

Cover Page
ON-001710
Request for Proposals for the Dawson City Waste Water Treatment Plant

Yukon Department of Highways and Public Works
Issue date December 19th, 2008

Closing Time: Proposals must be received **before 11:30 AM Pacific Time on February 12th, 2009**

CONTACT PERSON: All enquiries related to this Request for Proposals (RFP), including any requests for information and clarification, are to be directed, in writing, to the following persons. Information obtained from any other source is not official and should not be relied upon. Enquiries and any responses will be recorded and may be distributed to all Proponents at the Owners option.

Brian Sugrue or Jerry Gauthier
Purchasing Services Branch
563 Superior Street
Victoria, B.C.
V8W 9W6
Fax: 250-387-7309, purchasing@gov.bc.ca

DELIVERY OF PROPOSALS:

The Owner will accept six (6) copies of the Proponent's proposal and one electronic copy on CD clearly marked "Proposal for Dawson City Wastewater Treatment Plant Design/Build", in a sealed package at the following specific location before 11:30 AM Pacific Time on February 12th, 2009 at the office of:

Government of the Yukon
Contract Services Office
Second Floor
9010 Quartz Avenue
Whitehorse, Yukon Y1A 2C6

Proponents are reminded that most courier services to Whitehorse offer a minimum service time of two full business days or more. Delivery of proposals prior to the proposal closing time is the sole responsibility of the Proponent.

Proponents' Meeting:

A mandatory Proponents' site meeting **will** be held on January 8, 2009 at 11 a.m. at the offices of the Dawson City staff.

Note: Attendance is Mandatory. Oral questions will be allowed at the Proponents' meeting. However, no reliance can be placed on any oral responses provided. Questions of a complex nature, or questions where the Proponent requires anonymity, should be forwarded in writing, prior to the meeting, to the Contact Person above.

Proponent Section:

For hard-copy proposals, a person authorized to sign on behalf of the Proponent must complete and sign the Proponent Section (below), leaving the rest of this page otherwise unaltered, and include the originally-signed and completed page with the first copy of the proposal

The enclosed proposal is submitted in response to the above-referenced Request for Proposals including any addenda. Through submission of this proposal we agree to all of the terms and conditions of the Request for Proposals and agree that any inconsistent provisions in our proposal will be as if not written and do not exist. We have carefully read and examined the Request for Proposals, and have conducted such other investigations as were prudent and reasonable in preparing the proposal. We agree to be bound by statements and representations made in our proposal.

<i>Signature of Proponent's Authorized Signatory::</i>	<i>Legal Name of Proponent (and Doing Business As Name if applicable):</i>
<i>Printed Name of Proponent's Authorized Signatory::</i>	<i>Address of Proponent:</i>
<i>Title of Proponent's Authorized Signatory:</i>	
<i>Date:</i>	<i>Proponent's Authorized Signatory phone number, fax number or email address (if available):</i>

CONFIRMATION OF INTENT

REQUEST FOR PROPOSALS FOR THE DAWSON CITY WASTEWATER TREATMENT PLANT
DESIGN/ BUILD CONTRACT

Please return the completed form by 11:30 am on **December 30th, 2008**

Government of the Yukon
Contract Services Office
Second Floor
9010 Quartz Avenue
Whitehorse, Yukon Y1A 2C6

Company: _____

Address: _____

City: _____

Contact Person: _____

E-mail Address: _____

Telephone No: _____ Fax No: _____

We have received a copy of the above-noted Request for Proposal and,

We will be submitting a proposal _____ We will not be submitting a proposal _____

Please note that failure to return this Confirmation of Intent by 11:30 am on **December 30th, 2008** will result in the Proponent receiving no further communication regarding this Request for Proposal. .

Full Legal Name of Proponent

Signature of Proponent's Authorized Signatory

Title of Proponent's Authorized Signatory

Date

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PART 1

INSTRUCTIONS AND INFORMATION FOR PROPOSERS

1.1 INTENT

1.1.1 General

The general intent of this Project is for the design, construction, and commissioning of a new wastewater Treatment Plant (WWTP) for Dawson City. Dawson City is required to have a wastewater treatment solution by order of the Territorial Court of Yukon. The WWTP must be able to meet regulatory requirements for treatment of wastewater. Interested proponents, as listed in Section 1.4, are invited to submit their proposals for this Project.

1.1.2 Definitions

The following definitions will be used:

- “Closing Time” is the date and time on which the Proposals must be received.
- “Contract Documents” consist of the executed Contract Agreement, General Conditions of the Contract, Supplementary Conditions, the executed Tender, specifications, drawings the RFP and such other documents as are listed in the Contract Agreement including all amendments thereto incorporated before their execution as agreed upon between the parties in writing.
- "Owner" means the Yukon Government.
- The "Owner's Representative" means AECOM for the purposes of the RFP
- The "Proponent" means the person, corporation or partnership which participates in this RFP.
- Preferred Proponent" means the person, corporation or partnership which is selected for negotiations with the Owner following evaluation of the Proposals.
- The “Town of the City of Dawson” will be referred to as Dawson City
- “WWTP” means wastewater treatment plant

More definitions are set out in Appendix A of this RFP.

1.2 DESCRIPTION OF SERVICES

The scope of Project will be for the design, construction, and commissioning of all the elements for the new WWTP. The key process elements to be present in the new WWTP include, but will not necessarily be limited to, the following:

- Influent pumping
- Influent screening
- Grit and scum removal
- Biological treatment
- Sludge pumping
- Biosolids dewater and storage
- Effluent disinfection
- Effluent disposal

In addition, ancillary systems as described in Part 2 will be required to support the operations of the WWTP.

- Operations Building(s) that includes/houses:
 - Operations and control area
 - Laboratory and sample preparation area
 - Process equipment
 - Locker room, washroom, and shower
- Odour control measures to meet fence line odour limits
- Standby power generation to provide emergency power in the event of a power failure
- Connection to the forcemain which leads to the Effluent outfall.
- Equipment maintenance area

Site Project, off-site servicing and utility requirements for the Project include:

- Connection to Dawson City sanitary sewer.
- Water service from a Dawson City water main.
- 3-phase, 600 V electrical service.
- Telephone service.
- General site improvement and vehicle access.

1.3 PROJECT MANAGEMENT AND TECHNICAL REVIEW ON BEHALF OF THE OWNER

The Owner will retain an Owner's Representative to provide Project management, technical advice, review, and contract administration services related to the Project. The Owner's Representative will represent the Owner on a day-to-day basis throughout the implementation of the Project.

Considering their involvement in the preparation of this Request for Proposal (RFP), and their future participation in the evaluation of the proposals, AECOM is excluded from direct or indirect participation in the preparation of any proposal.

1.4 BY INVITATION ONLY

This invitation is extended only to the Proponents who have previously responded to the Request for Qualifications issued by the Yukon Government and subsequently been notified in writing that they have been qualified to submit proposals for this Project;

Only the following invited proponents are eligible to submit Proposals:

- 1. Bird Design-Build Ltd**
- 2. Corix Water Systems**
- 3. Hydra Renewable Resources, Inc**
- 4. Ketz Construction Corp**
- 5. PTI Group Inc.**

1.5 PROPONENT'S RESPONSE

The submission of a proposal constitutes the agreement of the Proponent to be solely responsible for any and all costs and expenses incurred by it in preparing and submitting its Proposal, including any costs incurred by the Proponent after the Proposal closing and except as specifically provided in Part 1, Section 1.20 Proponent's Expenses.

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By responding to this RFP, each Proponent acknowledges that its submission constitutes a proposal and not a tender or bid. All submitted proposals will be subject to an evaluation process to determine which proposal provides the best overall value to the Owner, considering both technical and financial aspects. Consequently, the lowest priced or highest ranked proposal may not necessarily be accepted. The Owner reserves the right, prior to issuing a notice of award to the Preferred Proponent, to negotiate revisions to the final scope of the Project and corresponding amendments to the Contract price and Contract times with the Preferred Proponent.

It is the Proponent's responsibility to ensure all Mandatory Requirements are met. Proposals not clearly demonstrating that they meet the Mandatory Requirements will be excluded from further consideration during the evaluation process.

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The work contracted for is for the use of, and is being purchased by the Government of Yukon with public funds, and is therefore not subject to the Goods & Services Tax, under authority number R107442840. It is the responsibility of the bidder to apply directly to Canada Customs and Revenue Agency for Input Tax Credits on any Goods and Services Tax paid.

This procurement is subject to the Government of Yukon Contract Regulations and Contracting Directive.

1.6 REQUEST FOR PROPOSAL DOCUMENTS

The RFP documents may be viewed and obtained at the following location:

Government of the Yukon
Contract Services Office
Second Floor
9010 Quartz Avenue
Whitehorse, Yukon Y1A 2C6

Proponents will be allowed to review the document and submit the Confirmation of Intent by 11:30 am on December 30th, 2008. Failure to return this Confirmation of Intent by the specified date and time will result in the Proponent not receiving any further communication regarding this Request for Proposal.

Two (2) copies of the RFP document will be provided to each Proponent. Additional RFP documents may be purchased at a cost of \$100.00 per set (inclusive of GST). If required, additional documents will be made available within three (3) business days.

Proponents are advised to read and respond appropriately to all parts of the RFP. An incomplete proposal may be rejected.

1.7 DOCUMENT SUBMISSION DEPOSIT

The Proposal must be accompanied by a certified cheque, bank draft or irrevocable letter of credit issued by a reputable financial institution payable to the Owner in the amount of \$150,000; alternately, a bond issued by insurers or surety firms licensed in Yukon will be accepted as per the terms and conditions of the tender documents. The document submission deposit is required as security to ensure that, should the proposal be accepted, the Proponent will execute the Contract and provide the requisite bonds, proof of insurance, and all other documents required by the Owner in connection with the Contract. The Document Submission deposit will be released by the Owner to all Proponents, except in the case of any security on which the Owner has already made a demand for payment, following execution of a Contract, which is expected to be approximately Spring of 2009 or upon cancellation of the RFP by the Owner.

1.8 IRREVOCABILITY OF PROPOSAL

The proposal submitted by the Proponent shall be irrevocable and remain open for acceptance by the Owner for a period of 120 calendar days from the proposal closing, whether another proposal has been accepted or not. The Owner, at any time up to 120 calendar days from proposal closing, may accept the Proponent's proposal.

1.9 ENQUIRIES AND ADDENDA

Any requests for explanations, interpretations or clarifications made by Proponents must be submitted in writing to the Contact Person no less than seven (7) business days prior to the proposal closing.

Explanations, interpretations, or clarifications may be made in the form of Addenda. Addenda may be issued by the Owner during the proposal period and will be distributed by the Owner to all proponents who have obtained a set of the proposal documents and returned the Confirmation of Intent form as specified in this RFP.

All Addenda issued by the Owner shall be incorporated into and become part of the RFP Documents. If a Proponent finds any errors, omissions or discrepancies in the RFP Documents, it shall immediately notify the Contact Person in writing.

No oral explanation, interpretation or clarification of the RFP Documents by any person whatsoever shall bind the Owner in the interpretation of the proposal Documents.

1.10 COMPLETION OF PROPOSAL

The Proponent shall submit a proposal that meets the requirements and specifications of the RFP. If the Proponent wishes to submit a proposal that varies from the requirements or specifications furnished here, it shall declare in detail in the alternative proposal where and how its proposal varies from the requirements and specifications. The Proponent should submit a complete proposal as outlined in this document.

The Proponent shall complete all applicable RFP Documents in ink or type.

Unit prices shall be shown for each item specified and shall include all packing, crating, freight, cartage, shipping charges, cost of unloading, supplies at destination, and all tariffs, excise taxes, and duties.

The Owner may exclude certain items and services after the proposal closing.

The Proponent shall carefully review the RFP documents and all addenda issued by the Owner.

The proposal shall be in accordance with the terms and conditions contained in the RFP Documents. Any proposal received which materially changes these terms and conditions for example, by including the Proponent's standard terms of sale, may be subject to disqualification.

If a proposal contains a defect or fails in some way to comply with the requirements of the RFP documents, which in the sole discretion of the Owner is not material, the Owner may waive the defect and accept the proposal.

1.11 GEOTECHNICAL INFORMATION AVAILABLE FOR PROPONENTS

Subsurface investigations have been undertaken within the anticipated limits of the WWTP and the resulting data are presented in Appendix E of this RFP. The Proponent's use of and reliance on the above-noted information is subject to the limitations set out in this RFP and the Contract.

1.12 SOLICITATION

If any director, officer, employee, agent or other representative of a Proponent makes any representation or solicitation to any Minister, director, officer or employee of the Owner or Owner's Representative, with respect to the proposal, whether before or after the submission of the proposal, the Owner shall be entitled to reject or not accept the proposal.

1.13 NO COLLUSION

In participating in this RFP, the Proponents shall not discuss or communicate, directly or indirectly, with any other Proponent or any servant, agent or representative thereof, the preparation or presentation of their proposals and business plan. Each Proponent's proposal shall be submitted without any connection, knowledge, comparison of figures or arrangement with any other Proponent or any servant, agent or representative thereof, and each Proponent shall be responsible to ensure that its participation in this process is conducted fairly and without collusion or fraud.

1.14 NO CONFLICT

Each Proponent and each member of the Proponent's team shall not have any interest whatsoever in the proposal of any other Proponent, either directly or indirectly, nor shall it enter into any arrangement, agreement or understanding before the closing time that would have such a result.

1.15 SUBMISSION OF PROPOSALS

It is solely the responsibility of the Proponent to ensure that its proposal and amendments are received at the specific physical location set out in the proposal document before the proposal closing. Proposals should be submitted in the formation set out in Section 4. In the 2 envelope process the Proponent is required to submit the price, or Financial Proposal on the form provided in Appendix D of this RFP. Proponents are reminded that most courier services to Whitehorse offer a minimum service time of two full business days or more. Delivery of proposals prior to the proposal closing time is the sole responsibility of the Proponent.

The Owner will not accept an amendment to a previously submitted proposal unless:

- 1) It is in writing;
- 2) It is received at the specific physical location set out for receipt of proposals, prior to the proposal closing in a sealed envelope or package on the exterior of which shall be indicated the Project name and the name of the Proponent.
- 3) It indicates changes to a proposal already submitted; and
- 4) It is signed by the same person or persons who signed the original proposal.

For greater certainty Proponents are advised that no amendment to a proposal will be accepted if submitted by fax or email.

Proponents shall be solely responsible for the completion and delivery of proposals and any amendments in the manner and time specified. No extension of the proposal closing will be given to accommodate Proponents or amendments to proposals that do not comply with the requirements

1.16 SITE CONDITIONS and MANDATORY SITE VISIT

Each Proponent is responsible to make itself fully aware of the plant proposed site conditions, and all utilities and services that will be connected to the new WWTP. Each Proponent may inspect the site and make such investigations, tests, sampling and any other inquires the Proponent deems necessary to become fully knowledgeable with respect to the existing site and which may impact the Proponent's proposal, provided the Proponent receives approval from the Owner prior to commencing the investigations in question.

A mandatory site visit is scheduled for Thursday, January 8th, 2009. Please arrive at the Dawson City staff offices in Dawson City at 11:00 am. It is expected that the session will last 3 hours.

We ask that a maximum of three members from each company attend this site visit. Please RSVP to the Mandatory Site Visit by sending an e-mail to the Contact Person on the Cover Page listing the names, titles and contact information for each attendee by December 31st, 2008.

1.17 FORMAT OF PROPOSALS

Proposal content and format should be in accordance with Part 4: Proposal Format and Contents.

