REGIONAL DISTRICT OF NANAIMO

REQUEST FOR TENDER No. 22-003

Chase River Pump Station Upgrades

Addendum 3
Issued: February 15, 2022
16 pages

Closing Date & Time: on or before 3:00 PM Pacific Time on March 3, 2022

This addendum shall be read in conjunction with and considered as an integral part of the Request for Tender. Revisions supersede the information contained in the original Tender or previously issued Addendum. No consideration will be allowed for any extras due to any Vendor not being familiar with the contents of this Addendum. All other terms and conditions remain the same.

Tender Addendum

3a. Responses to vendor questions received at site meeting and through email (attached).
3b. Miscellaneous clarifications and information from RDN (attached).
3c. Changes to Description of Work and RDN scope of supply (attached).

End of Addendum 3

REGIONAL DISTRICT OF NANAIMO

Addendum 3a
Responses to Vendor Questions

1. **Question:** Is it permissible to galvanize the platform structural steel instead of painting to RDN specification SP-S-0101?
   Answer: *No. All carbon steel structural members must be painted according to RDN specification SP-S-0101.*

2. **Question:** Will RDN permit contractors to use RDN hoists in the wet well?
   Answer: *Contractors may use existing monorails or lifting beams to their rated capacity, using their own hoisting equipment (chainfalls, turfers, electric hoists etc). RDN hoists will not be available for use by contractors.*

3. **Question:** As the RDN is experienced in operation of the CRPS, please advise if there are any concerns with ragging or debris which would adversely affect pump suction hoses for bypass in the junction chamber?
   Answer: *RDN has not observed much ragging or large debris in the wastewater, or experienced associated blockages in the existing submersible pumps. However, ragging and debris is possible in the wastewater stream and the Contractor's bypass system must be designed and monitored appropriately to handle this potential situation. Note that the pump station bypass strategy recommended by Jacobs, and included with the tender documents, stipulates the use of both duty and standby bypass pumps.*

4. **Question:** Can the RDN confirm and guarantee all owner supplied equipment be available by March 31, 2022 as per the schedule? Are shop drawings available for this equipment after NTP?
   Answer: *All RDN-supplied equipment is expected to be in the possession of the RDN by March 31, 2022. Some E/I materials are not yet in hand, but are expected to arrive by then, provided no major supply chain issues arise. MCC-300, HMI-100 and CP-100 are planned to be used by the RDN for control system staging at the GNPCC warehouse until June 10, 2022. This equipment will be available for inspection prior to this time on request of the Contractor. Some shop drawings have already been provided with the tender documents. The remaining available shop drawings can be provided to the Contractor upon issue of the Notice of Intent to Award.*

5. **Question:** Has a hazmat assessment per the requirements of WSBC Part 20 been completed by the RDN for this scope of work related to asbestos, vermiculite, lead paint etc?
   Answer: *No, not yet. A hazardous materials assessment will be completed by RDN and the Contractor notified of the results a minimum of 4 weeks in advance of the shutdown work start date. RDN has no knowledge of hazardous materials existing at the pump station.*

6. **Question:** Will the use of water from the City of Nanaimo via permit costs to be borne by the contractor?
   Answer: *Yes.*

7. **Question:** Dezurik plug valves supplied by the RDN are pneumatic and require compressed air system yet no detailed drawings depict any of the lay out of the piping and tie-ins for the valves/compressor. Can you provide if this is required to be installed by the contractor?
   Answer: *All of the existing compressed air supply lines are intended to be reused. Please refer to DeZurik shop drawings attached, detailing the scope of controls supply. Contractors may remove existing air supply lines, for construction convenience and/or to avoid damage, and field reinstate them after demolition and reinstallation of the large bore piping.*

8. **Question:** The schedule permits 21 days including weekends to complete the cleaning of wet well, removal of all miscellaneous metals, supports, piping, valves, electrical, and mechanical demolition including reinstallation of piping, miscellaneous metals, and pumps. Can this date be extended if unforeseen issues arise that push the schedule especially since the dry season in Nanaimo extends closer to fall?
   Answer: *The shutdown work window has been increased from 21 to **28 days** long and the shutdown work start date has been moved from Tuesday June 28, 2022 to **Tuesday July 26, 2022**. It is desirable to complete the work in the window provided. However, RDN expects low wastewater flow conditions could extend into September 2022 and as such, at the RDN's discretion, a work extension may be permissible, if unforeseen issues arise.*

9. **Question:** Please provide the value of the owner supplied equipment for insurance purposes?
   Answer: *Approximately $295,000 CAD.*

REGIONAL DISTRICT OF NANAIMO

Addendum 3b
Miscellaneous Clarifications and Information

1. **Addition to the Drawings** – See attached DeZurik control valve and actuator drawing A50959 Revision A (RDN supply).
2. **Addition to the Drawings** – See attached DeZurik detailed control valve actuator drawing J34123 Revision B (RDN supply).
3. **Revised Project Summary Schedule** – See attached revised project overview schedule with revised target date for Notice of Intent to Award, adjusted shutdown work start date and increased shutdown time allowance.
4. **Note** – RDN is aware that the City of Nanaimo has used Aureus and Canadian Dewatering for bypass pumping operations on previous jobs. Contractors are encouraged to contact the City for more information, if needed.

