



Chase River Pump Station Upgrade E&I Engineering Work Package 2003251-000-1604-001

Prepared For: Regional District of Nanaimo

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Appendix A Project Lists and Drawings



1 OBJECTIVE

The objective of EWP 2003251-000-1604-001 is to define the technical requirements for the installation of the electrical and instrumentation (E&I) equipment and associated materials for the Chase River Pump Station Upgrade project at the Regional District of Nanaimo's Chase River Pump Station. This EWP provides a description of the E&I demolition and construction work to be completed by the Electrical Contractor.

2 SCOPE OF WORK

2.1 Overview

The Regional District of Nanaimo's Chase River Pump Station Upgrade project is installing new VFDs, new PLC cabinet and associated equipment at the Chase River Pump Station facility.

This EWP will detail the electrical, instrumentation and controls work associated with the following major equipment in general terms:

- Partial removal of existing MCC-200 and disconnection of all associated cabling;
- Removal of existing CP-100 cabinet and disconnection of all cabling;
- Removal of cabling no longer required, as identified in this document and drawings;
- Removal of some instrumentation, as identified in this document and drawings;
- Installation of new MCC-300 and associated cables;
- Installation of new CP-100 PLC cabinet, including re-termination of existing device cables, and termination of new cables;
- Installation of new HMI-100 panel;
- Installation of new gas detectors, level switches, level sensor and horn/beacon devices;
- Installation and termination of all new cables identified on the cable schedule and drawings;
- Replacement of existing wet well pump junction boxes with new, separate power and instrument junction boxes;
- Programming and configuration (PLC, HMIs, Back-Up Controller) is by others.

A more detailed description of the scope of work and the referenced documentation is included the sections that follow.

All work outlined in the following sections shall be completed by the Electrical Contractor unless otherwise stated.

All material and equipment for the work outlined in the following sections shall be provided by the Electrical Contractor unless otherwise stated. Refer to E&I Material Take-Off (MTO) 2003251-000-1618-003 for a list of required material.

2.2 Work Included in EWP – By Area

A description of the work by area is listed in the following sections. The information presented here should be read in conjunction with the documents listed in Appendix A.



2.2.1 Electrical Room

The Electrical Contractor is responsible to ensure that any temporary penetrations or openings that occur during demolition and construction work between the Electrical Room and the hazardous area (Wet Well) must be sealed with temporary means to avoid extension of the hazardous area into the general area.

2.2.1.1 Pre-Shutdown

1. Extend existing concrete curb to the right of CP-100 by approximately 12 inches to accommodate the new CP-100 cabinet width of 60 inches. Concrete curb extension by RDN.
2. Install new MCC-300 feeder cables from MCC-100 with sufficient length available to reach the intended connections. Cables to be routed in existing tray.
3. Contractor shall coordinate with the RDN for pump station operation with Pump #5 only (located in MCC-100) to facilitate the removal of MCC-200 prior to shutdown.
4. Prior to commencing Pump #5 only operation, the Contractor shall provide a suitable, temporary connection outside of MCC-200 for the Pump #5 HSV-605, ZSC-605 and ZSO-605 signals currently located within the MCC-200 wiring section. These signals must maintain operation with the PLC during the following pre-shutdown work. – HOLD RDN to confirm if required. If valve can be manually operated this may not be required.

With the pump station in Pump #5 only operation, the following work can be completed before shutdown:

5. Isolate and disconnect pumps and equipment connections within MCC-200.
6. Re-route and temporarily terminate one of the existing P-200 250kCM cables, with lug adapter kit, to the MCC-200 Panel 'A' transformer section. Isolate or disconnect the other P-200 250kCM cable. During shutdown the new breaker bucket and feeder for MCC-200 Panel 'A' will be installed in MCC-100.
7. Disconnect and remove MCC-200 as per the MCC-200 demolition plan on drawing CRPS-E-106. The lighting panel 'A' in section 1 of MCC-200 shall remain in place and shall not be removed.
8. Install new MCC-300 and terminate new feeder cables to incoming section. Connect new #1 AWG grounding conductor from MCC-300 to Electrical ground.
9. Install, route, tag and terminate new pump cables from MCC-300 to Wet Well, CP-100 and HMI-100 as per cable schedule. Label and coil destination ends of cables if terminations cannot be completed at this stage. Cables from MCC-300 to Wet Well shall be routed through the bottom of MCC-300.
10. Install, route, tag and terminate new cables from CP-100 as per cable schedule. Label and coil cables if terminations cannot be completed at this stage. Cables from CP-100 to the Wet Well shall be routed in the existing overhead tray toward MCC-300 section 8 and enter into the Wet Well via the floor space between the new MCC-300 section 8 and wall.



11. Install new wall-mount level transmitters LIT-201/202/205. Install, label and terminate new associated cables. Existing conduits for LE-201 and LE-202 cables will require re-routing from CP-100 to new wall-mount transmitters (LIT-201/202). A new ACIC cable will be installed for LE-205 from JB-205 to LIT-205.

2.2.1.2 Shutdown - Demolition

1. Disconnect all field cables and remove CP-100 cabinet.
 - a. During disconnect ensure all conductors are identified with existing termination numbers. This will be used as the cross-reference to identify the conductors for the new tags and marshalling locations in the new CP-100 cabinet.
 - b. The HMI currently installed in the CP-100 shall be removed from the cabinet door and kept for re-installation in the new CP-100 cabinet.
2. Disconnect and remove flow meters FIT-211 and FIT-212 and associated cables.
3. Disconnect and remove Pump #5 soft start from MCC-100.

2.2.1.3 Shutdown - Construction

1. Install new CP-100 cabinet:
 - a. Before making any cable cut-outs on the top of the cabinet, the Electrical Contractor shall provide a plastic covering secured over the PLC components to ensure metal shavings from cut-outs do not land in the cabinet or on components.
 - b. Re-install, re-tag and re-terminate existing power and ground connections.
 - c. Re-install, re-tag and re-terminate existing field cables as per construction PLC wiring drawings.
 - d. Install, tag and terminate new cables in CP-100 as per construction PLC wiring drawings.
 - e. Re-install existing HMI panel to door of new CP-100 panel. Connect panel wiring and network cable to HMI as per drawings.
 - f. Install new PLC UPS. By RDN.
2. Complete modifications in MCC-100:
 - a. Replace existing trip unit (500A, LT3500T) in MCC-200, Section 5, 600A breaker frame with new trip unit (600A, LT3600T). Terminate new MCC-300 feeder cables. Re-tag MCC cubicle door to 'MCC-300 FEEDER 600A 600V'.
 - b. Install new aftermarket bucket complete with dual 20A circuit breaker to MCC-100 section 3. Install, tag and terminate new feeder cable to existing MCC-200 Lighting Panel 'A'. Tag new MCC cubicle door.
 - c. Install two (2) new, blank cubicle doors to MCC-100 section 3.



3. Replace existing 15A circuit breaker with new 20A circuit breaker in Lighting Panel 'B' to feed new CP-100 cabinet.

2.2.2 Wet Well

The hazardous location rating of the Wet Well area is under review by others. It is expected the Wet Well area will be rated as Class 1 Division 2. The technical content of this EWP package follows Class 1 Division 2 ratings for this area. The Electrical Contractor shall ensure all installations within the Wet Well conform to Class 1 Division 2 requirements. The RDN shall advise Allnorth and the Electrical Contractor if the hazardous area rating is modified to any other rating.

Refer to Wet Well layout drawing CRPS-E-203 for approximate locations of new junction boxes and instrumentation.

2.2.2.1 Pre-Shutdown

1. Install ten (10) new/replacement pump junction boxes located on Wet Well upper wall for connections of existing pump submersible cables, new pump power cables to new VFDs, and new pump sensor instrumentation cables to CP-100.
 - a. Five (5) pump power junction boxes, labelled as follows:
 - i. JB-101/102/103/104/105A
 - b. Five (5) pump sensor junction boxes, labelled as follows:
 - i. JB-101/102/103/104/105B
2. Tag and re-terminate Pump #1-4 existing submersible power and instrumentation cables to the new junction boxes in item #1 above. Disconnect and remove the no longer required Pump #1-4 existing junction boxes.
3. Install conduit and new junction boxes, JB-205 and JB-206, for new level devices.
4. Install, tag and terminate new instrumentation. Installation shall follow manufacturer's installation instructions.
 - a. Gas Detectors: AIT-300A and AIT-300B with remote mount sensors.
 - b. Air Flow Switch: FSL-700 (location to be confirmed by RDN).
 - c. Horn/Strobe: YA-301A (inside Wet Well) and YA-301B (outside Wet Well). Refer to Instrumentation layout drawing CRPS-E-111.

2.2.2.2 Shutdown - Demolition

1. Disconnect and remove Pump #5 existing pump junction box located on the Wet Well upper wall.
2. Remove existing instrumentation as follows:
 - a. Level sensor: LE-205
 - b. Level float switches: LSLL-206, LSHH-206/206A/206B



2.2.2.3 Shutdown - Construction

1. Tag and re-terminate the existing submersible power and instrumentation cable for Pump #5 to the new junction boxes listed in item 2.2.2.1 above.
2. Install, tag and terminate new instrumentation. Installation shall follow manufacturer's installation instructions.
 - a. Level sensor: LE-205
 - b. Level float switches: LSLL-206, LSHH-206/206A/206B. Float installation heights to be confirmed by RDN.

2.2.3 Lunch Room

2.2.3.1 Pre-Shutdown

1. RDN to relocate gate UPS from the Electrical Room to the lunch room.
2. Install new HMI-100 panel.
3. Install, tag and terminate new cables to HMI-100.

2.3 Work Included in EWP – By Equipment

A description of the work by equipment is listed in the following sections. The information presented here should be read in conjunction with the documents listed in Appendix A.

2.3.1 Cable Tray

There is no new cable tray required for this project.

The Contractor shall field run any necessary cable channels to the required equipment. Cables routed outside of trays shall be securely clamped and supported.

2.3.2 Cables

The Contractor shall install, and terminate new cables in compliance with RDN Standards per the cable block diagram and cable schedule. The Contractor shall provide all cables required to make the final installation electrically complete and functionally operable. Cables are to be installed in existing cable trays per the cable schedule, secured and identified at both ends as per the cable tag listed in the Cable Schedule. Conductors to be identified at both ends of the cable using printed sleeves as per the drawings.

The cable schedule provides an estimated length for each cable, however, the Contractor shall field verify all cable runs and lengths prior to procurement and installation of cable.

As listed in the cable schedule, all cables located within the Wet Well shall be terminated using hazardous rated connectors.



2.3.3 Motors

There are no new motors required for this project.

The Contractor shall terminate, and ground motors in compliance with RDN Equipment Installation Standards. Refer to motor schematics.

2.3.4 Motor Control Centers (MCC)

The Contractor shall install, terminate, and ground LV MCCs in compliance with RDN Equipment Installation Standards.

The Contractor shall modify buckets in MCC-100 as detailed on the drawings.

Refer to single line diagram and MCC layout drawings.

2.3.5 Variable Frequency Drives (VFDs)

The Contractor shall install, terminate, and ground LV VFDs in compliance with RDN Equipment Installation Standards and manufacturer installation requirements. Refer to single line diagram, motor schematics and MCC layout drawings.

Five (5) new VFDs for the existing pumps will be installed within a new, single MCC enclosure (MCC-300).

2.3.6 Power Distribution

The RDN will install the PLC UPS within CP-100.

2.3.7 Lighting

N/A

2.3.8 Grounding

The Contractor shall install ground conductors per drawings. Existing ground conductors shall be reconnected to replaced equipment including to the new CP-100 panel. The isolated instrument ground shall be tied to the power system ground in only one location in the Electrical Room.

2.3.9 Electrical Heat Trace

N/A

2.3.10 Control System Cabinets

The CP-100 PLC cabinet and HMI-100 panel will be fabricated offsite by a panel builder and will be free-issued to the Contractor by the RDN.

The CP-100 cabinet is to be secured, bolted to the floor in the Electrical Room with top entry cables.

The HMI-100 panel is to be secured to the wall in the lunch room with top entry cables.

All field wire terminations are to be completed according to code requirements. Individual conductors in homerun multi-conductor or multi-pair cables are to have sufficient spare length to allow future



modification while maintaining a clean installation. All conductors and cables are to be labeled using machine printed labels.

2.3.11 Junction Boxes

The Electrical Contractor is responsible to provide, fabricate and install the required junction boxes. All junction boxes shall have a machine printed nameplate on the front door.

2.3.12 Instrumentation and Valves

The new instrumentation will be provided by the RDN. The Electrical Contractor is responsible for the installation and connection of all instrumentation unless otherwise specified.

Heights of the Wet Well level float switches to be confirmed by the RDN.

Installation shall be completed in accordance with manufacturer's instructions and industry standard practices with a high level of craftsmanship.

Valves and inline elements installed by the Piping contractor are to be checked for correct installation and terminated. Valve instrument air is to be field run from air headers and supported.

Magnetic flow meter elements are to be grounded according to manufacturer's recommendations.

2.4 Work Not Included in the EWP

The work not included in this EWP includes, but is not limited to:

- Civil/structural work;
- Mechanical work;
- Piping work;

3 CODES, STANDARDS, REGULATIONS & SPECIFICATIONS

3.1 Codes, Standards & Regulations

Document No.	Title
CSA 22.1 (2015)	Canadian Electrical Code

3.2 Client Specifications

Client specifications to be provided by RDN to the Contractor as required.

3.3 Conflicts Between Codes, Standards & Regulations

Any conflict between the requirements of this EWP, the applicable codes, standards and regulations shall be reported to RDN and Allnorth for clarification. Nothing contained in this EWP shall be interpreted as relieving the Contractor of any responsibility to supply the materials, equipment, tools, consumables and workmanship of high enough quality in order to meet all of the design requirements.



Should a conflict arise between documents, the following order of precedence shall govern:

1. Codes, standards, regulations;
2. P&ID and isometric drawings;
3. Suppliers' drawings;
4. The EWP document;
5. RDN specifications.

4 DESIGN CHANGES DURING CONSTRUCTION

All changes to the design drawings proposed during construction due to design alternatives, specification deviations, material substitutions, drawing errors or omissions, unforeseen conditions or for any other reason shall be brought to the attention of the RDN and Allnorth for review and approval prior to commencing with the proposed work. All approved design changes need to be included in the Record drawing documentation package as described in section 6.2

5 SPECIFICATION DEVIATIONS

In the event that a specification is deviated from during the course of design, the specification deviation will be documented on the applicable design drawing and/or project list included with this EWP.

6 ELECTRICAL CONSTRUCTION DRAWINGS

6.1 Construction Drawing List

Refer to Section 7 for a listing of all electrical construction drawings and reference drawings.

6.1.1 Drawing Holds

Hold clouds may be included on some drawings referenced in this EWP for reasons including, but not limited to:

- Vendor equipment selection not complete;
- Incomplete design;
- Client requested holds.

All holds must be removed by RDN representatives prior to commencing any work indicated as on hold.

6.2 Record Drawings

To assist in documenting the design during the course of construction, one full set of Record drawings are requested to be kept up to date by the Contractor during the course of construction. The Record drawings should be marked in red to show any changes to the original design. The Record drawings will be provided to the RDN and Allnorth at the end of the project for verification/record. Even if a particular drawing in a set of drawings has not been modified, it is requested that it also be included in the Record drawings mark-up documentation package.



If the Contractor performs rework on the equipment after the Record drawings are sent, an updated set of Record drawings marked in red are requested to be sent to both the RDN and Allnorth.

7 REFERENCE DOCUMENTS

7.1 Project Lists & Drawings

Refer to Appendix A.

Refer to RDN Agreement Schedule 6 for complete document list

2003251-000-1618-001	LOAD LIST
2003251-000-1618-002	CABLE SCHEDULE
2003251-000-1618-003	MATERIAL TAKE-OFF (MTO)
CRPS-E-011	P-101 SCHEMATIC DIAGRAM
CRPS-E-012	P-102 SCHEMATIC DIAGRAM
CRPS-E-013	P-103 SCHEMATIC DIAGRAM
CRPS-E-014	P-104 SCHEMATIC DIAGRAM
CRPS-E-015	P-105 SCHEMATIC DIAGRAM
CRPS-E-105	SINGLE LINE DIAGRAM
CRPS-E-106	MCC LAYOUTS, SCHEDULES AND DETAILS
CRPS-E-107	ELECTRICAL CONTROL SCHEMATICS
CRPS-E-110	CONTROL AND INSTRUMENTATION FIELD WIRING BLOCK DIAGRAM
CRPS-E-111	ELECTRICAL POWER, CONTROL AND INSTRUMENT LAYOUTS
CRPS-E-112	LIGHTING LAYOUTS
CRPS-E-203	WET WELL LAYOUTS
CRPS-I-101	CP-100 PANEL LAYOUT
CRPS-I-102	CP-100 BILL OF MATERIAL
CRPS-I-103	CP-100 POWER DISTRIBUTION
CRPS-I-104	CP-100 GENERAL SCHEMATICS
CRPS-I-105	CP-100 SLOT 1 ANALOG INPUT
CRPS-I-106	CP-100 SLOT 2&3 ANALOG&RTD INPUT
CRPS-I-107	CP-100 SLOT 5&6 ANALOG OUTPUT& DISCRETE INPUT
CRPS-I-108	CP-100 SLOT 7&8 DISCRETE INPUT
CRPS-I-109	CP-100 SLOT 9&10 DISCRETE INPUT
CRPS-I-110	CP-100 SLOT 11&12 DISCRETE&RELAY OUTPUT
CRPS-I-111	CP-100 BACK-UP CONTROLLER SCHEMATIC DIAGRAM
CRPS-I-112	SEPTAGE RECEIVING AND GATE CONTROL WIRING DETAIL
CRPS-I-121	HMI-100 PANEL LAYOUT
CRPS-I-122	HMI-100 BILL OF MATERIAL
CRPS-I-123	HMI-100 PANEL SCHEMATICS
CH2-607-DEMO	ELECTRICAL CONTROL SCHEMATICS
CH2-608-DEMO	ELECTRICAL CONTROL SCHEMATICS
CH-04-609-DEMO	CONTROL AND INSTRUMENTATION FIELD WIRING BLOCK DIAGRAM
CH3-701-DEMO	CP-100 PANEL LAYOUT
CH3-702-DEMO	CP-100 WIRING
CH3-703-DEMO	CP-100 WIRING
CH2-704-DEMO	CP-100 WIRING
CH2-705-DEMO	CP-100 WIRING
CH3-706-DEMO	CP-100 WIRING
CH3-707-DEMO	CP-100 WIRING
CH3-708-OBSOLETE	SEPTAGE RECEIVING AND GATE CONTROL WIRING DETAIL



7.2 Other Documents

7.2.1 Process

N/A	
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7.2.2 Mechanical

N/A	
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7.2.3 Civil/Structural

N/A	
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7.2.4 Piping



N/A – By Others	
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7.2.5 Vendor

MCC-300 MANUFACTURER DRAWINGS	By Vendor - HOLD for vendor drawings.
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Appendix A Project Lists and Drawings



<div><div></div><div></div></div>	REV	ISSUED FOR					DATE	BY	CHK	APR	CLIENT:		RDN		REV								
	0	ISSUED FOR CONSTRUCTION					21/03/08	BDH	JAK	BDH	PROJECT TITLE:		CHASE RIVER PUMP STATION UPGRADE		1								
	1	RE-ISSUED FOR CONSTRUCTION					21/11/03	AF	BDH	BDH	PROJECT No:		2003251										
											DOCUMENT No:		2003251-000-1618-001										
											CLIENT PROJECT No:												
ELECTRICAL LOAD LIST																							
EQUIPMENT TAG	DESCRIPTION	MOTOR / LOAD DETAILS											MCC / PANEL		STARTER DETAILS					REFERENCE		NOTES	REV
		HP	KVA	KW	LOAD FACTOR	RUNNING LOAD (HP)	VOLTS	FLA	RPM	PF	EFF	FRAME	TAG	SECTION / CCT	TYPE	SIZE	PROTECTIVE DEVICE RATING	PROTECTIVE DEVICE SETTING	OVERLOAD	E-ROOM	DRAWING REFERENCE		
MCC-300	MCC-300	440	413.8	331.0	-	330.0	600	451.6	-	-	-	-	MCC-300	-	CB		600A	600A	-	-	CRPS-E-105	MCC-300 SUB-FED FROM MCC-100. MCC-300 LOAD CALCULATIONS AND CIRCUIT BREAKER PROTECTION SIZED FOR OPERATION OF 4 MOTORS (ONE PUMP STANDBY) AS PER BC HYDRO SERVICE SIZING NOTED ON SINGLE LINE DIAGRAM CRPS-E-105 NOTE 1. FOR OPERATING 5TH MOTOR SPEED REDUCTION IS REQUIRED VIA PLC/VFD CONTROLS.	0
P-101	WET WELL PUMP #1	110	103	82.0	0.75	83	600	112.0	1185	-	-	-	MCC-300	-	CB		200A	200A	VFD	-	CRPS-E-105	EXISTING PUMP. NEW VFD.	0
P-102	WET WELL PUMP #2	110	103	82.0	0.75	83	600	112.0	1185	-	-	-	MCC-300	-	CB		200A	200A	VFD	-	CRPS-E-105	EXISTING PUMP. NEW VFD.	0
P-103	WET WELL PUMP #3	110	103	82.0	0.75	83	600	112.0	1185	-	-	-	MCC-300	-	CB		200A	200A	VFD	-	CRPS-E-105	EXISTING PUMP. NEW VFD.	0
P-104	WET WELL PUMP #4	110	103	82.0	0.75	83	600	112.0	1185	-	-	-	MCC-300	-	CB		200A	200A	VFD	-	CRPS-E-105	EXISTING PUMP. NEW VFD.	0
P-105	WET WELL PUMP #5	110	103	82.0	0.75	83	600	112.0	1185	-	-	-	MCC-300	-	CB		200A	200A	VFD	-	CRPS-E-105	EXISTING PUMP. NEW VFD.	0
	COMSYS HARMONIC FILTER	-	4	3.0			600	3.6	-	-	-	-	MCC-300	-	CB		200A	200A	-	-	CRPS-E-105	NEW	0
MCC-200																							
-	PANEL A TRANSFORMER	-	15	-	0.80	12	600	14.4	-	-	-	-	MCC-200	-	CB			30A	-	-	CRPS-E-105	EXISTING. NEW MCC-100 CIRCUIT BREAKER BUCKET AND FEEDER.	0
MCC-100																							
EF-210	WET WELL EXHAUST FAN	1					600	1.7					MCC-100					15A	VFD	-	CRPS-E-105	NEW FAN AND VFD	1

<div><div></div><div></div></div>											REV	ISSUED FOR				DATE	BY	CHK	APR	CLIENT:	RDN	REV	
											0	ISSUED FOR CONSTRUCTION				21/03/08	AF	BDH	BDH	PROJECT TITLE:		CHASE RIVER PUMP STATION UPGRADE	1
											1	RE-ISSUED FOR CONSTRUCTION				21/11/03	AF	BDH	BDH	PROJECT No:		2003251	
																				DOCUMENT No:		2003251-000-1618-002	
																				CLIENT PROJECT No:			
CABLE SCHEDULE																							
CABLE NUMBER	SERVICE	CABLE FROM	CABLE TO	CABLE						LOAD			DRAWING REFERENCE	COMMENT	REV								
				LENGTH m	COND. #	RUNS #	AWG #	RATING V	TYPE	POWER kVA	VOLTAGE V	CURRENT A											
					COND.																		
MCC-100																							
P-300A/B/C/D	MCC-300 POWER FEED	MCC-100	MCC-300	30	3C	4	350	600	TECK90	541	600	588	CRPS-E-105	CABLE RUN IN TRAY - DERATED 50%		0							
P-200	PANEL 'A' POWER FEED	MCC-100	PANEL A	30	3C	1	#8	600	TECK90	15	600	14	CRPS-E-105	CABLE RUN IN TRAY - DERATED 50%		0							
P-210-P	NEW EXHAUST FAN	MCC-100	EF-210	45	3C	1	#12	600	TECK90	x	600	1.7	CRPS-E-105; CRPS-H-205	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		1							
MCC-300 PUMP CABLES																							
P-101-P	PUMP MOTOR #1	VFD-101	JB-101A	25	3C	1	#1/0	600	TECK90	103	600	112	CRPS-E-011	100% SPACED CABLE. HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
VFD-101-C1	VFD-101 RUN STATUS TO BUC-100	CP-100	VFD-101	25	2C	1	#14	600	TECK90		120		CRPS-E-011			0							
VFD-101-C2	VFD-101 HIGH TEMP & BUC-100 RUN	CP-100	VFD-101	25	8C	1	#14	600	TECK90		24		CRPS-E-011			1							
HS-101-C	HOA SWITCH CONTROL CABLE	VFD-101	HMI-100/HS-101	25	8C	1	#14	600	TECK90		24		CRPS-E-011			0							
JB-101B-A	CAS & RTD	CP-100	JB-101B	25	2PR	1	#16	600	ACIC		24		CRPS-E-011	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
P-102-P	PUMP MOTOR #2	VFD-102	JB-102A	25	3C	1	#1/0	600	TECK90	103	600	112	CRPS-E-012	100% SPACED CABLE. HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
VFD-102-C1	VFD-102 RUN STATUS TO BUC-100	CP-100	VFD-102	25	2C	1	#14	600	TECK90		120		CRPS-E-012			0							
VFD-102-C2	VFD-102 HIGH TEMP & BUC-100 RUN	CP-100	VFD-102	25	8C	1	#14	600	TECK90		24		CRPS-E-012			1							
HS-102-C	HOA SWITCH CONTROL CABLE	VFD-102	HMI-100/HS-102	25	8C	1	#14	600	TECK90		24		CRPS-E-012			0							
JB-102B-A	CAS & RTD	CP-100	JB-102B	25	2PR	1	#16	600	ACIC		24		CRPS-E-012	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
P-103-P	PUMP MOTOR #3	VFD-103	JB-103A	25	3C	1	#1/0	600	TECK90	103	600	112	CRPS-E-013	100% SPACED CABLE. HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
VFD-103-C1	VFD-103 RUN STATUS TO BUC-100	CP-100	VFD-103	25	2C	1	#14	600	TECK90		120		CRPS-E-013			0							
VFD-103-C2	VFD-103 HIGH TEMP & BUC-100 RUN	CP-100	VFD-103	25	8C	1	#14	600	TECK90		24		CRPS-E-013			1							
HS-103-C	HOA SWITCH CONTROL CABLE	VFD-103	HMI-100/HS-103	25	8C	1	#14	600	TECK90		24		CRPS-E-013			0							
JB-103B-A	CAS & RTD	CP-100	JB-103B	25	2PR	1	#16	600	ACIC		24		CRPS-E-013	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
P-104-P	PUMP MOTOR #4	VFD-104	JB-104A	25	3C	1	#1/0	600	TECK90	103	600	112	CRPS-E-014	100% SPACED CABLE. HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
VFD-104-C1	VFD-104 RUN STATUS TO BUC-100	CP-100	VFD-104	25	2C	1	#14	600	TECK90		120		CRPS-E-014			0							
VFD-104-C2	VFD-104 HIGH TEMP & BUC-100 RUN	CP-100	VFD-104	25	8C	1	#14	600	TECK90		24		CRPS-E-014			1							
HS-104-C	HOA SWITCH CONTROL CABLE	VFD-104	HMI-100/HS-104	25	8C	1	#14	600	TECK90		24		CRPS-E-014			0							
JB-104B-A	CAS & RTD	CP-100	JB-104B	25	2PR	1	#16	600	ACIC		24		CRPS-E-014	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
P-105-P	PUMP MOTOR #5	VFD-105	JB-105A	25	3C	1	#1/0	600	TECK90	103	600	112	CRPS-E-015	100% SPACED CABLE. HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
VFD-105-C1	VFD-105 RUN STATUS TO BUC-100	CP-100	VFD-105	25	2C	1	#14	600	TECK90		120		CRPS-E-015			0							
VFD-105-C2	VFD-105 HIGH TEMP & BUC-100 RUN	CP-100	VFD-105	25	8C	1	#14	600	TECK90		24		CRPS-E-015			1							
HS-105-C	HOA SWITCH CONTROL CABLE	VFD-105	HMI-100/HS-105	25	8C	1	#14	600	TECK90		24		CRPS-E-015			0							
JB-105B-A	CAS & RTD	CP-100	JB-105B	25	2PR	1	#16	600	ACIC		24		CRPS-E-015	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
INSTRUMENTATION & CONTROL CABLES																							
HMI-100																							
HMI-100-P	PANELVIEW 1500 POWER	CP-100	HMI-100	10	3C	1	#12	600	TECK90		120		CRPS-I-123			0							
HMI-100-C1	ZIO,ZIC-120	CP-100	HMI-100	10	4C	1	#14	600	TECK90		120		CRPS-I-123			0							
HMI-100-C2	HMI-100 LIGHTS	CP-100	HMI-100	10	8C	1	#14	600	TECK90		120		CRPS-I-123			0							
HMI-100-C3	HS-206 ALARM RESET	CP-100	HMI-100	10	2C	1	#14	600	TECK90		120		CRPS-I-123			0							
HMI-100-C4	HS-601, 602, 603,604, 605	CP-100	HMI-100	10	16C	1	#14	600	TECK90		120		CRPS-I-123			0							
HMI-100-C5	HS-120A GATE CONTROL	CP-100	HMI-100	10	8C	1	#14	600	TECK90		120		CRPS-I-123			0							
HS-100-C	HS-101,102, 103, 104, 105	CP-100	HMI-100	10	5C	1	#14	600	TECK90		24		CRPS-I-123			1							
BUC-100-C1	BUC-100 INDICATOR LIGHT	CP-100	HMI-100	10	2C	1	#14	600	TECK90		120		CRPS-I-123			1							
SLOT #1																							
LIT-201-A	TANK #1 LEVEL CONTROL	CP-100	LIT-201	10	1PR	1	#16	600	ACIC		24		CRPS-I-105			0							
LIT-201-C	TANK #1 LEVEL CONTROL	CP-100	LIT-201	10	2C	1	#14	600	TECK90		120		CRPS-I-105			0							
LIT-202-A	TANK #2 LEVEL CONTROL	CP-100	LIT-202	10	1PR	1	#16	600	ACIC		24		CRPS-I-105			0							
LIT-202-C	TANK #2 LEVEL CONTROL	CP-100	LIT-202	10	2C	1	#14	600	TECK90		120		CRPS-I-105			0							
LIT-205-A	WET WELL LEVEL CONTROL	CP-100	LIT-205	10	2PR	1	#16	600	ACIC		24		CRPS-I-105			0							
LIT-205-C	WET WELL LEVEL CONTROL	CP-100	LIT-205	10	2C	1	#14	600	TECK90		120		CRPS-I-105			0							
JB-205-A	WET WELL LEVEL CONTROL	LIT-205	JB-205	20	1PR	1	#16	600	ACIC		24		CRPS-I-105			0							
LE-205-A	WET WELL LEVEL CONTROL	JB-205	LE-205	10	1PR	1	#18	-	-		24		CRPS-I-105	VENDOR SUPPLIED CABLE. ROUTE CABLE IN METAL CONDUIT COMPLETE WITH HAZARDOUS SEAL.		0							
FIT-210-A	CHAMBER #1 FLOW	CP-100	FIT-210	HOLD	2PR	1	#16	600	ACIC		24		CRPS-I-105	CABLE SUPPLIED AND INSTALLED BY RDN		0							
FIT-210-C	CHAMBER #1 FLOW	CP-100	FIT-210	HOLD	2C	1	#14	600	TECK90		120		CRPS-I-105	CABLE SUPPLIED AND INSTALLED BY RDN		0							
PIT-210-A	VALVE STATION PRESSURE CONTROL	CP-100	PIT-210	HOLD	1PR	1	#16	600	ACIC		24		CRPS-I-105	CABLE SUPPLIED AND INSTALLED BY RDN		0							
SLOT #2																							
AIT-300A-A	GAS DETECTOR H2S	CP-100	AIT-300A	25	2PR	1	#16	600	ACIC		24		CRPS-I-106	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
AE-300A-A	GAS DETECTOR H2S	AIT-300A	AE-300A	5	1PR	1	#16	600	ACIC		24		CRPS-I-106	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
AIT-300B-A	GAS DETECTOR LEL	CP-100	AIT-300B	25	2PR	1	#16	600	ACIC		24		CRPS-I-106	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
AE-300B-A	GAS DETECTOR LEL	AIT-300B	AE-300B	5	2PR	1	#16	600	ACIC		24		CRPS-I-106	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
CT-210-A	CURRENT SENSOR	CP-100	CT-210	5	1PR	1	#16	600	ACIC		24		CRPS-I-106	WET WELL SUPPLY FAN SF-210. HAZARDOUS RATED CALE GALND REQUIRED IN WET WELL.		1							
CT-120-A	CURRENT SENSOR	CP-100	CT-120	10	1PR	1	#16	600	ACIC		24		CRPS-I-106	CHAMBER VENTILATION FAN SF-120 IN PANEL B CCT36		1							
SLOT #6																							
ZS-601-C	ZSO/ZSC-601	CP-100	ZSO/ZSC-601	25	4C	1	#14	600	TECK90		120		CRPS-I-107	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
ZS-602-C	ZSO/ZSC-602	CP-100	ZSO/ZSC-602	25	4C	1	#14	600	TECK90		120		CRPS-I-107	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
ZS-603-C	ZSO/ZSC-603	CP-100	ZSO/ZSC-603	25	4C	1	#14	600	TECK90		120		CRPS-I-107	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							
ZS-604-C	ZSO/ZSC-604	CP-100	ZSO/ZSC-604	25	4C	1	#14	600	TECK90		120		CRPS-I-107	HAZARDOUS RATED CABLE GLAND REQUIRED IN WET WELL.		0							

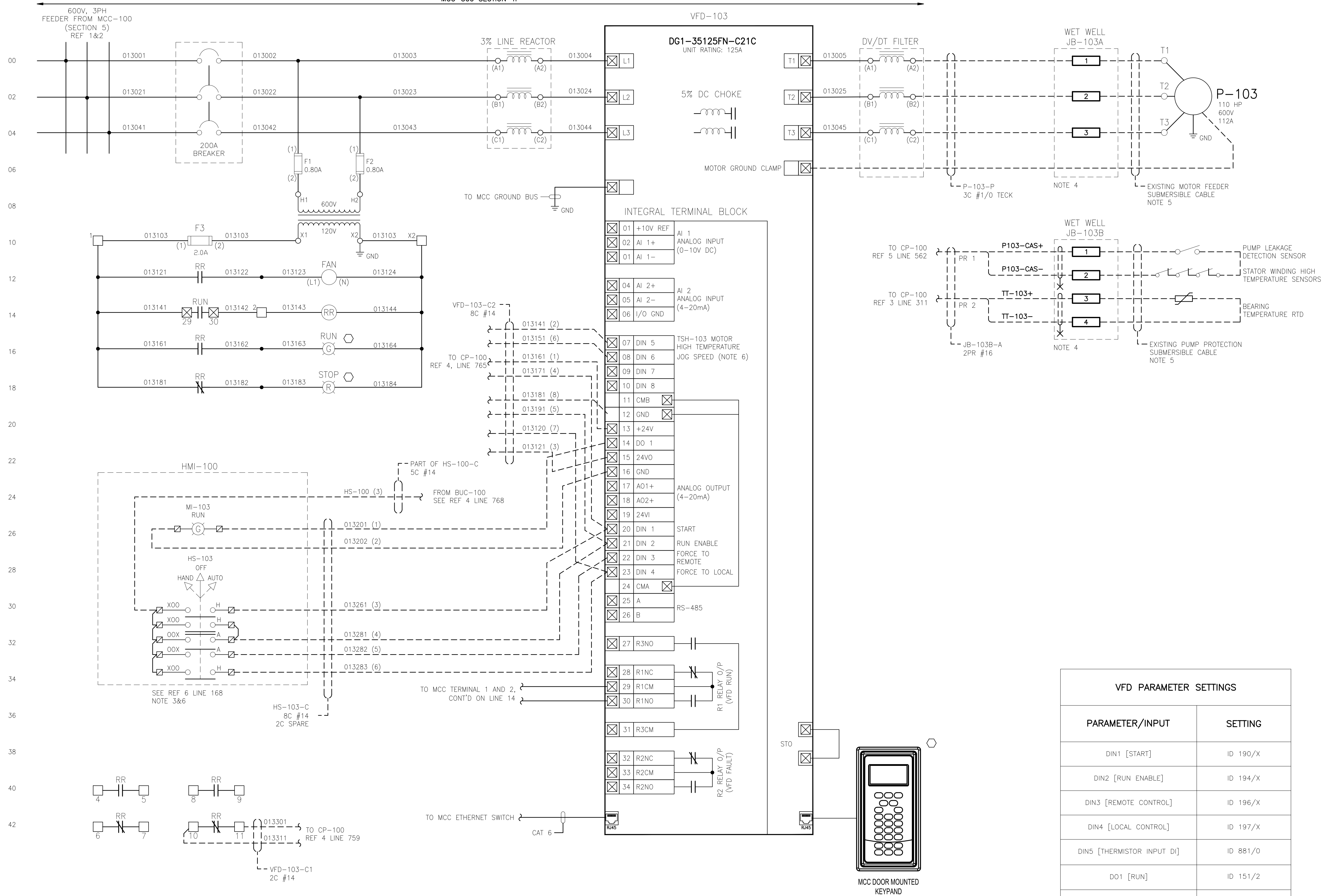
NOTE:

1. CONTRACTOR TO FIELD VERIFY CABLE LENGTHS PRIOR TO PROCUREMENT AND INSTALLATION.
2. ONLY NEW CABLES ARE LISTED ON THE CABLE SCHEDULE.

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						0	ISSUED FOR CONSTRUCTION			21/03/08	BDH	JAK	BDH	PROJECT TITLE:	CHASE RIVER PUMP STATION UPGRADE		1
						1	RE-ISSUED FOR CONSTRUCTION			21/11/03	AF	BDH	BDH	PROJECT No:	2003251		
														DOCUMENT No:	2003251-000-1618-003		
														CLIENT PROJECT No:			
E&I MATERIAL TAKE-OFF (MTO)																	
REFERENCE NUMBER	DESCRIPTION	QUANTITY	UNIT	MODEL NUMBER	SUGGESTED MANUFACTURER	SUPPLIED BY	REFERENCE	COMMENTS					REV				
CABLES																	
1	3 CONDUCTOR SIZE 350 MCM, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED POWER CABLE	144	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
2	3 CONDUCTOR SIZE #1/0 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED POWER CABLE	150	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
3	3 CONDUCTOR SIZE #8 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED POWER CABLE	36	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
4	3 CONDUCTOR SIZE #12 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED POWER CABLE	12	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
5	2 CONDUCTOR SIZE #14 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED CONTROL CABLE	456	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
6	4 CONDUCTOR SIZE #14 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED CONTROL CABLE	162	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
7	8 CONDUCTOR SIZE #14 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED CONTROL CABLE	354	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
8	16 CONDUCTOR SIZE #14 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED CONTROL CABLE	12	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
9	1 PAIR SIZE #16 AWG SHEILDDED, C/W OVERALL SHIELD, ACIC, INSULATION RATED 600 V, ARMOURED INSTRUMENTATION CABLE	72	m	ACIC	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
10	2 PAIR SIZE #16 AWG SHEILDDED, C/W OVERALL SHIELD, ACIC, INSULATION RATED 600 V, ARMOURED INSTRUMENTATION CABLE	228	m	ACIC	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					0				
11	CAT 6 CABLE	85	m	-	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
12	CABLE CONNECTORS, GLANDS, CABLE TAGS, ETC.	1	LOT	-	-	CONTRACTOR	-	HAZARDOUS CABLE GLANDS REQUIRED FOR WET WELL.					0				
12A	5 CONDUCTOR SIZE #14 AWG, C/W GROUND, LV TECK-90, INSULATION RATED 600 V, ARMOURED CONTROL CABLE	12	m	TECK-90	BY CONTRACTOR	CONTRACTOR	2003251-000-1618-002	NOTE 1, 2, 3.					1				
CONDUIT																	
13	3/4" RIGID METAL CONDUIT	10	m	-	-	CONTRACTOR	2003251-000-1618-002	LEVEL SENSOR (LE-205) MANUFACTURER CABLE TO BE ROUTED IN CONDUIT. HAZARDOUS SEALS REQUIRED IN WET WELL.					0				
14	3/4" PVC CONDUIT SLEEVE	40	m	-	-	CONTRACTOR	2003251-000-1618-002	LEVEL SWITCH MANUFACTURER CABLES TO BE ROUTED IN CONDUIT SLEEVE.					0				
GROUNDING																	
15	#1 AWG GROUND CONDUCTOR	10	m	-	-	CONTRACTOR	-	MCC-300 GROUND					0				
VARIABLE FREQUENCY DRIVES (MOUNTED IN MCC ENCLOSURE)																	
16	FIVE (5) 125A, 600V, HEAVY DUTY VFD WITH 3% LINE REACTOR AND DV/DT OUTPUT FILTER COMPLETE IN STANDALONE MCC ENCLOSURE WITH INTEGRATED ACTIVE 90A HARMONIC FILTER AND ETHERNET SWITCH (8 SECTIONS, NEMA 1A)	1	EA	DG1-CT / PPM300	EATON	RDN	CRPS-E-011/012/013/014/015 EATON PROPOSAL MU791126X0K1	MCC-300 VFDs FOR OPERATION WITH EXISTING PUMPS					0				
16A	FREEDOM/F2100, SVX VFD (VARIABLE TORQUE) WITH HFD3015 BREAKER FOR 3HP, 4.5 FLA, 42" COMPLETE WITH HOA SWITCH, AMBER "OVERLOAD TRIPPED" LIGHT, RED "RUN" LIGHT, DG1 VFD EQUIVALENT (DG1-353D3FB-C21C)	1	EA	SDAFR6-642-A	EATON	RDN	EATON PROPOSAL RW750720X1K1	VFD FOR NEW WET WELL EXHAUST FAN EF-210 (FOR INSTALLATION IN MCC-100)					1				
MOTOR CONTROL CENTERS																	
17	600A THERMAL MAGNETIC TRIP UNIT	1	EA	LT3600T	EATON	CONTRACTOR	CRPS-E-105	FOR INSTALLATION IN MCC-100 IN EXISTING HLD3600F FRAME (SECTION 5, FEEDER FOR MCC-300).					0				
18	600V THERMAL MAGNETIC CIRCUIT DUAL BREAKER FEEDER BUCKET AND DOOR: 30 AT FDC3030 (2 SPACE FACTOR)	1	EA	BDAHFDL18-A	EATON	CONTRACTOR	CRPS-E-105	FOR INSTALLATION IN MCC-100 (SECTION 3). NEW FEEDER TO MCC-200.					1				
19	MOTOR CIRCUIT PROTECTOR (MCP), FVNR: 20 AT (XX SPACE FACTOR)	4	EA		EATON	RDN		FOR INSTALLATION IN MCC-100 (XXX). HOLD FUTURE SUPPLY FAN INSTALLED BY RDN.					0				
20	CUBICLE DOOR, 6" H x 16" W, BLANK DOOR C/W MOUNTING HARDWARE (1X SPACE FACTOR)	4	EA	5711A01G01	EATON	CONTRACTOR	CRPS-E-106	FOR INSTALLATION IN MCC-100 (SECTION 3).					1				
21	CUBICLE DOOR, 18" H x 16" W, BLANK DOOR C/W MOUNTING HARDWAR (4X SPACE FACTOR)	1	EA	5711A04G01	EATON	CONTRACTOR	CRPS-E-106	FOR INSTALLATION IN MCC-100 (SECTION 3 SPARE SPACE).					1				
JUNCTION BOXES																	
22	WALL-MOUNT JUNCTION BOX, CLASS 1 DIVISION 2 RATED	5	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	CRPS-E-011/012/013/014/015	JB COMPLETE WITH TERMINAL STRIP, TERMINALS AND NAMEPLATE. WET WELL PUMP POWER JBs: JB-101/102/103/104/105A					0				
23	WALL-MOUNT JUNCTION BOX, CLASS 1 DIVISION 2 RATED	5	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	CRPS-E-011/012/013/014/015	JB COMPLETE WITH TERMINAL STRIP, TERMINALS AND NAMEPLATE. WET WELL PUMP SENSOR JBs: JB-101/102/103/104/105B					0				

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						0	ISSUED FOR CONSTRUCTION			21/03/08	BDH	JAK	BDH	PROJECT TITLE:	CHASE RIVER PUMP STATION UPGRADE		1
						1	RE-ISSUED FOR CONSTRUCTION			21/11/03	AF	BDH	BDH	PROJECT No:	2003251		
													DOCUMENT No:	2003251-000-1618-003			
													CLIENT PROJECT No:				
E&I MATERIAL TAKE-OFF (MTO)																	
REFERENCE NUMBER	DESCRIPTION	QUANTITY	UNIT	MODEL NUMBER	SUGGESTED MANUFACTURER	SUPPLIED BY	REFERENCE	COMMENTS					REV				
24	WALL-MOUNT JUNCTION BOX, CLASS 1 DIVISION 2 RATED	1	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	CRPS-I-105	COMPLETE WITH TERMINAL STRIP, TERMINALS (QTY 3) AND NAMEPLATE. JB-205					0				
25	WALL-MOUNT JUNCTION BOX, CLASS 1 DIVISION 2 RATED	1	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	CRPS-I-108	COMPLETE WITH TERMINAL STRIP, TERMINALS (QTY 8) AND NAMEPLATE. JB-206					0				
25A	WALL-MOUNT JUNCTION BOX	1	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR		FOR CHAMBER FAN SF-120 CURRENT SENSOR					1				
INSTRUMENTATION AND CONTROL																	
26	CP-100	1	EA	SEE REFERENCE	SEE REFERENCE	RDN	CRPS-I-101 TO 112	FABRICATED BY PANEL SHOP. SEE REFERENCE DRAWING FOR COMPLETE DETAILS.					0				
27	HMI-100	1	EA	SEE REFERENCE	SEE REFERENCE	RDN	CRPS-I-121 TO 123	FABRICATED BY PANEL SHOP. SEE REFERENCE DRAWING FOR COMPLETE DETAILS.					0				
28	LEVEL FLOAT SWITCH (LSLL-206, LSHH-206/206A/206B), CLASS 1 DIV 2 RATED	4	EA	ENM 10 (5828812)	FLYGT	RDN	CRPS-E-203	REPLACEMENT FOR EXISTING LEVEL SWITCHES. FLOAT INSTALLATION HEIGHTS TO BE CONFIRMED BY RDN. COMPLETE WITH 13m CABLE.					0				
29	ULTRASONIC LEVEL SENSOR (LE-205), CLASS 1 DIV 2 RATED	1	EA	XPS-10 (7ML1115-0CA40)	SIEMENS	RDN	CRPS-E-203	REPLACEMENT FOR EXISTING LE-205 SENSOR. COMPLETE WITH 10m CABLE.					0				
30	LEVEL TRANSMITTER, 120VAC (LIT-201/202/205)	3	EA	MULTIRANGER 200 HMI (7ML5033-2DA00-2A)	SIEMENS	RDN	CRPS-E-111	REPLACEMENT FOR EXISTING LIT-201/202/205 MOUNTED ON CP-100 DOOR. NEW TRANSMITTERS TO BE WALL-MOUNT IN ELECTRICAL ROOM.					0				
31	GAS DETECTOR AND SENSOR, H2S (AE/AIT-300A), C/W SENSOR JB, 24VDC, CLASS 1 DIV 2 RATED	1	EA	SENSEPOINT XCD RTD (SPXCDULNH2R)	HONEYWELL	RDN	CRPS-E-203						0				
32	GAS DETECTOR AND SENSOR, LEL METHANE (AE/AIT-300B), 705 SENSOR C/W SENSOR JB, 24VDC, CLASS 1 DIV 2 RATED	1	EA	SENSEPOINT XCD RFD (XCDRFDL)	HONEYWELL	RDN	CRPS-E-203						0				
33	GAS TEST KIT	1	EA	SEE REFERENCE	HONEYWELL	RDN	HONEYWELL QUOTE Q2101E679335 Rev 2						0				
34	HORN/STROBE UNIT (YA-301A/B), 120VAC, AMBER STROBE, CLASS 1 DIV 2 RATED	2	EA	855XM-CGMA10DA5	ALLEN-BRADLEY	RDN	CRPS-E-111						0				
35	FLOW SWITCH (FSL-700), CLASS 1 DIV 2 RATED	4	EA	FLT93S-4B-1A104C-4A000-00	FCI	RDN	CRPS-E-203						4				
36	FLOW METER (FIT-210)	1	EA	BY OTHERS	BY OTHERS	BY OTHERS	BY OTHERS	PROVIDED AND INSTALLED BY OTHERS					0				
37	PRESSURE TRANSMITTER (PIT-210)	1	EA	BY OTHERS	BY OTHERS	BY OTHERS	BY OTHERS	PROVIDED AND INSTALLED BY OTHERS					0				
38	INSTRUMENT TAG NAMEPLATE	14	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	-	NAMEPLATE FOR ITEMS 28-35 IF NOT PROVIDED BY MANUFACTURER WITH DEVICE.					0				
38A	CURRENT SENSOR (SF-210, CHAMBER FAN SF-120)	2	EA	EAC1420SC	EATON	CONTRACTOR	CRPS-I-106						1				
SERVICES																	
39	20A BREAKER	1	EA	BY CONTRACTOR	BY CONTRACTOR	CONTRACTOR	CRPS-E-106	FOR INSTALLATION IN LIGHTING PANEL 'B'					0				
OTHER																	

- NOTES:
- CONTRACTOR TO FIELD VERIFY CABLE LENGTHS PRIOR TO PROCUREMENT AND INSTALLATION.
 - REFER TO ELECTRICAL CABLE LIST 2003251-000-1618-002 FOR CABLE DETAILS.
 - TOTAL LENGTH AND QUANTITY ESTIMATED +20%.



REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-E-105	SINGLE LINE DIAGRAM	1
CRPS-E-106	MCC LAYOUTS & SCHEDULES	2
CRPS-I-106	CP-100 ANALOG & RTD INPUT	3
CRPS-I-111	BUC-100 SCHEMATIC DIAGRAM	4
CRPS-I-109	CP-100 SLOT 9&10 DISCRETE INPUTS	5
CRPS-I-123	HMI-100 PANEL SCHEMATICS	6

NOTES:

- INTERNAL WIRING OF THE DG1 IS NOT SHOWN. REFER TO MANUFACTURER'S DOCUMENTATION FOR DETAILED WIRING.
- SEE 'VFD' PARAMETER SETTINGS' TABLE ON THIS DRAWING FOR THE REQUIRED PARAMETER SET UP AND INPUT CONFIGURATION.
- HAND-OFF-AUTO SWITCH IS MOUNTED ON THE DOOR OF HMI-100 IN THE LUNCHROOM.
- EXISTING WET WELL WALL MOUNT JUNCTION BOX TO BE REPLACED WITH NEW HAZARDOUS RATED JUNCTION BOX. ALL CABLE CONNECTIONS REQUIRE HAZARDOUS RATED CABLE GLANDS. JUNCTION BOX TERMINATION DETAILS BY CONTRACTOR. NEW JB TAGS ARE JB-103A FOR MOTOR FEEDER AND NEW JB-103B FOR PUMP PROTECTION SIGNALS.
- EXISTING SUBMERSIBLE CABLE FROM JB TO MOTOR TO BE RE-USED.
- IF BACK-UP CONTROLLER (BUC-100) ACTIVATED, RELAY R103 IN PLC CUTS POWER TO HOA SWITCHES HS-103 ON HMI-100 FOR VFD TO OPERATE VIA BUC-100 OUTPUT AT VFD PRE-SET JOG SPEED.

LEGEND:

- MCC CUBICLE INTERNAL TERMINATIONS
- MCC CUBICLE TERMINAL BLOCKS
- HMI-100 TERMINALS
- VFD TERMINALS
- LOCATED ON MCC CUBICLE DOOR

ISSUED FOR
CONSTRUCTION

Date: 2021/11/03

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1	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:



CLIENT NO:	-	DRWN:	AF	DATE:	21/01/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	21/01/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	NTS	APVD:	BDH	DATE:	21/03/08

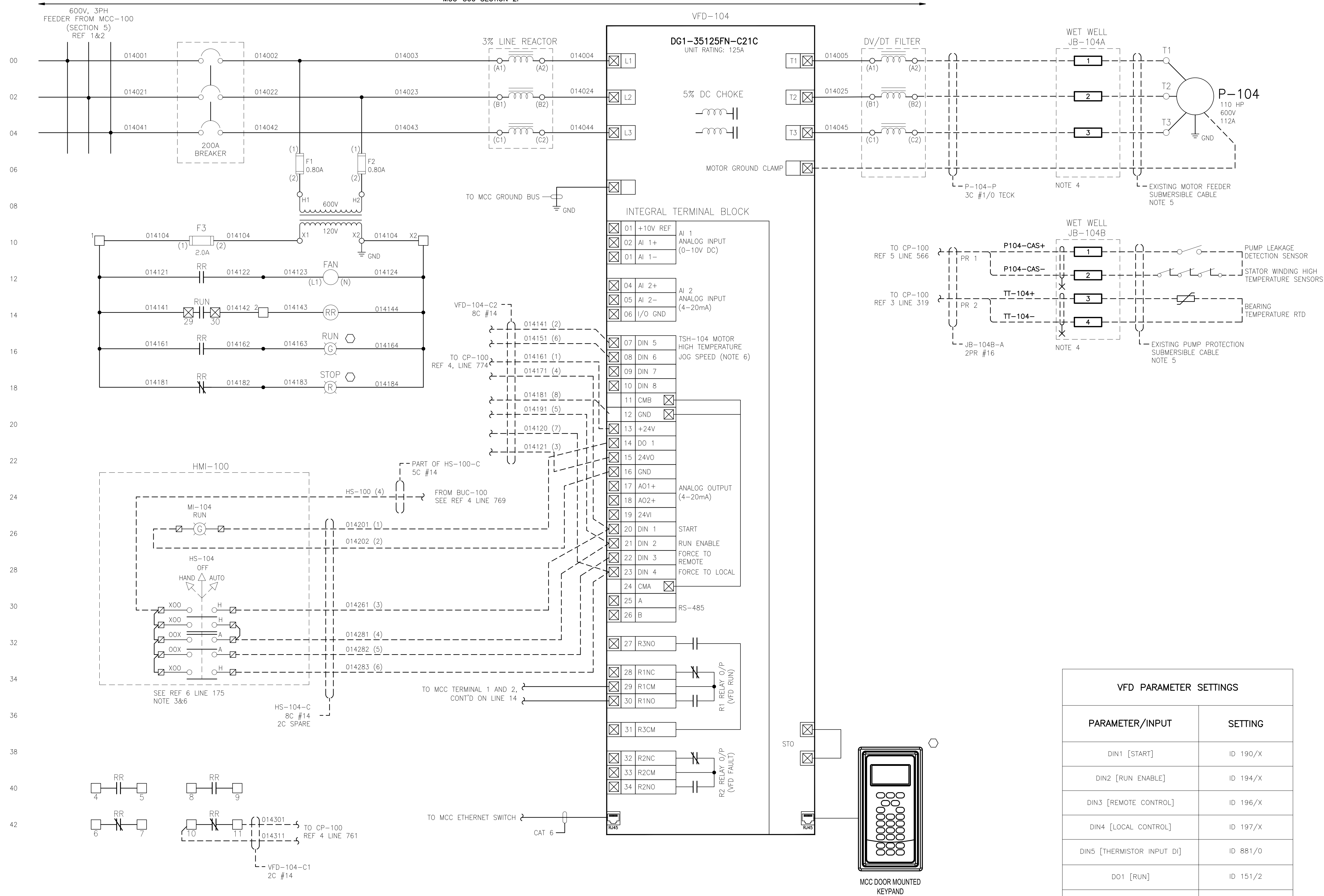
PROJECT:

CHASE RIVER
PUMP STATION
UPGRADE

TITLE:

P-103
SCHEMATIC DIAGRAM

DWG NO:	CRPS-E-013	REV:	1
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REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-E-105	SINGLE LINE DIAGRAM	1
CRPS-E-106	MCC LAYOUTS & SCHEDULES	2
CRPS-I-106	CP-100 ANALOG & RTD INPUT	3
CRPS-I-111	BUC-100 SCHEMATIC DIAGRAM	4
CRPS-I-109	CP-100 SLOT 9&10 DISCRETE INPUTS	5
CRPS-I-123	HMI-100 PANEL SCHEMATICS	6

NOTES:

- INTERNAL WIRING OF THE DG1 IS NOT SHOWN. REFER TO MANUFACTURER'S DOCUMENTATION FOR DETAILED WIRING.
- SEE 'VFD' PARAMETER SETTINGS' TABLE ON THIS DRAWING FOR THE REQUIRED PARAMETER SET UP AND INPUT CONFIGURATION.
- HAND-OFF-AUTO SWITCH IS MOUNTED ON THE DOOR OF HMI-100 IN THE LUNCHROOM.
- EXISTING WET WELL WALL MOUNT JUNCTION BOX TO BE REPLACED WITH NEW HAZARDOUS RATED JUNCTION BOX. ALL CABLE CONNECTIONS REQUIRE HAZARDOUS RATED CABLE GLANDS. JUNCTION BOX TERMINATION DETAILS BY CONTRACTOR. NEW JB TAGS ARE JB-104A FOR MOTOR FEEDER AND NEW JB-104B FOR PUMP PROTECTION SIGNALS.
- EXISTING SUBMERSIBLE CABLE FROM JB TO MOTOR TO BE RE-USED.
- IF BACK-UP CONTROLLER (BUC-100) ACTIVATED, RELAY R104 IN PLC CUTS POWER TO HOA SWITCHES HS-104 ON HMI-100 FOR VFD TO OPERATE VIA BUC-100 OUTPUT AT VFD PRE-SET JOG SPEED.

LEGEND:

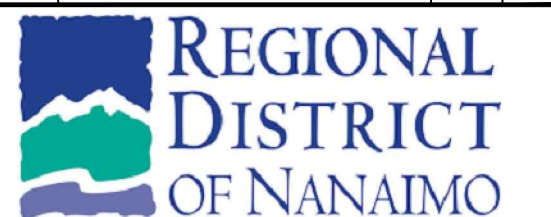
- MCC CUBICLE INTERNAL TERMINATIONS
- MCC CUBICLE TERMINAL BLOCKS
- HMI-100 TERMINALS
- VFD TERMINALS
- LOCATED ON MCC CUBICLE DOOR

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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1	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:



CLIENT NO:	-	DRWN:	AF	DATE:	21/01/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	21/01/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	NTS	APVD:	BDH	DATE:	21/03/08

PROJECT:

CHASE RIVER PUMP STATION UPGRADE

TITLE:

P-104 SCHEMATIC DIAGRAM

DWG NO:	CRPS-E-014	REV:	1
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VFD PARAMETER SETTINGS

PARAMETER/INPUT	SETTING
DIN1 [START]	ID 190/X
DIN2 [RUN ENABLE]	ID 194/X
DIN3 [REMOTE CONTROL]	ID 196/X
DIN4 [LOCAL CONTROL]	ID 197/X
DIN5 [THERMISTOR INPUT DI]	ID 881/O
DO1 [RUN]	ID 151/2
DIN6 [JOG SPEED ENABLE] DIN6 [JOG SPEED REF]	ID 199/X TBD

MCC-300 SECTION 1F

VFD-105

DG1-35125FN-C21C
UNIT RATING: 125A

5% DC CHOKE

MOTOR GROUND CLAMP

INTEGRAL TERMINAL BLOCK

01	+10V REF	AI 1	ANALOG INPUT
02	AI 1+	(0-10V DC)	
01	AI 1-		
04	AI 2+	AI 2	ANALOG INPUT
05	AI 2-	(4-20mA)	
06	I/O GND		

07	DIN 5	TSH-105 MOTOR
08	DIN 6	HIGH TEMPERATURE
09	DIN 7	JOG SPEED (NOTE 6)
10	DIN 8	

11	CMB	
12	GND	
13	+24V	
14	DO 1	
15	24VO	
16	GND	

17	AO1+	ANALOG OUTPUT
18	AO2+	(4-20mA)
19	24VI	

20	DIN 1	START
21	DIN 2	RUN ENABLE
22	DIN 3	FORCE TO REMOTE
23	DIN 4	FORCE TO LOCAL

24	CMA	
25	A	RS-485
26	B	

27	R3NO	
28	R1NC	
29	R1CM	
30	R1NO	

31	R3CM	
32	R2NC	
33	R2CM	
34	R2NO	

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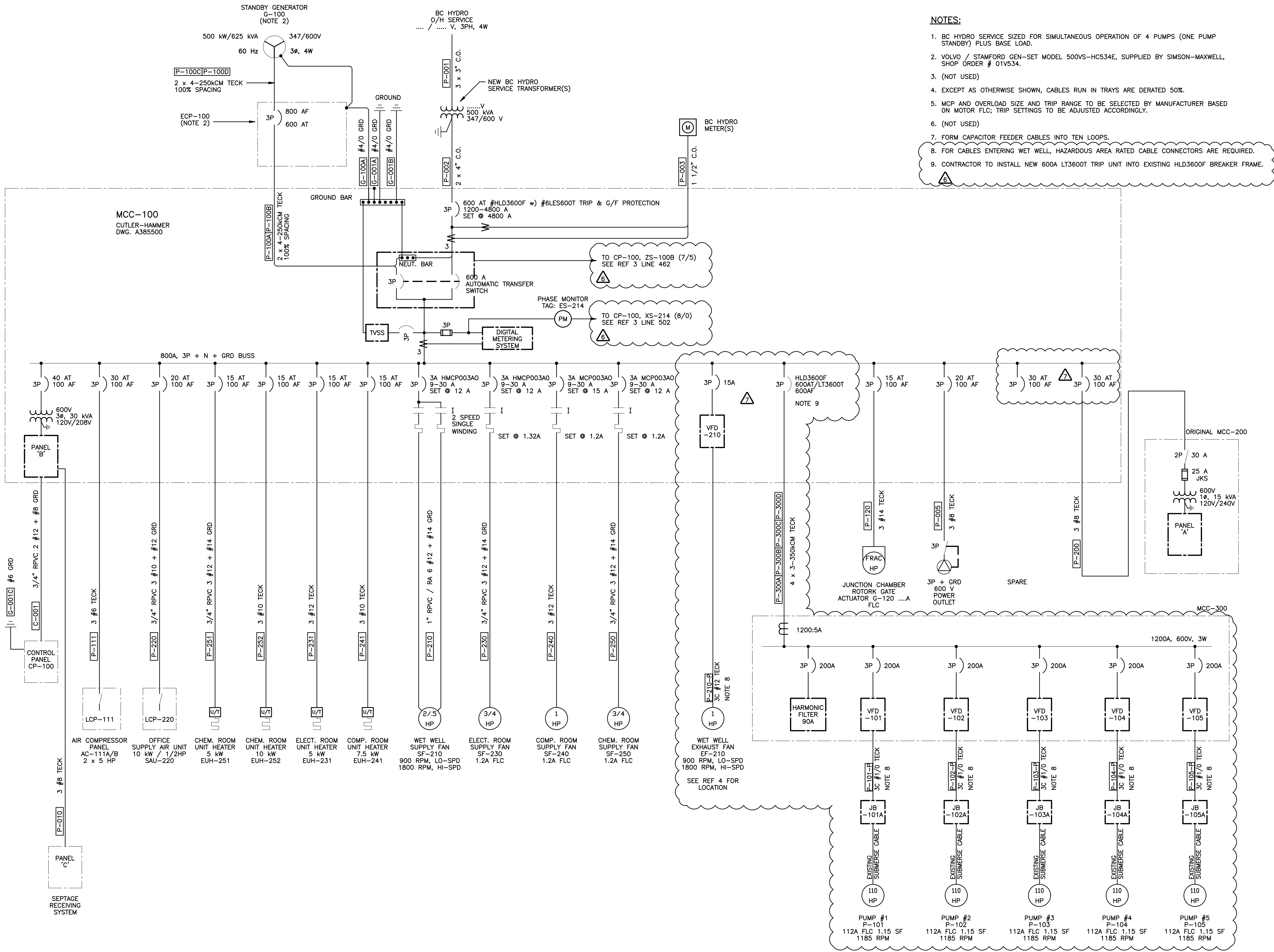
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REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-E-106	MCC LAYOUTS, SCHEDULES & DETAILS	1
CRPS-E-110	FIELD WIRING BLOCK DIAGRAM	2
CRPS-I-108	CP-100 SLOT 7&8 DISCRETE INPUT	3
CRPS-H-205	EXHAUST FAN - PLAN AND SECTION	4

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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7	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
6	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
5	13/07/20	DRAWING UPDATED	RS		
4	04/04/20	P-103 REPLACED	JT		JT
3	02/07/09	RECORD DRAWING, STAGE 3	JT		JT
2	02/01/03	GATE ACTUATOR ADDED	JT		MI
1	01/09/24	ISSUED FOR CONSTRUCTION	ST		KM
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:

REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO:	-	DRWN:	JT	DATE:	-
PROJECT NO:	2003251	DSGN:	JT	DATE:	-
DRAWING SIZE:	ANSI "D"	CHKD:	JG	DATE:	-
SCALE:	AS NOTED	APVD:	-	DATE:	-

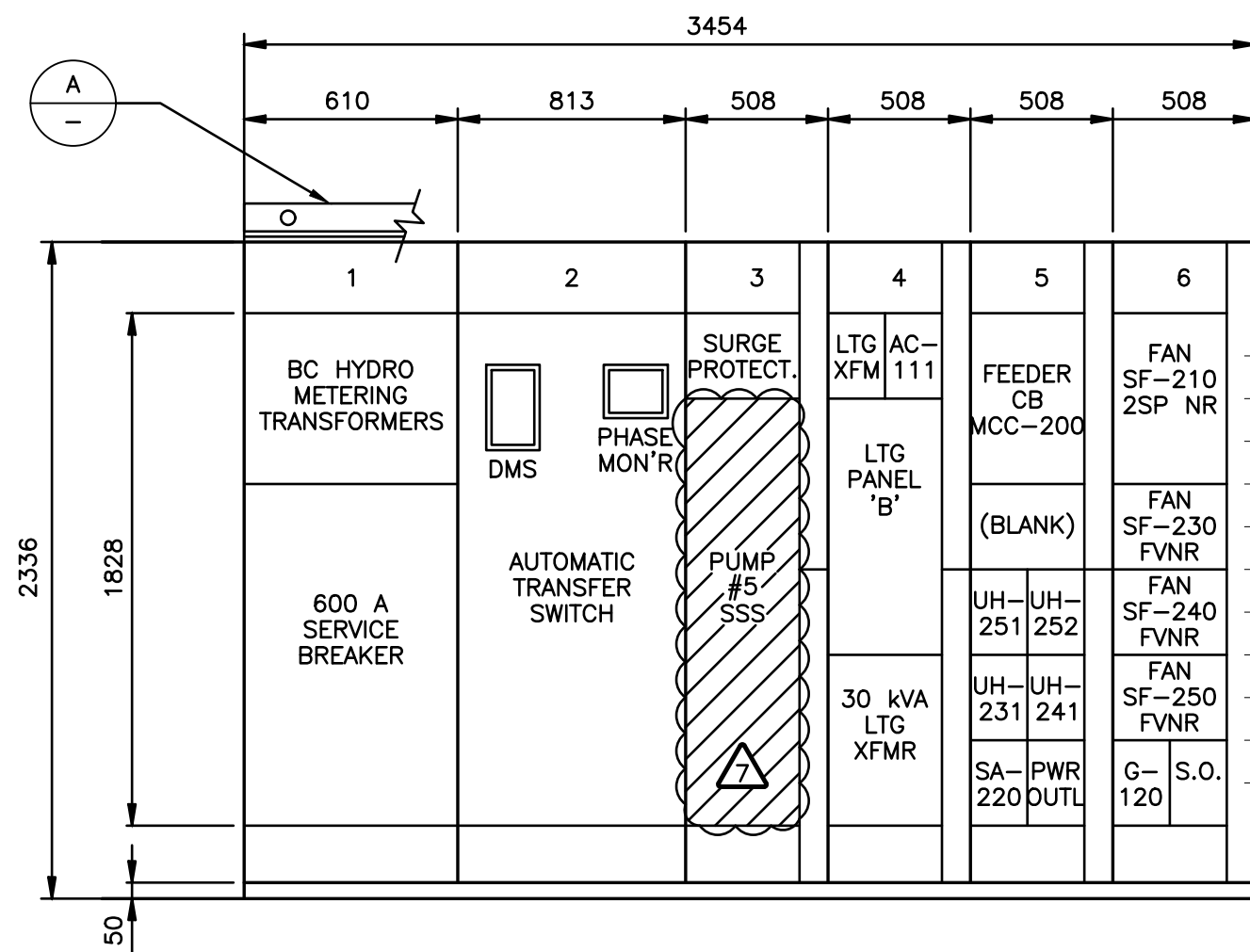
PROJECT:

CHASE RIVER PUMPING STATION UPGRADE

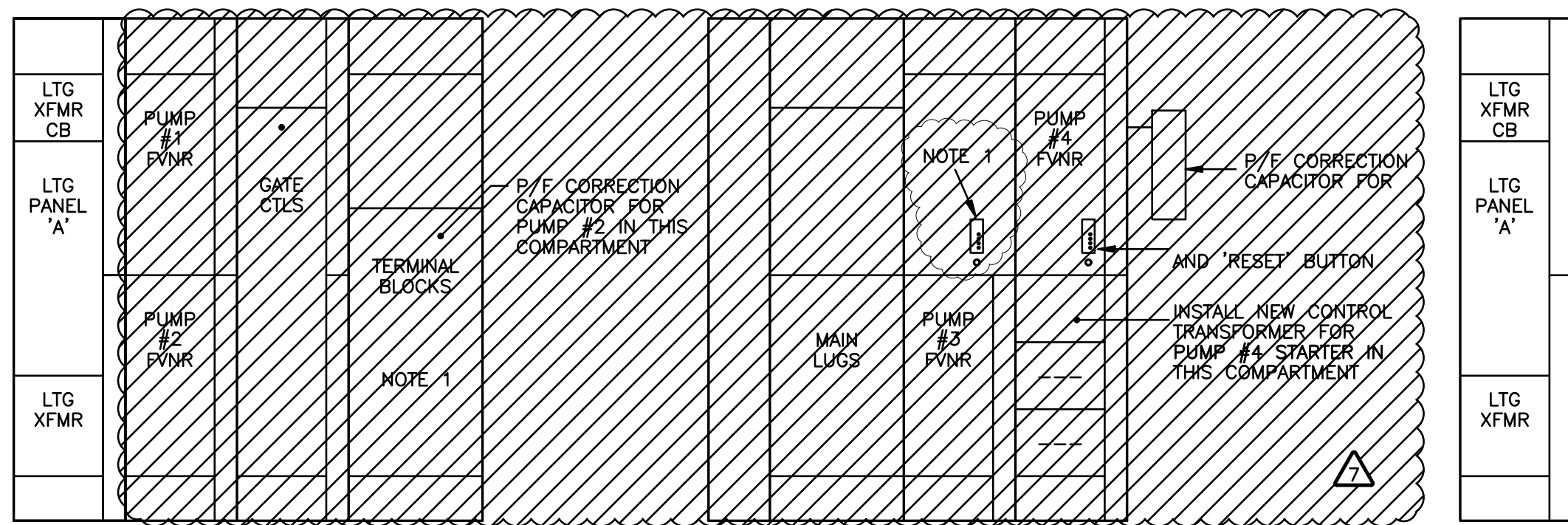
TITLE:

SINGLE LINE DIAGRAM

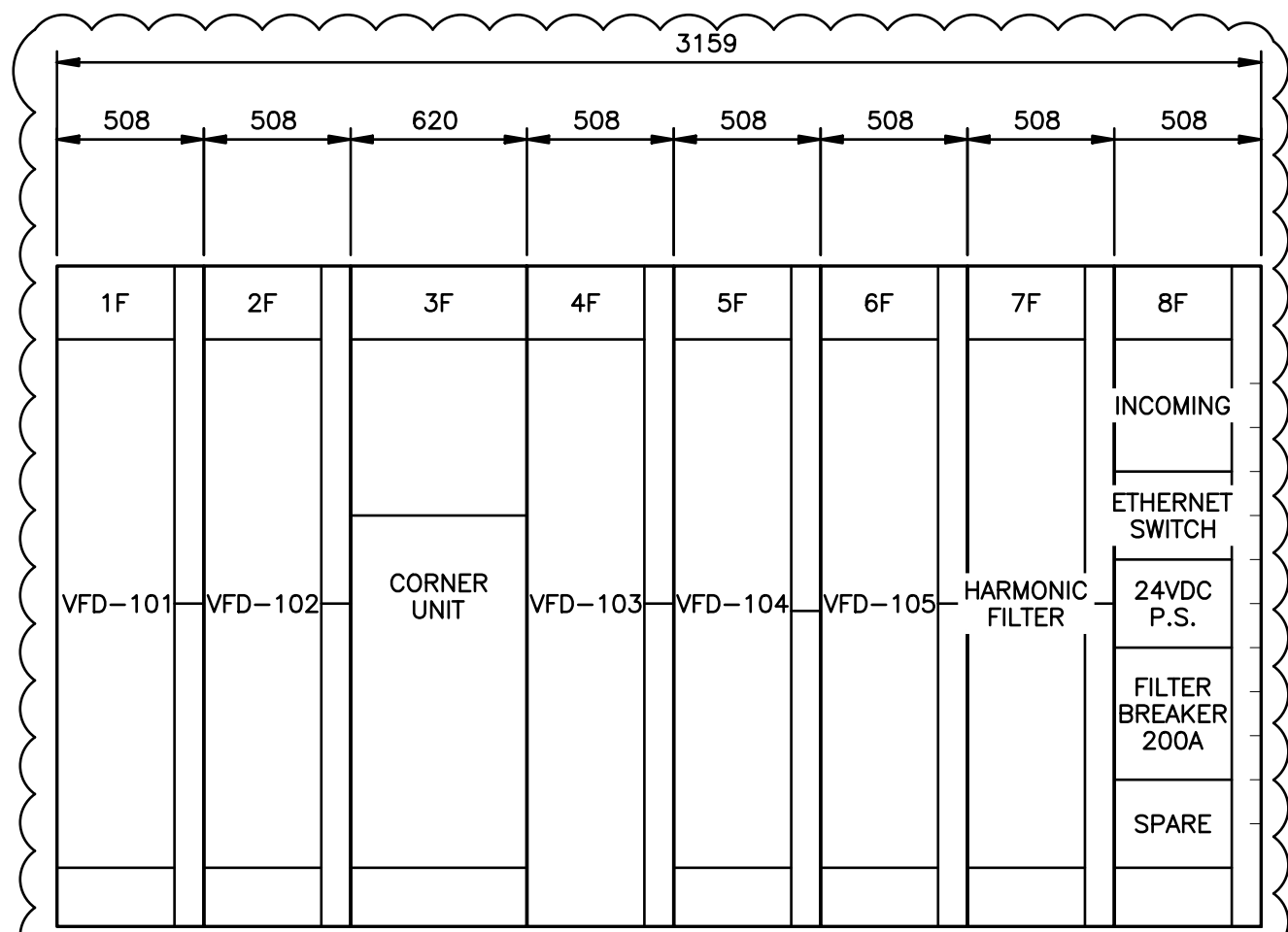
DWG NO: **CRPS-E-105** | REF: **7**



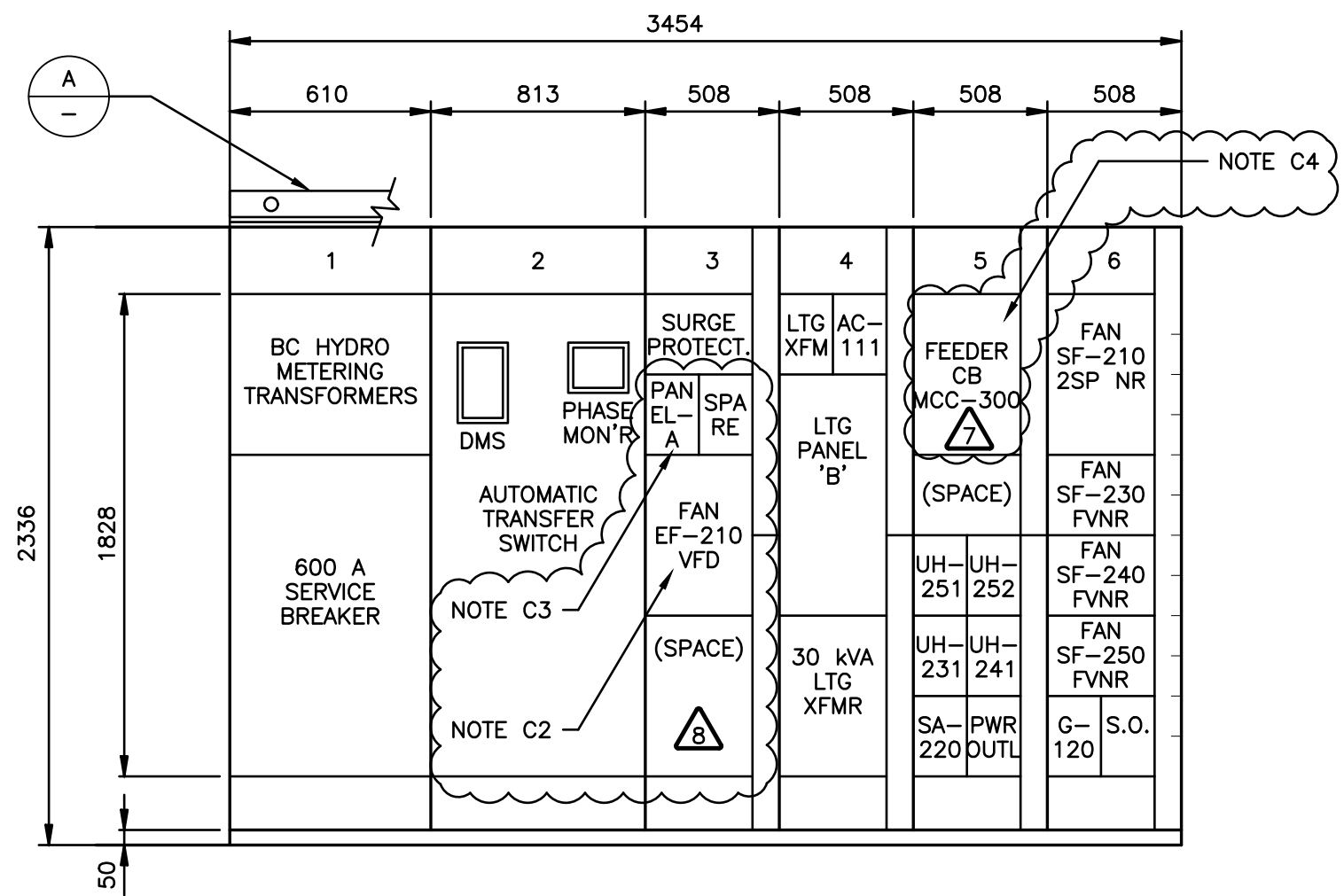
MCC-100 DEMOLITION PLAN



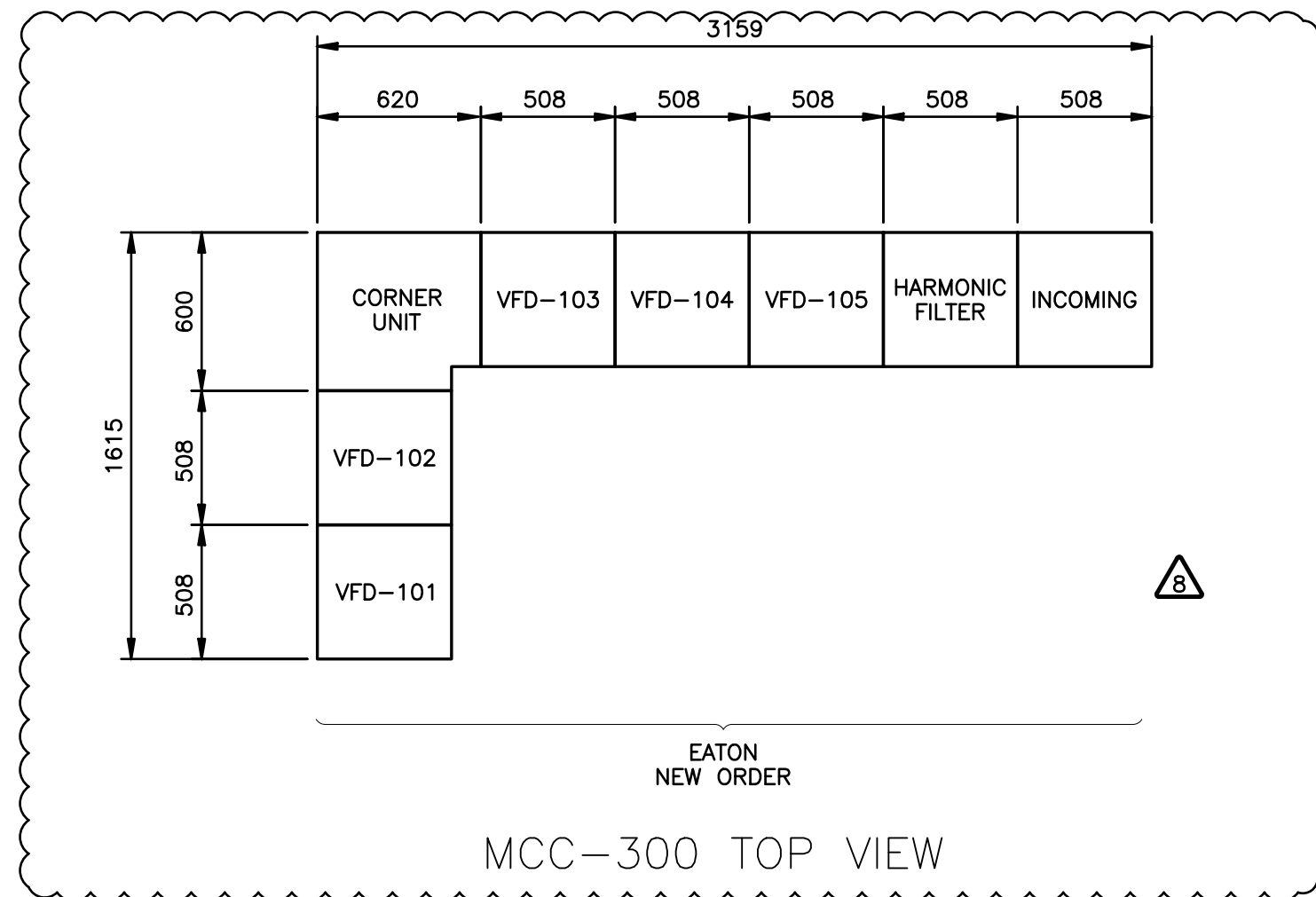
MCC-200 DEMOLITION PLAN



MCC-200/300 CONSTRUCTION PLAN



MCC-100 CONSTRUCTION PLAN



MCC-300 TOP VIEW

PANELBOARD 'B'									
DESCRIPTION	LOAD	BKR SIZE	PHASE A B C		BKR SIZE	LOAD	DESCRIPTION		
BATTERY PACK EMERGENCY LIGHTS	300 VA	15A	1	2	20A	3000 W	HOT WATER TANK HWT-120 CHEMICAL ROOM		
EXTERIOR LIGHTS	700 VA	15A	3	4		3000 W	SPARE		
LIGHTS WASHROOM & OFFICE/LUNCHROOM	770 VA	15A	5	6			WASHROOM HEATER EBH-261		
LIGHTS CHEMICAL & COMPRESSOR ROOMS	840 VA	15A	7	8	15A	1250 W	RECEPTACLES CHEMICAL & COMPRESSOR ROOMS		
LIGHTS ELECTR. ROOM	400 VA	15A	9	10	15A	3	RECEPTACLES CHEMICAL & COMPRESSOR ROOMS		
DOMESTIC HOT WATER TANK HWT-121	2250 VA	15A	11	12	15A	3	RECEPTACLES WASHROOM & OFFICE / LUNCHROOM		
CONTROL PANEL CP-100	1500 VA	20A	13	14	15A	4	RECEPTACLES WASHROOM & OFFICE / LUNCHROOM		
ENGINE CONTROL PANEL ECP-100	1500 VA	30A	15	16	15A	4	SPLIT RECEPTACLES KITCHEN COUNTER		
WEATHER STATION	100 VA	15A	17	18	15A	1	SPLIT RECEPTACLES KITCHEN COUNTER		
CHEMICAL METERING PUMP P-106 (UNDER STAGE 2)	FRAC HP	15A	19	20	15A	1	RECEPTACLES EL. ROOM		
CHEMICAL METERING PUMP P-107 (UNDER STAGE 2)	FRAC HP	15A	21	22	15A	3	RECEPTACLES EL. ROOM & EXTERIOR		
AIR DRYER AD-114	600 VA	15A	23	24	15A	3	RECEPTACLES EXTERIOR		
PANEL 'C' VA	40A	25	26	15A		SPARE		
GENERATOR ROOM EXHAUST FAN EF-270	FRAC.HP	15A	27	28	15A		AIR CURTAIN		
SPARE		15A	29	30	15A		OUTSIDE CHAMBER FAN & LIGHT		
NEW AIR DRYER PLUG		15A	31	32	30A	-	AIR COMPRESSOR		

NOTE C1

PANELBOARD 'C'									
DESCRIPTION	LOAD	BKR SIZE	PHASE A B C		BKR SIZE	LOAD	DESCRIPTION		
KIOSK LIGHT	50 VA	15A	1	2	15A	500 VA	PINCH VALVE ACTUATOR ** HSV-250		
KIOSK RECEPTACLE	1	15A	3	4		500 VA			
KIOSK HEATER	... W	15A	5	6		500 VA			
SAMPLER RECEPTACLE	1	15A	7	8	15A	50 VA	FLUSH VALVE SV-250		
SPARE		15A	9	10	15A	500 VA	ACCESS TERMINAL, CP-250		
SPARE		15A	11	12	15A		SPARE		

* DENOTES GFCI BREAKER
** HP TO BE CONFIRMED BY EQUIPMENT SUPPLIER

- NOTES:
- INSTALL 'CAS' PUMP FAULT MONITOR AND ASSOCIATED CONTROLS FOR P-103 IN THIS COMPARTMENT.
 - PROVIDE NAMEPLATES TO CLEARLY IDENTIFY NEW CONTROLS.
- CONSTRUCTION NOTES:
- REPLACE EXISTING PANELBOARD 'B' CIRCUIT 15 15A BREAKER WITH NEW 20A BREAKER.
 - CONTRACTOR TO INSTALL ETHERNET CABLE FROM VFD TO PLC-100 SWITCH. ETHERNET I/P VFD CONTROL FROM PLC. FAN MOTOR CURRENT MONITORED BY PLC.
 - NEW 30A FEEDER BREAKER FOR PANEL 'A' COMES AS A DUAL PACKAGE, MOUNTED SIDE BY SIDE HORIZONTALLY.
 - CONTRACTOR TO INSTALL NEW 600A LT3600T TRIP UNIT INTO EXISTING HLD3600F BREAKER FRAME, AND RE-TAG CUBICLE DOOR.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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8	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH				
7	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH				
6	13/07/20	DRAWING UPDATED	RS						
5	04/04/20	'CAS' ADDED FOR P-103	JT		JT				
4	03/03/04	SAMPLER ADDITION	ST		MI				
3	02/07/09	RECORD DRAWING, STAGE 3	JT		JT				
2	02/01/03	GATE ACTUATOR ADDED	JT		MI				
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD				



CLIENT NO:	-	DRWN:	JT	DATE:	-
PROJECT NO:	2003251	DSGN:	JT	DATE:	-
DRAWING SIZE:	ANSI "D"	CHKD:	JG	DATE:	-
SCALE:	AS NOTED	APVD:	-	DATE:	-

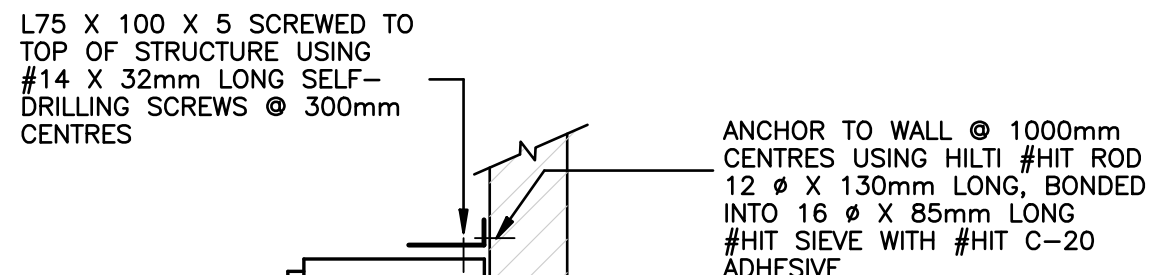
PROJECT:

CHASE RIVER PUMP STATION UPGRADE

TITLE:

MCC LAYOUTS, SCHEDULES AND DETAILS

DWG NO: **CRPS-E-106** REV: **8**



PANEL SEISMIC RESTRAINT
N.T.S.