1.18 CHANGES TO PROPOSAL WORDING

By submission of a clear and detailed written notice, the Proponent may amend or withdraw its proposal only before the Closing Time. Upon Closing Time, all proposals become irrevocable. The Proponent will not change the wording of its proposal after closing and no words or comments will be added to the proposal unless requested by the Owner for purposes of clarification.

1.19 CONFIDENTIALITY & INTELLECTUAL PROPERTY

Proponents agree that all materials and information prepared, conceived, or produced in the preparation of the Proposal by the Proponent and delivered to the Owner, including, but not limited to, all engineering and architectural designs, are the property of the Owner.

For the purpose of the Copyright Act (Canada), the Proponent acknowledges that all materials and information prepared, conceived of, or produced in their Proposal and delivered to the Owner have been prepared for the Owner. The Proponent shall ensure that all necessary steps are taken to ensure that the ownership in the Proposal and its related documents vests in the Owner.

The Proponent shall have no right, except as permitted in writing by the Owner, to disclose or to use any part of the Proposal or related materials for any purposes whatsoever. If the Proponent makes or allows any unauthorized use of any of the Proposal or related materials, the Owner shall have the right to recover from the Preferred Proponent an amount equal to the greater of:

- The sum the Owner would have charged the Persons obtaining the benefit of such unauthorized use of the property, or
- Any amount received by the Proponent on account of such unauthorized use.

All government records, including Proposals, are subject to the Access to Information and Protection of Privacy Act (ATIPP). While ATIPP permits members of the public to access records in the Owner's custody or control, it also prohibits some, but not necessarily all, disclosures by the Owner. Confidential business information can be withheld from disclosure if it would be significantly harmful to business interests or would be an unreasonable invasion of personal privacy, as defined in sections 24 and 25 of ATIPP. Accordingly, proponents are encouraged to:

- a) identify those portions of their Proposals which they are supplying in confidence and for which disclosure to others would be significantly harmful to their business, or if disclosed, would be an unreasonable invasion of their personal privacy, as defined in sections 24 and 25 of ATIPP, and;

- b) be prepared to justify that determination if challenged to do so by someone who applies for access to the information.

Subject to the Access to Information and Protection of Privacy Act, Proponents are entitled to receive information about their own proposals, and how they were evaluated.

By participating in this RFP all Proponents agree that this RFP document or any portion thereof, may not be used for any purpose other than submission of Proposals.

Proponents shall not issue a news release or other public announcement pertaining to details of their proposal or the selection process without the prior written approval of the Owner.

1.20 PROPONENT'S EXPENSES

A \$30,000 dollar honorarium will be given to unsuccessful Proponents that have satisfied the mandatory criteria and achieve at least 65% in the Technical Evaluation. The Proponent who is awarded the Contract will not receive this honorarium

1.21 OWNER'S RIGHT TO MODIFY TERMS

The Owner, in its sole discretion, reserves the right to modify the terms of the RFP at any time.

1.22 SUBCONTRACTING

Utilizing a subcontractor (who must be clearly identified) to supplement the Proponent's services is acceptable. This also includes a joint submission by two Proponents having no formal corporate links. However, in this case, one of these Proponents must be prepared to take overall responsibility for successful interconnection of the two services. This must be defined in the proposal

1.23 ACCEPTANCE AND REJECTION OF THE PROPOSALS

Notwithstanding any other provision in the proposal documents, any practice or custom in the industry, or the procedures and guidelines recommended for use on publicly funded Projects, the Owner, in its sole discretion, shall have the unfettered right to:

- Accept any Proposal;
- Reject any Proposal;
- Reject all Proposals;
- Accept a Proposal which is not the lowest cost or highest ranked Proposal;
- Reject a Proposal even if it is the only Proposal received by the Owner;
- Negotiate the contract terms with any Proponent;
- Accept all or any part of a Proposal; and
- Award all or a portion of the Project to any Proponent.

The Owner may choose to meet with some or all of the Proponents to discuss aspects of their proposals. The Owner may require Proponents to submit supplementary documentation clarifying any matters contained in their proposals or the Owner may prepare a written interpretation of any aspect of a proposal and seek the respective Proponent's confirmation of that interpretation.

The supplementary documentation accepted by the Owner and written interpretations which have been acknowledged by the relevant Proponents shall be considered to form part of the proposals received from those Proponents. After the Closing Time, only the supplementary documentation specifically requested by the Owner for purposes of clarification shall be considered as additions to the proposal

1.24 ACCEPTANCE OF TERMS

All the terms and conditions of this RFP are deemed to be accepted by the Proponent and incorporated in its proposal.

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.

1.25 NEGOTIATION

After the evaluation of Proposals interviews and negotiations may be conducted with any of the Proponents, but there shall be no obligations on the Owner to receive further information either oral or written, from any Proponent.

1.26 CONFIDENTIALITY

The Proponents agree that:

- The RFP document or any portion thereof, may not be used for any purpose other than submission of proposals.
- The Preferred Proponent must agree not to divulge or release any information that has been given to it or acquired by it on a confidential basis during the course of carrying out its duties and performing its services.
- The Owner and the Owner's Representative will maintain confidentiality with respect to all confidential information related to proposals. If the proponent considers that any of its information is confidential, the proponent shall identify that confidential information and advise the Owner in its proposal.
- Proponents shall not issue a news release or other public announcement pertaining to details of their proposal or the selection process without the prior written approval of the Owner.

1.27 DISCLAIMERS / LIMITATION OF LIABILITY

Neither acceptance of a proposal nor execution of a Contract shall constitute approval of any activity or development contemplated in any proposal that requires any approval, permit or license pursuant to any federal, provincial, territorial regional district or municipal statute, regulation or bylaw. It is the responsibility of the Proponent to obtain such approval prior to commencement of the services under the anticipated contract.

The Owner, its Ministers, directors, officers, servants, employees, agents and representatives expressly disclaim any and all liability for representations, warranties, express or implied or contained in, or for omissions from this RFP document or any written or oral information transmitted or made available at any time to a Proponent by or on behalf of the Owner. Nothing in this RFP document is intended to relieve a Proponent from forming their own opinions and conclusions in respect of this RFP.

The Proponent, by submitting a proposal, agrees that it will not make a claim against the Owner or its Representative(s), for whatever reason, relating to the RFP, the RFP Documents or the competitive proposal process. The proponent, by submitting a proposal, waives any claim for compensation for any purpose whatsoever unless expressly contemplated by this RFP.

The Owner does not accept responsibility for any verbal information or advice or any errors or omissions which may be contained in this RFP or the appendices, data, materials or documents disclosed or otherwise provided to the Proponent pursuant to this RFP. The Owner makes no representation or warranty, either express or implied, in fact or in law, with respect to the accuracy or completeness of this RFP or such appendices, data, appendices, data, materials or documents provided or required by the Owner.

1.28 LEGISLATION, REGULATIONS, BYLAWS AND CODES

Each Proponent or any one acting under its direction must identify and comply with all laws, regulations, bylaws, rules and codes relating to the Project imposed by any government authority. This shall include, but will not be limited to, compliance with the regulatory and approval requirements of the Government of Canada, Fisheries and Oceans Canada, Environment Canada, Yukon Government and Dawson City.

1.29 AWARD

The Owner will notify the Preferred Proponent in writing that its Proposal has been accepted. No award of a contract is binding on the Owner unless it is made in writing.

1.30 SECURITY

The Proponent will, within ten (10) business days after receipt of Notice of Award, provide to the Owner a Performance Bond and a Labour and Materials Payment Bond for the proposed Design-Build Contract. Each of the above bonds shall have a value of 50% of the Contract price and be capable of being drawn upon at any time within a twenty-four (24) month period from the date of Total Performance of the Project.

All bonds and letters of credit shall be issued by a company licensed to transact business in Yukon.

1.31 CONTRACT, AGREEMENTS, TERMS AND CONDITIONS

1) Submission of a Proposal is deemed to be confirmation that the Proponent acknowledges and agrees to the General Terms and Conditions contained in the CCA-CSC-RAIC Document 14-2000 Design-Build, Stipulated Price Contract.

2) Prospective Proponents are alerted to the fact that the Owner intends to issue Supplemental General Conditions to the CCA-CSC-RAIC Document 14-2000 Design-Build, Stipulated Price Contract in the form of an Addendum, no later than January 23rd, 2009.

3) Clarifications and Requests for More Information

The Owner reserves the right, but is not obliged, to request clarification of Proposals or request further information from any or all Proponents. If, in the opinion of the Yukon Government, any Proposal contains a minor defect, or fails in some way to comply with any requirement of this RFP that, in the opinion of the Owner can be remedied without providing an unfair advantage with respect to the other Proponents, the

Yukon Government may request clarification from the Proponent, and the Yukon Government, upon receipt of the appropriate clarification, may waive the minor defect or any irregularity, and accept the Proposal. Any failure by the Proponent to provide a written response that, in the opinion of the Yukon Government, properly clarifies its Proposal within the specified time of receiving a request for clarification from the Yukon Government, may result in rejection of the Proposal.

4) Reservation of Rights

The Government reserves the right, in its sole and absolute discretion, to:

- amend the scope of the Project, modify, cancel or suspend the RFP process or any or all stages of the Procurement Process at any time for any reason;
- accept or reject any Proposal based on the evaluation criteria as determined in the sole and absolute discretion of the Government;
- not accept any or all Proposals;
- reject or disqualify all or any Proposal without any obligation, compensation or reimbursement to any Proponent;
- re-advertise for new submissions, call for tenders, or enter into negotiations for this Project or for Project of a similar nature; or
- make any changes to the terms of the Project described in this RFP.

Except as expressly and specifically permitted in these Instructions to Proponents, no Proponent shall have any claim for any compensation of any time whatsoever, as a result of participating in this RFP, and by submitting a Proposal each Proponent shall be deemed to have agreed that it has no claim.

5) Right to Verify and Conduct Background Investigations

The Government reserves the right to verify any and all information regarding a Proponent or any of its Team Members whether or not contained in the Response and to conduct any background investigations including criminal record investigations, verification of the Response, credit enquiries, litigation searches, bankruptcy registrations, taxpayer information investigations and any other investigations that it considers necessary in the course of the Procurement Process.

6) Disqualification

A Proposal may be disqualified at the sole and exclusive discretion of the Owner if the results of any of the background investigations are not fully satisfactory to the Owner.

7) No Representation or Warranty

All information provided in this document for the Dawson City Wastewater Treatment Facility Project or which is provided pursuant to any request for information made by a Proponent has been obtained from sources which are believed to be reliable and is made available to the Proponent in good faith. However, no representation, express or implied, is made as to the accuracy or completeness of such information or that

such information is suitable for the purposes of any Proponent Team Member, and the Government expressly disclaims any and all liability for any errors or omissions in such information or which may be contained in any oral or written communication transmitted or made available to any Proponent or its Team Members. By submitting a Response, a Proponent confirms the agreement of such Proponent and its Team Members to the disclaimer of liability contained in this paragraph.

8) No Lobbying

Proponents and their members will not engage in any form of political or other lobbying whatsoever with respect to this Project or to influence the outcome of the Procurement Process. In the event of any such lobbying or communications, the Owner, at its sole and absolute discretion, may at any time, but not be required to, reject any Response by that Proponent without further consideration and either terminate that Proponent's right to continue participating in the RFP stage and subsequent stages of the Procurement Process, or impose such conditions on that Proponent's continued participation in the procurement stage as the Owner, at its sole discretion, may consider in the public interest or otherwise appropriate.

1.32 TENTATIVE SCHEDULE

The following is the tentative schedule for the Project:

1	Issuance of RFP	December 19 th 2008
2	Mandatory Site Visit	January 8, 2009
2	RFP closing	February 12 th , 2009
3	Award of Project	March 2009
4	End of Treatment Plant Commissioning	No later than December 31 st , 2011
5	End of Acceptance Testing	No later than 12 months after end of Commissioning

Time is of the essence in this RFP

PART 2

SPECIFICATIONS

2.1 DESIGN CRITERIA

2.1.1 Existing Facility

The existing sewage treatment facility serving Dawson City is a 30 year old facility providing preliminary sewage treatment; record drawing information is included as part of the specification material in Appendix F of this RFP. It is anticipated that one or more of the Proponents may incorporate the use of this facility into the new facility. Incorporation of this facility into any new facility will require a complete upgrading of the facility by the Proponent to meet ALL building codes for structural, mechanical, heating/ventilation, plumbing, electrical and instrumentation/controls related infrastructure. The upgrading will include the backup generator attached to the main building

The Proponent shall retain engineers registered in the Yukon Territory to design and certify the upgrading Project.

Upgrading of the existing facility will also include an environmental audit and remediation component to determine the presence of any hazardous material in the facility and the proper removal, containment, and disposal to an approved facility in accordance with the applicable territorial and federal guidelines and legislation. Proponents not utilizing parts of the existing facility are not required to complete the environmental audit and remediation Project. However, any exterior tie-ins, alternation, etc, shall not compromise the building systems.

The existing discharge and outfall pipeline from the screening plant consists of a 200 mm diameter HDPE pipe. The condition of this pipe is considered poor and the pipe will be replaced at some time in the future. The proponent shall limit the effluent discharge volume and pressure of the existing discharge pumping system from the screening plant.

2.1.2 Wastewater Design Flows and Loads

This section establishes a baseline of information which each Proponent is to use for their proposed WWTP design. Design flows and loads for the new wastewater treatment plant are summarized in Table 2.1.

Table 2.1 Design Data and Treatment Design Criteria

Parameter	Unit	Design Value	
		Winter May 1 st -Sept 30 th	Summer October 1 st -April 31 st
Service Population	Residents	1500	4200
Per Capita Flow	L/capita/d	1600	480
Per Capita CBOD	g/capita/d	80	75
Per Capita TSS	g/capita/d	80	50
Average Annual Flow	m³/d	2500	2000
Maximum Monthly Flow	m ³ /d	2650	2150
Maximum Daily Flow	m ³ /d	4000	4000

With respect to design population, Dawson City is fairly consistent with communities that have a well developed tourism industry. During the off-season (October 1st to April 31st), the population is fairly static and represents the “permanent” population. The permanent population is approximately 1,500 people, and it is not expected to see any appreciable growth over the design life of this Project. In fact, since 1997, the Yukon Bureau of Statistics has estimated that the permanent population of Dawson has been declining at a rate of 2.4% annually. Due to this fact, our basis of design will assume that the permanent population will essentially remain at 1,500 over the 20 year design horizon of the Project, realizing a modest growth rate of 0.1% annually.

The tourist season (May to September) is the period where Dawson City’s population expands by approximately 2,700 people to a total of approximately 4200. This represents the daily average number of tourists that reside in the community’s many hotels and RV parks. In Dawson’s Official Community Plan of 1995, this annual population increase is referred to as the “shadow population”, and has been stated as remaining as a capped figure for the foreseeable future. Despite this seasonal increase in population, there is not a corresponding increase in wastewater flow, only in wastewater constituent concentrations because bleeders are not used in the summer, therefore wastewater constituent concentrations are not diluted. The use of bleeders in the winter raises flow rates and lowers BOD/TSS concentrations.

2.1.3 Effluent Criteria

The effluent limits required for the new wastewater treatment plant prior to discharge into the Yukon River are summarized below in Table 2.2. These are as stipulated in the terms and conditions of Water License MN02-045, issued by Yukon Water Board on April 17, 2003 and effective until April 30, 2013.

