPOSING AS A TERMINAL JUNCTION BOX (WA_DST_NFS_TJB7000). DRAWING DEPICTS NEW PLC PANEL (WA_DST_NFS_CAB7000) INSTALLATION LOCATION AND CABLING REQUIREMENTS BETWEEN THE TERMINAL JUNCTION BOX AND NEW PLC PANEL LOATION.

KEY NOTES:

1. REMOVE FRONT KEY PAD, PUSHBUTTON, AND SELECTOR SWITCH AND THE ASSOCIATED WIRING AND LABELS. PLUG/PATCH COMPONENT HOLES AFTER REMOVAL WITH A SUITABLE METHOD TO MAINTAIN THE NEMA RATING OF THE ENCLOSURE.

2. REMOVE EXISTING BACK PANEL AND ASSOCIATED COMPONENTS IN ENCLOSURE BOTTOM. REPLACE WITH TERMINAL STRIP. RE-TERMINATE EXISTING FIELD WIRING AT NEW TERMINAL STRIP. EXISTING PANEL TO SERVE AS A JUNCTION BOX FOR ROUTING EXISTING FIELD WIRING TO NEW PANEL LOCATION.

3. LOCATE NEW PLC PANEL IN ADJACENT STORAGE ROOM. COORDINATE WITH OWNER TO MOVE EXISTING STORAGE FILING CABINETS AS NEEDED.

4. ROUTE CONDUIT AND WIRE FROM EXISTING PLC PANEL LOCATION TO NEW PLC PANEL LOCATION.
   FOR BID PURPOSES ASSUME 85 FEET OF CONDUIT AND CABLE BETWEEN PLC ENCLOSURE AND TERMINAL JUNCTION BOX. INSTALL POWER AND SIGNAL CABLES IN SEPARATE CONDUITS.

   CABLE BETWEEN PLC ENCLOSURE AND TJB:
   SIGNAL - 1-TSP
   POWER - 2#12, #12G

5. LOCATION OF OWNER-PROVIDED RJ45 MOUNT BOX FOR TIE-IN TO CITY NETWORK. COORDINATE WITH OWNER (CITY IT) ON FINAL RJ45 MOUNT BOX LOCATION.

6. ROUTE CONDUIT AND WIRE FROM NEW PLC ENCLOSURE TO OWNER-PROVIDED RJ45 MOUNT BOX. FOR BID PURPOSES ASSUME 5 FEET OF CONDUIT AND CABLE BETWEEN PLC ENCLOSURE AND RJ45 MOUNT BOX.

   CABLE BETWEEN PLC ENCLOSURE AND RJ45 MOUNT:
   DATA - 1 CAT6

7. CONTRACTOR TO PROVIDE NEW NAMEPLATE (NP1) FOR EXISTING PLC PANEL. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_DST_NFS_TJB7000	NORTH FIRE STATION	PLC TERMINATION PANEL

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

NICKLAS JACK HAYENS
STATE OF WASHINGTON
55678
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:47:42-08'00'

CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:05:19-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-4601.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

NORTH FIRE
STATION -
DEMOLITION
DETAILS

DRAWING NUMBER
I-4601

SHEET NUMBER
36 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD.COM\D0400357 FILENAME: I-4601.DWG PLOT DATE: 12/7/2020 7:20 AM CAD USER: DAN JACKSON
DSC_0048.JPG
Microsoft Word - 2.doc
PROJECTWISE://BRWNCALD.COM\D0400357 BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM
PLC Pnl Front Layout 9741.JPG
PLC PNL Interior Layout 9744.JPG

PANEL BILL OF MATERIALS

ITEM NO.	DESCRIPTION	QUANTITY
11	ENCLOSURE	1
12	BACK PANEL	1
13	24 VDC POWER SUPPLY	1
14	120 VAC UPS WITH PEDESTAL	1
15	UPS BATTERY WITH PEDESTAL	1
16	SURGE PROTECTION DEVICE	A/R
17	CIRCUIT BREAKER	A/R
18	TERMINAL BLOCK	A/R
19	CONTROL RELAY	A/R
20	FUSED TERMINAL BLOCK	A/R
21	GROUND BAR	2
22	WIREWAY (SIZE AS REQUIRED)	A/R
23	DIN RAIL, 35 MM	A/R
24	120 VAC RECEPTACLE	1
25	ENCLOSURE DOOR SWITCH	2
26	THERMOSTAT	1
27	ENCLOSURE FAN / EXHAUST GRILLE	1
28	HEATER	1
29	SIEMENS PLC	KEY NOTE 3
30	MANAGED NETWORK SWITCH	2
31	DC TO DC CONVERTER, NEC CLASS 2 OUTPUT	1
32	NOT USED	
33	ENCLOSURE LIGHT W/ SWITCH	2
34	FOLDING SHELF - 18" X 18"	1
35	DOCUMENT HOLDER	1
36	TWO POSITION SELECTOR SWITCH	1
37	THREE POSITION SELECTOR SWITCH	4
38	FOUR POSITION SELECTOR SWITCH	2
39	UPS RECEPTACLE	1

PLC BILL OF MATERIALS (3)

ITEM NO.	DESCRIPTION	QUANTITY
1	ET200SP CPU	1
2	DNP3 COMMUNICATION MODULE	1
3	16 CHANNEL DIGITAL INPUT MODULE	8
4	16 CHANNEL DIGITAL OUTPUT MODULE	4
5	4 CHANNEL ANALOG INPUT MODULE	12
6	4 CHANNEL ANALOG OUTPUT MODULE	3
7	IO MODULE BASE UNIT, SEPARATED	6
8	IO MODULE BASE UNIT, JUMPERED	21
9	12" INDUSTRIAL PC	1
10	NOT USED	

NAMEPLATE SCHEDULE

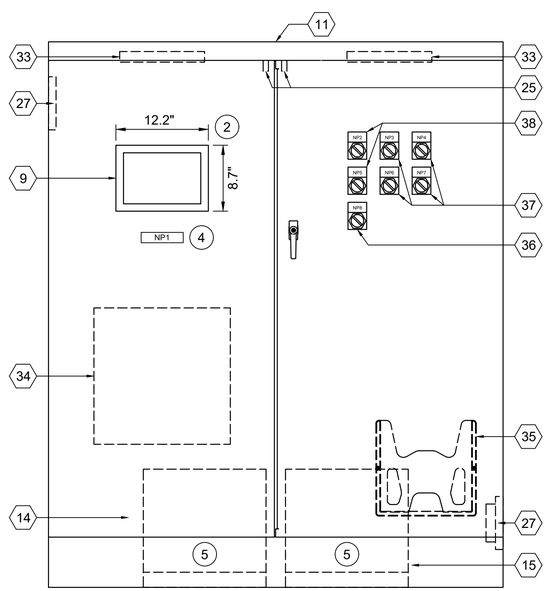
NPX	LINE 1	LINE 2	LINE 3
NP1	WA_RES_RS_CAB7000	RESERVOIR PUMP STATION	PLC PANEL
NP2	RESERVOIR INLET	CONTROL VALVE 1	OPEN HOLD CLOSE AUTO
NP3	SOUTH RESERVOIR INLET	ISOLATION VALVE	OPEN CLOSE AUTO
NP4	SOUTH RESERVOIR OUTLET	ISOLATION VALVE	OPEN CLOSE AUTO
NP5	RESERVOIR INLET	CONTROL VALVE 2	OPEN HOLD CLOSE AUTO
NP6	NORTH RESERVOIR INLET	ISOLATION VALVE	OPEN CLOSE AUTO
NP7	NORTH RESERVOIR OUTLET	ISOLATION VALVE	OPEN CLOSE AUTO
NP8	HIGH ZONE PRV	CLOSE AUTO	

GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL PANEL LAYOUT AND FABRICATION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL. FABRICATE PANEL IN ACCORDANCE WITH SECTIONS 40 67 00 AND 40 63 43.
2. FOR DEMOLITION WORK ASSOCIATED WITH THIS SITE, REFER TO DRAWING I-5601.

KEY NOTES:

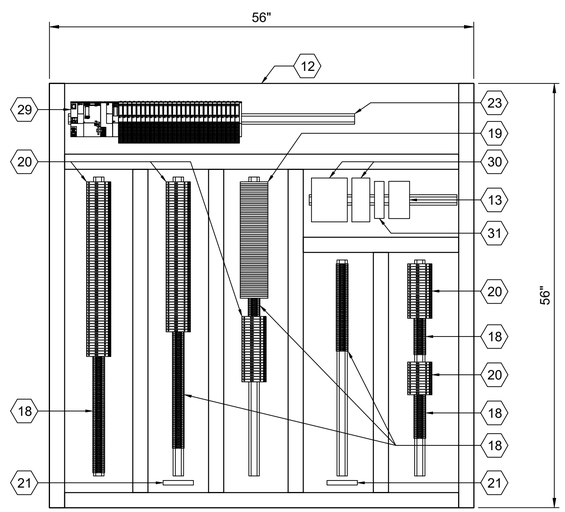
1. BACK PANEL AND SIDE PANEL TO BE INSTALLED IN NEW ENCLOSURE.
2. DIMENSIONS SHOWN ARE FOR INDUSTRIAL PC CUTOUT.
3. PLC BILL OF MATERIALS LISTS MAIN PLC COMPONENTS. REFER TO SECTION 40 63 43 FOR DETAILS AND ACCESSORIES.
4. NAMEPLATE TO BE PROVIDED BY CONTRACTOR FOR NEW ENCLOSURE AND SELECTOR SWITCHES. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.
5. UPS/BATTERY TO BE PHYSICALLY SECURED TO PANEL WHILE STILL ALLOWING ACCESS/REMOVAL FOR MAINTENANCE.



ENCLOSURE EXTERIOR

DETAIL A

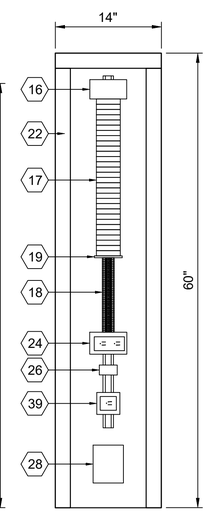
SCALE: 1:10



INTERIOR BACK PANEL (1)

DETAIL B

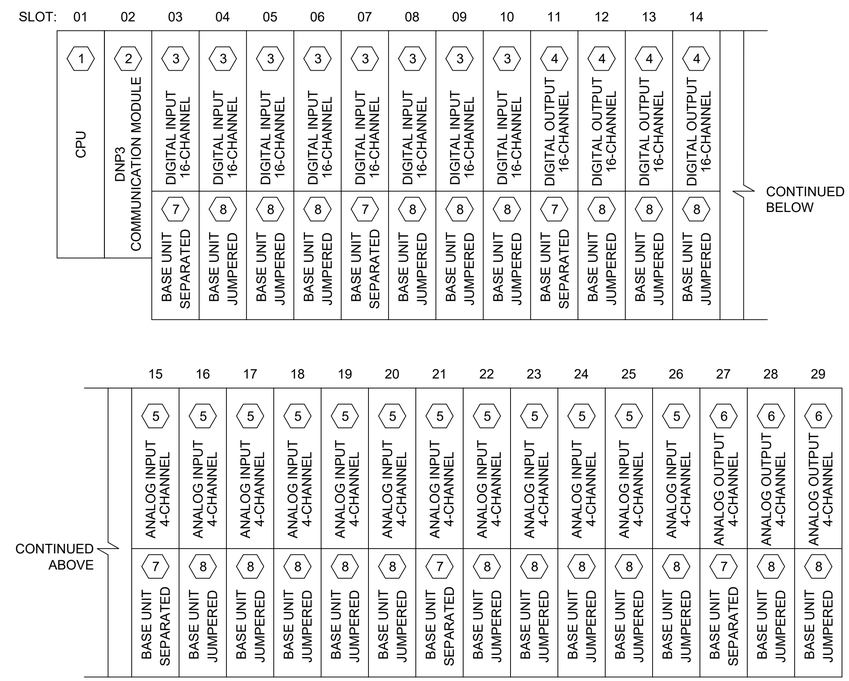
SCALE: 1:10



INTERIOR SIDE PANEL (1)

DETAIL C

SCALE: 1:10



PLC RACK LAYOUT

Brown AND Caldwell

701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:39:32-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5001.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

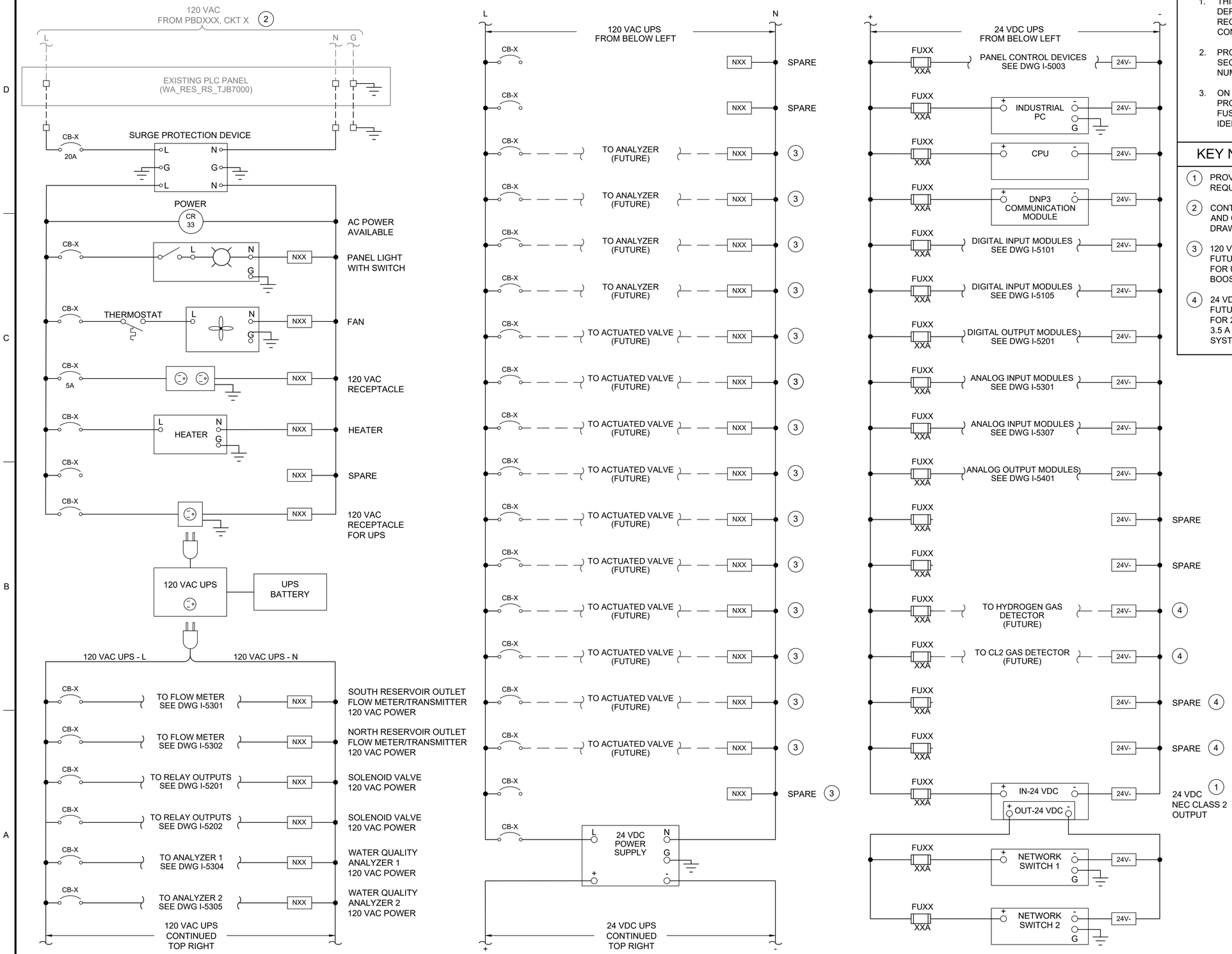
RESERVOIR PUMP STATION - PANEL LAYOUT

DRAWING NUMBER
I-5001

SHEET NUMBER
37 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5001.DWG PLOT DATE: 12/11/2020 9:14 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

PLC PANEL



GENERAL NOTES:

1. THIS DRAWING IS GENERAL IN NATURE AND DEPICTS GENERAL POWER DISTRIBUTION REQUIREMENTS FOR THE APPLICABLE CONTROL PANEL.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. ON THE POWER DISTRIBUTION DRAWING(S), PROVIDE EACH CIRCUIT BREAKER (CB) AND FUSE (FU) WITH A UNIQUE ID NUMBER AND IDENTIFY AN AMP RATING, IF NOT SHOWN.

KEY NOTES:

1. PROVIDE NEC CLASS 2 POWER SUPPLY WHEN REQUIRED BY PRODUCT MANUFACTURER.
2. CONTRACTOR TO VERIFY POWER SOURCE AND CIRCUIT NUMBER. UPDATE SUBMITTAL DRAWINGS AS REQUIRED.
3. 120 VAC CIRCUITS ARE RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM. FOR UPS SIZING, ASSUME 400 VA FOR FUTURE BOOSTER CHLORINATION SYSTEM LOADS.
4. 24 VDC CIRCUITS ARE RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM. FOR 24 VDC POWER SUPPLY SIZING, ASSUME 3.5 A FOR FUTURE BOOSTER CHLORINATION SYSTEM LOADS.