REGIONAL DISTRICT OF NANAIMO

Addendum 3c
Changes to Description of Work and RDN Scope of Supply

Please refer to attached documents:

i. Description of Work Revision 1 – Changes highlighted
ii. E&I Material Takeoff Revision 1 (Allnorth) – Redline dated February 10, 2022

VALVE SIZE		DIMENSIONS INCHES / MILLIMETERS										
INCH	MM	A	B	C	D	E	F	G	H	J	K	L
4	100	.69 / 18	9.00 / 229	5.38 / 137	7.50 / 191	NONE	NONE	NONE	.75 / 19	8	9.62 / 244	14.50 / 368
5	125	.75 / 19	10.50 / 267	6.50 / 165	8.50 / 216	3/4–10UNC	4	1.00 / 25	.88 / 22	4	11.81 / 300	16.69 / 424
6	150	.75 / 19	10.50 / 267	6.50 / 165	9.50 / 241	NONE	NONE	NONE	.88 / 22	8	11.81 / 300	16.69 / 424
8	200	.81 / 21	11.50 / 292	8.25 / 210	11.75 / 298	3/4–10UNC	4	.81 / 21	.88 / 22	4	13.63 / 346	18.51 / 470
10	250	.88 / 22	13.00 / 330	10.28 / 261	14.25 / 362	7/8–9UNC	4	.88 / 22	1.00 / 25	8	15.12 / 384	20.00 / 508
12	300	.94 / 24	14.00 / 356	11.69 / 297	17.00 / 432	7/8–9UNC	4	.94 / 24	1.00 / 25	8	16.75 / 425	21.63 / 549

A	VALVE
B	ACTUATOR
C	CYLINDER

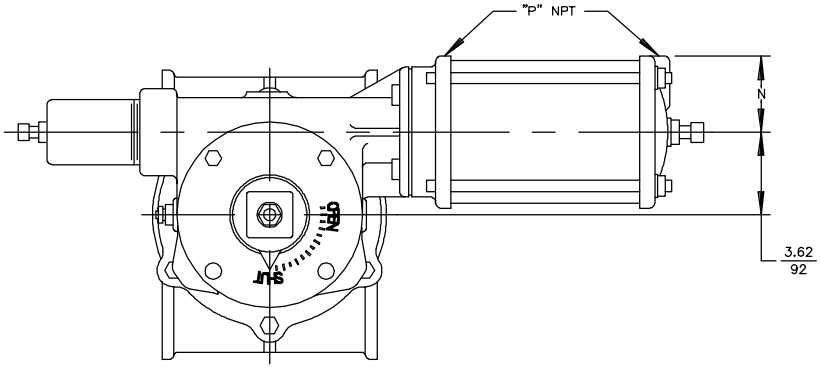
NOTES:

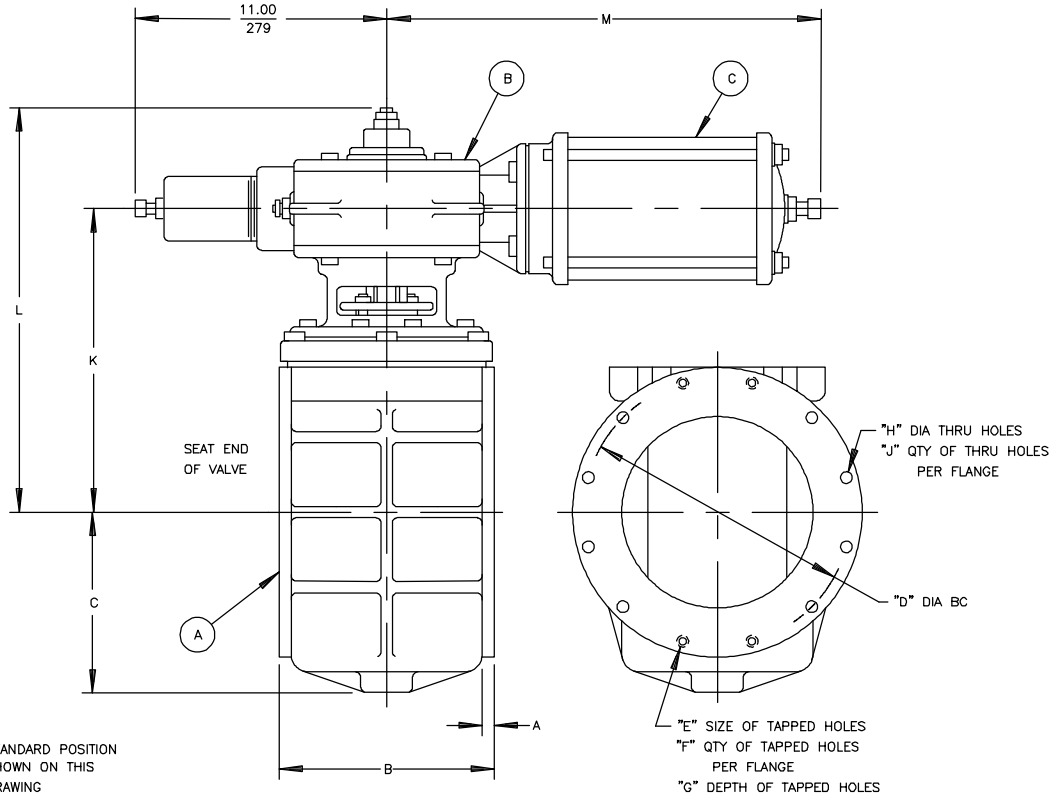
1. FLANGES ARE FLAT FACED WITH DIAMETER AND DRILLING TO CLASS 125 ANSI STANDARD B16.1, EXCEPT FOR TAPPED HOLES AS INDICATED. SEE A–16368 FOR NON–ANSI FLANGE DATA.