GENERAL NOTES (APPLIES TO DRAWINGS 982819-601-1-606 TO -608, AND APPLICABLE INSTRUMENTATION DRAWINGS)

1. THE FOLLOWING LOCATION DESIGNATIONS APPLY:

- (S1) DEVICE LOCATED IN MCC-100 / UNIT COMPARTMENT
- (D1) DEVICE LOCATED IN DOOR OF MCC-100 / UNIT COMPARTMENT
- (S2) DEVICE LOCATED IN MCC-200 / UNIT COMPARTMENT
- (D2) DEVICE LOCATED IN DOOR OF MCC-200 / UNIT COMPARTMENT
- (P) DEVICE LOCATED IN CONTROL PANEL CP-100
- (PD) DEVICE LOCATED IN DOOR OF CONTROL PANEL CP-100
- (P1) DEVICE LOCATED IN ENGINE CONTROL PANEL ECP-100
- (F) DEVICE LOCATED IN FIELD
- () DEVICE LOCATED IN

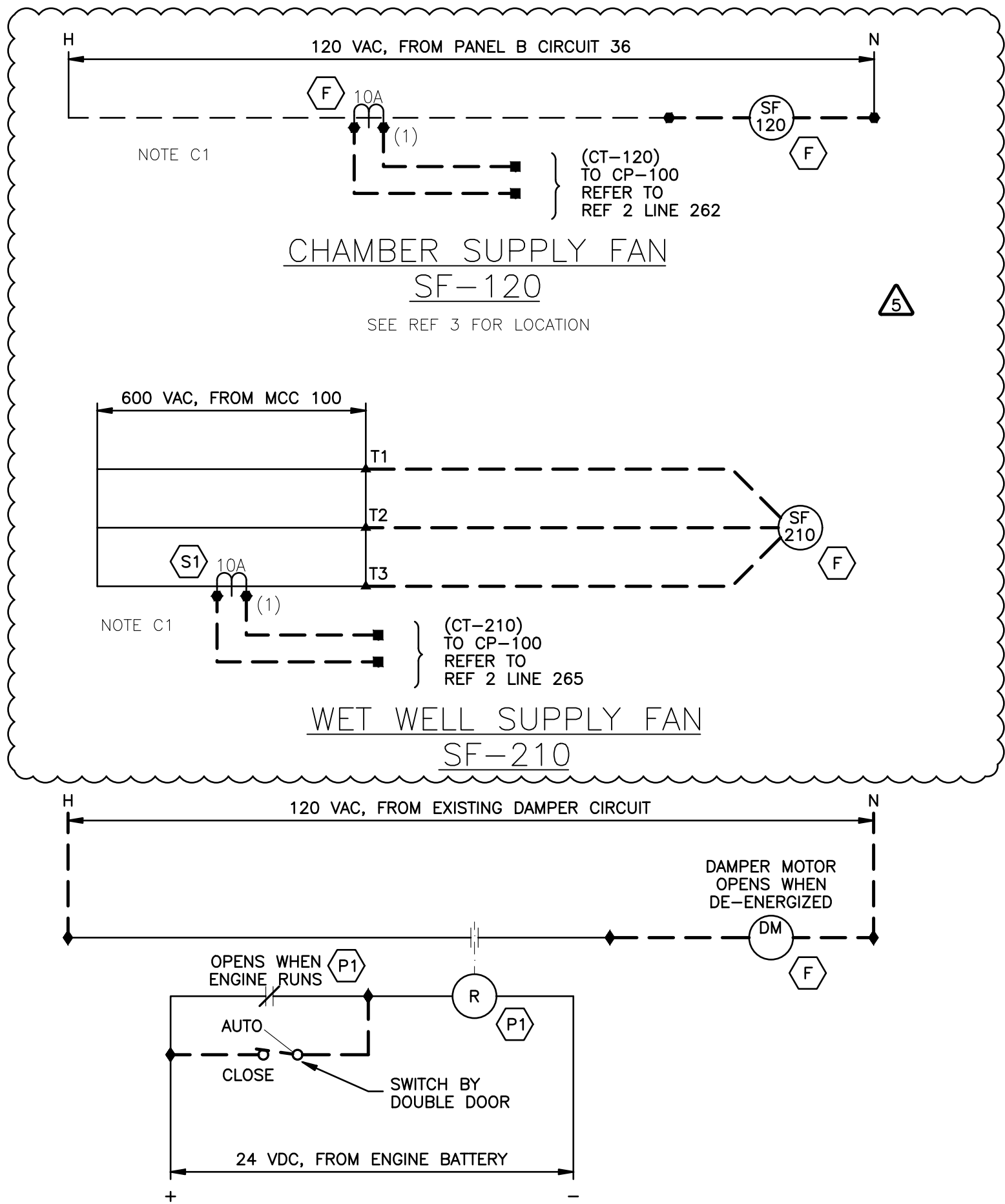
2. THE TERMINAL BLOCKS SHOWN ON THE DRAWINGS ARE MANDATORY REQUIREMENTS. CONTRACTOR MAY ADD FURTHER TERMINAL BLOCKS TO FACILITATE WIRING. TERMINAL BLOCKS ARE IDENTIFIED AS FOLLOWS:

- TERMINAL BLOCK ON EQUIPMENT
- ▲ TERMINAL BLOCK IN MCC-100 / UNIT COMPARTMENT
- TERMINAL BLOCK IN MCC-200 / UNIT COMPARTMENT
- TERMINAL BLOCK IN CP-100
- ◆ TERMINAL BLOCK IN ENGINE CONTOL PANEL ECP-100
- ▀ TERMINAL BLOCK ON SOFT-START CONTROLLER CHASSIS

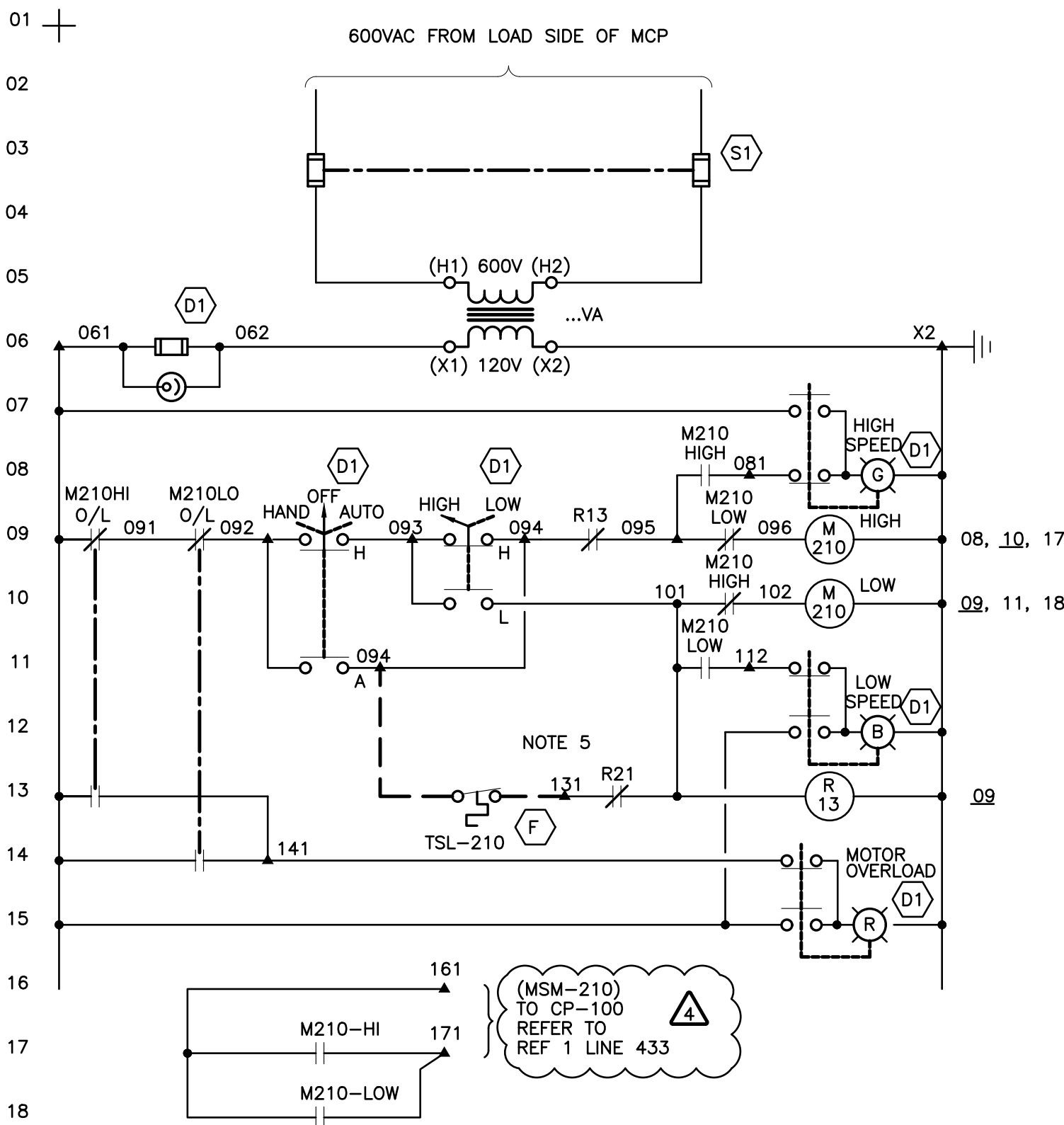
3. EXCEPT AS OTHERWISE SHOWN, DEVICES ARE LOCATED IN MCC-100 / UNIT COMPARTMENTS.

4. INSTALL A RED LAMACOID NAMEPLATE ON UNIT COMPARTMENT DOOR: "WARNING - MORE THAN ONE CONTROL POWER SOURCE; RELAY R21 POWERED FROM WET WELL LIGHT CIRCUIT".

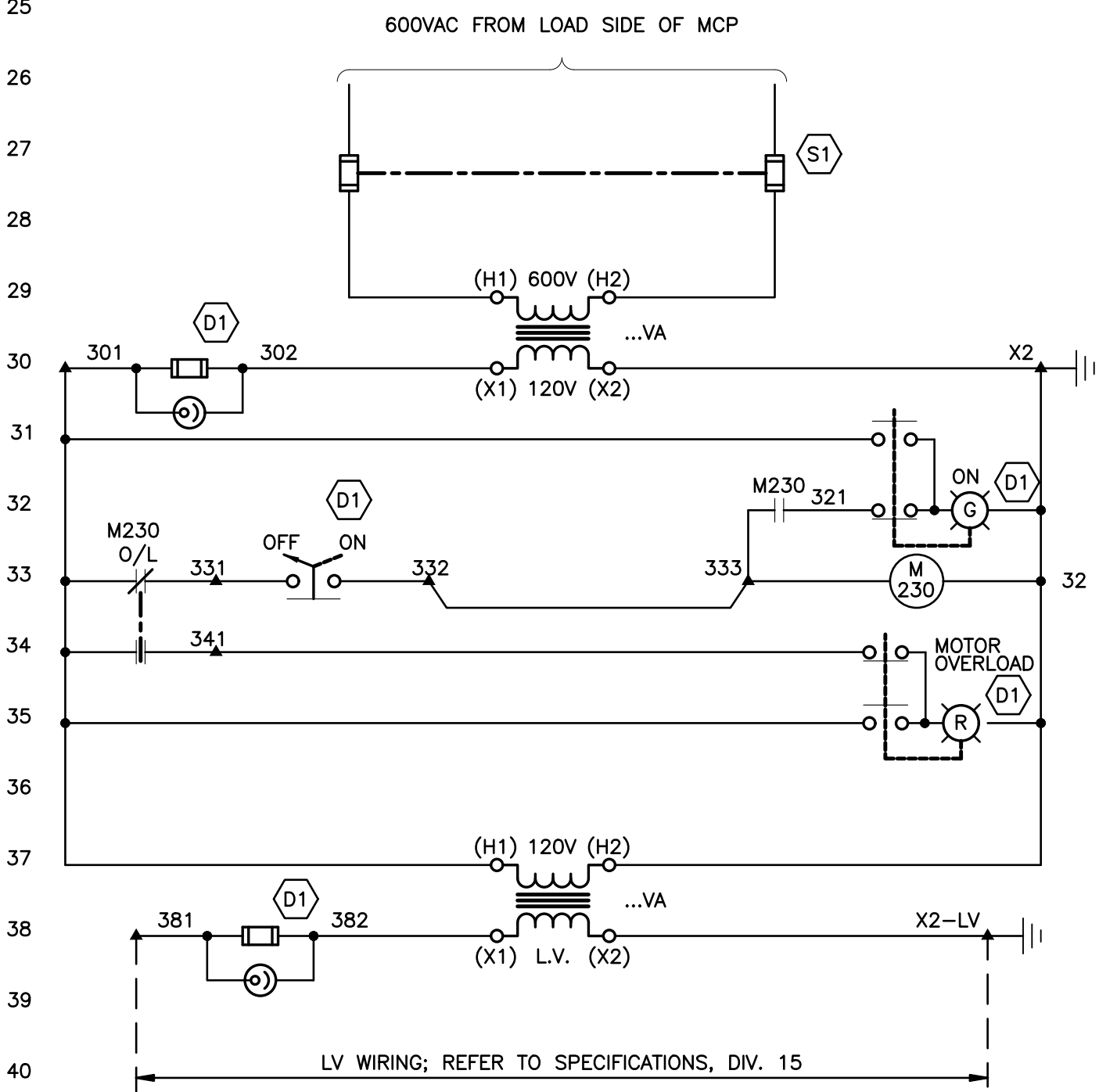
5. IN 'AUTO' MODE, FAN RUNS CONTINUOUSLY AT HIGH SPEED EXCEPT DURING PERIODS OF LOW OUTSIDE TEMPERATURE FAN RUNS AT LOW SPEED. THERMOSTAT IS DISABLED WHILE LIGHTS ARE TURNED ON, I.E. FAN RUNS AT HIGH SPEED REGARDLESS OF OUTSIDE TEMPERATURE WHILE AN OPERATOR IS IN THE WET WELL.



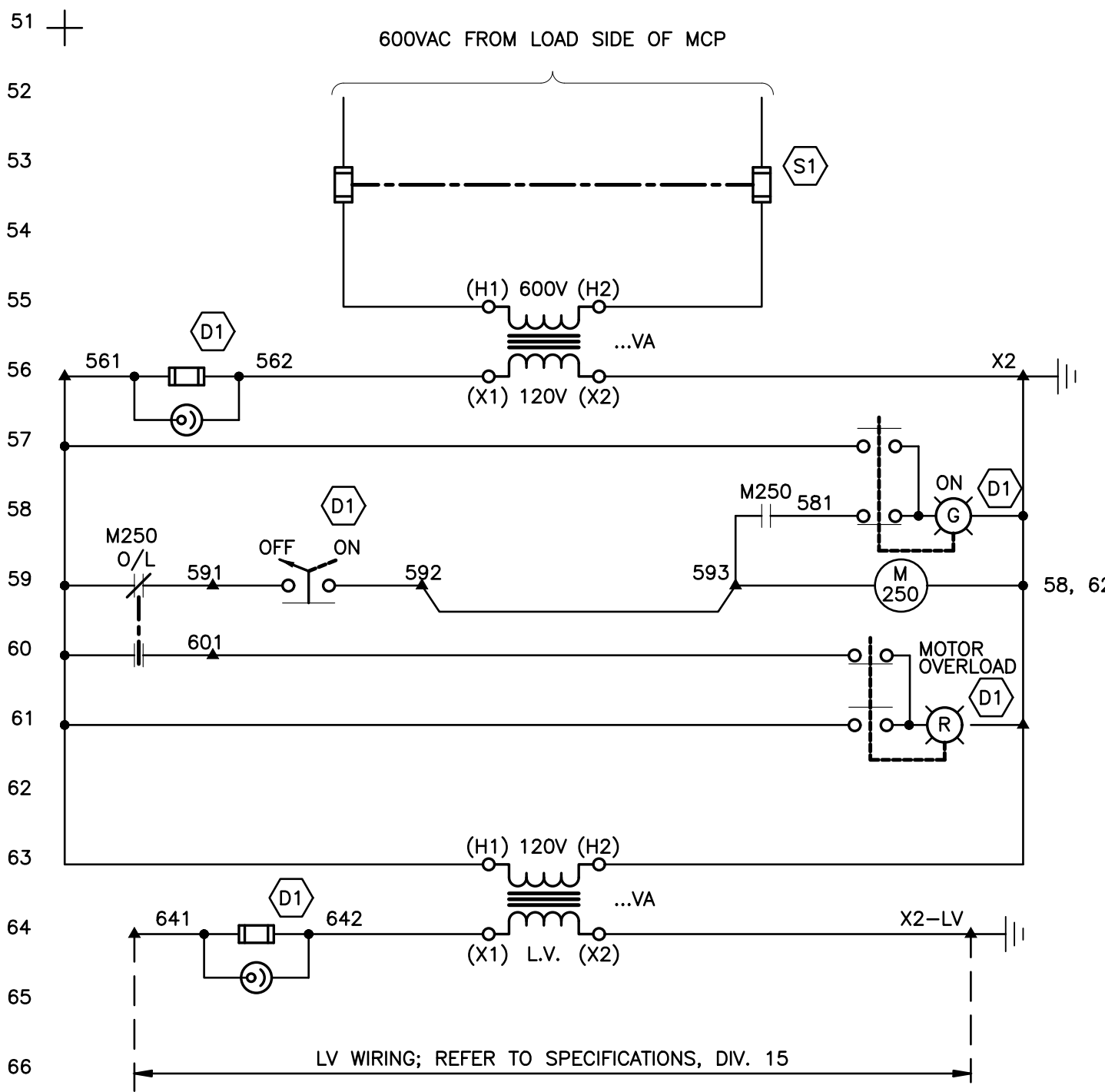
GENERATOR ROOM
DAMPER CONTROLS



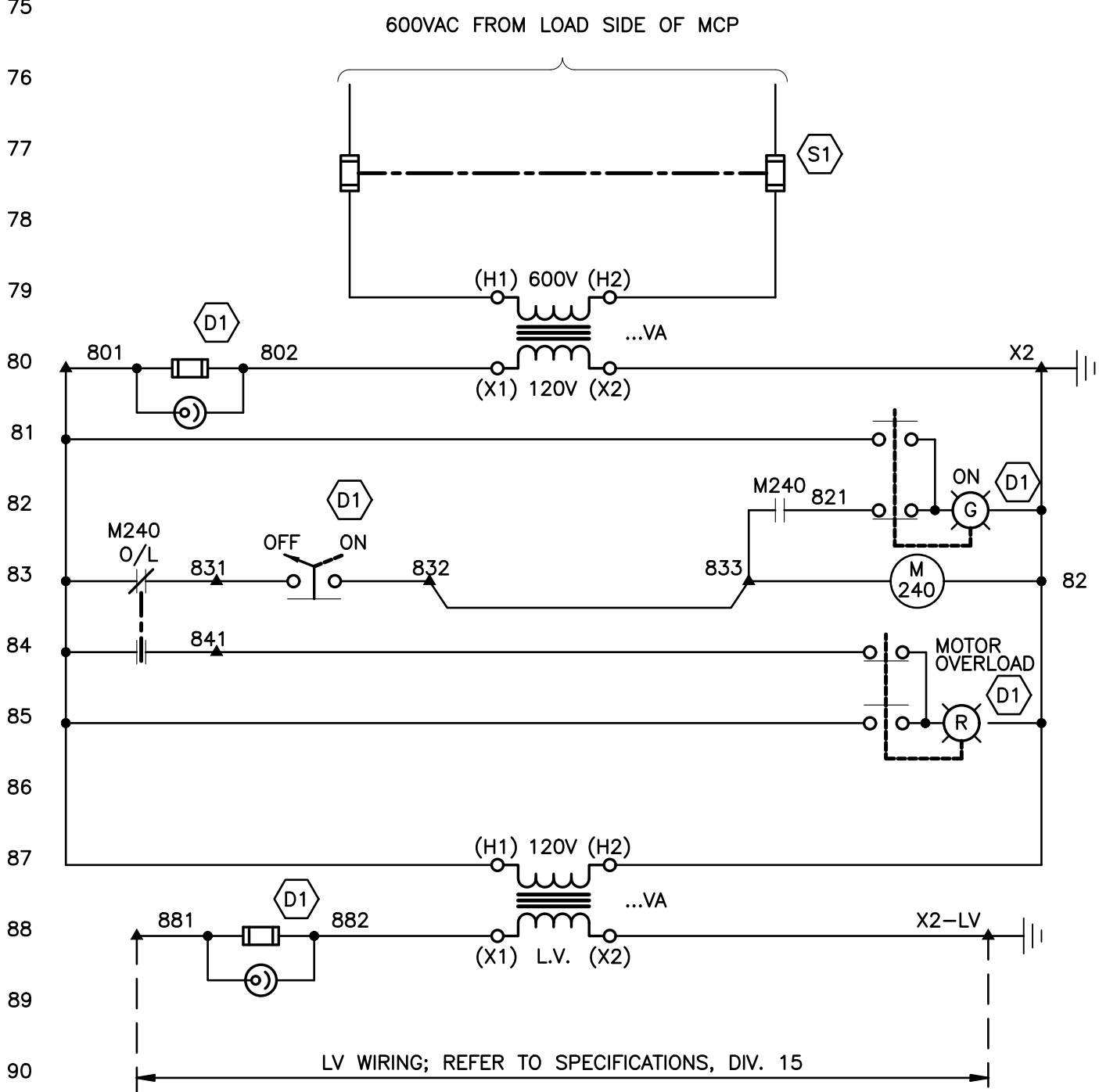
WET WELL SUPPLY FAN
SF-210
(NOTE 5)



ELECTRICAL ROOM SUPPLY FAN
SF-230



CHEMICAL ROOM SUPPLY FAN
SF-250



COMPRESSOR ROOM SUPPLY FAN
SF-240

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-107	CP-100 SLOT 5&6 DISCRETE INPUT	1
CRPS-I-106	CP-100 SLOT 2&3 ANALOG INPUT	2
CRPS-E-111	POWER, CONTROL & INSTR LAYOUT	3

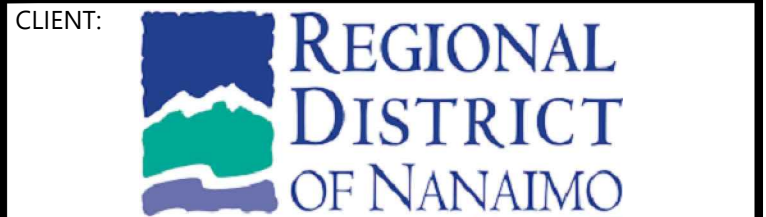
CONSTRUCTION NOTES:

- C1. CONTRACTOR TO SUPPLY AND INSTALL CTs FOR FAN MOTOR CURRENT.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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5	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
4	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
3	13/05/25	RECORD DRAWING UPDATED	RS		JK
2	00/03/24	RECORD DRAWING, STAGE 2	JT		MI
1	99/08/24	ISSUED FOR CONSTRUCTION	ST		KM
0	99/06/22	ISSUED FOR TENDER	ST		KM
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD



CLIENT NO:	-	DRWN:	JT	DATE:	00/03
PROJECT NO:	2003251	DSGN:	JT	DATE:	-
DRAWING SIZE:	ANSI "D"	CHKD:	DSW	DATE:	-
SCALE:	AS NOTED	APVD:	DSW	DATE:	-

PROJECT:

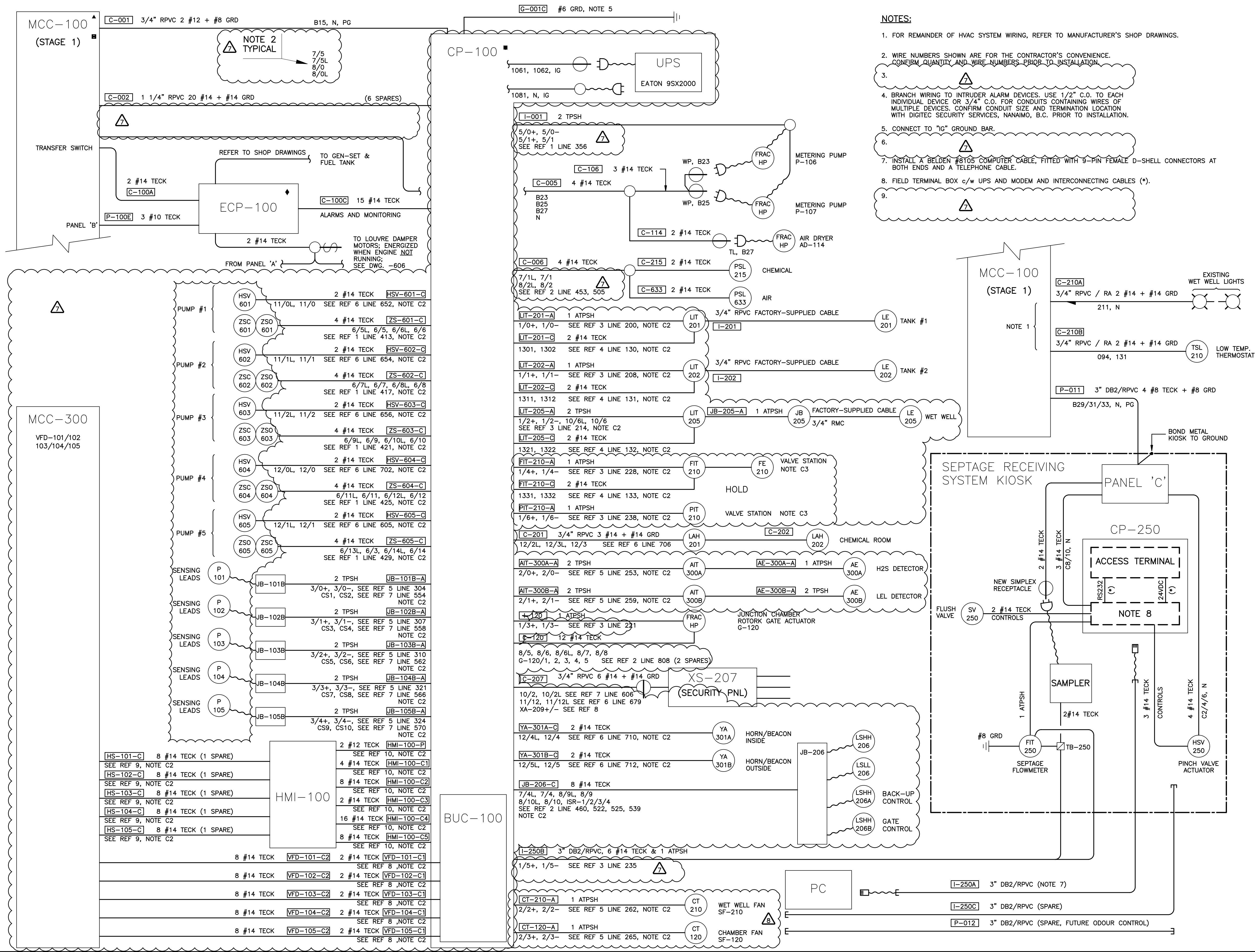
CHASE RIVER
PUMP STATION
UPGRADE

TITLE:

ELECTRICAL
CONTROL SCHEMATICS

DWG NO:	CRPS-E-107	REV:	5
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RENUMBERED FROM 982819-602-1-606 TO



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-107	CP-100 ANALOG OUTPUT	1
CRPS-I-108	CP-100 DISCRETE INPUT	2
CRPS-I-105	CP-100 ANALOG INPUT	3
CRPS-I-103	CP-100 POWER DISTRIBUTION	4
CRPS-I-106	CP-100 ANALOG & RTD INPUT	5
CRPS-I-110	CP-100 OUTPUT	6
CRPS-I-109	CP-100 DISCRETE INPUT	7
CRPS-I-111	BUC-100 SCHEMATIC DIAGRAM	8
CRPS-E-011 TO 015	VFD-101/102/103/104/105 SCHEMATIC	9
CRPS-I-123	HMI-100 PANEL SCHEMATIC	10

CONSTRUCTION NOTES:

C1. CONTRACTOR TO INSTALL NEW CP-100 PLC PANEL.
C2. CONTRACTOR TO INSTALL NEW CABLE. REFER TO CABLE SCHEDULE 2003251-000-1618-002.
C3. VALVE STATION DEVICES INSTALLED BY OTHERS. CABLE BY RDN.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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8	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
7	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
6	13/07/20	DRAWING UPDATED	RS		
5	04/04/20	'CAS' ADDED FOR P-103	JT		JT
4	03/03/04	SAMPLER ADDITION	ST		MI
3	02/07/09	RECORD DRAWING, STAGE 3	JT		JT
2	02/01/03	GATE ACTUATOR ADDED	JT		MI

REV Y/Y/M/M/DD DESCRIPTION DRWN CHKD APVD

CLIENT:

REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO: - DRWN: JT DATE: -
PROJECT NO: 2003251 DSGN: JT DATE: -
DRAWING SIZE: ANSI "D" CHKD: JG DATE: -
SCALE: AS NOTED APVD: - DATE: -

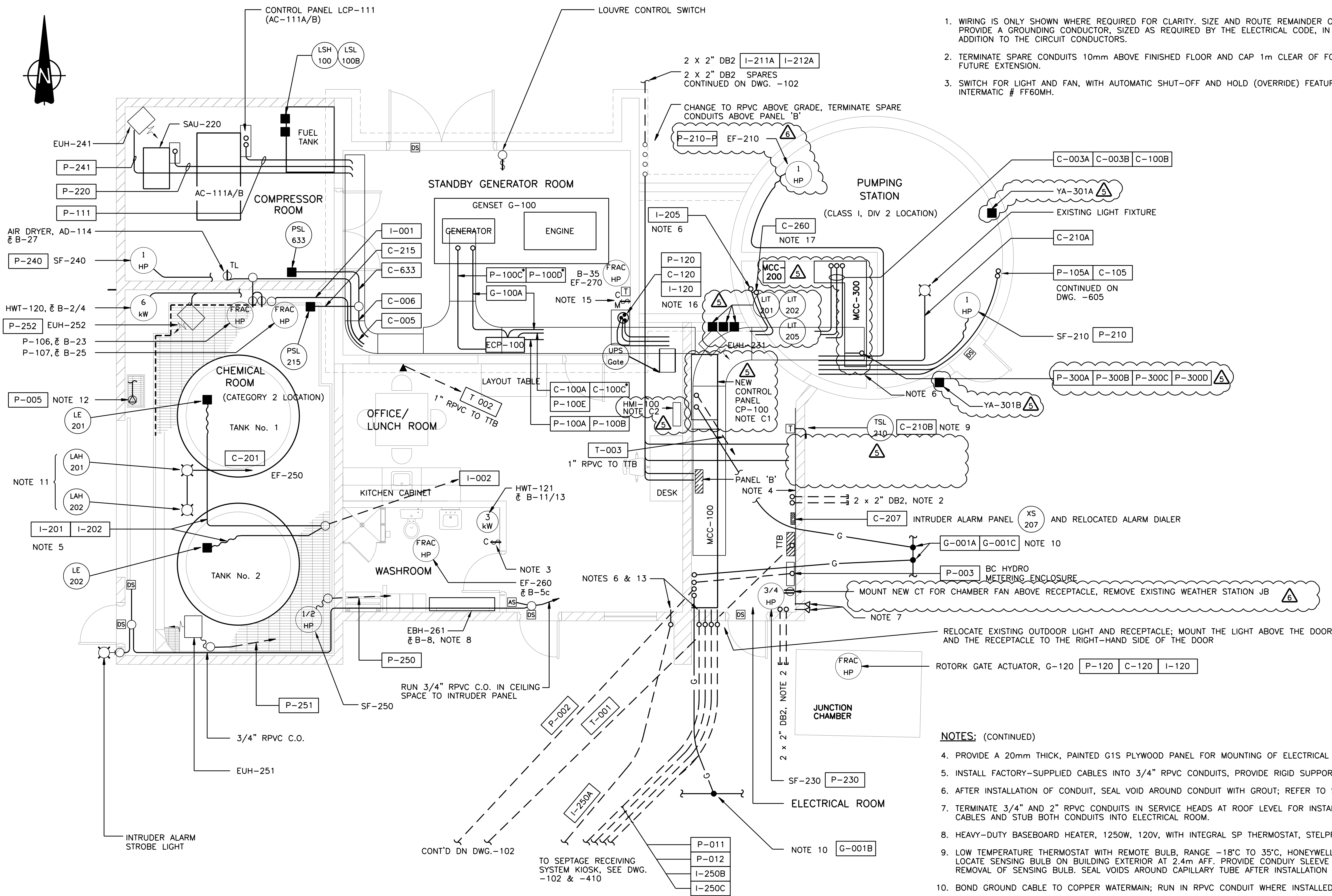
PROJECT:

CHASE RIVER PUMPING STATION UPGRADE

TITLE:

CONTROL AND INSTRUMENTATION FIELD WIRING BLOCK DIAGRAM

DWG NO: **CRPS-E-110** REV: **8**



FLOOR PLAN
SCALE 1:50

NOTES:

1. WIRING IS ONLY SHOWN WHERE REQUIRED FOR CLARITY. SIZE AND ROUTE REMAINDER OF WIRING AS REQUIRED. PROVIDE A GROUNDING CONDUCTOR, SIZED AS REQUIRED BY THE ELECTRICAL CODE, IN EACH CONDUIT IN ADDITION TO THE CIRCUIT CONDUCTORS.
2. TERMINATE SPARE CONDUITS 10mm ABOVE FINISHED FLOOR AND CAP 1m CLEAR OF FOOTINGS FOR FUTURE EXTENSION.
3. SWITCH FOR LIGHT AND FAN, WITH AUTOMATIC SHUT-OFF AND HOLD (OVERRIDE) FEATURE, 60 MINUTE RANGE, INTERMATIC # FF60MH.

NOTES: (CONTINUED)

4. PROVIDE A 20mm THICK, PAINTED G1S PLYWOOD PANEL FOR MOUNTING OF ELECTRICAL AND TELEPHONE EQUIPMENT.
5. INSTALL FACTORY-SUPPLIED CABLES INTO 3/4" RPVC CONDUITS, PROVIDE RIGID SUPPORT FOR DROP FROM CEILING.
6. AFTER INSTALLATION OF CONDUIT, SEAL VOID AROUND CONDUIT WITH GROUT; REFER TO STRUCTURAL SPECIFICATION.
7. TERMINATE 3/4" AND 2" RPVC CONDUITS IN SERVICE HEADS AT ROOF LEVEL FOR INSTALLATION OF WEATHERSTATION CABLES AND STUB BOTH CONDUITS INTO ELECTRICAL ROOM.
8. HEAVY-DUTY BASEBOARD HEATER, 1250W, 120V, WITH INTEGRAL SP THERMOSTAT, STELPRO #DBS1512-T12.
9. LOW TEMPERATURE THERMOSTAT WITH REMOTE BULB, RANGE -18°C TO 35°C, HONEYWELL #T675A, SET AT 0°C. LOCATE SENSING BULB ON BUILDING EXTERIOR AT 2.4m AFF. PROVIDE CONDUITY SLEEVE THROUGH WALL TO ALLOW REMOVAL OF SENSING BULB. SEAL VOIDS AROUND CAPILLARY TUBE AFTER INSTALLATION OF BULB.
10. BOND GROUND CABLE TO COPPER WATERMAIN; RUN IN RPVC CONDUIT WHERE INSTALLED UNDER FLOOR SLAB.
11. STROBE LIGHT WITH RED LENS, NRL # BX-M-1-R (AVAILABLE FROM SLS LIGHTING, VANCOUVER, B.C.).
12. UNFUSED PIN AND SLEEVE RECEPTACLE / SWITCH ASSEMBLY, 3P + GRD, 30 A, 600 V, HUBBELL #430M5W. SUPPLY ONE LOOSE MATCHING PLUG #430P5W.
13. STUB CONDUIT INTO DESIGNATED ROOMS. DO ABOVE-GRADE PORTION WITH RPVC CONDUIT. AFTER INSTALLATION OF CABLES SEAL VOIDS AROUND CABLES WITH RE-ENTERABLE FOAM OR DUXEAL COMPOUND.
14. (*) INDICATES NEW WIRING. REFER ALSO TO GEN-SET SUPPLIER'S SHOP DRAWINGS FOR ADDITIONAL WIRING BETWEEN ECP AND GENERATOR, ENGINE AND FUEL TANK RESPECTIVELY. INSTALL WIRING ON EXISTING CABLE TRAY.
15. MANUAL MOTOR STARTER WITH 'HAND-OFF-AUTO' SELECTOR SWITCH FOR EF-270, A-B #600-TAX9. WIRE COOLINGSTAT INTO 'AUTO' LEG OF SELECTOR SWITCH. CONNECT DAMPER MOTOR PARALLEL WITH FAN MOTOR.
16. REMOVE EXISTING GATE CONTROL PANEL AND HYDRAULIC AND ELECTRICAL CONTROLS. INSTALL NEW CABLES INTO EXISTING PIPE TO JUNCTION CHAMBER. AFTER REMOVAL OF THE PANEL AND WIRING, INSTALL A SUITABLE HEAVY GAUGE STAINLESS-STEEL PLATE OVER REMAINING OPENING IN WALL.
17. INSTALL NEW WIRING TO LSHH-206A AND LSHH-206B IN WET WELL.

REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-E-105	SINGLE LINE DIAGRAM	1
CRPS-E-106	MCC LAYOUTS & SCHEDULES	2

CONSTRUCTION NOTES:

- C1. CONCRETE CURB UNDER CP-100 TO BE EXTENDED BY 12" FOR NEW 60" CP-100 PANEL. CURB EXTENSION BY RDN.
- C2. LOCATION OF HMI-100 TO BE FINALIZED BY RDN.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
6	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
5	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
4	13/07/20	DRAWING UPDATED	RS		
3	02/07/09	RECORD DRAWING, STAGE 3	JT		JT
2	02/01/03	GATE ACTUATOR ADDED	JT		MI
1	01/09/24	ISSUED FOR CONSTRUCTION	ST		KM
0	01/08/09	ISSUED FOR TENDER	ST		KM

CLIENT:



CLIENT NO:	-	DRWN:	JT	DATE:	-
PROJECT NO:	2003251	DSGN:	JT	DATE:	-
DRAWING SIZE:	ANSI "D"	CHKD:	JG	DATE:	-
SCALE:	AS NOTED	APVD:	-	DATE:	-

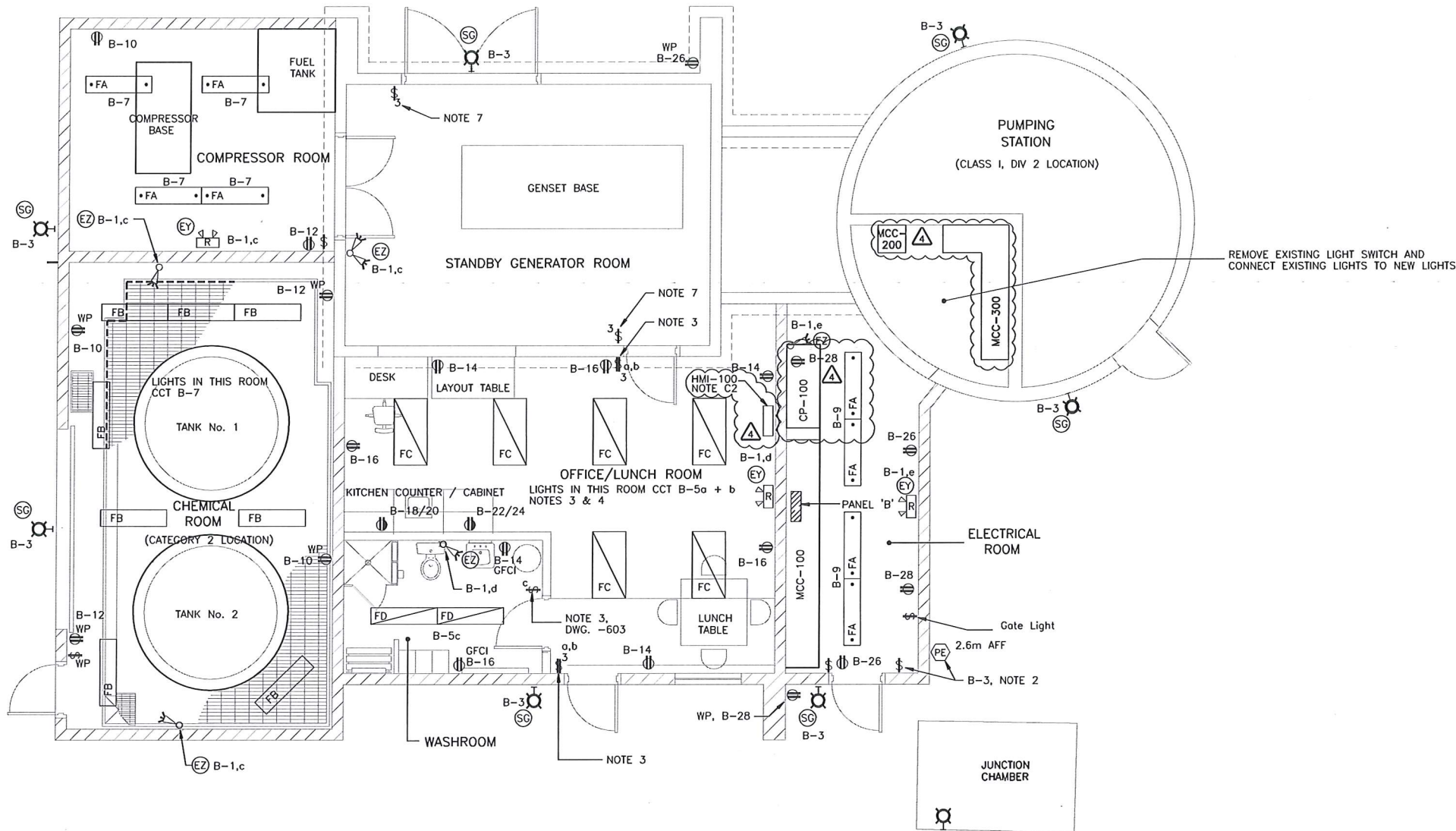
PROJECT:

CHASE RIVER
PUMPING STATION
UPGRADE

TITLE:
POWER, CONTROL AND
INSTRUMENTATION
LAYOUTS

DWG NO:
CRPS-E-111

REV:
6



FLOOR PLAN
SCALE 1:50

NOTES:

1. WIRING IS ONLY SHOWN WHERE REQUIRED FOR CLARITY. SIZE AND ROUTE REMAINDER OF WIRING AS REQUIRED. PROVIDE A GROUNDING CONDUCTOR, SIZED AS REQUIRED BY THE ELECTRICAL CODE, IN EACH CONDUIT IN ADDITION TO THE CIRCUIT CONDUCTORS.
2. "ON-OFF-AUTO" SWITCH FOR EXTERIOR LIGHTS, HUBBELL #1385 WITH NAMEPLATE "EXTERIOR LIGHTS". WIRE PHOTOCELL INTO "AUTO" LEG OF SWITCH.
3. LUMINAIRES WITH ONE TWO-LAMP AND ONE SINGLE-LAMP BALLAST. FOR EACH LUMINAIRE, CONNECT 2 LAMPS ON ONE SWITCH AND ONE LAMP TO THE OTHER SWITCH.
4. SECURE LUMINAIRES IN OR ON SUSPENDED T-BAR CEILINGS INDEPENDENTLY FROM T-BAR SUPPORTS, USING A 2mm DIAMETER STRANDED, STAINLESS STEEL CABLE. ATTACH CABLE TO BOTH ENDS OF LUMINAIRE AND ANCHOR TO ROOF SUPPORTS OR CONCRETE CEILING.
5. UNLESS OTHERWISE NOTED, MOUNT EMERGENCY LIGHT BATTERY PACKS AND REMOTE HEADS SHOWN ON THIS DRAWING WITH U/S @ 2.2m AFF.
6. UNLESS OTHERWISE NOTED, MOUNT SUSPENDED FLUORESCENT LUMINAIRES 2.6m AFF.
7. CHANGE WIRING FOR EXISTING LIGHTS TO ALLOW 3-WAY SWITCHING.

REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-E-105	SINGLE LINE DIAGRAM	1
CRPS-E-106	MCC LAYOUTS & SCHEDULES	2

CONSTRUCTION NOTES:

- C1. CONCRETE CURB UNDER CP-100 TO BE EXTENDED BY 12" FOR NEW 60" CP-100 PANEL. CURB EXTENSION BY RDN.
- C2. LOCATION OF HMI-100 TO BE FINALIZED BY RDN.



ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
4	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
3	13/05/25	RECORD DRAWING UPDATED	RS		JK
2	03/03/24	RECORD DRAWING, STAGE 2	JT		MI
1	99/08/24	ISSUED FOR CONSTRUCTION	ST		KM
0	99/06/22	ISSUED FOR TENDER	ST		KM

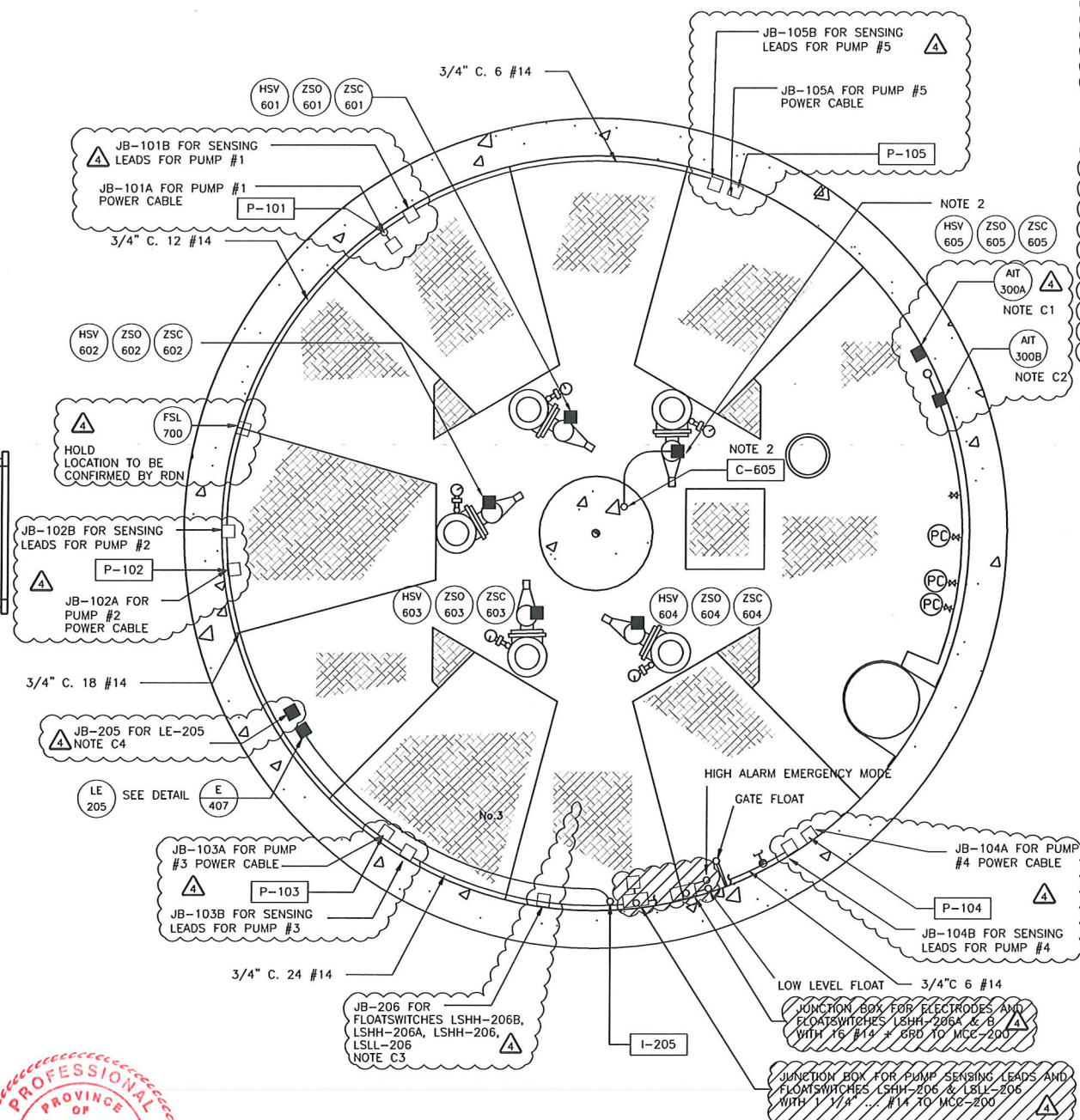
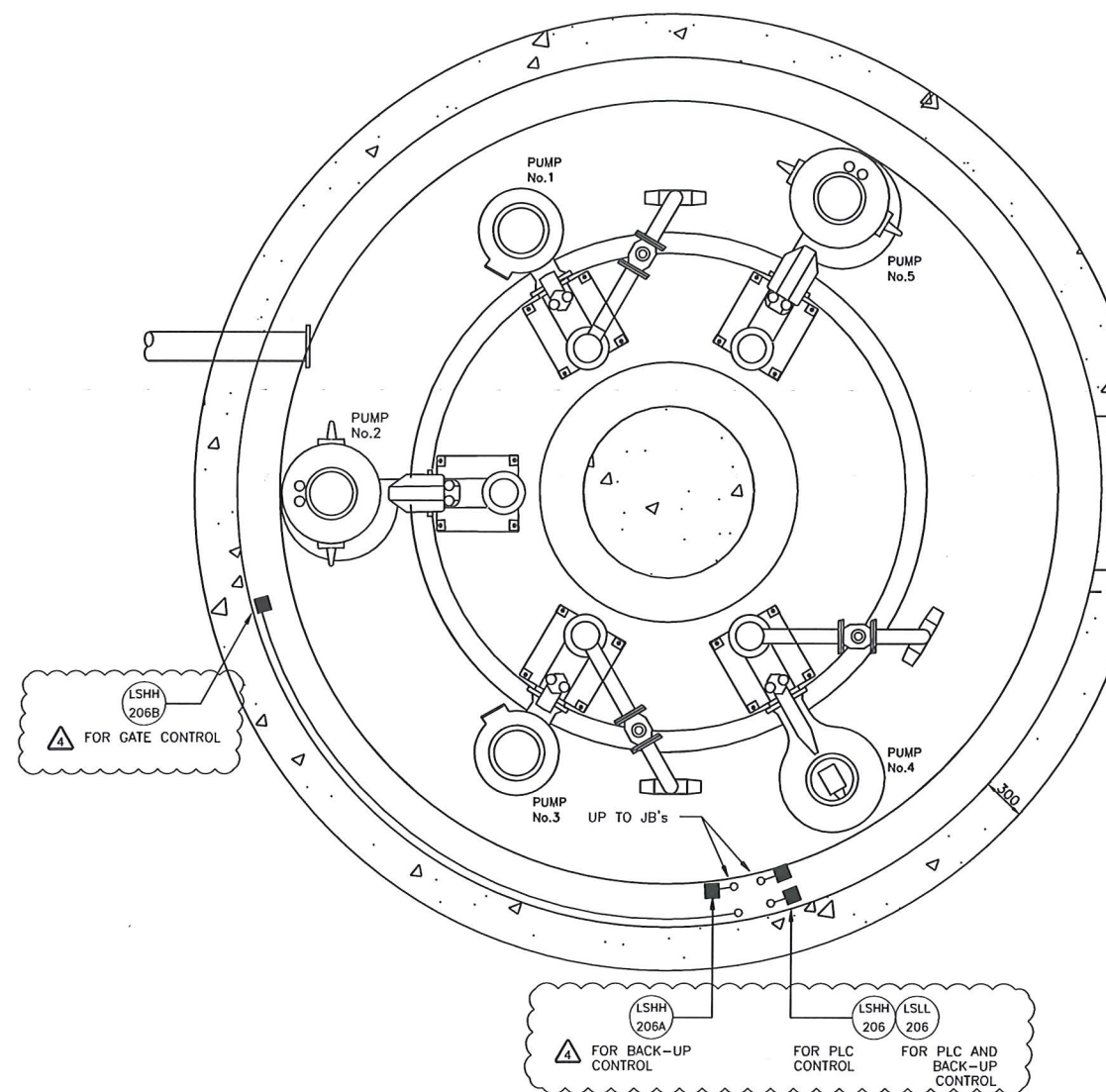


CLIENT NO:	-	DRWN:	ST	DATE:	99/04
PROJECT NO:	2003251	DSGN:	JT	DATE:	-
DRAWING SIZE:	ANSI "D"	CHKD:	DSW	DATE:	-
SCALE:	AS NOTED	APVD:	LWP	DATE:	-

PROJECT:
**CHASE RIVER
PUMPING STATION
UPGRADE**

TITLE:
LIGHTING LAYOUTS

DWG NO:	CRPS-E-112	REV:	4
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[illegible]

NOTES:

1. LOCATIONS OF JUNCTION BOXES AND CONTROL DEVICES ARE APPROXIMATE ONLY; VERIFY EXACT LOCATION IN FIELD.
2. EXISTING PUMP JBS TO BE REMOVED AND REPLACED WITH NEW CLASS 1, DIV 2 RATED JBS. EXISTING SUBMERSIBLE CABLES TO BE RE-ROUTED AND RE-TERMINATED IN NEW JBS AS FOLLOW:
 - POWER CABLES: JB-101/102/103/104/105A
 - SENSOR CABLES: JB-101/102/103/104/105B
3. WET WELL AREA IS CLASSIFIED AS A CLASS 1, DIV 2 LOCATION.

CONSTRUCTION NOTES:

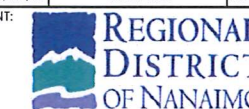
- 4.
- C1. AIR-300A H2S GAS DETECTOR SHOULD BE MOUNTED 1'-3" ABOVE GROUND. CONTRACTOR TO FINALIZE THE LOCATION.
 - C2. AIR-200B LE GAS DETECTOR SHOULD BE MOUNTED 1'-3" BELOW THE ROOF OF THE CEILING. CONTRACTOR TO FINALIZE THE LOCATION.
 - C3. LEVEL INSTRUMENT LSHH-206, LSL1-206, LSHH-206A & LSHH-206B MANUFACTURER CABLES TO BE ROUTED IN PVC CONDUIT TO JB-206, NEW TECK CABLE INSTALLED FROM JB-206 TO CP-100
 - C4. LE-205 MANUFACTURER CABLES TO BE ROUTED IN METAL CONDUIT TO JB-205, NEW TECK CABLE INSTALLED FROM JB-205 TO CP-100
 - C5. ALL CABLES REQUIRE HAZARDOUS RATED CABLE GLAND.

ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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4	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	B	I	A		
3	13/05/25	RECORD DRAWING UPDATED	RS						
2	00/03/24	RECORD DRAWING, STAGE 2	JT			N			
1	99/08/24	ISSUED FOR CONSTRUCTION	ST		K				
0	99/06/22	ISSUED FOR TENDER	ST		K				
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APP'D	DWG NO.	SHEET NO.	TOTAL SHEETS	DATE

CLIENT:



CLIENT NO:	-	DRWN:	JT	DATE:	00/
PROJECT NO:	2003251	DSGN:	JT	DATE:	
DRAWING SIZE:	ANSI "D"	CHKD:	DSW	DATE:	
SCALE:	AS NOTED	APVD:	-	DATE:	

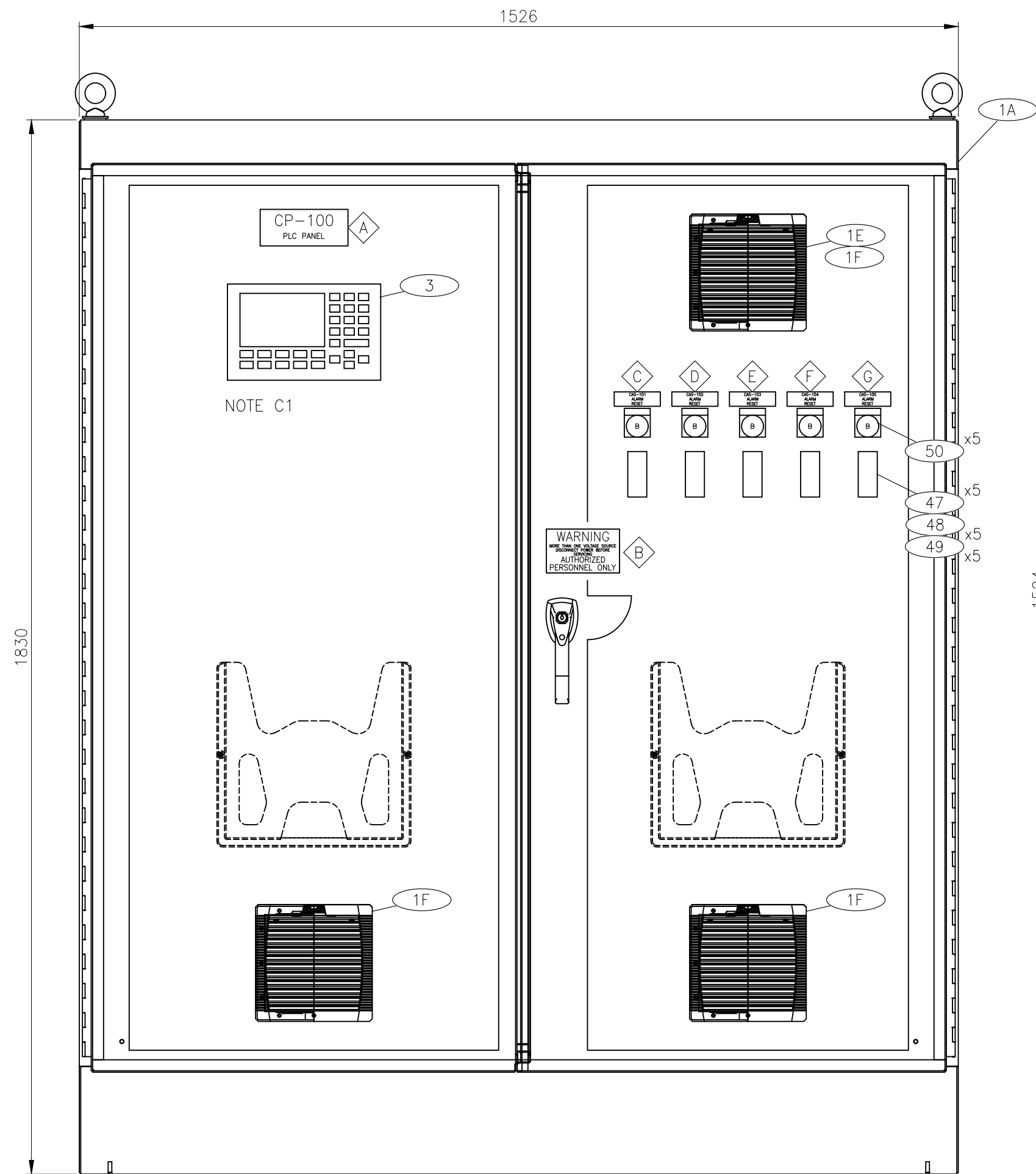
PROJECT

CHASE RIVER PUMP STATION UPGRADE

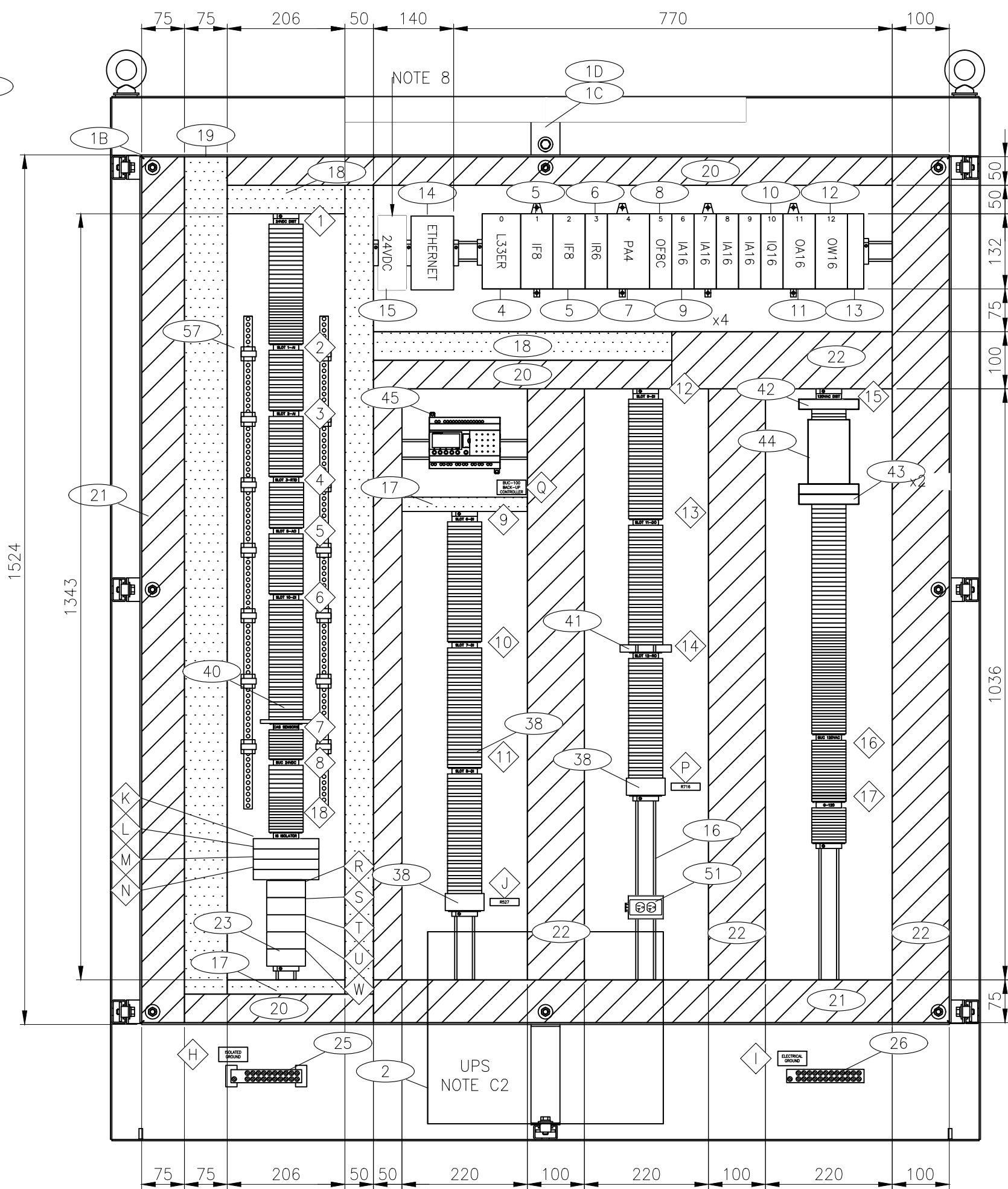
TITLE:

ELECTRICAL WET WELL LAYOUTS

DWG NO:	CRPS-E-203	REV:	4
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FRONT VIEW – DOOR CLOSED
SCALE: 1:8



FRONT VIEW – DOOR REMOVED
SCALE: 1:8

WARNING
MORE THAN ONE VOLTAGE SOURCE
DISCONNECT POWER BEFORE
SERVICING
AUTHORIZED PERSONNEL
ONLY

DETAIL A
SCALE: NTS

WIRE WAY LEGEND	
	WHITE – 24 VDC
	GREY – 120 VAC

LAMACOIDS				
TAG #	TAG	COLOR	LAMACOID SIZE	TEXT HEIGHT
A	CP-100 / PLC PANEL	BLACK ON WHITE	7" x 2-1/2"	3/4" / 3/8"
B	SEE DETAIL A	BLACK ON WHITE	3" x 5"	5/8" / 3/16" / 3/8"
C	CAS-101 ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
D	CAS-102 ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
E	CAS-103 ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
F	CAS-104 ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
G	CAS-105 ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
H	ISOLATED GROUND	BLACK ON WHITE	1" x 3"	3/16"
I	ELECTRICAL GROUND	BLACK ON WHITE	1" x 3"	3/16"
J	R527	BLACK ON WHITE	1/2" x 3"	3/16"
K	ISR 1	BLACK ON WHITE	1/2" x 3"	3/16"
L	ISR 2	BLACK ON WHITE	1/2" x 3"	3/16"
M	ISR 3	BLACK ON WHITE	1/2" x 3"	3/16"
N	ISR 4	BLACK ON WHITE	1/2" x 3"	3/16"
P	R715	BLACK ON WHITE	1/2" x 3"	3/16"
Q	BUC-100/BACK-UP CONTROLLER	BLACK ON WHITE	1" x 3"	3/16"
R	R101	BLACK ON WHITE	1/2" x 3"	3/16"
S	R102	BLACK ON WHITE	1/2" x 3"	3/16"
T	R103	BLACK ON WHITE	1/2" x 3"	3/16"
U	R104	BLACK ON WHITE	1/2" x 3"	3/16"
W	R105	BLACK ON WHITE	1/2" x 3"	3/16"

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-102	CP-100 BILL OF MATERIAL	1

- NOTES:
- FOR BILL OF MATERIALS, TERMINAL STRIP BREAKDOWNS & LAMACOIDS SEE REFERENCE 1.
 - ALL LAMACOIDS/LABELLING TO BE PROVIDED/INSTALLED BY PANEL VENDOR.
 - NAME PLATE SHALL BE MOUNTED WITH STAINLESS STEEL SELF TAPPING SCREWS ON THE OUTSIDE OF THE CONTROL PANEL DOOR. ENSURE PANEL NEMA RATING INTEGRITY IS MAINTAINED.
 - ALL CABLES SHALL ENTER PANEL FROM THE TOP ONLY.
 - ALL INTERNAL CABINET WIRING TO BE ON LEFT HAND SIDE WHEREVER POSSIBLE. ALL FIELD CABLES TERMINATE ON RIGHT HAND SIDE.
 - COMPLETED CABINET TO MEET CSA APPROVAL.
 - PANEL VENDOR TO MOUNT TS35 DIN RAIL ON STAND-OFFS. TERMINALS TO BE FLUSH WITH THE TOP OF THE WIRE DUCT.
 - POWER SUPPLY REQUIRES MINIMUM 5MM CLEARANCE ON EACH SIDE AND 50MM CLEARANCE AT TOP AND BOTTOM.

CONSTRUCTION NOTES:

- C1. EXISTING HMI PANEL TO BE RE-INSTALLED IN NEW PANEL DOOR.
C2. RDN TO INSTALL UPS AT SITE.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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1	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD



CLIENT NO:	-	DRWN:	AF	DATE:	20/12/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	AS NOTED	APVD:	BDH	DATE:	21/03/08

PROJECT:

**CHASE RIVER
PUMP STATION
UPGRADE**

TITLE:

**CP-100
PANEL LAYOUT**

DWG NO:	CRPS-I-101	REV:	1
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Date: 2021/11/02 11:33 AM | User: Ava Fu | File: P:\NA\2020\2003251 BDH-Chase River Pump Stn Upgrade\1000-Dwg\1017-Inst\01-Production\CRPS-I-102 | Layout: Rev 1 | Paper Size: 863.6mm x 558.8mm

BILL OF MATERIALS					
ITEM	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL	PROVIDED BY
1A	1	NEMA 12 FREESTANDING ENCLOSURE, SINGLE ACCESS, DOUBLE DOOR – 72” x 60” x 18” (1830mm x 1526mm x459mm)	HAMMOND	1418ZX18	PANEL VENDOR
1B	1	FULL HEIGHT INNER PANEL 60” X 56”	HAMMOND	72ZXFW	PANEL VENDOR
1C	2	COMPACT LED LIGHTING KIT W/SWITCH SCREW MOUNT – 90–260V AC	HAMMOND	LEDACSWSCR	PANEL VENDOR
1D	1	LED LIGHTING AC POWER CORD 2m	HAMMOND	LEDACCORDPOW	PANEL VENDOR
1E	1	65 CFM FILTERFAN, 120V AC, 20 W	HAMMOND	PF32000T12LG	PANEL VENDOR
1F	3	EXHAUST FILTER	HAMMOND	PFA30000LG	PANEL VENDOR
2	1	DOUBLE CONVERSION ONLINE UPS, 2000VA, 1800 W	EATON	9SX2000	OWNER SUPPLIED
3	1	PANELVIEW PLUS 700 HMI	ALLEN BRADLEY	2711P–B7C15D2	EXISTING
4	1	COMPACTLOGIX 5370 CONTROLLER	ALLEN BRADLEY	1769–L33ER	OWNER SUPPLIED
5	2	ANALOG INPUT – COMPACT VOLTAGE/CURRENT ANALOG INPUT MODULE, 8 CHANNELS	ALLEN BRADLEY	1769–IF8	OWNER SUPPLIED
6	1	RTD INPUT – COMPACT RTD/RESISTANCE INPUT MODULE, 6 CHANNELS	ALLEN BRADLEY	1769–IR6	OWNER SUPPLIED
7	1	PLC POWER SUPPLY	ALLEN BRADLEY	1769–PA4	OWNER SUPPLIED
8	1	ANALOG OUTPUT – COMPACT CURRENT OUTPUT ANALOG MODULE, 24V DC, 8 CHANNELS	ALLEN BRADLEY	1769–OF8C	OWNER SUPPLIED
9	4	DIGITAL INPUT COMPACT 120V AC INPUT MODULE, 120V AC, 16 CHANNELS	ALLEN BRADLEY	1769–IA16	OWNER SUPPLIED
10	1	DIGITAL INPUT – COMPACT 24V DC SINK/SOURCE INPUT MODULE, 16 CHANNELS	ALLEN BRADLEY	1769–IQ16	OWNER SUPPLIED
11	1	DIGITAL OUTPUT – COMPACT 120/240V AC SOLID–STATE OUTPUT MODULE, 16 CHANNELS, MAX 0.5A PER POINT	ALLEN BRADLEY	1769–OA16	OWNER SUPPLIED
12	1	RELAY OUTPUT – COMPACT AC/DC RELAY CONTACT MODULE, 16 CHANNELS, MAX 10A PER COMMON	ALLEN BRADLEY	1769–OW16	OWNER SUPPLIED
13	1	RIGHT SIDE END CAP	ALLEN BRADLEY	1769–ECR	OWNER SUPPLIED
14	1	6 PORT ETHERNET SWITCH, STRATIX 5700 – FULL MANAGE	ALLEN BRADLEY	1783–BMS06TA	OWNER SUPPLIED
15	1	24VDC POWER SUPPLY, 10A	PHOENIX	QUINT4–PS/1AC/24DC/10	PANEL VENDOR
16	A/R	TS–35 DIN MOUNTING RAIL	OPEN	OPEN	PANEL VENDOR
17	A/R	PVC WIRE DUCT WHITE – 1”W x 4”H NARROW SLOT C/W DUCT COVER	PANDUIT	F1X4WH6; C1WH6	PANEL VENDOR
18	A/R	PVC WIRE DUCT WHITE – 2”W x 4”W NARROW SLOT C/W DUCT COVER	PANDUIT	F2X4WH6; C2WH6	PANEL VENDOR
19	A/R	PVC WIRE DUCT WHITE – 3”W x 4”H NARROW SLOT C/W DUCT COVER	PANDUIT	F3X4WH6; C3WH6	PANEL VENDOR
20	A/R	PVC WIRE DUCT GREY – 2”W x 4”H NARROW SLOT C/W DUCT COVER	PANDUIT	F2X4LG6; C2LG6	PANEL VENDOR
21	A/R	PVC WIRE DUCT GREY – 3”W x 4”H NARROW SLOT C/W DUCT COVER	PANDUIT	F3X4LG6; C3LG6	PANEL VENDOR
22	A/R	PVC WIRE DUCT GREY – 4”W x 4”H NARROW SLOT C/W DUCT COVER	PANDUIT	F4X4LG6; C4LG6	PANEL VENDOR
23	5	MININATURE ICE CUBE RELAY – 24V DC, 7A; COMPLETE WITH DIN RAIL MOUNTING BASE SOCKET	ALLEN BRADLEY	700–HC24Z24; 700–HN128	PANEL VENDOR
24		SPARE			
25	1	COPPER GROUND BAR (MINIMUM 1/4” THICK x 1”H WITH MINIMUM TEN (10) GROUNDING SCREWS SUITABLE FOR #14 AWG TO #4 AWG CONDUCTORS, AND ONE (1) GROUND LUG SUITABLE FOR #2 AWG CONDUCTOR, MOUNTED ON ISOLATED STANDOFF	OPEN	OPEN	PANEL VENDOR
26	1	COPPER GROUND BAR (MINIMUM 1/4” THICK x 1”H WITH MINIMUM TEN (10) GROUNDING SCREWS SUITABLE FOR #14 AWG TO #4 AWG CONDUCTORS, AND ONE (1) GROUND LUG SUITABLE FOR #2 AWG CONDUCTOR	OPEN	OPEN	PANEL VENDOR
27	17	LABEL HOLDERS – DIN RAIL MOUNT SCHT–5S	WEIDMULLER	1631930000	PANEL VENDOR
28	17	ESO 5 S DIN A4 WS TERMINAL LABEL FOR SCHT–5S HOLDER	WEIDMULLER	1631920000	PANEL VENDOR
29	17	SCHT–5S LABEL COVER	WEIDMULLER	1631940000	PANEL VENDOR
30	212	FEED THROUGH TERMINAL BLOCK (SINGLE WDU 2.5) – 20 A, 600 V, #12–#26 AWG	WEIDMULLER	1020000000	PANEL VENDOR
31	1	FEED THROUGH TERMINAL BLOCK (SINGLE WDU 6) – 45 A, 600 V, #8–#20 AWG	WEIDMULLER	1020200000	PANEL VENDOR
32	69	FUSED TERMINAL BLOCK (WSI 6/LD) – 6.3 A, 10–36 VDC, #8–#20 AWG, LED, 5 mm X 20 mm FUSE	WEIDMULLER	1119840000	PANEL VENDOR
33	126	FUSED TERMINAL BLOCK (WSI 6/LD) – 6.3 A, 60–150 V, #8–#20 AWG, LED, 5 mm X 20 mm FUSE	WEIDMULLER	1119850000	PANEL VENDOR
34	33	TEST–DISCONNECT TERMINAL BLOCKS (WTR 2.5) – 24A, 500V, #12 – #30 AWG	WEIDMULLER	1855610000	PANEL VENDOR
35	8	TERMINAL BLOCK END CLAMPS – EW 35 FOR TS35 RAIL	WEIDMULLER	383560000	PANEL VENDOR

BILL OF MATERIALS					
ITEM	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL	PROVIDED BY
36	17	TERMINAL BLOCK END CLAMPS – EW 35 FOR T35 RAIL	WEIDMULLER	383560000	PANEL VENDOR
37	A/R	TERMINAL BLOCK MARKING TAGS FOR BOM ITEMS 30, 31	WEIDMULLER	1609840000	PANEL VENDOR
38	2	MININATURE ICE CUBE RELAY – 120V AC, 7A; COMPLETE WITH DIN RAIL MOUNTING BASE SOCKET	ALLEN BRADLEY	700–HC24A1; 700–HN128	PANEL VENDOR
39	4	ISOLATED BARRIER – SWITCH AMPLIFIER, 20–125 VDC, 2 CHANNELS RELAY OUTPUT (NO)	TURCK	IM1–22EX–R	PANEL VENDOR
40	1	CONTROL RELAY (TRS 5VDC 1CO) – 6A, SCREW CONNECTION	WEIDMULLER	1122740000	PANEL VENDOR
41	1	CONTROL RELAY (TRS 120VAC RC 2CO) – 8A, SCREW CONNECTION	WEIDMULLER	1123550000	PANEL VENDOR
42	1	20A CIRCUIT BREAKER – 1P, 480/277 VAC, #18 – #6 AWG, 10 kA (TYPE B BRANCH CIRCUIT)	EATON	FAZ–B20/1–NA	PANEL VENDOR
43	2	15A CIRCUIT BREAKER – 1P, 480/277 VAC, #18 – #6 AWG, 10 kA (TYPE B BRANCH CIRCUIT)	EATON	FAZ–B15/1–NA	PANEL VENDOR
44	1	AEGIS LINE FILTERS AND SURGE PROTECTORS – 120V AV, 20A	EATON	AGPH12020	PANEL VENDOR
45	1	ZELIO LOGIC COMPACT SMART RELAY, 120V AC WITH CLOCK	SCHNEIDER	SR2B201FU	PANEL VENDOR
46	1	CONNECTION CABLE FOR ZELIO RELAY	SCHNEIDER	SR2USB01	PANEL VENDOR
47	5	FLYGT MINI CAS PUMP SENSOR MONITOR, 120V AC	XYLEM	40–50 10 98	PANEL VENDOR
48	5	MOUNTING BRACKET TO MOUNT CAS ON PANEL	XYLEM	13–40 01 87	PANEL VENDOR
49	5	SOCKET II PINS BACK MOUNTED	XYLEM	13–40 02 00	PANEL VENDOR
50	5	30 mm FLUSH HEAD PUSHBUTTON, BLACK	ALLEN BRADLEY	800T–A2A	PANEL VENDOR
51	1	DUAL RECEPTACLE, 120V 20A, DIN RAIL SCREWED, TYPE: NEMA 5–20R	PHOENIX	5600525	PANEL VENDOR
52	57	0.25 A FUSE – FAST ACTING, NON–HAZARDOUS	BUSSMANN	GMA–250–R	PANEL VENDOR
53	70	0.5 A FUSE – FAST ACTING, NON–HAZARDOUS	BUSSMANN	GMA–500–R	PANEL VENDOR
54	17	1 A FUSE – FAST ACTING, NON–HAZARDOUS	BUSSMANN	GMA–1–R	PANEL VENDOR
55	44	2 A FUSE – FAST ACTING, NON–HAZARDOUS	BUSSMANN	GMA–2–R	PANEL VENDOR
56	1	3 A FUSE – FAST ACTING, NON–HAZARDOUS	BUSSMANN	GMA–3–R	PANEL VENDOR
57	A/R	NSCH 1M ISOLATED COPPER BUSBAR c/w CLAMPING SCREW (0296700000), CLAMPING PRESSURE PIECES (0280100000) & BUS SUPPORT (299860000)	WEIDMULLER	280200000	PANEL VENDOR
58	2	CAT 6 SHIELDED NETWORK CABLE COMPLETE WITH RJ45 CONNECTORS, LENGTH AS REQUIRED.	OPEN	OPEN	PANEL VENDOR

TERMINAL STRIP BREAKDOWN																			
TAG#	DESCRIPTION	27	28	29	30	31	32	33	34	35	36	39	40	41	52	53	54	55	56
1	24VDC DIST	1	1	1	16		16			1	1				11			1	1
2	SLOT 1–AI	1	1	1	8		8				1				8				
3	SLOT 2–AI	1	1	1	8		8				1				8				
4	SLOT 3–RTD	1	1	1	6		6				1				6				
5	SLOT 5–AO	1	1	1	8		8				1				8				
6	SLOT 10–DI	1	1	1	16		16				1		1		16				
7	CAS SENSORS (CS)	1	1	1	10						1								
8	BUC 24VDC	1	1	1	12		7			1	1					6			
9	SLOT 6–DI	1	1	1	16			16		1	1					16			
10	SLOT 7–DI	1	1	1	16			16			1					16			
11	SLOT 8–DI	1	1	1	16			16			1					16			
12	SLOT 9–DI	1	1	1	16			16		1	1					16			
13	SLOT 11–DO	1	1	1	16			16		1	1			1			16		
14	SLOT 12–RO	1	1	1	16			16		1	1							16	
15	120VAC	1	1	1	32	1		30		1	1						1	27	
16	BUC 120VAC	1	1	1					21		1								
17	G–120	1	1	1					12	1	1								
18	IS RELAY ISOLATOR	1	1	1								4							

REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-101	CP-100 PANEL LAYOUT	1

NOTES:

1. PANEL VENDOR TO PROVIDE MINIMUM FIVE (5) SPARE FUSES FOR EACH BOM ITEM 52–56.


ISSUED FOR CONSTRUCTION

Date: 2021/11/03


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1	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:



REGIONAL DISTRICT OF NANAIMO



Allnorth

CLIENT NO:	-	DRWN:	AF	DATE:	20/12/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	AS NOTED	APVD:	BDH	DATE:	21/03/08

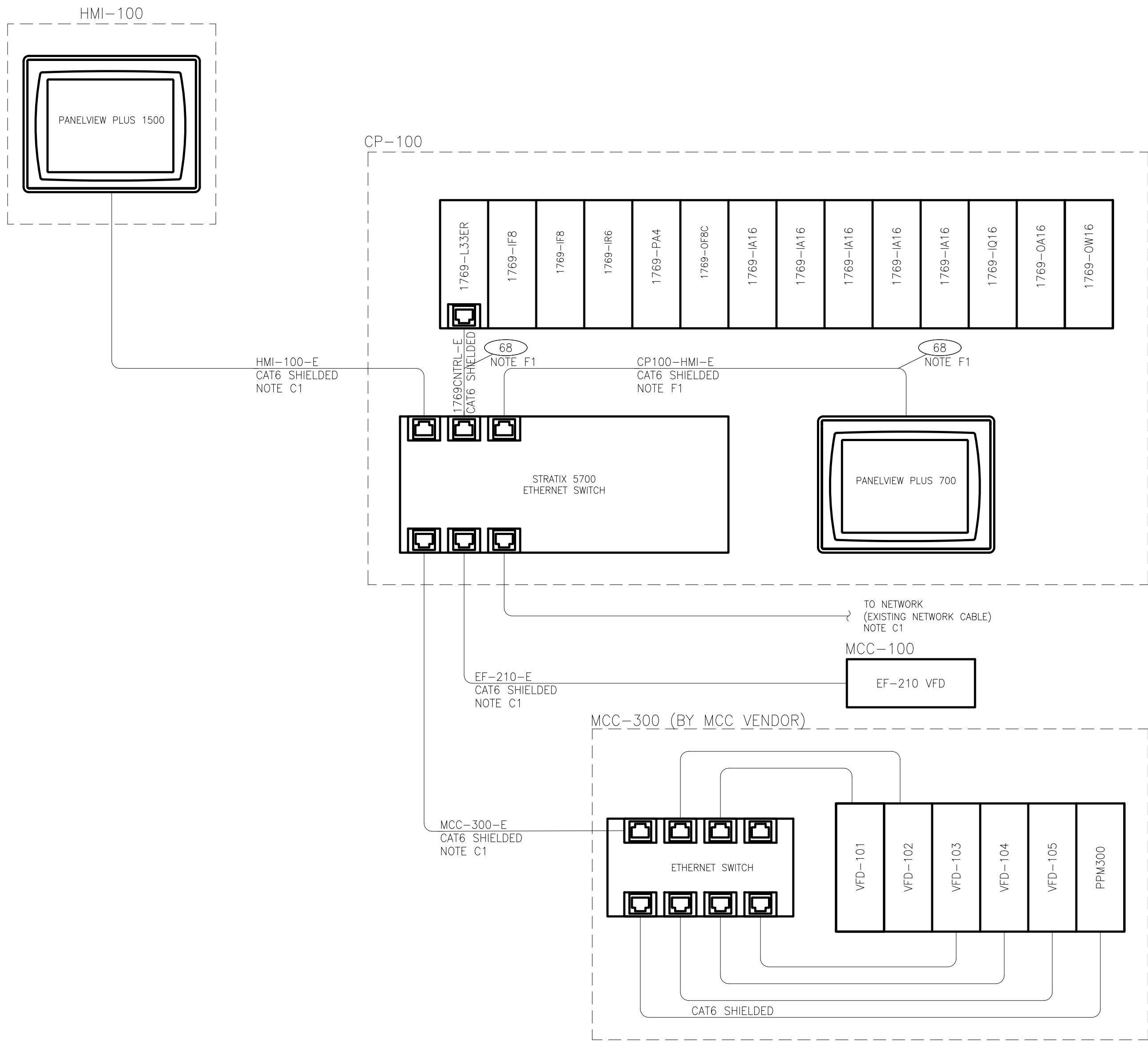
PROJECT:

CHASE RIVER PUMP STATION UPGRADE

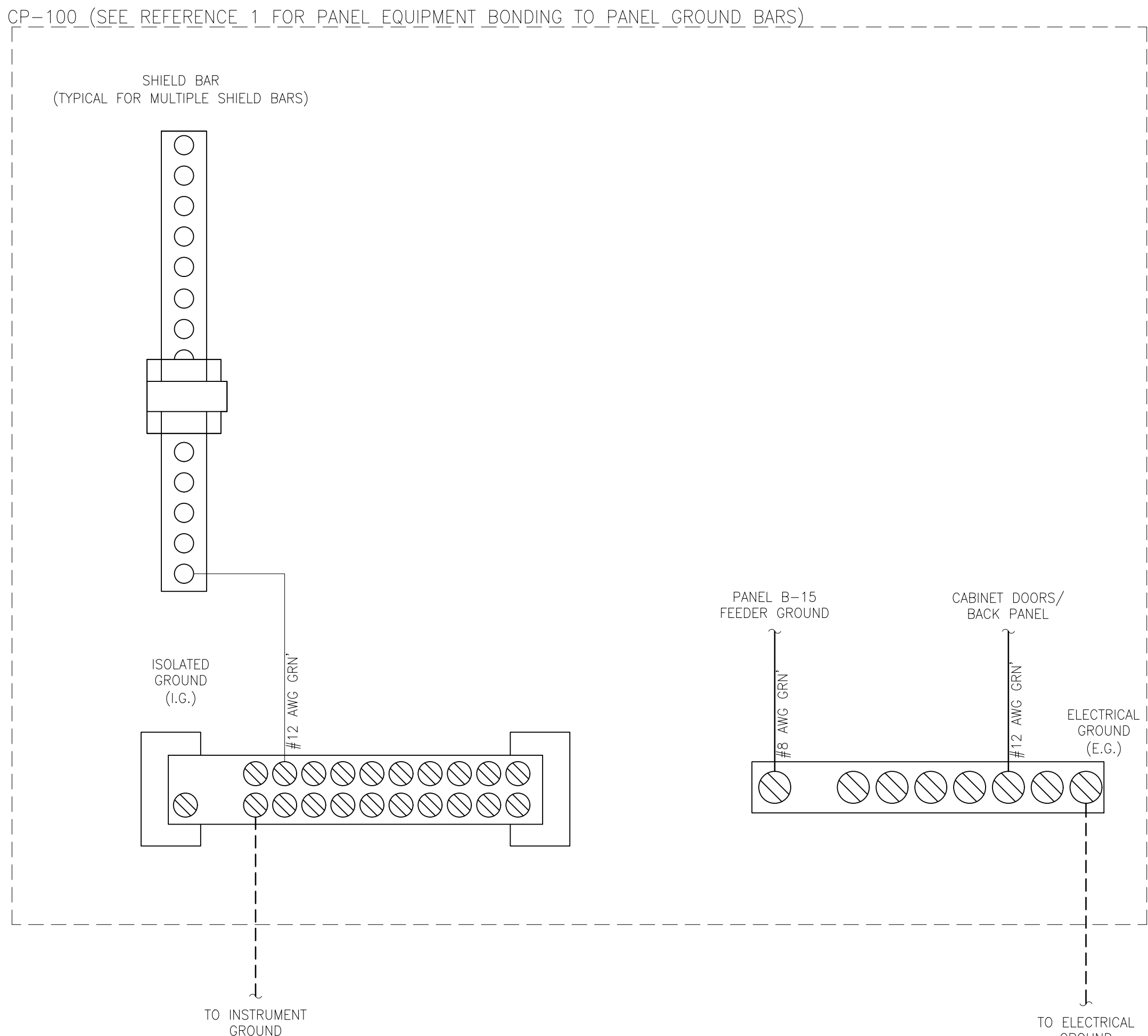
TITLE:

CP-100 BILL OF MATERIAL

DWG NO:CRPS-I-102REV:1



NETWORK CONNECTIONS
SCALE: NTS



PANEL EQUIPMENT GROUNDING
SCALE: NTS

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-103	CP-100 POWER DISTRIBUTION	1
CRPS-I-102	CP-100 BILL OF MATERIAL	2

FABRICATION NOTES:

F1. PANEL VENDOR TO INSTALL CAT 6 CABLE COMPLETE WITH CABLE TAGS. SEE REFERENCE 2 FOR DETAILS.