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55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5002.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

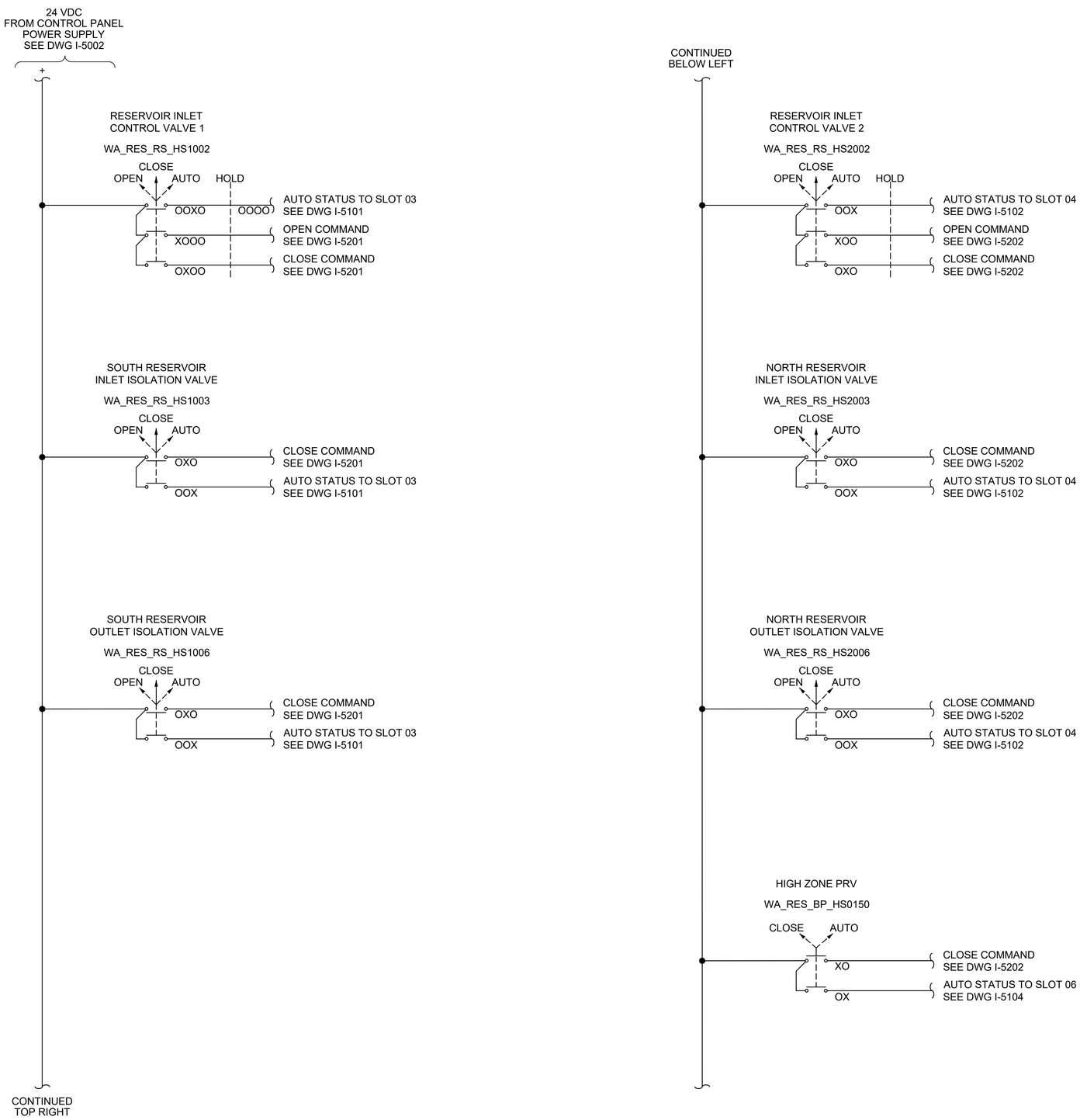
RESERVOIR PUMP
STATION - PANEL
POWER
DISTRIBUTION

DRAWING NUMBER
I-5002

SHEET NUMBER
38 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCALBENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5002.DWG PLOT DATE: 12/11/2020 10:12 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

PLC PANEL



GENERAL NOTES:

1. SELECTOR SWITCHES ARE MOUNTED ON FRONT OF PLC PANEL. REFER TO DRAWING I-5001 FOR LAYOUT DETAILS.

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STATE OF WASHINGTON
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

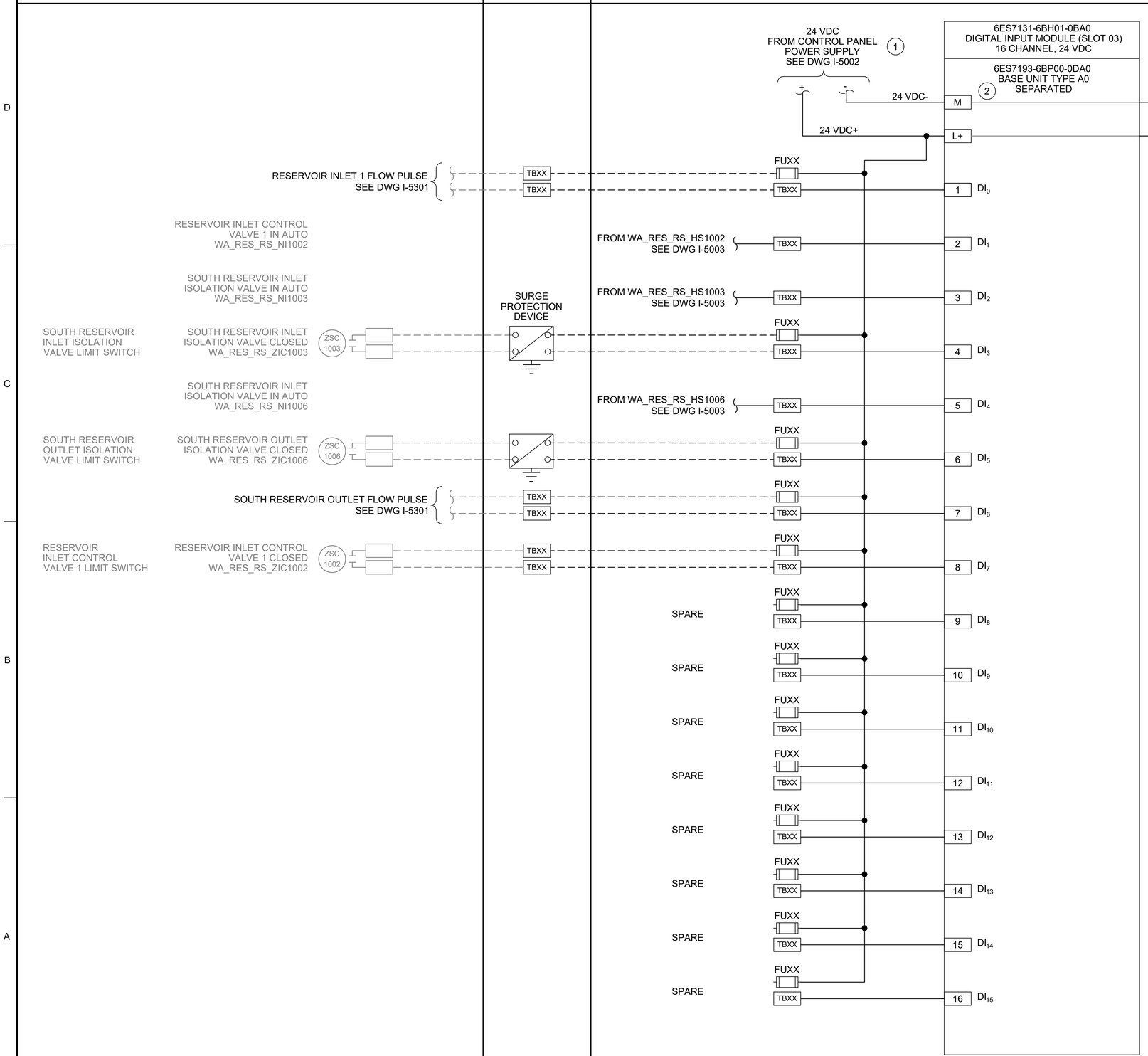
FILENAME
I-5003.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - PANEL
CONTROL DEVICES

DRAWING NUMBER
I-5003

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-5003.DWG PLOT DATE: 12/14/2020 9:28 AM CAD USER: DAN JACKSON@BRWNCALD.COM_BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. DIGITAL I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE DIGITAL I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:54:06-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5101.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

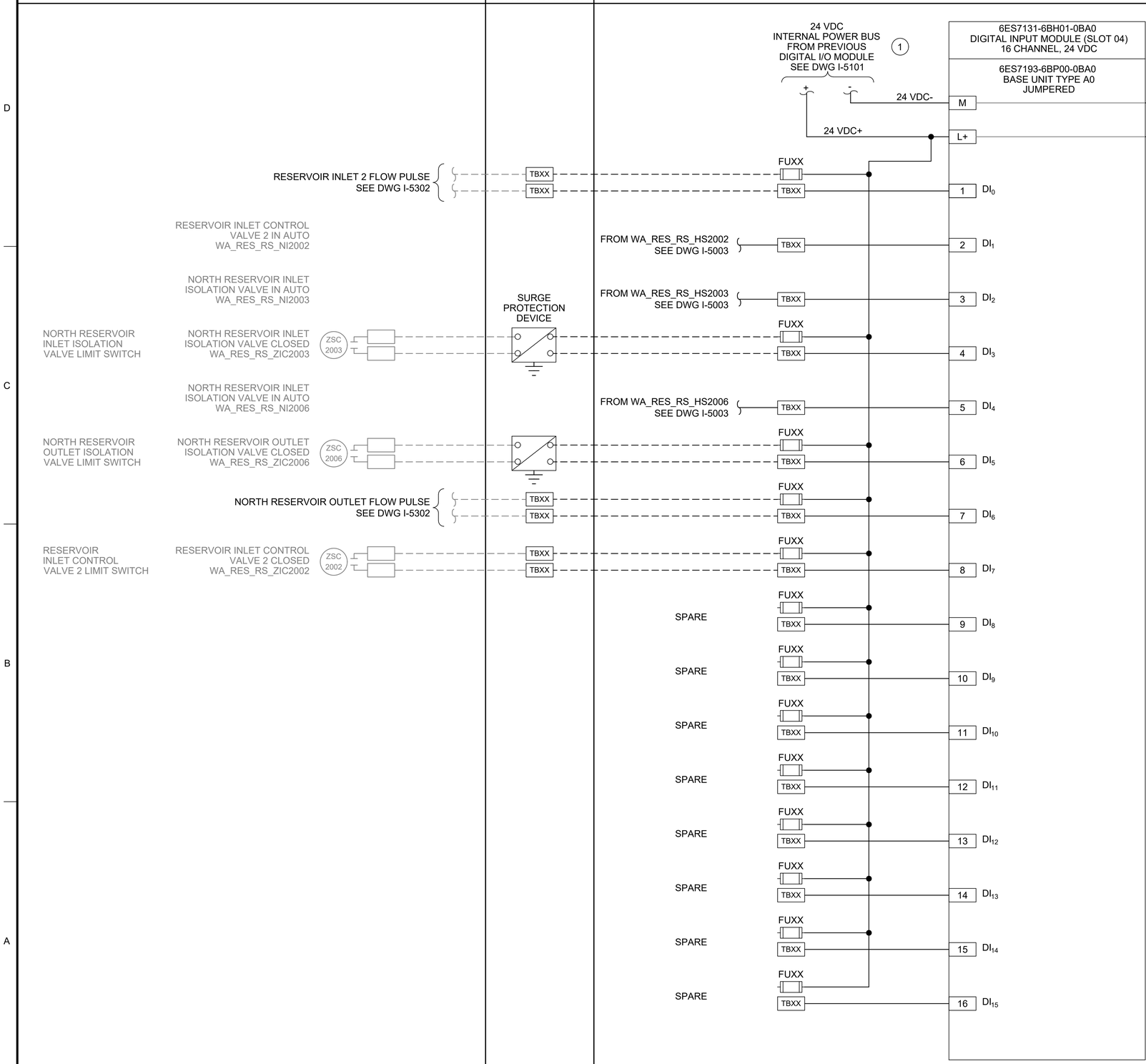
INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL INPUT CARD 1

DRAWING NUMBER
I-5101

SHEET NUMBER
40 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DI\R\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5101.DWG PLOT DATE: 12/7/2020 8:01 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:54:24-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5102.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

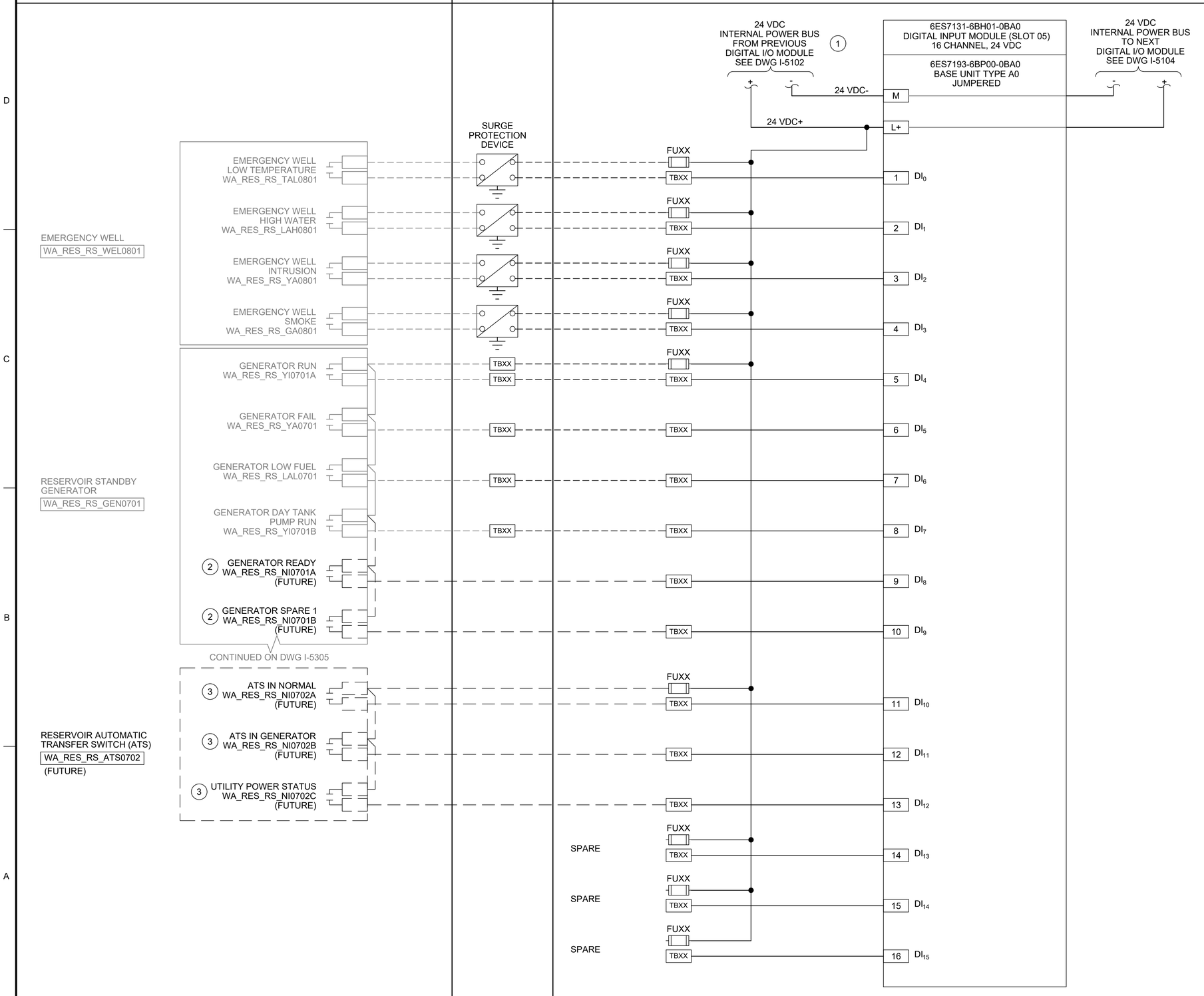
INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL INPUT CARD 2

DRAWING NUMBER
I-5102

SHEET NUMBER
41 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5102.DWG PLOT DATE: 12/7/2020 8:05 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. DIGITAL INPUTS ARE RESERVED FOR FUTURE GENERATOR MONITORING.
3. DIGITAL INPUTS ARE RESERVED FOR FUTURE AUTOMATIC TRANSFER SWITCH MONITORING.

Brown AND Caldwell
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SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
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2020.12.16 10:54:47-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5103.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

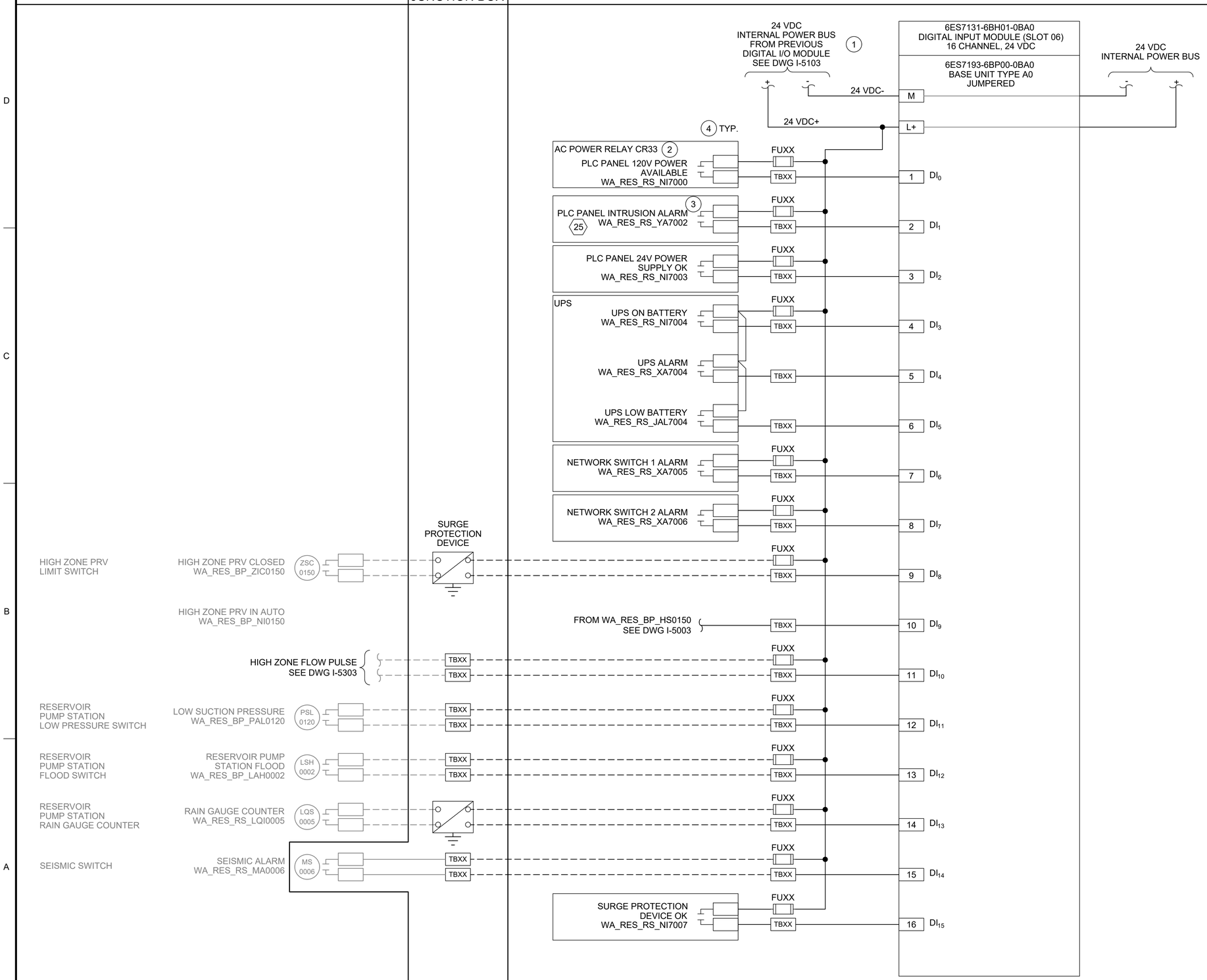
INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL INPUT CARD 3

DRAWING NUMBER
I-5103

SHEET NUMBER
42 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5103.DWG PLOT DATE: 12/11/2020 8:09 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ OR WA_RES_BP_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. REFER TO DRAWING I-5002 FOR AC POWER RELAY.
3. WIRE THE TWO PANEL DOOR INTRUSION SWITCHES IN SERIES. CONTACTS SHALL BE NORMALLY CLOSED, OPENING ON INTRUSION ALARM.
4. CONTRACTOR TO ADD MANUFACTURER TERMINAL NUMBERS FOR NEW PANEL COMPONENTS.

