REQUEST FOR PROPOSALS

FOR THE SUPPLY OF CENTRIFUGE EQUIPMENT: TOWN OF GIBSONS

February 8, 2024

URBAN SYSTEMS

501 - 121 5th Avenue, Kamloops, BC V2C 0M1 | T: 250.374.8311

CONTACT: Aya Costa
E: acosta@urbansystems.ca

PREPARED FOR:

Town of Gibsons
389 Stewart Rd
Gibsons, BC V0N 1V8

501 - 121 5th Avenue, Kamloops, BC V2C 0M1 | T: 250.374.8311

File: 1300.0162.01

CONTENTS

APPENDICES

1.0 INTRODUCTION

The Town of Gibsons (Town) intends to purchase and install a new waste activate sludge (WAS) dewatering centrifuge. The Town intends to pre-purchase the equipment then novate the purchase contract to a Contractor that will install and commission the equipment. The Town may advance purchase of the polymer metering skid prior to the other equipment being purchased by the Contractor in order to replace the existing polymer metering system.

The Town wishes to retain its existing centrifuge as a backup. A set of conceptual drawings has been included for information to show the existing centrifuge and conceptual layout for a second centrifuge.

1.1 PROJECT LOCATION

The Town of Gibsons wastewater treatment plant is located at 389 Stewart Road, Gibsons BC.

1.2 SOLIDS PROCESSING OVERVIEW

The treatment processes upstream of the centrifuge include:

- Screening
- Grit removal
- Biological treatment by continuous flow Sequencing Batch Reactor (SBR) system
- Thickening
- Aerobic Digestion

Dewatered biosolids from the centrifuge are discharged to a storage bin and the liquid stream (centrate) is returned to the SBR's. Dewatered biosolids are transported offsite.

1.3 PROPOSAL PROCESS AND SCHEDULE

1.3.1 PROPOSAL SCHEDULE

The planned schedule for the RFP phase of the Project is as follows:

Distribution of RFP	February 8, 2024
Submission and Evaluation of Proposals	March 7, 2024
Contract Award (must coincide with council meeting date for approval)	April 9, 2024
Submit Shop Drawings	To be determined
Construction Start	To be determined
Anticipated Completion of Construction/Commissioning	To be determined

These dates are subject to change.

1.3.2 EXAMINATION OF DOCUMENTS

Each Proponent shall be solely responsible for examining all the RFP Documents, including any Addenda issued during the RFP period, and for independently informing itself with respect to any and

all information contained therein, and any and all conditions which may in any way affect the Proposal and delivery of the project.

1.3.3 ADDENDA

Written Addenda are the only means of varying, clarifying or otherwise changing any of the information or dates contained in this RFP. The Owner reserves the right to issue Addenda up to four (4) business days prior to the Proposal Closing Time.

1.3.4 PROPOSAL SUBMISSION

The Proponent's Proposal must be titled "[Proponent Name] Gibsons WWTP - Centrifuge Equipment RFP"

Provide complete proposals by 2:00 PM Pacific Time, as per the date outlined above in section 1.3.1. Proposals should be addressed to:

Attention: Aya Costa, EIT
Email: acosta@urbansystems.ca

Email submissions in PDF format. It is suggested that proponents request a "Read Receipt" as part of the email for verification of receipt of the Proposal.

1.3.5 QUESTIONS ARISING FROM THE RFP

Questions regarding the RFP or submission of Proposals should be directed in writing (electronically) to Urban Systems:

Aya Costa, email: acosta@urbansystems.ca.

If appropriate, the question and response will be circulated to all Proponents. Questions will be accepted until six (6) business days prior to the Proposal Closing Date.

1.3.6 SLUDGE SAMPLE

A sample of digested sludge may be requested within the first week of the RFP period. Requests should be submitted to the person identified in Section 1.3.5. Sample instructions and a delivery form should be provided by the proponent.

1.3.7 INCOMPLETE PROPOSALS

The Owner reserves the right to reject or accept any Proposal whether or not completed properly and whether or not it contains all required information. Without prejudice to this right, the Owner may request clarification where in the sole opinion of the Owner, the Proponent's intent is unclear.

1.3.8 NON-COLLUSION

A Proponent shall not discuss or communicate with any other Proponent about the preparation of their Proposals. Each Proponent shall ensure that its participation in the RFP process is conducted without collusion or fraud.

1.3.9 ACCEPTANCE OF PROPOSALS

Each Proposal shall be valid for a period of 60 days from the Proposal Closing Date. The Owner reserves the right to reject any or all proposals without any obligation or any reimbursement to the Proponents.

1.3.10 PROPONENT SELECTION

The Owner intends to announce the selection of the Preferred Proponent as per the schedule outlined in section 1.3.1.

1.3.11 EXECUTION OF AGREEMENT

Upon Conclusion of negotiations, the Owner will enter into a Supply Contract with the successful Proponent for the purchase of the shop drawings, equipment and services.

1.4 OWNER RESPONSIBILITIES

The Owner will not accept any liability arising from investigations or other work done or not done by a Proponent in preparing its Proposal.

During the RFP process, the Owner:

- Reserves the right to reject any or all Proposals;
- Takes no responsibility for the accuracy or completeness of the information supplied by any official, employee, or agent of the Owner;
- Takes no responsibility for any Proponent lacking any information; and,
- Will not be responsible for any expense incurred by any Proponent in preparing a Proposal or in providing any additional information necessary for the valuation of Proposal.

Contact with the Owner must be through the Owner's Engineer, in this case Urban Systems Ltd. The Owner accepts no liability for any information obtained in any other manner.

2.0 SCOPE OF WORK

2.1 PREFERRED PROPONENT

The Preferred Proponent shall be responsible for the following components:

1. Provision of shop drawings.
2. Provide 3D CAD blocks for the Owner's Engineer to incorporate into detailed design drawings.
3. Supply all required equipment within the agreed scope of supply.
4. Provide design drawings and calculations sealed by an Engineer for equipment supplied (where applicable). Proponent must provide a performance guarantee that the proposed centrifuge system will meet the design criteria of this RFP.
5. Coordinate with the Contractor and the Town for delivery and installation of equipment.
6. Delivery of equipment to site.
7. Coordinate with the Contractor to commission the equipment once installed, and assist with any required optimization of the system.
8. Onsite commissioning and training services.
9. Provide Operation and Maintenance Manuals for all equipment components prior to commissioning (1 electronic and 1 hardcopy).
10. Provide on-going technical support as required after commissioning (for additional cost if applicable).

All responsibilities described above shall be included in the proponent's lump sum cost for supply and delivery of the centrifuge equipment. Additional information on the equipment requirements is provided in Section 4.0

2.2 CONTRACTOR

The Contractor will be selected through an independent bid process, which has yet to be initiated. The Contractor is responsible for completing all work including but not limited to:

- Coordination of supply, delivery and installation of the centrifuge equipment and any other associated equipment covered in the Supply Contract;
- Civil site works, piping and landscaping;
- Supply, delivery, receiving, storage if required, assembly and installation of any other required equipment;
- Coordination and/or supply and installation of all connections including piping, electrical, programming and commissioning;
- Supply and installation all associated works required to provide a fully functional facility; and,
- Overall delivery of a successful project.

3.0 PROPOSAL REQUIREMENTS

This section outlines the requirements with respect to the Proposal submission.

3.1 SIGNED PROPOSAL

The proposal submission must be signed and dated by the Proponent.

3.2 COMPANY CONTACT INFORMATION

3.2.1 CONTACT INFORMATION

The following contact information must be included within the proposal:

- Name, address and telephone number of the company proposed to supply the selected equipment and related appurtenances; and,
- Key project contact (including name, phone number, and email).

3.2.2 SERVICE SUPPORT

Include the company's service and support options for ongoing support for the operation of the selected equipment and associated components. This includes services for the maintenance of the physical components and controls/optimization. Please describe any support available as part of the supply and delivery cost, and include additional costs for service offerings and expected response times.

3.3 EQUIPMENT DETAILS

A list of equipment that will be supplied as part of the lump sum cost in the Proposal Form (Appendix A) shall be included in the Proposal. The list must include all equipment components that are required to provide a complete system and meet all requirements described in Section 4.0. The Proponent shall provide details regarding equipment needs that will not be supplied such as polymer, power, process water, etc. The Proponent shall also provide a list of equipment that they are not supplying but that is needed to support their equipment (e.g. water supply, electrical supply, etc.).

The Proponent shall recommend equipment that will best suit the design criteria. Performance data to be included is outlined in Appendix A. Warranty information on the list of equipment shall also be included.

3.4 SCHEDULE

Provide timing for the following project milestones:

- Shop drawings issued for review;
- Certified drawings issued after receipt of reviewed shop drawings;
- Materials and equipment supplied on-site from date of reviewed shop drawings; and
- Installation, operating and maintenance manuals from the date of Supply Contract;
- Submission of completion documentation after commissioning.

3.5 COST

The proponent shall complete and include the pricing section of the proposal form (Appendix A). Two prices shall be provided – Price if the project is tendered in the 2nd quarter of 2024, and price for if the project is tendered in the 3rd quarter of 2024.

3.5.1 SUPPLY CONTRACT

A Supply Contract will be entered with the Owner and Proponent. The Supply Contract will cover items 1-5 as per the pricing section of the proposal form (Appendix A) and Scope of Supply (Section 4.3). The Owner may at its sole discretion novate the supply contract to a Contractor.

3.5.2 PURCHASING TERMS

By submitting a Proposal the Proponent accepts the terms outlined in this RFP.

4.0 DESIGN CRITERIA

4.1 DESIGN PARAMETERS

The design sludge volumetric flow and solids loading rate to the centrifuge are as follows:

- Feed sludge solids concentration: 0.9 - 3% dry solids.
- Hydraulic loading rate up to 7.2 m^3/hr at 0.9% solids or 5 m^3/hr at 3% solids.
- Maximum solids loading rate of 154 kg/h.
- The centrifuge shall produce a dewatered solids cake at greater than 18% dry solids.
- Maximum polymer consumption of 10 kg per 1000 kg dry solids.

4.2 SCOPE OF SUPPLY & GENERAL REQUIREMENTS

The following outlines the Proponent scope of supply and general requirements.

1. Equipment to include:
    a. Centrifuge. The centrifuge shall be capable of fitting within the available space shown in the conceptual design drawings, while allowing for maintenance clearances required by the manufacturer.
    b. Flow paced polymer makedown, activation and metering system (peristaltic). The Town has standardized Prominent chemical metering pumps, therefore the submission shall include the Prominent brand of peristaltic pump. Provide two pumps in a one duty/one standby configuration.
    c. Inclined conveyor (to convey dewatered sludge from centrifuge discharge to bin)
    d. Controls, and
    e. Operator interface complete with access controls, data logging, and communications.
    f. Spare Rotating Assembly for maintenance purposes.
    g. Stainless steel for all wetted components and support frames.
    h. All motors shall be rated for 575 V, 3 phase, 60 Hz frequency.
    i. All recommended operational and special tools required to install, operate, and maintain the centrifuge system.
2. The Town will install a new Coriolis flow meter (Endress + Hauser, Promass E 300, ND50 2”). The centrifuge dewatering system and controls shall be compatible with this flow meter.
3. Controls and communications shall integrate with the existing system and be compatible with connection to SCADA. A local control panel shall be included. PLC Ethernet communication module are required as follows:
    a. 10/100 Base T
    b. Supports TCP/IP
    c. Standard of Acceptance: Allen-Bradley 1769 Series CompactLogix
4. The plant Ethernet connection will be provided by others.
5. Original Equipment Manufacturer (OEM) graphics shall integrate into the existing HMI.
    a. The Town currently uses Rockwell FactoryTalk View SE version 12 and terminal services for a “thin client” PC with a panel mounted touchscreen display.
6. Standalone PLC with separate CPU controller able to message to the WWTP plant master.
7. All applicable equipment to be CSA approved. Such approval shall be provided prior to the equipment being energized.

5.0 EVALUATION PROCESS

This section describes the process by which the Owner will evaluate the Proposals.

5.1 MANDATORY ELEMENT (PASS/FAIL)

The mandatory requirements are:

- Written in English
- Pricing provided
- Signed Proposal Form

5.2 EVALUATION CRITERIA

All qualifications will be evaluated equally against pre-defined criteria by an evaluation team. The following will be considered.

A. Technical – 25 points
B. Price and Schedule – 20 points
C. Operational and maintenance – 20 points
D. Service and Support – 10 points
E. Warranty – 10 points
F. Social – 5 points
G. References - 10 points

The Proponent shall provide sufficient information for each of the selection criteria to allow for adequate evaluation of the Proposal. A complete Proposal package will provide information on each of the six selection criteria and specifically answer each of the specific requests for information under each heading. If one or more of the six selection criteria is not provided, the Proposal may be disqualified.

Each of the criteria, along with the requested information, is presented in the attached form:

- Appendix A – Proposal Form

The Proposal may be de-merited for incompleteness if any of the requested information is not provided directly in the form, unless otherwise stated. Attached supporting documentation is encouraged but completeness will be evaluated on the responses to the form.

5.3 FINAL RATING AND RANKING

Based on all the preceding inputs, the Owner will perform a final evaluation and ranking of Proponents, weighing each of the components.

In the event that two or more Proposals earn scores that differ by three or fewer points, the Proposals will be deemed to be tied. In the event of a tie, the Proposal which is judged by the Owner in its sole unfettered discretion to provide the best value for the Owner will be selected.

APPENDIX A
PROPOSAL FORM

A. General

a. Provide specification sheets and operation description for the following equipment:
    i. Centrifuge
    ii. Polymer system
    iii. Controls and interfaces
b. Specifications sheets to include:
    i. Dimensional drawings with physical size, height, weight, and footprint
    ii. Typical layout drawings
    iii. Power requirement and motor sizes
    iv. Maximum flow capacity of centrifuge to meet discharge dry solids content of 18% with a feed dry solids concentration of up to 3%.