CONSTRUCTION NOTES:

C1. CONTRACTOR TO INSTALL, TAG, AND TERMINATE NETWORK CABLE.

ISSUED FOR
CONSTRUCTION
Date: 2021/11/03

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1	21/11/03	RE-ISSUED FOR CONSTRUCTION	AF	BDH	BDH
0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD



CLIENT NO:	-	DRWN:	AF	DATE:	20/12/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	AS NOTED	APVD:	BDH	DATE:	21/03/08

PROJECT:

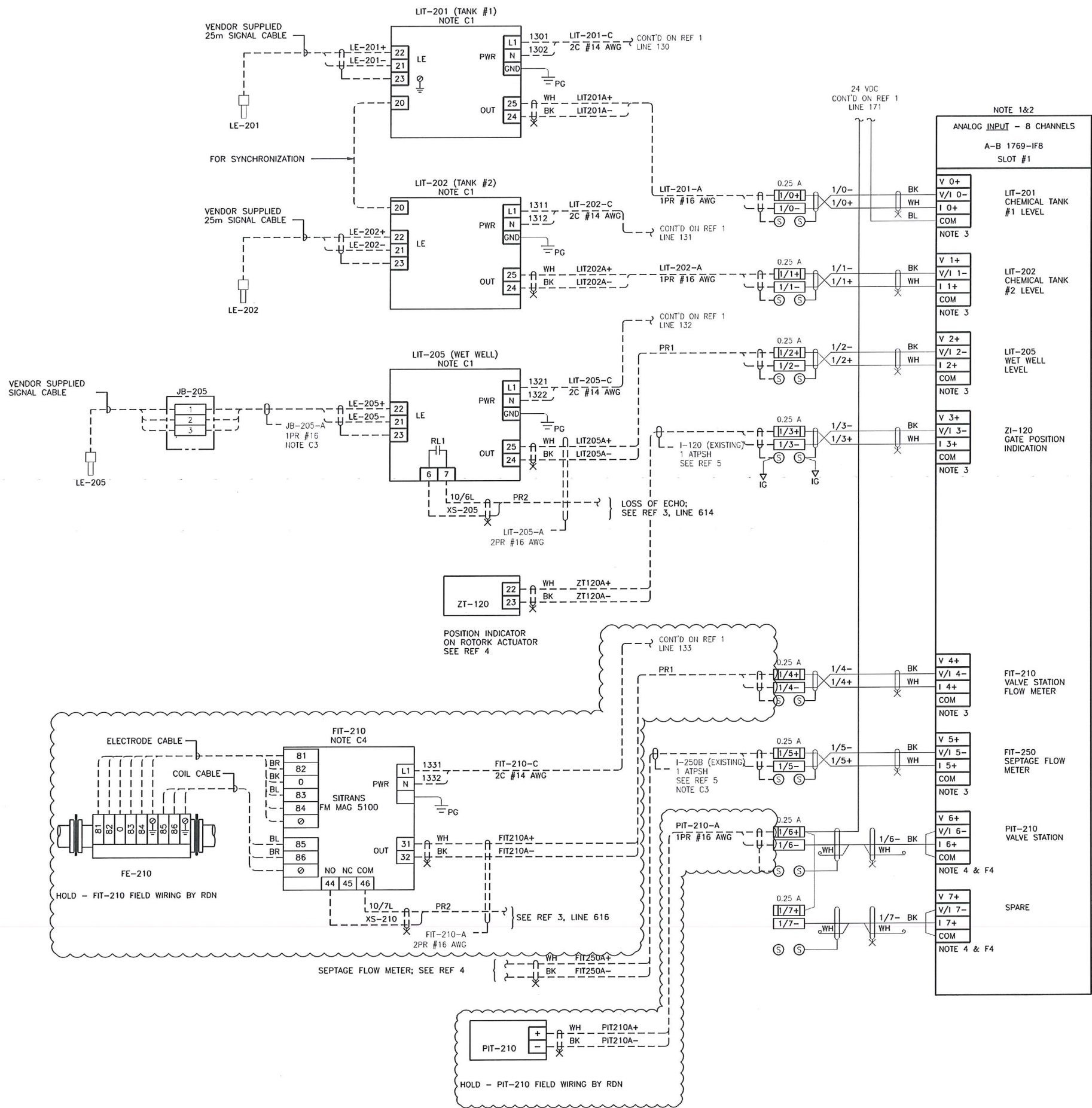
**CHASE RIVER
PUMP STATION
UPGRADE**

TITLE:

**CP-100
GENERAL SCHEMATICS**

DWG NO:	CRPS-I-104	REV:	1
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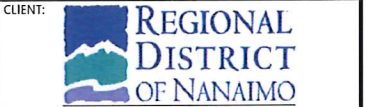
REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-103	CP-100 POWER DISTRIBUTION	1
CRPS-I-108	CP-100 SLOT 7&8 DISCRETE INPUT	2
CRPS-I-109	CP-100 SLOT 9&10 DISCRETE INPUT	3
CRPS-I-112	GATE CONTROL SCHEMATICS	4
CRPS-E-110	FIELD WIRING BLOCK DIAGRAM	5

- NOTES:
1. ALL MODULE COMMONS (ANALOG COMMON) ARE CONNECTED IN THE ANALOG MODULE.
 2. THE 1769-IF8 MODULE DOES NOT PROVIDE LOOP POWER FOR ANALOG INPUTS.
 3. CURRENT OUTPUT IS FIELD POWERED FROM TRANSMITTER.
 4. 2-WIRE LOOP POWERED DEVICE.
- FABRICATION NOTES:
- F1. ALL PANEL ANALOG WIRING TO BE #18 AWG UNLESS OTHERWISE SPECIFIED.
 - F2. ALL WIRES TO BE LABELED AT BOTH ENDS.
 - F3. INSTALL JUMPER BETWEEN AI MODULE TERMINALS 1 X+ AND COM.
 - F4. COIL AND TAPE SPARE WHITE CONDUCTOR.
- CONSTRUCTION NOTES:
- C1. EXISTING PANEL MOUNT TRANSMITTERS REPLACED WITH NEW WALL MOUNT TRANSMITTERS IN ELECTRICAL ROOM. INSTALL, TAG AND TERMINATE NEW CABLES FROM TRANSMITTERS TO CP-100.
 - C2. EXISTING CABLES/CONDUIT FOR LE-201/202 TO BE RE-ROUTED FROM CP-100 TO NEW LIT-201/202 WALL-MOUNT TRANSMITTERS.
 - C3. NEW TECK CABLE TO BE INSTALLED FROM JB-205 TO LIT-205.
 - C4. NEW FIT-210 INSTALLED ON VALVE STATION PACKAGE.

ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

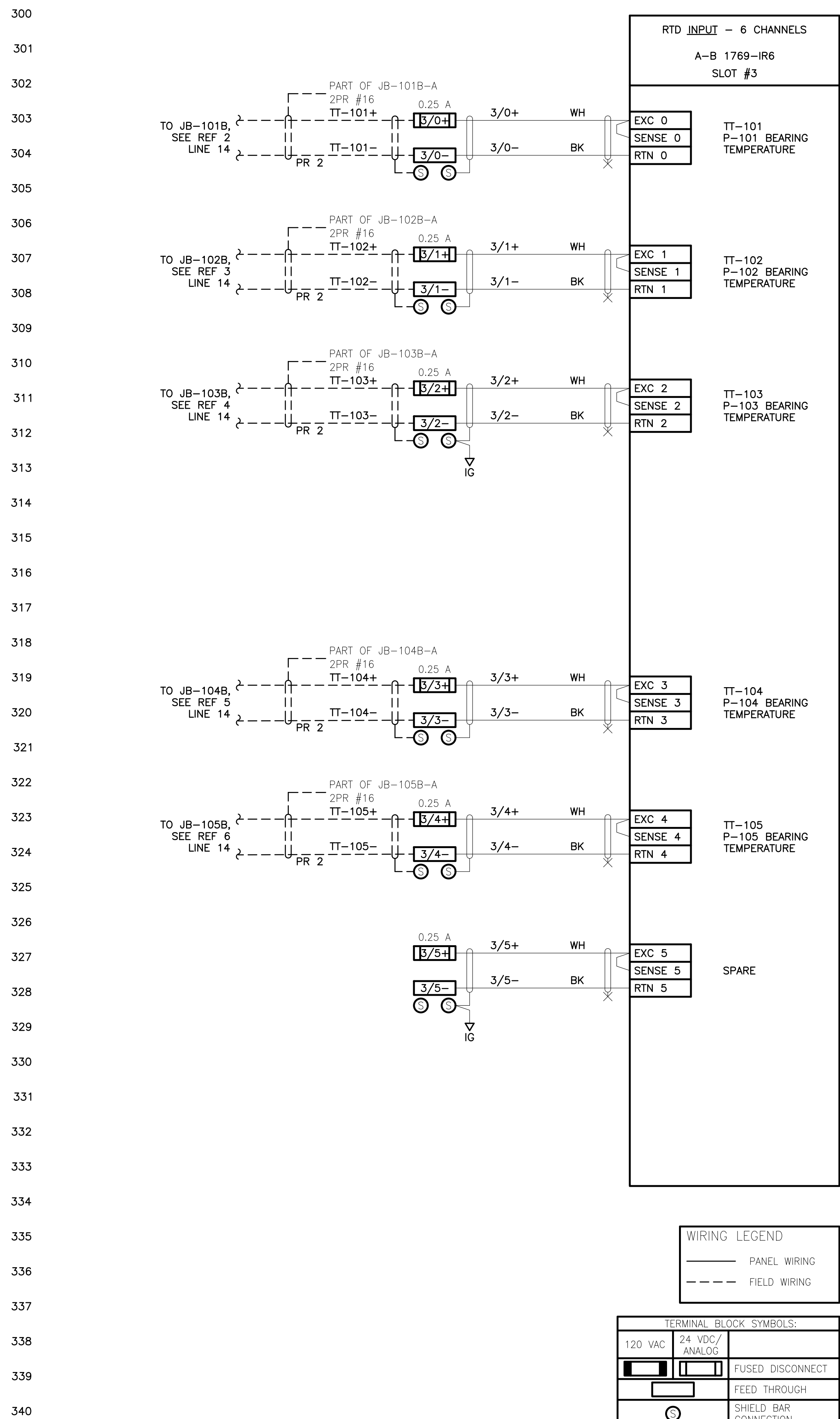


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PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
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SCALE:	NTS	APVD:	BDH	DATE:	21/03/08

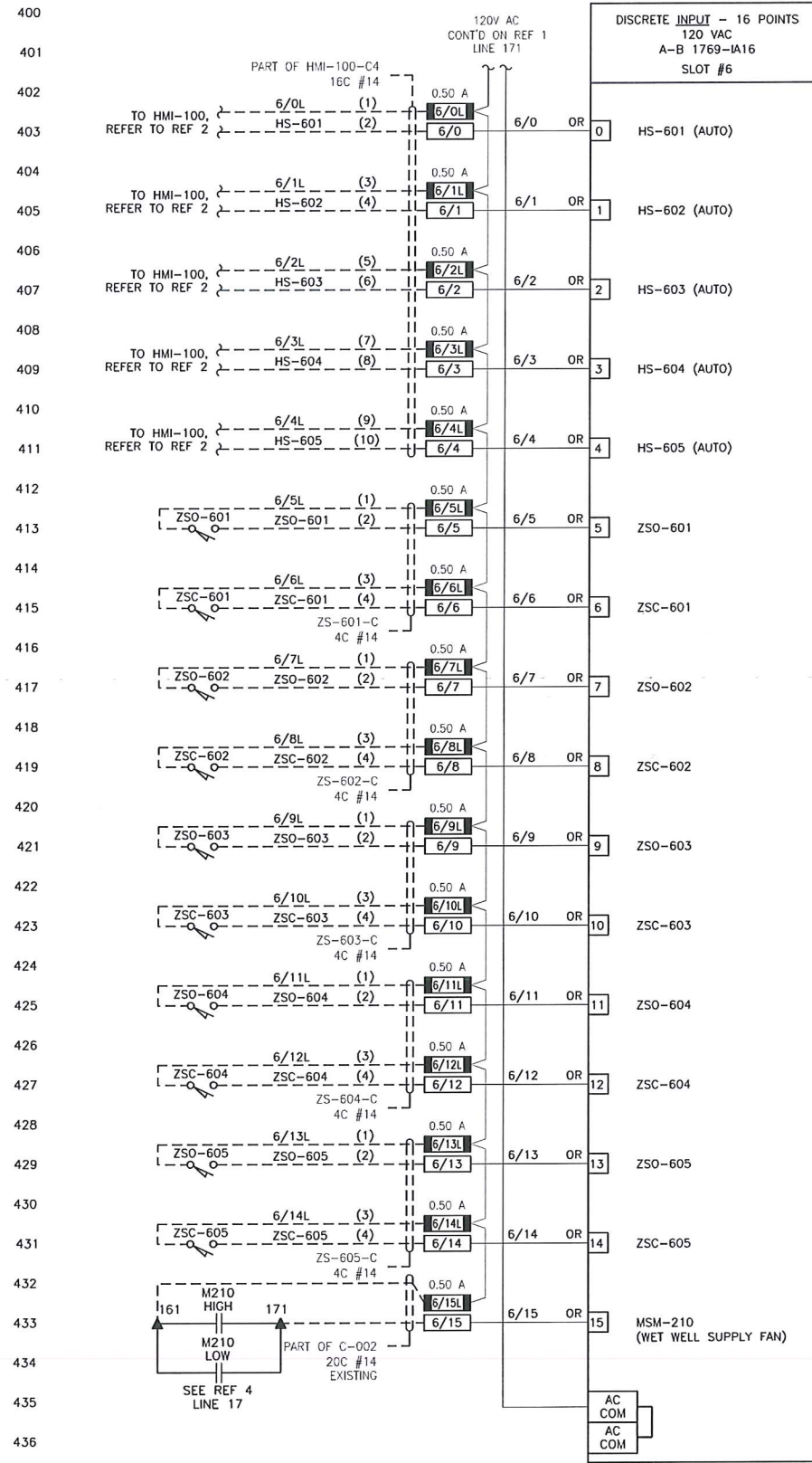
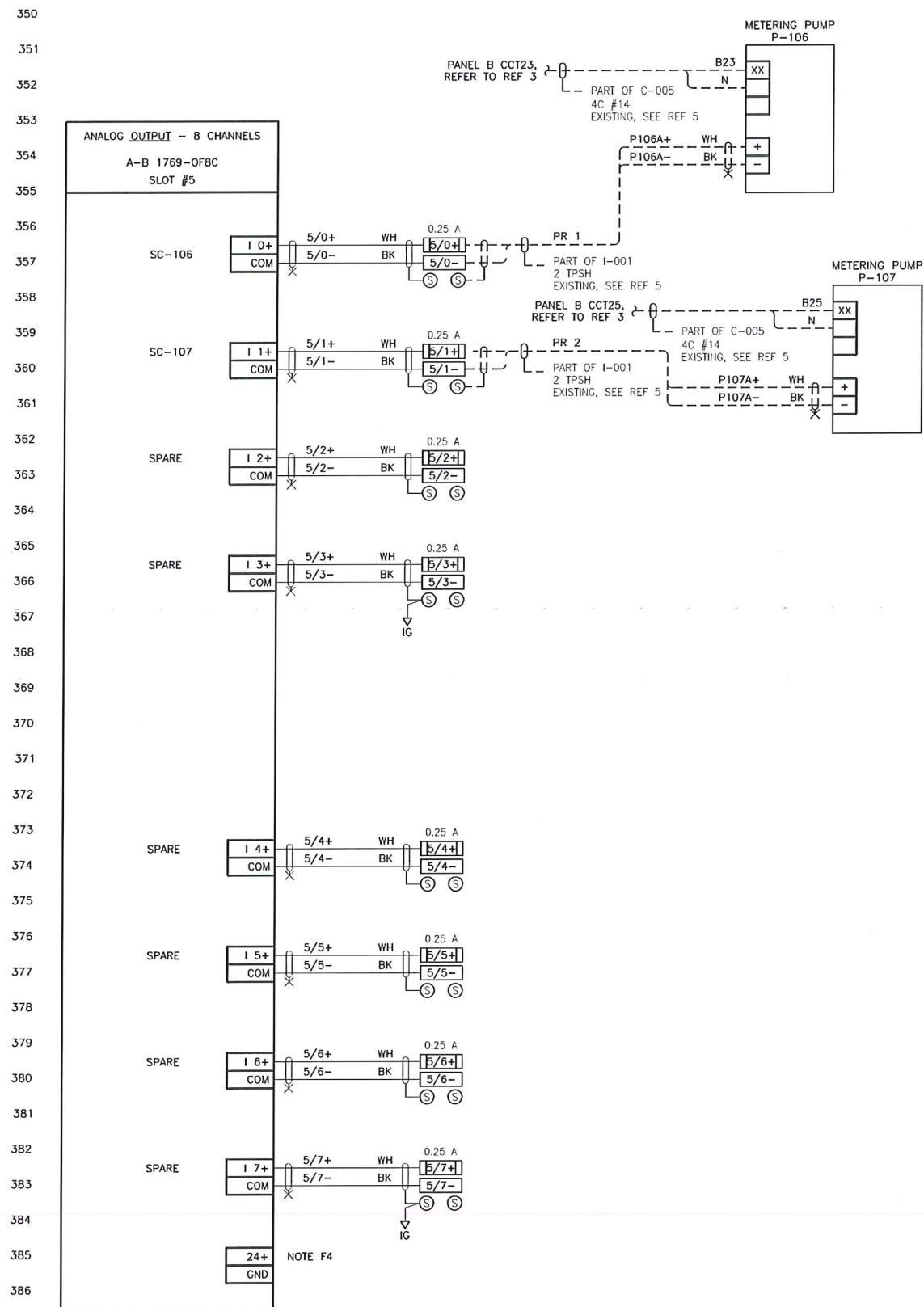
**CHASE RIVER
PUMP STATION
UPGRADE**

TITLE:
**CP-100
SLOT 1
ANALOG INPUT**

DWG NO:	CRPS-I-105	REV:	0
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DWG NO:	CRPS-I-106	REV:	1
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REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-104	CP-100 POWER DISTRIBUTION	1
CRPS-I-123	HMI-100 WIRING DIAGRAM	2
CRPS-E-106	MCC LAYOUTS, SCHEDULES AND DETAILS	3
CRPS-E-107	ELECTRICAL CONTROL SCHEMATICS	4
CRPS-E-110	FIELD WIRING BLOCK DIAGRAM	5

NOTES:

FABRICATION NOTES:

- F1. ALL PANEL ANALOG WIRING TO BE #18 AWG UNLESS OTHERWISE SPECIFIED.
- F2. ALL PANEL DISCRETE WIRING TO BE #16 AWG UNLESS OTHERWISE SPECIFIED.
- F3. ALL WIRES TO BE LABELED AT BOTH ENDS.
- F4. ENSURE THE 1769-OF8C AO CARD BUS POWER SWITCH IS PRESSED TO THE TOP POSITION (DEFAULT) FOR 24V POWER FROM THE 1769 SYSTEM POWER SUPPLY VIA THE I/O BUS.

CONSTRUCTION NOTES:

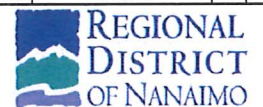
- C1. FIELD CABLES FOR VALVE LIMIT SWITCHES Z50/Z5C ARE CURRENTLY TERMINATED TO MCC-200. CONTRACTORS SHALL INSTALL NEW FIELD CABLES FROM CP-100 TO Z50/Z5C-601,602,603,604 AND 605.

ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:



CLIENT NO:	-	DRWN:	AF	DATE:	20/12/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	AS NOTED	APVD:	BDH	DATE:	21/03/08

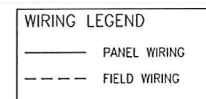
PROJECT:









CHASE RIVER PUMP STATION UPGRADE

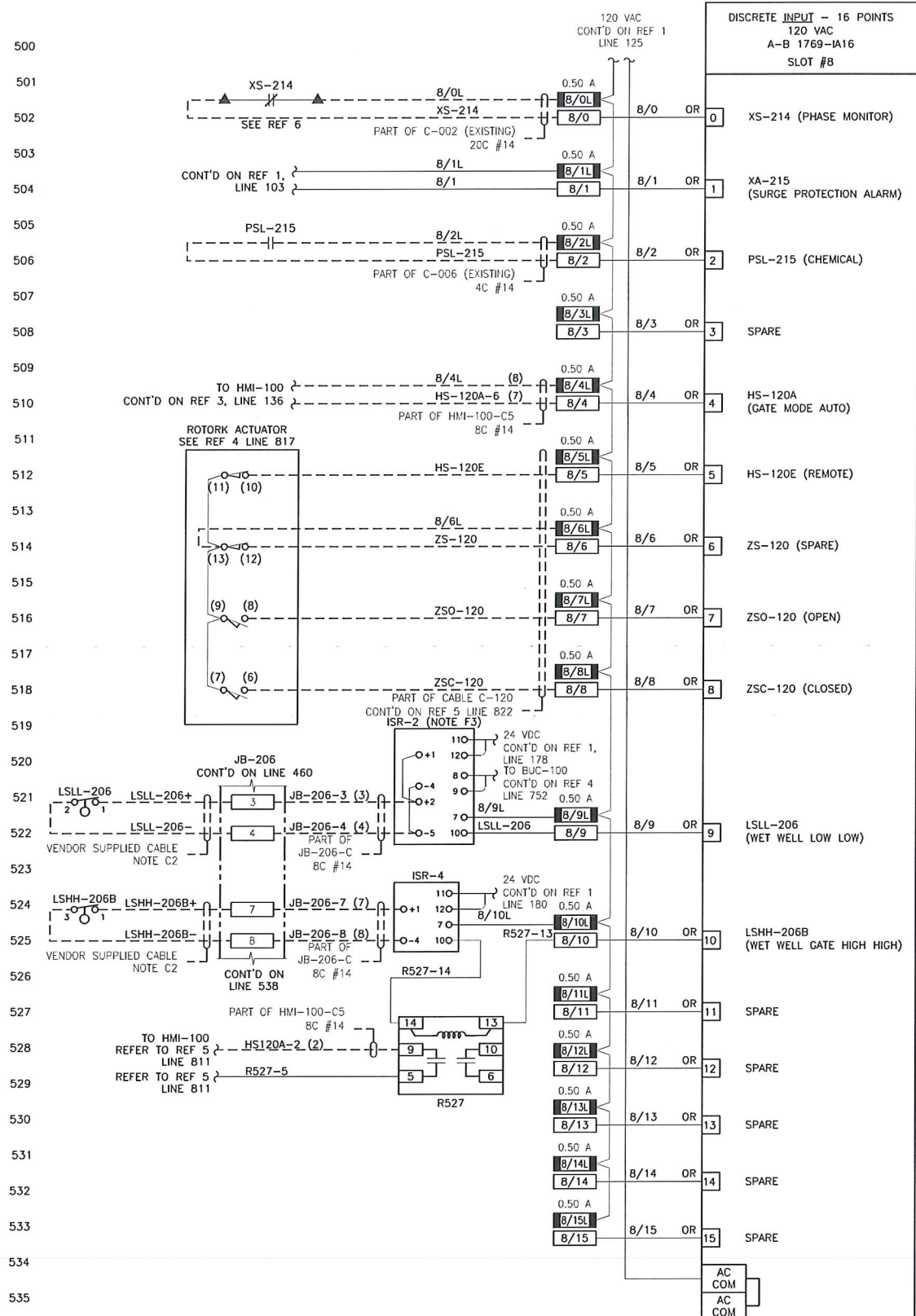
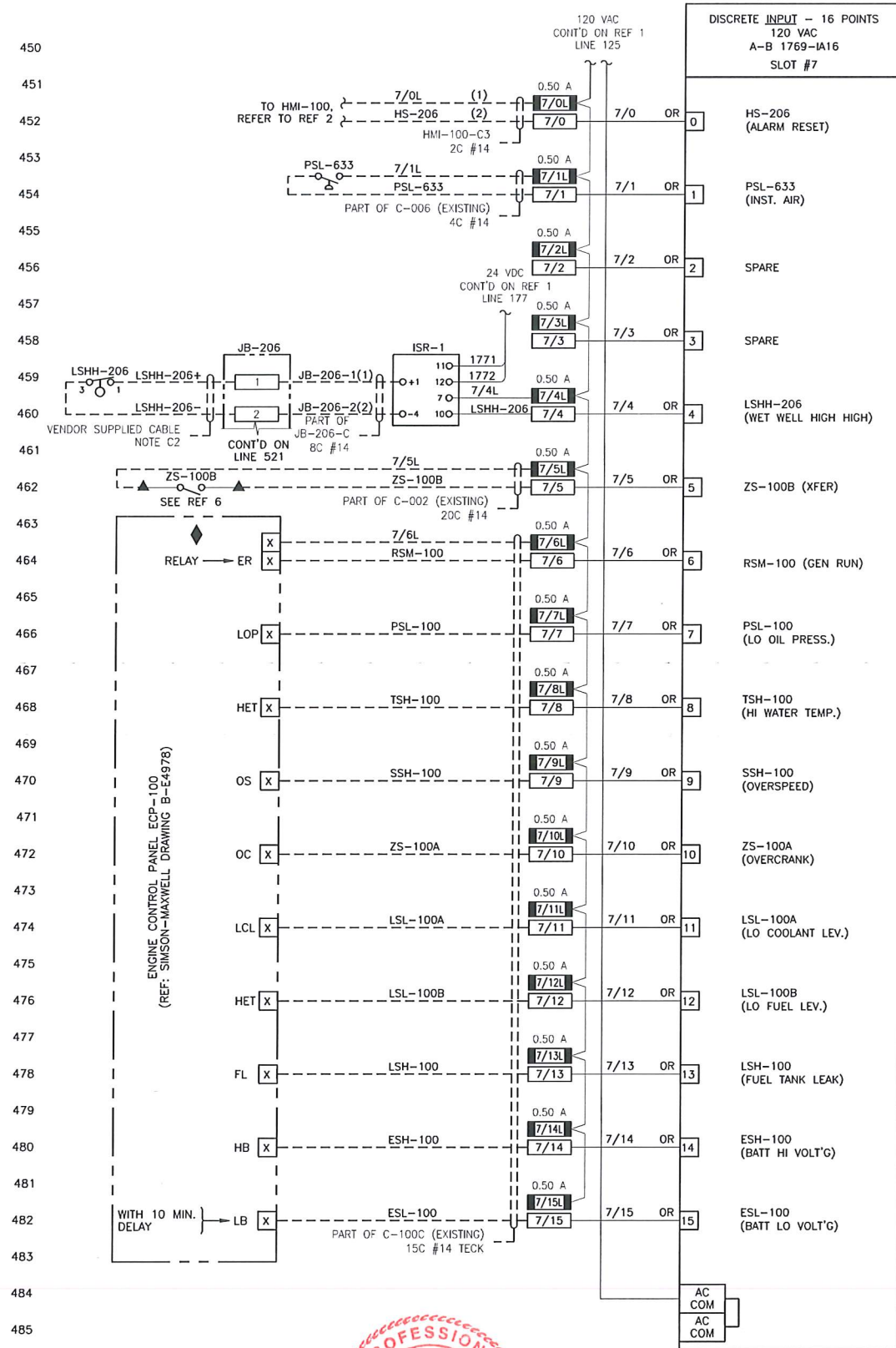
TITLE:

**CP-100
SLOT 5 & 6
ANALOG OUTPUT &
DISCRETE INPUT**

DWG NO:	CRPS-I-107	REV:	0
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TERMINAL BLOCK SYMBOLS:	
120 VAC	24 VDC/ ANALOG
	
	
	
	



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-104	CP-100 POWER DISTRIBUTION	1
CRPS-I-105	CP-100 ANALOG INPUT	2
CRPS-I-123	HMI-100 WIRING	3
CRPS-I-111	BUC-100 WIRING	4
CRPS-I-112	GATE CONTROL WIRING	5
CRPS-E-105	SINGLE LINE DIAGRAM	6

NOTES:

FABRICATION NOTES:

- F1. ALL PANEL DISCRETE WIRING TO BE #16 AWG UNLESS OTHERWISE SPECIFIED.
F2. ALL WIRES TO BE LABELED AT BOTH ENDS.
F3. JUMPER TO BE INSTALLED BETWEEN ISR-2 CHANNEL 1 AND 2 INPUT.

CONSTRUCTION NOTES:

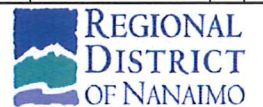
- C1. CABLE SUPPLIED WITH NEW LEVEL SWITCH, CABLE TO BE ROUTED IN METAL CONDUIT TO JB-206.

ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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0 21/03/08 ISSUED FOR CONSTRUCTION AF BDH BDH
REV YY/MM/DD DESCRIPTION DRWN CHD APVD

CLIENT:



CLIENT NO: - DRWN: AF DATE: 20/12/21
PROJECT NO: 2003251 DSGN: AF DATE: 20/12/21
DRAWING SIZE: ANSI "D" CHKD: JAK DATE: 21/03/03
SCALE: AS NOTED APVD: BDH DATE: 21/03/08

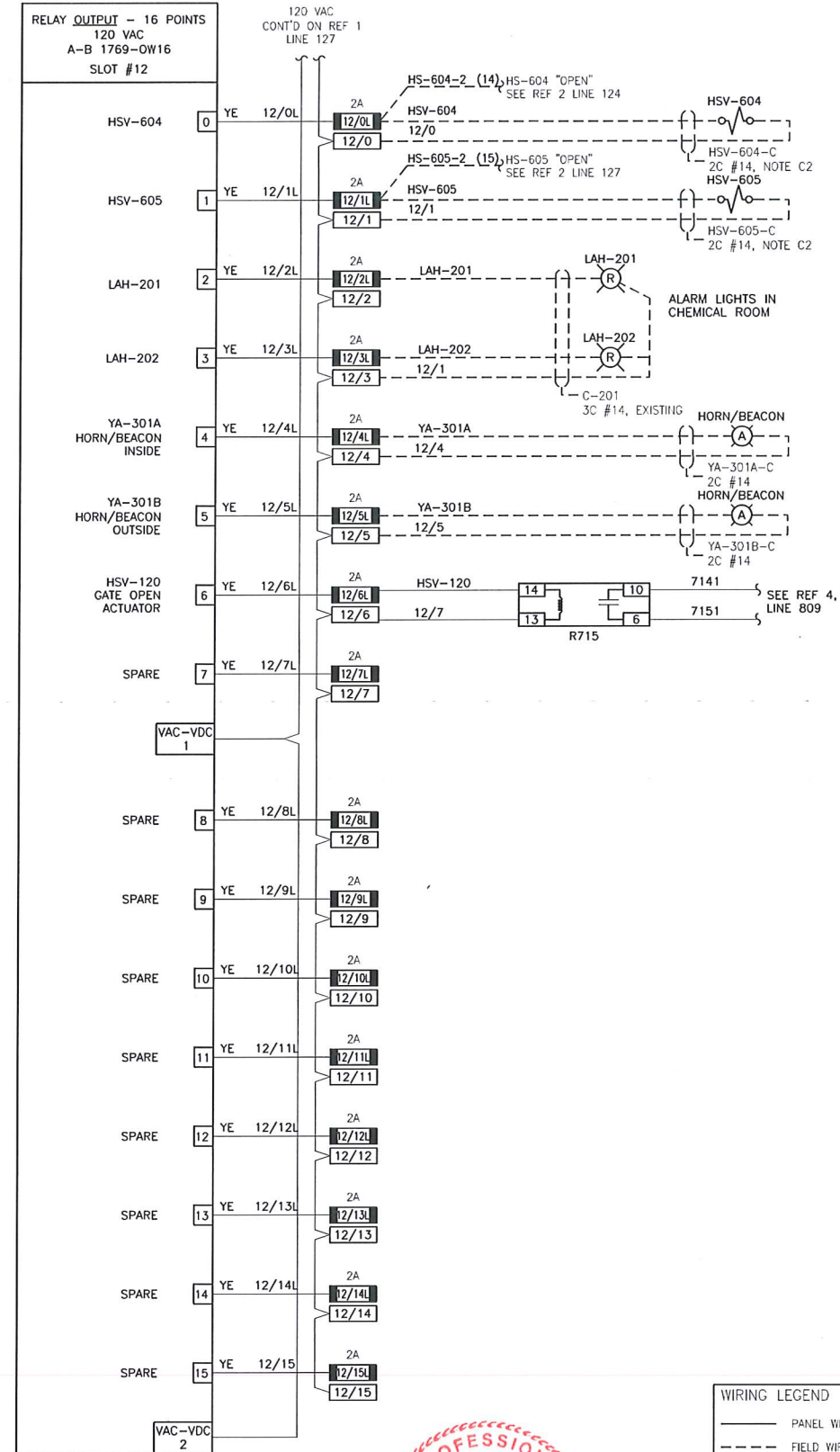
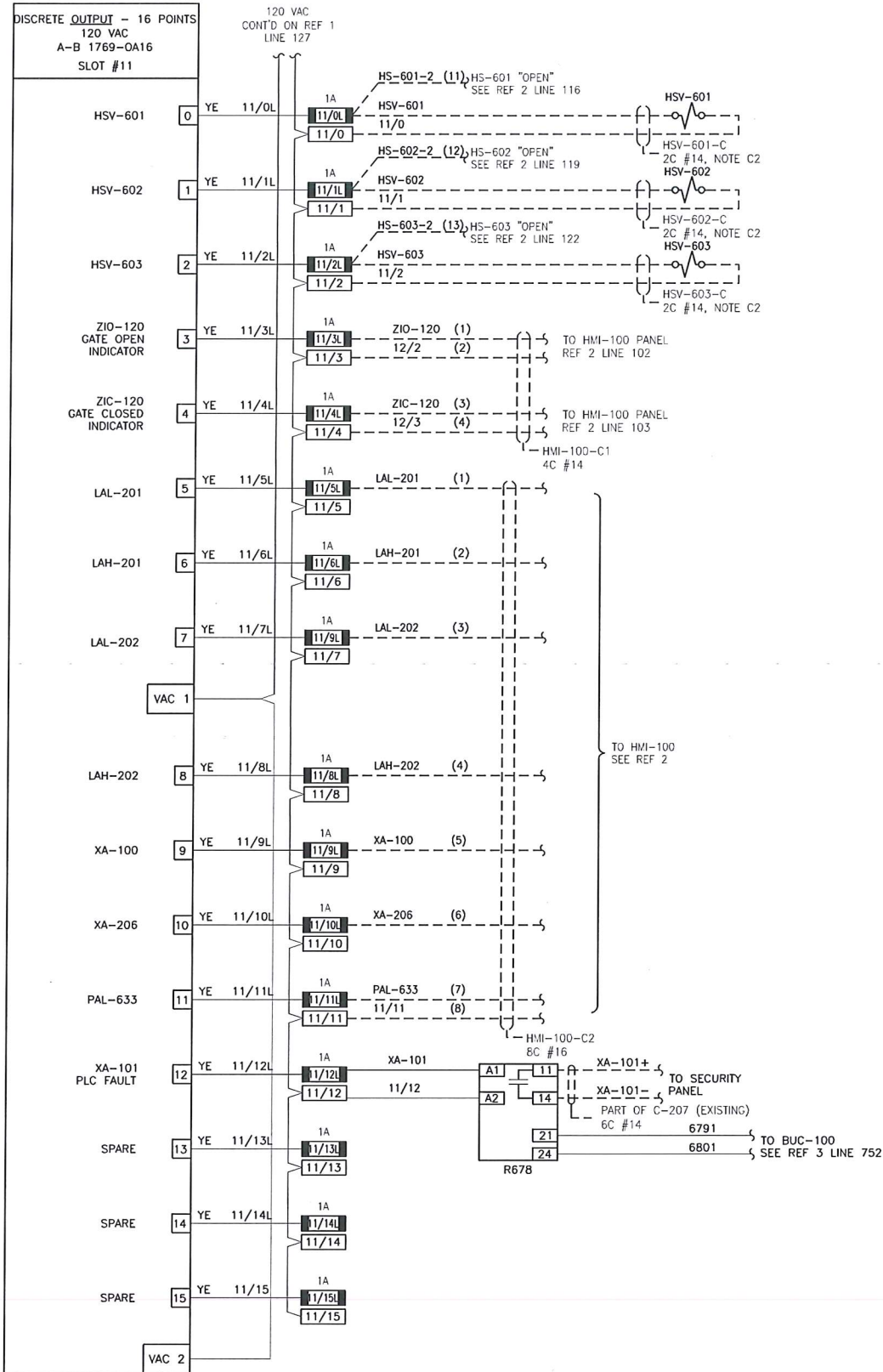
PROJECT:

CHASE RIVER
PUMP STATION
UPGRADE

TITLE:

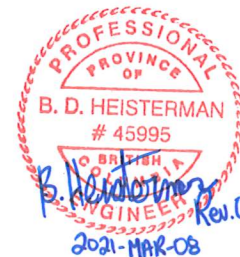
CP-100
SLOT 7 & 8
DISCRETE INPUT

DWG NO: CRPS-I-108 REV: 0



WIRING LEGEND
— PANEL WIRING
--- FIELD WIRING

TERMINAL BLOCK SYMBOLS:	
120 VAC	24 VDC/ANALOG
	FUSED DISCONNECT
	FEED THROUGH
	MCC-100 TERMINAL
	SHIELD BAR CONNECTION



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-104	CP-100 POWER DISTRIBUTION	1
CRPS-I-123	HMI-100 PANEL SCHEMATICS	2
CRPS-I-111	BUC-100 SCHEMATICS	3
CRPS-I-112	GATE CONTROL SCHEMATICS	4

NOTES:

FABRICATION NOTES:

- F1. ALL PANEL DISCRETE WIRING TO BE #16 AWG UNLESS OTHERWISE SPECIFIED.
F2. ALL WIRES TO BE LABELED AT BOTH ENDS.

CONSTRUCTION NOTES:

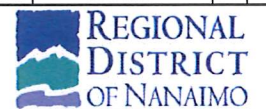
- C1. USE EXISTING CONDUCTOR IN CONDUIT TO SECURITY ALARM PANEL (PRICE'S). IF EXISTING CONDUCTORS ARE NOT AVAILABLE CONTRACTOR TO RUN NEW CONDUCTOR IN EXISTING CONDUIT.
C2. FIELD CABLES FOR VALVES HSV-601, 602, 603, 604, 605 ARE CURRENTLY TERMINATED TO MCC-200. CONTRACTOR TO INSTALL NEW FIELD CABLES FROM CP-100 TO HSV-601, 602, 603, 604 AND 605.

ISSUED FOR
CONSTRUCTION
Date: 2021/03/08

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0	21/03/08	ISSUED FOR CONSTRUCTION	AF	BDH	BDH
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

CLIENT:



CLIENT NO:	-	DRWN:	AF	DATE:	20/12/21
PROJECT NO:	2003251	DSGN:	AF	DATE:	20/12/21
DRAWING SIZE:	ANSI "D"	CHKD:	JAK	DATE:	21/03/03
SCALE:	AS NOTED	APVD:	BDH	DATE:	21/03/08

PROJECT:

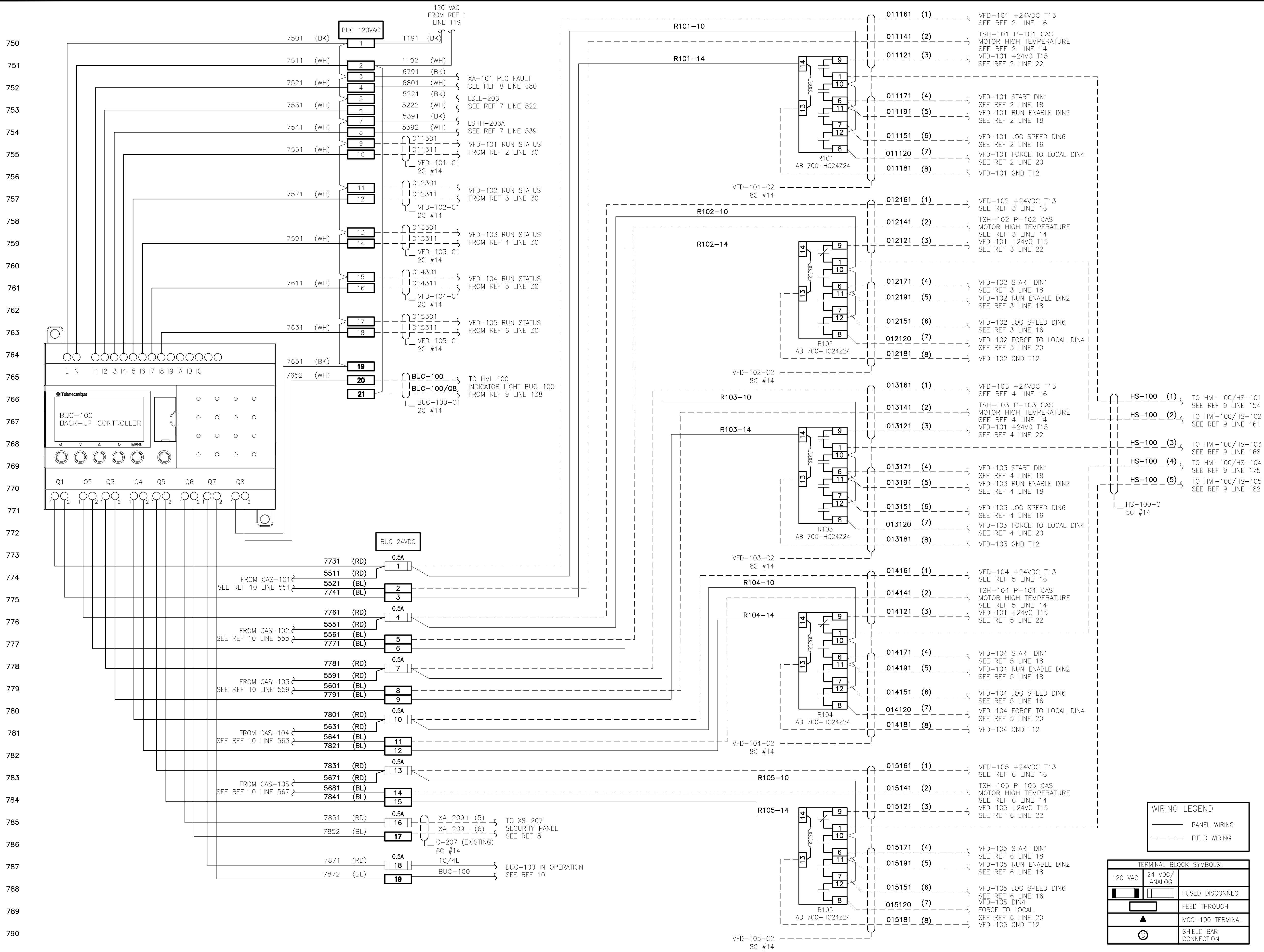
CHASE RIVER
PUMP STATION
UPGRADE

TITLE:

CP-100
SLOT 11 & 12
DISCRETE & RELAY OUTPUT

DWG NO: CRPS-I-110

REV: 0



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-103	CP-100 POWER DISTRIBUTION	1
CRPS-E-011	P-101 SCHEMATIC DIAGRAM	2
CRPS-E-012	P-102 SCHEMATIC DIAGRAM	3
CRPS-E-013	P-103 SCHEMATIC DIAGRAM	4
CRPS-E-014	P-104 SCHEMATIC DIAGRAM	5
CRPS-E-015	P-105 SCHEMATIC DIAGRAM	6
CRPS-I-108	CP-100 SLOT 7&8 DIGITAL INPUT	7
CRPS-I-110	CP-100 DISCRETE & RELAY OUTPUT	8
CRPS-I-123	HMI-100 PANEL SCHEMATICS	9
CRPS-I-109	CP-100 SLOT 9&10 DISCRETE INPUT	10

NOTES:

- BACK-UP CONTROLLER ACTIVATED BY PLC FAULT ALARM (XA-101) OR LSHH-206A.
- IF BACK-UP CONTROLLER (BUC-100) ACTIVATED, RELAYS R101/102/103/104/105 IN PLC CUT POWER TO HOA SWITCHES ON HMI-100 FOR VFDs TO OPERATE VIA BUC-100 OUTPUT.