VALVE SIZE	ACTUATOR NUMBER	DIMENSIONS INCHES / MILLIMETERS		
		M	N	P
4 – 8	GS–6–PC4	18.88 / 480	2.19 / 56	1/4
4 – 12	GS–6–PC6	19.12 / 486	3.19 / 81	1/2
6 – 12	GS–6–PC8	19.38 / 492	4.56 / 116	1/2

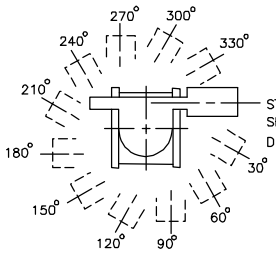
NOTICE

THIS DRAWING DOES NOT SHOW ACTUATOR ACCESSORIES. IF ACCESSORIES ARE REQUIRED, REFER TO THE APPROPRIATE ACCESSORY INSTALLATION DRAWING FOR DIMENSIONS AND OTHER RELATED INFORMATION.





ACTUATOR MOUNTING POSITIONS
AS VIEWED FROM TOP OF VALVE



NOTE:

DOTTED LINES SHOW OPTIONAL MOUNTING POSITIONS.

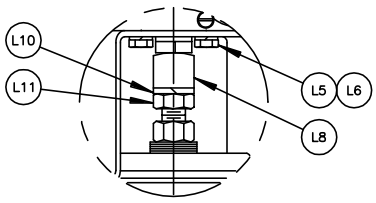
G	F	E	D	C	B	A	04/30/14
							62716

DeZURIK
Sartell, MN USA 56377
www.dezurik.com

PEC ECCENTRIC VALVES SIZE 4 – 12 FLANGED MATERIAL GROUP 1
GS–6–PC_ PNEUMATIC CYLINDER ACTUATED

DOCT. CODE	DRAWN	APPROVED	
C1	BMP	TPK	A50959
	CHECKED TPK	DATE 02/19/99	

CYLINDER SIZE	DIM IN / MM A
PC4	5.62 / 143
PC6	6.44 / 164
PC8	8.50 / 216
PC10	9.12 / 232
PC12	10.19 / 259