Table 2.2 Effluent Quality Standards

Parameter	Current Limits	Design Limits
Maximum Flow	4,000 m ³ /d	4,000 m ³ /d
Biochemical Oxygen Demand (BOD ₅)	< 45 mg/L	< 25 mg/L
Total Suspended Solids (TSS)	< 60 mg/L	< 25 mg/L
Oil and Grease	< 5.0 mg/L	< 5.0 mg/L
pH	6 to 9	6 to 9
Fecal Coliforms	20,000MPN /100mL	< 200 MPN/100 ml
Toxicity (LC ₅₀ 96-hour bioassay, 100% concentration)	Non-toxic	Non-toxic
Total residual chlorine (MN96-004, 1996)	< 0.05 mg/L	< 0.05 mg/L
Applicable dilution ratios	100:1 to 1000:1	100:1 to 1000:1

The Canadian Council of Ministers of Environment (CCME) is in the process of developing a Canada-wide Strategy for the Management of Municipal Wastewater Effluent (MWWE). Although the current water license stipulates a discharge limit of 45 mg/L for BOD and 60 mg/L for TSS, the design of the new WWTP will be required to meet the anticipated future discharge criteria of 25mg/L for BOD and TSS.

The proponent shall ensure that any modification to the existing facility or start up of new components do not exceed the current effluent quality limits. Daily tests (BOD and suspended solids) to monitor this compliance shall be the responsibility of the proponent to ensure these limits are met. Recognizing the new limits will be difficult to achieve during the startup and optimization phase, the new compliance limits will not be enforced for 28 days following substantial completion.

2.1.4 Noise Criteria

The criterion for noise generated from the WWTP facility is a daytime maximum of 60 dBA, without any significant tonal elements, measured at the WWTP fence-line or one (1) metre from outside of any buildings wall, whichever is closer to the building, for continuously operating equipment. Night time noise levels are not to exceed 50 dBA. Noise levels from any process or equipment system shall not exceed 85 dB at a distance of one (1) metre from the source. Noise levels at the Project site over a twenty-four (24) hour period will be measured against the most stringent of either this criterion or the latest available municipal by-law.

2.1.5 Odour Control

All potential odorous off-gases or odour laden air shall be contained and treated for odour removal prior to discharge. The process and operations shall result in no objectionable odours being emitted by the process to the outside air space surrounding the process, treatment unit and the enclosing structure/building. Direction of the prevailing wind in the area should be brought into

account in odour control management. The fence line odour limit is set at five odour units, regardless of wind direction.

2.1.6 Screening

If the mechanical process requires screening, the following shall apply

Materials greater than 6 mm in size are to be removed from the influent waste stream and are to be washed and dewatered. The washing system is to be capable of causing sufficient agitation to liquefy fecal matter and return it to the waste stream. Final screenings are to be dewatered and compacted to achieve a minimum reduction in water content and volume of fifty (50%) percent. Disposition of screenings is to be in a continuous polyethylene bag which is to be removed from the site through a moveable bin. Bag storage shall have sufficient storage for one (1) calendar day of screening, and bin storage shall have sufficient storage for three (3) calendar days of screening.

No discernable odour should be detected in washed screenings in open bags.

2.1.7 Redundancy

Regulatory compliance must be achieved at all times. The systems and equipment are to be sufficiently redundant as to allow for failure of equipment process systems and periodic maintenance, without subsequent regulatory compliance violations. It is the Proponent's responsibility to demonstrate the ability of the system to maintain treatment during expected adverse conditions such as power failure, extreme cold or other adverse conditions and maintenance periods. System and equipment redundancy is to be fully demonstrated. All duty equipment and systems, that are essential for operations safety or to make the treatment process operate, shall be supported with standby units capable of manual or automatic alternation depending on which unit process is being considered.

2.1.8 Reliability

All processes and equipment systems to be used at the WWTP shall have proven track records in performing the same duties as proposed for their application in the WWTP.

The following evidence will be required of examples of the technology

1. Over a period of three (3) consecutive years of continuous, successful compliant operations.
2. At a plant capable of producing the target effluent qualities equal to or better than that required for the new WWTP.
3. At design flows equal to or greater than that required for the new WWTP.
4. Preferably in similar climatic and demographic conditions as exists in Dawson City.

All of the above will be tested by directly checking with the relevant owners (Provide References, providing contact names and addresses)

All concrete structures shall have a minimum design life of 50 years. All process and building mechanical systems shall have a minimum design life of 20 years. All electrical and instrumentation systems shall have a minimum design life of 10 years.

2.1.9 Energy Efficiency

Motors and electrical/mechanical systems shall be high energy efficient systems, specifically designed for the duty in question. This includes pumps, heating, air conditioning, ventilation, and lighting systems.

2.1.10 Occupational Health and Safety

The design shall maintain the Project site and ability to perform Project in a manner that meets Yukon Occupational Health and Safety Regulations and local Electrical Inspection Safety Branch Regulations. Design considerations are required to engineer out risks and minimize confined spaces and hazards within the Project area. The design is to allow all day-to-day inspection, operation and maintenance procedures to be carried out without entry into confined spaces. Instrumentation for confined spaces will include sensors for H₂S, hydrocarbons with visible, noise and remote monitoring indicators.

2.1.11 Operation and Maintenance

In general, equipment shall be designed such that replacement parts, serviceable items, maintenance monitors, etc are easily accessible. Sufficient space, defined as a minimum 1.0 metre corridor, shall be provided around equipment.

2.2 SITE REQUIREMENTS

2.2.1 General

A geotechnical investigation has been completed for the Project site, and this report is included as part of the specification material in Appendix E of this RFP. The Preferred Proponent shall review and confirm that the information in this report is sufficient to complete the design. If additional information is required then the Proponent shall be responsible for the collection, interpretation, application and cost of the information. The Owner does not guarantee or warrant the information presented in the geotechnical report. Any actions arising from any assumptions made during the RFP process by the Proponent about the geotechnical conditions related to the Project shall be the sole responsibility of the Proponent. Prior to construction the design-builder shall verify that the information and recommendations in the geotechnical report are appropriate to the proposed construction by the design-builder. The purpose of this verification is to ensure a good quality design and end product. The purpose of this verification is not to substantiate a claim for differing site conditions. No such claim shall be considered by the Owner.

2.2.2 Site Access

1. Provide a site service road designed and constructed to allow delivery, maintenance and residuals removal from the WWTP.
2. All service roads and parking within the site boundary are to be a well compacted crushed gravel suitable for road surfacing. Access road is to have the same degree of flood protection as the treatment plant site.
3. Provide parking for up to three passenger vehicles plus one service vehicle without infringing on delivery, maintenance and fire truck access in and around the site.
4. Provide service vehicle access to all areas that require potential servicing of equipment or removal of residuals from the treatment plant.
5. Design Service Vehicle for the site is septage hauler with the Yukon equivalent of TAC-1999, HSU.

2.2.3 Landscaping

Entire treatment plant site is to be landscaped. Landscaping and plant selection to be based on low maintenance natural species native to the Yukon River Valley and consistent with the rest of Dawson City. Disease-tolerant plants and weed-free establishments should be used. Trees and shrubs that lose their foliage should not be located near air intake and any open tanks or channels.

The general layout of the landscaping should contain minimal impervious area. Proper well compacted crushed gravel sidewalks are required between parking and building and all other buildings, if applicable. Lawn areas should be properly sloped with required storm water collection system to prevent standing water. Landscaping is to eventually provide natural and visual buffer between the treatment plant and the neighbouring properties.

2.2.4 Security

Access to the site should be restricted through a lockable gate at the entrance. Provide a 2 metre high chainlink fence around the perimeter of the entire site along the legal boundary of the property. Provide an intrusion-alarmed entry on all exterior doors and hatches within the treatment plant. The alarm should be connected to a remote security provider or the remote data supervision centre. The operation and controls areas are to be equipped with motion detectors. Restricted entry to the building, using coded locks or similar systems may be included.

2.2.5 Exterior Lighting

Lighting should not draw attention to the WWTP at night. Light pollution shall be minimized. The following criteria shall be followed in developing the lighting design:

- Provide high pressure sodium (HPS) or lower wattage Metal Halide (MH) exterior light fixtures with sharp cut off angles that provide downward light distribution.

- All exterior light fixtures to be equipped with photocell.
- Light fixtures to provide moderate illumination, low glare and natural colour balance.

2.3 BUILDING REQUIREMENTS

2.3.1 Architectural

The design shall include the aesthetic aspects of the buildings and tankage. The architectural design of the WWTP should be consistent with the mission statement of Dawson City:

"Committed to building and maintaining a Town which preserves and enhances the natural environment, heritage and uniqueness of our community".

To find design ideas the Proponent is referred to books such as Pierre Berton's , 'Klondike Quest' which includes photos of Dawson during the gold rush. It should also be noted that Parks Canada in Dawson and the Dawson City Museum have an extensive photo collection of industrial buildings that could be utilized."

The appearance of the site and all above grade structures should neither establish a presence that declares the purpose of installation, nor degrade the neighbouring properties.

The Proponent shall comply with the following:

- City of Dawson Zoning And Historical Control Bylaw 97-25 (see Appendix G of this RFP)
- Design Guidelines of Historic Dawson (see Appendix G of this RFP)

The Proponent's attention is drawn to the following reference documents:

- Yukon Municipal Act (http://cityofdawson.com/download/Municipal_Act.pdf)
- Standards and Guidelines for the Conservation of Historic Places in Canada.
(http://www.pc.gc.ca/docs/pc/guide/nldclpc-sgchpc/index_e.asp)
- The Dawson Heritage Management Plan (available at the City office in Dawson)

Architectural design guidelines follow:

- Design of the WWTP should be efficient and compact.
- The architecture of the WWTP should draw on the character, heritage and historical aesthetics of Dawson City.

- Use the building design to incorporate enclosures for HVAC equipment.
- Materials for the building exterior shall comply with Design Guidelines for Historic Dawson and Dawson City Bylaws.
- Break the roof plane vertically and horizontally to reduce the scale of the building. Ensure sloping roofs have a minimum pitch of 6 in 12. Minimize flat roof areas. Use only gable, hip, hipped gable and shed roof types. Use roof overhangs and metal roofing systems. Match the roofing components such as flashing, fascias, soffits, vents, chimneys, gutters, and down spouts with the roofing systems. All of these items shall comply with Design Guidelines for Historic Dawson and Dawson City Bylaws.
- Shape of windows, window units, doors and frames shall comply with Design Guidelines for Historic Dawson and Dawson City Bylaws.

2.3.2 Service Areas (Non Process)

The treatment plant facility is to include several service (non-process) areas that each have a specific purpose and function. Key requirements for these areas are summarized in Table 2-5.

Table 2-5 Non-Process Service Areas Requirements

Area	Requirements
Main Control Room (Min. Area 24 m ²)	<ul style="list-style-type: none"> • Proper ventilation and climate control. • Relatively quiet, well lighted (preferably natural light), and separated from process area.
Laboratory (Min. Area 12 m ²)	<ul style="list-style-type: none"> • Identify the type and frequency of the tests and the equipment required to conduct them. • Provide natural light as much as possible. • Provide all the means for safety (e.g., first aid kit, eyewash station, fire extinguisher, safety shower) in or very close to the laboratory area. • Room for sample preparation, including a fridge and a sink. • Easy access to sampling area(s).
Electrical Room (Min. Area 30 m ²)	<ul style="list-style-type: none"> • As specified.
Washroom/Locker Room (Min. Area 10 m ²)	<ul style="list-style-type: none"> • One (1) washroom, with four (4) lockers.
Mechanical Room (Min. Area 20 m ²)	<ul style="list-style-type: none"> • Easy to access. • Properly ventilated.
Maintenance Room (Min. Area 20 m ²)	<ul style="list-style-type: none"> • Located in a convenient area (i.e., close to the most equipment-intensive area). • Sufficient amount of lighted bench space to be provided. • Anticipated space for maintenance documents, manuals and shop drawings.

2.3.3 Equipment Access and Removal

Permanent provisions are required to facilitate the removal of equipment from the facility. Provisions to include monorails, trolley and hoist systems, eye hooks, engineered anchor points and the like. Provide means and all necessary equipment required to remove any equipment from the treatment plant without the need for mobilizing specialized equipment or compromising overall treatment plant operations.

2.3.4 Structural

Comply with the requirements of the National Building Code, NFPA 820 and Occupational Health & Safety Regulation. Design structures to have a long, relatively maintenance free service life. Use durable high quality materials and detail the structure to ensure a minimum design life of 50 years..

Design liquid containing structures using watertight concrete. Limit Z (CSA A23.3) to 20 kN/mm or crack width to 0.2 mm. Design buried liquid containing structures to permit hydrostatic testing prior to backfilling.

Design concrete in liquid containing structures to maximize resistance to sulphates and chemicals occurring in sewage. Comply with requirements for exposure Class C-1 in CSA A23.1 for these structures. Elsewhere, comply with requirements for exposure classes:

- Exterior walkways, curbs - Class C-1.
- Exterior walls and columns - Class F-2.
- Interior concrete - Class N.

Use admixtures as required to suit climatic conditions.

Use protective coatings as appropriate on metals, concrete and other surfaces.

Loading

- Comply with Part 4 of the National Building Code.
- Use minimum loads as follows:
 - Superimposed dead loads.
 - Allowance for piping - 1.0 kPa.
 - Partition allowance - 1.0 kPa.
 - Cable Trays - 1.0 kN/m RUN.

Earth Pressure

- As per Geotechnical Report included as Appendix E.

Live Loads

- Equipment Floors - 6 kPa minimum.
- Access/Walkways - 4.8 kPa minimum.
- Other Areas - Comply with the National Building Code with minimum of 3.5 kPa.

Snow Load

- Ground Snow Load – 2.7 kPa.
- Associated Rain Load - 0.1 kPa.

Seismic Load

- Sa (0.2) = 0.54
- Sa (0.5) = 0.34
- Sa (1.0) = 0.17
- Sa (2.0) = 0.094
- PGA = 0.25

Wind Load

- 1/50 = 0.31 kPa

Guardrails

- In areas of low occupancy, design to Occupational Health & Safety Regulation.
- In exits and public areas, design to the National Building Code.

Cranes and Equipment

- Include dynamic, impact and vibration effects.
- Check for dynamic resonance.

Temperature

- Exterior temperature range = -50° C to + 33° C. Proponents should verify historical weather records for Dawson City with Environment Canada

Show all loads on drawings. Show areas to which particular loads apply.

2.3.5 Construction Materials

In general, a systematic approach for selecting the most cost-effective materials must be used. Table 2-6 summarizes some key material requirements for different areas.

Table 2-6 Key Material Requirements

Area	Key Material Requirements
HVAC Systems	<ul style="list-style-type: none"> • Corrosion resistant material as per related codes. • Piping: Vapour barrier insulation for all piping, valves and fittings.
Electrical Systems (Use EEMAC/NEMA Standards)	<ul style="list-style-type: none"> • Corrosion resistant material in protective enclosures. • Explosion-proof fixtures in hazardous locations. • Conduits and enclosures: waterproof if placed outside or in a wet area, and watertight if submerged, and as appropriate in other areas. • Signal Cables: Shielded, twisted pairs with jacketed steel armour, or if armoured, installed in coated steel conduit.
Instrumentation (Use EEMAC/NEMA Standards)	<ul style="list-style-type: none"> • Same requirements as noted for Electrical Systems. • Field Instruments: Use abrasion resistant coatings where appropriate.
Preliminary Treatment Units	<ul style="list-style-type: none"> • Screens: Corrosion and abrasion resistant.
Aerobic Biological Treatment Unit(s)	<ul style="list-style-type: none"> • Durable material as per related codes for highly humid atmospheres. Metal tankage is not allowed.
Sludge Handling	<ul style="list-style-type: none"> • Corrosion and abrasion resistant materials. • Sludge storage: Coated concrete tanks are required. • Sludge Processing: A combination of steel, stainless steel, neoprene and aluminum should be used

Area	Key Material Requirements
	as appropriate. <ul style="list-style-type: none"> • Sludge Thickening: Corrosive resistant material as appropriate.