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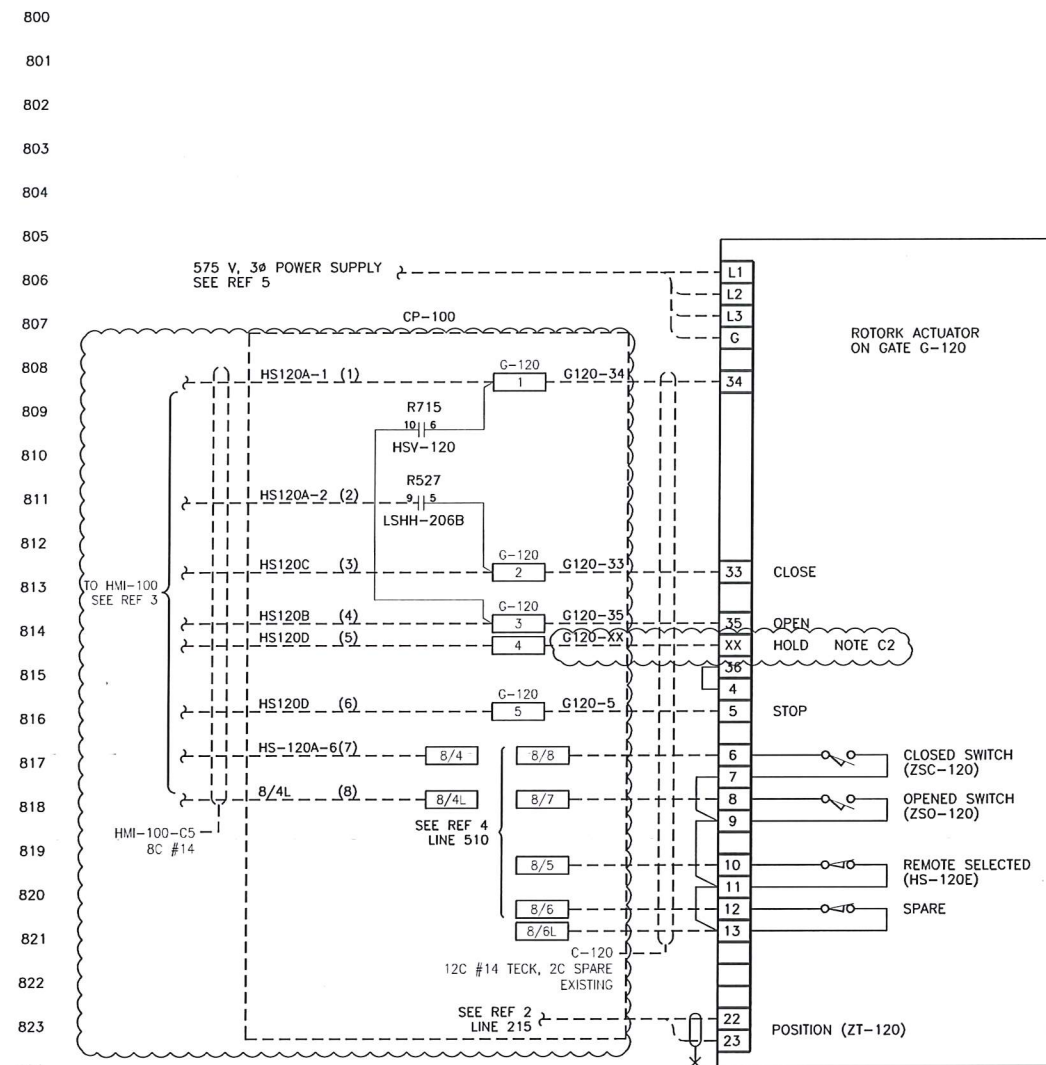
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**CHASE RIVER
PUMP STATION
UPGRADE**

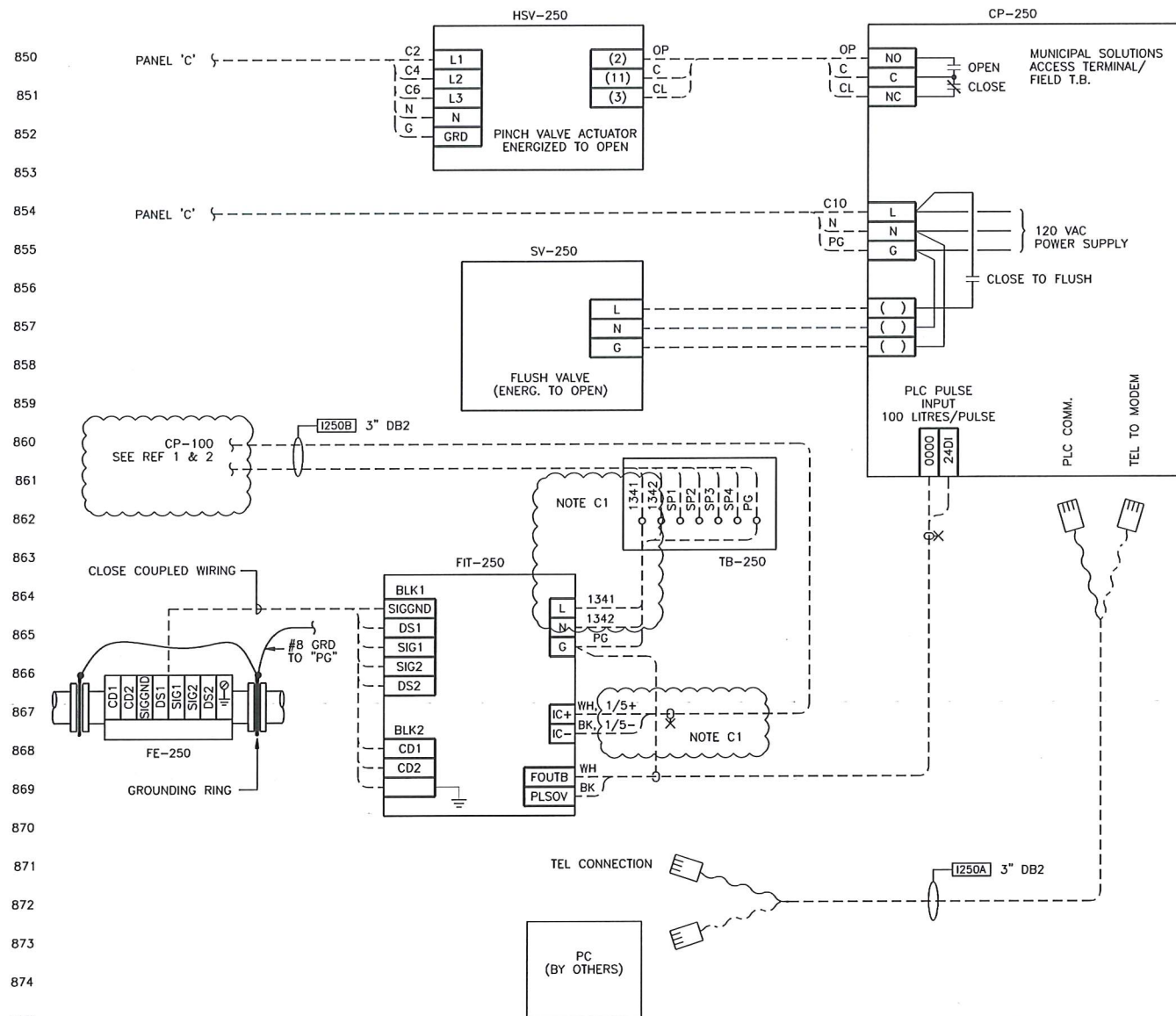
TITLE:

**CP-100
BACK-UP CONTROLLER
SCHEMATIC DIAGRAM**

DWG NO:	CRPS-I-111	REV:	1
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JUNCTION CHAMBER GATE CONTROLS








SEPTAGE RECEIVING SYSTEM



WIRING LEGEND

————— PANEL WIRING

- - - - - FIELD WIRING

TERMINAL BLOCK SYMBOLS:		
120 VAC	24 VDC/ ANALOG	
		FUSED DISCONNECT
		FEED THROUGH
		MCC-100 TERMINAL
		SHIELD BAR CONNECTION

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-104	CP-100 POWER DISTRIBUTION	1
CRPS-I-105	CP-100 SLOT 1 ANALOG INPUT	2
CRPS-I-123	HMH-100 PANEL SCHEMATICS	3
CRPS-I-108	CP-100 SLOT 768 DIGITAL INPUT	4
CRPS-E-105	SINGLE LINE DIAGRAM	5

NOTES:

1. DRAWING IS CREATED AND RE-NUMBERED FROM CH3-708 REV 4. ALL CHANGES AND UPDATES FROM EXISTING DRAWING ARE CLOUDED.

FABRICATION NOTES:

- F1. ALL PANEL DISCRETE WIRING TO BE #16 AWG
UNLESS OTHERWISE SPECIFIED.
- F2. ALL WIRES TO BE LABELED AT BOTH ENDS.

CONSTRUCTION NOTES:

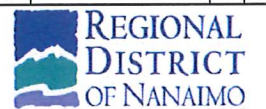
- C1. CONTRACTOR TO RE-TAG CONDUCTORS AT FIT-250.
C2. CONTRACTOR TO REDLINE TERMINAL NUMBER.

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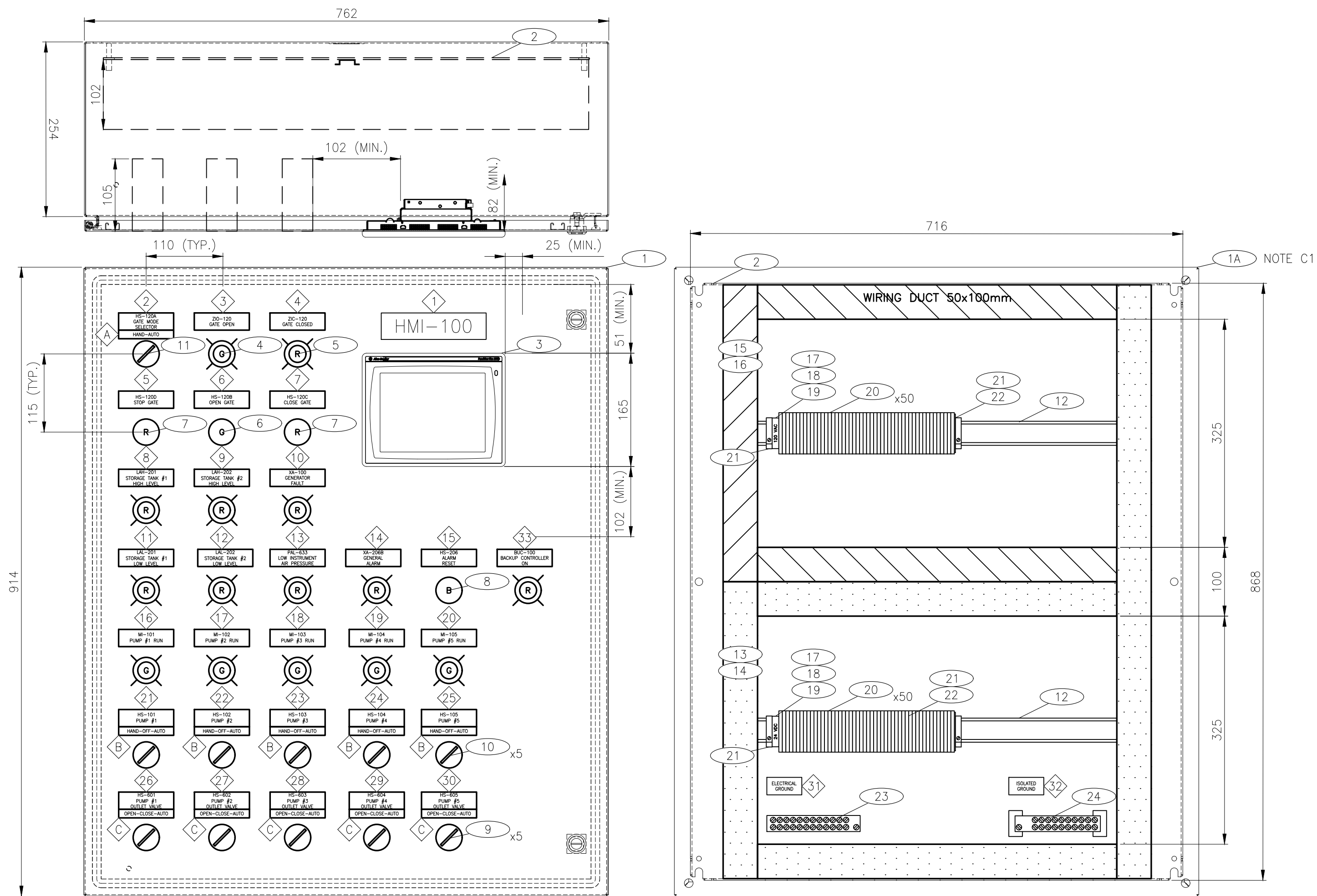


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PROJECT:					

CHASE RIVER PUMP STATION UPGRADE

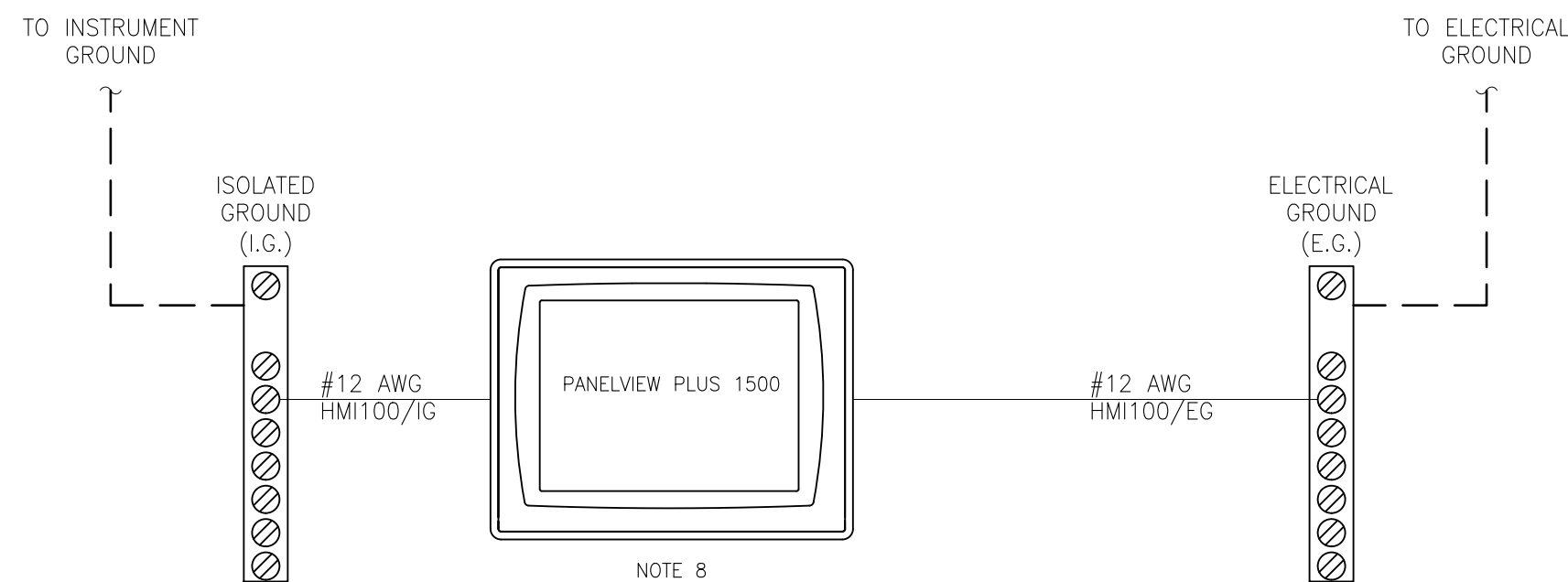
TITLE: **INSTRUMENTATION
SEPTAGE RECEIVING AND
GATE CONTROL WIRING
DETAILS**

DWG NO:	REV:
CRPS-I-112	0



FRONT VIEW – DOOR CLOSED
SCALE: 1:5

FRONT VIEW – DOOR REMOVED
SCALE: 1:5



GROUNDING DETAIL
SCALE: NTS

LAMACOIDS				
TAG #	TAG	COLOR	LAMACOID SIZE	TEXT HEIGHT
1	HMI-100	BLACK ON WHITE	7" x 2-1/2"	3/4" / 3/8"
2	HS-120A/GATE MODE SELECTOR	BLACK ON WHITE	1" x 3"	3/16"
3	ZIO-120/ GATE OPEN	BLACK ON WHITE	1" x 3"	3/16"
4	ZIC-120/GATE CLOSED	BLACK ON WHITE	1" x 3"	3/16"
5	HS-120D/STOP GATE	BLACK ON WHITE	1" x 3"	3/16"
6	HS-120B/OPEN GATE	BLACK ON WHITE	1" x 3"	3/16"
7	HS-120C/CLOSE GATE	BLACK ON WHITE	1" x 3"	3/16"
8	LAH-201/STORAGE TANK #1 HIGH LEVEL	BLACK ON WHITE	1" x 3"	3/16"
9	LAH-202/STORAGE TANK #2 HIGH LEVEL	BLACK ON WHITE	1" x 3"	3/16"
10	XA-100/GENERATOR FAULT	BLACK ON WHITE	1" x 3"	3/16"
11	LAL-201/STORAGE TANK #1 LOW LEVEL	BLACK ON WHITE	1" x 3"	3/16"
12	LAL-202/STORAGE TANK #2 LOW LEVEL	BLACK ON WHITE	1" x 3"	3/16"
13	PAL-633/LOW INSTRUMENT AIR PRESSURE	BLACK ON WHITE	1" x 3"	3/16"
14	XA-206B/GENERAL ALARM	BLACK ON WHITE	1" x 3"	3/16"
15	HS-206/ALARM RESET	BLACK ON WHITE	1" x 3"	3/16"
16	MI-101/PUMP #1 RUN	BLACK ON WHITE	1" x 3"	3/16"
17	MI-102/PUMP #2 RUN	BLACK ON WHITE	1" x 3"	3/16"
18	MI-103/PUMP #3 RUN	BLACK ON WHITE	1" x 3"	3/16"
19	MI-104/PUMP #4 RUN	BLACK ON WHITE	1" x 3"	3/16"
20	MI-105/PUMP #5 RUN	BLACK ON WHITE	1" x 3"	3/16"
21	HS-101/PUMP #1	BLACK ON WHITE	1" x 3"	3/16"
22	HS-102/PUMP #2	BLACK ON WHITE	1" x 3"	3/16"
23	HS-103/PUMP #3	BLACK ON WHITE	1" x 3"	3/16"
24	HS-104/PUMP #4	BLACK ON WHITE	1" x 3"	3/16"
25	HS-105/PUMP #5	BLACK ON WHITE	1" x 3"	3/16"
26	HS-601/PUMP #1 OUTLET VALVE	BLACK ON WHITE	1" x 3"	3/16"
27	HS-602/PUMP #2 OUTLET VALVE	BLACK ON WHITE	1" x 3"	3/16"
28	HS-603/PUMP #3 OUTLET VALVE	BLACK ON WHITE	1" x 3"	3/16"
29	HS-604/PUMP #4 OUTLET VALVE	BLACK ON WHITE	1" x 3"	3/16"
30	HS-605/PUMP #5 OUTLET VALVE	BLACK ON WHITE	1" x 3"	3/16"
31	ELECTRICAL GROUND	BLACK ON WHITE	1" x 3"	3/16"
32	ISOLATED GROUND	BLACK ON WHITE	1" x 3"	3/16"
33	BUC-100/BACKUP CONTROLLER ON	BLACK ON WHITE	1" x 3"	3/16"
A	HAND-AUTO	BLACK ON WHITE	1/2" x 3"	3/16"
B	HAND-OFF-AUTO	BLACK ON WHITE	1/2" x 3"	3/16"
C	OPEN-CLOSE-AUTO	BLACK ON WHITE	1/2" x 3"	3/16"

WIRE WAY LEGEND	
	WHITE – 24 VDC
	GREY – 120 VAC

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-101	CP-100 PANEL LAYOUT	1
CRPS-I-122	HMI-100 BILL OF MATERIAL	2

- NOTES:
- FOR BILL OF MATERIALS, TERMINAL STRIP BREAKDOWNS & LAMACOIDS SEE CRPS-I-122.
 - ALL LAMACOIDS/LABELLING TO BE PROVIDED/INSTALLED BY PANEL VENDOR.
 - NAME PLATE SHALL BE MOUNTED WITH STAINLESS STEEL SELF TAPPING SCREWS ON THE OUTSIDE OF THE CONTROL PANEL DOOR. ENSURE PANEL NEMA RATING INTEGRITY IS MAINTAINED.
 - ALL CABLES SHALL ENTER PANEL FROM THE TOP ONLY.
 - ALL INTERNAL CABINET WIRING TO BE ON LEFT HAND SIDE WHEREVER POSSIBLE. ALL FIELD CABLES TERMINATE ON RIGHT HAND SIDE.
 - COMPLETED CABINET TO MEET CSA APPROVAL.
 - PANEL VENDOR TO MOUNT TS35 DIN RAIL ON STAND-OFFS. TERMINALS TO BE FLUSH WITH THE TOP OF THE WIRE DUCT.
 - PANELVIEW PLUS FUNCTIONAL EARTH CONNECTION ON BACK OF DISPLAY TO IG AND PROTECTIVE EARTH CONNECTION AT THE POWER INPUT TERMINAL TO EG.

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PROJECT:

**CHASE RIVER
PUMP STATION
UPGRADE**

TITLE:

**HMI-100
PANEL LAYOUT**

DWG NO:	CRPS-I-121	REV:	1
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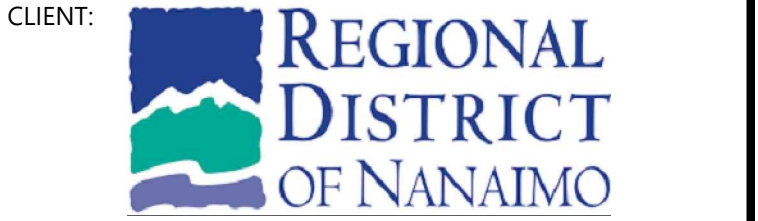
BILL OF MATERIALS <div>—</div>					
ITEM	QUANTITY	DESCRIPTION	MAKE	MODEL	PROVIDED BY
1	1	MILD STEEL WALLMOUNT ENCLOSURE, HINGE DOOR WITH QUARTER TURN 36" X 30" X 10"	HAMMOND	EN4SD363010LG	PANEL VENDOR
2	1	BACK PANEL 36" X 30"	HAMMOND	EP3630	PANEL VENDOR
3	1	PANELVIEW PLUS6 1500 HMI, 120VAC, TOUCH SCREEN WITH KEYPAD, WINDOWNS CE	ALLEN BRADLEY	2711P-B15C4A8	OWNER SUPPLIED
4	6	30 mm PILOT LIGHT, GREEN, 12-130 V AC/DC, LED, PUSH-TO-TEST, METAL	ALLEN BRADLEY	800T-QTH2G	PANEL VENDOR
5	9	30 mm PILOT LIGHT, RED, 12-130 V AC/DC, LED, PUSH-TO-TEST, METAL	ALLEN BRADLEY	800T-QTH2R	PANEL VENDOR
6	1	30 mm FLUSH HEAD PUSH BUTTON, GREEN, 1 N.O. - 1 N.C., METAL	ALLEN BRADLEY	800T-A1A	PANEL VENDOR
7	2	30 mm FLUSH HEAD PUSH BUTTON, RED, 1 N.O. - 1 N.C., METAL	ALLEN BRADLEY	800T-A6A	PANEL VENDOR
8	1	30 mm FLUSH HEAD PUSH BUTTON, BLACK, 1 N.O. - 1 N.C., METAL	ALLEN BRADLEY	800T-A2A	PANEL VENDOR
9	5	30 mm 3-POSITION SELECTOR SWITCH, MAINTAINED, 2 N.O. - 2 N.C., METAL	ALLEN BRADLEY	800T-J2B	PANEL VENDOR
10	5	30 mm 3-POSITION SELECTOR SWITCH, MAINTAINED, 3 N.O. - 3 N.C., METAL	ALLEN BRADLEY	800T-J2H	PANEL VENDOR
11	1	30 mm 2-POSITION SELECTOR SWITCH, MAINTAINED, 2 N.O. - 2 N.C., METAL	ALLEN BRADLEY	800T-H2B	PANEL VENDOR
12	A/R	TS-35 DIN MOUNTING RAIL	HAMMOND	202K20	PANEL VENDOR
13	A/R	PVC WIRE DUCT WHITE - 2"W x 4"H NARROW SLOT	PANDUIT	F2X4WH6	PANEL VENDOR
14	A/R	PVC WIRE DUCT COVER WHITE - 2" WIDE	PANDUIT	C2WH6	PANEL VENDOR
15	A/R	PVC WIRE DUCT GREY - 2"W x 4"H NARROW SLOT	PANDUIT	F2X4LG6	PANEL VENDOR
16	A/R	PVC WIRE DUCT COVER GREY - 2" WIDE	PANDUIT	C2LG6	PANEL VENDOR
17	2	LABEL HOLDERS - DIN RAIL MOUNT SCHT-5S	WEIDMULLER	1631930000	PANEL VENDOR
18	2	ESO 5 S DIN A4 WS TERMINAL LABEL FOR SCHT-5S HOLDER	WEIDMULLER	1631920000	PANEL VENDOR
19	2	SCHT-5S LABEL COVER	WEIDMULLER	1631940000	PANEL VENDOR
20	100	FEED THROUGH TERMINAL BLOCK (SINGLE WDU 2.5) - 20 A, 600 V, #12-#26 AWG	WEIDMULLER	1020000000	PANEL VENDOR
21	2	TERMINAL BLOCK END CLAMPS - EW 35 FOR TS35 RAIL	WEIDMULLER	383560000	PANEL VENDOR
22	4	TERMINAL BLOCK END PLATE - WAP 2.5-10	WEIDMULLER	1050000000	PANEL VENDOR
23	A/R	COPPER GROUND BAR (MINIMUM 1/4" THICK x 1"H WITH MINIMUM THEN (10) GROUNDING SCREWS SUITABLE FOR #14 AWG TO #4 AWG CONDUCTORS, AND ONE (1) GROUND LUG SUITABLE FOR #2 AWG CONDUCTOR	OPEN	OPEN	PANEL VENDOR
24	A/R	COPPER GROUND BAR (MINIMUM 1/4" THICK x 1"H WITH MINIMUM THEN (10) GROUNDING SCREWS SUITABLE FOR #14 AWG TO #4 AWG CONDUCTORS, AND ONE (1) GROUND LUG SUITABLE FOR #2 AWG CONDUCTOR, MOUNTED ON ISOLATED STANDOFF	OPEN	OPEN	PANEL VENDOR

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-121	HMI-100 PANEL LAYOUT	1
CRPS-I-123	HMI-100 PANEL SCHEMATICS	2

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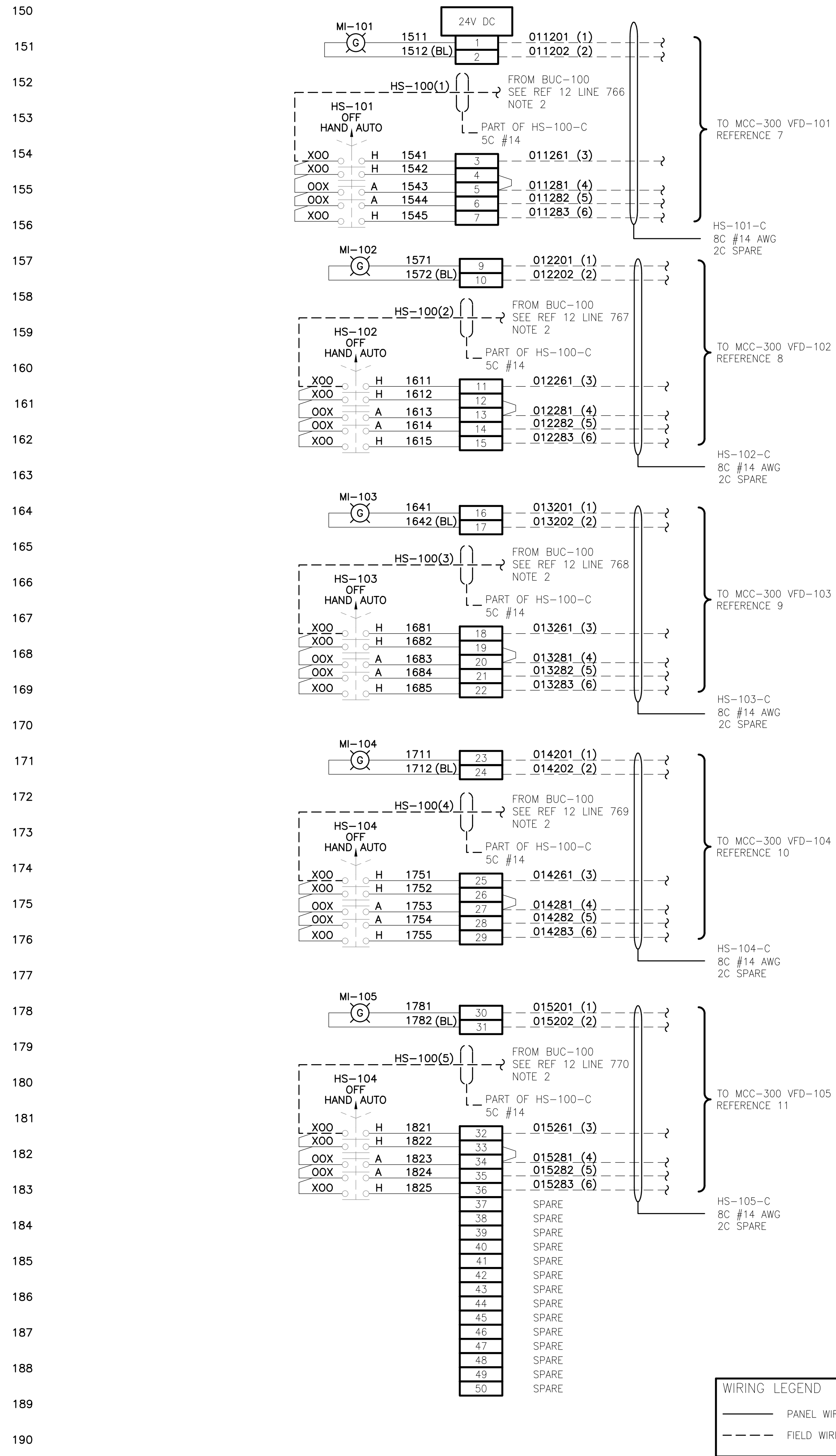
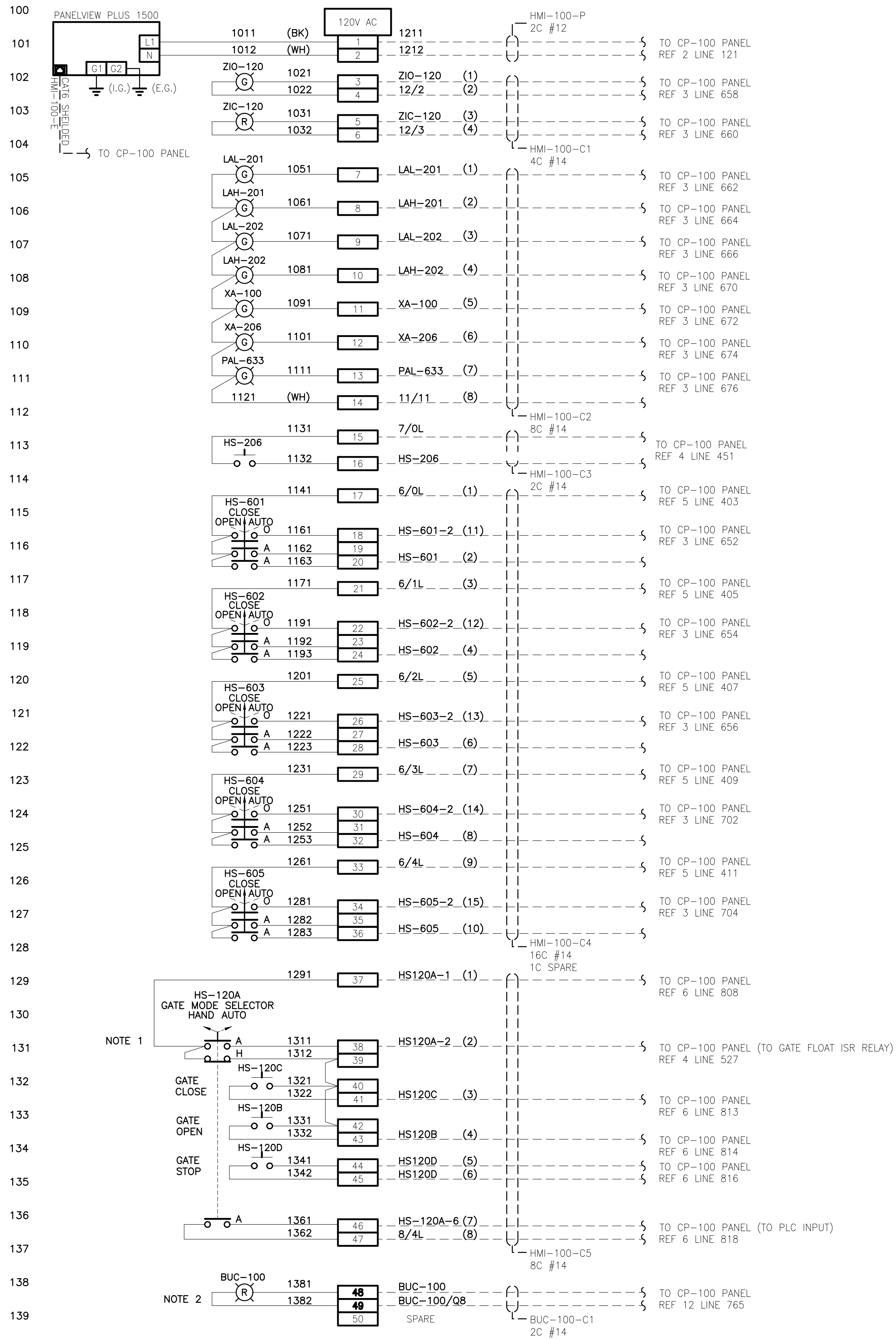
PROJECT:

CHASE RIVER
PUMP STATION
UPGRADE

TITLE:

HMI-100
BILL OF MATERIAL

DWG NO:	CRPS-I-122	REV:	1
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REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
CRPS-I-121	HMI-100 PANEL LAYOUT	1
CRPS-I-103	CP-100 POWER DISTRIBUTION	2
CRPS-I-110	CP-100 SLO1 11&12 OUTPUTS	3
CRPS-I-108	CP-100 SLO 7&8 DIGITAL INPUT	4
CRPS-I-107	CP-100 SLO 5&6 DIGITAL INPUT	5
CRPS-I-112	GATE CONTROL WIRING DIAGRAM	6
CRPS-E-011	VFD-101 SCHEMATIC DIAGRAM	7
CRPS-E-012	VFD-102 SCHEMATIC DIAGRAM	8
CRPS-E-013	VFD-103 SCHEMATIC DIAGRAM	9
CRPS-E-014	VFD-104 SCHEMATIC DIAGRAM	10
CRPS-E-015	VFD-105 SCHEMATIC DIAGRAM	11
CRPS-I-111	BUC-100 SCHEMATIC DIAGRAM	12

NOTES:

1. WHEN IN AUTO THE GATE WILL CLOSE IF LSHH-206B IS ACTIVATED. THERE IS NO OUTPUT FROM THE PLC TO COMMAND THE GATE TO CLOSE. IN AUTO THE GATE WILL OPEN FROM PLC OUTPUT COMMAND HSV-120.
2. IF BACK-UP CONTROLLER (BUC-100) ACTIVATED, RELAYS R101/102/103/104/105 IN PLC CUT POWER TO HOA SWITCHES FOR VFD TO OPERATE VIA BUC-100 OUTPUT AT VFD PRE-SET JOG SPEED.

FABRICATION NOTES:

- F1. ALL PANEL DISCRETE WIRING TO BE #16 AWG
UNLESS OTHERWISE SPECIFIED.
- F2. ALL WIRES TO BE LABELLED AT BOTH ENDS.
- F3. ALL 120VAC PANEL WIRING TO BE BLACK AND ALL
24VDC PANEL WIRING TO BE RED UNLESS
OTHERWISE SPECIFIED.

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PROJECT:

CHASE RIVER PUMP STATION UPGRADE

TITLE:

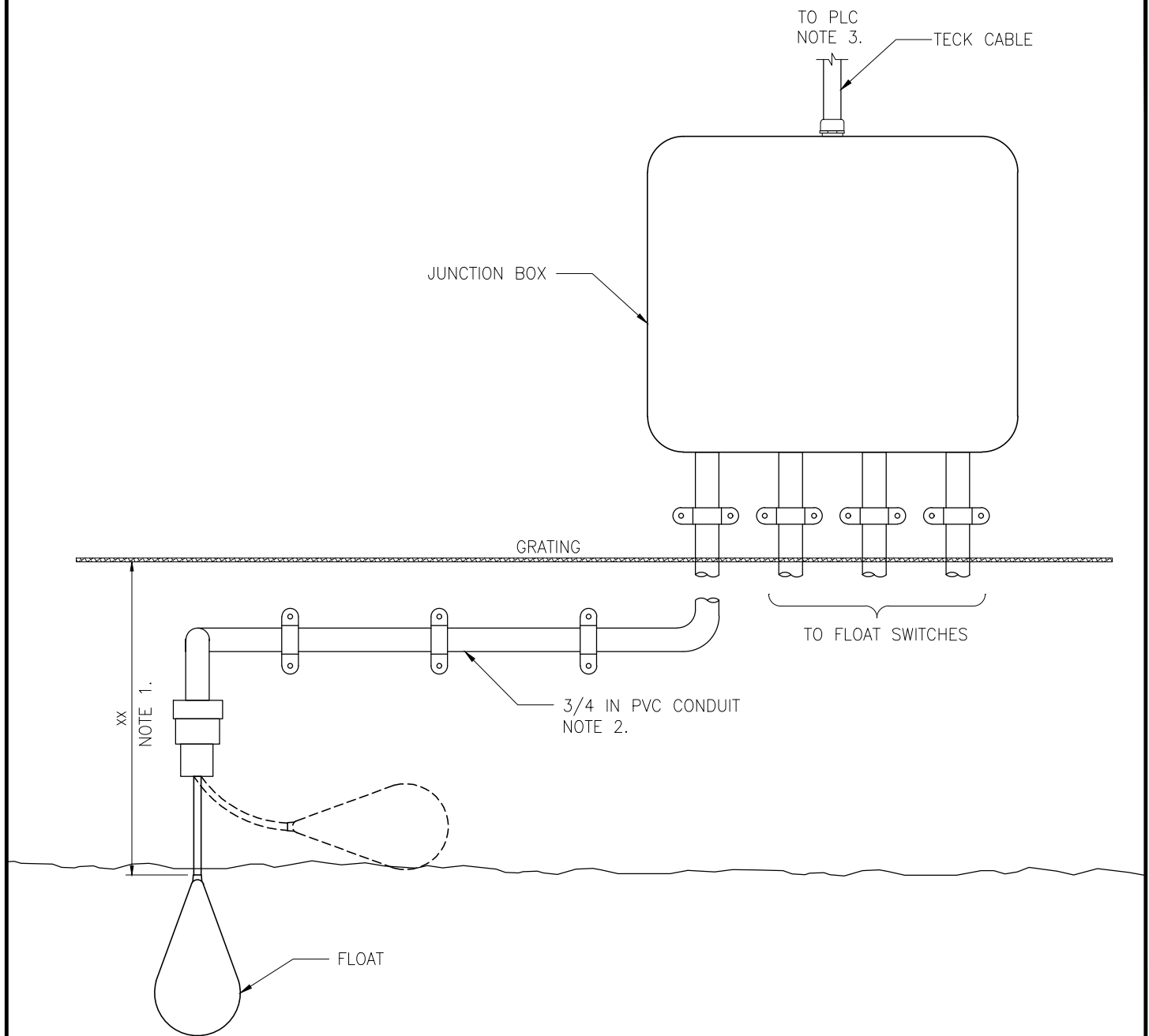
HMI-100 PANEL SCHEMATICS

DWG NO:

CRPS-I-123



REV:

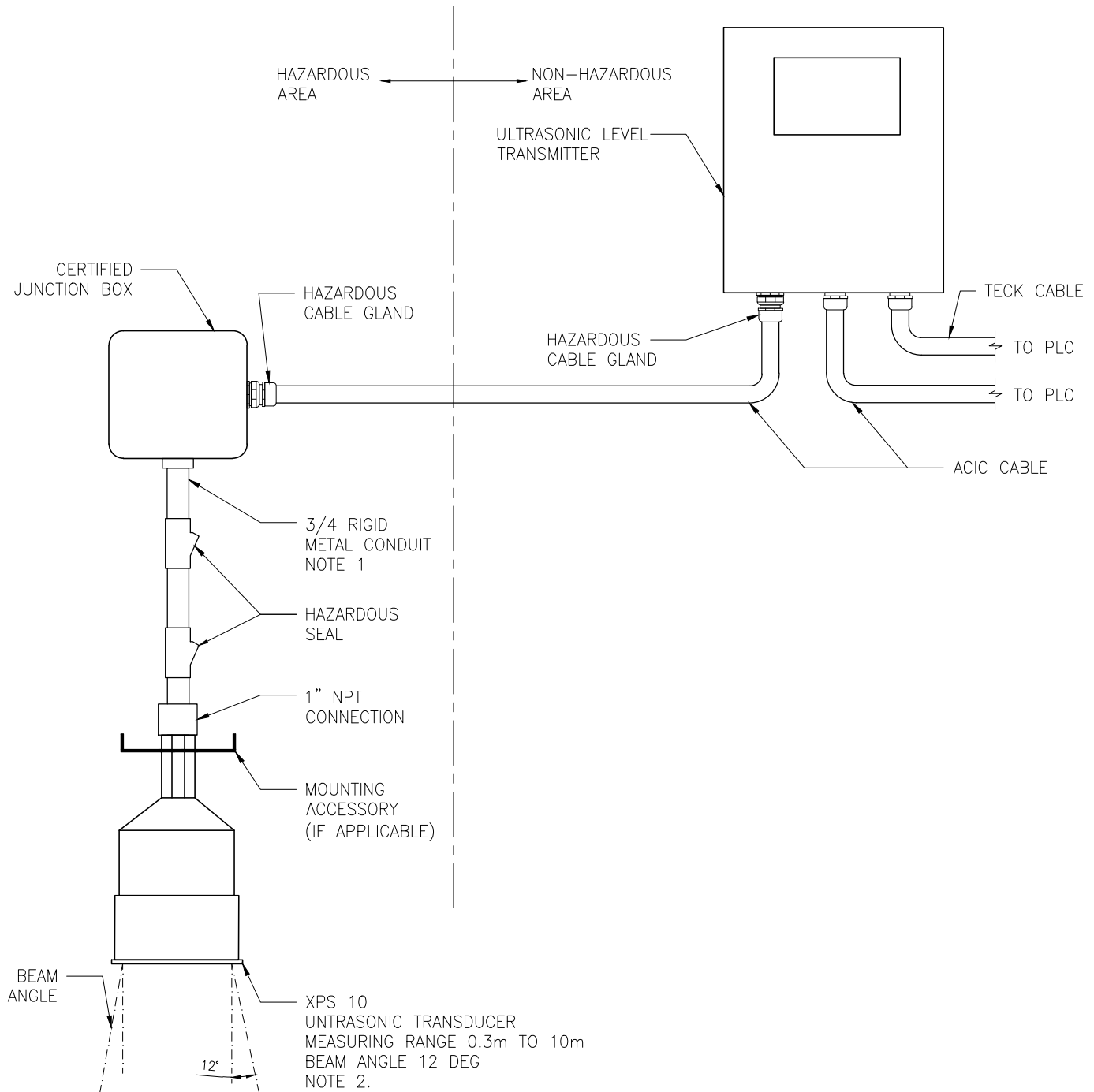
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NOTES:

1. FLOAT HEIGHT TO BE SPECIFIED BY RDN.
2. VENDOR CABLE (13m LENGTH) SUPPLIED WITH FLOAT SWITCH.
3. INTRINSICALLY SAFE BARRIER RELAY LOCATED IN PLC CABINET.
4. FLOAT SWITCH IS INTRINSICALLY SAFE CIRCUIT.
5. ALL CABLES AND EQUIPMENT TO BE TAGGED.