Brown AND Caldwell
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SUITE 1200
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CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5104.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL INPUT CARD 4

DRAWING NUMBER
I-5104

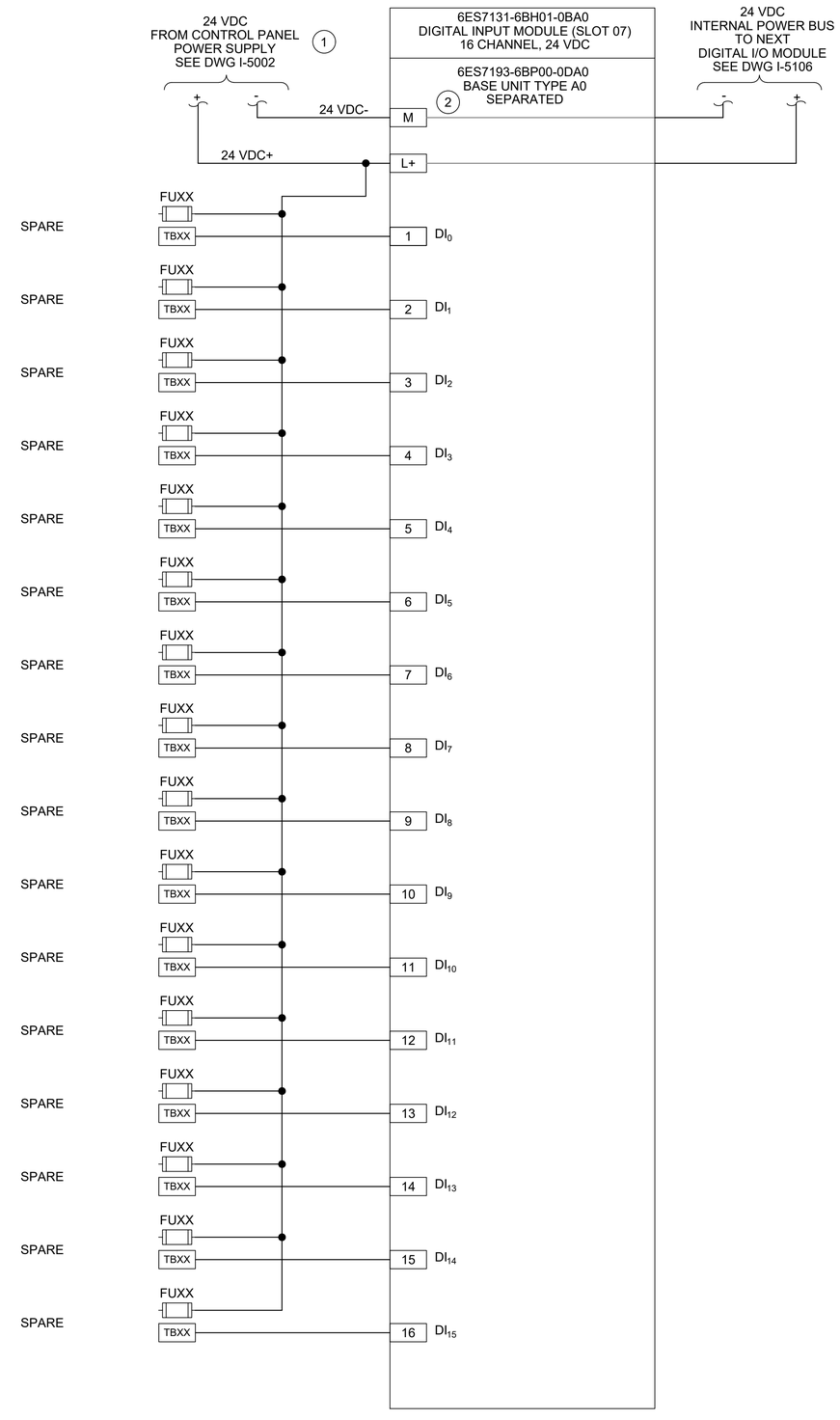
SHEET NUMBER
43 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5104.DWG PLOT DATE: 12/7/2020 8:43 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. DIGITAL I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE DIGITAL I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:55:38-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5105.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
INPUT CARD 5

DRAWING NUMBER
I-5105

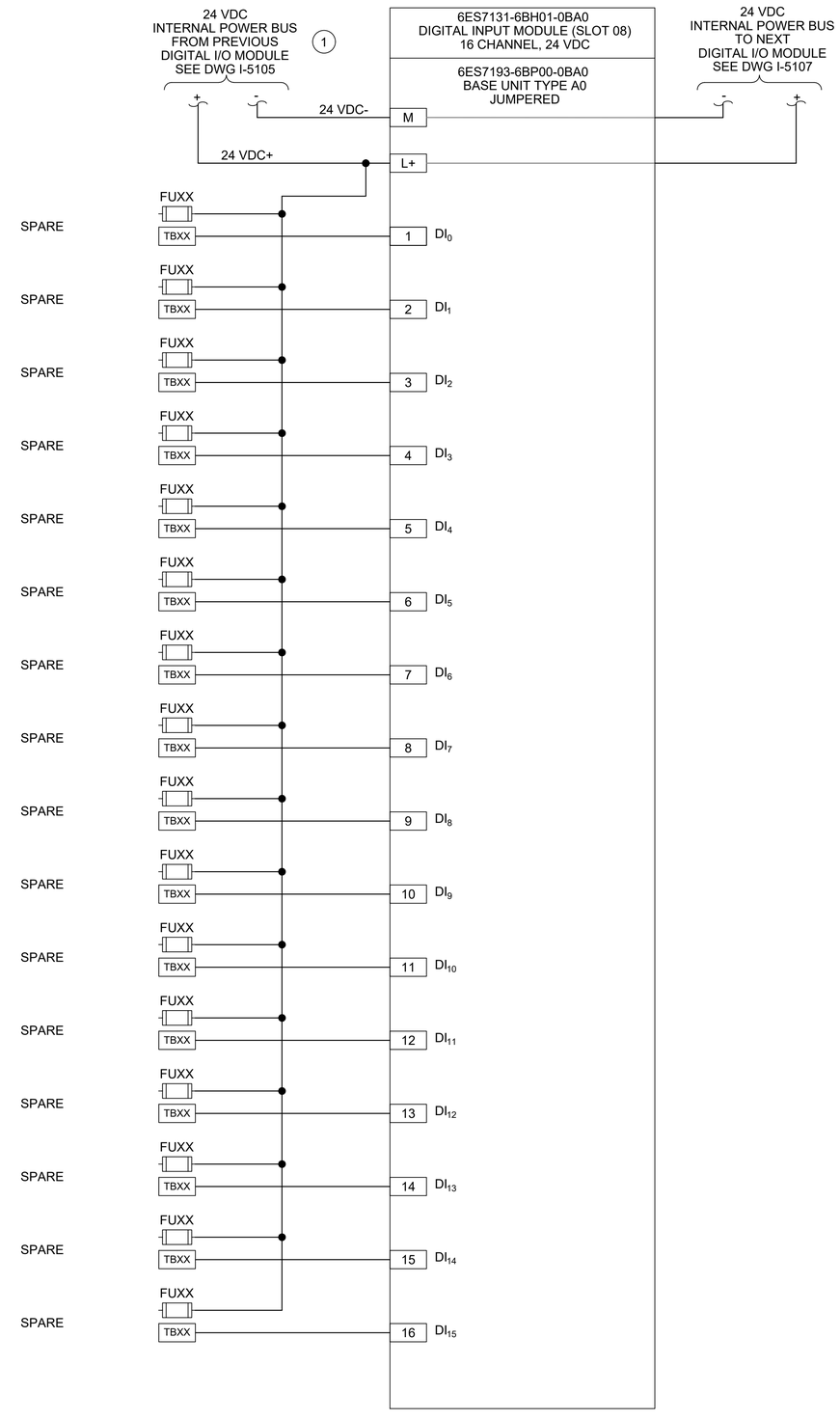
SHEET NUMBER
44 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5105.DWG PLOT DATE: 12/7/2020 11:07 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5106.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
INPUT CARD 6

DRAWING NUMBER
I-5106

SHEET NUMBER
45 OF 70

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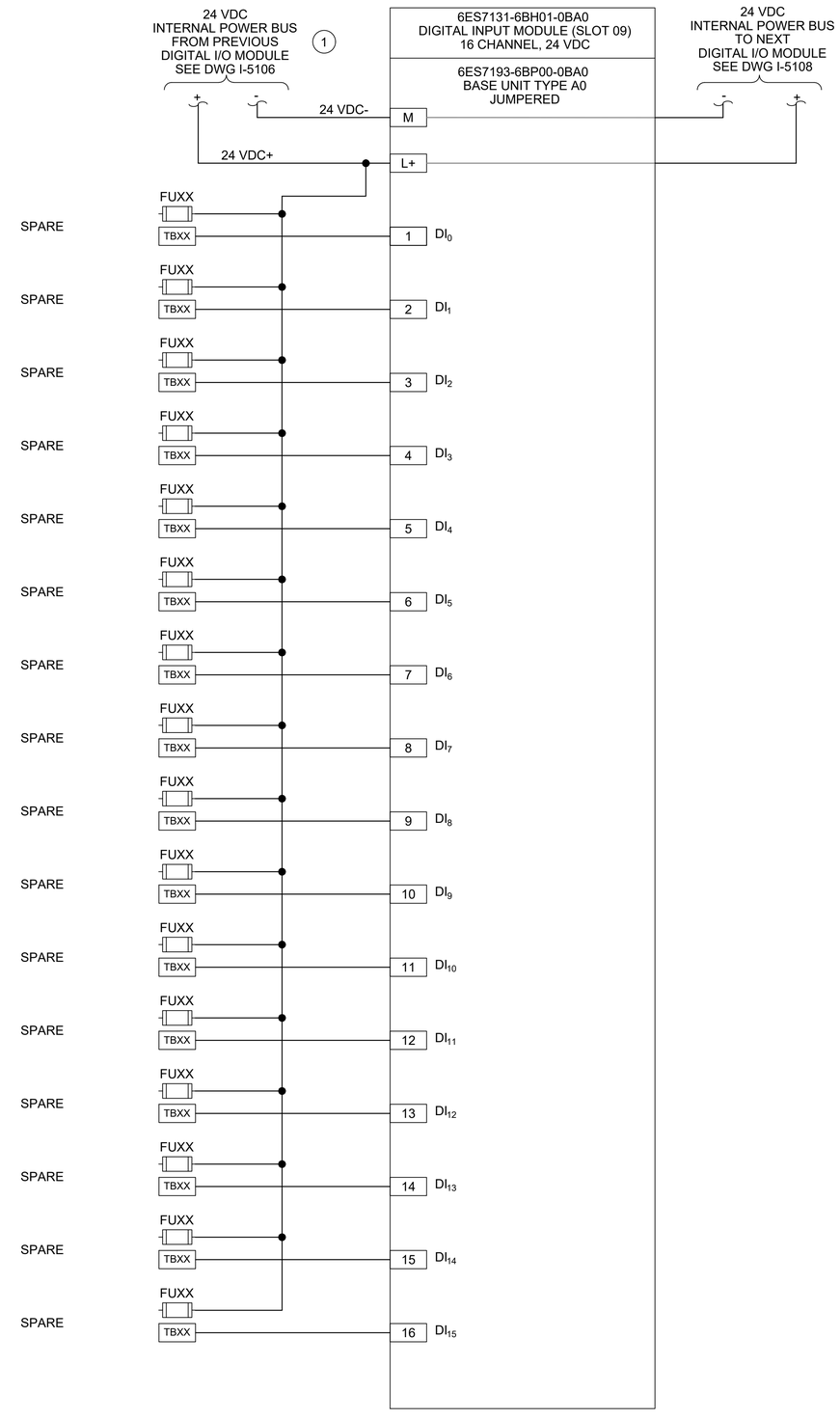
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

(1) DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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SEATTLE, WASHINGTON

BID SET

STATE OF WASHINGTON
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55655
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PROFESSIONAL ENGINEER
2020.12.16 10:56:32-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5107.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
INPUT CARD 7

DRAWING NUMBER
I-5107

SHEET NUMBER
46 OF 70

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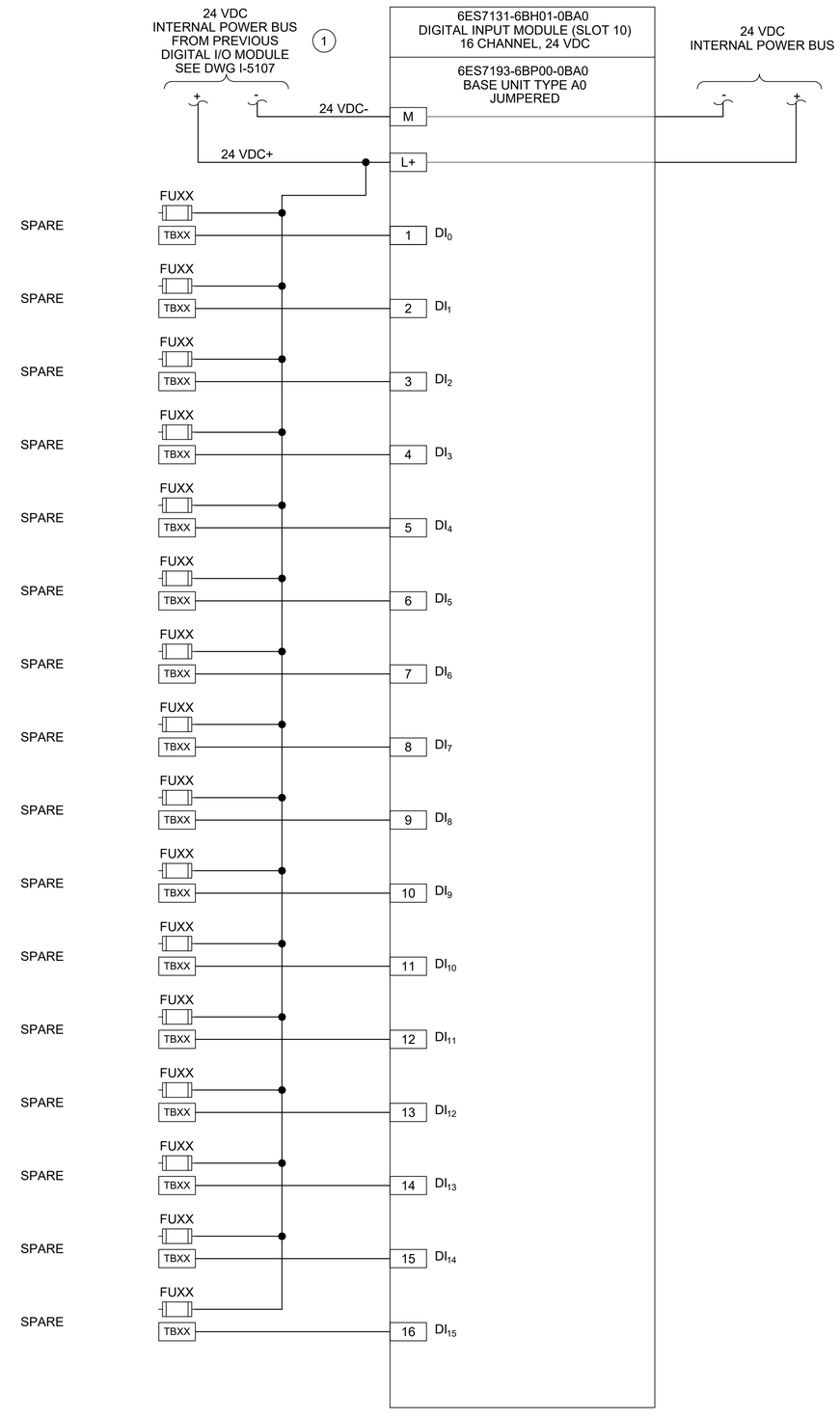
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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SEATTLE, WASHINGTON

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55655
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PROFESSIONAL ENGINEER
2020.12.16 10:56:53-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5108.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

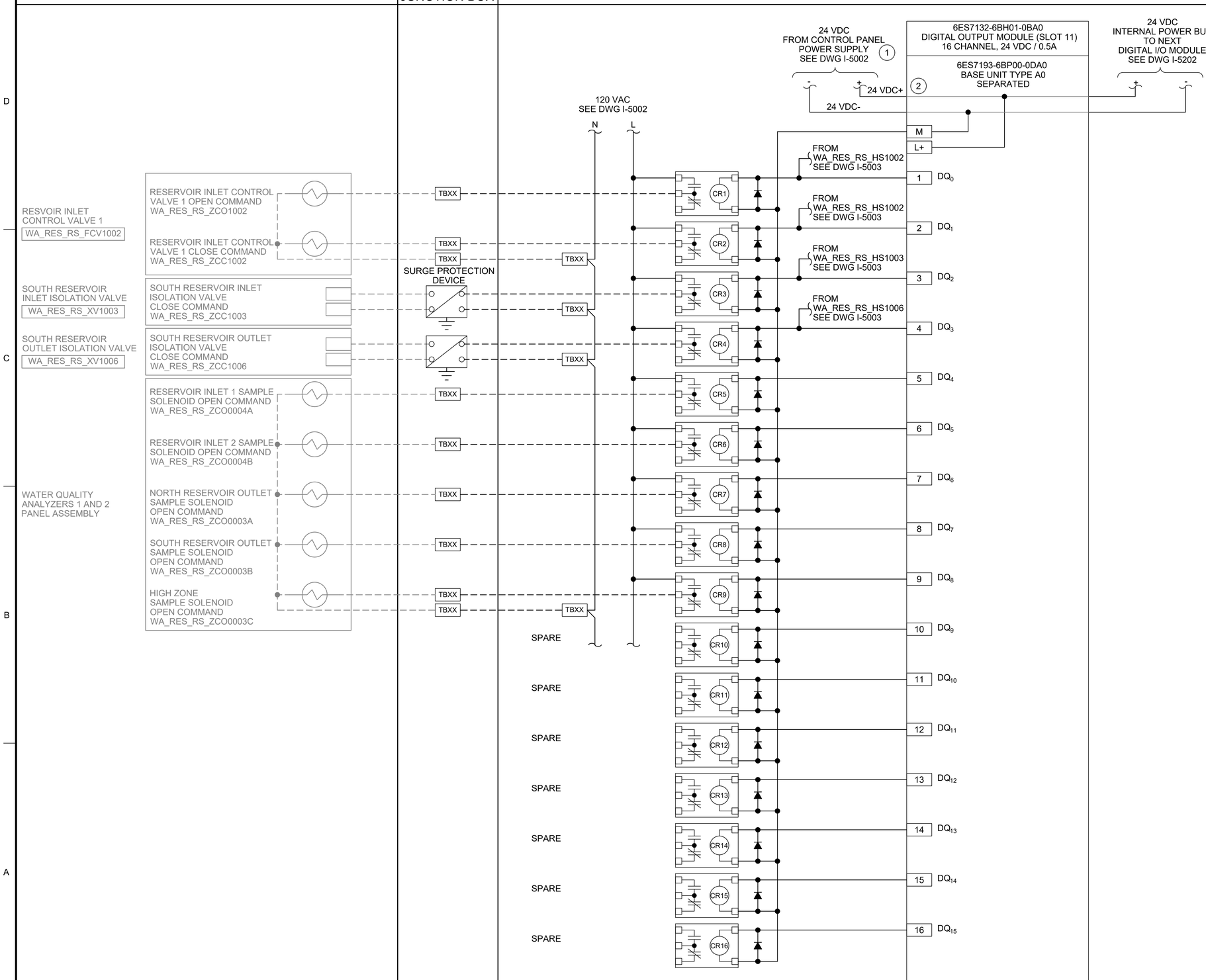
INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
INPUT CARD 8

DRAWING NUMBER
I-5108

SHEET NUMBER
47 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5108.DWG PLOT DATE: 12/7/2020 1:13 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR DIGITAL I/O MODULE WITH SEPARATED BASE UNIT.
2. DIGITAL I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE DIGITAL I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

Brown AND Caldwell
701 PIKE STREET
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BID SET

CAITLIN ANN BLENNER
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55655
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2020.12.16 10:57:13-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

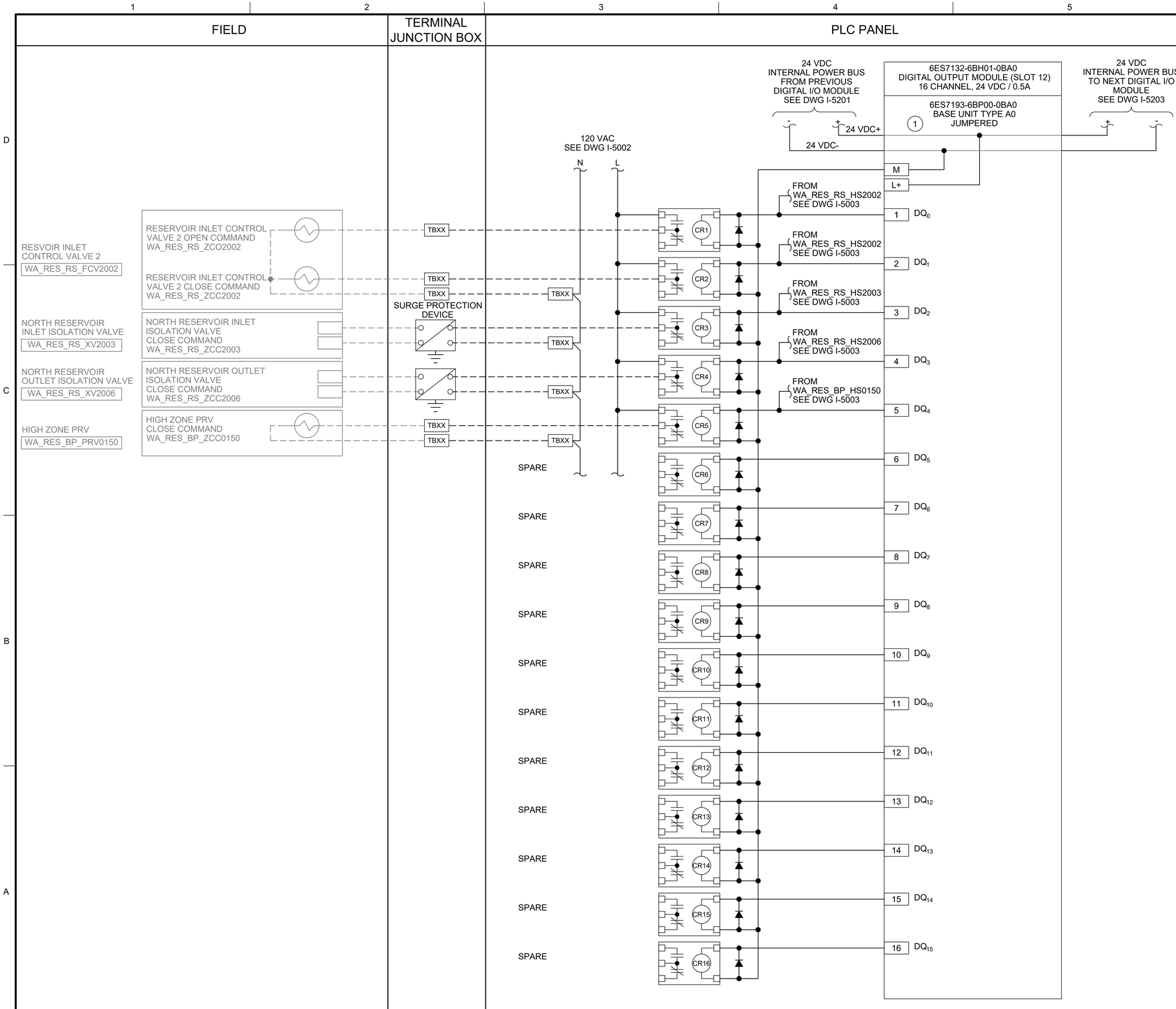
FILENAME
I-5201.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL OUTPUT CARD 1

DRAWING NUMBER
I-5201

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5201.DWG PLOT DATE: 12/8/2020 10:09 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ OR WA_RES_BP_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.