2.3.6 Climate Control

Climate control systems will be part of the new WWTP building. Energy conservation and energy recovery is an important consideration in design of heating and ventilation systems.

All odour producing areas are to be ventilated and the extracted air is to pass through an odour control system. Ventilation rates and hazardous gas detection for wastewater process areas are to be sufficient to lower the hazardous areas classification as defined in NFPA 820, 1999 to the least stringent hazardous area classification available.

All administrative and operation spaces should be ventilated according to ASHRAE 62.99 standards. Available heat from the plant effluent may be recovered for heating other spaces if the economic feasibility can be demonstrated. Outdoor design conditions are to be 2.5 % of values from Chapter 1 of the supplement to the National Building Code.

Indoor design conditions, ventilation rates, HVAC equipment requirements, etc. are shown in Table 2.7.

Table 2-7 Climate Control Equipment Requirements

Room	Design Indoor T H/C (°C)	Min. Air Change (AC) Rate	Hazard Classification	Pos or Neg	Remarks
Control Room	21 / 24	1 AC/hr plus pressurization	None	Pos	Ground Source Heat Pump(s)
Laboratory	21 / 24	1 AC/hr plus fume hood exhaust rate	None	Neg	Fume Hood and Air Handling Unit
Electrical Room	15 / 26	0.3 ACH plus pressurization	None	Pos	Ground Source Heat Pump(s)
Wash room	21 / 30	5 L/s/sm, but not less than 50 lps	None	Neg	Radiant Panel Heaters
Mechanical Room	18 / OAT+6C	6 AC/hr	None	Pos	Central MUA with heat recovery for ventilation of all Unclassified areas plus Hydronic Unit Heaters for Space Heating
Screen Room	12 / OAT+6C	12 AC/hr	CI 1, Zn 2	Neg	Reduce as per NFPA 820 Hydronic MUA with heat recovery for Ventilation Hydronic Unit Heaters for Space Heating
Maintenance Room	18 / OAT+6C	3 AC/hr	None	Neutral	Hydronic Unit Heaters for Space Heating

2.3.7 Plumbing and Drains

All equipment for the plumbing system must be heavy duty industrial grade. All fixtures are to be of the water saver design. Emergency shower, eyewash fixtures and drench hoses are to be located at all areas in which hazardous chemicals are handled. Drains are to be installed in all floors with any source of water. Floor and equipment drain systems shall be drained by gravity. Where sumps are provided submersible pumps lift the wastewater to the plant head Projects. Backflow prevention systems are to be installed at all ground level and below ground drains and at any connection between a potable water supply system and other source of non-potable water. Supply and install all plumbing and drainage equipment in accordance with National Plumbing Code of Canada (2005).

2.3.8 Fuel Systems

Piping and materials are to be designed and installed to latest code and standard for the application. Design systems to be drainable and serviceable. Provide adequate numbers of aboveground fuel oil storage tanks, in accordance with CCME EPC-LST-71E. Install fuel oil storage tanks and other oil equipment to CAN/CSA-B139. Fuel systems shall be designed and constructed for operation and maintenance under extreme cold conditions for example the fuel system shall include a day tank.

Fuel containment and fuel spill prevention shall be provided in accordance with Yukon Department of Environment Act and Regulations

2.3.9 Fire Protection

Design criteria for fire protection systems shall be based on guidelines established by the NFPA, and local codes and ordinances. A combination of wet pipe and dry pipe systems should be used, depending on the application. Landscaping should not result in large quantities of combustible vegetation. Smoke and fire alarms should be provided in the building. Adequate number of portable fire extinguishers should be located throughout the facility for use by plant staff. Provide extinguisher type and capacity most suitable to extinguish a fire in the area served, and to local codes. Locate extinguishers where required to provide complete fire protection coverage. Special attention should be paid to areas to be considered as hazardous locations. These areas include headworks, wet wells, and other areas where methane and combustible mixture of gases could accumulate.

2.4 TREATMENT PROCESS REQUIREMENTS

2.4.1 Process Piping

Process piping shall be designed to provide adequate capacity for present and future flows. All large diameter piping (greater than 100 mm) shall be non-plastic and be equipped with a robust corrosion protection system. Pipe connections shall follow current industry standards and allow for easy

removal and replacement. Pipe penetrations through interior and exterior walls shall be installed with a sleeve system to accommodate future maintenance and repair

2.4.2 Influent Pumping

Provide influent pumping, as required, to lift the wastewater up to a sufficient height such that plant operates entirely by gravity.

Provide multiple pumping units. Influent pumping must be able to meet the design flow requirements with the largest pump out of service. Submersible pumps systems are to include flush valve assemblies for wet well cleaning.

Preference is for identical pumping units. Use only pumps typical for the wastewater industry with non-clog design, capable of handling solids to 75 mm in diameter. Pumps must have a well-established track record of use in wastewater applications and availability of spare parts and service.

Provide means of isolating, removing, and servicing individual pumps, ancillary equipment and associated valves without compromising the continuous operation of the influent pumping operation. Access ladder, platforms and hatches must meet Yukon Occupational Health and Safety Regulations. Lift station to include an ultrasonic level indicator for continuous level measurement plus a level switch for extreme high level conditions.

2.4.3 Influent Screening

Screening and compaction of materials greater than 6 mm in size is required for most processes. If the proposed process requires screening, the following shall apply. The complete screening system shall be operable by a single operator. Design screens for continuous screening of the influent.

Provide a washing and compaction system that washes, compacts and dewateres the screenings. Washing system to be capable of causing sufficient agitation to liquefy fecal matter and return it to the waste stream. Compactors shall achieve maximum reduction in water content and volume to a minimum of fifty (50%) percent. Disposal of screenings is to be in a continuous polyethylene bag and disposal bin for removal from the site. Final screening collection system shall provide easy means of removal of screening based on a single operator.

Provide means, operable by a single operator, for isolating influent screens with a bypass to a fixed bypass screen and a secondary bypass to the proceeding process units.

Preferred screen types are:

- In-channel screens; perforated screens with integral compaction and washer.
- Perforated plate screens.
- Completely enclosed internally-fed wedge wire screens.

Odour control is required for both the screening room and for transport to avoid complaints as solids are removed from the site for disposal.

Controls and instrumentation in screening area are to be CSA approved hazardous area classification suitable for 600 V power supply. Designs using submersible motors will not be considered. Each screen requires a local shut off and lock-out.

Use only screens and compactors well known in the wastewater industry, capable of the solids handling requirements anticipated, with a well-established track record of use.

2.4.4 Grit Removal

The Proponent is to determine the requirement for grit removal based on the overall plant design. The design shall avoid grit deposition in process tankage and prevent premature wearing of mechanical equipment due to abrasives.

2.4.5 Scum Removal

The proponent is to determine the requirement for scum removal based on the overall plant design. The Proponent will ensure the process removes fats, oils and grease before final discharge.

2.4.6 Biological Treatment

A biological treatment system shall be provided for removal of carbonaceous BOD with the potential for nitrification of ammonia nitrogen. A minimum of two process trains shall be provided as per the redundancy requirements. Provide a means to split flow equally to both biological treatment trains. During periods when the average flow is less than twenty-five (25%) percent of the design flow, alternation of process units may be implemented.

The Proponent will provide an optimum design for the wastewater treatment. The Proponent shall evaluate the design criteria and provide the most effective, efficient combination of technology and equipment for long term operation. The Proponent should review and evaluate the process based on:

- Meeting the design effluent quality criteria throughout the year, considering seasonal variability and long term performance.
- O&M costs
- Capital cost
- Operator requirements and equipment reliability
- Disposal and utilization of liquid and solid waste
- Odour
- Noise
- Site utilization.

The Proponent shall provide details of the process selected, complete with anticipated performance criteria. Treatment shall remove colloidal and particulate constituents to a level such that UV treatment, if used, can meet full disinfection requirements. The proponent shall provide

details of major process equipment to be supplied as part of the design to allow evaluation of quality.

A full description of the process to be utilized and detail calculation for sizing of the biological treatment system shall be included with the proposal submittal.

2.4.7 Sludge Pumping

Pumping distances for sludge pumping should be minimized. Applicable head losses should be accounted for. Appropriate pump types should be chosen to be able to handle viscosity fluctuations in sludge.

2.4.8 Biosolids Dewatering and Storage

Provide a biosolids dewatering system which is based on:

- Centrifuge
- Belt filter press.

Biosolids must be dewatered to a minimum of 15 % solid by weight. Dewatered biosolids storage shall be included in order to increase the flexibility of the system in handling the biosolids through volume fluctuations. Storage system must not require operator intervention to transfer material for transportation to the landfill. Biosolids shall be stored in a vessel that will allow easy removal by outside disposal contractor.

2.4.9 Effluent Disinfection

Provide an ultra-violet (UV) disinfection system capable of meeting the effluent requirements under all design flow and wastewater conditions. Provide a minimum of two (2) channels, allowing one hundred (100%) percent redundancy at maximum design flows.

Note: For SBR treatment systems this means maximum decant rate unless an effluent equalization tank is employed.

The UV system shall be designed to meet the characteristics of the wastewater, the intensity of the radiation, the amount of time the microorganisms are exposed to the radiation and the reactor configuration. Treatment prior to the disinfection shall remove colloidal and particulate constituents for reliable UV treatment. Systems can use either horizontal or vertical configuration.

The UV system reactor shall promote uniform flow with adequate axial motion for maximum UV exposure. The reactor design must prevent short circuiting, dead zones and ensure bulbs remain immersed at all times. The design of the system shall assume adequate UV dose with sixty-five (65%) percent lamp output.

UV system shall include all ancillary equipment required for chemical/manual cleaning for one person operation. The system shall include shielding to prevent operator exposure to UV radiation and electrical hazards.

Controls shall accept a plant flow signal and vary the UV dose in proportion. The Proponent shall include details on the controls and instrumentation and define the method of dose control and staging of reduced UV output.

UV system should be housed within a building to be sheltered from the ambient elements during maintenance operations. Sufficient space and equipment shall be provided to facilitate maintenance requirements.

Other disinfection systems may be proposed.

2.4.10 Effluent Disposal

Provide pumped connection into existing wastewater discharge piping system. The existing discharge and outfall pipeline from the screening plant consists of a 200 mm diameter HDPE pipe. The condition of this pipe is considered poor and the pipe will be replaced at some time in the future. For this Project, the proponent shall limit the discharge flow and discharge pressure to the characteristics of the current discharge pumping system. Exterior piping shall be freeze protected with appropriate insulation for ground and weather conditions in Dawson City.

2.4.11 Odour Control

Odour control facilities are required for the following areas:

- Influent pumping.
- Headworks screening area.
- Sludge stabilization.
- Sludge dewatering facility.
- Biosolids storage area.
- Other areas where odour management is required to maintain the desired odour threshold at the property line.

Acceptable odour control technologies, if appropriate for the site and installation, include:

- Tank covers
- Airflow management and duct work
- Bio-filters (conventional and package type)
- Chemical wet scrubbers (packed tower and fine mist)
- Activated carbon units.

2.4.12 Conveyance Systems and Storage

For any conveyance systems (for screenings, grit, biosolids, etc.) required for the treatment plant, provide a total enclosed system. Open style conveyors are not acceptable. Similarly all storage systems shall include appropriate covers to facilitate odour and vector control at the treatment plant.

2.5 ELECTRICAL

2.5.1 General Requirements

1. Design a complete electrical system as required to provide a properly functioning and fault tolerant wastewater treatment plant.
2. Design the systems for fully automated, unattended operation of the facility with local and remote monitoring capability.

2.5.2 Equipment Location

1. All major electrical equipment such as motor control centre (MCC), marshalling / control panels (CP) and standby generator set and distribution panel boards must be located in an above grade location and above the 1:200 year flood elevation and without risk of flooding from any source.
2. Ensure that there is adequate clearance around electrical equipment. Increase minimum code-imposed clearance if required for routine maintenance tasks.
3. Install electrical equipment in well ventilated and/or heated locations, as appropriate to provide optimum operating conditions.

2.5.3 Motors

1. Limit single-phase motors to maximum 1/2 hp.
2. Provide three-phase motors for 0.75 hp and higher.
3. Connect motors larger than 3 hp to 600 V, 3-phase system.
4. Motors controlled by variable frequency drives (VFD) shall be rated for inverter duty.
5. Except where otherwise specified, provide motors 40 hp and larger with thermistors for over-temperature protection.
6. Submersible pumps / motors larger than 3 hp to be equipped with thermistors for over-temperature protection and leakage detection devices.
7. Locate the thermistor and leak detection relays in the MCC and connect it to the circuit in such a way that protection is functional in the "Manual" and "Auto" modes.

8. All pumps/motors shall have field mounted local control panels to allow Manual operation in the event of control system failure or override requirement.

2.5.4 Fire Barriers

1. Fire barriers required by code shall be of the re-enterable type.

2.5.5 Power Factor Correction

1. Provide the equipment required to maintain a plant power factor of no less than ninety-two (92%) percent, measured on the service mains.

2. Provide any equipment necessary to prevent negative interaction between the power factor correction devices and other equipment in the plant.

3. Provide a certified test report prior to acceptance of the plant.

2.5.6 Harmonics Mitigation

1. Design and construct the facilities such that the harmonic limits specified by IEEE 519 standard "Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems", are not exceeded, nor shall the total voltage distortion be more than five (5%) percent, or any individual voltage distortion be more than three (3%) percent.

2. Engage the services of an independent testing firm to conduct the tests necessary to prove that the specified limits are being met. Provide a certified test report prior to final acceptance of the plant.

2.5.7 System Coordination Study

1. Engage the services of an independent firm to perform a coordination study of the electrical system.

2. The study shall include the complete electrical system from the service entrance to the bus of the 120/208 Volt panelboard, including the standby generator system.

3. The study results shall be presented in chart or table form, accompanied by a single-line diagram. The results shall be used to select the fuse sizes or circuit breaker trip ranges and settings.

4. The study shall include, but not be limited to the following system parameters:

- Maximum available short circuit current.
- Maximum available ground fault current.
- Cable thermal short circuit damage curve.
- Sizes or settings of fuses, circuit breakers, and protective relays.
- Maximum available fault currents, phase-phase, and phase-ground at the various nodes.

- Arc flash study

5. Provide a certified report, stamped by a Professional Engineer, prior to construction.

6. Ensure that the results of the coordination study are implemented by the suppliers of the various pieces of equipment; refer also to other sections entitled "Power Factor Correction" and "Harmonics Mitigation".

2.5.8 Power Service

1. The plant is to receive a 347/600-volt, 3-phase, 4-wire electrical service, in accordance with Yukon Energy standards.

2. Apply to Yukon Energy for an underground service from a utility-owned, pad-mounted transformer.

3. Establish the requirements for across-the-line starting versus soft-starting of motors with Yukon Energy.

4. Provide the utility company with all information required to supply such a service.

5. The service charge payable to Yukon Energy will be paid by the Owner at cost.

6. Locate the service entrance and utility metering equipment in a motor control centre (MCC) as specified.

7. Size the service and distribution equipment with extra capacity for future expansion of the plant. Provide a minimum thirty (30%) percent additional capacity.

2.5.9 Telephone Service

1. The plant is to receive a telephone service in accordance with Northwestel Inc. standards.

2. Apply to Northwestel Inc. for an underground service.

3. The service charges payable to Northwestel Inc. will be paid by the Owner at cost.

2.5.10 Power Distribution

1. Provide a single motor control centre for the facility.

2. Provide suitable switchgear and panels to house the service entrance, power distribution, and control equipment.

3. The following is a list of major pieces of equipment which shall be housed in this switchgear or motor control centre (MCC):

- Service entrance equipment consisting of service breakers and Yukon Energy metering.
- Private digital metering system (DMS).
- Ground fault, surge suppressors and phase monitoring devices.