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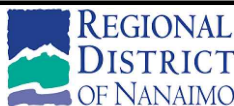
NOTES:

1. VENDOR CABLE (10m LENGTH) SUPPLIED WITH SENSOR.
2. MOUNT TRANSMITTER AWAY FROM OBJECTS THAT MAY INTERFERE WITH BEAM AND ASSOCIATED BEAM ANGLE FAN-OUT (WILL GIVE FALSE READINGS)
3. ALL ELECTRICAL COMPONENTS AND FITTINGS INSTALLED IN HAZARDOUS AREA SHALL BE RATED FOR INSTALLATION IN CLASS 1, DIV. 2, ENVIRONMENT.
4. ALL CABLES AND EQUIPMENT TO BE TAGGED.

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CLIENT:



**CHASE RIVER PUMP
STATION UPGRADE**

PROJ. NO: 2003251

CHECKED: BDH

DATE: 21/07/28

ALLNORTH
APPROVED: -

DATE: -

CLIENT
APPROVED: -

DATE: -

TITLE:

**INSTRUMENT STANDARD
DETAIL
ULTRASONIC LEVEL
TRANSMITTER**

DWG NO:

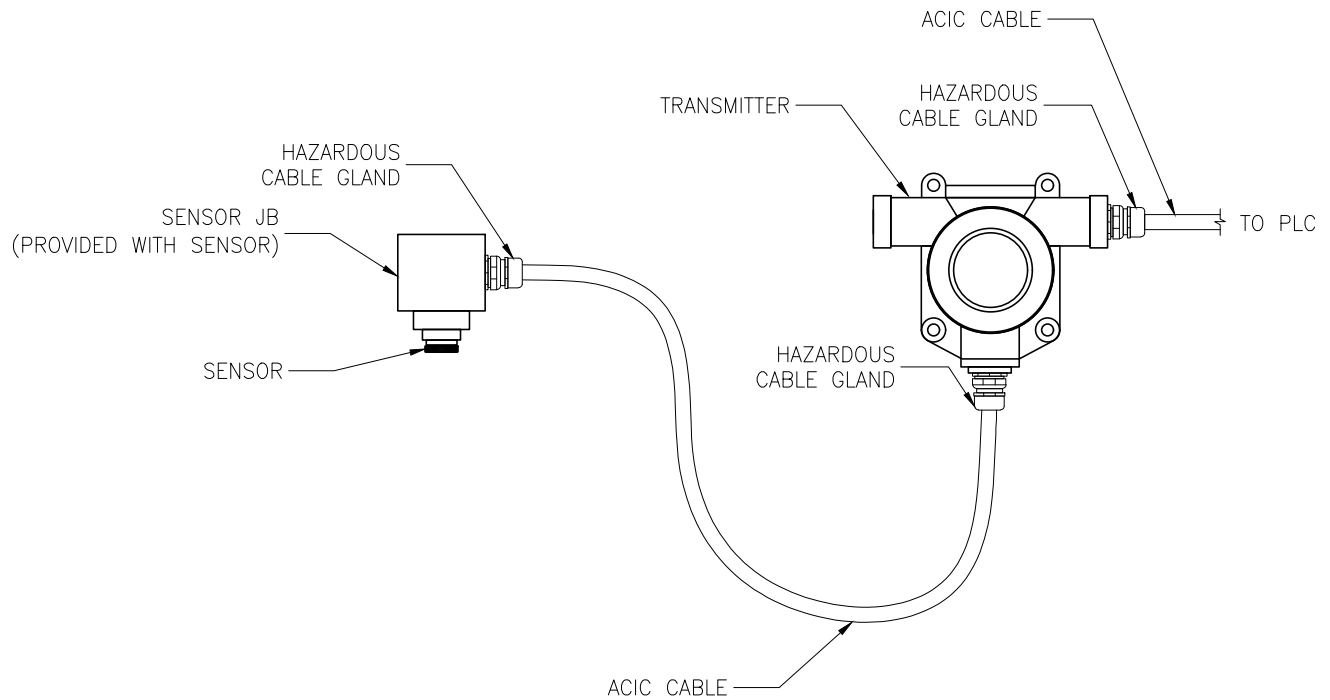
SP-I-0002

SHEET:

1 of 1

REV:

A



NOTES:

1. LEL SENSOR SHALL BE INSTALLED 0.3m BELOW WET WELL CEILING.
2. H2S SENSOR SHALL BE INSTALLED 0.3m ABOVE WET WELL GROUND.
3. THE MAXIMUM CABLE LENGTH FROM THE SENSOR TO THE TRANSMITTER IS 30m.
4. ALL COMPONENTS AND FITTINGS INSTALLED IN HAZARDOUS AREA SHALL BE RATED FOR INSTALLATION IN CLASS 1, DIV 2 ENVIRONMENT.
5. ALL CABLES AND EQUIPMENT TO BE TAGGED.

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A	21/11/03	ISSUED FOR INFORMATION	DK	BDH	
REV	YY/MM/DD	DESCRIPTION	DRWN	APVD	

CLIENT:



**CHASE RIVER PUMP
STATION UPGRADE**

PROJ. NO: 2003251

CHECKED: BDH

DATE: 21/07/28

ALLNORTH
APPROVED: -

DATE: -

CLIENT
APPROVED: -

DATE: -

TITLE:

**INSTRUMENT STANDARD
DETAIL
GAS DETECTOR**

DWG NO:

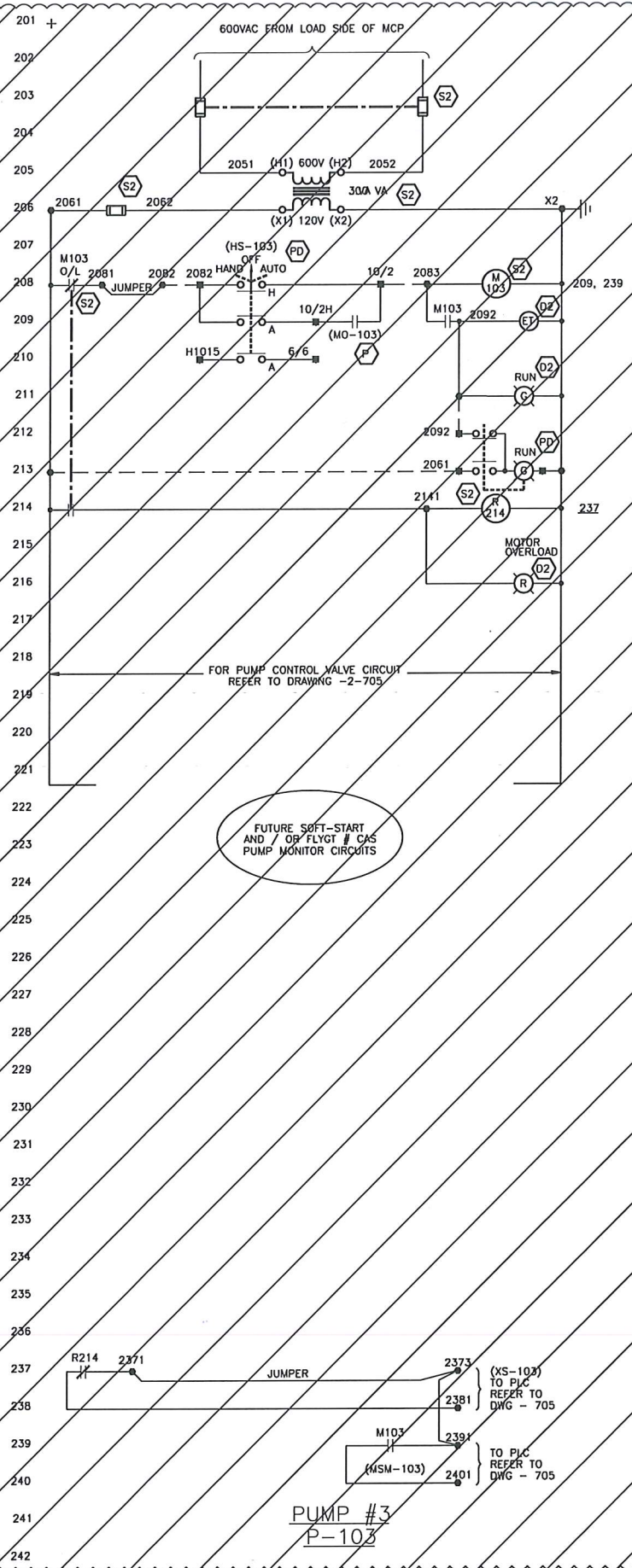
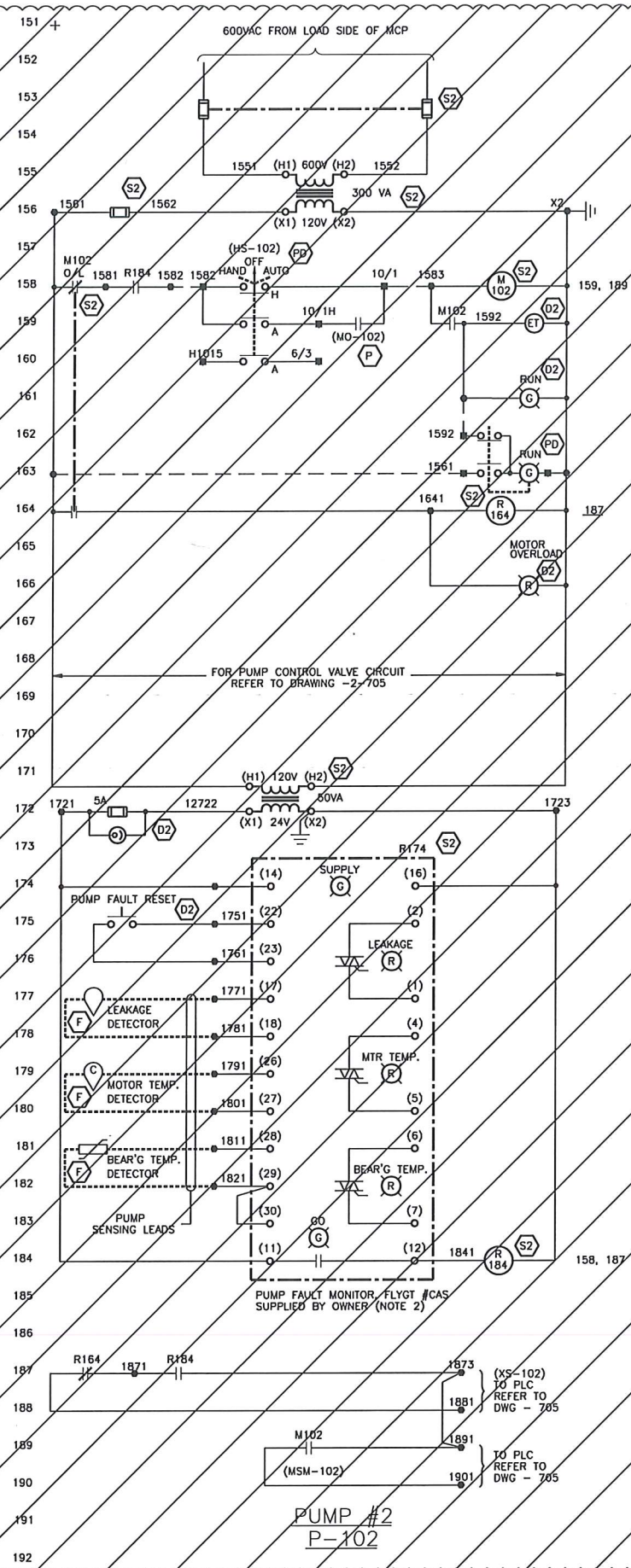
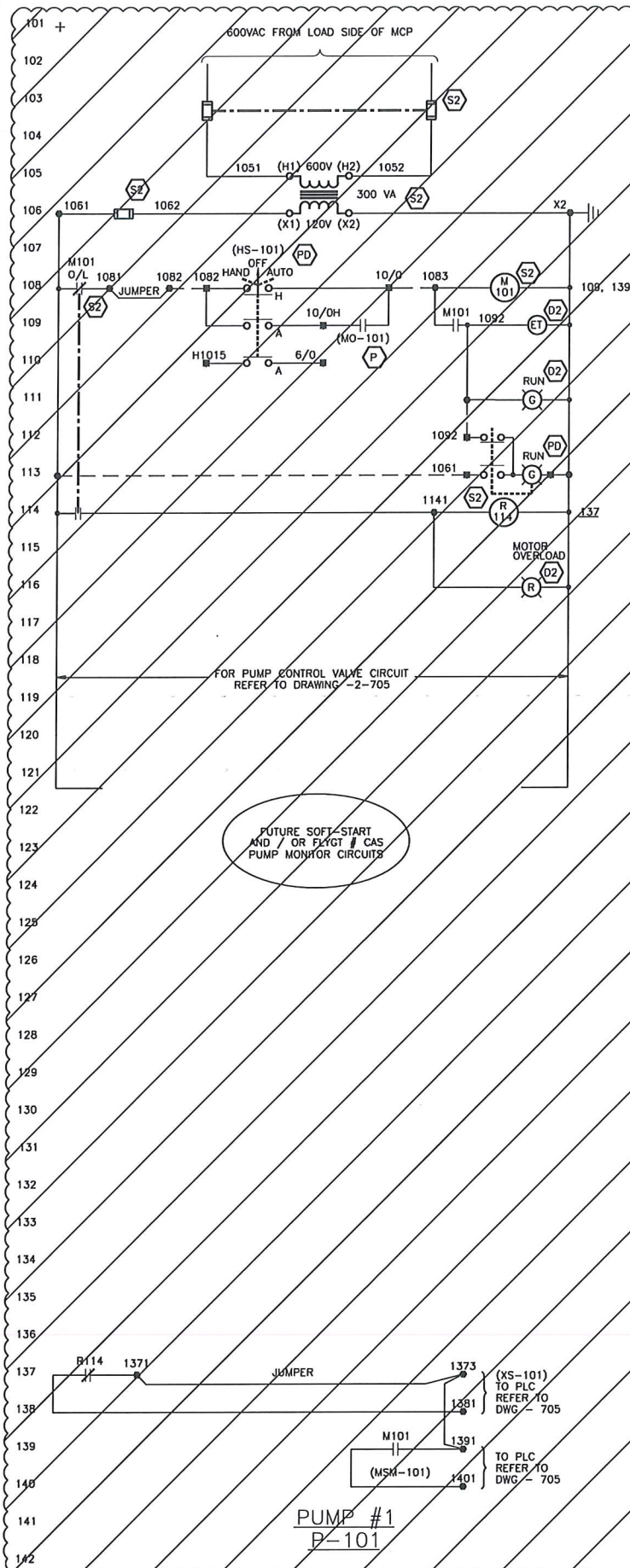
SP-I-0003

SHEET:

1 of 1

REV:

A



VERIFY SCALES

BAR IS BASED ON
ORIGINAL DRAWING

0 20mm

IF NOT 20mm ON
THE SHEET, ADJUST
SCALES ACCORDINGLY

RECORD DRAWING -- NOT TO BE USED FOR
CONSTRUCTION OR ALTERATIONS. ALL ITEMS
SHOWN, MATERIALS, AND DIMENSIONS TO
BE CONFIRMED ON SITE.

NOTES:

- FOR GENERAL NOTES REFER TO DRAWING -1-606.
- PROVIDE A VIEWING WINDOW FOR VISUAL ACCESS TO THE UNIT-MOUNTED LED'S.

NO.	DATE	ENG.	BY	SUBJECT
3	25 MAY 2013	JH	RS	RECORD DRAWING UPDATE
2	30 NOV. 00	K.M.	J.T.	RECORD DRAWING, STAGE 2
1	23 JUNE 00	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	14 APR 00	K.M.	S.T.	ISSUED FOR TENDER
REVISIONS				
PROJECT NO.		982819-601/602		
SCALE		AS SHOWN		
DRAWN		J.T.		
DESIGNED		J.T.		
CHECKED		D.S.W.		
APPROVED				
APPROVED				
DATE		MARCH 2000		

ISSUED FOR
DEMOLITION
Date: 2021/03/08

ASSOCIATED
ENGINEERING



DISTRICT PROJECT NUMBER

0810-20-CRPS-04

DISTRICT DRAWING NUMBER

CRPS-E-108

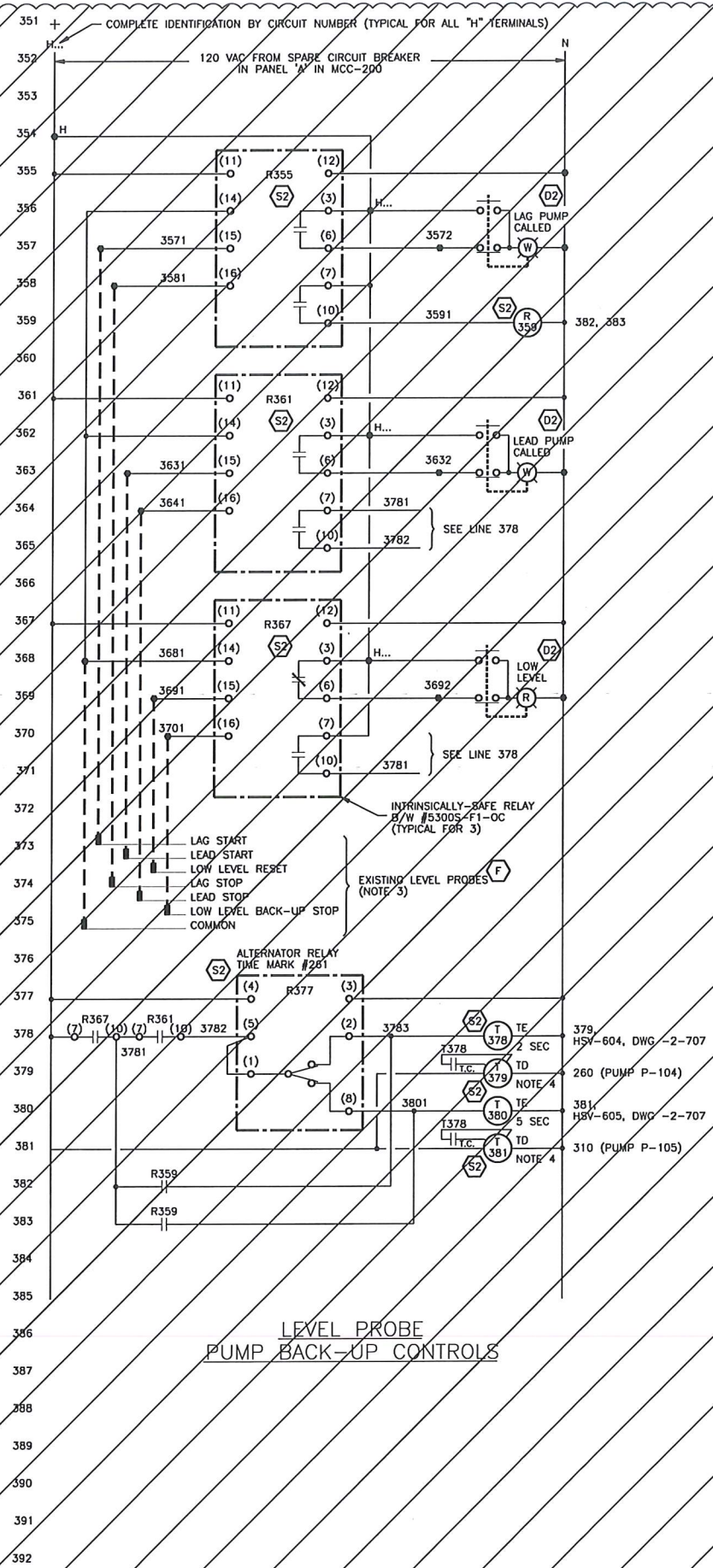
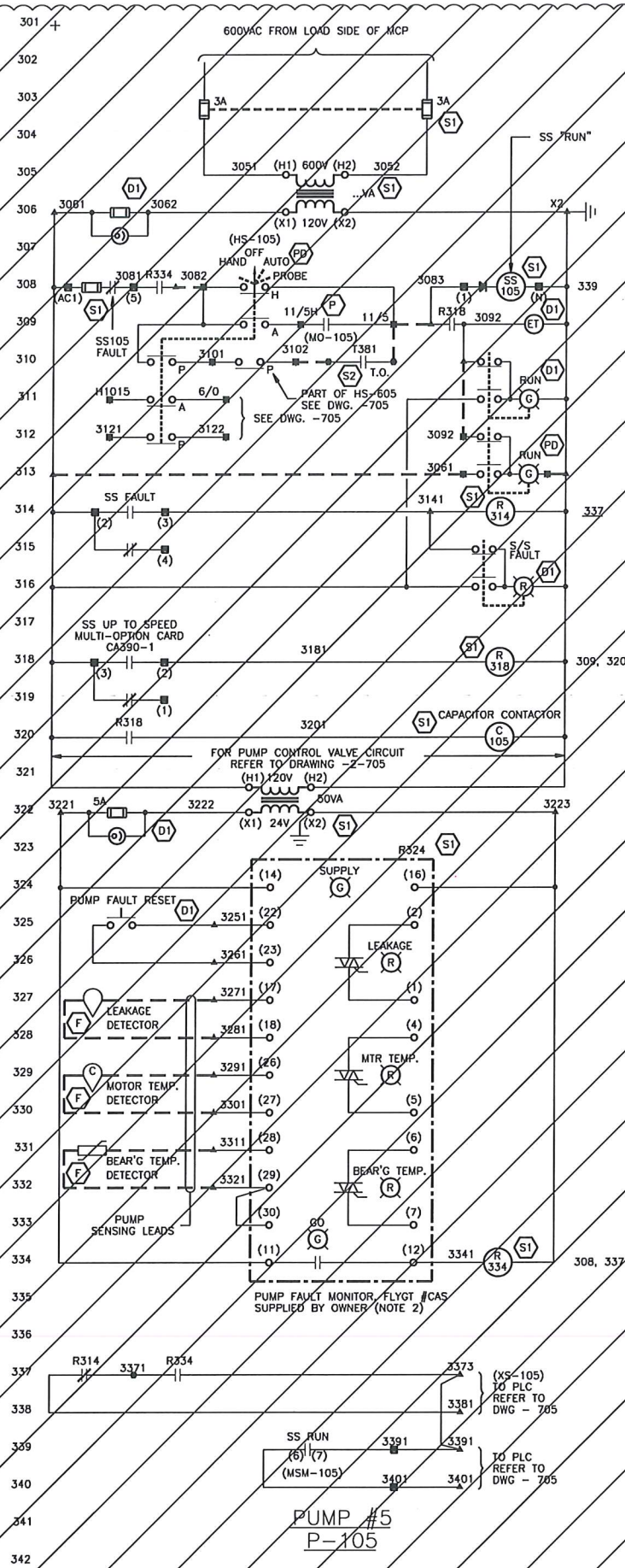
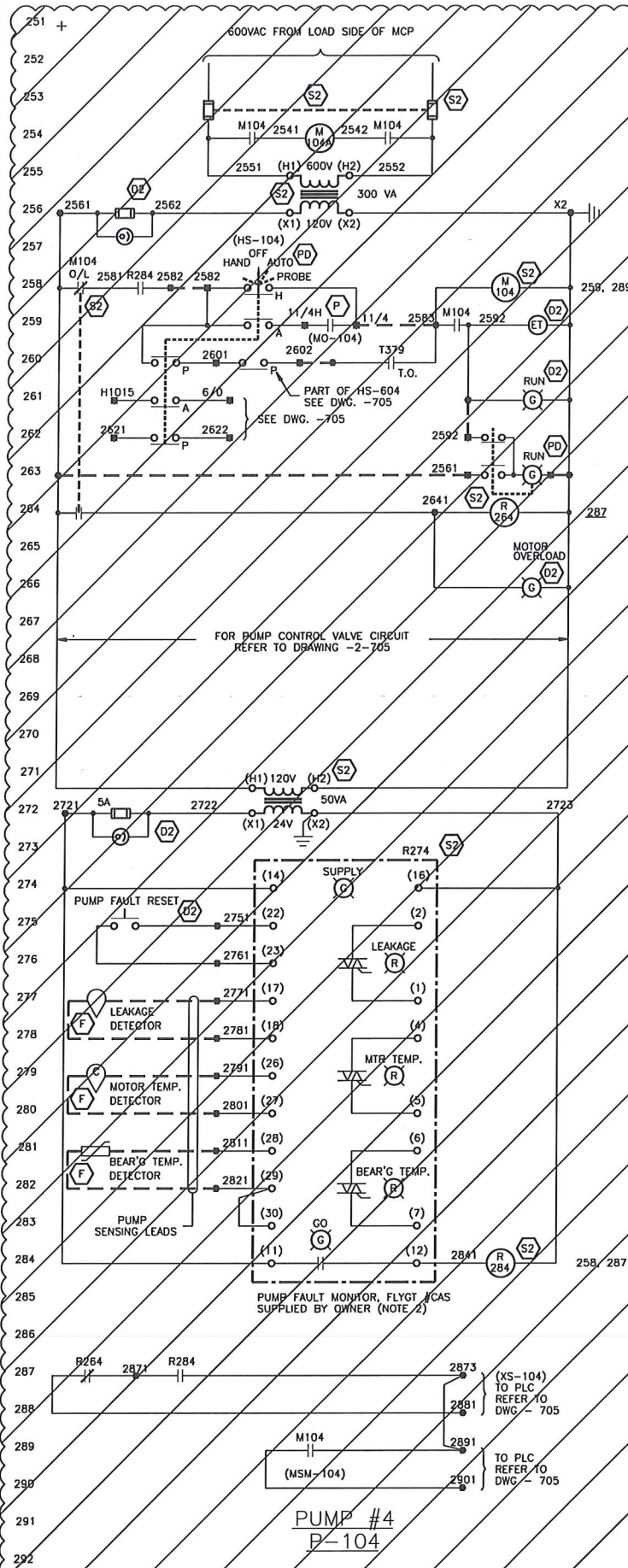
REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

ELECTRICAL
CONTROL SCHEMATICS
SHEET 2 OF 3

DRAWING NUMBER	REV. NO.	SHEET
CH2-607	3	

RENUMBERED FROM 982819-602-1-607 TO



VERIFY SCALES
BAR IS BASED ON
ORIGINAL DRAWING
0 1 20mm
IF NOT 20mm ON
THE SHEET, ADJUST
SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR
CONSTRUCTION OR ALTERATIONS. ALL ITEMS
SHOWN, MATERIALS, AND DIMENSIONS TO
BE CONFIRMED ON SITE.

NOTES:

- FOR GENERAL NOTES REFER TO DRAWING -1-606.
- PROVIDE A VIEWING WINDOW FOR VISUAL ACCESS TO THE UNIT-MOUNTED LED'S.
- WIRING OF ALL 11 PROBES IS PRESENTLY TERMINATED IN MCC-200. EXTEND WIRING FOR 7 PROBES TO NEW SENSING RELAYS TO BE INSTALLED IN MCC-200. CONFIRM WITH ENGINEER WHICH PROBES ARE TO BE USED.
- SET 5 SECONDS LONGER THAN IT TAKES THE DISCHARGE VALVE TO CLOSE.

NO.	DATE	ENG.	BY	SUBJECT
3	20 JULY 2013		RS	DRAWING UP DATED
2	30 NOV. 00	K.M.	J.T.	RECORD DRAWING, STAGE 2
1	23 JUNE 00	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	14 APR 00	K.M.	S.T.	ISSUED FOR TENDER

NO.	DATE	ENG.	BY	SUBJECT
3	20 JULY 2013		RS	DRAWING UP DATED
2	30 NOV. 00	K.M.	J.T.	RECORD DRAWING, STAGE 2
1	23 JUNE 00	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	14 APR 00	K.M.	S.T.	ISSUED FOR TENDER

REVISIONS

PROJECT NO.	982819-601/602
SCALE	AS SHOWN
DRAWN	J.T.
DESIGNED	J.T.
CHECKED	D.S.W.
APPROVED	
APPROVED	
DATE	MARCH 2000

ISSUED FOR
DEMOLITION
Date: 2021/03/08

ASSOCIATED
ENGINEERING



DISTRICT PROJECT NUMBER
0810-20-CRPS-04
DISTRICT DRAWING NUMBER
CRPS-E-109

REGIONAL DISTRICT
OF NANAIMO

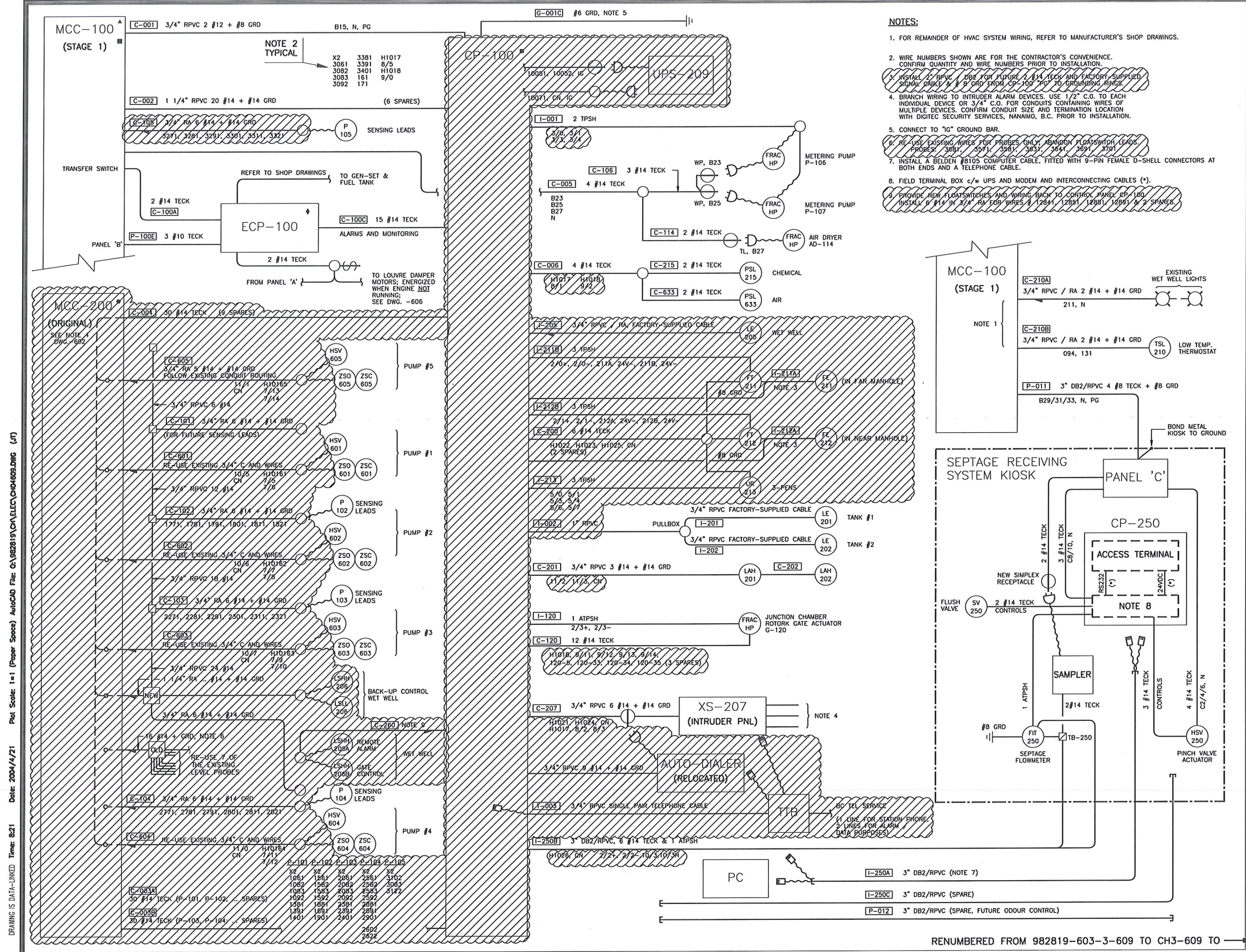
CHASE RIVER
PUMPING STATION UPGRADE

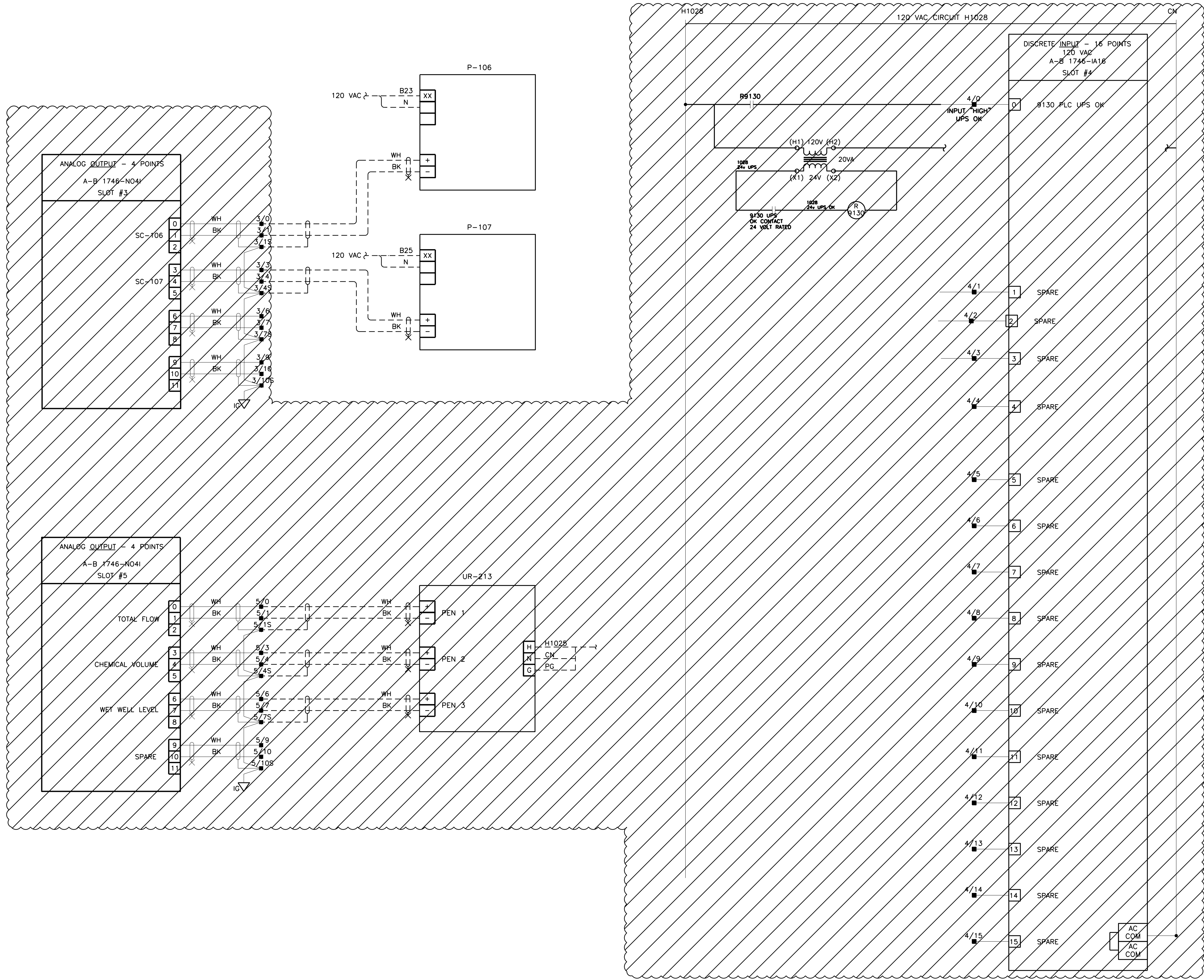
ELECTRICAL
CONTROL SCHEMATICS
SHEET 3 OF 3

DRAWING NUMBER	REV. NO.	SHEET
CH2-608	3	

CIRCUIT SHOWN BASED ON CUTLER-HAMMER "TRU-START" SOFT START CONTROLLER;
TO BE MODIFIED BY MCC MANUFACTURER AS REQUIRED TO SUIT THE PARTICULAR EQUIPMENT
BEING SUPPLIED.

RENUMBERED FROM 982819-602-1-608 TO





VERIFY SCALES
BAR IS BASED ON
ORIGINAL DRAWING
0 20mm
IF NOT 20mm ON
THE SHEET, ADJUST
SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR
CONSTRUCTION OF ALTERATIONS. ALL ITEMS
SHOWN, MATERIALS, AND DIMENSIONS TO
BE CONFIRMED ON SITE.

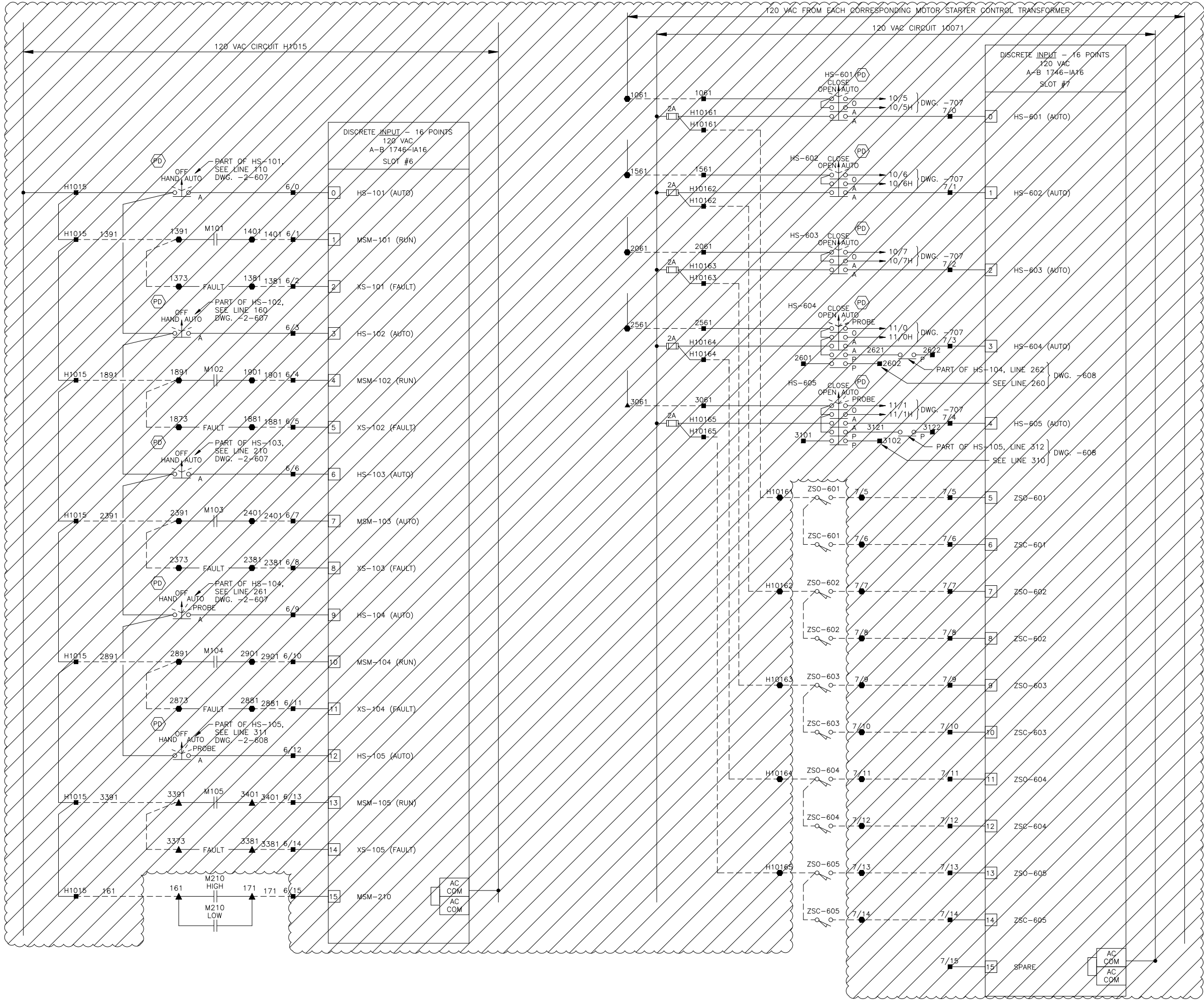
NO.	DATE	ENG.	BY	SUBJECT
3	25 MAY 2013	JK	RS.	RECORD DRAWING UPDATE
2	30 NOV. 00	K.M.	J.T.	RECORD DRAWING, STAGE 2
1	23 JUNE 00	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	14 APR 00	K.M.	S.T.	ISSUED FOR TENDER

REVISIONS	
PROJECT NO.	982819-602
SCALE	N.T.S.
DRAWN	S.L./H.S.
DESIGNED	M.L.
CHECKED	D.S.W.
APPROVED	
APPROVED	
DATE	MARCH 2000

ISSUED FOR
DEMOLITION
Date: 2021/03/08

ASSOCIATED
ENGINEERING

DISTRICT PROJECT NUMBER		
0810-20-CRPS-04		
DISTRICT DRAWING NUMBER		
CRPS-I-104		
REGIONAL DISTRICT OF NANAIMO		
CHASE RIVER PUMPING STATION UPGRADE		
INSTRUMENTATION CP-100 WIRING SHEET 3 OF 6		
DRAWING NUMBER	REV. NO.	SHEET
CH2-704	3	



VERIFY SCALES
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ORIGINAL DRAWING
0 20mm
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SCALES ACCORDINGLY

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CONSTRUCTION OF ALTERATIONS. ALL ITEMS
SHOWN, MATERIALS, AND DIMENSIONS TO
BE CONFIRMED ON SITE.