B. Technical

What is the head space and working perimeter area required for operations and maintenance? Will the proposed centrifuge and ancillary equipment fit within the available space shown in the conceptual design drawings?
Can the polymer system be sized and configured to operate at two processing rates? And can it be compatible for future operation with two identical centrifuges operating in parallel (with both centrifuges the capacity of the new centrifuge)? The reason being that the new polymer system will replace the existing system. One setting is required for the new centrifuge and the other setting is required for the existing centrifuge (centrifuge processing capacity of 3.6 m^3/hr). In the current scenario, only one of the two centrifuges will be running at a time, but in the future once the second new centrifuge is installed, they may operate in parallel.

Additional points will be given for control systems capable of expansion to support two equally sized centrifuges in the future (with the second centrifuge to be installed as part of a future project).
How long does it take to start up and shut down the system during normal operation?
What are recommended cleaning/flushing water requirements (pressure, flow, time)?
What parameters are controlled by the local panel?
What parameters can the operator adjust?

What type is the PLC and HMI?
What power connections are required?

C. Pricing

The Supplier shall manufacture and supply the following centrifuge system to the Gibsons Wastewater Treatment Plant at the following price, not including GST:

Payments to the supplier shall be as follows:

- 10% on shop drawing approval;
- 75% on equipment delivery – D.D.P (Incoterms 2023) jobsite; and
- 10% upon successful start-up and submission of all required documentation/substantial completion (date to be determined following Contractor procurement).
- 5% following final acceptance (date to be determined following Contractor procurement).

Price if Project is Tendered in 2nd Quarter of 2024 (April-June):

1.	Centrifuge System DDP to Gibsons, BC	$	CAD
2.	Shop Drawings	$	Inc.
3.	Recommended Spare Parts for one (1) Year Operation	$	Inc.
4.	Start-Up and Training Service	$	Inc.
5.	Value Added Taxes (GST)	$	CAD
TOTAL		$	CAD

Price if Project is Tendered in 3rd Quarter of 2024 (July-September):

1.	Centrifuge System DDP to Gibsons, BC	$	CAD
2.	Shop Drawings	$	Inc.
3.	Recommended Spare Parts for one (1) Year Operation	$	Inc.
4.	Start-Up and Training Service	$	Inc.
5.	Value Added Taxes (GST)	$	CAD
TOTAL		$	CAD

Schedule for the above quoted equipment package:

1. Time to shop drawing submission following contract award.	
2. Time to equipment delivery to site following shop drawing approval.	

Provide pricing and a schedule (shop drawings and delivery of equipment to site) for the polymer metering skid separately, as the Town may purchase this equipment directly from the supplier and in advance of the remaining dewatering system. Assume steps to purchase the polymer system would be initiated within one month of contract award.

Pricing:

1.	Centrifuge System DDP to Gibsons, BC	$	CAD
2.	Shop Drawings	$	Inc.
3.	Recommended Spare Parts for one (1) Year Operation	$	Inc.
4.	Start-Up and Training Service	$	Inc.
5.	Value Added Taxes (GST)	$	CAD
TOTAL		$	CAD

Schedule:

1. Time to shop drawing submission following contract award.	
2. Time to equipment delivery to site following shop drawing approval.	

D. Operational and Maintenance

List the tasks and frequency required to service all components of the system.
How of often, and for what duration are major maintenance shutdowns required?

E. Service and Support

Where are the systems assembled and the major components manufactured? And where would machines need to be sent for an overhaul?
Where is the technical support provided from?
Where would the service technician come from to service a machine in Gibsons?
How many service technicians are available?
What is the experience of the service technicians?

F. Warranty

What are the details of the standard warranty?
What are the details of an extended warranty including additional cost?

G. **Social**

Please refer to the Town of Gibsons Purchasing Policy Manual (#1.16).

Describe how as a supplier, you meet the social procurement guidelines outlined in the Town's purchasing policy.

H. References

List all North American wastewater references that use your equipment.
List at least three north American reference s with contact name and phone number that presently utilize your equipment.
In addition to owner references, provide at least one Contractor and one engineering consultant reference with contact names and phone numbers.

APPENDIX B
TERMS AND CONDITIONS

GENERAL TERMS AND CONDITIONS

1. The following Terms and Conditions shall govern this Agreement unless otherwise agreed to in writing by the Town of Gibsons.

2. All goods shall be shipped D.D.P. to the work site, unless otherwise specified.

3. The site delivery lead time, from date of order shall not exceed 26 weeks.

4. The Town reserves the right to cancel any Purchase if the goods or services have not been executed within a reasonable time that allows the Town to complete and install within the project schedule.

5. All Electrical or Mechanical equipment must bear Canadian Standards Association, or such local approval as required under Provincial and Municipal Laws and Regulations governing the sale and usage of such equipment.

6. Should this equipment "in part or in whole" become discontinued by the supplier, the Town is entitled to an "equivalent or better" product. This new technology is to be discounted at an identical cost structure as the original bid and to be at no additional cost to the Town.

7. The supplier is to provide for the Town all necessary construction related WorkSafe and Insurance documents as required to allow the Town to successfully procure, install and commission the equipment.

8. All materials delivered shall be subject to inspection and approval by the Town, notwithstanding prior payment. Supplier to pay all transportation charges both ways on rejected materials. In the case of default or rejection the Town reserves the right to purchase in the open market and hold the Supplier responsible for any excess cost occasioned thereby after having provided the Supplier with a reasonable time to cure such rejection. Should any violation of specifications in contract occur, the Town may cancel the Agreement.

9. The Town reserves the right to cancel this Agreement prior to placing the order with thirty (30) days' written notice without cost or penalty.

10. Cancellation of the order after the Town has placed the order will result in the Town being responsible to pay the supplier the costs for work proportionate to completion of the order to the date of cancellation.

11. Indemnification:

    12.1 The Owner and the Supplier shall each indemnify and hold harmless the other from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings whether in respect to losses suffered by them or in respect to claims by third parties that arise out of, or are attributable in any respect to their involvement as parties to this Agreement, provided such claims are caused by:

    i. The negligent acts or omissions of the party from whom indemnification is sought or anyone for whose acts or omissions that party is liable, or

    ii. A failure of the party to the Contract from whom indemnification is sought to fulfill its terms or conditions; and

    iii. Made by Notice in Writing within a period of 3 years from the date of system commissioning (the “Term”) or within such shorter period as may be prescribed by any limitation statute of the province or territory of the Place of the Work.

The parties expressly waive the right to indemnity for claims other than those provided for in this Agreement.

12.2 The obligation of either party to indemnify the other as set forth in paragraph 11.1. shall be inclusive of interest and all legal costs.

12.3 In respect to any claim for indemnity or to be held harmless by the Town or the Supplier:

i. Notice in Writing of such claim shall be given within a reasonable time after the facts upon which such claim is based became known;

ii. Should any party be required as a result of its obligation to indemnify another to pay or satisfy a final order, judgment or award made against the party entitled by this contract to be indemnified, then the indemnifying party upon assuming all liability for any costs that might result shall have the right to appeal in the name of the party against whom such final order or judgment has been made until such rights of appeal have been exhausted.

12. Supplier warrants title to goods supplied by him/her, and warrants them free from any and all defects, imperfections, suits, claims, demands, expenses, patent infringements, liens or other charges of any nature whatsoever and will indemnify and hold the Town, its councilors, management staff, and employees harmless there from. Supplier warrants that the goods supplied are new, of quality construction and will function in the manner specified. Supplier makes no implied warranties including those of merchantability or fitness for purpose.

13. Supplier shall not "assign" this Agreement in whole or in part without prior written approval from the Town.

14. The law of the Province of British Columbia shall govern the interpretation of this purchase and any hearings shall be held within the province of British Columbia.

15. By signing this agreement, you waive all previous terms and conditions and accept the Town of Gibsons' terms and conditions noted in this Schedule.

APPENDIX C
CONCEPTUAL DRAWINGS

Centrifuge Replacement

Municipal Address: 474 SOUTH FLETCHER ROAD

ISSUED FOR INFORMATION
JANUARY 19, 2024
urbansystems.ca

SITE LOCATION

NOT TO SCALE

List of Drawings:

Process

URBAN SYSTEMS

TOWN OF GIBSONS / CENTRIFUGE REPLACEMENT / 1300.0162.01 / JANUARY 19, 2024

NOT FOR CONSTRUCTION

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ANSI expand D (34.00 x 22.00 Inches) 25mm 0

ACCESSORY

SYMBOL	TAG	DESCRIPTION
	BS-XXXX	BASKET STRAINER (SIDE VIEW)
	BS-XXXX	BASKET STRAINER (TOP VIEW)
	ES-XXXX	EMERGENCY SHOWER AND EYEWASH STATION (SIDE VIEW)
	ES-XXXX	EMERGENCY SHOWER AND EYEWASH STATION (TOP VIEW)
	EJ	EXPANSION JOINT - RUBBER (SINGLE ARCH)
		FLANGE - PVC SOCKET
		FLANGE - STEEL SLIP / LAP JOINT
		FLANGE - STEEL WELD NECK
	FD	FLOOR DRAIN - FLUSH MOUNT (SIDE)
	FD	FLOOR DRAIN - FLUSH MOUNT (TOP)
	FFD	FLOOR DRAIN - FUNNEL (SIDE VIEW)
	FFD	FLOOR DRAIN - FUNNEL (TOP VIEW)
	GC	GROOVED COUPLING - FLEXIBLE / RIGID
	IQ-XXXX	INJECTION QUILL (SIDE VIEW)
	IQ-XXXX	INJECTION QUILL (TOP VIEW)
		PIPE -END
		PIPE - BREAK / CONTINUATION
		PIPE - PLAIN END TERMINATION
	QC	QUICK CONNECT CONNECTION - MALE
	QC	QUICK CONNECT CONNECTION - FEMALE
	SS	SERVICE SADDLE (SIDE VIEW)
		SERVICE SADDLE (TOP VIEW)
		SOCKOLET (SIDE VIEW)
		SOCKOLET (TOP VIEW)
	SM-XXXX	STATIC MIXER - TUBULAR (SIDE VIEW)
	SM-XXXX	STATIC MIXER - TUBULAR (TOP VIEW)
		THREADOLET (SIDE VIEW)
		THREADOLET (TOP VIEW)
	RC	TRANSITION COUPLING - RESTRAINED
	TC	TRANSITION COUPLING - UNRESTRAINED
	UJ	UNION JOINT
		WELDOLET (SIDE VIEW)
		WELDOLET (TOP VIEW)

VALVE

SYMBOL	TAG	DESCRIPTION
	AR-XXXX	AIR RELEASE VALVE - SMALL PORT (SIDE VIEW)
	AR-XXXX	AIR RELEASE VALVE - SMALL PORT (TOP VIEW)
	ARC-XXXX	AIR RELEASE VALVE - COMBINATION (SIDE VIEW)
	ARC-XXXX	AIR RELEASE VALVE - COMBINATION (TOP VIEW)
	AVC-XXXX	AIR VALVE - CHEM STYLE (SIDE VIEW)
	AVC-XXXX	AIR VALVE - CHEM STYLE (TOP VIEW)
	DC-XXXX	BACK-FLOW PREVENTER - DOUBLE CHECK VALVE ASSEMBLY (SIDE VIEW)
	DC-XXXX	BACK-FLOW PREVENTER - DOUBLE CHECK VALVE ASSEMBLY (TOP VIEW)
	DC-XXXX	BACK-FLOW PREVENTER - REDUCED PRESSURE PRINCIPLE STYLE (SIDE VIEW)
	DC-XXXX	BACK-FLOW PREVENTER - REDUCED PRESSURE PRINCIPLE STYLE (TOP VIEW)
	BL	BALL VALVE - SOCKET, THREADED (SIDE VIEW)
	BL	BALL VALVE - SOCKET, THREADED (TOP VIEW)
	BL	BALL VALVE - FLANGED (SIDE VIEW)
	BL	BALL VALVE - FLANGED (TOP VIEW)
	BV-XXXX	BUTTERFLY VALVE - WAFER / LUGGED (SIDE VIEW)
	BV-XXXX	BUTTERFLY VALVE - WAFER / LUGGED (TOP VIEW)
	CV-XXXX	CHECK VALVE - BALL
	CV-XXXX	CHECK VALVE - DUCK BILL (SIDE VIEW)
	CV-XXXX	CHECK VALVE - DUCK BILL (TOP VIEW)
	CV-XXXX	CHECK VALVE - SWING (SIDE VIEW)
	CV-XXXX	CHECK VALVE - SWING (TOP VIEW)
	CV-XXXX	CHECK VALVE - WAFER
	GV-XXXX	GATE VALVE (SIDE VIEW)
	GV-XXXX	GATE VALVE (TOP VIEW)
	GL-XXXX	GLOBE VALVE (SIDE VIEW)
	GL-XXXX	GLOBE VALVE (TOP VIEW)

VALVE

SYMBOL	TAG	DESCRIPTION
	KV-XXXX	KNIFE GATE VALVE (SIDE VIEW)
	KV-XXXX	KNIFE GATE VALVE (TOP VIEW)
	NV	NEEDLE VALVE (SIDE VIEW)
	NV	NEEDLE VALVE (TOP VIEW)
	PV-XXXX	PLUG VALVE (SIDE VIEW)
	PV-XXXX	PLUG VALVE (TOP VIEW)
	PCV-XXXX	PRESSURE VALVE - GLOBE STYLE SUSTAINING, RELIEF, SURGE, REDUCING (SIDE VIEW)
	PCV-XXXX	PRESSURE VALVE - GLOBE STYLE SUSTAINING, RELIEF, SURGE, REDUCING (TOP VIEW)
	SV-XXXX	SOLENOID VALVE (SIDE VIEW)
	SV-XXXX	SOLENOID VALVE (TOP VIEW)
	VB-XXXX	VACUUM BREAKER VALVE (SIDE VIEW)
	VB-XXXX	VACUUM BREAKER VALVE (TOP VIEW)