- Automatic transfer switch (ATS) for generator set.
- Motor control equipment for all 600-volt drives.
- Feeder circuit breakers for all 600-volt loads.
- Step-down transformers 600-120/208 Volt, for lighting, receptacle and miscellaneous utility loadings.
- Circuit breakers panelboard for loads listed above.
- Power factor correction devices.
- Standby Power automatic transfer switch.
- Provide online Uninterruptable Power Supply (UPS) device(s) c/w power filtering to provide power to all Plant Control System equipment (computers, controllers, displays, net work, communications equipment etc) and sustain operation for a minimum of 30 minutes during power failure conditions.

2.5.11 Standby Power

1. Provide a diesel generator set (gen-set) to supply standby power to the WWTP in the event of a power failure.
2. The gen-set shall be rated for continuous standby service.
3. The unit shall be connected to the system via an automatic transfer switch to be located in the motor control centre.
4. The gen-set shall be capable of handling the full load required by the WWTP.
5. The generating system is to include, but not be limited to:
 - Diesel engine
 - Alternator
 - Engine control panel (ECP), detached from engine/alternator assembly
 - Batteries and battery charger
 - Ventilation system
 - Fuel supply system with capacity for up to 36 hours of run time. Fuel system shall be designed and constructed for operation and maintenance under extreme cold conditions, for example the fuel system shall include a day tank. Fuel containment and fuel spill prevention shall be provided in accordance with Yukon Department of Environment Act and Regulations.
 - Exhaust system
 - Structural mounting base for engine and alternator.

6. The gen-set shall be connected to the Plant Control System to monitor status, fault and fuel level conditions.

7. The gen-set shall have the appropriate design and operational features for the extreme cold weather in Dawson City

2.5.12 Lighting Systems

1. Provide luminaires capable of fulfilling levels showing in the following table. Uniformity of illumination to be within the limits recommended by the Illuminating Engineering Society of North America (IESNA).

Table 2-8 Type and Level of Illumination for Different Areas

Area	Maintained Illumination Level	Type of Luminaires (To be Reviewed for Suitability With Architectural Features)
Process Areas	500 lx	As appropriate.
Outdoor Around Electrical Equipment and at Main Entrance	100 lx	High pressure sodium with integral low temperature ballast.
Exterior Lights	Above Doors	70 W high pressure sodium, wall-mounted with integral low temperature ballast.
Corridors, Stairways, Washrooms, Change Rooms, Janitor	200 lx	Recessed fluorescent for T-bar ceiling, with framed lens and 2 or 3 x 32 W, T8 warm-white lamps. Wall or ceiling fluorescent with 32 W, T8 warm-white lamps in areas without T-bar ceilings.
Control Room	600 tx	Same as above, except 3-lamp type with one 1-lamp ballast and one 2-lamp ballast to permit switching stages of 1/3 – 2/3 – full.
Piping Gallery/Screen Room	300 tx	Suspended fluorescent with slotted reflector, 2 x 32 W, T8 warm-white lamps, turret-type sockets.
Valve Vaults or Chambers	200 tx	Non-metallic, vapour-tight compact fluorescent.

2. Provide the calculations and luminaire details to show that the specified illumination levels will be met prior to construction.

3. Arrange the circuiting of the luminaires such that the following areas are serviced from at least two different circuits:

- Process areas that have more than 10 luminaires
- Control rooms.

4. Provide 3-way switching for rooms or areas accessed from two directions.

5. In areas which are accessed through more than two doorways, utilize permanent magnet contactors, controlled from 'On' -'Off pushbuttons for switching of the lights.

6. Outdoor lighting shall be controlled via a contactor from an "On-Off-Auto" switch located in the reception area. In 'AUTO' the lights shall be controlled from a photocell, whereas in 'ON' they shall remain energized until turned 'OFF'.

7. Emergency Lighting:

- Provide emergency lighting from battery-pack units, supplemented by remote heads slaved to the battery packs.
- Provide emergency lighting as required by the National Building Code.

2.5.13 Receptacle Systems

1. Provide 120 VAC receptacles throughout the WWTP, including exterior receptacle at all entrance doors.

2. Arrange circuiting of the receptacles such that no more than four (4) receptacles are connected to one circuit and such that adjacent receptacles are not connected to the same circuit.

3. Except as required by the Rules and Regulations duplex receptacles need not be split-types.

4. Use of multi-wire branch circuits is acceptable.

5. Colour-code receptacles powered from the UPS or standby generator by using yellow and orange coloured bodies respectively.

6. Receptacles to be fed from GFCI-type circuit breakers.

2.5.14 Wiring Methods

1. Generally, wiring shall be done with PVC jacketed, interlocked Armoured Teck cable.

2. For lighting and receptacle circuits the conduit and wire method is acceptable. Use RW 90 X-L, stranded Cu conductors with rigid PVC (RPVC) conduit, except for classified areas where rigid aluminum (RA) conduit shall be used.

2.6 INSTRUMENTATION

2.6.1 General Requirements

1. Provide instrumentation, safety, interlock and automation equipment to allow fully automated monitoring and control of the plant.

2. Instrumentation to have measurement and health status indication via local or integral display.

3. Each piece of process equipment shall be capable of being operated manually.

4. All automated valves shall have a Hand wheel or Hand operation equivalent to allow operation in the event of control system failure or override requirement.
5. Provide Instrumentation and signaling equipment to ensure safety of personnel and equipment located in Hazardous Area rated locations. Safety systems shall be connected to the plant control system for alarming purposes.

2.7 Plant Control System (PCS)

2.7.1 General Requirements

1. Provide a micro-processor based PLC & HMI or DCS Plant Control System for monitoring and process control of the plant.

2.7.2 Equipment Location

1. The main controller for the plant shall be located in a marshalling / control panel in the plant electrical room.
2. The main HMI and ancillary equipment shall be located in the plant control room with remote Operator Interface units located in major plant process areas as necessary.

2.7.3 Supply

1. The Proponent shall be responsible for the system design, configuration, installation, testing, commissioning, implementation of the entire system, including sensors, data communications, cabling, software, hardware and peripheral equipment and operator training. The system shall be the most up-to-date available using software and hardware proven in the wastewater treatment industry. The system supplier shall be a nationally recognized manufacturer engaged in the design and manufacturing of micro- processor based control systems for the industry.
2. The system shall provide the plant with the needed functionality, operations, maintenance, expansion, upgrades and reliability, implemented under a coordinated control system concept that meets the specified performance standards. The system shall include user-friendly, logically-structured graphical operator interface for comprehensive monitoring and control of plant processes and shall be configured to support the staffing and operations plan for the WWTP. The system shall be designed to assist plant staff with maintenance management tasks, provide management of plant and laboratory information, and collection and automated storage and backup of historical records, trends and data.
3. The system shall provide control, monitoring, interlocking, data acquisition and conditioning, trending, data logging, storage & backup and report and alarm generation and printing. Data collection shall include flow and temperature, at a minimum.
4. The system shall include the ability to operate the plant from the central control room, from designated graphical Operator Interfaces strategically positioned around the plant and from outside the plant via secure remote communications link to a known device.

2.7.4 System requirements

1. **Effective Operator Interface:** Present information on plant-wide hydraulics, process conditions, electrical systems and controls and communications equipment with sub-screens for each process and sub-process and ancillary components. The operator interface must also be simple and easy to use.

2. **Maintainable System:** Design the instrumentation and control systems with ease of maintenance in mind. Failures must be easy to isolate. Off-the-shelf replacement or repair parts shall be available within British Columbia, Yukon and Alberta.

3. **Flexibility of Application and Use:** The instrumentation and control system must be adaptable to accommodate future plant modifications, enhancements or additions along with any desired changes in control strategy or information needs. Future expansion to include a SCADA system for collection of data from external remotely located water sites and wastewater pump stations must be accommodated. Proponents should ensure all data transmissions and collections are done in a secured manner.

4. **Reliability of Equipment:** The control system must be fault tolerant since control equipment failure cannot be allowed to cause process failures or affect the performance of major or critical equipment, or unit processes. As a minimum the system shall meet the following functional criteria:

- The control system architecture shall provide failure resilience and redundancy. Identify possible weak points in the system and compensate through use of distributed architecture, redundant hardware or multiple paths of communication etc.
- Major systems shall incorporate hardware redundancy such that a loss of processor or power supply shall not disable the given system or affect the overall plant operation.
- The entire WWTP, or its major process areas, shall be capable of operating automatically or manually via the PCS as determined by the control mode selected by the operator.
- Real-time, historic, and summary operating data shall be transmitted to the central, local and remote locations.
- The control system shall include a comprehensive self-diagnostic ability to detect system failures and alarms.
- The control system shall have an alarm management system that collects and displays significant events; shows trend, warning and exceedance alarms; and makes critical information available to on- and off site staff for normal and emergency operations.
- An off site alarm notification system shall provided independently to the PCS system such that on occurrence of critical alarms occurring or failure of the PCS during unmanned periods instantaneous notification shall be given to the plant operator or responsible person(s) via telephone or wireless communications.

2.7.5 Systems Architecture:

1. The system shall use a fully open architecture, which shall, with minimal changes, allow future expansion, upgrades and addition of new applications.

For the purpose of these specifications, an open system is defined as a system that implements specifications for software interfaces and hardware that shall enable applications and components supplied by multiple vendors to be incorporated in the future system applications, upgrades and expansion, with minimal changes to the original system.

It is the Proponent's responsibility to fully demonstrate that the proposed system meets this open system concept and is capable of accommodating future growth in functionality, additional memory and higher performance.

Separate data storage hardware shall be provided for regulatory compliance, plant operation information and engineering analyses. A distributed system concept shall be applied to the design such that a failure of a sub-system shall not affect the entire WWTP operations. The system shall include main processors, operator interfaces, programmable controllers and uninterruptible power supplies. The Proponent shall demonstrate that configuration changes to the processor(s) and operator interfaces can be accomplished without interruptions to the process

2. The following are considered to be the minimum criteria for hardware configuration. The Proponent shall provide any additional or upgraded hardware required to meet this criteria.

- Control system configuration, based on the concept that system functions shall be provided from a single, central controller.
- Fault-tolerant design for all critical functions.
- State-of-the-art computer hardware and microprocessors sized to accommodate all initial, spare and future performance and expandability requirements.
- Fully integrated software system, including operating system, communications and applications including administration, laboratory information management and process controls.
- Single operator Project station including 19 inch minimum high-resolution full-graphics color LCD terminals, alarm and report printers and console furniture for the control room, as required to house the hardware.
- Fault-tolerant communications network to interconnect all parts of the system, including field IO modules and the remote operation's facility, if such facility is provided. The system shall be furnished with the initial spare capacity installed and completely wired to terminal blocks. The system shall be designed with modular components to permit future modification of, or addition to, equipment and software.
- System shall be expandable to the ultimate capacity as specified below:
- Initial Installed Capacity: The installed system shall have a capacity adequate for the system to include all points (tags) necessary to monitor and control the facility, plus fifty (50%) percent installed spares for each type of point. The initially-furnished capacity shall include,

but not be limited to, computer memory, processing time, disk storage capacity, UO cards and connectors and database allocations.

- Ultimate Expansion Capacity: The system shall be designed for a future fifty (50%) percent increase in the number of I/O points over those initially installed. Software shall be easily expandable to accommodate the ultimate expansion of I/O points.

2.8 Future Expansion and Upgrading

The WWTP must be designed such that it can be expanded and upgraded to account for septage receiving in the future.

PART 3

Design and Construction Requirements

3.1 Design and Performance Requirements

Design and execute the construction of the new wastewater treatment plant that meets all the requirements of the Specifications and the requirements outlined in this part.

3.2 Yukon Content

Indicate the economic benefits that are expected as a result of using Yukon resources on this project.

3.3 Reference Specifications and Standards

3.3.1 General

Each Proponent's proposal must provide evidence that the design and construction of the Project that is proposed are undertaken utilizing best practices for the professions, manufacturers and trades involved and meet or exceed the requirements of the:

- National Building Code
- National Plumbing Code
- Canadian General Standards Board
- Canadian Standards Association
- American Water Projects Association
- American Society for Testing and Materials
- National Sanitation Foundation
- NFPA 820 Fire Protection in Wastewater Treatment and Collection Facilities
- Model National Energy Code for buildings

This list identifies the major standards and codes relevant to the Project. Other relevant standards, codes and specifications may apply such as:

General

AASHTO American Association of State Highway and Transportation Officials
ACI American Concrete Institute
AISC American Institute of Steel Construction
AISI American Iron and Steel Institute

ARCA	Alberta Roofing Contractors Association
ASCE	American Society of Civil Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preserves Associations
AWS	American Welding Society
BCLMA	B.C. Lumber Manufacturer's Association
CAN	National Standard of Canada
CCA	Canadian Construction Association
CISC	Canadian Institute of Steel Construction
CITC	Canadian Institute of Timber Construction
CPCI	Canadian Prestressed Concrete Institute
CRCA	Canadian Roofing Contractors Association
CSA	Canadian Standards Association
CWB	Canadian Welding Bureau
ISO	International Organization for Standardization
SSPC	Steel Structures Painting Council
NBC	National Building Code
PCI	Prestressed Concrete Institute
PMBC	Plywood Manufacturer's Association
SJI	Steel Joist Institute
WCB	Projecter's Compensation Board

Utilities

API	American Petroleum Institute
AWWA	American Water Projects Association
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CSPI	Corrugated Steel Pipe Institute
IAO	Insurer's Advisory Organization
ULC	Underwriter's Laboratories of Canada
RTAC	Roads and Transportation Association of Canada
USA	United States of America Standards (ASA)

Mechanical

AFBMA	Anti Friction Bearing Manufacturer's Association
AGMA	American Gear Manufacturer's Association
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
ACR	Air Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating Refrigerating and Air Conditioning Engineers
NFPA	National Fire Protection Association
SAE	Society of Automotive Engineers

Electrical

AIEE	American Institute of Electrical Engineers
CEC	Canadian Electrical Code
EEMAC	Electrical and Electronic Manufacturers Association of Canada

IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineers Society
IPCEA	Insulated Power Cable Engineer's Association
LEMA	Lighting Equipment Manufacturer's Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NESC	National Electrical Safety Code

Use of Abbreviations

These abbreviations refer to Specification, Methods and Standards issued by the respective Association, and the abbreviations are used in the specifications.

Alphanumeric designations following the abbreviations denote the specification, method, or standard. Further abbreviations may be found in the glossary in Appendix A.

3.4 Supplemental Geotechnical Investigation and Reporting

Retain a consultant experienced in the fields of cold region geotechnical and permafrost engineering (the Geotechnical Consultant), and registered with the Association of Professional Engineers of the Yukon Territory to participate in the design of excavations, excavation support, dewatering, foundations, structural retaining walls and earthworks.

The design of the Project, and the proposed construction equipment and methods, shall accommodate variation in subsurface conditions. Where precise determination of subsurface conditions is critical for the design, safety, and/or stability of the Project, such conditions shall be verified by additional investigations completed prior to construction:

Where additional investigations are undertaken, copies of any logs, data, drawings, or reports generated shall be forwarded to the Owner's Representative within seven (7) business days of receipt.

Provide recommendations for design and construction, and participate in preparing method statements addressing foundations and retaining walls. These method statements shall be submitted with the relevant sixty (60%) percent design submission and shall, at a minimum, include descriptions of:

1. Expected subsurface conditions based on the Geotechnical Data and any supplementary pre-tender investigations.
2. Summary of geotechnical engineering parameters used in design.
3. Recommendations for construction that include anticipated construction methods for excavation, excavation support, settlement and ground displacement control, groundwater control, excavation stability control, backfilling of structures, control of ground disturbance due to weather.
4. Expected behavior of the ground in response to the selected construction methods.