KEY NOTES:

1. DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

Brown AND Caldwell
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STATE OF WASHINGTON
CAITLIN ANN BLESSNER
55655
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2020.12.16 10:57:29-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5202.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP STATION - DIGITAL OUTPUT CARD 2

DRAWING NUMBER
I-5202

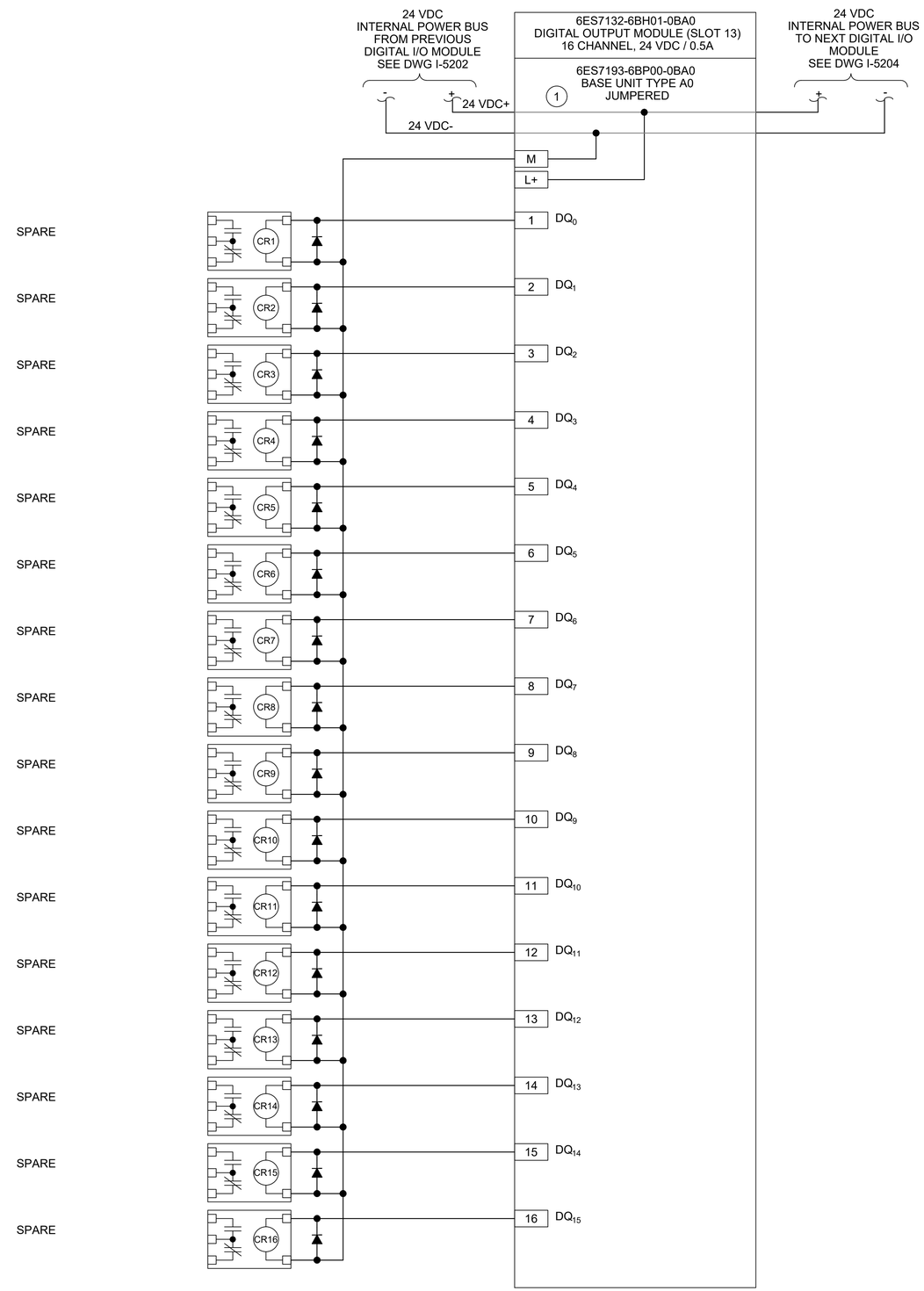
SHEET NUMBER
49 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO\ FILENAME: I-5202.DWG PLOT DATE: 12/8/2020 10:12 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

(1) DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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55655
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2020.12.16 10:57:51-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5203.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
OUTPUT CARD 3

DRAWING NUMBER
I-5203

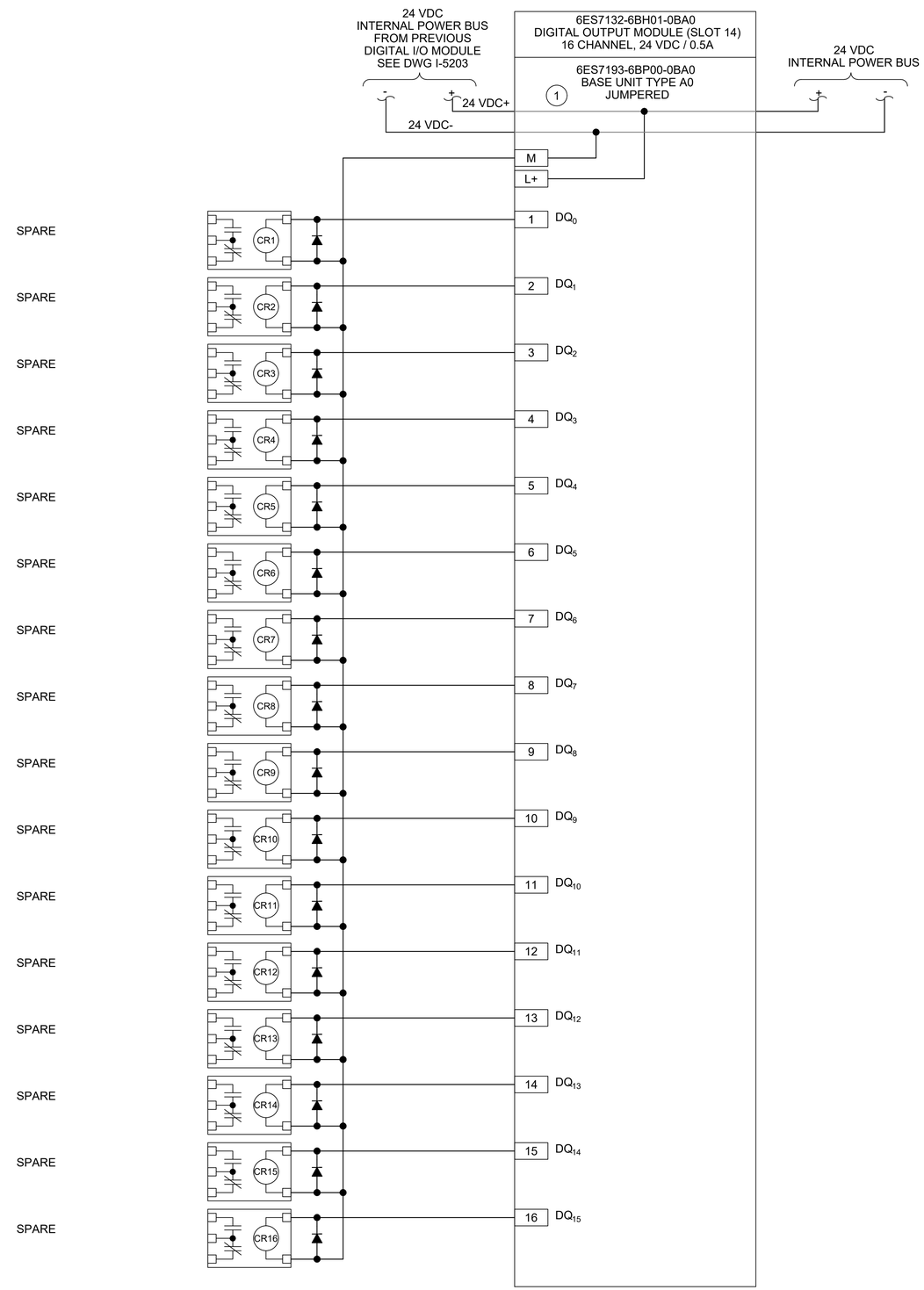
SHEET NUMBER
50 OF 70

Path: C:\USERS\DJACKSON\APPDATALOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-5203.DWG PLOT DATE: 12/7/2020 1:39 PM CAD USER: DAN JACKSON
\\DJACKSON@BRWNCALD.COM_BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVD FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.

KEY NOTES:

(1) DIGITAL I/O MODULE IS POWERED BY THE PREVIOUS DIGITAL I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5204.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

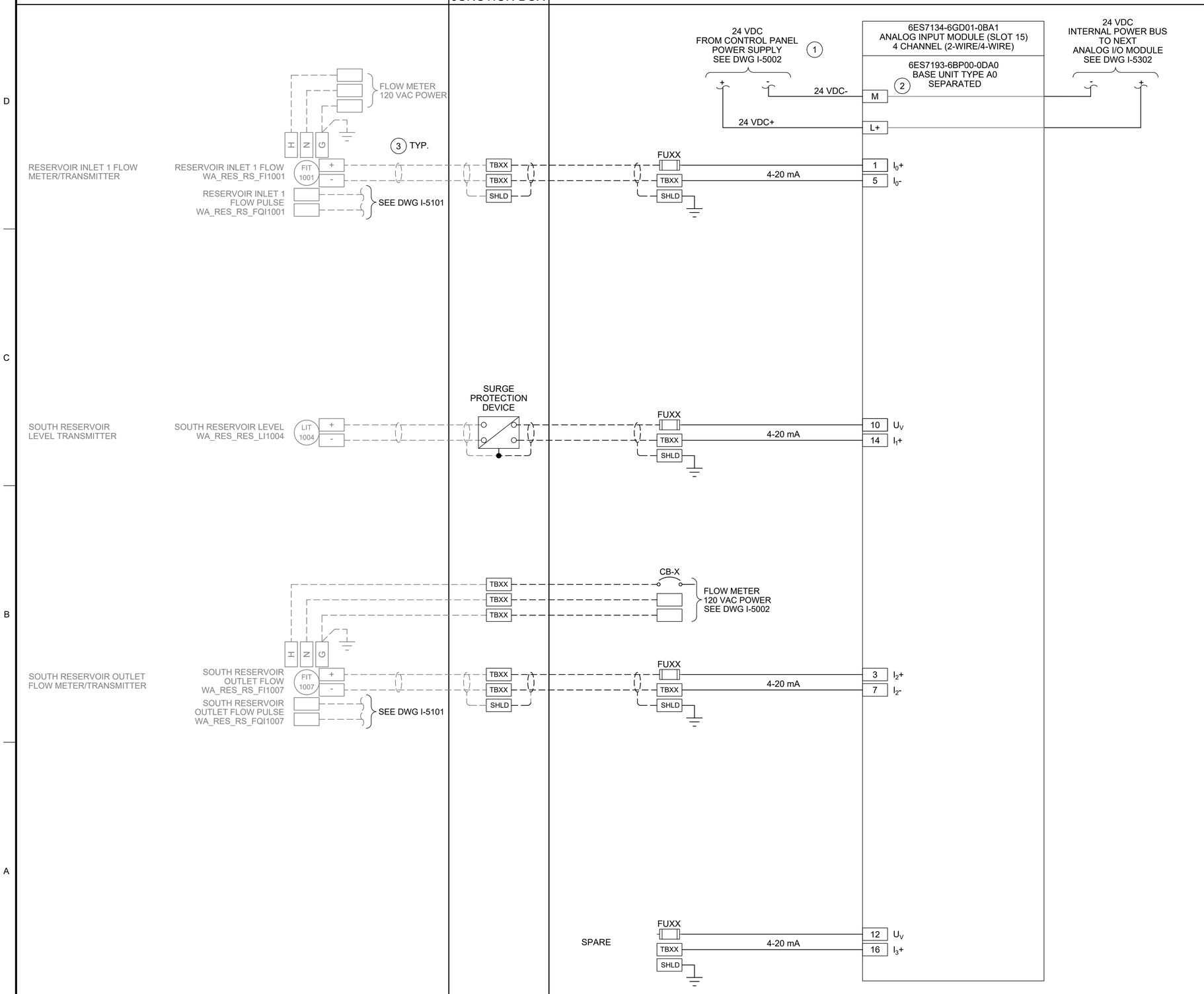
INSTRUMENTATION

RESERVOIR PUMP
STATION - DIGITAL
OUTPUT CARD 4

DRAWING NUMBER
I-5204

SHEET NUMBER
51 OF 70

Path: C:\USERS\DJACKSON\APPDATALOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-5204.DWG PLOT DATE: 12/7/2020 1:55 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. ANALOG I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE ANALOG I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.
3. CUT AND TAPE SHIELD.

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SUITE 1200
SEATTLE, WASHINGTON

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STATE OF WASHINGTON CAITLIN ANN BILLENER 55655 REGISTERED PROFESSIONAL ENGINEER
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5301.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

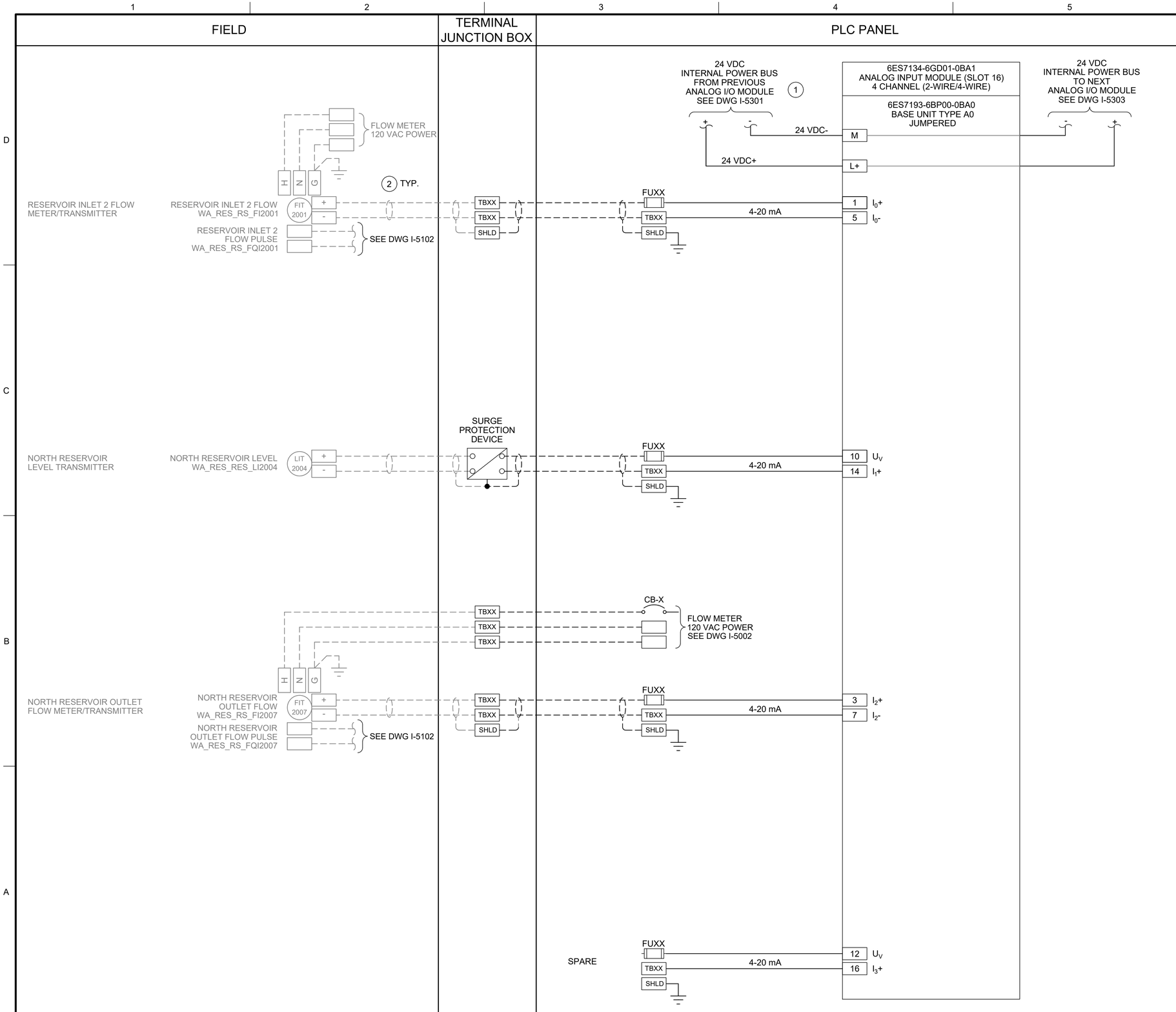
INSTRUMENTATION

RESERVOIR PUMP STATION - ANALOG INPUT CARD 1

DRAWING NUMBER
I-5301

SHEET NUMBER
52 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5301.DWG PLOT DATE: 12/8/2020 11:54 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
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7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. CUT AND TAPE SHIELD.