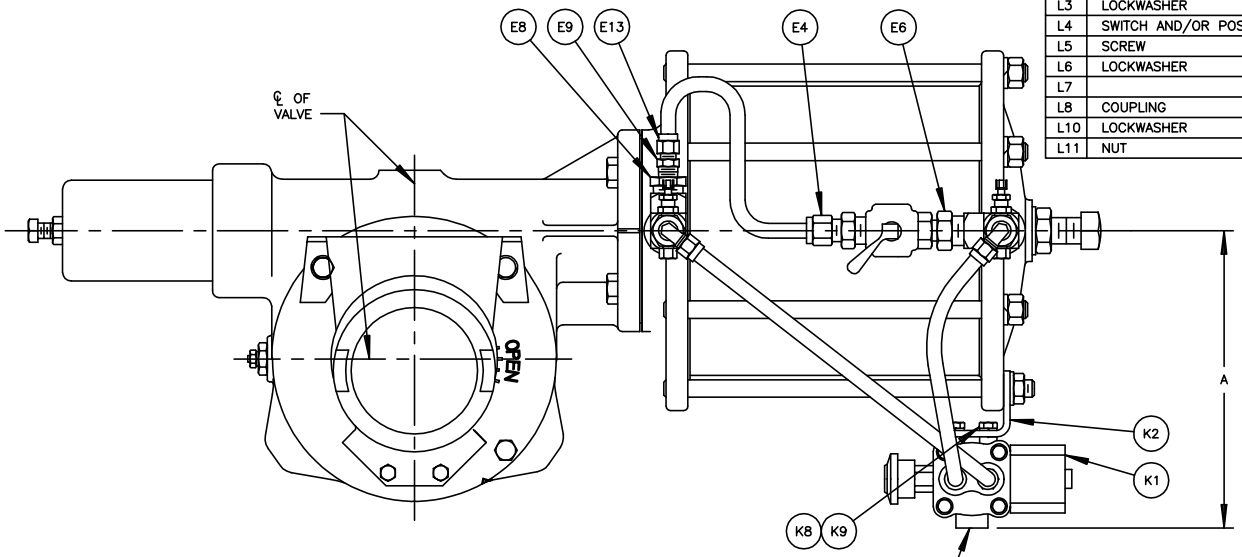
DETAIL "A"
ENLARGED

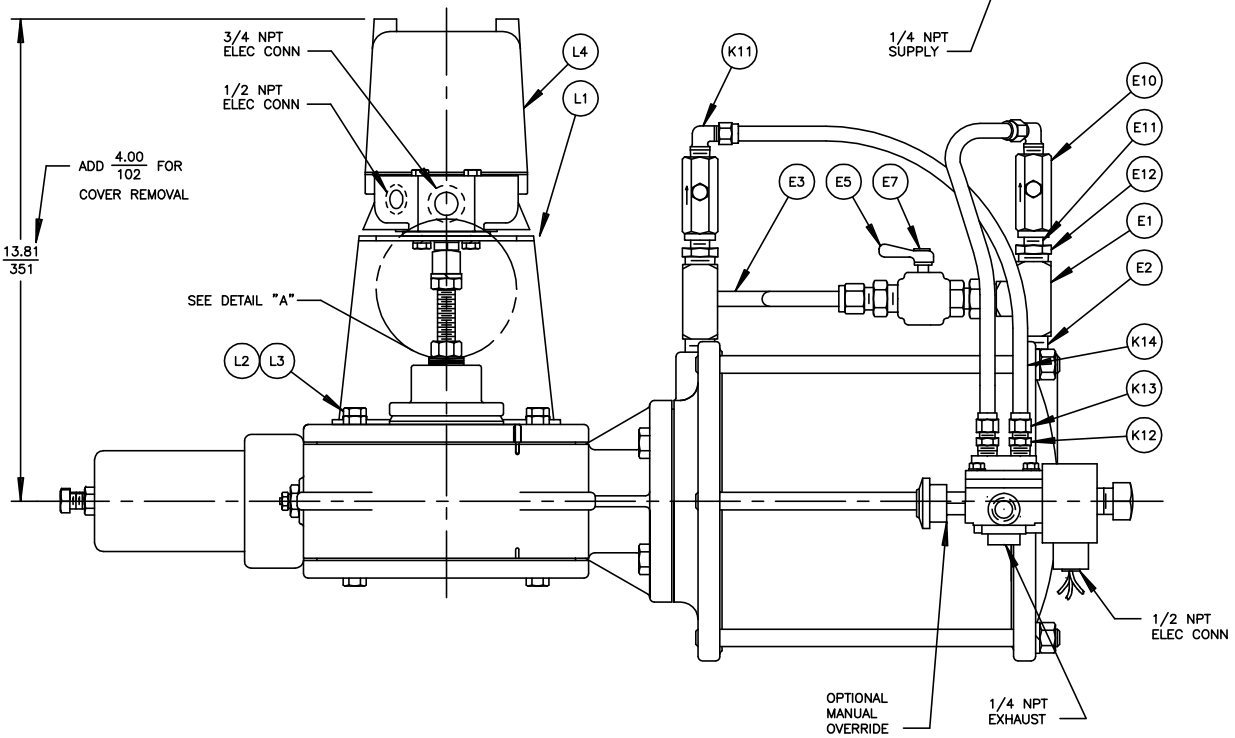
NOTE:

1. WHEN ORDERING PARTS, INCLUDE VALVE SIZE AND PART NUMBER FROM DATA PLATE. ALSO INCLUDE THIS DRAWING NUMBER WITH PART NAME, NUMBER AND QUANTITY.

2. PILOT VALVE IS SHOWN PIPED TO OPEN VALVE WHEN ENERGIZED. TO CLOSE VALVE WHEN ENERGIZED, REVERSE PIPING.

NO	PART NAME	QTY
E1	TEE	2
E2	CLOSE NIPPLE	2
E3	TUBING	–
E4	CONNECTOR	1
E5	MANUAL VALVE	1
E6	BUSHING	1
E7	TAG	1
E8	BUSHING (EXCEPT 4 CYLINDER)	2
E9	CONNECTOR	1
E10	SPEED CONTROL	2
E11	NIPPLE	2
E12	BUSHING (6, 8 & 10 CYL)	2
E13	CONNECTOR SWIVEL (FOR HOSE CONSTRUCTION ONLY)	2
K1	PILOT VALVE	1
K2	BRACKET	1
K8	SCREW	2
K9	LOCKWASHER	2
K11	NIPPLE	2
K12	CONNECTOR	2
K13	CONNECTOR, SWIVEL (FOR HOSE CONSTRUCTION ONLY)	2
K14	HOSE OR TUBING	–
L1	BRACKET	1
L2	SCREW	2
L3	LOCKWASHER	2
L4	SWITCH AND/OR POSITION TRANSMITTER	1
L5	SCREW	4
L6	LOCKWASHER	4
L7		
L8	COUPLING	1
L10	LOCKWASHER	1
L11	NUT	1