VALVE ACTUATOR AND OPERATOR

SYMBOL	DESCRIPTION
	MANUAL GEAR OPERATOR C/W HAND WHEEL (SIDE VIEW)
	MANUAL GEAR OPERATOR C/W HAND WHEEL (TOP VIEW)
	MANUAL OPERATOR C/W LEVER STYLE HANDLE (SIDE VIEW)
	MANUAL OPERATOR C/W LEVER STYLE HANDLE (TOP VIEW)

INSTRUMENTATION

SYMBOL	TAG	DESCRIPTION
Cf	AE-XXXX	ANALYSIS ELEMENT - CHLORINE FREE
Ct	AE-XXXX	ANALYSIS ELEMENT - CHLORINE TOTAL RESIDUAL
Cd	AE-XXXX	ANALYSIS ELEMENT - CONDUCTIVITY
Pa	AE-XXXX	ANALYSIS ELEMENT - PARTICLE
PH	AE-XXXX	ANALYSIS ELEMENT - PH
Re	AE-XXXX	ANALYSIS ELEMENT - REDOX
Tu	AE-XXXX	ANALYSIS ELEMENT - TURBIDITY
UT	AE-XXXX	ANALYSIS ELEMENT - UVT
FE	FE-XXXX	FLOW ELEMENT - MASS FLOW PROBE
LE	LE-XXXX	LEVEL ELEMENT
PE	PE-XXXX	PRESSURE ELEMENT
TE	TE-XXXX	TEMPERATURE ELEMENT
	FE-XXXX	FLOW METER
	PG-XXXX	PRESSURE GAUGE C/W FEED PIPING AND ISOLATION BALL VALVE (SIDE VIEW)
	PG-XXXX	PRESSURE GAUGE (TOP VIEW)
	RM	ROTAMETER (SIDE VIEW)
	RM	ROTAMETER (TOP VIEW)
FS	FS-XXXX	SWITCH - FLOAT
LS	LS-XXXX	SWITCH - LEVEL
PS	PS-XXXX	SWITCH - PRESSURE
TS	TS-XXXX	SWITCH - TEMPERATURE

LINE TYPE

DESCRIPTION	PROPOSED	EXISTING	FUTURE
COMPONENT OR EQUIPMENT			
CONCRETE STRUCTURES			
LIQUID (OR HGL) LEVEL			
LIQUID LEVEL LOW			
PIPING - AIR (HIGH PRESSURE)			
PIPING - AIR (LOW PRESSURE)			
PIPING - CHEMICAL			
PIPING - DRAIN			
PIPING - WATER (PRIMARY)			
PIPING - WATER (SECONDARY)			
PIPING - WASTEWATER (PRIMARY)			
PIPING OR EQUIPMENT CENTERLINE			

REFERENCE SYMBOL

ANNOTATION AND SYMBOLS	DESCRIPTION
X / PXX — PLAN – TITLE — NOT TO SCALE	PLAN TITLE
X / PXX — SECTION – TITLE — NOT TO SCALE	SECTION TITLE, REFERENCE INFORMATION
X / PXX	SECTION INDICATION AND REFERENCE INFORMATION
PLAN – TITLE — NOT TO SCALE	DETAIL TITLE AND REFERENCE INFORMATION
X / PXX	DETAIL INDICATOR AND REFERENCE INFORMATION

ANNOTATION SYMBOL

SYMBOL	DESCRIPTION
ELEV: XXX.XXXm	LIQUID LEVEL OR HGL AT ATMOSPHERIC PRESSURE
	PIPE FLOW DIRECTION ARROW
PIPE INVERT: XXX.XXXm	ELEVATION SECTION MARKER (GEODETIC)

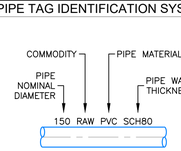
FITTING ID

ABB	DESCRIPTION
BM	BELL MOUTH
CR	CROSS
RE	REDUCER - ECCENTRIC
SR	ELBOW - 90° SHORT RADIUS
TR	TEE - REDUCING
Y	LATERAL

COMMODITY

ABB	DESCRIPTION
AIR	AERATION
AS	AIR SCOUR
ASC	ANTISCALANT
BW	BACKWASH WATER
CA	COMPRESSED AIR
CIP	CLEAN IN PLACE
CIT	CITRIC ACID ($C_6H_8O_7$)
COG	COAGULANT
DAF	DISSOLVED AIR FLOATATION FEED
DR	DRAIN (PROCESS)
DRW	DRAIN WASTE
DW	DISINFECTED WATER
FB	FILTER BYPASS
FF	FILTER FEED
FP	FILTER PERMEATE
FR	FILTER RECYCLE
HCl	HYDROCHLORIC ACID
HRW	HEAT RECOVERY WATER
HYD	SODIUM HYDROXIDE (NaOH)
HYP	SODIUM HYPOCHLORITE (NaOCL)
IA	INSTRUMENT AIR
MIT	MEMBRANE INTEGRITY TEST
OF	OVERFLOW
PA	PROCESS AIR
PLY	POLYMER
POT	POTABLE WATER DISTRIBUTION
PWS	POTABLE WATER SERVICE
RAW	RAW WATER
REJ	FILTER REJECT (OR CONCENTRATE)
SBS	SODIUM BISULPHITE ($NaHSO_3$)
SLU	SLUDGE
SMBS	SODIUM METABISULPHITE ($Na_2S_2O_5$)
SOL	SOLIDS (SEDIMENT)
SUL	SULPHURIC ACID (H_2SO_4)
SW	SERVICE WATER
TR	TREATED RESIDUALS
TW	TREATED WATER
VAC	VACUUM
VE	VENTILATION

PIPE TAG IDENTIFICATION SYSTEM



PIPE MATERIAL

ABB	DESCRIPTION
ABS	ACRYLONITRILE BUTADIENE STYRENE
CPVC	CHLORINATE POLYVINYL CHLORIDE
CS	CARBON STEEL
CU	COPPER
DI	DUCTILE IRON
HDPE	HIGH DENSITY POLYETHYLENE
PEX	CROSS LINKED POLYETHYLENE
PVC	POLYVINYL CHLORIDE
SS	STAINLESS STEEL
UPVC	UN-PLASTICIZED PVC (DRAIN PIPING)

ABBREVIATION

ABB	ABBREVIATION
BM	BELL MOUTH
CHEM	CHEMICAL
CIRC	CIRCULATION
C/L	CENTERLINE
C/W	COMPLETE WITH
DIA	DIAMETER
DP	DIFFERENTIAL PRESSURE
DQ	DESIGN FLOW
ELEV	ELEVATION
EQ	EQUALIZATION
FWL	FULL WATER LEVEL
HGL	HYDRAULIC GRADE LINE
HWL	HIGH WATER LEVEL
HOA	HAND/OFF/AUTO
HP	HORSE POWER
HWV	HIGH WATER VOLUME
INV	INVERT
LWL	LOW WATER LEVEL
MAG	MAGNETIC
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MS	MOTOR STARTER
O/C	OPEN/CLOSED
OF	OVERFLOW
PLC	PROGRAMMABLE LOGIC CIRCUIT
Q	FLOW
REC	RECIRCULATION
RED	REDOX
REQ	REQUIRED
RET	RETURN
RO	REVERSE OSMOSIS
SCH	SCHEDULE
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TURB	TURBIDITY
TYP	TYPICAL
US	ULTRASONIC
UV	ULTRAVIOLET
UVT	ULTRAVIOLET TRANSMITTANCE
VAC	VOLTS AC
VDC	VOLTS DC
VFD	VARIABLE FREQUENCY DRIVE
VT	VERTICAL TURBINE PUMP
WTP	WATER TREATMENT PLANT

ATTENTION
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WARNING
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DISCLAIMER
The seal and signature of the undersigned on this drawing certifies that the design information contained in these drawings accurately reflects the original design and the material design changes made during construction, that were brought to the undersigned's attention. These drawings are intended to incorporate addenda, change orders and other material design changes, but not necessarily all site instructions. The undersigned does not warrant or guarantee, nor accept any responsibility for the accuracy or completeness of information supplied by others contained in these drawings, but does, by sealing and signing, certify that the information, if accurate and complete, provides a system which substantially complies in all material respects with the original design intent.

ISSUED FOR INFORMATION
JANUARY 19, 2024
urbansystems.ca

Professional Seals

#	Date	Issue / Revision	App

TOWN OF GIBSONS

URBAN systems

Scale: NOT TO SCALE

Quality Control by: M. Smith
Designed by: A. Costa
Drawn by: A. Barluado

Centrifuge Replacement

Process Mechanical Legend

Sheet Number: 2 of 6

Project Number	Drawing Number	Revision
1300.0162.01	P01	----

NOT FOR CONSTRUCTION

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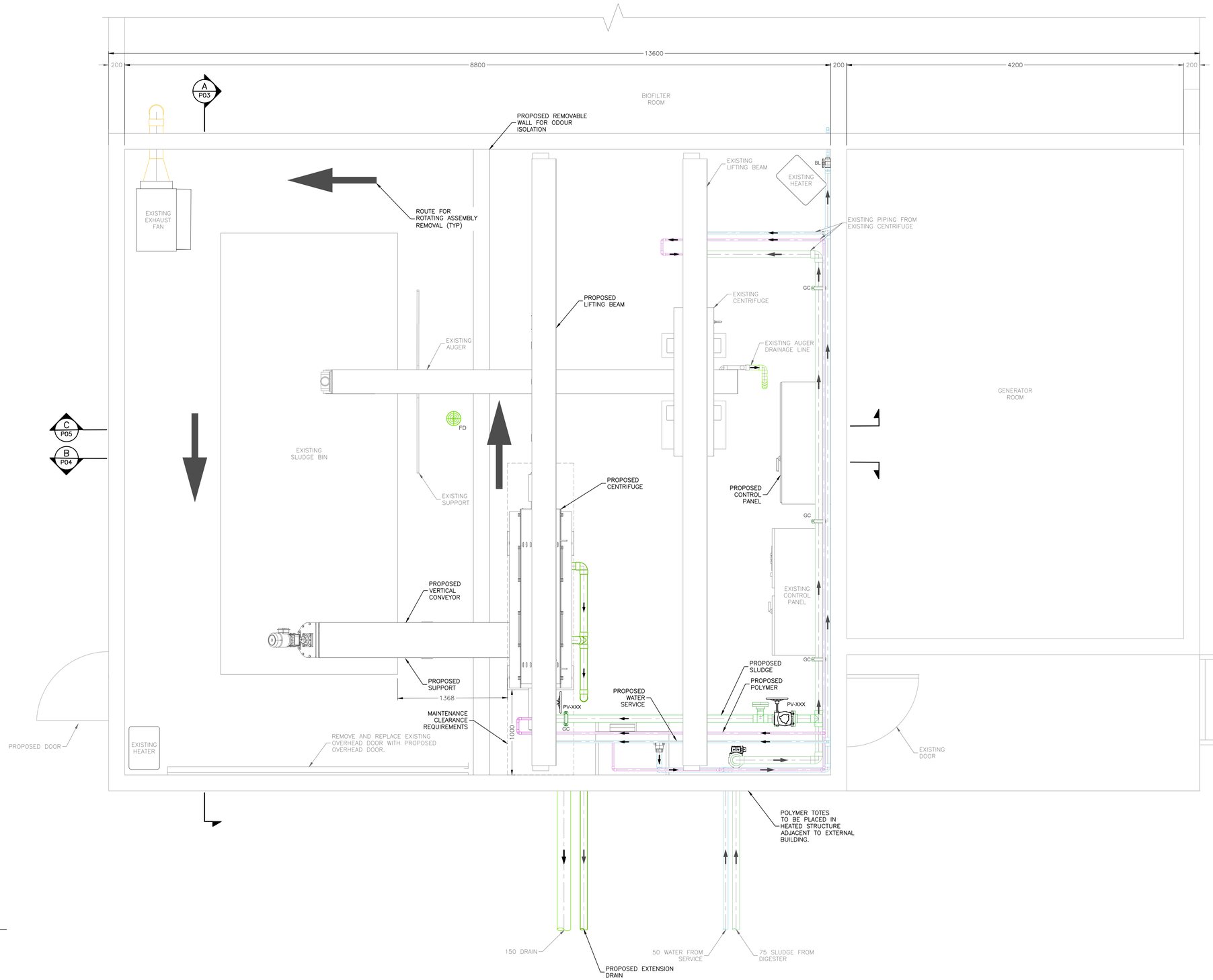

NOTE:

POLYMER TOTES TO BE MOVED TO A HEATED OUTDOOR STRUCTURE

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Professional Seals

#	Date	Issue / Revision	App

TOWN OF GIBSONS

URBAN systems

Scale 0.25m 0 0.25 0.5 0.75

Quality Control by	M. Smith
Designed by	A. Costa
Drawn by	A. Barluado

Centrifuge Replacement

Centrifuge Building Plan

Sheet Number	3 of 6

Project Number	Drawing Number	Revision
1300.0162.01	P02	----

NOT FOR CONSTRUCTION

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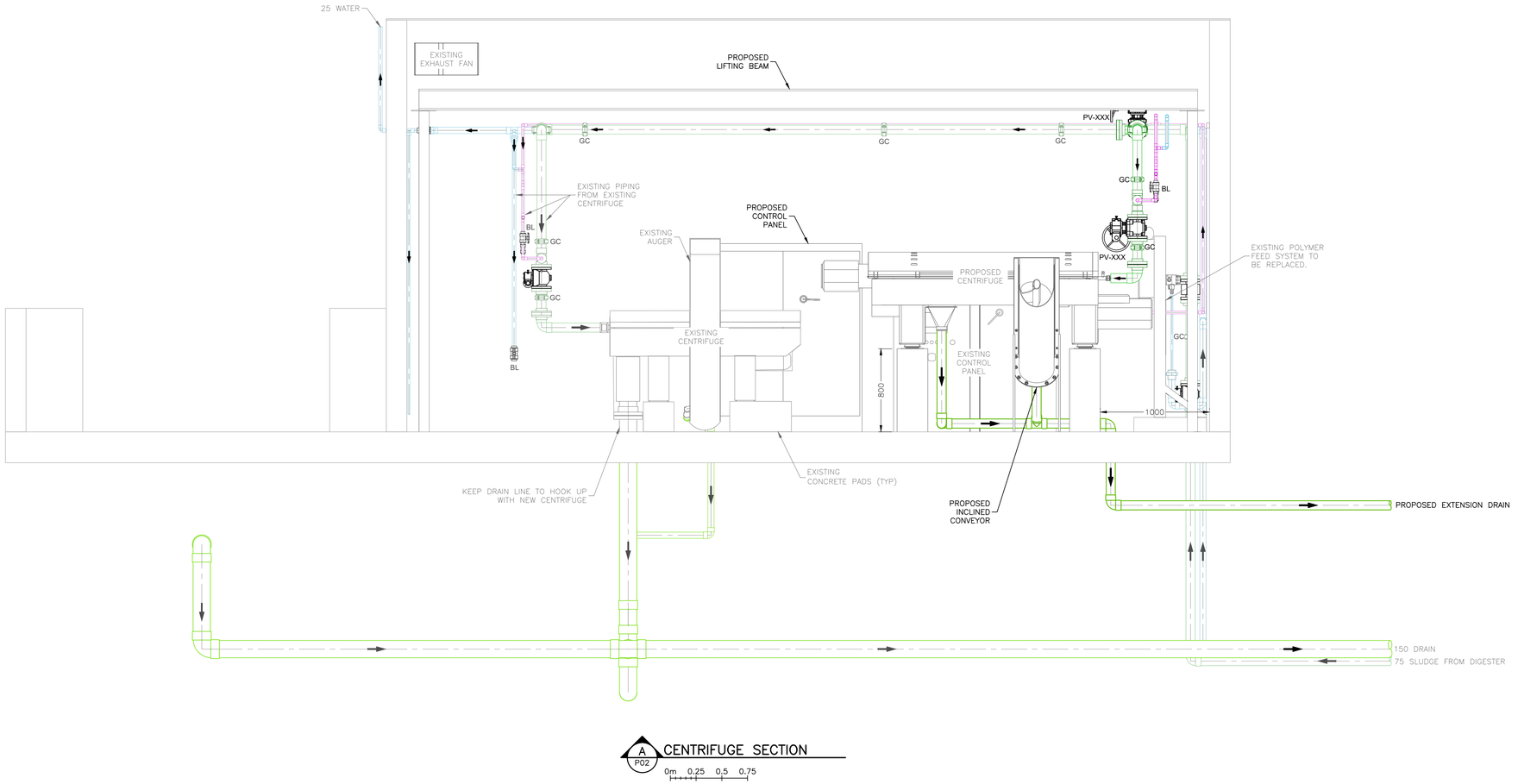

A P02 CENTRIFUGE SECTION

0m 0.25 0.5 0.75

NOTE:

POLYMER TOTES TO BE MOVED TO A HEATED OUTDOOR STRUCTURE

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Professional Seals

#	Date	Issue / Revision	App

TOWN OF GIBSONS

URBAN systems

Scale 0.25m 0 0.25 0.5 0.75

Quality Control by	M. Smith
Designed by	A. Costa
Drawn by	A. Barluado

Centrifuge Replacement

Centrifuge Section

Sheet Number		4 of 6
Project Number	Drawing Number	Revision
1300.0162.01	P03	----

NOT FOR CONSTRUCTION

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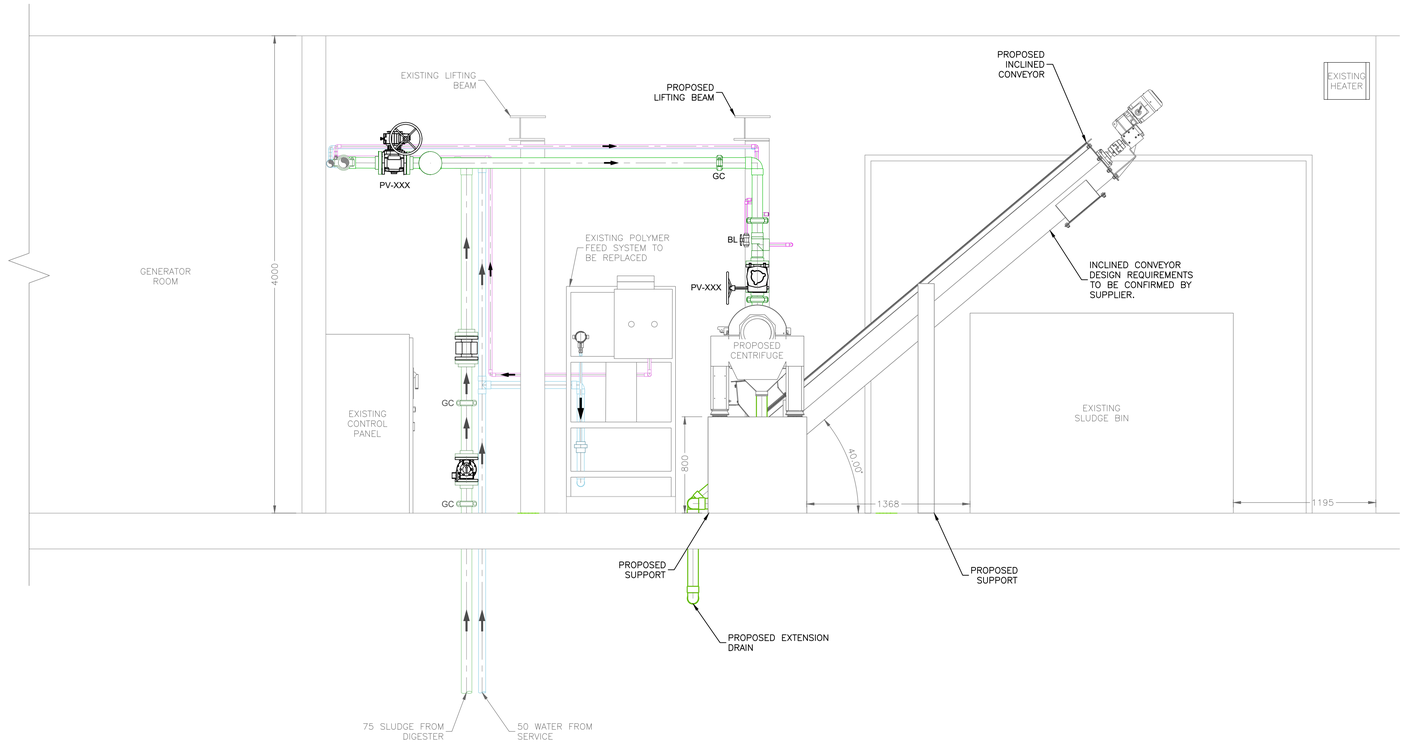

B P02 CENTRIFUGE SECTION

0m 0.25 0.5 0.75

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Professional Seals

#	Date	Issue / Revision	App

TOWN OF GIBSONS

URBAN systems

Scale 0.25 0 0.25 0.5 0.75

Quality Control by	M. Smith
Designed by	A. Costa
Drawn by	A. Barluado

Centrifuge Replacement

Proposed Centrifuge Section

Sheet Number		5 of 6
Project Number	Drawing Number	Revision
1300.0162.01	P04	----

NOT FOR CONSTRUCTION

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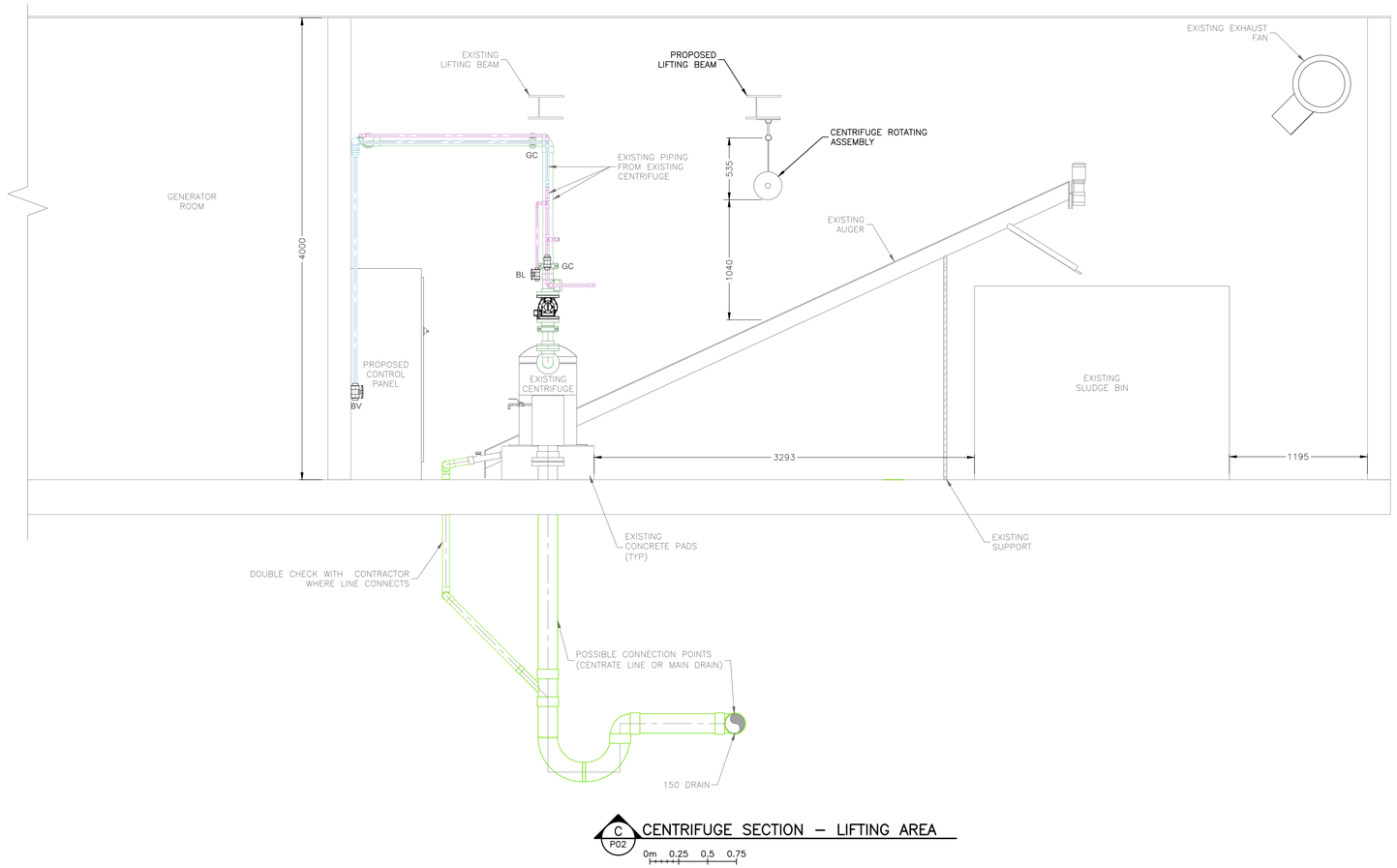

C P02 CENTRIFUGE SECTION – LIFTING AREA

0m 0.25 0.5 0.75

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Professional Seals

#	Date	Issue / Revision	App

TOWN OF GIBSONS

URBAN systems

Scale 0.25 0 0.25 0.5 0.75

Quality Control by	U. Systems
Designed by	U. Systems
Drawn by	U. Systems

Centrifuge Replacement

Centrifuge Section - Lifting Area

Sheet Number		6 of 6
Project Number	Drawing Number	Revision
1300.0162.01	P05	----

NOT FOR CONSTRUCTION

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APPENDIX D

TOWN OF GIBSONS PURCHASING POLICY MANUAL

TOWN OF GIBSONS POLICY MANUAL

SECTION: Administration	**POLICY #: 1.16**
TITLE: Purchasing Policy	**ADOPTED DATE:** July 15, 1997
REVISED DATE: March, 2003 **REVISED DATE:** July 22, 2003 **REVISED DATE:** October 4, 2022	**APPROVED BY:** COUNCIL **RESOLUTION #:** R97-289 / R2022-270

1. PURPOSE

The purpose of this policy is to deliver best overall value to the Town of Gibsons (the Town), in its acquisition of goods, services and construction, while ensuring that acquisitions are made in an open, fair, and transparent manner.

This policy will support the Town's strategic objectives while ensuring that the requirements under the *Community Charter*, *Local Government Act*, various trade agreements, *Freedom of Information and Protection of Privacy Act*, and Town bylaws are met.

2. POLICY

The Town's goal is to obtain best value for the community using processes that are open, fair and transparent. The Town is committed to developing and maintaining a procurement culture that leverages procurement activities to deliver best value to the community and support social value objectives. Criteria will be specific to the nature of the procurement and where applicable, clearly stated in the procurement documents to include environmental and socially responsible options or criteria to be considered along with price and performance.

The policy directs staff to conduct procurement in a manner that contributes to the development and diversification of the supply chain in a way that makes positive contributions to the local economy and overall vibrancy of the community, including and not limited to the principles listed below:

- Engage with Suppliers that are contributing to the advancement of the community economically, socially, culturally, and environmentally;
- Value and support supply chain partners who provide a Living Wage;
- Value and support the diversification and social impact of the supply chain by including, Social Enterprises, First Nations suppliers and local small enterprises;
- Value suppliers providing work experience and employment opportunities to local youth;
- Enhance relationships and engagement with Skwxwú7mesh (Squamish) and shíshálh (Sechelt) Nations.