Brown AND Caldwell
701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:59:19-08'00'

CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME I-5302.DWG
BC PROJECT NUMBER 153585
CLIENT PROJECT NUMBER

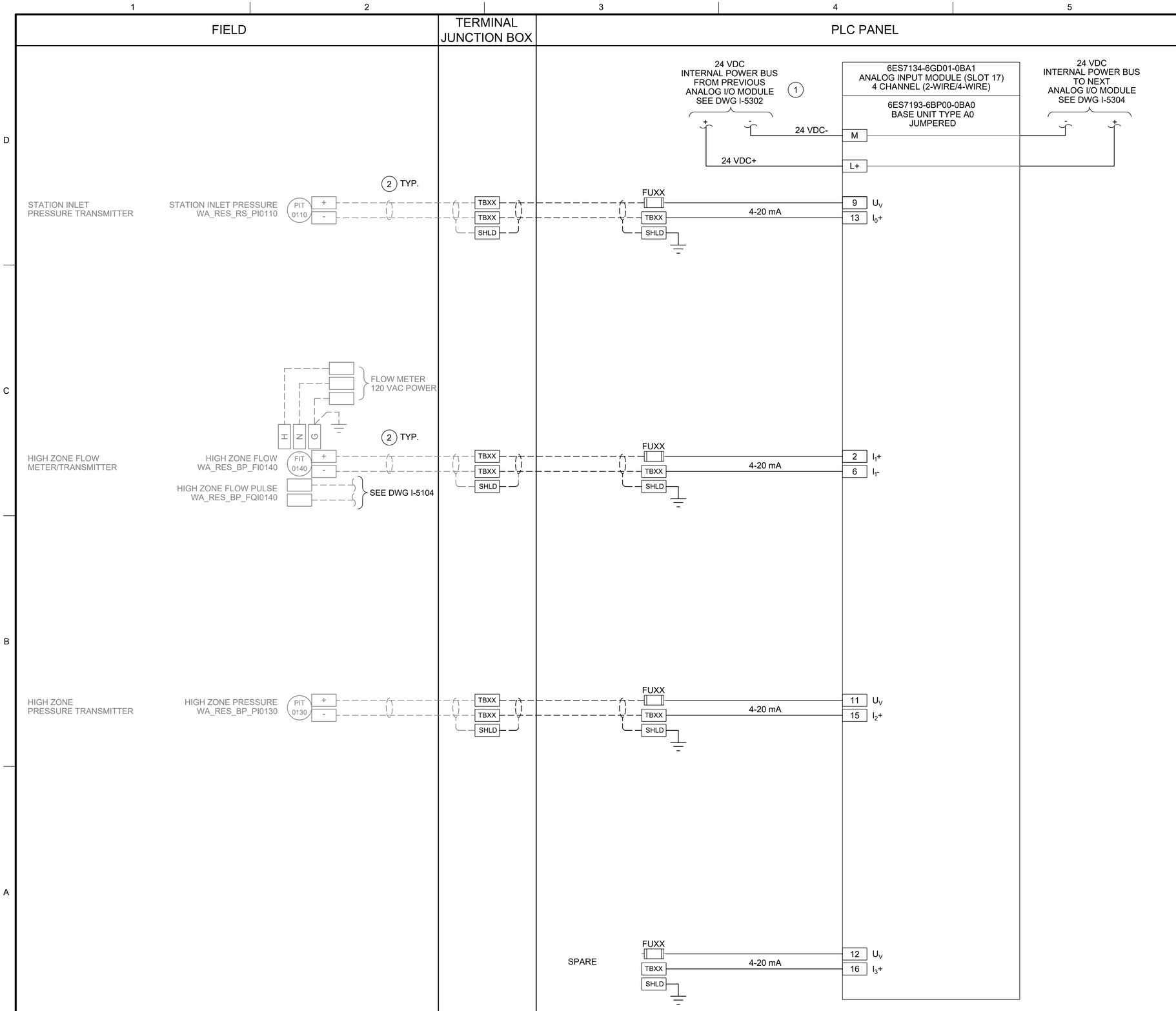
INSTRUMENTATION

RESERVOIR PUMP STATION - ANALOG INPUT CARD 2

DRAWING NUMBER
I-5302

SHEET NUMBER
53 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5302.DWG PLOT DATE: 12/8/2020 10:28 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_RS_ OR WA_RES_BP_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. CUT AND TAPE SHIELD.

Brown AND Caldwell
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SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5303.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

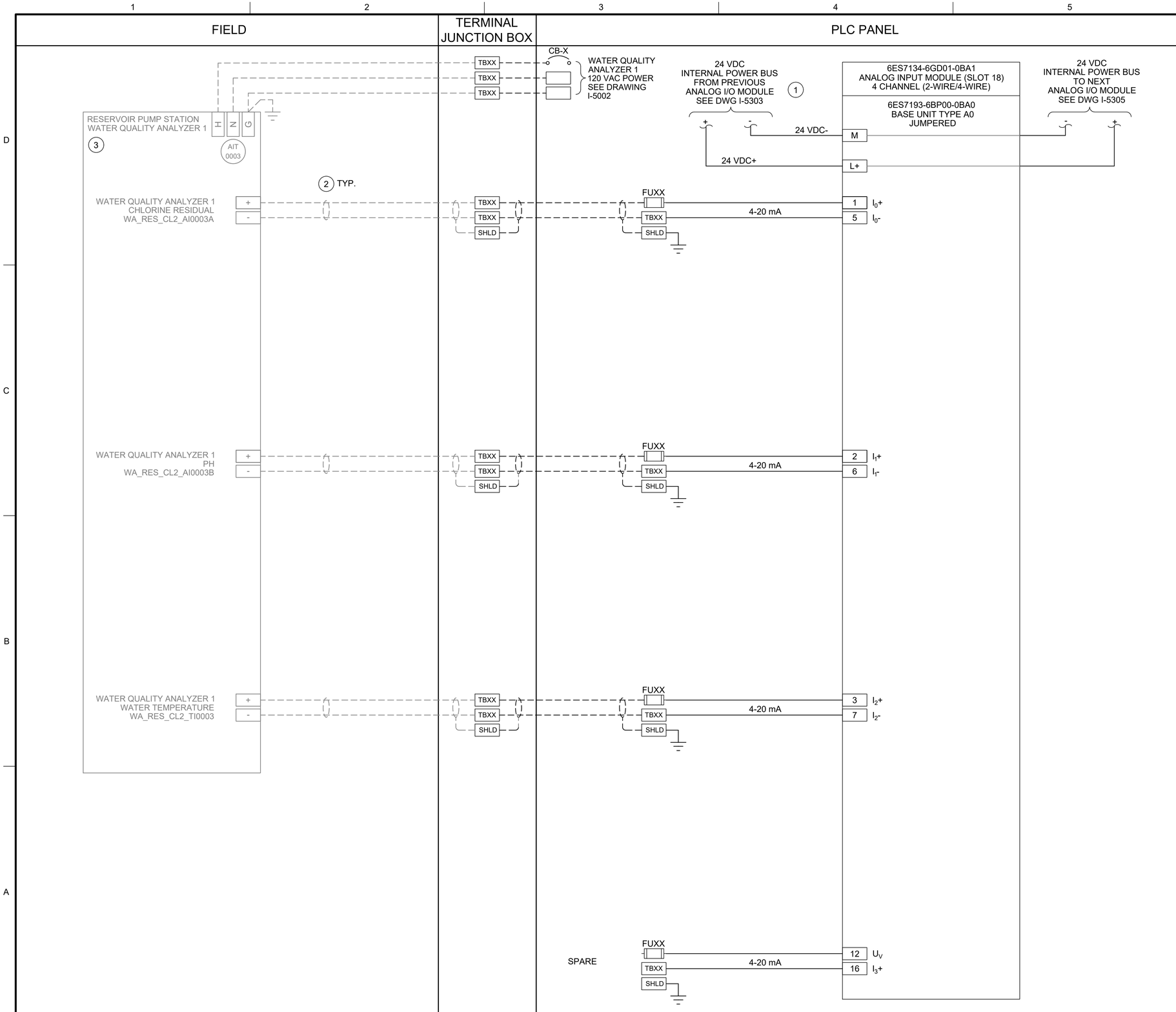
INSTRUMENTATION

RESERVOIR PUMP STATION - ANALOG INPUT CARD 3

DRAWING NUMBER
I-5303

SHEET NUMBER
54 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5303.DWG PLOT DATE: 12/8/2020 10:29 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_CL2_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. CUT AND TAPE SHIELD.
3. WATER QUALITY ANALYZER 1 MONITORS CHLORINE, PH, AND TEMPERATURE ON A ROTATING BASIS AT THE FOLLOWING SAMPLE LOCATIONS: NORTH RESERVOIR OUTLET, SOUTH RESERVOIR OUTLET, AND HIGH ZONE OUTLET.

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CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5304.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

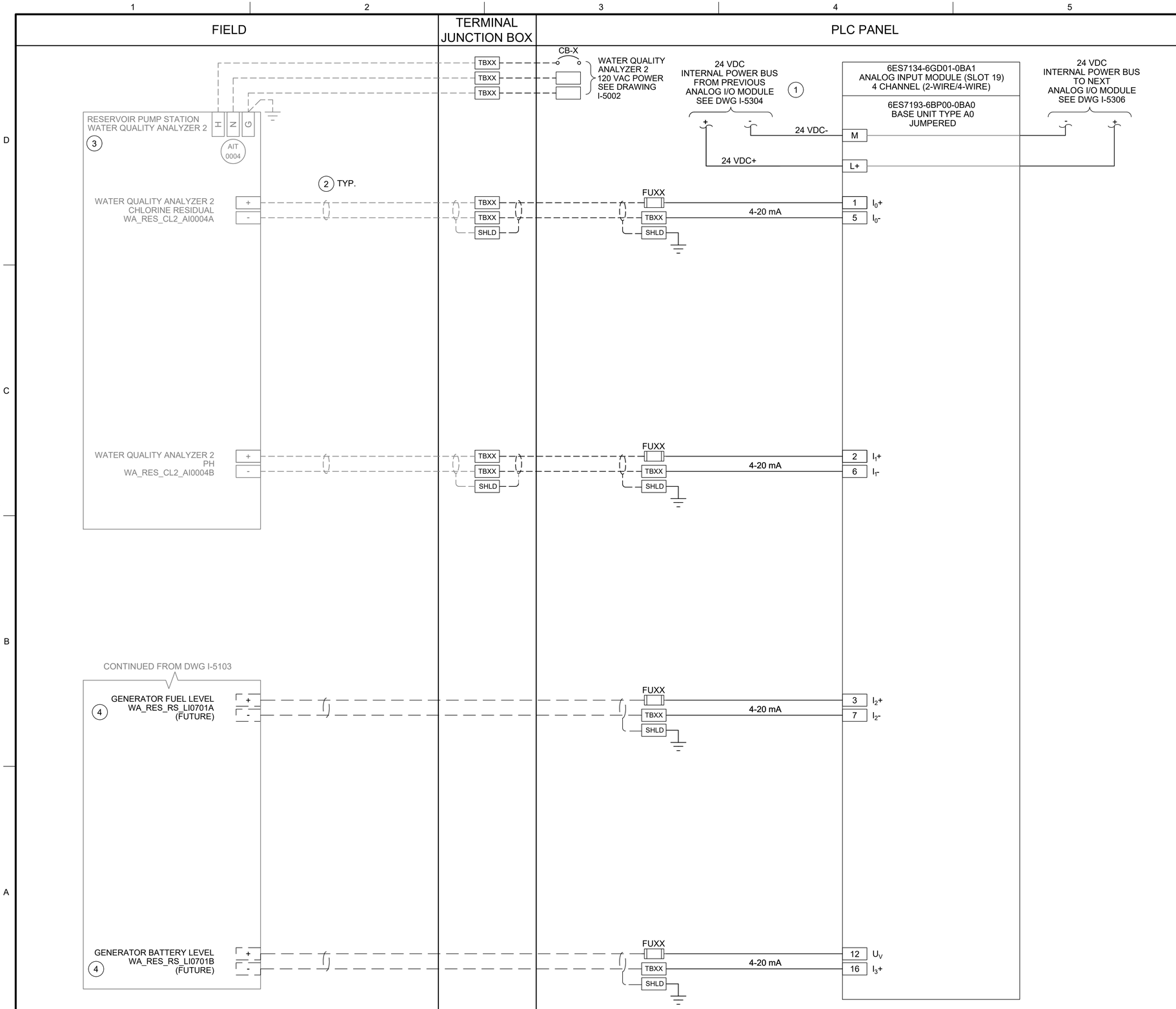
INSTRUMENTATION

RESERVOIR PUMP STATION - ANALOG INPUT CARD 4

DRAWING NUMBER
I-5304

SHEET NUMBER
55 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5304.DWG PLOT DATE: 12/8/2020 10:31 AM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. CONTRACTOR IS TO RECONNECT EXISTING FIELD WIRING AT TERMINAL JUNCTION BOX AND ROUTE NEW WIRING TO NEW PLC PANEL.
3. EXISTING FIELD WIRING ON THIS DRAWING IS BASED ON OWNER'S EXISTING PANEL DRAWINGS. REFER TO SECTION 01 11 00 FOR REFERENCE MATERIALS PROVIDED, WHICH INCLUDE ADDITIONAL INFORMATION. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING WIRING TO THE SOURCE PRIOR TO COMMENCING WORK FOR CUTOVER. CONTRACTOR TO MODIFY SUBMITTAL DRAWINGS AS REQUIRED.
4. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT AND INSTRUMENTS UNDER THIS PROJECT. EXISTING EQUIPMENT AND INSTRUMENTS ARE NOT TAGGED IN THE FIELD.
5. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
6. ALL EQUIPMENT AND INSTRUMENT TAG NUMBERS ARE PRECEDED BY WA_RES_CL2_ OR WA_RES_RS_ IF NOT SHOWN. REFER TO SECTION 40 61 93 I/O LIST FOR I/O TAGS.
7. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.
2. CUT AND TAPE SHIELD.
3. WATER QUALITY ANALYZER 2 MONITORS CHLORINE AND PH ON A ROTATING BASIS AT THE FOLLOWING SAMPLE LOCATIONS: RESERVOIR INLET CONTROL VALVE 1 AND RESERVOIR INLET CONTROL VALVE 2.
4. ANALOG INPUTS ARE RESERVED FOR FUTURE GENERATOR MONITORING.

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5305.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP STATION - ANALOG INPUT CARD 5

DRAWING NUMBER
I-5305

SHEET NUMBER
56 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\R\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5305.DWG PLOT DATE: 12/11/2020 8:11 AM CAD USER: BAMBANG NURSUWITO
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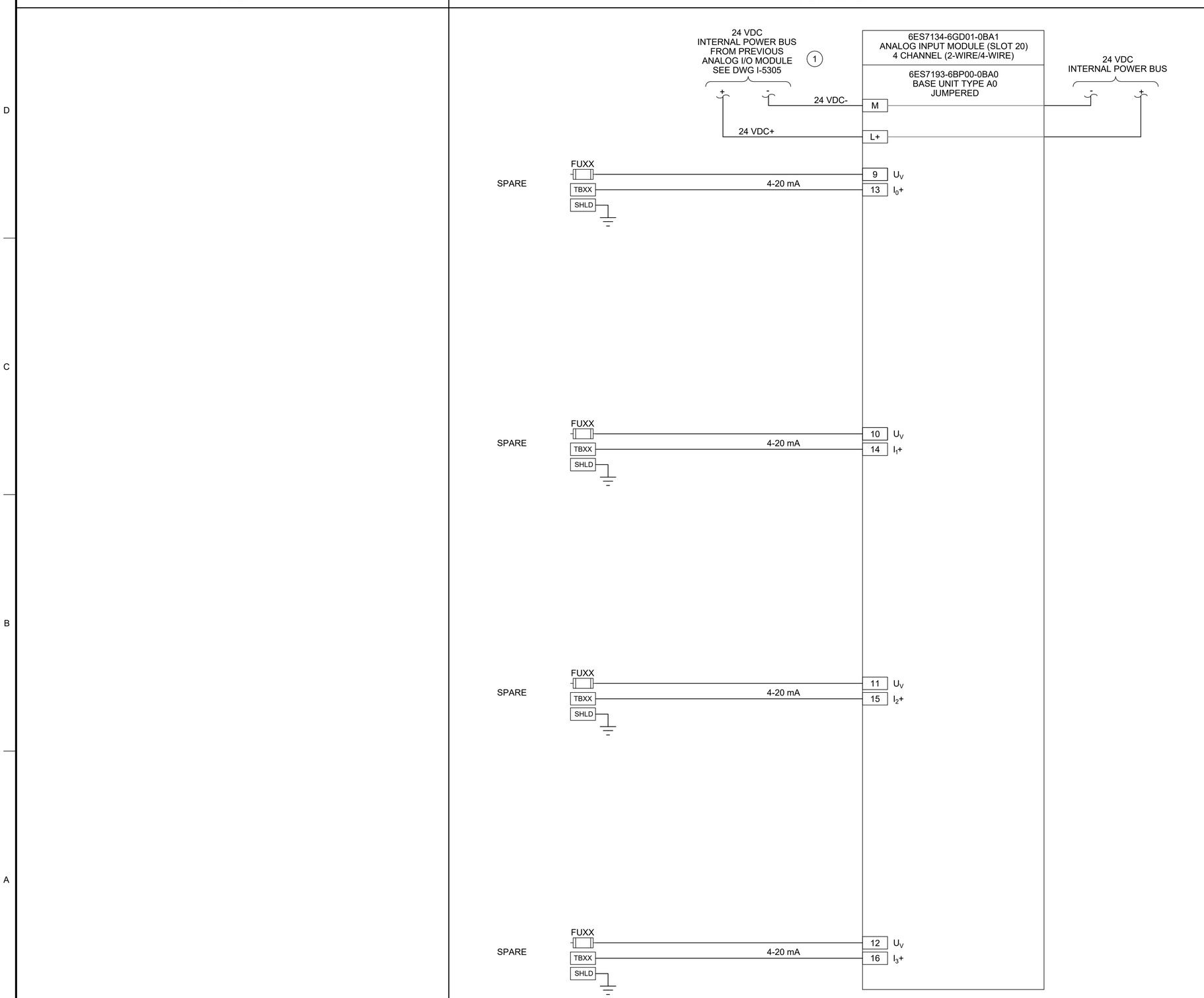

GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA SINGLE-ENDED (2-WIRE) CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5306.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 6

DRAWING NUMBER
I-5306

SHEET NUMBER
57 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5306.DWG PLOT DATE: 12/14/2020 9:31 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png