G	F	E	D	C	B	50312	10/09/18
					A	50312	10/04/07

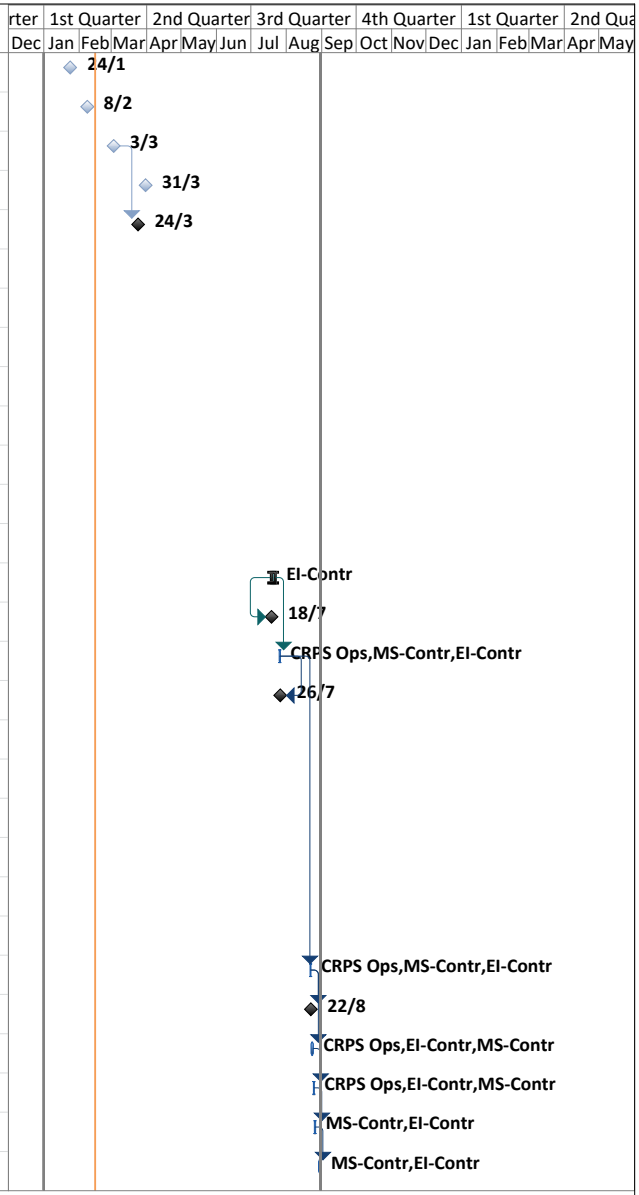
DeZURIK
APCO | HILTON
www.dezurik.com

4V (ASCO) PILOT VALVE, SP OR SP_ SPEED CONTROLS, BYPASS AND SE_ SWITCH AND/OR POSITION TRANSMITTER AS USED WITH GS-6 & GS-12 GEAR UNIT ACT'RS WITH CYL ON ECCENTRIC VALVES