3. SCOPE

This policy applies to anyone directly or indirectly involved in the procurement of goods, services and construction on behalf of the Town.

This policy does not apply to items listed in Appendix B – Purchasing Policy List of Exemptions.

4. SEPARATION OF DUTIES

4.1. To ensure the need for a clear and transparent separation of political and administrative functions, the Council has established this policy and approved expenditures through the Financial Plan approval process.

4.2. To remove any potential or perceived appearance of political influence or bias, Council recognizes the need to be removed from procurement processes from the time a procurement is issued to the market to the point where a contract has been awarded to the successful bidder, except where Council is presented with a recommendation to approve the contract award in accordance with this policy.

4.3. Council maintains the ability to identify specific procurements of interest that require additional Council approval for reasons such as those that are of high value, involve significant risk or are of significant interest to the community. Staff maintain the ability to identify contract awards or procurements in which they feel Council approval is in the best interest of the Town.

5. PROCEDURE

5.1. The following values shall guide procurement decisions towards the delivery of programs and services approved by Council in the Town's Financial Plan:

5.1.1. Best value for the community.

The Town will seek to obtain the Best Value in all procurement activities to ensure a long-term benefit to taxpayers. Best value includes many characteristics including, but not limited to: acquisition cost, availability, suitability, serviceability, transportation, required training, warranty, design, environmental impact, quality required, overall life cycle cost implications and other significant applicable characteristics.

5.1.2. Open, Fair and Transparent procurement processes.

The Town's purchasing activities are to be conducted in a manner that assures qualified suppliers receive equal opportunity to compete for Town purchases, as well as enhancing broader competitive procurement so that required goods and services are obtained in a timely manner, in the desired quantity, of the desired quality, and in the most cost-effective manner possible.

5.1.3. Environmental and social responsibility.

The Town's purchasing decisions may consider economic, environmental, and social objectives, Council's strategic plan and other plans, as may be amended from time to time. Wherever possible opportunities to achieve positive environmental, social outcomes and/or community benefits will be embedded into procurement processes.

5.2. Authorized Staff are required to ensure compliance with all Town policies, bylaws, provincial and federal laws, regulations and the applicable Trade Agreements that apply to the procurement of goods, services and construction.

5.3. The Town will consider co-operative procurement agreements within the Town and with other public bodies to increase efficiencies and reduce administrative costs in the procurement process. All co-operative agreements shall comply with Town policies, bylaws and applicable Trade Agreements.

5.4. The Town will endeavor to increase the use of products and services that are more responsible to the environment in the way of being made, used, transported, stored, packaged and disposed of.

5.5. Charge accounts for low-value purchases may be established with local businesses with advance approval by the Director of Finance.

5.6. Purchase Orders are required for items over $50,000.

5.7. Processes will ensure that the Town is not unduly exposed to risk in all transactions.

5.8. Processes will ensure that all awards and contracts are free of any conflicts of interest.

5.9. Exceptions to the policy:

5.9.1. In the event of an emergency, any two of the following may grant approval to enter into a contract without undergoing a competitive bid process: the Mayor, Chief Administrative Officer, and/or Director of Finance.

5.9.2. Certain purchases are exempt from the methods outlined in this policy (See Appendix B). Note: Authority limits outlined in Appendix A still apply.

5.9.3. The use of Purchasing Cards is permitted for the ordering of goods and services which are in line with the authorized purchasing card limits of the Town.

5.9.4. All exemptions, exclusions, or exceptions that exist in applicable Trade Agreements.

5.10. Procurement Thresholds and Methods

5.10.1. Procurement processes shall meet the following criteria:

Goods and General Services	
Estimated Purchase Value (excluding all taxes)	**Purchasing Method**
$7,500 or less	Direct Award
$7,501 - $49,999	Informal Quotation Request
$50,000 - $75,000	Formal Quotation Request
$75,000 or greater	Formal Competitive Bid

Professional Services and Construction	
Estimated Purchase Value (excluding all taxes)	**Purchasing Method**
$7,500 or less	Direct Award
$7,501 - $49,999	Informal Quotation Request
$50,000 - $99,999	Formal Quotation Request
$100,000 or greater	Formal Competitive Bid

5.10.2. **Direct Award** - entering a contract for service without undertaking a competitive bid solicitation. Staff are responsible for ensuring reasonable market price and good value. Note: Direct award is not suitable where a number of small contracts for the same or similar service will be contracted throughout the year and is reasonably expected to exceed $7,500 of goods and services acquired within the year.

5.10.3. **Informal Quotation** - quotes are solicited through an informal communication process including email or phone. Documentation is required and must include particulars about time, date and nature of supply or goods solicited, additional criteria being considered where applicable, whether a quote was received from each supplier and details of each quote including total contract price. Written quotes are preferred. Verbal quotes are acceptable where necessary.

5.10.4. **Formal Quotation** – quotes are solicited through a formal request for quotation. Staff must include the following information: a) specifications for goods and services required; b) additional criteria being considered, where applicable; c) name and address of

municipality; d) date and time for closing of receiving quotes; required delivery date. Invitations to submit quotes shall be directed to a minimum of three suppliers (where possible). Quotations must be received in writing.

5.10.5. **Formal Competitive Bid** means a Request for Proposal (RFP) bid solicitation which shall be advertised on BC Bid and the Town's website as deemed appropriate.

5.10.6. Where co-operative procurement arrangements are in place with other agencies that have undergone a competitive bidding process that meets or exceed those in 5.10.1 no further Bid process is required.

5.10.7. All Suppliers must be provided equal access to all information and reasonable and equal time to submit bids.

5.10.8. Selection criteria must be established, assigned weights and specified in the bid solicitation. Criteria must consider supplier capability and experience, work method, Total Cost of Ownership and incorporate principles of social value.

5.10.9. All records associated with a competitive bid process are subject to *Freedom of Information and Protection of Privacy Act* provisions and Authorized Staff are required to maintain those records in a manner consistent with the procedures established by the Town.

6. DISPOSAL OF ASSETS

6.1. Disposal of assets will align with the principles set out in the Asset Management Policy and shall be done in an open, fair and transparent manner while delivering best value for the Town.

6.2. This section applies to Town assets which have either been replaced, are beyond economical repair, and/or cannot be repurposed and are no longer required for Town purposes. This does not apply to Town owned land or buildings.

6.3. Disposal of all corporate wide related assets (such as furniture or IT equipment) shall be approved and coordinated by the Director of Corporate Administration or designate. Disposal of infrastructure related assets (such as fleet and mobile equipment) shall be approved and coordinated by the Department of Infrastructure Services or designate.

6.4. For assets noted in 6.1, staff shall have authority to sell, exchange, donate or otherwise dispose of such assets by any of the following disposal methods:

- trade-in or salvage during a related replacement procurement process;
- sale through an auction site for public sector agencies, or another open and fair public process;
- donation to a non-profit agency;
- recycling.

6.5. In the event that all efforts to dispose of the assets by the means detailed above fail, surplus assets may be scrapped or destroyed in a manner that considers health, safety and environmental concerns.

7. RELATED DOCUMENTS

Appendix A – Approval Authority

Appendix B – Purchasing Policy List of Exemptions

8. RESPONSIBILITIES

8.1. COUNCIL

Responsible for providing policy direction and approval of the Financial Plan.

8.2. CHIEF ADMINISTRATIVE OFFICER:

Responsible for establishing and maintaining policies and procedures for the Town's procurement process and overall compliance with the policy.

8.3. DIRECTOR OF FINANCE:

Responsible for administration of the policy.

8.4. DEPARTMENT DIRECTORS AND MANAGERS:

Responsible for adherence to the procurement policy and procedures.

Responsible for managing and administering contracts once approved under the procurement process.

Responsible for monitoring departmental and capital budgets under their authority and ensure that purchases are in accordance with the Town's Financial Plan.

Responsible for monitoring compliance with this policy. Any instances of non-compliance shall be documented and reported to the Director of Finance and/or Chief Administrative Officer in a timely manner.

8.5. ALL EMPLOYEES:

Responsible for compliance with the procurement policy and procedures.

9. REVIEW DATE

This policy has a life of 5 years. It will be reviewed in 2027.

10. DEFINITIONS

Authorized Staff refers to specified Staff delegated the authority to enter into Agreements on behalf of the Town that bond the Town to the acquisition of goods and services. Staff are only authorized for contracts within their delegated purchasing authority.

Award refers to the business decision by Authorized Staff to enter into and execute contracts for goods, services and construction.

Best Value means the optimal combination of total cost of ownership, performance, economic, cultural, environmental and social value within the compliant responses to the Town's terms and conditions and contract documents.

Beyond economical repair means a classification given to an asset where the cost of ownership is likely to be more expensive than retaining the asset or its replacement value.

Bid means a submission from a supplier in response to a solicitation or competition advertised by the Town for a contract to supply goods or perform services for the Town.

Chief Administrative Officer or "CAO" means the person appointed by the charter to hold the position of chief administrative officer for the Town.

Director of Finance means the person appointed under the *Community Charter* to hold the position of finance officer for the Town.

Disposal means a process of preparing, negotiating, and concluding a written contract where necessary, which involves transfer of ownership of an asset no longer needed by the Town, by means of a sale or donation.

Community Benefit Agreements means a legally enforced agreement on construction, infrastructure and development projects for specific social value outcomes like hiring, training, or procurement that ensures projects enhance social, cultural, environmental, and economic opportunities for community.

Conflict of Interest is where an employee of the Town has financial or other interest in goods or services which the Town desires to acquire or dispose of. The employee is disqualified from approving the transaction or being an evaluator on any procurements notwithstanding their written authority governed by applicable bylaws.

Debriefing refers to the process where after a competitive process has been concluded and a contract awarded to the successful proponent, unsuccessful proponents may contact the Town to gain an understanding of where their proposal might be improved for future bid opportunities.

Direct Award refers to entering a contract for service without undertaking a competitive bid solicitation.

Emergency Expenditure means a purchase required when an event or situation creates an immediate or serious need where lack of supplies or services may adversely affect Town functions or operations, threaten public, or property or the environment, or jeopardize the health or safety of any person.

Environmental Impact describes the positive and negative effects an organization has on the environment.

Financial Plan refers to the five-year plan adopted by bylaw that outlines the Town's approved operating and capital revenues and expenditures for that period.

Formal Quotation means quotes that are solicited through a formal request for quotation. Staff must include the following information: a) specifications for goods and services required; b) additional criteria being considered, where applicable; c) name and address of municipality; d) date and time for closing of receiving quotes; required delivery date. Invitations to submit quotes shall be directed to a minimum of three suppliers (where possible). Quotations must be received in writing.

Formal Competitive Bid means a Request for Proposal (RFP) did solicitation which shall be advertised on the Town's website and BC Bid as deemed appropriate.

Informal Quotation means quotes that are solicited through an informal communication process including email or phone. Documentation is required and must include particulars about time, date and nature of supply or goods solicited, additional criteria being considered where applicable, whether a quote was received from each supplier and details of each quote including total contract price. Written quotes are preferred. Verbal quotes are acceptable where necessary.

Living Wage means the hourly wage established from time to time by the Living Wage for Families Campaign.

Mayor includes a Council appointed Deputy Mayor.

Officer refers to Chief Administrative Officer, Financial Officer or Corporate Officer pursuant to the Community *Charter* and includes Staff appointed by Council/Board into Deputy Officer positions.

Open, Fair and Transparent means ensuring that the public is aware of and permitted to compete for supply opportunities in their demonstrated field of expertise.

Proponent refer to suppliers, contractors or consultants that may receive or may be responding to particular bid requests from the Town.

Purchasing Card means the Town purchasing card issued to department staff for purchases as per the purchasing card agreement.

Responsible Products and Services meet environmental and ecological standards, labour, and safety codes, and contribute to best value as defined by the Town.

Social Benefit describes the positive social impact of the Town's procurement activities. It can include but not be limited to diversifying the supplier base, and engaging First Nations companies, social enterprises and not for profit organizations.

Social Enterprises are businesses that sell goods and services; they embed a social, cultural or environmental purpose into the business, and they reinvest the majority of profits (51%+) into their mission.

Social Procurement is a procurement practice that seeks to leverage existing procurement activities to achieve positive social outcomes such as environmental, social and economic benefits that align with community values and strategic objectives.

Social Value means supporting Council's objectives as articulated in its Strategic Plan and refers to programs or services delivered by the Town that impact the wellbeing of individuals and the community.

Supplier means any person or business that supplies goods or services to the Town, also referred to as a Vendor.

Supplier diversity means creating opportunities for diverse suppliers such as Indigenous peoples and employment equity deserving groups which could include people facing systemic barriers to employment and other underrepresented groups.

Total Cost of Ownership means the direct social, environmental and financial costs to the Town of products, services and construction during their acquisition, use and end of life phases. All contracts will be evaluated based on the full range of costs that may include acquisition, maintenance, replacement, legal disposal, training costs, environmental and social impacts associated with goods or services.

Trade Agreements mean any Government of Canada, or Province of British Columbia or International trade agreement that apply to the procurement practices of municipalities in British Columbia.

Appendix A

Approval Authority

The authority for expenditures is the Town's current year Financial Plan as adopted or amended by Council.

The following personnel are authorized to execute procurement commitments (exclusive of all taxes) up to the value limits as identified in the following table:

PURCHASING APPROVAL AUTHORITY	
Position	**Threshold**
Council	Over $75,000
Chief Administrative Officer	$ 75,000
Department Directors	$ 50,000
Managers	$ 25,000
Supervisors, Technical Staff	$ 10,000
All other Town employees	$ 500

(1) Above provides authority for approval. Staff must also follow the required procurement methods as prescribed in Section 5.10.
(2) Notwithstanding the approval authority thresholds above, the Chief Administrative Officer may direct staff to submit any procurement commitment to Council for approval.
(3) Authority of Supervisors and Technical staff is granted by Director of Finance in discussion with Department Director.
(4) Upon Council resolution to award a contract, the Mayor and Corporate Officer or Chief Administrative Officer shall sign on behalf of Council for contracts greater than $75,000.