3	25 MAY 2013	JK	RS.	RECORD DRAWING UPDATE
2	30 NOV. 00	K.M.	J.T.	RECORD DRAWING, STAGE 2
1	23 JUNE 00	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	14 APR 00	K.M.	S.T.	ISSUED FOR TENDER
NO.	DATE	ENG.	BY	SUBJECT

REVISIONS	
PROJECT NO.	982819-602
SCALE	N.T.S.
DRAWN	J.T.
DESIGNED	J.T.
CHECKED	D.S.W.
APPROVED	
APPROVED	
DATE	MARCH 2000

ISSUED FOR
DEMOLITION
Date: 2021/03/08

**ASSOCIATED
ENGINEERING**

DISTRICT PROJECT NUMBER
0810-20-CRPS-04
DISTRICT DRAWING NUMBER
CRPS-I-105

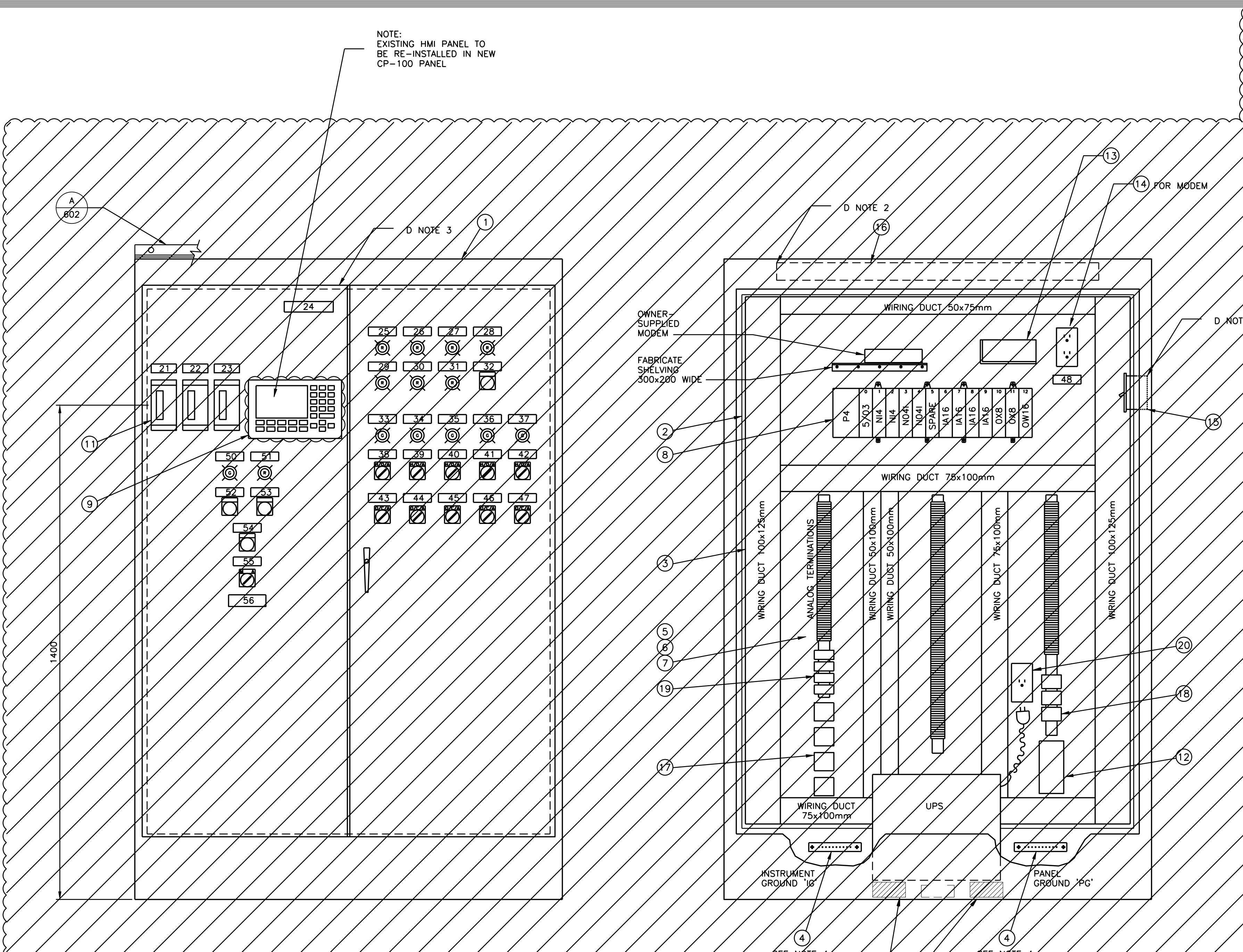
REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 WIRING
SHEET 4 OF 6

DRAWING NUMBER	REV. NO.	SHEET
CH2-705	3	

RENUMBERED FROM 982819-602-1-705 TO



NOTES:

1. PLACE A GROUND TERMINAL AT THE TOP OF EACH TERMINAL BLOCK ROW AND PLACE AN END BRACKET AT THE BOTTOM OF THE ROW.
2. PANEL GROUND BAR (PG) IS USED FOR GROUNDING PANEL CHASSIS, DOOR, INNER PANEL, 120 VAC DEVICES AND TECK CABLE GROUNDS.
3. INSTRUMENT GROUND BAR (IG) IS USED FOR GROUNDING ANALOG CABLE SHIELDS AND THE 24 VDC POWER SUPPLY NEGATIVE TERMINAL.
4. KEEP THE INSTRUMENT GROUND BAR ELECTRICALLY ISOLATED FROM THE PANEL AND FROM THE PANEL GROUND BAR EXCEPT FOR #14 AWG WIRE CONNECTING THE TWO GROUND BARS.
5. KEEP ANALOG WIRING SEPARATE FROM DISCRETE AND POWER WIRING AS MUCH AS POSSIBLE.
6. THE 'BILL OF MATERIAL' ILLUSTRATES FEATURES REQUIRED AND ESTABLISHES THE QUALITY OF THE EQUIPMENT. OTHER PRODUCTS LISTED IN THE SPECIFICATIONS, WITH IDENTICAL FEATURES, ARE ACCEPTABLE.
7. WIRE NUMBERS WILL BE THE SAME AS THE TERMINAL DESIGNATION UNLESS SHOWN OTHERWISE.

BILL OF MATERIAL

ITEM	QUANTITY	MAKE	MODEL	DESCRIPTION
1	1	HAMMOND	1418 ZW18	ENCLOSURE 72" X 48" X 18" (1830mm X 1219mm X 459mm) C/W TWO HINGED DOORS AND AUTOMOTIVE TYPE HANDLE
2	1	HAMMOND	72ZWPW	BACK PANEL 60" X 44" (1524mm X 1118mm)
3	AS REQUIRED		SNAP IN SLOT STYLE	WIRING DUCT
4	2			COPPER GROUND BAR 25x150x6mm
5	AS REQUIRED	WEIDMULLER	TS-32xEWB1	RAIL C/W END BRACKET
6	AS REQUIRED	WEIDMULLER	SAK4	TERMINALS
7	AS REQUIRED	WEIDMULLER		FUSED TERMINAL
8	1	A-B	SLC 5/03	PLC ASSEMBLY AS SPECIFIED
9	1	A-B	PANEL VIEW 550	OPERATOR INTERFACE PANEL AS SPECIFIED
10	AS REQUIRED	IDEC		SELECTOR SWITCHES/PUSHBUTTONS/LIGHTS
11	3	MILLTRONICS	MINIRANGER PLUS	LEVEL TRANSMITTERS AS SPECIFIED
12	1	TYCOR	AGS120XS	TVSS, 15 AMP CAPACITY
13	1	POWER-ONE	MAP55-1024	24 VDC POWER SUPPLY
14	1			120VAC DUPLEX RECEPTACLE
15	1			PANEL LIGHT SWITCH
16	1			FLUORESCENT STRIP LIGHT
17	4	SEE SPEC.	SEE SPEC.	INTRINSICALLY SAFE RELAY
18	3	SEE SPEC.	SEE SPEC.	RELAY, 120VAC COIL
19	4	SEE SPEC.	SEE SPEC.	RELAY, 24VDC COIL
20	1			120 VAC SIMPLEX RECEPTACLE

NAMEPLATE NOTES:

1. 2 PLY LAMINATED PLASTIC, 3mm THICK, WHITE FACE, BLACK CORE, BEVELLED EDGES.
2. TAG NUMBER ON TOP LEFT, REMAINING TEXT IS CENTERED.
3. VERIFY THAT THE NAMEPLATE SIZES ARE ADEQUATE BEFORE FABRICATION.

ITEM	WORDING
21	LIT-201 STORAGE TANK #1
22	LIT-202 STORAGE TANK #2
23	LIT-205 WET WELL
24	CP-100 CONTROL PANEL
25	LAH-201 STORAGE TANK #1 HIGH LEVEL
26	LAH-202 STORAGE TANK #2 HIGH LEVEL
27	XA-100 GENERATOR FAULT
28	XA-206B GENERAL ALARM
29	LAL-201 STORAGE TANK #1 LOW LEVEL
30	LAL-202 STORAGE TANK #2 LOW LEVEL
31	PAL-633 LOW INSTRUMENT AIR PRESSURE
32	HS-206 ALARM RESET
33	MI-101B PUMP #1 RUN
34	MI-102B PUMP #2 RUN
35	MI-103B PUMP #3 RUN
36	MI-104B PUMP #4 RUN
37	MI-105B PUMP #5 RUN

ITEM	WORDING
38	HS-101 PUMP #1
39	HS-102 PUMP #2
40	HS-103 PUMP #3
41	HS-104 PUMP #4
42	HS-105 PUMP #5
43	HS-601 PUMP #1 OUTLET VALVE
44	HS-602 PUMP #2 OUTLET VALVE
45	HS-603 PUMP #3 OUTLET VALVE
46	HS-604 PUMP #4 OUTLET VALVE
47	HS-605 PUMP #5 OUTLET VALVE
48	UPS-SUPPLY FOR INSTRUMENT USE ONLY
49	POWER SUPPLY FOR UPS ONLY
50	ZIO-120 GATE OPEN
51	ZIC-120 GATE CLOSED
52	HS-120B OPEN
53	HS-120C CLOSE
54	HS-120D STOP
55	HS-120A GATE MODE SELECTOR
56	G-120 JUNCTION CHAMBER GATE CONTROLS

VERIFY SCALES
BAR IS BASED ON ORIGINAL DRAWING
0 20mm
IF NOT 20mm ON THE SHEET, ADJUST SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR CONSTRUCTION OR ALTERATIONS. ALL ITEMS SHOWN, MATERIALS, AND DIMENSIONS TO BE CONFIRMED ON SITE.

NO.	DATE	ENG.	BY	SUBJECT
4	17 JUL 2013	-	RS	UPDATE DRAWINGS
3	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
2	03 JAN 2002	M.L.	J.T.	JUNCTION CHAMBER GATE CONTROLS ADDED
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	09 AUG 2001	K.M.	S.T.	ISSUED FOR TENDER

REVISIONS

PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	S.L./H.S./J.T.
DESIGNED	M.L.
CHECKED	
APPROVED	
APPROVED	
DATE	JAN 2002

ISSUED FOR
DEMOLITION
Date: 2021/03/08

ASSOCIATED
ENGINEERING



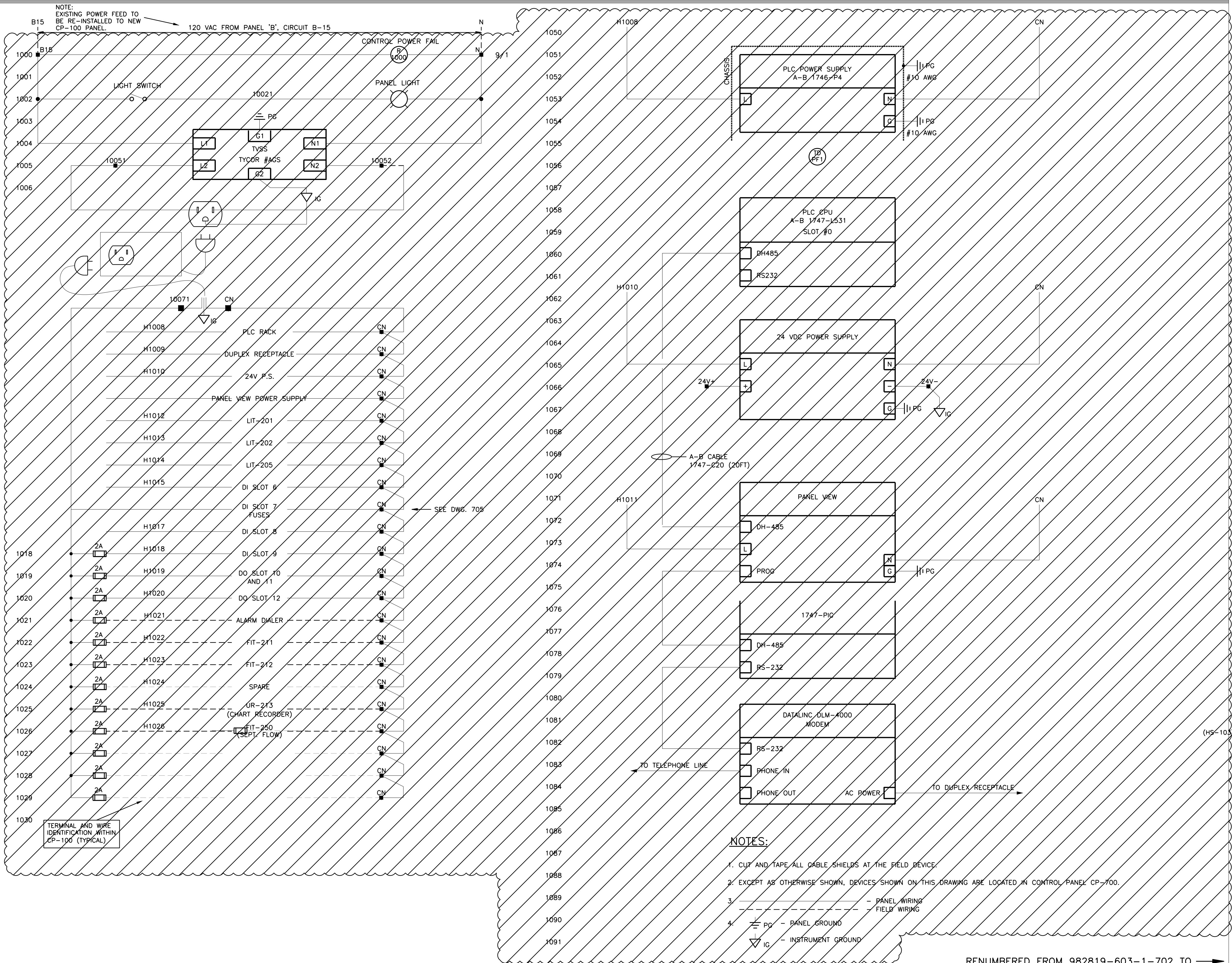
DISTRICT PROJECT NUMBER	0810-20-CRPS-04
DISTRICT DRAWING NUMBER	CRPS-I-101

REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 PANEL LAYOUT

DRAWING NUMBER	REV. NO.	SHEET
CH3-701	3	



VERIFY SCALES

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NO.	DATE	ENG.	BY	SUBJECT
3	29 JUNE 2013	RS	RS	DRAWINGS UPDATED
2	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	9 AUG 2001	K.M.	S.T.	ISSUED FOR TENDER

PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	S.L.
DESIGNED	M.L.
CHECKED	J.G.
APPROVED	
DATE	JULY 2001

ISSUED FOR
DEMOLITION
Date: 2021/03/08

**ASSOCIATED
ENGINEERING**

DISTRICT PROJECT NUMBER
0810-20-CRPS-04

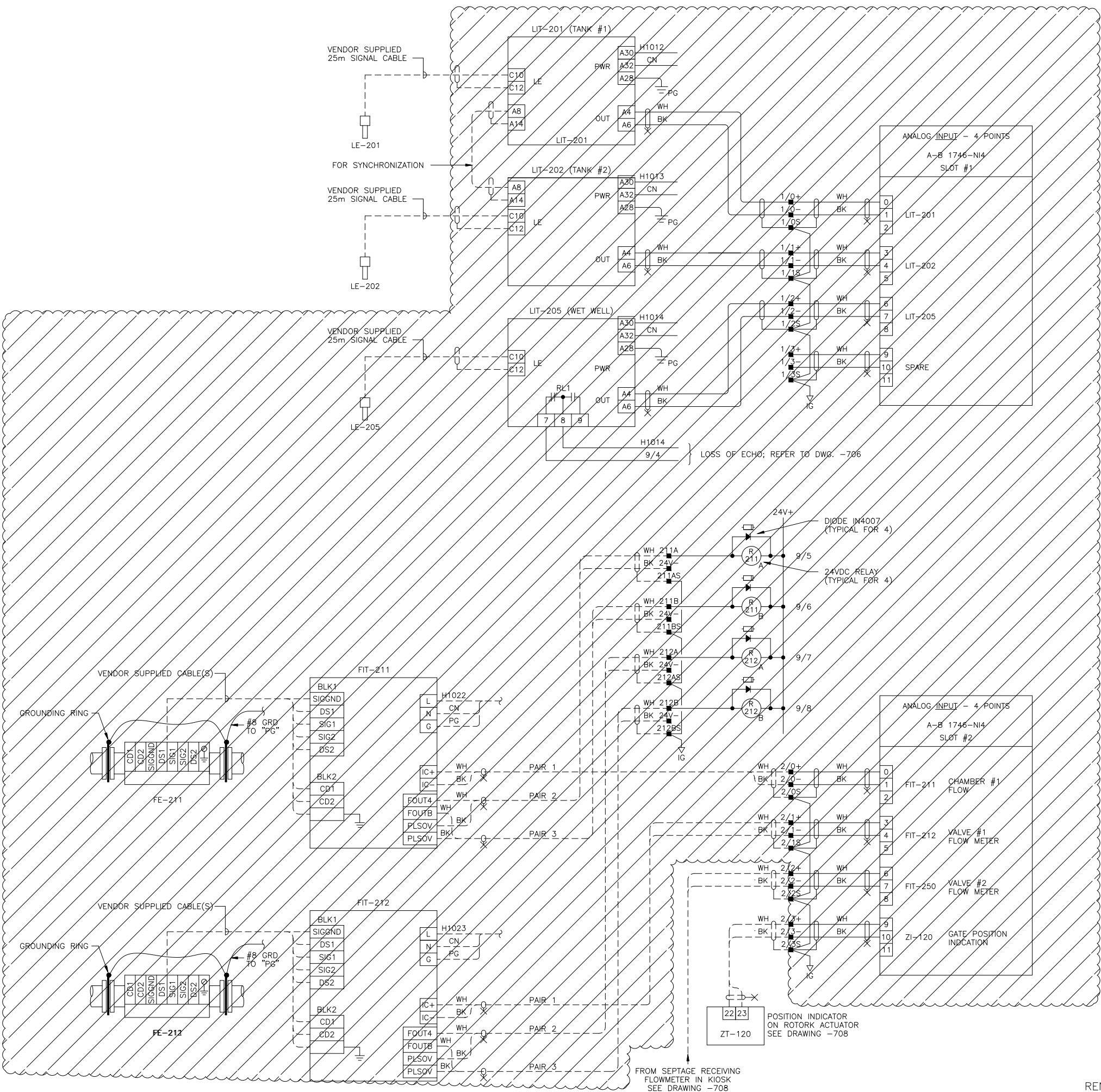
DISTRICT DRAWING NUMBER
CRPS-I-102

REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 WIRING
SHEET 1 OF 6

DRAWING NUMBER	REV. NO.	SHEET
CH3-702	3	



RENUMBERED FROM 982819-603-1-703 TO →

VERIFY SCALES
BAR IS BASED ON
ORIGINAL DRAWING
0 20mm
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THE SHEET, ADJUST
SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR
CONSTRUCTION OF ALTERATIONS. ALL ITEMS
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4	DEC 2012	JK	RS	DRAWINGS UPDATE
3	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
2	03 JAN 2002	M.L.	J.T.	JUNCTION CHAMBER GATE CONTROLS ADDED
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	9 AUG 2001	K.M.	S.T.	ISSUED FOR TENDER
NO.	DATE	ENG.	BY	SUBJECT

REVISIONS	
PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	S.L.
DESIGNED	M.L.
CHECKED	J.G.
APPROVED	
APPROVED	
DATE	JULY 2001

ISSUED FOR
DEMOLITION
Date: 2021/03/08

**ASSOCIATED
ENGINEERING**

DISTRICT PROJECT NUMBER
0810-20-CRPS-04
DISTRICT DRAWING NUMBER
CRPS-I-103

REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 WIRING
SHEET 2 OF 6

DRAWING NUMBER	REV. NO.	SHEET
CH3-703	4	

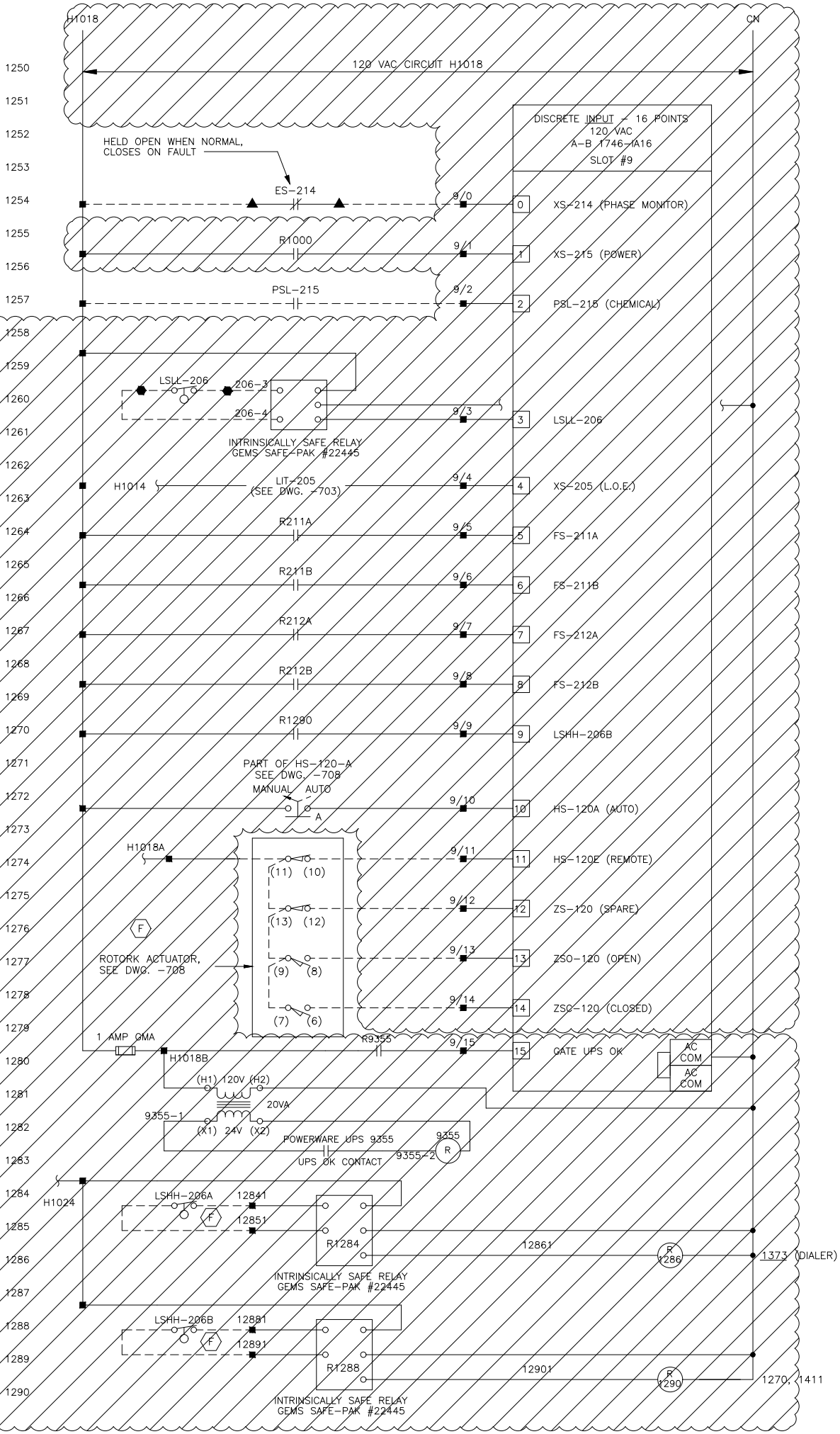
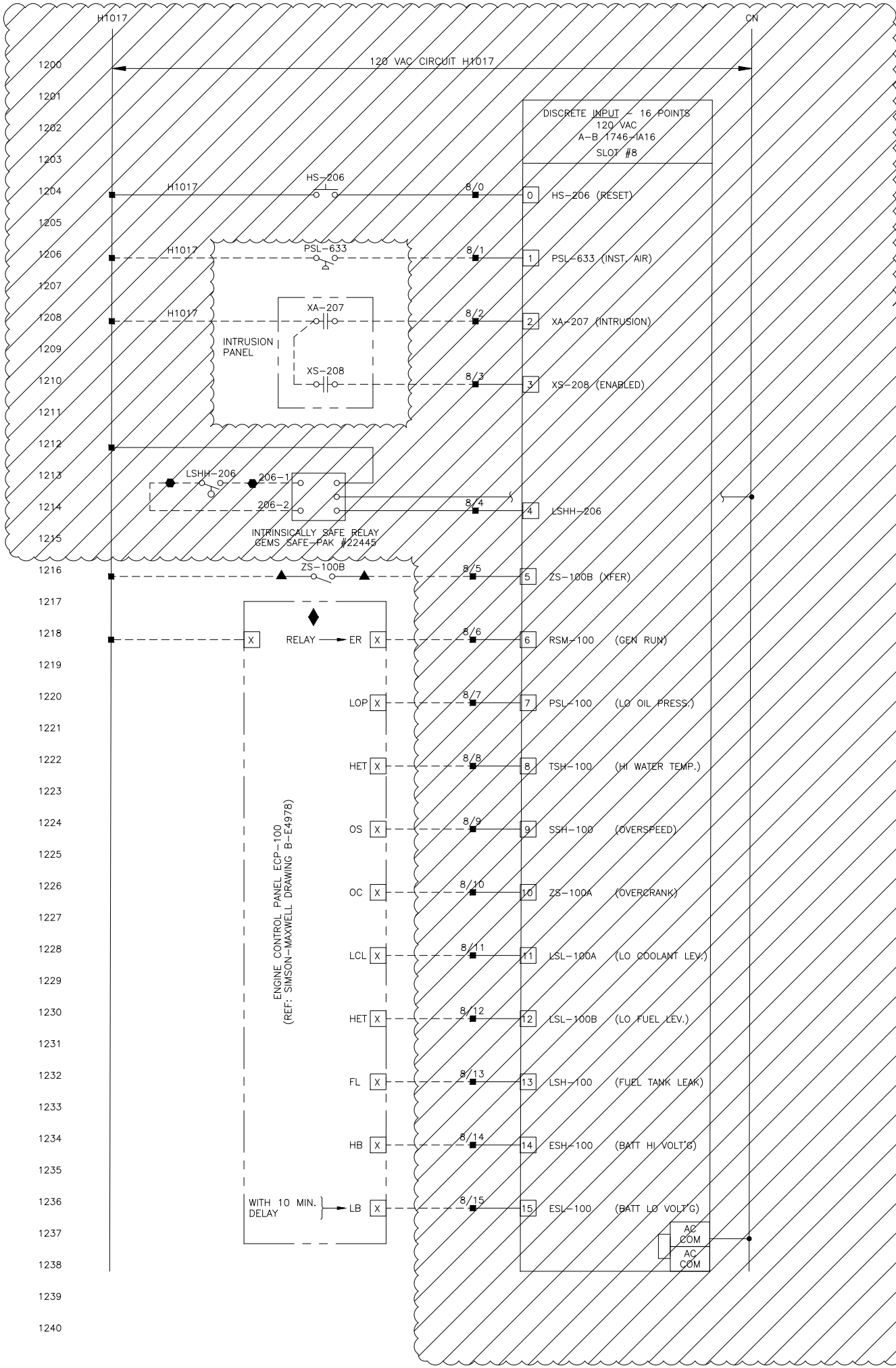
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JT

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VERIFY SCALES

BAR IS BASED ON
ORIGINAL DRAWING

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THE SHEET, ADJUST
SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR
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4	25 MAY 2013	JK	RS.	RECORD DRAWING UPDATE
3	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
2	02 JAN 2002	M.L.	J.T.	JUNCTION CHAMBER GATE CONTROLS ADDED
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	9 AUG 2001	K.M.	S.T.	ISSUED FOR TENDER
NO.	DATE	ENG.	BY	SUBJECT

REVISIONS

PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	S.L./H.S.
DESIGNED	M.L.
CHECKED	J.G.
APPROVED	
APPROVED	
DATE	JULY 2001

ISSUED FOR
DEMOLITION
Date: 2021/03/08

**ASSOCIATED
ENGINEERING**



DISTRICT PROJECT NUMBER

0810-20-CRPS-04

DISTRICT DRAWING NUMBER

CRPS-I-106

REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 WIRING
SHEET 5 OF 6

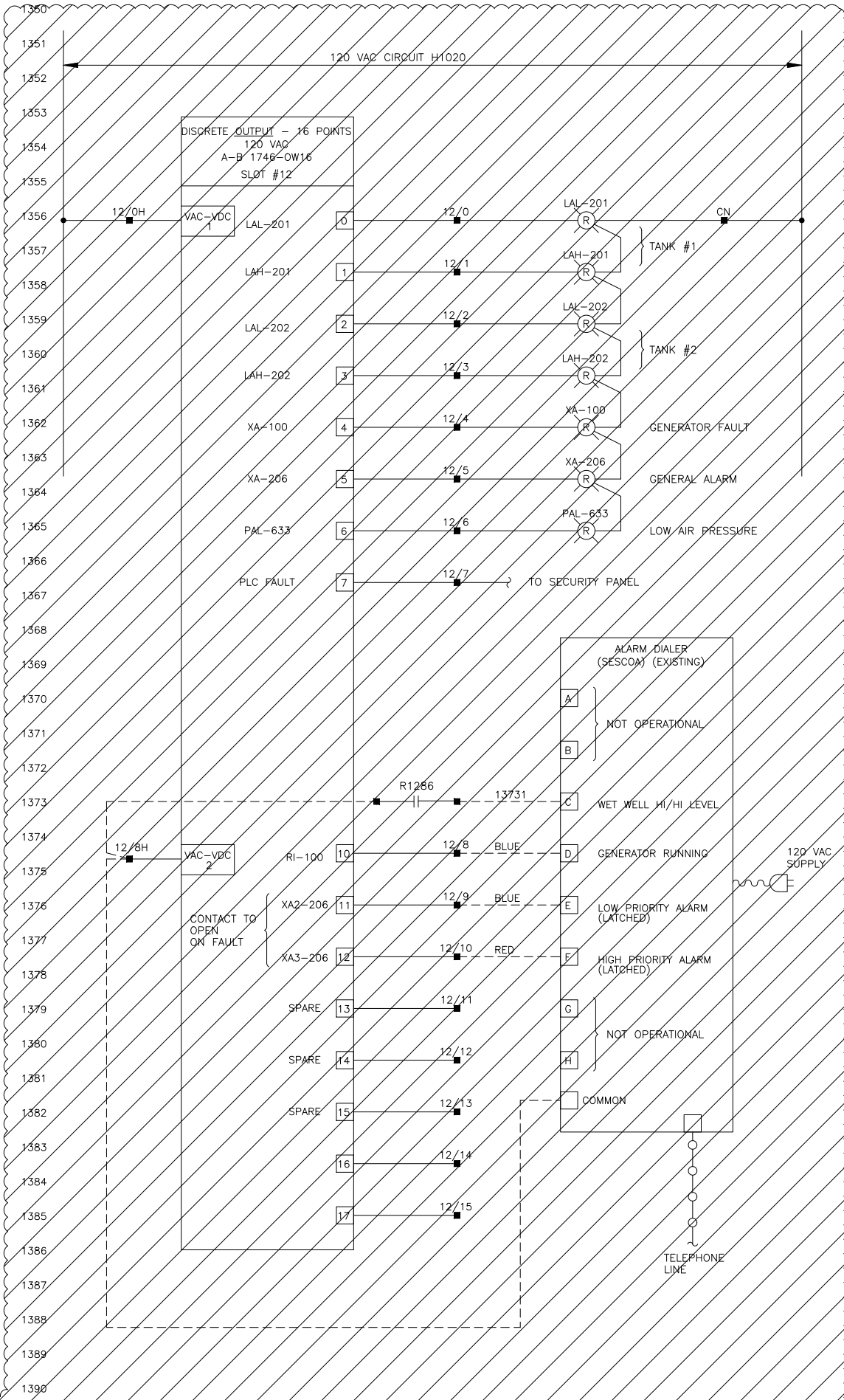
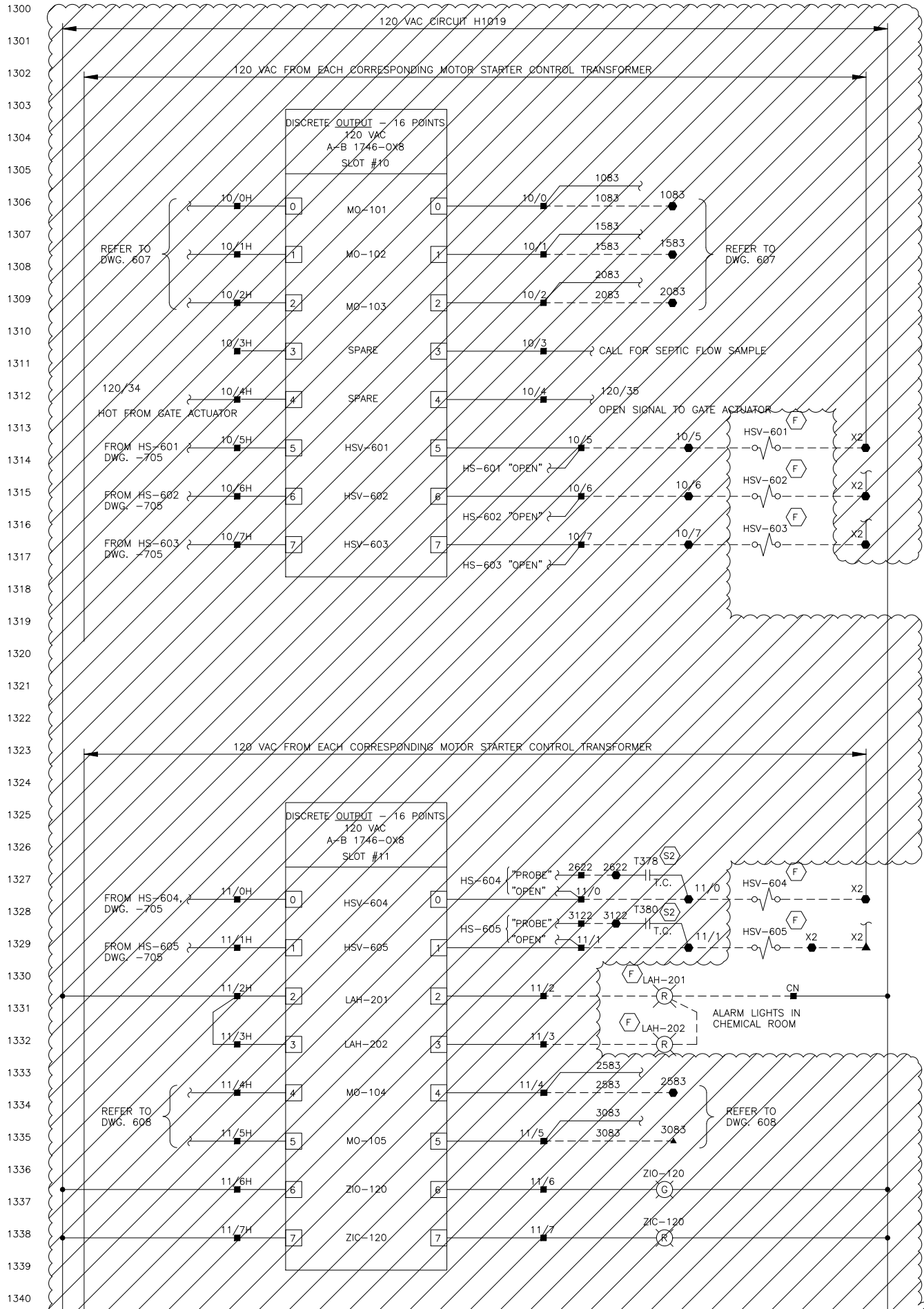
DRAWING NUMBER	REV. NO.	SHEET
CH3-706	4	

RENUMBERED FROM 982819-603-1-706 TO

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VERIFY SCALES

BAR IS BASED ON ORIGINAL DRAWING

0 20mm

IF NOT 20mm ON THE SHEET, ADJUST SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR CONSTRUCTION OF ALTERATIONS. ALL ITEMS SHOWN, MATERIALS, AND DIMENSIONS TO BE CONFIRMED ON SITE.

NO.	DATE	ENG.	BY	SUBJECT
4	30 DEC 2012	JK	RS	RECORD DRAWING UPDATE
3	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
2	03 JAN 2002	M.L.	J.T.	JUNCTION CHAMBER GATE CONTROLS ADDED
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	09 AUG 2001	M.L.	J.T.	ISSUED FOR TENDER

PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	J.T.
DESIGNED	M.L.
CHECKED	
APPROVED	
APPROVED	
DATE	JAN 2002

ISSUED FOR
DEMOLITION
Date: 2021/03/08

ASSOCIATED ENGINEERING

DISTRICT PROJECT NUMBER
0810-20-CRPS-04

DISTRICT DRAWING NUMBER
CRPS-I-107

REGIONAL DISTRICT OF NANAIMO

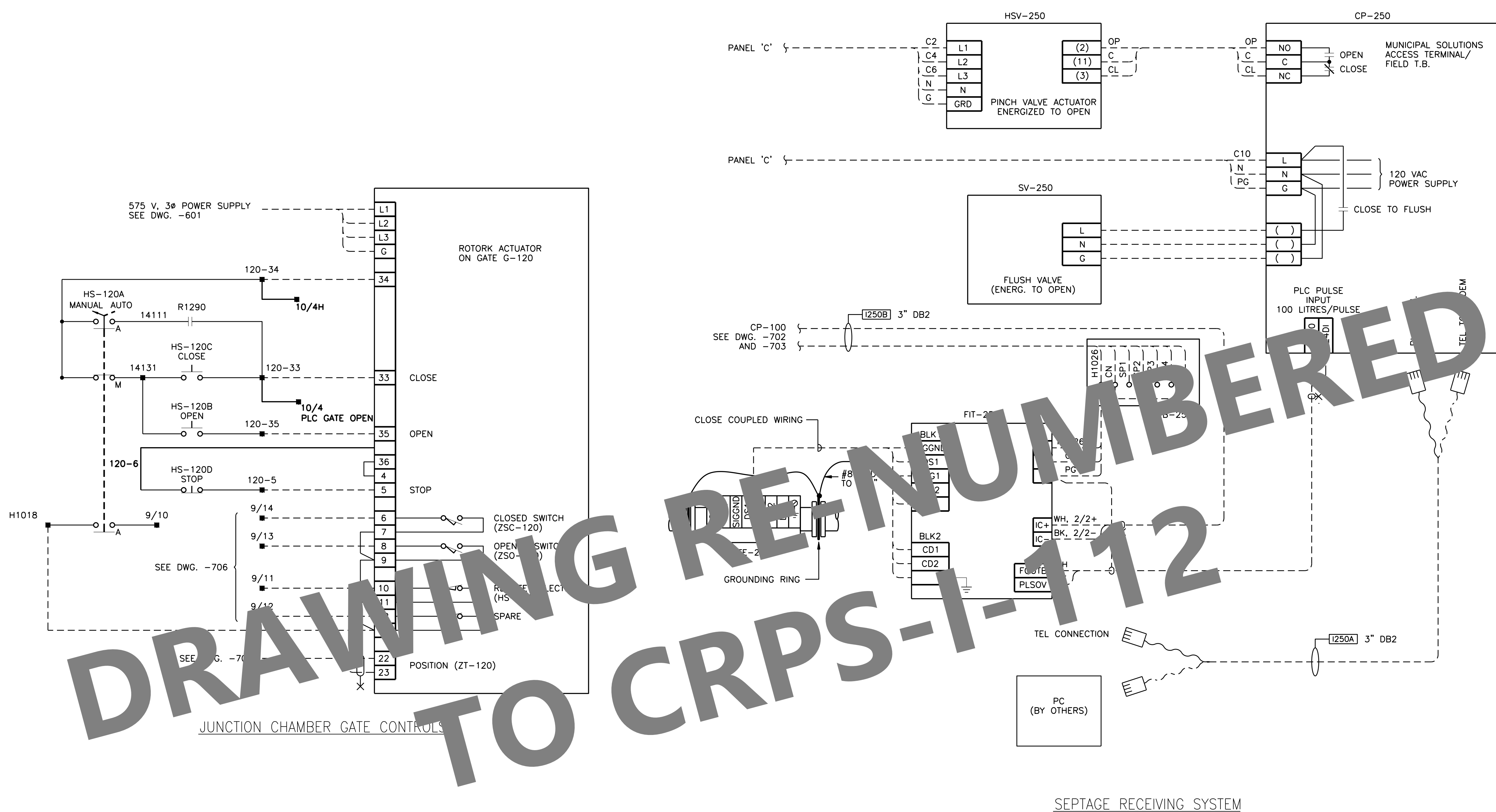
CHASE RIVER PUMPING STATION UPGRADE

INSTRUMENTATION
CP-100 WIRING
SHEET 6 OF 6

DRAWING NUMBER	REV. NO.	SHEET
CH3-707	4	

RENUMBERED FROM 982819-603-1-707 TO →

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1440



VERIFY SCALES

BAR IS BASED ON ORIGINAL DRAWING

0 20mm

IF NOT 20mm ON THE SHEET, ADJUST SCALES ACCORDINGLY

RECORD DRAWING - NOT TO BE USED FOR CONSTRUCTION OF ALTERATIONS. ALL ITEMS SHOWN, MATERIALS, AND DIMENSIONS TO BE CONFIRMED ON SITE.

NO.	DATE	ENG.	BY	SUBJECT
4	1 FEB 2013	RS	RS	RECORD DRAWING UPDATE
3	17 JUL 2002	M.L.	J.T.	RECORD DRAWING, STAGE 3
2	03 JAN 2002	M.L.	J.T.	JUNCTION CHAMBER GATE CONTROLS ADDED
1	24 SEP 2001	K.M.	S.T.	ISSUED FOR CONSTRUCTION
0	9 AUG 2001	K.M.	S.T.	ISSUED FOR TENDER

REVISIONS

PROJECT NO.	982819-603
SCALE	N.T.S.
DRAWN	J.T.
DESIGNED	M.L.
CHECKED	J.G.
APPROVED	
APPROVED	
DATE	JULY 2001

ISSUED FOR
OBSOLETE
Date: 2021/03/08

ASSOCIATED
ENGINEERING

DISTRICT PROJECT NUMBER

0810-20-CRPS-04

DISTRICT DRAWING NUMBER

CRPS-I-108

REGIONAL DISTRICT
OF NANAIMO

CHASE RIVER
PUMPING STATION UPGRADE

INSTRUMENTATION
SEPTAGE RECEIVING AND GATE CONTROLS
WIRING DETAILS

DRAWING NUMBER	REV. NO.	SHEET
CH3-708	4	