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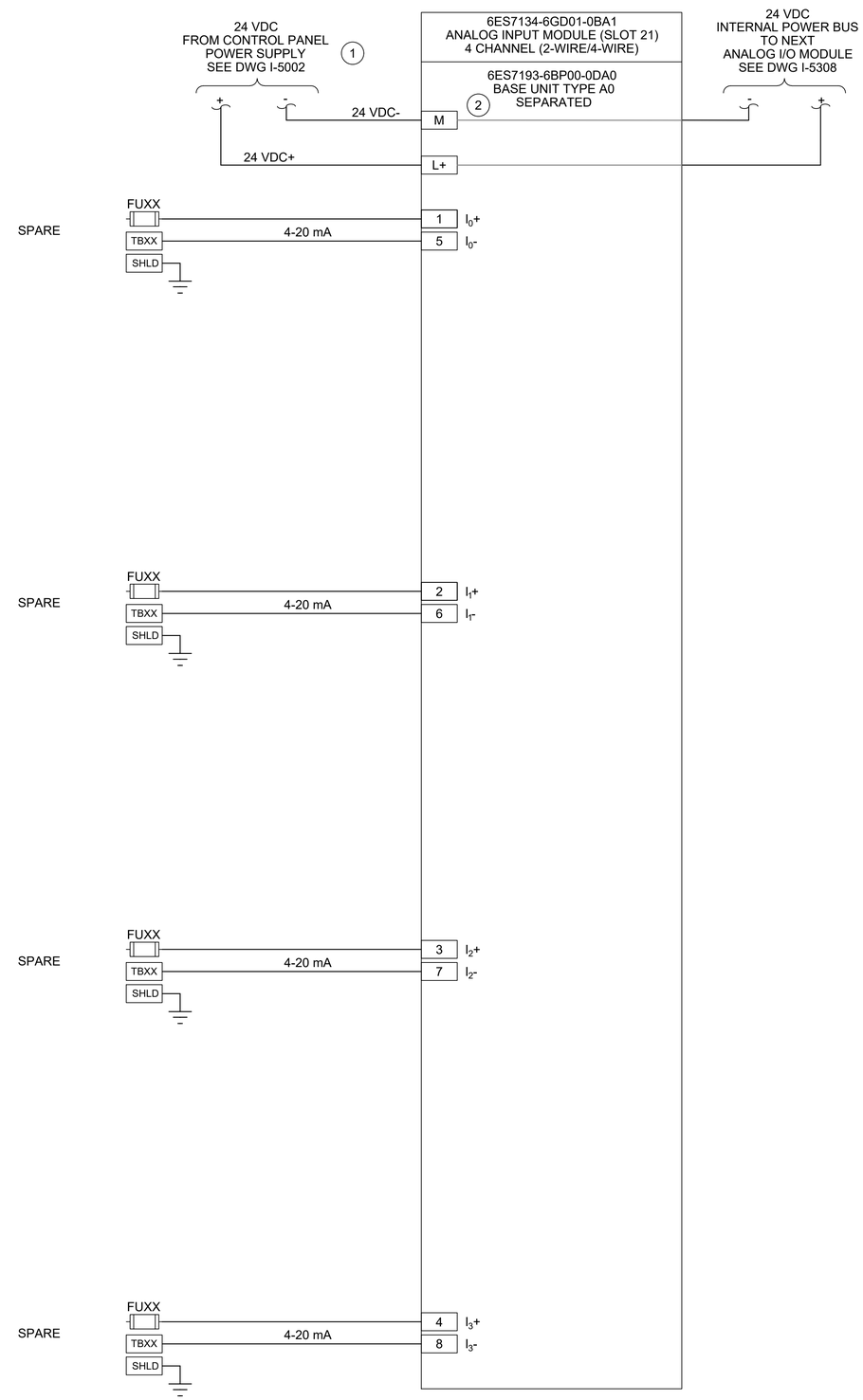
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. WIRING SHOWN IS FOR 4-20mA 4-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 2-WIRE INPUTS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. ANALOG I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE ANALOG I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

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2020.12.16 11:01:12-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5307.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 7

DRAWING NUMBER
I-5307

SHEET NUMBER
58 OF 70

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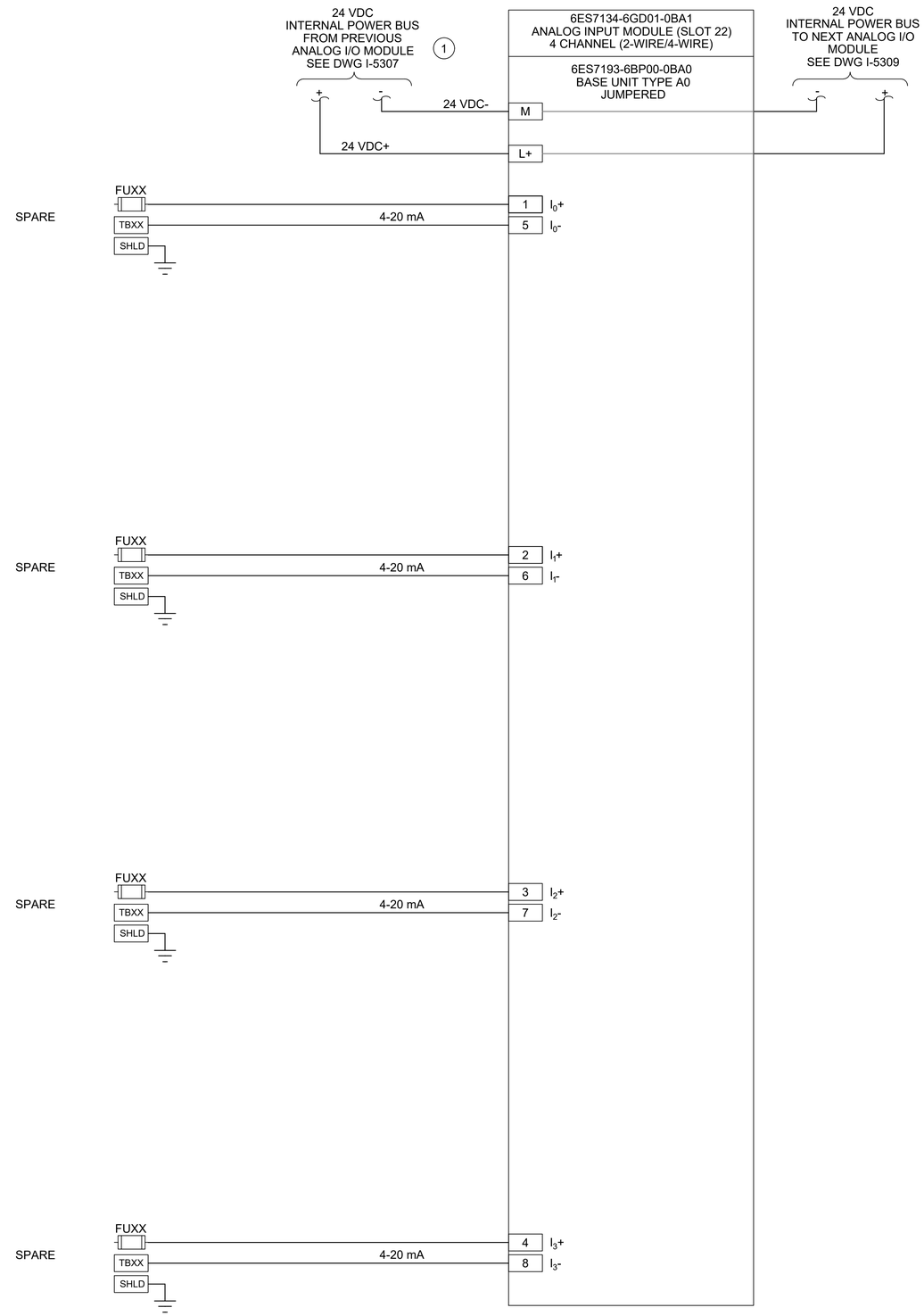
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA 4-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 2-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BUS UNIT.

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2020.12.16 11:01:34-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5308.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 8

DRAWING NUMBER
I-5308

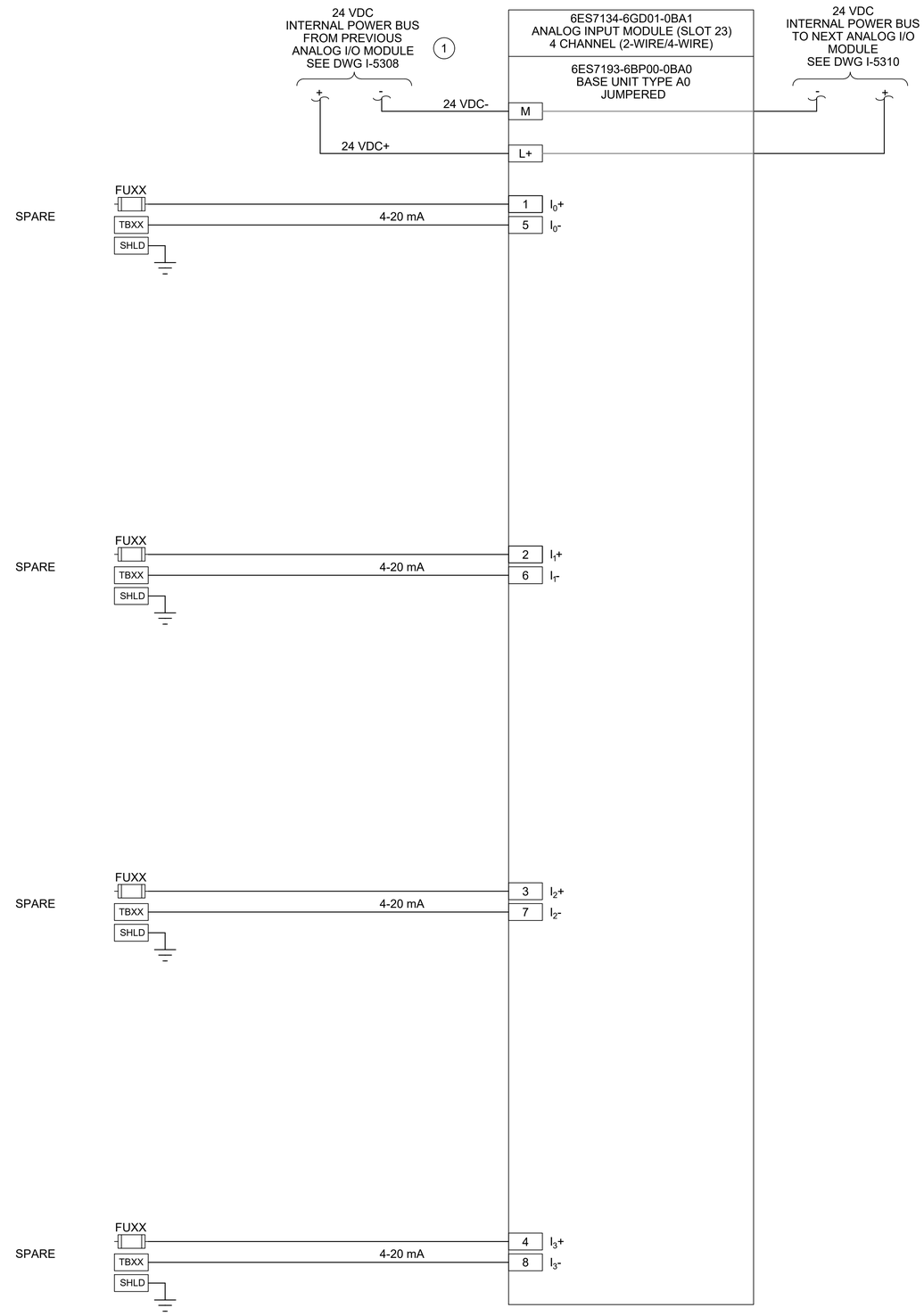
SHEET NUMBER
59 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5309.DWG PLOT DATE: 12/7/2020 3:35 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA 4-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 2-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5309.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 9

DRAWING NUMBER
I-5309

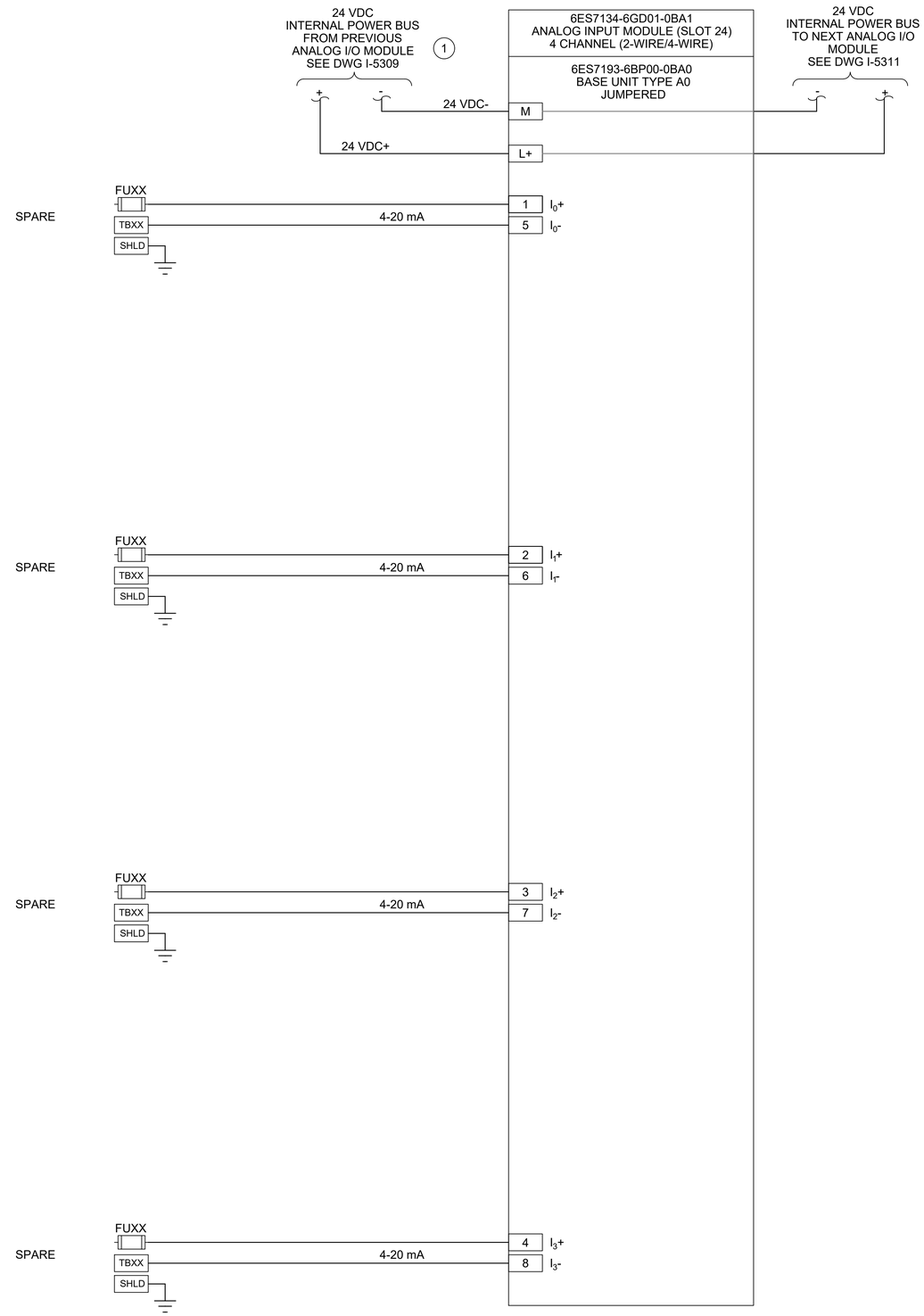
SHEET NUMBER
60 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5310.DWG PLOT DATE: 12/7/2020 3:42 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA 4-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 2-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CITY OF MERCER ISLAND
PUBLIC WORKS

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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
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DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5310.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 10

DRAWING NUMBER
I-5310

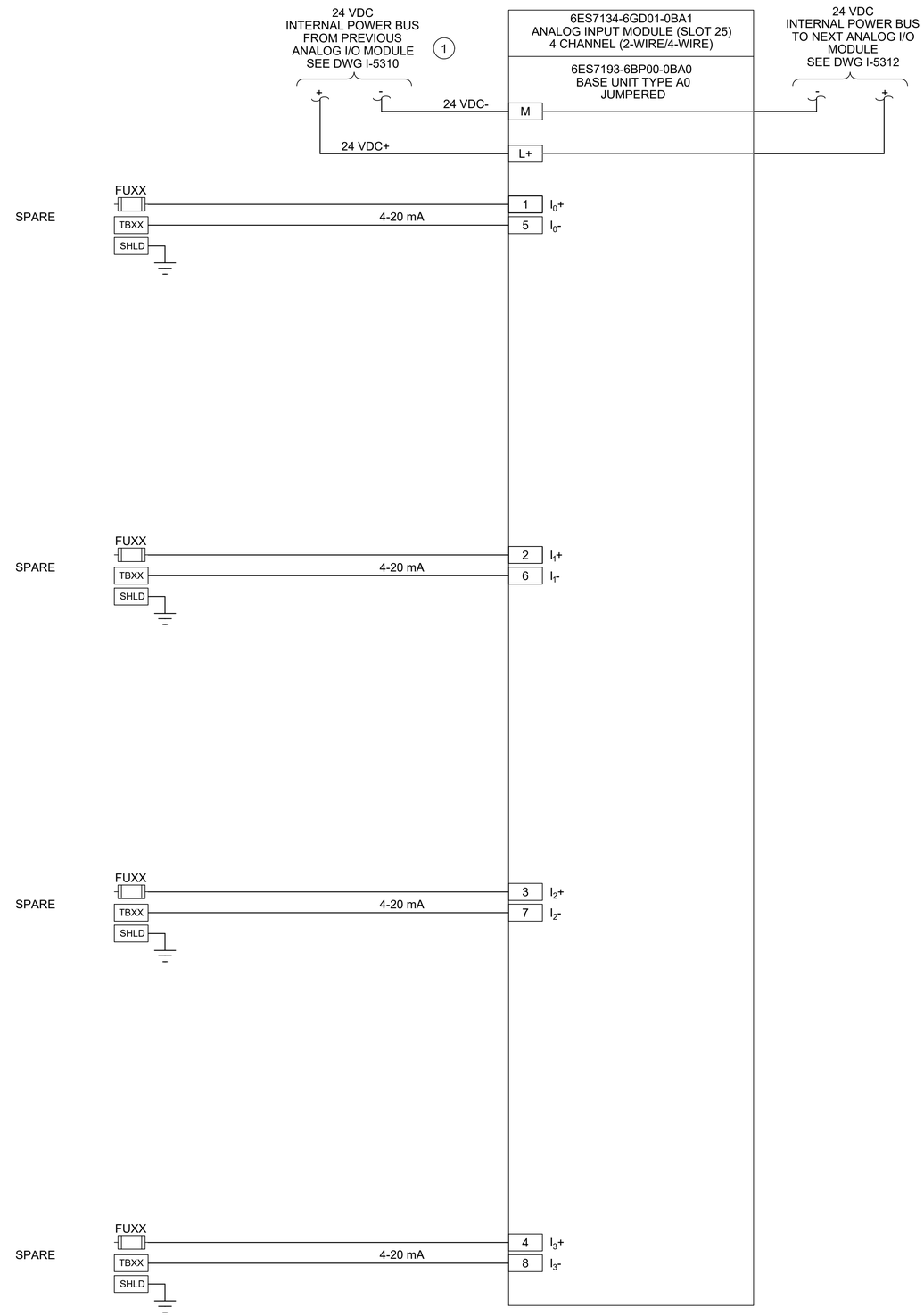
SHEET NUMBER
61 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD.COM\D0400357 FILENAME: I-5311.DWG PLOT DATE: 12/7/2020 3:52 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA 4-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 2-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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701 PIKE STREET
SUITE 1200
SEATTLE, WASHINGTON

BID SET

CAITLIN ANN BILLENER
STATE OF WASHINGTON
55655
REGISTERED
PROFESSIONAL ENGINEER
2020.12.16 11:03:17-08'00'

CITY OF MERCER ISLAND
PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5311.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 11