DOCT. CODE	DRAWN	APPROVED
C1	BMP	SD
	CHECKED SD	DATE 11/08/99

J34123

ID	Task Mode	Task Name	Duration	Start	Finish	Resource Names
1		Issue Request for Tender (RFT)		Mon 24/1/22		RDN PM
2		RFT Site Familiarization Meeting		Tue 8/2/22		RDN PM,Bidders
3		Bids Due (3pm)		Thu 3/3/22		Bidders
4		All RDN supplied equipment on site at GNPCC		Thu 31/3/22		RDN PM
5		Issue Notice of Intent to Award Contract - Target	0 days	Thu 24/3/22	Thu 24/3/22	RDN PM
6		Issue M/S/E/I submittals to RDN for approval				MS-Contr,EI-Contr
7		Bypass system design and submit for approval				MS-Contr
8		Prepare and submit Worksafe BC 9.22 for approval				MS-Contr,EI-Contr
9		Apply for City of Nanaimo hydrant water use permit				MS-Contr
10		Mobilize to site, secure temporary facilities				MS-Contr,EI-Contr
11		Set up temporary services - electricity, water etc.				MS-Contr,EI-Contr
12		Prepare, set up and test bypass system				MS-Contr,EI-Contr
13		Misc. pre-shutdown E/I panel, J/B & cable installation				EI-Contr
14		Pre-shutdown Pump 5 only operation E/I work	5 days	Mon 18/7/22	Fri 22/7/22	EI-Contr
15		Establish temporary power to lighting panel A	8 hrs?	Mon 18/7/22	Mon 18/7/22	EI-Contr
16		**Implement bypass, isolate wet well and lockout**	8 hrs?	Mon 25/7/22	Tue 26/7/22	CRPS Ops,MS-Contr,EI-Contr
17		**CRPS main power off**	0 days	Tue 26/7/22	Tue 26/7/22	
18		Clean out wet well				MS-Contr
19		Remove wet well pumps to be reused				MS-Contr,EI-Contr
20		Demolition				MS-Contr,EI-Contr
21		Structural and piping shutdown installation work				MS-Contr
22		Electrical and instrument shutdown installation work				EI-Contr
23		Reinstall pumps in wet well				MS-Contr,EI-Contr
24		**Remove lockout/most isolation, water fill wet well**	4 hrs?	Sun 21/8/22	Mon 22/8/22	CRPS Ops,MS-Contr,EI-Contr
25		**CRPS main power back on**	0 days	Mon 22/8/22	Mon 22/8/22	
26		Pump station commissioning - bypass on	2 days?	Mon 22/8/22	Wed 24/8/22	CRPS Ops,EI-Contr,MS-Contr
27		Complete pump station commissioning - bypass off	1 day?	Wed 24/8/22	Thu 25/8/22	CRPS Ops,EI-Contr,MS-Contr
28		Remove bypass	1 day?	Thu 25/8/22	Fri 26/8/22	MS-Contr,EI-Contr
29		Clean up and demobilize from site	2 days?	Mon 29/8/22	Tue 30/8/22	MS-Contr,EI-Contr



Project: CRPS ConstrSched DRAFT RevH
Date: Tue 15/2/22
FOR INFO ONLY - CTR TO PROVIDE SCHEDULE

Task	External Tasks	Manual Task	Finish-only				
Split	External Milestone	Duration-only	Deadline				
Milestone	Inactive Task	Manual Summary Rollup	Progress				
Summary	Inactive Milestone	Manual Summary					
Project Summary	Inactive Summary	Start-only					

1. The site of the Work is the Regional District of Nanaimo's (RDN's) Chase River Pump Station (CRPS) at 1174 Island Highway South, Nanaimo, BC.

2. General Description

In general, the Work shall consist of renewing submersible pump supports, piping and related structural steel in and about the pump station wet well, as well as renewing and upgrading the existing electrical, instrumentation and control systems.

3. Definition of the Work

The Work shall consist of supplying all materials, equipment, temporary facilities, tools, labour, supervision, overhead, and everything required to accomplish the Work described and called for in the Contract Documents.

4. Included in the Work - General

The Work shall include the supply of all materials, forms, temporary facilities, labour, supervision, plant equipment, and tools necessary to complete the Work described herein and shown on the drawings and standards. It shall generally consist of, but not specifically be limited to the following:

4.1. Supply all equipment, materials and consumables required to accomplish the Work, as indicated in the Contract Documents.

4.2. Supply skilled labour and supervision with the proper qualifications to accomplish the Work in a thoroughly substantial and workmanlike manner.

4.3. Receive and keep secure all RDN-supplied materials. Inspect all RDN-supplied materials to verify that they are not damaged and are complete and suitable for the intended purpose. Promptly notify the RDN if any issues are found.

4.4. Issue of submittals for RDN review and approval, including but not limited to equipment and prefabricated materials shop/spool drawings, E/I equipment datasheets, welding procedure specifications and concrete mix certificates as outlined in the Contract Documents, to the RDN for review and approval well in advance of construction.

4.5. Field-confirm all critical fabrication/construction measurements for the Work, to the extent practicable, before the Work begins.

4.6. Prefabricate/pre-cut structural, piping, electrical and other materials with necessary and judicious field trim and field joint allowances.

4.7. Conduct all work at the CRPS site in accordance with RDN policies and procedures, City of Nanaimo bylaws, the BC Occupational Health and Safety Regulation and other applicable provincial and federal regulations, including but not limited to:

4.7.1. WorkSafe BC personal protective clothing and equipment procedures;

4.7.2. WorkSafe BC confined space entry procedures to address gas and other hazards;

4.7.3. WorkSafe BC fall protection procedures;

4.7.4. WorkSafe BC ladders, scaffolds and temporary work platforms procedures;

4.7.5. WorkSafe BC cranes and hoists procedures;

4.7.6. WorkSafe BC rigging procedures;

4.7.7. RDN Wastewater Services Environmental Management System contractor-supplier package, including training in situations where the Work could have a significant impact on the environment;

4.7.8. City of Nanaimo noise bylaw;

4.7.9. Canadian Electrical Code (CSA C22.1-2018) and any directives issued by Technical Safety BC.

4.8. Clean up all debris on a daily basis and leave the job site in a clean manner, prior to leaving the site.

4.9. Secure the construction site from access by the public and take precautions to prevent theft and/or damage.

4.10. Provide temporary single and multi-phase electrical power supplies for all of the site work (RDN can only provide limited 110VAC single phase power).