Appendix B

List of Exemptions - Purchasing Threshold and Method

1. Corporate General Expenses:
   - Payroll, benefits premiums, payroll associated remittances.
   - Debt Payments
   - Tax Remittances
   - Real Property-including land, building, leasehold interest, easements, encroachments
   - Ongoing Licenses (vehicles, software, etc.)
   - Grants to Agencies
   - Charges to or from other government or Crown corporations
   - Bank Charges and Underwriting Services where covered by agreements
   - Development charges, cash in lieu refunds
   - Building/development permit refunds and deposit returns
   - Property Tax Refunds
   - Recruitment Services
   - Payment of Damages
   - Water and Sewage Charges
   - Hydro and Gas
   - Telephone and Internet
   - Postage and Courier Services

2. Professional and Special Services:
   - Arbitrators, Mediators, Investigators
   - Legal counsel as authorized by Chief Administrative Officer or Department Director
   - Consultants or contractors hired to complete a project deficiencies where the developer has abandoned the project or is negligent in completion, where time is of the essence and funds to complete the work can be drawn from the security deposits held by the Town
   - Special events including performers, artists, speakers, facility rental, equipment and supplies.
   - Honoraria

3. Training and Education:
   - Conferences, Conventions and Tradeshows
   - Newspapers, Magazines and Periodicals
   - Memberships
   - Seminars and Workshops

4. Refundable Employee / Other Expenses:
   - Advances - Meal Allowances
   - Course and Travel Expenses
   - Entertainment - Hotel Accommodation
   - Miscellaneous Non-Travel - Refunds: tax, recreation, permits

APPENDIX E

COMMON REQUIREMENTS FOR WASTEWATER PROCESS EQUIPMENT

COMMON REQUIREMENTS FOR WASTEWATER PROCESS EQUIPMENT

1.0 GENERAL

1.1 Summary

1.1.1 This section specifies general requirements applicable to all process mechanical equipment specified in this request for quotation. Additional requirements are detailed in specific equipment specifications: this section must be referenced to and interpreted simultaneously with all other Sections pertinent to the *Work* described herein.

1.1.2 For instrumentation, control and electrical elements and devices, refer also to specific equipment specifications for style, quality, product, and mounting requirements.

1.1.3 Related Requirements

(a) Not used.

1.1.4 Site Conditions:

(a) Outside ambient temperature range: -10 °C to 34°C

(b) Elevation 34 m

1.2 References

1.2.1 Definitions

(a) *"Owner"* and "*Contractor"* mean the Town of Gibsons.

(b) "*Manufacturer*" means the manufacturer responsible for the complete integrated equipment package described in this request for quotation.

(c) *"Manufacturer's Representative"* means a factory trained representative qualified and approved by the Equipment *Manufacturer* to provide detailed installation instructions for equipment, inspect equipment installation, supervise equipment testing and provide training on equipment maintenance and operation.

(d) *"Consultant"* means Urban Systems Ltd.

(e) *"Equipment Supplier"* or "*Supplier*" means the local representative of the *Manufacturer*.

(f) *Supplier's Engineer:* means a professional engineer registered in the Province of British Columbia retained by the *Equipment Supplier* at the *Supplier's* cost.

(g) *Outdoor:* means exposed, above ground, outside or within an enclosure that is not environmentally controlled.

(h) *Submerged*: means regularly or occasionally immersed in liquid, inside covered tanks, channels, manholes and vaults, and within 3 m above maximum water level of open tanks, manholes and vaults.

(i) *Interior Dry*: means within an environmentally controlled enclosure where the temperature is maintained above 5 ºC and does not contain any tanks, channels, manholes or vaults containing liquid. Includes the blower room.

1.2.2 Reference Standards

(a) Conform to the most recent version of all standards referenced in this Section.

(b) ABMA: Load Ratings and Fatigue Life for Ball Bearings.

(c) ABMA: Load Ratings and Fatigue Life for Roller Bearings.

(d) AGMA 6001: Design and Selection of Components for Enclosed Gear Drives

(e) ANSI B1.1: Unified Inch Screw Threads, UN and UNR Thread Form

(f) ANSI B1.20.1: Pipe Threads, General Purpose, Inch

(g) ANSI B16.1: Cast Iron Pipe Flanges and Flanged Fittings, Class 24, 125, 250 and 800

(h) ANSI B16.5: Pipe Flanges and Flanged Fittings

(i) ANSI B18.2.1 – Square and Hex Bolts and Screws (Inch Series)

(j) ANSI B18.2.2 – Square and Hex Nuts (Inch Series)

(k) ANSI S2.19 – Mechanical Vibration- Balance Quality Requirements of Rigid Rotors, Part 1: Determination of Permissible Unbalance, Including Marine Applications.

(l) ASME B31.3 – Process Piping

(m) ASTM A380: Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment and Systems.

(n) AWS D1.1: Structural Welding - Steel

(o) BCBC: British Columbia Building Code

(p) Canadian Electrical Code

(q) CSA W47.1: Fusion Welding of Steel Company Certification

(r) CSA W48: Electrode and Filler Metals Certification

(s) EEMAC: Electrical and Electronic Manufacturer’s Association of Canada

(t) IEEE: Institute of Electrical and Electronics Engineers

(u) CCOHS: Canadian Centre for Occupational Health and Safety

(v) Occupational Health and Safety Regulation – Worksafe BC

(w) SSPC SP-1: Solvent Cleaning

(x) SSPC SP-6: Commercial Blast Cleaning

(y) Worker's Compensation Board of British Columbia

1.3 Submittals for Review

1.3.1 Provide submittals in one complete package in electronic .pdf format. Unless otherwise noted, this *Project* has been designed and is to be constructed in the S.I. metric system of measurements.

1.3.2 The *Consultant's* review is for the sole purpose of ascertaining conformance with the general design concept and the proposal. This review shall not constitute approval of the detail design inherent in the *Shop Drawings*, responsibility for which shall remain with the *Manufacturer* submitting the same. Review by the *Consultant* shall not relieve the *Manufacturer* of its responsibility for errors or omissions in the *Shop Drawings* or of its responsibility for meeting all requirements of the request for quotation. The *Manufacturer* is responsible for information that pertains solely to fabrication processes or to techniques of equipment construction, installation, and testing.

1.3.3 *Shop Drawings* will be returned to the *Manufacturer* with one of the following notations:

(a) When stamped "NO EXCEPTIONS TAKEN", distribute additional copies as required for execution.

(b) When stamped "REVIEWED AS MODIFIED - PROCEED", ensure that all copies for use are modified and distributed, same as specified for "NO EXCEPTIONS TAKEN".

(c) When stamped REVISE & RE-SUBMIT", make the necessary revisions, as indicated, consistent with the Request for Quotation and submit again for review. Any adjustments made on *Shop Drawings* by the *Consultant* are not an authorization to change the quoted price. If it is considered that such adjustments affect the quoted price, the *Manufacturer* shall clearly state as such, in writing, and obtain the *Owner's* agreement prior to proceeding with fabrication and delivery.

(d) When stamped "NOT REVIEWED", submit other drawings, brochures, etc. for review consistent with the Request for Quotation.

(e) Only *Shop Drawings* bearing "NO EXCEPTIONS TAKEN" or

"REVIEWED AS MODIFIED - PROCEED" shall be used unless otherwise authorized by the *Consultant*.

(f) After submittals are stamped "NO EXCEPTIONS TAKEN" or "REVIEWED AS MODIFIED - PROCEED", no further revisions are permitted unless re- submitted to the *Consultant* for further review.

1.3.4 Equipment supply list with electrical characteristics of motor driven equipment, control connection specifications and cable schedule for all required and/or included field cables.

1.3.5 Manufacturer, model number and catalog information for all equipment, including, but not limited to driven equipment, drive, motor, instruments and sensors and appurtenances. Clearly indicate all options being provided with the proposed equipment. Cross out options not being provided.

1.3.6 Equipment capacity and performance characteristics. For pumps and blowers, certified performance curve indicating relationship between speed, capacity, discharge pressure, discharge temperature, and horsepower. Indicate all design operating points on the performance curves and state equipment capacity at full speed.

1.3.7 Free field sound pressure level of complete equipment package under worst case operating conditions for noise generation at 1 m distance in dB (A).

1.3.8 Drive and reducer data including design torque and rated torque, rated thrust force, service factor, efficiency and certified L-10 bearing life and bearing temperature at worst case operating condition.

1.3.9 Nameplate information.

1.3.10 Maximum allowable vibration measured at the bearings in the X-Y plane.

1.3.11 Dimensioned plan and section drawings showing overall guaranteed maximum equipment dimensions, with required minimum clearance for operations access and maintenance around equipment indicated on each side and above equipment. Indicate location of ancillary devices, conduit, junction boxes, safety and control devices and conduit entries for feeding or controlling the equipment.

1.3.12 List of materials of construction detailing component parts and referencing ASTM, ANSI, CSA etc. specifications. Provide documentation showing material compatibility with specified process fluid and service conditions.

1.3.13 Dimensional drawings in AutoCAD formats. 3D preferred if possible, compatible with AutoCAD Plant 3D (.dwg (3D, not 2D linework), .sat, .dwf, .ste, .stp, .step,.X_T).

1.3.14 Equipment weight and weight of major components, design static and dynamic loadings to be transferred to foundations or supports, size and dimensioned location of anchor bolts or other attachments to foundations or supports, and dimensioned anchor bolt layout drawings. Show lifting point locations.

1.3.15 Instrumentation cut sheets and details. Include dimensions and environmental ratings.

1.3.16 Model numbers of Programmable Logic Controllers and Touch Screen HMI's.

1.3.17 Data table of required ModBus variables. Provide as an Excel spreadsheet as well as a .pdf file.

1.3.18 Motor data including manufacturer and model, insulation ratings, ambient temperature rating, torque rating, electrical classification, RPM at full load, electrical supply requirements, temperature rise at full load and service factor load, start-up and operating current ratings, service factor, guaranteed minimum efficiency at 0.25, 0.5, 0.75 and full load, operating voltage and amperage tolerances, and illustrative construction drawings indicating dimensions and weight.

1.3.19 V-belt drive data including AGMA/ABMA ratings for components, tolerances and details and materials of construction.

1.3.20 Details of surface preparation and factory paint, and any methods of preventing galvanic corrosion between mating surfaces constructed of dissimilar metals.

1.3.21 Size and material specifications of all anchor bolts, with any bolts whose location tolerance is less than normal indicated clearly on the shop drawings.

1.3.22 Prior to equipment shipment to site, provide written results and reports for specified factory performance testing performed for each actual supplied equipment component or package.

1.3.23 Field performance test log containing detailed records from equipment field testing. Submit these logs with Form 102.

1.3.24 A list of spare parts provided.

1.3.25 Provide a copy of this specification section with each paragraph check-marked to show compliance or highlighted with notes indicating deviation.

1.4 Submittals for Information Only

1.4.1 Provide in one complete electronic submittal, certified copies for construction of the final reviewed shop drawings.

1.4.2 Specific site off-loading, storage, protection and handling instructions to

ensure there is no uneven wear, distortion, damage to or weathering of components stored on site prior to installation.

1.4.3 List of special tools, materials and supplies provided with equipment for use prior to and during testing and for future maintenance.

1.4.4 Installation instructions indicating mounting and anchorage requirements, levelling, alignment and assembly tolerances, and terminations of equipment and wiring for connection by others. Include a complete bill of materials including the weight of each component.

1.4.5 Site test procedures including pre-start, check list, lubricant requirements, electrical requirements, initial testing and as required for other testing described in this specification.

1.4.6 Testing and adjustment procedures including lubrication requirements, electrical requirements, etc.

1.4.7 Warranty Documentation

1.4.8 Anchor Bolt Design

(a) Certification by the *Supplier's Engineer* that anchor bolt calculations have been performed by the *Supplier's Engineer* for all pieces of equipment indicating adequacy of bolt type, sizing and anchor embedment for all forces including seismic.

(b) For drilled or adhesive anchors, also provide shop drawings sealed by the

Supplier's Engineer.

(c) Submittals to be provided before equipment installation.

1.4.9 Completed forms as required by this Section for completion of installation, testing and commissioning.

1.4.10 Certificate of final inspection and approvals from the local electrical inspection authority.

1.4.11 For stainless steel welding and passivation, certified procedure suitable for the application and written by a qualified welding engineer.

1.5 Submittals for Operation and Maintenance Manuals

1.5.1 Not less than four (4) weeks prior to the scheduled *Commissioning* date, the *Manufacturer* must submit to the *Owner* a digital copy (in indexed pdf format) of operating and maintenance manuals containing information required by the request for quotation. Revise the digital copy of the manual as directed by the

Owner and provide the *Owner* with an updated digital copy and four (4) hard copies. At least one hard copy of the operation and maintenance manual must be on site before proceeding with *Commissioning*.

1.5.2 In information supplied, cross off all data not applicable to the specific equipment model supplied, and highlight all data applicable to the specific equipment model supplied. Provide information including but not limited to:

(a) Running clearances and tolerances,

(b) Exploded views and drawings to illustrate relations of component parts of equipment and systems.

(c) Provide logical sequence of instructions for each operations and maintenance procedure, incorporating *Manufacturer*'s instructions. For operating and maintenance instructions for each piece of equipment provide typewritten text as required to supplement product data.

(d) Complete and detailed lubricating and servicing schedule and recommended lubricants to be utilized,

(e) List of daily, weekly, monthly and annual inspection procedures.

(f) Equipment and Instrument calibration reports.

(g) Contact information for *Manufacturer*, local service representative(s) and for local source of supplies and replacement parts.