DRAWING NUMBER
I-5311

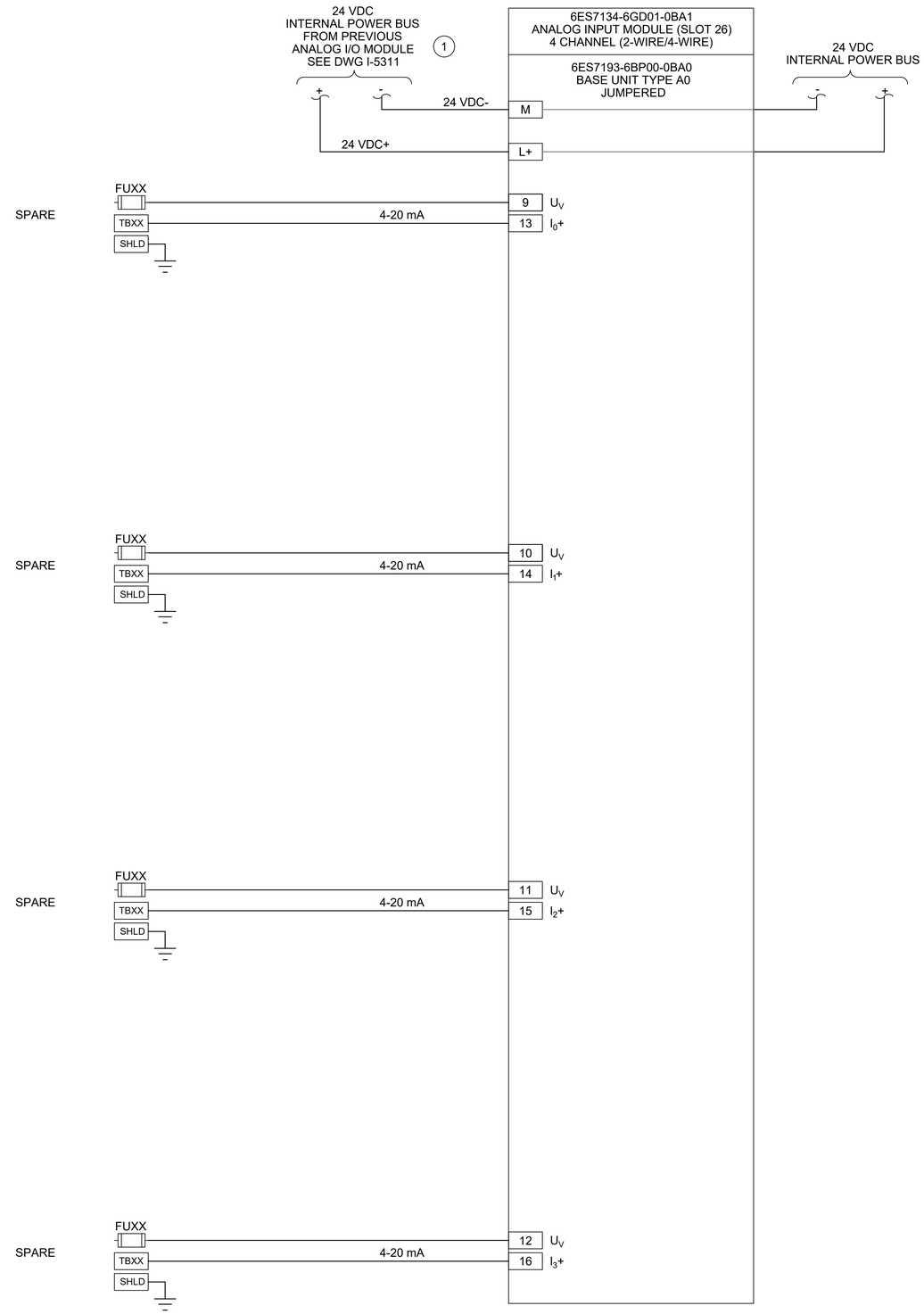
SHEET NUMBER
62 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5312.DWG PLOT DATE: 12/7/2020 4:00 PM CAD USER: DAN JACKSON
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA 2-WIRE CURRENT INPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 4-WIRE INPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR 4-WIRE INPUTS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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55655
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2020.12.16 11:04:15-08'00'

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PUBLIC WORKS

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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

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DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5312.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
INPUT CARD 12

DRAWING NUMBER
I-5312

SHEET NUMBER
63 OF 70

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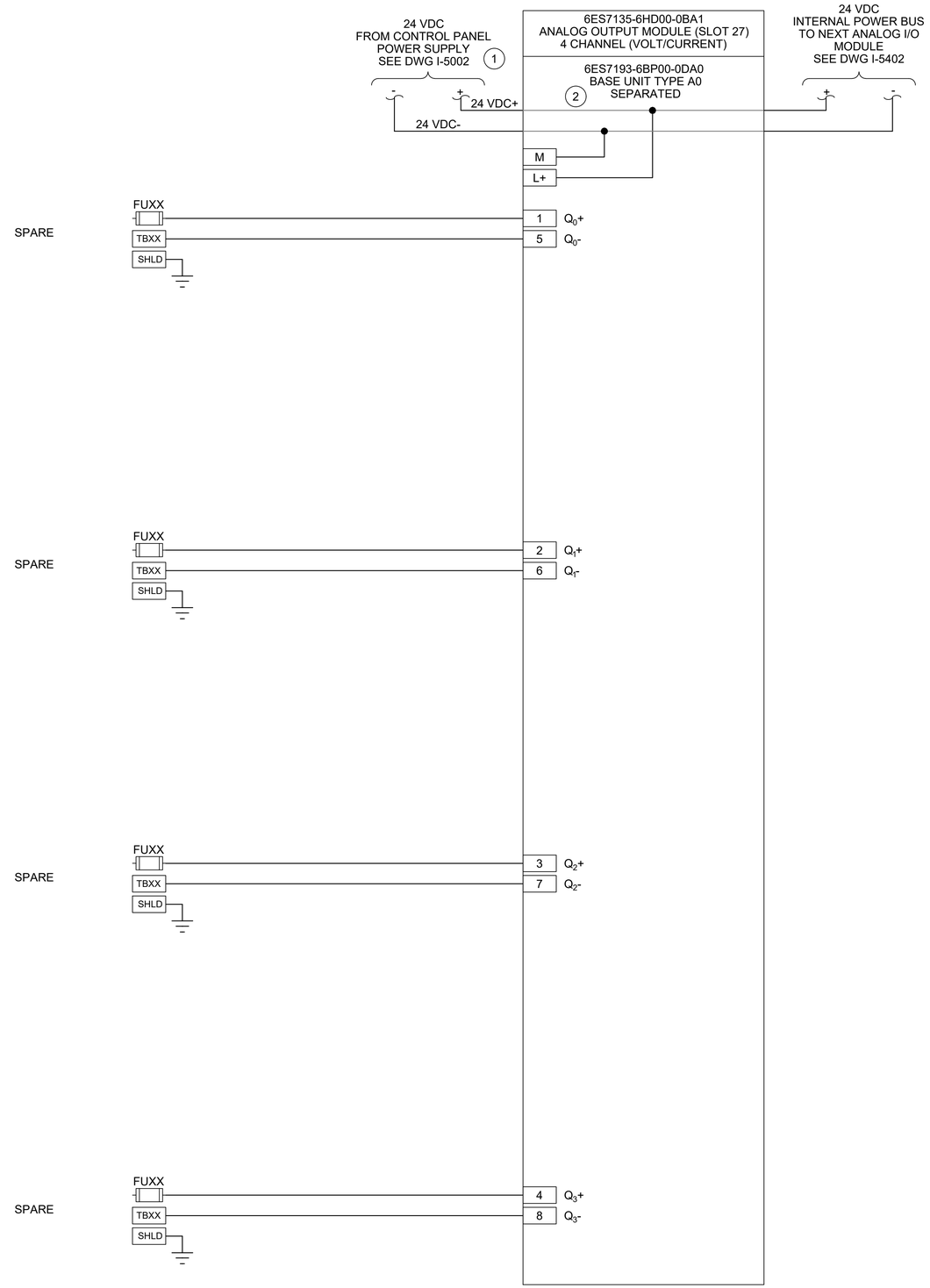
Mercer Island logo_2.png

FIELD

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. PROVIDE EXTERNAL WIRE NUMBERS PER SECTION 26 05 00. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
3. FOR SPARE INPUTS, WIRING SHOWN IS FOR 4-20mA CURRENT OUTPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-, 3- AND 4-WIRE VOLTAGE OUTPUTS AND DIFFERENT CURRENT OUTPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR OTHER OUTPUT OPTIONS.

KEY NOTES:

1. PROVIDE SEPARATELY FUSED 24 VDC POWER SUPPLY FROM CONTROL PANEL FOR ANALOG I/O MODULE WITH SEPARATED BASE UNIT.
2. ANALOG I/O MODULE SHOWN ON THIS DRAWING STARTS AN INTERNAL 24 VDC BUS FOR THE ANALOG I/O MODULES WITH JUMPERED BASE UNITS THAT FOLLOW. REFER TO PANEL LAYOUT DRAWING FOR PLC RACK DETAILS.

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WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

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DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5401.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

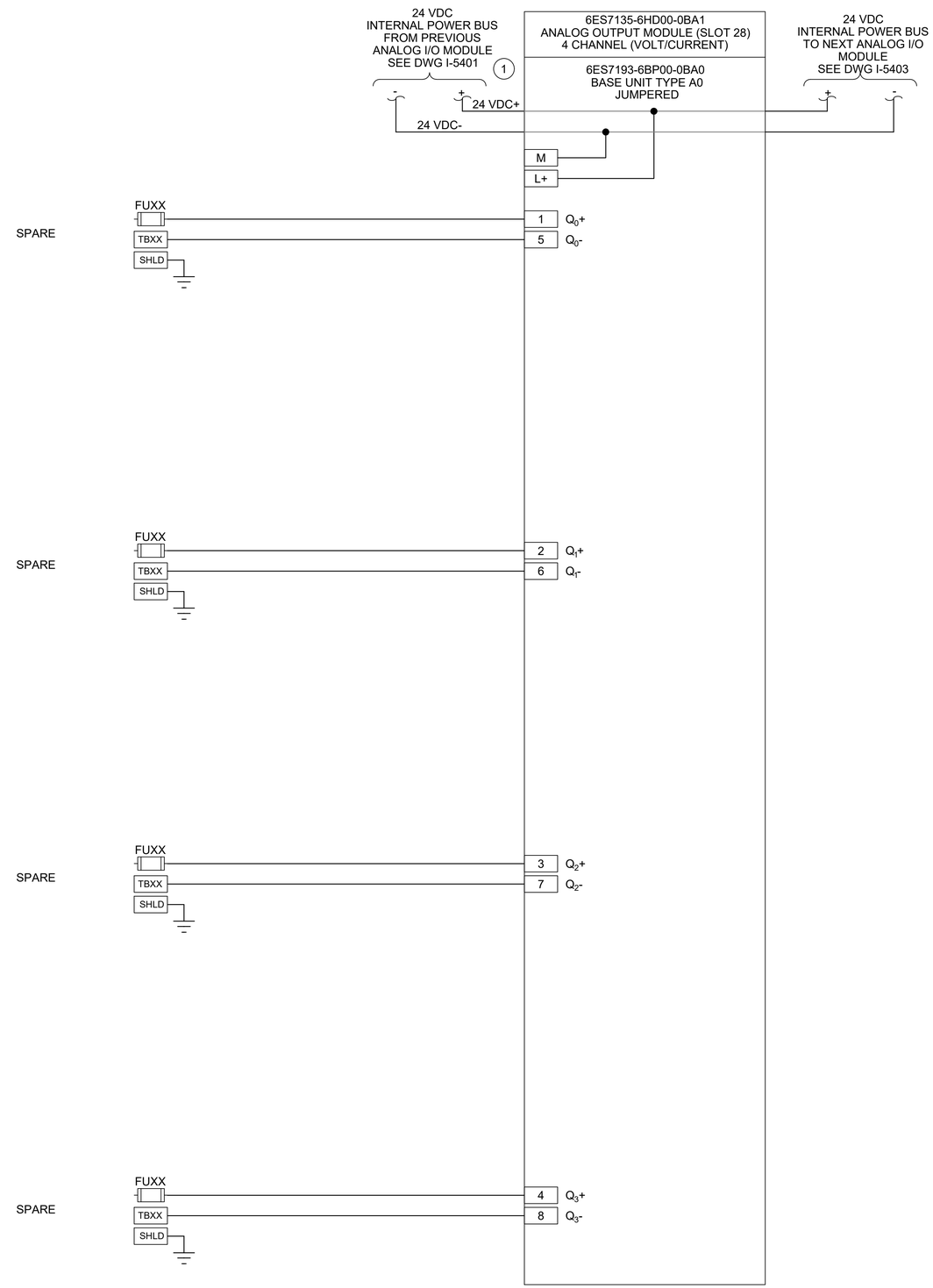
RESERVOIR PUMP
STATION - ANALOG
OUTPUT CARD 1

DRAWING NUMBER
I-5401

SHEET NUMBER
64 OF 70

FIELD

PLC PANEL



RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. WIRING SHOWN IS FOR 4-20mA CURRENT OUTPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-, 3- AND 4-WIRE VOLTAGE OUTPUTS AND DIFFERENT CURRENT OUTPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR OTHER OUTPUT OPTIONS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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55655
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PUBLIC WORKS

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MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5402.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
OUTPUT CARD 2

DRAWING NUMBER
I-5402

SHEET NUMBER
65 OF 70

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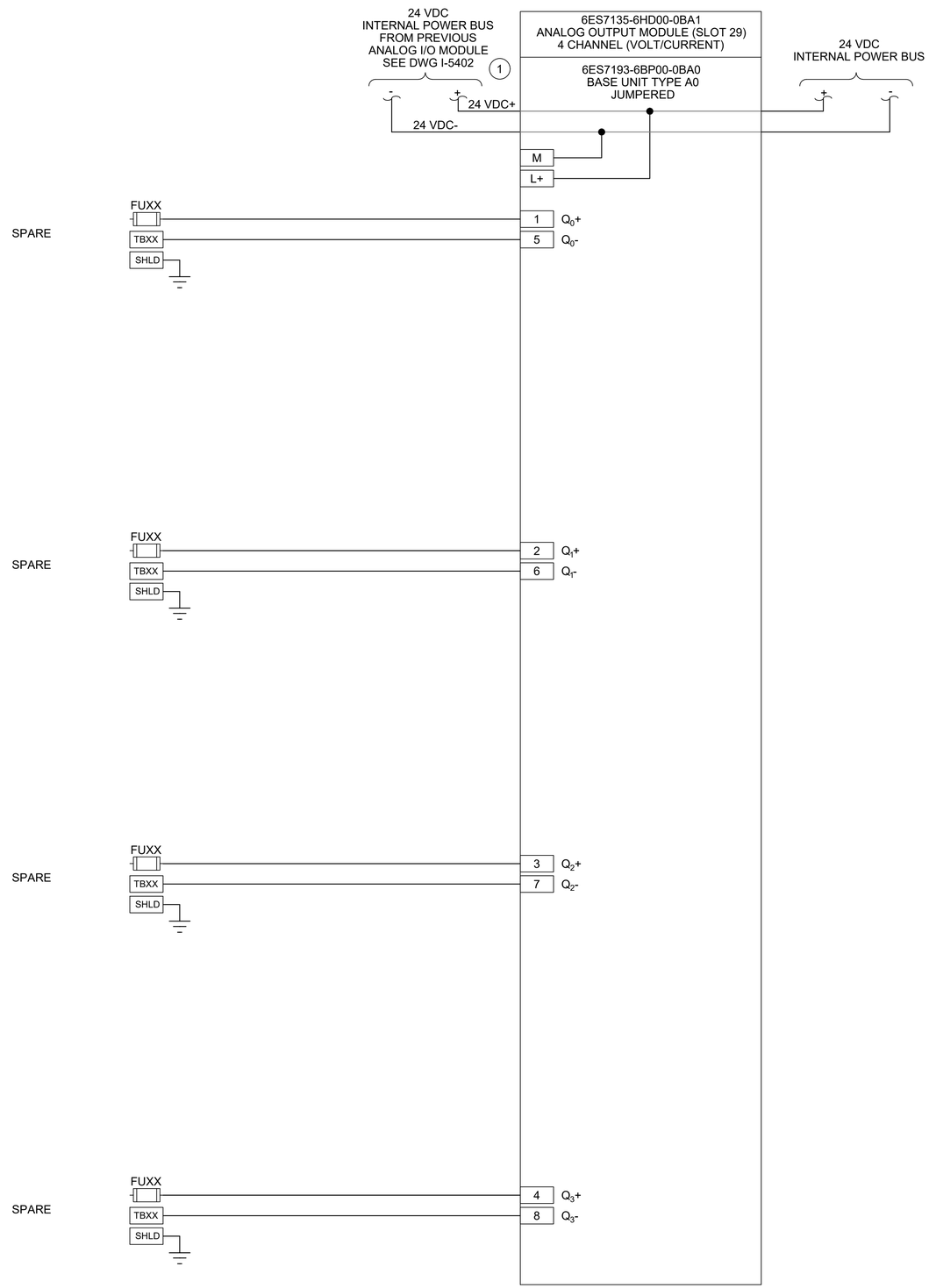
Mercer Island logo_2.png

FIELD

RESERVED FOR
FUTURE BOOSTER
CHLORINATION
SYSTEM

PLC PANEL



GENERAL NOTES:

1. I/O CARD WIRING SHOWN ON THIS DRAWING IS BASED ON SIEMENS ET200SP PLC SPECIFIED IN SECTION 40 63 43.
2. I/O CARD SHOWN ON THIS DRAWING IS RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM.
3. PROVIDE INTERNAL WIRE NUMBERS PER SECTION 40 67 00.
4. WIRING SHOWN IS FOR 4-20mA CURRENT OUTPUTS. THE ANALOG I/O MODULE ALSO SUPPORTS 2-, 3- AND 4-WIRE VOLTAGE OUTPUTS AND DIFFERENT CURRENT OUTPUTS VIA SEPARATE TERMINAL CONNECTIONS. MODIFY WIRING AS REQUIRED FOR OTHER OUTPUT OPTIONS.

KEY NOTES:

1. ANALOG I/O MODULE IS POWERED BY THE PREVIOUS ANALOG I/O MODULE IN THE PLC RACK VIA AN INTERNAL 24 VDC BUS AND JUMPERED BASE UNIT.

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CAITLIN ANN BILLENER
55655
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2020.12.16 11:05:19-08'00'

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MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:	CAB
DRAWN:	DDJ
CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

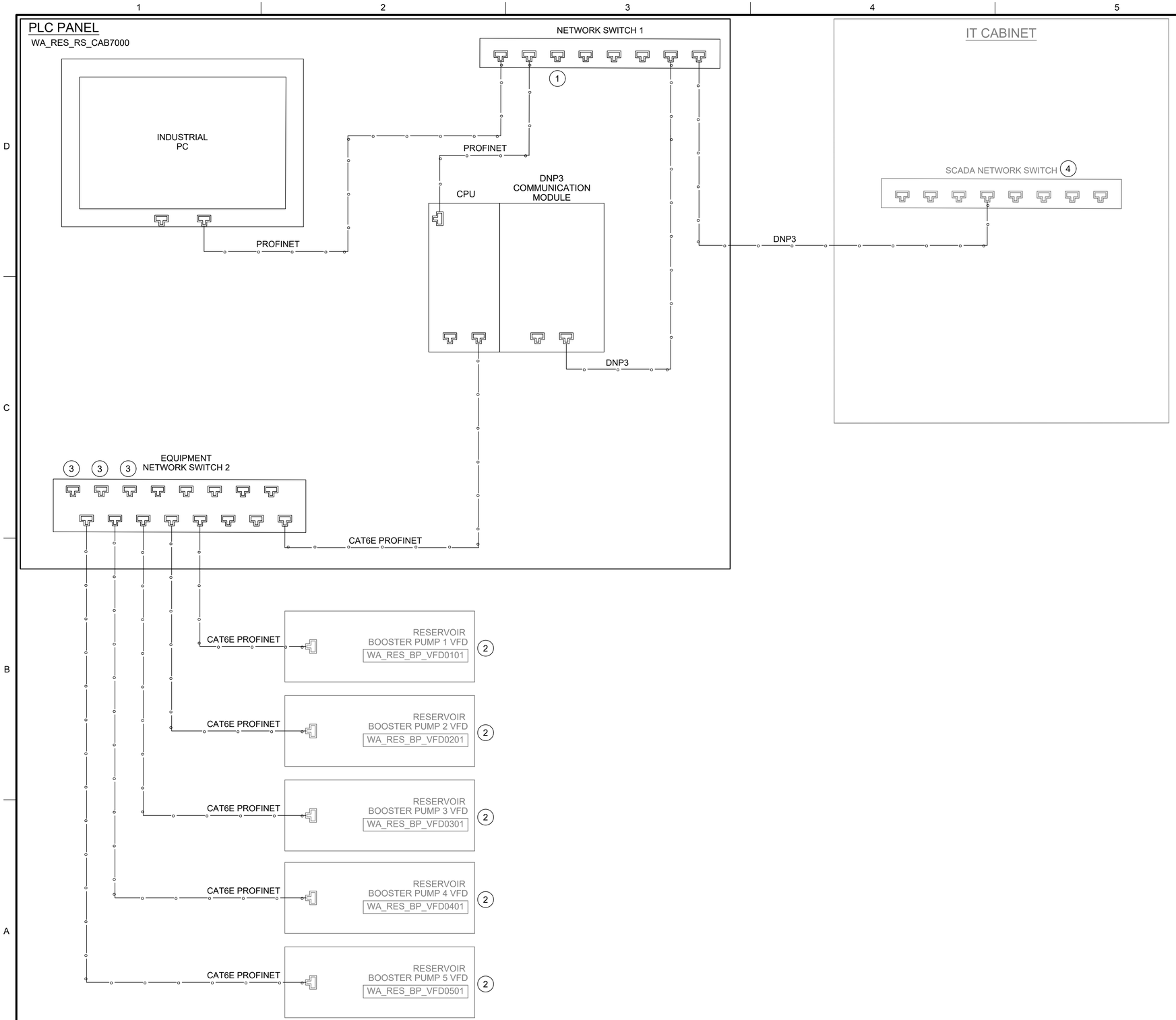
FILENAME
I-5403.DWG
BC PROJECT NUMBER
153585
CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP
STATION - ANALOG
OUTPUT CARD 3

DRAWING NUMBER
I-5403

SHEET NUMBER
66 OF 70



KEY NOTES:

1. DEDICATED PORT FOR PROGRAMMING.
2. NEW TAG NUMBERS ARE BEING ASSIGNED TO EXISTING EQUIPMENT UNDER THIS PROJECT. TAG NUMBERS SHOWN FOR RESERVOIR BOOSTER PUMP VFDS DO NOT MATCH NAMEPLATES IN THE FIELD. REFER TO SECTION 40 61 93A I/O LIST.
3. PORTS (QTY: 3) ARE RESERVED FOR FUTURE BOOSTER CHLORINATION SYSTEM EQUIPMENT.
4. COORDINATE WITH OWNER (CITY IT) FOR ACCESS TO EXISTING IT CABINET AND FOR PORT ASSIGNMENT AT EXISTING SCADA NETWORK SWITCH.