4.11. Provide all temporary crew facilities required for the Work, including but not limited to washroom, lunchroom and tool crib.

4.12. Provide potable water for use by the Contractor's crew.

4.13. Coordinate the Work amongst the mechanical, structural, electrical and instrumentation crews, who will be working, in parallel, in and about the pump station buildings, during the construction period.

4.14. In general, carry out the Work while commercial septage deliveries are being made adjacent to the pump station building and coordinating any limited septage receiving station shutdown days required to complete the Work with RDN Operations. The septage receiving station may be shut down occasionally between 9:00am and 3:00pm with advance notice.

4.15. Prepare, submit to Worksafe BC for approval and work in coordination with RDN Operations to implement a BC OH&S Regulation 9.22 isolation procedure to allow the shutdown work to be safely completed, including supply of all blanks, blinds, pigs or other materials required. Such procedure shall be maintained for the beneficial use of the Contractor, the RDN and other agents of the RDN as per the terms of the Agreement.

4.16. Design, submit plan for review by the RDN's Engineer, implement and continuously operate throughout the Work, on an *uninterruptible basis*, a complete wastewater bypass system, in general conformance with the CRPS Bypass Strategy framework prepared by the RDN's Engineer. In addition to bypassing the full sewer flow, the system must address any potential leaks into the wet well from incompletely seated gates, pigs or other

isolation means. Such bypass system shall be maintained and *site monitored 24 hours per day* for the beneficial use of the Contractor, the RDN and other agents of the RDN as per the terms of the Agreement.

4.17. Provide red-lined project Drawings indicating as-built details, for preparation of record drawings by the Engineer.

5. **Included in the Work – Mechanical and Structural**

In addition to the general items in section 4.0 above, the mechanical and structural Work scope shall generally consist of, but not specifically be limited to the following:

5.1. Clean out existing pump station facilities as required to perform the Work and dispose of any resulting effluent/solids in an environmentally responsible manner. *This includes applying to the City of Nanaimo in advance for a permit to use any water required from an adjacent hydrant.* The RDN has successfully used cold water pressure washing for this purpose in the past; however, the Contractor must be prepared to take any cleaning measures necessary to prepare for the Work.

5.2. Remove existing submersible pumps and securely store for later reinstallation.

5.3. Demolish/dispose of existing submersible pump guide rails, pump bases, piping and structural steel as indicated on the Drawings.

5.4. Supply and install new submersible pump mounting plates, including replacement of anchor bolts.

5.5. Install new cast iron pump bases (supply by RDN).

5.6. Install new submersible pump guide bar rails (supply by RDN).

5.7. Supply and install new stainless-steel piping and galvanized structural steel pipe supports. Note that all stainless-steel piping must be welded with full-purge GTAW and all welds must be pickled and passivated after welding, all as more fully described in the specifications.

5.8. Supply and install new pre-painted structural steel and aluminum checker-plate platforms.

5.9. Inspect and pressure test piping according to ASME B31.3 Category D fluid service, including shop pressure test of prefabricated piping spools and service test of complete and installed piping systems.

5.10. Tie-in new wet well discharge piping to existing force main valve station inlet piping adjacent to the wet well.

5.11. Tie-in 200-RWW-316L-006 bypass pipeline to existing piping outside of the wet well.

5.12. Reinstall existing submersible pumps.

5.13. Work in coordination with RDN Operations to remove the OH&S Regulation 9.22 isolation procedure and wastewater bypass system.

5.14. Provide a pipefitter and welder at CRPS site, along with their tools, equipment and consumables, for three 8 hour days of post construction commissioning, to work with RDN operations and resolve any minor leaks or other issues that may arise.

6. Not Included in the Work – Mechanical and Structural

6.1. Supply of a group lockout procedure box for all electrical lockout required by the Work (by RDN).

6.2. Ventilation system work (by Others).

6.3. Supply of new cast iron submersible pump bases to CRPS site (by RDN).

6.4. Supply of new submersible pump guide bar rails to CRPS site (by RDN).

6.5. Supply of pumps to CRPS site (reuse existing).

6.6. Supply of new automatic air/electrically operated valves to CRPS site (by RDN).

6.7. Supply of all manual valves greater than 50 mm (2”) in diameter to CRPS site (by RDN).

7. Included in the Work – Electrical and Instrumentation

In addition to the general items in section 4.0 above, the electrical and instrumentation Work scope shall generally consist of, but not specifically be limited to the following:

7.1. Refer to the Allnorth E&I Work Package 2003251-000-1604-001 (EWP) for further definition of the Work. For the E&I scope for this project, this Description of Work is supplemental to the main project work defined in the EWP.