(h) Programs for controls, complete with comments and variable names, and any administrator passwords.

(i) Factory performance testing results.

(j) Field performance test logs.

(k) All submittals listed under Clause 1.4 of these specifications.

1.6 Quality Assurance

1.6.1 All materials to be new and not used.

1.6.2 The *Supplier's Engineer* shall be qualified to do anchor bolt design, and where required by the specifications, shall be qualified to do structural liquid containing stainless steel tank and support design.

1.6.3 Provide all supports, anchorage and mounting of all equipment in accordance with the *Manufacturer*'s recommendations, the National Building Code, and BC Building Code and industry standard requirements unless otherwise specified,

1.6.4 Equipment supplied shall be of proven design and shall be referenced by at least two (2) installations on similar service having been in successful

operation for a period of not less than three (3) years prior to the tender date.

1.6.5 Comply with all laws, ordinances, rules, regulations, codes and orders of all authorities having jurisdiction relating to this work.

1.6.6 All instrumentation, control and electrical devices to be CSA approved and to bear the CSA approvals sticker.

1.6.7 Prior to shipping, factory inspect all stainless steel construction for complete and effective passivation after fabrication. Any evidence of incomplete passivation or contamination of stainless steel equipment/tanks/channels/piping on site will require re-passivation at a stainless steel fabrication facility prior to installation.

1.6.8 Design and selection of components to be based upon a useful life of at least 20 years, except where otherwise noted.

1.7 Delivery, Storage, and Handling

1.7.1 Ship and unload equipment in accordance with *Manufacturer*'s recommendations to prevent damage, undue stress or weathering.

1.7.2 Ship and deliver equipment fully assembled except where partial disassembly is required in order to conform to transportation regulations or for the protection of components.

1.7.3 Pack and/or brace equipment for shipping as recommended by *Manufacturer* to prevent damage during shipping.

1.7.4 Protect all finished surfaces of exposed flanges and interior of equipment and piping by wooden blank flanges, bolted to the equipment flanges

1.7.5 Protect all coatings from damage during shipping.

1.7.6 Any finished iron or steel surfaces not coated shall be properly protected to prevent rust and corrosion.

1.7.7 Shrink-wrap, box, or otherwise protect stainless steel components to protect against chloride corrosion from road salt or other damage to surfaces. Provide insulators between tie-downs and shrink wrap to prevent shrink wrap wear during shipping and exposure of stainless steel. Do not allow contamination of stainless steel surfaces by other ferrous materials such as chains or pry bars.

1.7.8 Pack spare parts in containers bearing labels clearly designating contents and pieces of equipment for which they are intended.

1.8 Warranty

1.8.1 The equipment shall be warrantied for either one calendar year following successful commissioning of the equipment or 18 months after delivery to site

or as specified in the Equipment Data Sheet, whichever is greater.

1.8.2 Each *Manufacturer* shall warrant that the equipment supplied is capable of performing the functions described in the Specifications.

1.8.3 Repairs to be made on site at no cost to the *Owner*. If shipment to allow for repairs is required during the Warranty Period, equipment removal, shipment to factory, shipment back to site, and equipment re-installation, shall be done at no cost to the *Owner*.

2.0 PRODUCTS

2.1 Component Compatibility

2.1.1 Ensure all components of equipment systems including motor, drive, driven equipment and controls are compatible.

2.1.2 Provide equipment systems comprised of two or more components as a unit by the responsible *Manufacturer*. Unless otherwise specified, the supplier of the driven unit is the responsible *Manufacturer*.

2.1.3 Prevent isolation or choose materials to prevent electrolytic action between dissimilar metals and materials.

2.1.4 Choose and assemble all components of the equipment system to enhance compatibility, ease of construction, and efficient maintenance

2.2 Anchor Bolts

2.2.1 The *Manufacturer* shall be responsible for the design and material specifications of all anchor bolts.

2.2.2 *Manufacturer* to provide anchor bolts, washers and nut sizing and material for anchor bolts to be embedded in concrete for the equipment.

2.2.3 *Manufacturer* to provide all connecting bolts, washers and nuts required for attaching pieces of equipment and materials to base-plates.

2.2.4 For rotating equipment, drilled expansion or adhesive anchors for anchor bolts shall not be allowed unless designed and approved by the *Supplier's Engineer*.

2.2.5 For rotating equipment provide anchor bolts with sleeves and washers to permit adjustment during installation of equipment.

2.2.6 Materials

(a) *Interior Dry* locations: Cadmium plated or hot dip galvanized

(b) All other locations: 316 stainless steel

2.3 Bases for Equipment

2.3.1 Provide rectangular bases, structural steel shapes with sufficient rigidity to maintain equipment alignment and resist forces and moments from the piping system.

2.3.2 Bases to be designed to withstand the design earthquake condition.

2.3.3 Provide bases sized for the next size larger motor. Baseplate to extend beyond all extremities of the driver and driven equipment.

2.3.4 Provide automatic alignment between the driver and driven end, or provide jacking screws between equipment frame and mounting feet.

2.3.5 For base mounted rotating equipment with motors larger than 10 hp provide jacking screws for the driver and the driven end to facilitate alignment, consisting of 12 mm nuts welded to the frame of the equipment, and a 12 mm bolt fitting

through the nut and extending to the mounting feet. Provide two jacking screws at each end of the equipment, one each parallel and perpendicular to the equipment axis.

2.3.6 Provide grout holes in equipment bases. Unless recommended otherwise by the equipment supplier, grout equipment bases using non-shrink, pour grade, non- metallic grout.

2.4 Bearings

2.4.1 Design Criteria

(a) Provide equipment bearings with a minimum ABMA L-10 rating life of 50,000 hours, as determined using the maximum equipment operating speed, unless otherwise specified.

(b) Oil lubricated bearing systems to be sized to safely absorb heat energy generated in the bearing at an ambient maximum temperature of 40 ºC.

2.4.2 Equipment components

(a) Except for those specified to be factory sealed and lubricated, provide easily accessible grease supply, flush, drain and relief fittings for grease lubricated bearings, using extension tubes where necessary to extend inaccessible lubrication points and drains to convenient locations. Provide standard hydraulic grease gun type grease supply fittings.

(b) Provide pressure lubricating or separate oil reservoir system for oil lubricated bearings. Provide a filler pipe and external level indicator

gauge.

(c) Unless otherwise specified in the individual equipment specification, provide oil or grease lubricated, ball or roller type equipment bearings, designed to withstand the stresses of the service specified.

2.5 Controls

2.5.1 Programmable Logic Controllers shall be from an actively supported series. Provide ABB AC500 V3 family – PM5670-2ETH Order Code 1SAP151000R0278

2.5.2 Touch Screen HMI shall be from an actively supported series. Provide ABB CP600, CP 600 Pro, or VTSCADA v11.3 with runtime and configuration license.

2.5.3 Provide programmable equipment unlocked. Provide administrator passwords where calibration data requires limiting access to operators.

2.5.4 Provide communication to Supervisory Control panels using ModBus/TCP communications.

2.5.5 Provide LED type indicator lights.

2.5.6 For each motor, provide a local control station rated per the location classification located within view of equipment moving components, including hand/off/auto selector switch (with reverse option if specified in specific equipment Sections), local isolation, and emergency stop disconnect switch provided within suitable proximity as required by safety regulations.

2.5.7 For each solenoid valve and electric valve actuator, provide a local control station rated per the local classification, located within view of the valve outlet flow, including hand/off/auto selector switch and local isolation.

2.5.8 For each local selector switch provide switch position feedback to main control panel.

2.5.9 In headworks, provide all local control stations of corrosion resistant materials.

2.6 Couplings

2.6.1 Unless otherwise specified in the individual equipment specification, provide flexible couplings when connecting shafts of drivers greater than 0.5 hp directly to the driven equipment shaft.

2.6.2 Acceptable manufacturers: Dodge, Woods.

2.6.3 Design Criteria:

(a) Couplings to accommodate angular and parallel misalignment and end float and to cushion shock loads and dampen torsional vibrations.

(b) No metal to metal contact between the driver and the driven unit.

(c) Size each coupling as recommended by the coupling manufacturer for horsepower, speed of rotation, and service type, and install in conformance with the coupling manufacturer's instructions.

(d) Configure coupling guards so as not to interrupt air circulation around or through the driver.

2.6.4 Equipment Components

(a) Provide tire-type flexible member, attached to flanges by means of clamping rings and cap screws, with flanges attached to stub shaft by taperlock bushings for equivalent of shrunk-on fit.

2.7 Gauge Taps

2.7.1 Provide gauge taps on the suction and discharge side of pumps, blowers and compressors, complete with nipple, ball valve and cap.

2.7.2 Taps on air and clean water services to be 12 mm diameter.

2.7.3 Taps on wastewater services to be 25 mm diameter.

2.7.4 Provide plugs for taps, of same material as piping, as required after completion of piping and equipment testing.

2.8 Gear Reducers

2.8.1 Design Criteria

(a) Conform to AGMA standards and size for continuous duty, 24 hours per day 365 days per year.

(b) Provide thermal horsepower rating in excess of motor horsepower.

2.8.2 Equipment Components

(a) Unless otherwise specified for individual equipment, provide helical gear, parallel shaft type with anti-friction bearings.

(b) Provide steel baseplates, input shaft coupling guards and shaft mounted cooling fans.

(c) Provide slide rails for applications utilizing belt drives.

2.9 Guards

2.9.1 Design Criteria

(a) On all moving parts, and on exposed equipment with operating surface temperatures exceeding 40ºC, provide sheet expanded guards that are CCOSH approved and compliant with the BC

Occupational Health and Safety Regulation.

(b) Provide guards that are easily removable to facilitate maintenance and that allow full movement of adjustable parts.

(c) Provide guards that allow visual inspection of moving parts without removal of the guard.

(d) Guards for V-belt drives to include access to belts at mid-point between sheaves for tension measurement and/or strobe light.

2.9.2 Equipment Components

(a) Provide removable guards of either expanded 14 gauge sheet carbon steel, perforated sheet carbon steel in Interior dry areas, or expanded 14 gauge Type 316 L stainless steel in all other areas.

(b) Provide reinforced bolt holes.

(c) Paint guard after fabrication to same standard as equipment to protect against corrosion.

2.10 Housekeeping Pads

2.10.1 Equipment located on concrete slabs will be mounted on a concrete housekeeping pad.

2.10.2 Pad to be a minimum of 100 mm higher than finished floor elevation and extend 150 mm outside the equipment base or 10 bolt diameters from the outer edge of the outermost anchor bolt, whichever is greater. Pad to drain away from the equipment base.

2.10.3 Conduit, drains, piping etc. required for ancillary connections to the equipment are to rise through the pad unless shown otherwise.

2.11 Identification of Equipment

2.11.1 Provide metal nameplate on each motor and each piece of equipment, mechanically fastened, complete with recessed letters.

2.11.2 Indicate size, equipment model, manufacturer's name, serial number, voltage, cycle phase and power of motors.

2.11.3 Indicate design conditions (ie: flow, outlet pressure) in metric units, RPM, and equipment identification number as shown on process and instrumentation drawings.

2.11.4 Nameplate to be 304 stainless steel with 6 mm high indented letters.

2.11.5 Label all wires and cables in accordance with *Owner's* labelling requirements.

2.12 Piping Connections

2.12.1 Provide piping connections compatible with piping systems to be connected.

2.12.2 Flanges: ANSI B16.1, Class 125 on cast iron equipment and ANSI B16.5, Class 150 on steel equipment and appurtenances.

2.12.3 Pipe threads: ANSI B1.20.1.

2.12.4 Provide threaded flanges with standard taper pipe thread conforming to ANSI B1.20.1. Unless otherwise specified in the individual equipment specification, provide flat faced flanges.

2.13 Pump Shaft Mechanical Seals

2.13.1 Acceptable manufacturers: Flowserve (Durametallic), John Crane

2.13.2 Design Criteria

(a) Refer to Division 43 for individual pump design criteria

2.13.3 Materials:

(a) Metal parts; 316 or 316L stainless steel

(b) Non-clog, single coil spring; 316 stainless steel or Hastelloy C

(c) O-rings; Viton

(d) Faces; Silicon carbide on tungsten carbide

2.13.4 Equipment Components

(a) Where seals are specified, provide single mechanical seals.

(b) Provide non-destructive, cartridge type, self-aligning stationary seals, requiring no shaft wearing sleeve, with flexible stator.

(c) Provide flushless seals where specified.

(d) Where flushed seals are specified, drill and tap stuffing box for installation of seal water supply. Provide throat bushing to minimize seal water flow.

2.14 Spare Parts

2.14.1 For shop applied coatings, provide 1 unopened litre each of primer and finish coat.

2.14.2 For equipment that requires specialty tools for operations and maintenance, provide 1 set of specialty tools.

2.15 Seismic Design

Not used.

2.16 Stainless Steel Corrosion Control

2.16.1 Factory weld with filler wire suitable for the base metal and application according to ASME standards using inert gas shielding welding process. Provide gas shielding to interior and exterior of joint. Solar flux is not acceptable. Provide a cross section equal or greater than the parent metal.

2.16.2 Make all welds using the automatic orbital weld, gas tungsten arc welding (GTAW) or TIG process with an internal inert gas purge to exclude oxygen in the weld root area. Welds shall be full penetration, free of cracks, overlaps and cold laps.

2.16.3 For piping components, maximum misalignment 1.6 mm or half the pipe wall thickness, whichever is less. Maximum weld reinforcement and concave root 1.6 mm. Maximum undercut 0.8 mm or 10% of base metal thickness, whichever is less. Continuously weld both sides of face rings and flanges to eliminate potential for crevice corrosion.