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55655
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CITY OF MERCER ISLAND

WATER DISTRIBUTION SCADA EQUIPMENT REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

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DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5501.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

RESERVOIR PUMP STATION - NETWORK BLOCK DIAGRAM

DRAWING NUMBER
I-5501

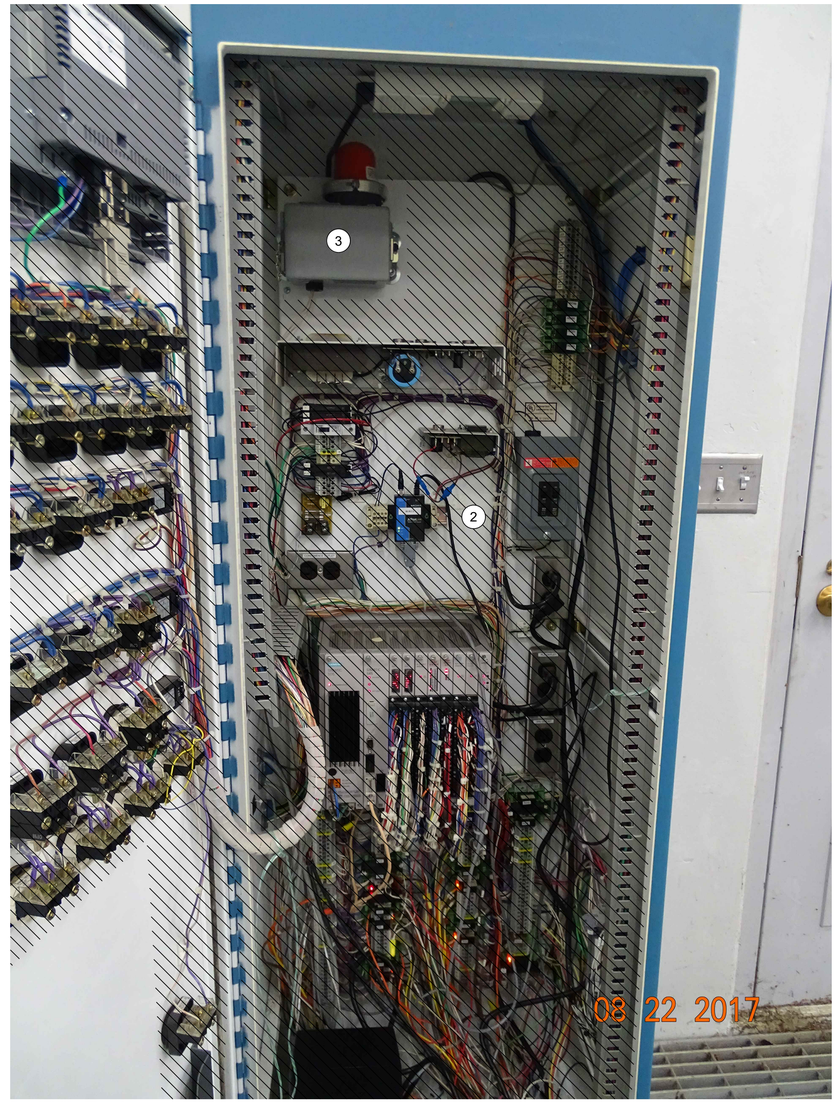
SHEET NUMBER
67 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\R\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM\D0400357 FILENAME: I-5501.DWG PLOT DATE: 12/8/2020 12:10 PM CAD USER: BAMBANG NURSUWITO
Mercer Island logo_2.png

EXISTING
ENCLOSURE EXTERIOR

DETAIL A

SCALE: NONE



EXISTING
ENCLOSURE INTERIOR

DETAIL B

SCALE: NONE

GENERAL NOTES:

1. THIS DRAWING DEPICTS DEMOLITION IN THE EXISTING PLC PANEL AT RESERVOIR PUMP STATION AND RE-PURPOSING AS A TERMINAL JUNCTION BOX (WA_RES_RS_TJB7000).

KEY NOTES:

1. REMOVE EXISTING OPERATOR INTERFACE TERMINAL, FRONT PUSHBUTTONS (QTY:1), SELECTOR SWITCHES (QTY:8), INDICATION LIGHTS (QTY:16), DIGITAL PANEL INDICATORS (QTY:4), 'SEND HELP' BUTTON, AND HORN. REMOVE ASSOCIATED WIRING AND LABELS. PLUG/PATCH COMPONENT HOLES AFTER REMOVAL WITH A SUITABLE METHOD TO MAINTAIN THE NEMA RATING OF THE ENCLOSURE.
2. REMOVE COMPONENTS ON EXISTING BACK PANEL AS SHOWN AND REPLACE WITH TERMINAL STRIP. RE-TERMINATE EXISTING FIELD WIRING AT NEW TERMINAL STRIP. EXISTING PANEL TO SERVE AS A JUNCTION BOX FOR ROUTING EXISTING FIELD WIRING TO NEW PANEL LOCATION. REFER TO DRAWING I-5701 FOR NEW PLC PANEL LOCATION.
3. SEISMIC SENSOR ON EXISTING BACK PANEL IS TO REMAIN AND BE WIRED TO NEW PLC PANEL. REFER TO DRAWING I-5104.
4. CONTRACTOR TO PROVIDE NEW NAMEPLATE (NP1) FOR EXISTING PLC PANEL. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.
5. EXISTING OPERATOR INTERFACE TERMINAL SHALL BE SALVAGED, INVENTORIED, TAGGED WITH LOCATION REMOVED FROM AND TURNED OVER TO OWNER.

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_RES_RS_TJB7000	RESERVOIR PUMP STATION	PLC TERMINATION PANEL

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701 PIKE STREET
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CAITLIN ANN BLESSNER
STATE OF WASHINGTON
55655
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CITY OF MERCER ISLAND PUBLIC WORKS

CITY OF
MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-5601.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

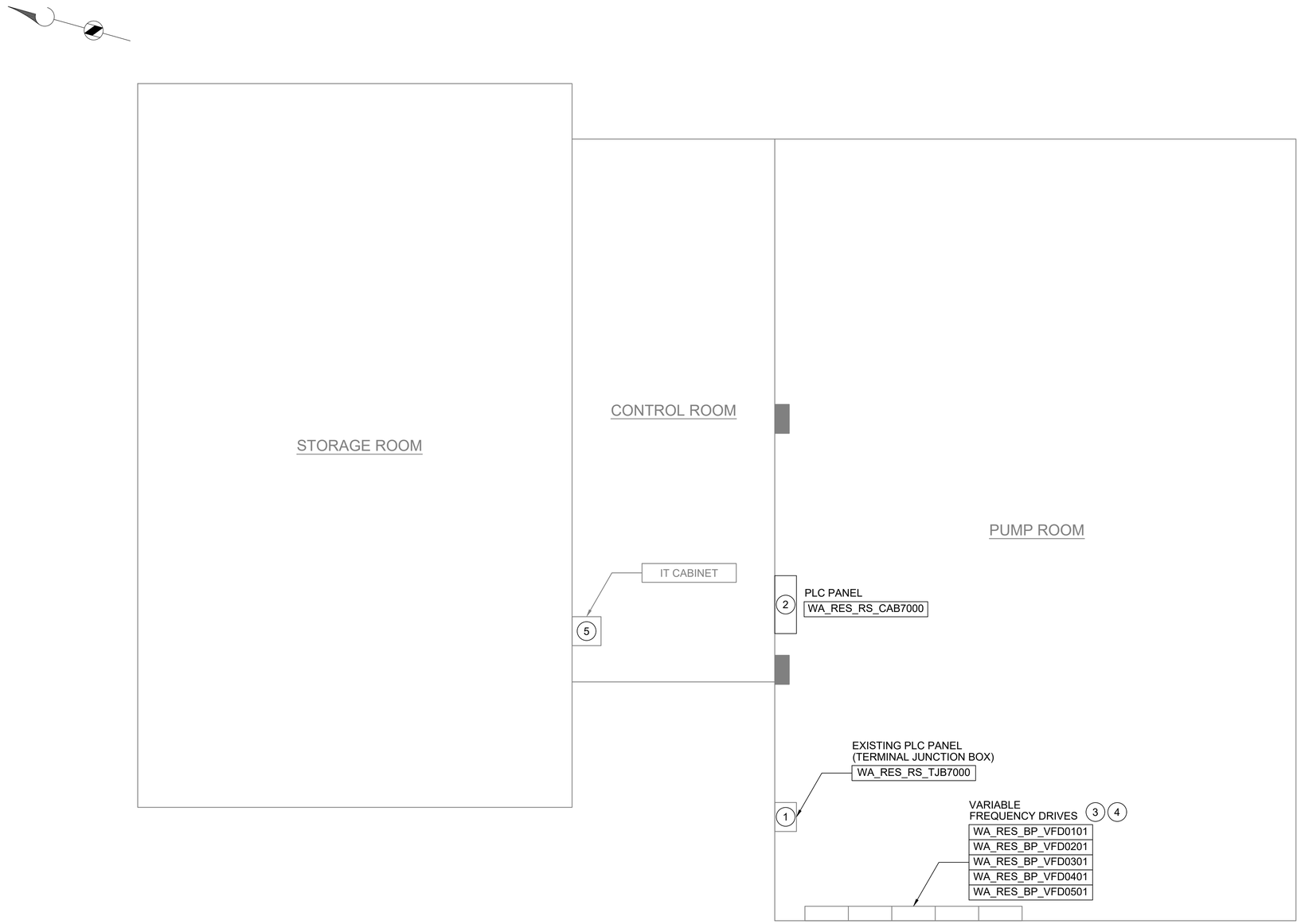
INSTRUMENTATION

RESERVOIR PUMP
STATION -
DEMOLITION DETAILS

DRAWING NUMBER
I-5601

SHEET NUMBER
68 OF 70

Path: C:\USERS\BNURSUWITO\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKING\DIR\BRWNCALD.COM\D0400357 FILENAME: I-5601.DWG PLOT DATE: 12/11/2020 8:17 AM CAD USER: BAMBANG NURSUWITO
BRWNCALD-PW-01\BNURSUWITO@BRWNCALD.COM
Mercer Island logo_2.png
PTC-Cut-Sheet-Logo-Blue.jpg



RESERVOIR PUMP STATION

SCALE: 1:50

GENERAL NOTES:

1. PLAN DRAWING IS A PARTIAL REPRESENTATION OF THE SITE AND IS ONLY INTENDED TO PROVIDE DETAILS RELATED TO THE SCOPE OF THIS WORK.

KEY NOTES:

1. EXISTING INPUT/OUTPUT SIGNALS TERMINATE AT EXISTING PLC PANEL. USE EXISTING PLC PANEL AS A TERMINAL JUNCTION BOX.

2. ROUTE NEW FIELD WIRING AND CONDUIT FROM EXISTING PLC PANEL TO NEW PLC PANEL (WA_RES_RS_CAB7000) LOCATION. INSTALL POWER AND SIGNAL CABLES IN SEPERATE CONDUITS. QUANTITY AND LOCATION OF CABLES AS FOLLOWS:

   CABLE BETWEEN PLC ENCLOSURE AND TERMINAL JUNCTION BOX:
   SIGNAL - 15-TSP
   CONTROL - 88-#14, #-14G
   POWER - 2#12, #12G

   CABLE BETWEEN PLC PANEL AND IT CABINET:
   DATA - 1-CAT6

   CABLE BETWEEN PLC PANEL AND VFDS:
   DATA - 5-PN CABLES

3. EXISTING VARIABLE FREQUENCY DRIVES (VFD) USE HARDWIRED INPUT/OUTPUT SIGNALS TO COMMUNICATE WITH EXISTING PLC PANELS. REPLACE HARDWIRED INPUT/OUTPUT SIGNALS WITH PROFINET COMMUNICATION BETWEEN VFDS AND NEW PLC PANEL (WA_RES_RS_CAB7000). REFER TO DRAWING I-5501 AND SECTION 40 61 93 FOR DETAILS.

4. REMOVE EXISTING WIRE/CONDUIT BETWEEN EXISTING PLC PANEL AND VFDS. REFER TO SECTION 40 61 93 INPUT/OUTPUT LIST FOR SIGNALS TO BE REMOVED.

5. INSTALL ETHERNET CABLE BETWEEN NEW PLC PANEL (WA_RES_RS_CAB7000) AND IT CABINET. REFER TO DRAWING I-5501 FOR DETAILS.

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SEATTLE, WASHINGTON

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NICKLAS JACK HAYENS
STATE OF WASHINGTON
55678
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 12:47:51-08'00'

CAITLIN ANN BLESNER
STATE OF WASHINGTON
55655
REGISTERED PROFESSIONAL ENGINEER
2020.12.16 10:05:59-08'00'

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MERCER ISLAND

WATER DISTRIBUTION
SCADA EQUIPMENT
REPLACEMENT

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
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DESIGNED:	CAB
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CHECKED:	LSL
CHECKED:	LSL
APPROVED:	CAB

FILENAME
I-5701.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

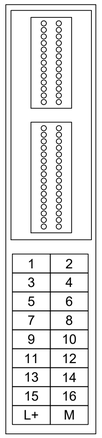
INSTRUMENTATION

RESERVOIR PUMP
STATION - PLAN

DRAWING NUMBER
I-5701

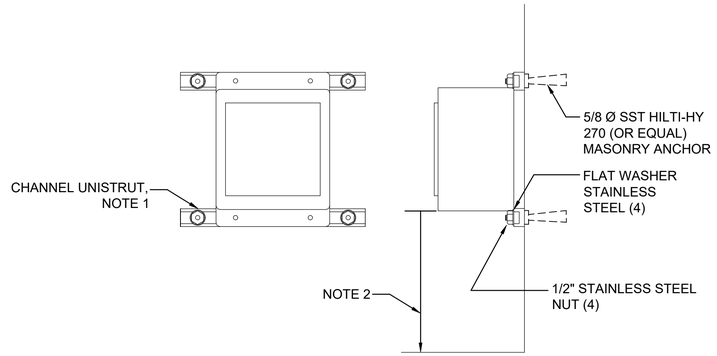
SHEET NUMBER
69 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-5701.DWG PLOT DATE: 12/9/2020 9:48 AM CAD USER: DAN JACKSON
Mercer Island logo_2.png



TERMINAL BLOCK LAYOUT
BASEUNIT TYPE A0
SEPARATE/JUMPERED

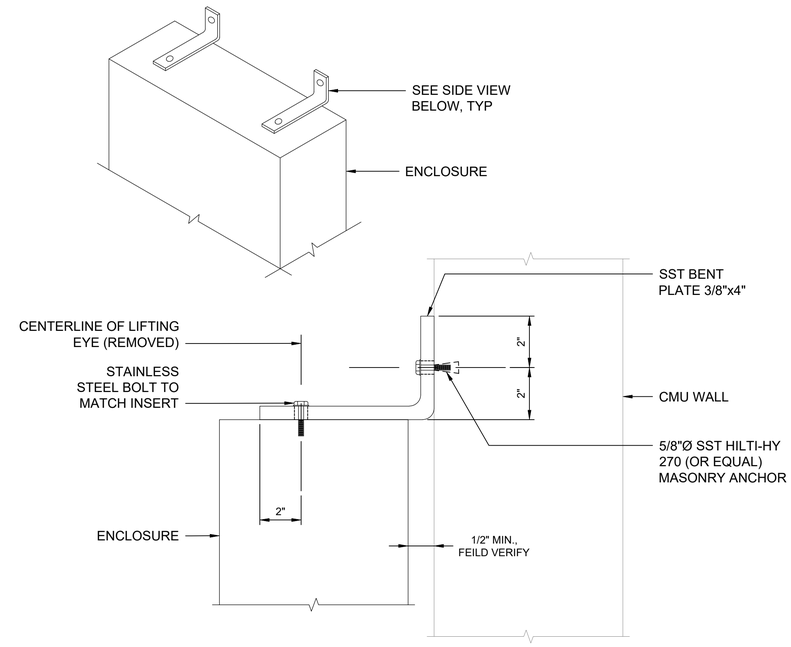
DETAIL A



NOTES:
1. PANEL RACK CHANNELS AND FITTINGS SHALL BE 316 STAINLESS STEEL.
2. MOUNT PANEL SUCH THAT OPERATING HANDLES ARE FOUR TO FIVE FEET ABOVE FLOOR OR PLATFORM.

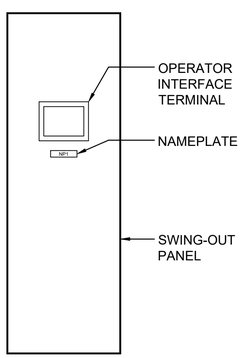
WALL MOUNTED PANEL

DETAIL B



FREE STANDING PANEL MOUNTING

DETAIL C



NOTES:
1. PROVIDE NAMEPLATE ON NEW SWING-OUT PANEL. REFER TO NAMEPLATE SCHEDULE ON THIS SHEET FOR NAMEPLATE INFORMATION.
2. SIZE HEIGHT AND WIDTH OF SWING-OUT PANEL AS REQUIRED FOR INSTALLATION IN EXISTING ENCLOSURE. SWING-OUT PANEL TO PROVIDE BARRIER FROM INTERIOR LIVE COMPONENTS.

INTERIOR SWING-OUT PANEL

DETAIL D

3/4" = 1'

NAMEPLATE SCHEDULE

NPX	LINE 1	LINE 2	LINE 3
NP1	WA_WS_SPU171_CAB7000	SPU STATION 171	PLC PANEL

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REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: CAB
DRAWN: DDJ
CHECKED: LSL
CHECKED: LSL
APPROVED: CAB

FILENAME
I-6001.DWG

BC PROJECT NUMBER
153585

CLIENT PROJECT NUMBER

INSTRUMENTATION

INSTALLATION
DETAILS

DRAWING NUMBER
I-6001

SHEET NUMBER
70 OF 70

Path: C:\USERS\DJACKSON\APPDATA\LOCAL\BENTLEY\PROJECTWISE\WORKINGDIR\BRWNCALD-PW.BENTLEY.COM_BRWNCALD-PW-01\DJACKSON@BRWNCALD.COM\D0400357 FILENAME: I-6001.DWG PLOT DATE: 12/9/2020 10:04 AM CAD USER: DAN JACKSON
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