7.2. Supply and install miscellaneous E&I small equipment and materials as outlined in the EWP.

7.3. Application and payment of fees for an electrical installation permit.

7.4. Perform and document quality assurance, inspection and testing on the completed Work in accordance with the Contractor’s standards. Provide an Inspection and Test Plan with procedures prior to use for review and approval by the RDN. Testing shall include, but not be limited to:

7.4.1. Point-to-point testing;

7.4.2. Insulation resistance testing;

7.4.3. Phasing;

7.4.4. Torque testing.

7.5. Perform setup, calibration and function testing for all new instruments.

7.6. Install equipment in accordance with the manufacturer’s recommendations and requirements. Where manuals are not provided with the Owner-supplied equipment, request copies from the RDN.

7.7. Provide permanent engraved labels for all new electrical equipment, junction boxes, and new field instrumentation.

7.8. The Contractor shall pick up all Owner-supplied E/I materials (including control panels and MCCs) at the RDN's GNPCC facility (4800 McGuffie Rd, Nanaimo, BC V9T 5B3). RDN will load the materials at GNPCC. The Contractor shall unload at CRPS.

7.9. Electrical lockout of new equipment for safe work, where required.

7.10. Re-energizing the station, in cooperation with the RDN.

7.11. Provide an experienced electrician at the CRPS site, along with tools, equipment and consumables, for three 8 hour days of post construction commissioning, to work with RDN operations to support troubleshooting or any other issues that may arise.

7.12. Seal all new and modified electrical room penetrations with fire stop suitable for a 1-hour firewall, in compliance with the BC Building Code.

8. .**Not Included in the Work – Electrical and Instrumentation**

8.1. Supply of a group lockout procedure box for all electrical lockout required by the Work (by RDN).

8.2. Purchase of new motor control centre MCC-300 (by RDN).

8.3. Purchase of control panels CP-100 and HMI-100 (by RDN).

8.4. PLC and HMI programming (to be performed by Others).

8.5. Extend concrete pad for new larger control panel (by RDN).

8.6. Relocate the Gate UPS to the lunch room (by RDN).

8.7. Ready system for Pump 5 only operation (by RDN).

8.8. Refer to the Allnorth EWP for further details on work performed by RDN/Others and miscellaneous materials to be supplied by the RDN.

8.9. Refer to Allnorth E/I Material Take-Off (2003251-000-1618-003) redlines dated 10-Feb-2022 identifying additional items for MCC-100 to be supplied by the RDN.

9. **Installation of New Submersible Pump Bases**

9.1. Where required, provide anchor bolts, fasteners, washers, and templates needed for installation of RDN-furnished equipment.

9.2. Size and locate anchor bolts in accordance with the Drawings and installation instructions.

9.3. Level mounting plate by means of level nuts as shown on the Drawings.

9.4. Adjust pump assemblies so units are properly aligned, plumb, and level with all interconnecting components.

9.5. After pump mounting plate, with pump base plate attached, has been set in position, aligned, and set to proper elevation, grout the space between the bottom of mounting

plate and the concrete foundation with a poured, non-shrinking grout of the proper category, as specified in Section 03600, Grout and Miscellaneous Concrete Work. *Note: Existing concrete shall be wetted with clean water for 6 hours and blown with clean compressed air to remove standing water (concrete shall be "saturated, surface dry") before application of cementitious grout.*

10. Project Schedule

10.1. All Owner-supplied materials are expected to be available to the Contractor for pickup at the GNPCC on or before March 31, 2021.

10.2. Pre-shutdown work while the station is in normal operation, and where station operations are not impacted, can commence in accordance with the Contractor's proposed schedule.

10.3. Pre-shutdown work with station operation on Pump 5 only should be limited to 5 days and should be coordinated such that the end of the 5-day period coincides with the station outage and starting of the bypass pumping operation. Power to Lighting Panel 'A' must be re-established within 24 hours of powering down. The station cannot be left unattended until power is restored to Lighting Panel 'A'.

10.4. The system energization and control system commissioning period, once work is complete, is intended to take place over 3 continuous days, in accordance with the Contractor's proposed schedule.

10.5. Please refer to the RDN Schedule Overview provided in the RFT documents for general schedule information to be observed in the Contractor's detailed Work schedule.

REDLINES - 10-FEB-2022

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:	2003251-000-1618-003	
						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 SHEILDED, 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 SHEILDED, 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 SLEEEVE	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~~ RDN	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) HFD3030	1	EA	BDAHFDL18-A	EATON	~~CONTRACTOR~~ RDN	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)~~	~~1~~	~~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)~~	~~1~~	~~EA~~	~~5711A01G01~~	~~EATON~~	~~CONTRACTOR~~	~~CRPS-E-106~~	~~FOR INSTALLATION IN MCC-100 (SECTION 3).~~	~~1~~
21	CUBICLE DOOR, ~~18" H x 18" W~~, BLANK DOOR C/W MOUNTING HARDWAR (4X SPACE FACTOR) 24"H x 16"W	1	EA	5711A04G01	EATON	~~CONTRACTOR~~ RDN	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

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:	2003251-000-1618-003	
						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~~	~~1~~	~~EA~~	~~FLT93S-4B-1A104C-4A000-00~~	~~FCI~~	~~RDN~~	~~CRPS-E-203~~		~~1~~
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:

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