These method statements will not be considered a baseline for assessment of any claims for differing site conditions.

3.5 Technical Documents Produced By Proponent

3.5.1 Construction Document Submittal Procedures

1. Formally submit Drawings, Specifications and supporting data (design reports, calculations, and product data) for review at the completion levels specified below. Such documents must be submitted in an orderly sequence and in logical packages and must be prepared with enough time for review as specified in section 3.5.6 and such that construction may begin no later than the commencement date specified in the schedule provided with the proponent's proposal or otherwise agreed between the Owner and the proponent.

2. Drawings, Specifications and supporting data submitted by the proponent must reflect the minimum design and performance standards set out in the Contract documents and must also incorporate any requirements of authorities having jurisdiction. The Proponent is responsible for coordinating its submittals to ensure there are no discrepancies or conflicts among submittals.

3. Formal submittals by the Proponent and design review by the Owner's Representative will proceed in two stages:

- Stage 1: 60% Design Submission
- Stage 2: 100% Design Submission

4. The specific Drawings, Specifications, calculations and reports that the Proponent is required to produce at each of these submission levels are listed below.

5. All preliminary engineering Drawings and Specifications prepared for the sixty (60%) percent design submission shall be dated and clearly labeled with the following "Preliminary - Not for Construction".

6. All Drawings forming part of the one hundred (100%) percent design submission must be sealed, dated and signed in accordance with the General Conditions of the Contract. Once the Owner's Representative has reviewed such Drawings, Specifications and associated documentation, and provided written approval, they shall be clearly marked with the release date and the words "Issued for Construction".

7. For review and record purposes, provide 12 hard copies and 1 electronic copy of each of the design submission.

8. Establish a corresponding logging procedure to record submittal dates and the status of submitted documents.

3.5.2 Drawing Requirements

1. All Drawings prepared by the Proponent shall include the Contract number and date of issue in the title block. All drawings are to be prepared in PDF and ACAD Version 2007, in accordance with the drawing examples in Appendix F of this RFP identified as 107000 drawing C01, C02, P01 and P02.

2. The first or General Drawing shall contain a list of all Drawings and drawing numbers pertaining to this Contract.

3.5.3 Project Specifications

1. Prepare the Project specifications using the standard National Master Specification (NMS) 16 division format. Sections or subsections not related to or used on this Project shall not be included in the text.
2. Individual specification sections are to be divided into three parts: General, Products and Execution.

3.5.4 Sixty (60%) Percent Design Submission

A comprehensive Design Report (DR) must be provided as part of the sixty (60%) percent design submission. The DR sets out design assumptions, parameters, calculations, material selection considerations, data and interpretations relied upon, and related information to explain the engineering basis for the design concepts incorporated or to be incorporated in the Drawings and Specifications.

The DR will expand upon the information provided in the Proponent's technical proposal and must, as a minimum, encompass the Project requirements including, but not limited to:

1. Project Description

- Background
- Objectives
- Process units

2. Scope of Project

- Location plan
- Show facility property plan
- Show land to be acquired for temporary storage, working space, etc. if required
- Prepare preliminary site plan
- Site services
- Municipal water supply
- Municipal wastewater connection
- Power Supply
- Site access and egress
- Storm water drainage management
- Telephone
- Related contracts and impact
- Coordinate Project with other contractors

3. Consideration shall be given during the design and construction phases to provide environmental protection measures.

4. Process Design Elements

- Process flow diagrams (PFD) - schematic depiction of equipment, piping valves, in-line measurement devices, etc. Include all ancillary systems such as instruments etc.
- Include a hydraulic profile and identify all major unit operating liquid levels. All assumptions used and calculations used to develop the hydraulic profile must be included in an appendix.
- Detailed equipment list and data sheets - includes preparation of equipment data sheets comprised of design sizing calculations, product information, etc.
- Process flow worksheets - includes the development of pipe sizing, including any control valve sizing and all sizing calculations. The Project sheet must also include the piping material for each service and the valve catalogue sheets for each type of valve anticipated.
- Instrument index - list all instrument and control devices with all relevant tagging and specification information for supply of the devices. This includes, but is not limited to, engineering unit range, electrical ratings, operating environment, process conditions, material selections, manufacturers and model numbers.

5. Conceptual Layout

- Drawing scale - 1:100 scale for preliminary layout plans.
- Show all equipment location and orientation of equipment control panels and tanks including major ventilation units, electrical transformer, switchgear and motor control centres.
- Show all piping >100 mm and alignment drawings showing bends, restrains, fittings, materials, draw off points, elevations, etc.
- Show all in-line measuring devices included in the PFD's.

6. Building Design

- Architectural drawings - finished architectural elevations and description of all internal and external architectural finishes including special finishes as appropriate, e.g., waterproofing between tanks and building, etc.
- Specialties - includes description and location of any specialties.
- Area classification in schedule form, the design occupation, and classification of each room or building area.

7. Electrical System

- Identify source of electrical power supply and its usage in the Project. Identify area where additional power supply is required and how it is accomplished. It shall be complemented by a site plan showing locations of supply and usage.
- Complete motor list in schedule format consisting of equipment description, power, phase, cycle, type, location and direction of rotation when viewed from behind the motor. This

list must be coordinated with the various equipment lists above, with cross references under the description column.

- Using the motor list, create a single-line MCC drawing incorporating all motors integrated with respective MCC's. Enhance the single-line with MCC elevations showing relative arrangements of each unit.
- Site power distribution is to be identified using a site plan showing the preferred electrical distribution routings. Define the method of route protection, e.g., conduits, trays, duct banks, etc.
- Detailed lighting schedule of facility. Provide a schedule of all lighting requirements and identify areas that should have multiple lighting levels and describe how they will be controlled. Use of high energy efficiency lamps is required where possible. Include a full description of the emergency and exit lighting systems.
- Provide a description of the fire alarm system, including a schematic illustrating the system.
- Include all calculations for cable and equipment sizing, including but not limited to the transformer, lighting panels, cables, motor protection equipment, circuit breakers, fuses, MCC ratings, etc.

8. Provide emergency standby power as per the design requirements. The design should take into account the inrush power demand of equipment to ensure that the recommended standby power genset capacity is sufficient to meet the WWTP power demand.

9. Instrumentation and Control

- Provide process control narratives for each process unit clearly describing how each unit process is intended to be operated. The narratives describe the process unit components, the parameters measured, the control strategy, the actual control switch functions, alarm conditions and component failure and how the process is monitored. Narratives are to include full input/out listings for the proposed site or process area(s).
- Provide instrumentation schedule describing instrument service, location, capacity range, accuracy requirements and special construction. To complement the schedule, prepare process instrument diagrams using the PFD's prepared above.
- Provide all necessary instrumentation allowing full monitoring and control capability. Equipment requiring adjustment on a frequent basis for processes shall be provided with automatic controls.

10. SCADA System

- Identify the necessary application and operating software requirements, both commercial packages and those proposed to be written by the system Integrator, for the supervisory, control and data acquisition system of the facility or expansion Project as called for in the proposal.
- Review proposed hardware and software to determine system capacity and capability for expansion and identify all hardware and commercial software required for the SCADA

system, including RPU/PLC, and networking devices so as to fully integrate the Project into the SCADA system.

- Ensure that the process control narrative for each process unit includes operation of the process equipment in local mode and operation through the SCADA system in both manual and auto modes of control.
- Provide information on the expected SCADA system performance (and response time) so as to ensure that the system is not degraded to an unacceptable level as a result of the addition/expansion of the facility's control system.

11. Heating and Ventilation

- Area schedule consisting of room description, seasonal temperature objectives, minimum ventilation requirement, heat dispersion ventilation requirement, pressurization requirement (negative or positive), special classifications and explanatory remarks.
- Fan schedule should include equipment listing all units, throughput capacity, static pressure and electric driver power.
- Conceptual control sketches for each fan.
- Duct and louvre requirements in a schedule compiled by rooms.
- Include all odour treatment and scrubber equipment capacities, type, location and design performance parameters.
- Heating system should describe the heating system components including, as applicable, equipment list with catalogue sheets, distribution piping sizes and unit heaters and other radiant heater capacities. The description of the heating system must be complemented by a schematic flow diagram that includes all components.
- Include all calculations for duct and equipment sizing, etc.

12. Ancillary Systems

- Plant potable water flows, pressures and temperatures. System must be complemented by a schematic flow diagram that includes all components including separated water usage, locations and appurtenances. Water conservation practice must be taken into consideration in design of system including the use of low flow fixtures wherever possible and practical.
- Fire protection system requirements including areas to be supplied with sprinklers, standby pipes, fire cabinets, hydrants, fire doors, fire dampers, etc. Use a site plan and identify the areas and their respective fire protection system coverage and/or location.
- Relocated, abandoned or extended services must be identified.
- Identification must include a schedule of location, existing service, materials and type of construction, extent of modification and any constraints with respect to timing of the modification.

13. Provide the complete set of drawings in full size and 11x17 formats (12 drawing sets).

14. Design Calculations

The Proponent shall submit the following as appendices or separate reports to the DR:

- Process calculations for all components of the facility
 - facility hydraulic grade lines
 - process calculations
 - mass balance
- Structural design
- Foundation design
- Electrical power supply
- Heating and ventilation, and air conditioning systems
- Submit hard copies to the Owner's Representative for record purposes. Scan all handwritten materials, including sketches, for inclusion in an electronic submittal of the DR.

3.5.5 Design Submission

Submission of documentation for the one hundred (100%) percent design submission will generally follow the requirements of the sixty (60%) percent design submission. They will include all the drawings for the Project, which shall be considered ready to issue for construction, together with final specifications, engineering design calculations and notes, and Project procedures. The Proponent shall have addressed all of the Owners and Owner's Representative's comments from the review of the sixty (60%) percent submission.

3.5.6 Design Review

1. The Owner's Representative will receive and review the construction documents submitted by the Proponent. In all cases unless otherwise stated in this RFP, the Owners Representative will have a minimum of twenty one (21) business days to review the documents from date of receipt.
2. Prior to submitting construction documents for the one hundred (100%) percent design review, the Proponent shall address all of the comments arising from review of the sixty (60%) percent design submission.
3. The one hundred (100%) percent design review will be considered complete and the construction documents considered acceptable to the Owner when all comments and action items noted by the Owner's Representative through the course of the sixty (60%) percent and one hundred (100%) percent design reviews have been satisfactorily attended to by the Proponent, whether through modification of the construction documents or through an acceptable written explanation for not incorporating a requested modification.
4. Purchase orders for long lead-time equipment may be placed during the design phase in accordance with the Proponent's schedule for procurement, provided that the final equipment specifications have been submitted and reviewed prior to placing orders. Shop drawings for such equipment must be reviewed as set out in the Technical Specifications prior to commencing fabrication.

3.5.7 Shop, Assembly, Erection or Execution Drawings

1. Arrange for the production and submittal of all Shop Drawings (including assembly, erection or execution drawings) required by the relevant NMS specifications and any amendments thereto included in the Owner's requirements.
2. The Proponent shall submit three (3) hard copies of all Shop Drawings and related submittals to the Owner's Representative for audit purposes at least fourteen (14) business days prior to fabrication, erection or execution, unless otherwise agreed with the Owner's Representative.
3. Each submittal shall be accompanied by the following:
 - Date and revision dates
 - Contract title and number
 - Identification of Subcontractor, Supplier and/or manufacturer, as applicable
 - Identification of Product or material
 - Relationship and method of attachment to adjacent structure or material
 - Field dimensions, clearly identified as such
 - Specification section number
 - Applicable standards such as AWWA, CSA or CGSB number
 - Identification of deviations from Contract Documents
 - Review stamps of Proponent and Engineer, each initialed or signed certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

3.5.8 Record Drawings

1. The Proponent shall maintain one or more complete sets of Drawings on site at all times for the exclusive purpose of recording changes made thereto as the Project progresses. Such Drawings, (the "Record Drawings"), shall be made available for review upon the request of the Owner's Representative.
2. Using red ink, the Proponent shall accurately record deviations from the Drawings marked "Issued for Construction" and shall record locations of all concealed elements.
3. The Proponent shall ensure that the Record Drawings for multi-discipline works are complete in all respects and include all information on sub-trades such as electrical work, heating, ventilating, plumbing, etc. as finally installed. Record Drawings of electrical work shall show the colour-coding of the wiring as installed. All Record Drawings shall be clearly marked "As Constructed" and shall show the date of final revision.
4. The accurate location and depth of the new and existing piping, building services, foundations, duct banks, etc., together with all components, shall be recorded before concealment to ensure accurately directed future access to these buried facilities. The Record Drawings shall include borehole information, contours and landmarks tied to the location of the facilities.
5. The Proponent shall submit one (1) complete set of PDF drawings, two (2) sets of white prints and three (3) electronic copies (on CD-ROM) of all Record Drawings, prepared using ACAD

2007 and completed and revised to reflect the final as-constructed conditions as of the date of Substantial Performance of the Project.

6. The hard copy versions of the Record Drawings are to be sealed, signed and dated by the professional engineer of record.

7. Submission of Record Drawings, meeting the conditions set above, will be a condition precedent to granting Substantial Performance, pursuant to the Contract.

3.5.9 Operations Manuals

Prior to commencement of the Commissioning Phase, the Proponent shall prepare and submit to the Owner's Representative a final operations manual for the Project in accordance with the Technical Specification's Requirements and in sufficient detail for the Owner to operate, maintain, dismantle, reassemble, adjust and repair such Project. Submission of the final operations manual will be a condition precedent to granting Substantial Performance, pursuant to Contract Documents.

3.5.10 Operations and Maintenance Manuals

The proponent shall submit an organized compilation (6 hard copies and one digital copy in pdf format) of operating and maintenance data including detailed technical information, documentation and records describing operation and maintenance of individual products or systems. As a minimum standard, the documentation shall be organized into the following tabbed chapters: introduction (including consultant and contractor list); table of contents; general facility and process descriptions; influent sewage delivery process; preliminary treatment process; primary treatment process; secondary treatment process; disinfection treatment process; and effluent sewage discharge process. Individual chapters shall be further divided into tabbed sections for process narrative, discrete data, certification, operations, and maintenance. The hard copies shall be bound in expandable "post" binders with the complete Project title "embossed" on the cover and the spine of the binder.

3.5.11 Other Contract Closeout Documents

1. In conjunction with the submission of Record Drawings amend all related documents and calculations, where required, so that they accurately reflect the Project done.

2. Submit the following (where not already included as a part of the operations and maintenance manual):

- A copy of design briefs with all calculation sheets signed by both the engineer of record and the independent checker.
- Three (3) copies of all test results, mill certificates and other reports or documents relating to quality control of materials.
- A copy of the Shop Drawings (including erection, assembly and execution drawings) as well as any other drawing used for the Project, both on paper and electronic format.
- Copies of data sheets for each product used in the Project.

- A report issued by the QA/QC manager to the effect that all the aforesaid documents delivered conform to execution and to the Contract Documents.

3.6 BASE PLAN

1. Conduct a field edit (survey of the topographic mapping provided by the Owner, to confirm the location, accuracy and completeness of all topographic information, verify inverts and materials of existing pipes and manholes where the new system will connect, and verify location of all above ground utilities. Other requirements include:

- Set horizontal control line with particular note of ties to existing property bars and topographic information.
- Set elevation control bench marks clear of the expected construction are sufficient to allow referencing of further detailed elevation information and the development and control of elevations of the Projects to be constructed under this Project.
- Provide any other necessary survey Project required to complete the design of the Project.
- Provide all survey notes for layout purposes.
- Submit plans to utility companies to obtain locations of all below and above ground utilities.
- Provide field survey and obtain accurate field ties to all utilities which have been located in field by utility companies.
- The field survey must also confirm the invert elevations of all surface features, culverts, bridges, creek beds, etc., which may affect the design of the Project.