2.16.4 Clean all welded stainless steel surfaces and welds after fabrication by using the following procedure:

(a) Pre-clean all outside weld areas to remove weld splatter with stainless steel brushes and/or stainless steel deburring and finish grinding wheels. Ensure brush material is compatible for stainless steel applications. Brushes to be manufactured from stainless steel equal in corrosion resistance to the material being worked on.

(b) Passivate and finish clean all interior and exterior welds and piping by full immersion pickling and rinse with water to remove all carbon deposits and contaminants to regenerate a uniform corrosion resistant chromium oxide film per ASTM A380.

2.16.5 Use graphite-free anti-seize compound on all stainless steel bolt-ups.

2.16.6 Provide electrical isolation kits on all flanged connections where stainless steel pipe is connected to a dissimilar metal in outdoor or submerged conditions, including valves and fittings.

2.17 V-Belt Assemblies

2.17.1 Acceptable manufacturers: Dodge or Woods.

2.17.2 Design Criteria

(a) Statically balance sheaves and bushings. Where sheaves and bushings are to operate a peripheral speeds greater than 1650 m/min, dynamically balance the assembly.

(b) Provide drives with minimum of two belts.

(c) Belt to be selected for minimum 150 percent of rated drive power.

(d) Minimum 6.35 mm shaft protrusion.

2.17.3 Equipment Components.

(a) Belts to be 3V, 5V, or 8V in accordance with standard RMA and MPTA specifications.

(b) Provide high capacity, oil and heat resistant belts. Provide belts in matched sets.

(c) Provide anti-static type belts for explosion proof equipment.

(d) Provide sheaves with split, tapered, keyed hubs, mounted separately on bushings by means of three pull-up grub or cap tightening screws.

2.18 Vibration Loosening Prevention

2.18.1 Provide lock nuts, locking washers or double nuts with lengthened bolts as suitable for the service to prevent loosening of bolt and nut assemblies if they are subject to vibration during equipment operation.

3.0 EXECUTION

3.1 General

3.1.1 Provide all necessary special tools, materials, supplies, lubricants, measuring devices, shims, gaskets, incidentals and other consumables as required to complete the installation and testing.

3.1.2 The *Manufacturer* shall co-operate with the *Contractor* to provide details of all anchor bolts and shop drawings showing their installation details, length shape, and size, exact location and projection from the finished concrete, and shall ensure such details and shop drawings are submitted to the *Supplier* in ample time to allow review and certification by the *Supplier's Engineer*, and ordering and delivery of anchor bolts prior to their being required on site.

3.1.3 Tag and list spare parts in accordance with tag numbers on Contract Drawings.

3.1.4 Store spare parts as directed by the *Owner's* staff.

3.2 Supplier Field Services

3.2.1 Provide for each piece of equipment a *Manufacturer's Representative* to instruct the *Contractor* in the proper installation of the *Manufacturer*'s equipment, inspect the installation, and supervise the start-up, field testing and commissioning of each piece of equipment.

3.2.2 Without limiting the foregoing, the following are the minimum requirements to be completed to the satisfaction of the *Consultant*:

(a) Attend a preliminary site meeting to instruct the *Contractor* on the installation procedure.

(b) Prior to installation, provide written complete and detailed installation instructions to the *Contractor.*

(c) Provide an inspection service during equipment installation and check the final connections, adjustments and alignment prior to start-up.

(d) Prior to testing, provide testing instructions to the *Contractor.* Supervise testing and commissioning of the equipment.

(e) Instruct the *Owner's* plant operating personnel in the operation and maintenance of the equipment.

3.2.3 The *Manufacturer's Representative* may perform one or more of the foregoing requirements during one trip to the site.

3.3 Preparation

3.3.1 Perform all specified factory testing prior to shipping of equipment.

3.3.2 Prior to equipment delivery provide instructions to the *Contractor* for the proper off- loading and storage of the equipment.

3.4 Installation

3.4.1 Use anti-seize compound when securing equipment using stainless steel anchor bolts, and as recommended by the equipment *Manufacturer* for assembly of shaft attachment assemblies used to attach rotating elements to drive shafts.

3.4.2 Field welding is not permitted.

3.4.3 Near the end of the equipment installation period, the *Contractor* shall notify the Supplier who shall send the *Manufacturer's Representative* to check over the installation when completed.

3.4.4 The *Manufacturer's Representative* shall do a detailed check of the installation including, but not limited to, such items as: level, drive alignment, belt tension, bolt tension, running clearances, lubrication, correct settings, and systems parts arrangements, correct installation of safety and control devices, instrumentation calibration, general workmanship, and no damaged parts.

3.4.5 The *Contractor* shall promptly remedy the defects, if any, to the satisfaction of the *Manufacturer's Representative* and the *Consultant.*

3.4.6 After the *Manufacturer's Representative* is satisfied that defects in installation have been remedied, alignment will be demonstrated to the *Consultant*, following which the equipment shall be given a brief test run in the presence of the *Manufacturer's Representative*, the *Contractor* and the *Consultant*. Provide a minimum of 7 days notice to the *Consultant* that alignment and a brief test run will be demonstrated.

3.4.7 When the *Manufacturer's Representative* is satisfied that the equipment installation is satisfactory in accordance with *Manufacturer*'s requirements and that the brief test run was successful, the representative shall complete the "Certificate of Satisfactory Installation Form 101" attached at the end of this Section, listing any minor defects requiring rectification, and shall deliver the completed Form 101 to the *Consultant* and the *Contractor* before leaving the site.

3.4.8 Any defects in the installation shall be rectified by the *Contractor.*

3.5 Functional Testing

3.5.1 Equipment Functional Testing as described under this section is in addition to the brief test run described in Section 3.4.

3.5.2 Submit draft operations and maintenance manuals for the equipment being tested prior to functional testing.

3.5.3 Equipment Functional Testing is to be performed with air or water, or other medium as noted in the detailed equipment specifications, to demonstrate to the satisfaction of the *Consultant* that:

(a) All system components are fully operational

(b) Control and instrumentation components have been calibrated and properly adjusted. Verify calibration of package instruments both electronic and mechanical using calibrated external measuring devices

(c) All connecting piping is leak-proof and properly anchored

(d) All safety devices are operational and the entire system is ready for continuous safe operation

(e) There is no excessive vibration

(f) Noise levels meet specifications

(g) Current to all motor electrical leads is balanced

(h) No parts overheat

(i) No parts overload

3.5.4 The *Contractor* shall notify the Supplier and the *Consultant* 14 days ahead of the date when testing of the equipment furnished is to take place and the Supplier shall send the *Manufacturer's Representative* to the site to supervise and assist the *Contractor* in the testing of the equipment. The site visit may be concurrent with the check for the satisfactory installation of the equipment, if mutually agreed upon by the *Manufacturer's Representative* and the *Contractor*.

3.5.5 Before the *Consultant* witnesses the testing, the *Manufacturer's Representative* shall recheck the installation and advise the *Contractor* as to any further installation, adjustments, checking, flushing or cleaning of the equipment required, and shall confirm that the equipment is ready to be operated.

3.5.6 The *Contractor* and the *Manufacturer's Representative* shall operate the equipment for at least one hour to demonstrate to themselves the satisfactory operation of the equipment and controls, and shall take any remedial steps necessary to ensure the satisfactory operation of the equipment.

3.5.7 Following such remedial action, the *Contractor* shall notify the *Consultant* that the equipment operation is ready to be demonstrated, and the *Consultant* shall arrange to promptly attend such demonstration together with the *Owner's* representative.

3.5.8 The *Contractor* and the *Manufacturer's Representative* shall then demonstrate to the *Consultant's* satisfaction the equipment operation, and shall prove out the satisfactory operation of equipment, safety devices, alarms and controls over several cycles and in all operating modes within the design conditions.

3.5.9 The *Contractor* shall arrange to provide any supplies and water necessary to demonstrate the satisfactory operation of the equipment. Equipment shall be run continuously for a minimum of 24 hours as part of this demonstration. Equipment shall be run over the full range of design conditions during this

test, with most of the test occurring at the maximum design condition. Review design conditions to be tested with the *Consultant* before commencing the test.

3.5.10 Observe and record all applicable operating data including but not limited to the following. Confirm the list of recorded operating data with the *Consultant* prior to beginning testing.

(a) Model, serial number, and equipment number, testing date, testing start and end time.

(b) Process fluid flow and pressure, upstream and downstream

liquid elevations, elevation of pressure measurement device.

(c) Motor speed, motor inputs, motor hours, motor temperature, motor loading (voltage and amperage)

(d) Noise and vibration

(e) All other measurements as indicated by the *Manufacturer's Representative.*

3.5.11 During these tests equipment settings. shall be adjusted and made ready for the introduction of sewage. Each operating mode, control mode and alarm condition must be simulated to ensure all associated controls, alarms and control responses to alarms and safety devices are in good working order and operate as intended within the design conditions. All alarm setpoints must be verified and adjusted if required to suit site conditions and the recommendation of the *Manufacturer*.

3.5.12 Equipment shall operate without alarms or shut-downs for the duration of the 24 hour test, except as intended for verification of controls and alarms, for the test to be considered acceptable

3.5.13 Should the demonstration reveal any defects, then they shall be promptly rectified by the *Manufacturer*. At no cost to the *Owner*, make good any changes, adjustments or replacement of equipment that, in the opinion of the *Consultant*, are due to defective materials or errors or omissions on the part of the Manufacturer.

3.5.14 After remedying defects, retest at no additional cost to the *Owner.* If additional visits to the site by the *Consultant* or the *Manufacturer's Representative* arerequired to successfully complete testing and demonstration of equipment after remediation of defects, the cost of such visits will be borne by the *Manufacturer.*

3.5.15 Once testing has been completed to the satisfaction of the *Manufacturer's Representative* and the *Contractor*, a Certificate of Satisfactory Testing Form 102 shall be completed and presented to the *Consultant*.

3.5.16 The *Consultant* will sign the Certificate of Satisfactory Testing Form 102 completed by the *Manufacturer's Representative* and the *Contractor* when testing has been completed to the satisfaction of the *Consultant*.

3.6 Operator Training

3.6.1 After successful completion of Equipment Testing**,** provide the services of the *Manufacturer's Representative* to train representatives of the *Owner* in process control and proper operation and maintenance of the equipment.

3.6.2 Equipment operations and maintenance manuals, modified as required in

Clause 1.5, must be on site and available for operator use prior to commencing operator training.

3.7 Commissioning

3.7.1 Commissioning with specified process fluids may take place once all systems including process equipment, heating, ventilation, air conditioning, power and controls have been successfully tested as described under 3.5 Functional Testing and under related Divisions, and the *Manufacturer's Representative* and *Consultant* have completed Satisfactory Completion of Testing Form 102 for all equipment to be involved in commissioning.

3.7.2 Commissioning shall demonstrate to the satisfaction of the *Contractor* and the *Consultant* that the equipment and materials furnished, with all auxiliary work, have been fully tested and have been in satisfactory operation for not less than 14 consecutive days.

3.7.3 During Commissioning, responsibility for satisfactory operation of the equipment will remain with the *Contractor.*

3.7.4 Confirm data to be recorded and frequency with *Consultant* prior to the start of the Commissioning period. Observe and record operating data at least daily and including but not limited to the following.

(a) Fluid flow, pressure

(b) Equipment speed, motor hours, motor inputs, motor temperature and motor loading (voltage and amperage)

(c) All consumables including chemical, energy and utility water.

3.7.5 Once Commissioning and Operator Training are complete to the satisfaction of the *Manufacturer's Representative* and the *Contractor*, a Certificate of Satisfactory Commissioning Form 103 shall be completed and presented to the *Consultant*.

3.7.6 The *Consultant* shall sign the Certificate of Satisfactory Commissioning Form 103 when commissioning and training has been completed to the satisfaction of the *Consultant*.

CERTIFICATE OF SATISFACTORY INSTALLATION – FORM 101

Specification Section: _____

Equipment Name and Number: _____

Equipment Manufacturer _____

The undersigned manufacturer of the equipment item described above hereby certifies that he/she has inspected and checked the installation of the equipment, that the equipment has been provided and installed in accordance with the manufacturer's recommendations, and that the trial operation of the equipment item has been satisfactory.

Comments: _____

_____

_____

_____

_____

_____

_____ _____

Date: Signature of *Manufacturer's Representative* (print name below)

_____

_____ _____

Date Signature of Contractor's Authorized Representative (print name below)

_____

CERTIFICATE OF SATISFACTORY TESTING – FORM 102

Specification Section: _____

Equipment Name and Number: _____

Equipment Manufacturer _____

We certify that the equipment listed above has been operated for at least 24 consecutive hours and that the equipment operates satisfactorily and meets the requirements detailed in the Drawings and Specifications. No defects in the equipment, its performance or control were found except as noted below. The equipment is therefore classed as “conforming” (with)(without) minor deficiencies.

Comments: _____

_____

_____

_____

_____ _____

Date: Signature of *Manufacturer’s Representative* (print name below)

_____

_____ _____

Date Signature of Contractor’s Authorized Representative (print name below)

_____

_____ _____

Date Signature of *Consultant’s* Authorized Representative (print name below)

_____

CERTIFICATE OF SATISFACTORY COMMISSIONING – FORM 103

Specification Section: _____

Equipment Name and Number: _____

Equipment Manufacturer _____

We certify that the equipment listed above has functioned for at least 14 consecutive days with the specified process fluids as part of the _____ system and that the equipment operates satisfactorily and meets the requirements detailed in the Drawings and Specifications. No defects in the equipment, its performance or control were found except as noted below. We also certify that training for equipment operation and maintenance has been provided to the plant operators by the *Equipment Manufacturer's Representative.* The equipment is therefore classed as "conforming" (with)(without) minor deficiencies.

Comments: _____

_____

_____ _____

Date: Signature of *Manufacturer's Representative* (print name below)

_____

_____ _____

Date Signature of Contractor's Authorized Representative (print name below)

_____

_____ _____

Date Signature of *Consultant's* Authorized Representative (print name below)