2. All surveys shall be carried out with UTM, NAD83 datum.

3.7 PLANNING AND SCHEDULING

3.7.1 Purpose

1. The purpose of the schedules and reports mandated in this section is to:

- Ensure adequate planning and execution of the Project by the Design/ Builder
- Establish the standard against which satisfactory completion of the Project will be judged
- Assist the Owner's Representative in monitoring progress
- Assess the impact of changes to the Project.

2. The Proponent has the obligation and responsibility at all times to plan and monitor all of its activities, anticipating and scheduling its staff, materials, plant and Project methods in a manner that is likely to ensure completion of the Project in accordance with the terms and conditions of the Contract and at a rate that will allow it to be completed on time.

3.7.2 Schedule Preparation and Submittal Requirements

1. The schedules required by this section shall take the form of time-scaled diagrams prepared using a computerized scheduling system, capable of producing resource-loaded Critical Path Method (CPM) schedules. Schedules shall be submitted to the Owner's Representative.
2. Within fifteen (15) business days after receiving the notice to proceed the Proponent shall provide the Owner's Representative with a detailed CPM schedule (the preliminary as-planned schedule), showing how the Proponent proposes to achieve interim milestones and complete the Project on time. This schedule will refine and amplify the Implementation Schedule provided as part of the Proponent's proposal, and must be acceptable in principle to the Owner. While the schedule need only represent the preliminary planning for the Construction, the scheduled activities and dates relating to the sixty (60%) percent and one hundred (100%) percent design submissions must be finalized at this stage.
3. The preliminary as-planned schedule shall cover all phases of the Project, and shall represent a practical plan to complete the Project, considering restrictions of access and availability of Project areas, and availability and use of labour, materials and equipment. The preliminary as-planned schedule shall show the sequence and interdependencies of design activities, Construction Document submittals and reviews, and material procurement.

3.8 Project Documentation and Reporting

3.8.1 Construction Photographs

1. The Proponent must ensure that a digital camera is available at the site for its own use. The Proponent is to take photographs of the various parts of the Construction on a regular basis and when problems or matters of particular interest or importance arise.
2. Copies of such photographs shall be retained on site until completion of the Project and should be identified with the following information:
 - Date when photograph was taken and by whom
 - Name of Project
 - Project number
 - Proponent's name
 - Location (including chainage in case of pipe laying)
 - Direction of view
 - Description
 - Proponent's photo file number (so that each photo may readily be identified).
3. Unless otherwise requested by the Owner's Representative, prints are to be approximately 115 mm x 90 mm in size and on glossy single-weight paper.
4. Matters of importance or interest are to be photographed, such as:
 - Faulty work

- Type of excavation
- Sheeting and shoring used
- Dewatering methods, condition of bottom of excavation
- Concrete formwork, reinforcement, waterstop and joint details
- Concealed pipe work, duct work
- Effectiveness of clean-up
- Damage to adjacent property
- Project on easements
- Completed structures.

5. A complete set of photographs properly identified shall be provided to the Owner, together with the Record drawings. Selected photographs are also to be included with the Monthly progress and Compliance Reports to be prepared and submitted by the Proponent.

3.8.2 Progress Reporting

1. Monthly progress reports shall be prepared by the Proponent and submitted to the Owner's Representative in four (4) copies, plus an electronic copy (in pdf format) to demonstrate how the Project is actually progressing and the planned and detailed sequencing of the Project at the time of the report. The monthly progress report shall be submitted prior to the issuing of the Monthly Progress Payment Certificate for the execution of the Project. Reporting shall continue until Total Performance of the Project. Each report shall include:

- An updated progress schedule, comparing actual and target progress,
- A schedule narrative, including:
 - Detailed descriptions of progress, including each stage of design, procurement, manufacture, delivery to site, construction, erection, testing and commissioning
 - A discussion of the basis for any Project sequencing, logic, interdependencies or original activity duration revisions incorporated into an updated progress schedule
 - Comparisons of actual and planned progress, with a brief commentary on any actual or forecast delays or problems that might have an impact on the completion, date of the Project, and a discussion of the measures being (or to be) adopted to overcome these.
- Charts showing the status of Construction Documents, permits and approvals, utility relocations, purchase orders, manufacturing/fabrication and construction.
- For the manufacture of each main item of plant and materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of commencement of manufacture, Proponent's inspections, tests and delivery.
- Progress photographs.
- Safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations.
-

2. The Proponent shall provide short interval "look ahead" schedules bi-weekly, identifying work that has been performed during the past two (2) weeks and activities that are planned for the next four(4) weeks. The short interval schedules shall be consistent with the progress schedule currently in force.

3.9 Project Meetings and Consultations

3.9.1 Permits and Approvals

1. The Proponent shall determine the nature of and requirements to obtain all permits and regulatory and other approvals required for any facilities proposed to be constructed by the Proponent, or which otherwise may be required, all in a timely fashion.

These approvals will include, but are not limited to, an environmental assessment under the Yukon Environmental and Socio-economic Assessment Act. Also, while there is a current Water Use Licence, issued by the Yukon Water Board, that licence will need to be amended or replaced as part of the approvals for this Project. The approval process is estimated to take between six (6) and eighteen (18) months.

2. In the event that an authority having jurisdiction requires a given approval, permit or certificate, required for the Project, to be applied for and obtained by the Owner, the Proponent shall provide all necessary assistance to the Owner, including assembling and providing all information, documents, and any other thing that may be required to enable the Owner to obtain the required approval, certificate or permit, and preparing associated application forms for signature by the Owner.

3.9.2 Design Review and Coordination Meetings

Throughout the design phase, design review meetings may be convened to apprise the Owner and the Owner's Representative of the progress of Project. These meetings will include review of design progress, the procurement of long lead-time equipment items, subcontract status, and forecast schedules. As a minimum, representatives of the Proponent, Owner's Representative and the Owner shall be in attendance. Separate meetings may be held for different elements of the Project.

The time, location and agenda for these meetings shall be determined at a later date. The Owner's Representative will record and distribute the minutes of such meetings no later than five (5) business days after the meeting.

The Proponent must also be prepared to participate in coordination meetings to discuss technical and schedule coordination issues associated with integrating the various elements of the Project. The time, location and agenda for these meetings shall be determined at a later date. At the discretion of the Owner's Representative, joint design review/coordination meetings may be held. The Owner's Representative shall record and distribute the minutes of such meetings no later than five (5) business days after the meeting.

3.9.3 Pre-construction Meeting

Prior to the date scheduled by the Proponent to mobilize for Construction, the Owner's Representative will arrange a pre-construction meeting to discuss and resolve administrative procedures and responsibilities. A minimum of five (5) business days notice will be provided.

3.9.4 Construction Progress Meetings

The Owner's Representative will schedule monthly progress meetings during the period of Construction, with a minimum of five (5) business days of notice. The Proponent, representatives of major subcontractors, and any of the Proponent's personnel (e.g., QA/QC Manager, Environmental Coordinator) specifically requested to participate are to be in attendance, together with the Owner and the Owner's Representative. The Owner's Representative will record and distribute the minutes of such meetings within five (5) business days after the meeting.

3.10 Environmental Protection

3.10.1 Environmental Protection Plan

The Proponent shall make all necessary arrangements to protect the environment and avoid all forms of pollution. At least thirty (30) days prior to commencing construction, the Proponent shall submit its detailed environmental protection plan to the Owner's Representative for review. The plan must describe in detail proposed mitigation measures for environmental impacts of construction and must address the emergency measures which will be implemented in case of an accidental pollutant spill, environmental incident, or fire. The plan shall comply with all necessary permits, licenses and other regulatory approvals and legal requirements.

The Contract price shall include all costs associated with environmental protection, monitoring, and follow-up.

3.10.2 Environmental Protection Coordinator

Provide the services of an Environmental Protection Coordinator, who will be responsible for all environment-related matters during Construction. The Environmental Protection Coordinator's duties will encompass but not limited to the following:

1. Ensuring that all of the Proponent's activities are carried out in compliance with the applicable laws, regulations and codes.
2. Distributing all relevant environmental protection information to Proponent and Subcontractor personnel.
3. Obtaining and complying with the necessary approvals, authorization or permits for all installations from government departments and other agencies responsible for environmental protection and send copies of the Owner's Representative before the installations are begun as specified in Part 3, Section 3.9.1. This includes all necessary assistance to the Owner, including assembling and providing all information, documents, and any other thing that may be required to

enable the Owner to obtain the required approval, certificate or permit, and preparing associated application forms for signature by the Owner or Dawson City.

4. Filing with the Owner's Representative a copy of all correspondence between the Proponent and representatives of government departments and other agencies responsible for environmental protection, including event reports.

5. Informing the Owner's Representative in writing of the particular schedule for each river crossing, channelizing or other Project in designated sensitive areas.

6. Preparing and sending to the Owner's Representative status reports on the Proponent's environmental protection activities in conjunction with the Monthly Quality Review Reports.

7. Furnishing the Owner's Representative with sufficiently detailed plans of all site installations.

3.11 Closeout Procedures

Prior to applying for a certificate of Substantial Performance pursuant to the Contract, the Proponent, in conjunction with the Design Professionals and key Subcontractors, shall thoroughly inspect the Project and shall document the results of this inspection in a comprehensive list of items remaining to be completed or corrected. The Proponent shall attend to those items that can reasonably be completed and shall notify the Owner's Representative that, in its opinion, the Project has been substantially performed.

The Proponent shall arrange for a joint inspection of the Project by the Proponent, key Subcontractors, the Design Professionals and the Owner's Representative to review and agree upon the list of outstanding items prepared by the Proponent, within the period permitted by the Owner. The Proponent shall promptly rectify any deficiencies that, in the opinion of the Owner's Representative, preclude the issuance of a certificate of Substantial Performance and shall request re-inspection of the Project.

The certificate shall include the following declarations:

- The Project has been substantially performed and has been inspected by the licensed design professionals, as appropriate for compliance with the Contract Documents.
- Deficiencies and defects have been identified and corrected, and the Project complies with the Contract Documents, except as explicitly noted in the certificate.
- Equipment and systems have been tested, adjusted and balanced are fully operational.
- All documentation required as a condition precedent to certification of Substantial Performance has been submitted to the Owners Representative
- Operation of systems has been demonstrated to the Owner's personnel.

The above-noted inspection and certification procedures will be repeated prior to the issuance of a certificate of Total Performance of the Project, except that all outstanding deficiencies and defects must have been corrected, and the certificate of the Proponent must be issued without any

qualification whatsoever.

3.12 Quality Control and Quality Assurance

3.12.1 Purpose

This sub-section describes the minimum requirements for the Proponent's overall Quality Program, including Quality Assurance and Quality Control procedures that shall be implemented during the permitting, design, construction, and operations phases of the Project.

3.12.2 Quality Objectives

The Proponent's overall Quality Program, including Quality Assurance and Quality Control, shall be consistent with and support the overall quality objectives established by the Owner. The objectives of the Owner are to:

- Ensure that the permitting, design, construction, planning, start-up, testing, commissioning, and operation of the Project are consistent with the Contract Agreements, meet the overall Performance Requirements for the Project, and define and meet other quality expectations for all phases of the Project.
- Provide for a high-level of workmanship consistent with the cost-effectiveness goals of the Project.
- Integrate and coordinate permit specialists and environmental scientists, designers, construction contractors and operators into all review phases of the Project.
- Develop systems to assure that problems are discovered early, corrected adequately, and do not recur.
- Provide independent oversight equipped with adequate resources to assure that quality is not compromised by production goals.

3.12.3 Proponent's Quality Program Development Responsibilities

The development and implementation of the overall Quality Program shall be the responsibility of the Proponent. The Quality Program shall include detailed Quality Assurance and Quality Control programs for staffing and communication, training and other aspects as defined elsewhere in this sub-section.

The Proponent's Quality Program Development responsibilities shall include:

- Development of the overall Quality Program.
- Provision of adequate resources dedicated exclusively to the program's implementation. QA/QC staff must be independent of production staff and empowered to enforce the program's objectives, define quality expectations, independently verify quality, and investigate the causes of poor quality Project. It is expected that except for oversight roles, staffing of QA/QC functions shall not be provided in any way by the organizations being monitored.

- A clear definition and understanding of roles and responsibilities and quality standards among all parties working on the Project, including sub-contractors, to ensure quality standards are met.

The Proponent shall prepare and submit for the Owner's approval, a proposed final overall Quality Program for all phases, including detailed Quality Assurance/Quality Control (QA/QC) Procedures for the Project permitting and design within thirty (30) business days of the Contract Agreement Date.

The overall Quality Program submitted for approval shall be based on the Quality Program submitted by the Proponent during the proposal submission phase of the project. The QA/QC Programs for permitting and design shall address procedures for these phases, including sufficient information to define roles and responsibilities for firms and key individuals, design change protocols, submission procedures, inspection procedures, and systems to assure corrective action.

Thirty (30) business days prior to the expected Construction Start Date, the Proponent shall submit its draft expanded Construction QA/QC Program for the Owner's review.

This program shall show how quality will be managed for all construction activities. The Owner will have fifteen (15) business days to respond with questions and comments. A Final Construction QA/QC Program, including the Owner's comments shall be required and shall be a precondition to the start of construction activities.

Revisions and updates to the Proponent's Quality Program may be proposed as the Project progresses. Changes to the quality program shall require the Owner's written approval. These revisions and updates may occur in one or more iterations. Without exception, proposed revisions or updates shall be provided to the Owner no later than fifteen (15) business days before the start of Project to which the revision applies.

The Owner will complete its review and respond within fifteen (15) business days of receiving a proposed Quality Program change. The Proponent shall not initiate any of the Project for which the program change is in place until the reviewed and acceptable QA/QC Program change is in place.

3.12.4 Minimum Requirements for Proponent's Quality Program

The Proponent's working draft Quality Program and subsequent revisions shall include, at a minimum, the following information for each phase of the Project:

- The Proponent's overall quality approach, including QC and QA philosophy and approach for each phase and a discussion of methods that shall be used to assure that contracting and sub-contracting relationships shall support the Proponent's and the Owner's quality objectives.
- Minimum staffing and resource commitments for the QC and QA activities for each phase, including fully explained responsibilities and authorities.
- Organization charts for each phase showing the relationship and reporting plan for the QC manager, special inspectors, field engineers, design engineers, sub-contractors, the Owner and others. This shall include descriptions for the relationships of QC and QA staff to the monitored organizations performing the Project.

- Definition of design change process during construction describing the sequence of events to implement a design change and documentation of the design change.
- A description of the Proponent's process to identify, document, and reach concurrence on corrective action.
- Other QA and QC procedures and documentation requirements in detail.
- QA procedures, including procedures for routine and non-conformance.
- QA documentation and report requirements in detail.

3.12.5 Permitting QA/QC Program

The Permitting QA/QC Program shall, at minimum, address the following:

- Roles and responsibilities for permitting.
- Documentation of assumptions.
- Standards and methods to be used.
- Procedures for communicating permitting-related information and design constraints to the design engineer, Owners Representative and the Owner.
- Procedures for ensuring that permit requirements are incorporated into design and construction documents and for verifying compliance during construction and operation.

3.12.6 Design QA/QC Program

The Design QA/QC Program shall identify the roles, responsibilities, and procedures necessary to ensure that design quality is maintained during the development, review, and approval processes.

Controls shall be established to coordinate design development activities.

Coordination shall include all internal and external parties involved in the design development and review process, including inter-disciplinary reviews, and the verification process used to ensure that changes are clearly and consistently shown on all affected design documents. Methods shall be incorporated to ensure that all design issues and reviewer comments are identified and tracked, until they have been addressed and/or incorporated into the design.

Measures shall be taken to ensure that designs are not released to construction until authorized and approved by the Owner and the Owner's Representative.

Design documents shall clearly show detailed quality requirements such as:

- Construction tolerances, requirements from codes and standards which are to be followed during construction, equipment model numbers, ASTM material requirements, and any test reports or certifications specified or required from the manufacturers.

3.12.7 Construction QAIQC Program

The Proponent shall be responsible for controlling the quality of all Project, including Project of its sub-contractors and suppliers, and for ensuring that the required quality is achieved. The Construction QA/QC program shall describe the approach to on-site quality, off-site quality, the Construction QA/QC organization, and the methods and procedures used to assure that quality is achieved during all stages of construction, testing and operation. A QA/QC Project Plan shall be developed to detail the QA/QC submittals for construction. Procedures shall clearly define QA/QC activities, including responsible parties, roles, responsibility, and Project products ensuring that the Project is constructed as specified and required. The Construction QA/QC Program shall include a QA/QC Project Plan that details the QA/QC submittals for construction. These requirements shall be written with sufficient clarity to allow the Owner to verify that the Construction QA/QC Program is being fully implemented, all work is inspected, and that all deficiencies are being identified and resolved.

The Construction QA/QC Program shall include the details of the Proponent's Construction Quality Control Program (CQCP). Instructions for performing inspections must be clearly defined, including: the Project attributes to be inspected, the acceptance criteria, frequency of inspections, and the requirements for documenting the inspection results. Inspection records must be kept current, and have sufficient detail to enable the Owner's Representative to identify inspections which have been performed, and the results of these inspections. Inspections must be made by the Proponents QA/QC staff throughout the construction process including the initial construction, in-process inspections, final inspections, and testing during construction.

The CQCP shall show methods to be implemented to identify and track all unsatisfactory, deviating, and non-conforming Project until the required repair, rework, or replacement is performed, and the Project has been re-inspected and accepted. The CQCP shall detail the means and methods for identifying and correcting all construction deficiencies such that construction quality meets the requirements of the Contract and the approved design. The Owner shall be informed of all unsatisfactory and non-conforming conditions, and the Proponent's plan for corrective action.

The CQCP Program shall assure the quality of all material and equipment. Procedures shall be used to verify that the procurement documents meet all design requirements, and that quality has been controlled during the manufacture and testing of all major or critical equipment, which is being fabricated specifically for the Project. The CQCP Program shall require receipt inspection of all material and equipment to ensure that it meets all design requirements. Documentation such as material test reports, certifications, and equipment test results must be received to demonstrate compliance with the approved design. The CQCP Program shall include monitoring procedures to ensure that material and equipment is being stored and maintained according to requirements of the designer, and the manufacturer.

Controls shall be provided to ensure that inspections are being performed using the latest approved design documents and shop drawings. Procedures shall ensure that an adequate number of

inspection personnel are available at all times, and that all inspectors are qualified, trained, and proficient in performing inspections for the Project to which they are assigned.

The Proponent shall provide full-time construction over-sight and full and comprehensive construction administration for the Project. Construction inspectors, who shall be provided with the latest designs released to construction, shall perform initial verification of procurement and construction activities, so that any conflict shall be identified at an early stage.

The Proponent shall perform all testing and inspections as required by the Contract Agreement, approved design documents, codes, regulations, and standards which may be referenced in various sections of the Specifications. If there are any conflicts in the testing requirements between the Contract Agreement and the Design Documents, and recommendations or requirements shown by codes, regulations, or standards, the more stringent testing requirements shall apply as determined by the Owner.

All testing shall be performed by individuals who are qualified and experienced in providing these testing services. Equipment used to perform tests shall be of the stipulated type and model, and shall have been calibrated according to requirements in the testing procedure. The Proponent shall hire a Certified Independent Testing Laboratory to perform all laboratory testing. Lab tests include: the propose concrete mix design, concrete aggregate tests, strength of the concrete field test cylinders, gradation and moisture density relationship of soils.

The Certified Testing Laboratory(s) must also perform on-site tests that the Proponent is not experienced, qualified, or certified to perform. On-site tests include: concrete slump, concrete air entrainment, concrete temperature, casting of concrete test cylinder specimens, in-place testing of concrete strength, compaction of density testing of soils, coating thickness measurements, structural bolting torque, etc.

3.13 Acceptance Testing

3.13.1 Purpose

The purpose of the acceptance testing is to demonstrate that the WWTP and all related components meet all performance requirements set forth in the Contract Agreement. The Proponent is responsible for all aspects of operating the WWTP until the release of the Acceptance Testing Holdback at the end of the twelve (12) month Acceptance Testing period. The Acceptance Testing period shall commence on the date of Substantial Completion.

3.13.2 Acceptance Tests

3.13.2.1 General

Main components to the Acceptance Tests:

1. Evaluation of the ability to convey all wastewater and sludges / solids through the WWTP and the related components for a period of twelve (12) months and
2. Determination of the ability of the WWTP to reliably produce Treated Effluent that meets the required Effluent Quality for a continuous period of twelve (12 months).

At least thirty (30) business days prior to the scheduled start of Acceptance Tests, the Proponent shall submit to the Owner the first draft of a detailed Acceptance Test Plan defining the test program as related to each specified objective. The acceptance Test Plan shall define:

- Testing Procedures to be used
- Documentation System and tracking status of equipment and systems
- Specific measurements to be made, including calibration methods (All testing done in house will be in accordance with the latest edition of “Standard Methods for the Examination of Water and Wastewater”.)
- Proposed usage of permanent and temporary instrumentation
- Organization of the test team including responsibilities, authority, and decision making protocols
- Response to procedures for unsuccessful test results including definition of threshold results that constitute overall Acceptance
- Tests failure
- Internal and external communications periods
- Contingency plans for equipment failures, process upsets, unsatisfactory test results, and unanticipated interruptions
- Testing schedule
- Operating and maintenance schedule during testing.

The Acceptance Test Plan shall include specific, detailed sampling protocols to be utilized conducting the Acceptance Tests. Preliminary tests may be conducted at the Proponent’s expense; however, the results of such tests shall not be made part of the Acceptance Tests Reports. The Acceptance Tests shall not be conducted until Acceptance Tests Plans are approved, and authorization is received from the Owner. The Acceptance Tests Plan shall address the Proponent's approach and details for the meeting all systems test requirements. The Owner shall comment on, or approve the Acceptance Tests Plan within ten (10) business days of receipt. However, the Acceptance Tests Plan shall not be considered complete and approved until all the Owner's comments are resolved. The Owner's approval shall not be unreasonably withheld provided that the Proponent makes every effort to provide expeditious response to all comments. A final working draft of the Acceptance Test Plan shall be completed and distributed no later than fifteen (15) business days prior to the scheduled start of the Acceptance Tests.

All labour, materials, consumables, equipment and services necessary to perform the Acceptance

Tests for the WWTP and Related Components shall be supplied by the Proponent.

3.13.3 Acceptance Test Monitoring

During the Acceptance Tests, the treated effluent shall be regularly monitored and sampled by the Proponent for specified key parameters in order to evaluate the performance of the WWTP. The minimum frequency of testing is outlined below in Table 3.13. The samples taken shall be analyzed by a certified, independent laboratory agreed to by the Proponent, the Owner's Representative and the Owner, using laboratory analytical quality control standard procedures. With the exception of flow, all analyses shall be conducted using a daily composite sample.

Table 3.13

Parameter	Testing Frequency
BOD	Once per week
TSS	Once per week
Oil and Grease (total and mineral)	Twice per month
pH	Daily
Flow	Daily totalized flow
Fecal Coliform	Once per week
Toxicity	Once per month

3.13.4 Testing and Reporting Requirements

The Proponent shall staff the entire treatment plant (in parallel with the Dawson City operations staff) and the related components according to the Contract Agreement during the Acceptance Tests.

The new WWTP will be deemed to have passed the Acceptance Tests if the results for each parameter comply with the Proponent's Performance Guarantees, and the manual and automatic shutdown and start-up tests and transfer to standby power supply are completed successfully. The Proponent shall submit to the Owner, three (3) copies of written Acceptance Test Reports within ten (10) business days following the conclusion of each monthly set of Acceptance Test results.

The Acceptance Tests Plan, as approved by the Owner, shall specify the contents of such Acceptance Tests Reports, including, but not limited to:

1. A certification that testing was conducted in accordance with the approved Acceptance Tests Plan.
2. A certification of the results of the testing, including a determination of the extent to which the plant and the related components comply with the applicable performance standards and requirements.
3. All data measured and recorded during the tests.
4. All calculations used in determining test results.
5. Any other data reasonably requested by the Owner to be included in such reports.

3.13.5 Retesting

Shall an Acceptance Test prove unsatisfactory, then the Proponent must do what is necessary and make corrective actions before repeating that specific Acceptance Test. All unsatisfactory test results will result in repeated testing at the Proponent's expense.

If regulators require that the City of Dawson continue to conduct independent checks as part of their mutual agreements during the Acceptance Testing period, and if those test results conflict with the test results of the Proponent, the Owner will pay for and undertake an independent review of both sets of results. The Proponent shall cooperate with this review and shall be bound by its results.

3.14 Warranties and Process Guarantees

3.14.1 Warranties

The warranty period for all equipment and systems supplied and installed under the design-build phase of the Contract shall be twenty-four (24) months following completion of the twelve (12) month acceptance testing period.

3.14.2 Process Performance Guarantee

The proponent is required to provide a Process Performance Guarantee for the twelve (12) month Acceptance Testing period and twenty-four (24) month warranty period. This guarantee shall include clauses relative to achieving the effluent quality criteria set for the Project. This Process Performance Guarantee must be included in the proponent's proposal and shall become in its final form, part of the Contract Agreement for the Project in the case of the Preferred Proponent.

PART 4

PROPOSAL FORMAT AND CONTENT

4.1 GENERAL

Proposals should be submitted in the format set out in Part 4. In the 2 envelope process the Proponent is required to submit the price, or Financial Proposal on the form provided in Appendix D of this RFP. Proponents are reminded that most courier services to Whitehorse offer a minimum service time of two full business days or more. Delivery of proposals prior to the proposal closing time is the sole responsibility of the Proponent.

To facilitate the evaluation of a proposal relative to the other proposals, proponents are required to submit their proposals in the format outlined in this section. Proposals must be clear, concise and complete covering fully and in detail all requirements specified in this RFP.

All written information must be printed on letter sized paper, with a limited number of 11 x 17 folded sheets, submitted in a three ring binder.

Well documented design calculations shall be submitted in accordance with the proposal requirements. Proponents shall include the preliminary design drawings necessary to communicate the design intent for all components of the Project.

Design drawings are to be submitted in a reduced-sized format (11 x 17) and left unfolded. Bind drawings separately from the proposal narrative with a title sheet identifying them as "Technical Proposal - Appendix C: Conceptual Design Drawings" to the technical proposal. Include in the proposal a complete list of drawings necessary for design, construction, permitting and documentation of the Project. This list is to be provided on the Conceptual Design Drawing package with notations indicating which drawings are provided with the proposal. The drawing list will be reviewed to evaluate the Proponent's understanding of the owner's Requirements.

Proposals should use terminology consistent with the RFP Document to facilitate the use and incorporation of relevant sections as schedules to the executed Contract Document.

4.2 FORMAT

Each response should:

- 1) Be on single sided 8.5"x11" paper
- 2) Have text with 1.5 x spacing and 11 point or larger typeface
- 3) Include six (6) original and one electronic copy on CD, the original should be either unbound or in a three ring binder, with every page numbered.

Proposals are to be submitted in two clearly marked separate envelopes labelled as follows:

- Dawson City Wastewater Treatment Plant - Technical Proposal and Mandatory Requirements.
- Dawson City Wastewater Treatment Plant - Financial Proposal.

The Technical and Financial Proposals shall be arranged as follows:

4.3 TECHNICAL PROPOSAL AND MANDATORY ELEMENTS

The Technical Proposal and Mandatory Elements must provide the information requested. In order to facilitate the evaluation process, Proponents must adhere to the format presented and, in particular, the section numbering.

No price information is to be shown in the Technical Proposal and Mandatory Elements.

Technical Proposal and Mandatory Elements Outline

Title Page
Covering Letter
Mandatory Requirements

- 1) An authorized representative of the Proponent must complete the mandatory site visit on the stipulated time and date indicated in the Contract documents
- 2) The Proponent must submit their complete Proposal within the stipulated closing time for the proposals, and at the stipulated location indicated in the Contract documents
- 3) The Proponent must submit the appropriate forms in their Proposal that contain the signature of an authorized officer of the Proponent
- 4) Six (6) hard copies of the Proposal and one (1) electronic copy on CD must be submitted.
- 5) The Document Submission deposit must be received with the RFP proposal as outlined in Part 1 Section 1.7
- 6.) The proposal must be in English and must not be sent by facsimile or e-mail.

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Executive Summary

Section 1 -Proponent Organization
1.1 General Information and Description of Proponent
1.2 Key Personnel

Appendix A - Supplementary Corporate Literature (if applicable)
Appendix B - Supplementary CV's for Key Personnel (if applicable)

Section 2 - Wastewater Treatment Plant Design and Construction Concept

- 2.1 Code Analysis
- 2.2 Site Development
- 2.3 Architectural
- 2.4 Structural
- 2.5 Process Design
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- 2.13 System Reliability and Redundancy
- 2.14 Project Sustainability
- 2.15 Future Requirements
- 2.16 Equipment Selection
- 2.17 Permits and Approvals
- 2.18 Service Areas

Appendix C - Conceptual Design Drawings (submitted under Separate Cover)

Appendix D - Process Design Calculations

Appendix E - Equipment List

Section 3 - Project Organization and Management

- 3.1 Project Organization
- 3.2 Project Plan and Construction Sequence
- 3.3 Implementation Schedule
- 3.4 Project Management and Controls
- 3.5 Safety Management
- 3.6 Communication Plan
- 3.7 Environmental Management and Planning
- 3.8 Commissioning, Training and Start-up
- 3.9 Quality Program

Section 4 - Relative Annual Operating Cost Estimates

- 4.1 Relative Annual Operating Cost Estimates
- 4.2 Mechanical Equipment
- 4.3 Electrical and Instrumentation Equipment
- 4.4 Consumables

Section 5 Long Term Maintenance

Appendix F - Annual Operating & Maintenance Costs

Appendix G- Electrical Costs Sensitivity Analysis

Note: Appendices are to be provided at the end of the technical proposal.

Technical Proposal Content

The following outlines the minimum content requirements to be addressed in each section. Additional content and materials may be added, as deemed appropriate by the Proponent.

Introductory Material

Title Page

Provide a title page clearly marked Dawson City Wastewater Treatment Plant Design/Build /"Technical Proposal and Mandatory Requirements". The title page must clearly show the Proponent Name, and in case of a Partnership, the name of each Partnership Member.

Covering Letter

Provide a brief covering letter introducing the Proponent with a concise statement that the proponent has read and understood the requirements of the RFP and the proposal fully conforms with the requirements of the RFP.

Table of Contents

Mandatory Requirements

- 1) An authorized representative of the Proponent must complete the mandatory site visit on the stipulated time and date indicated in the Contract documents
- 2) The Proponent must submit their complete Proposal within the stipulated closing time for the proposals, and at the stipulated location indicated in the Contract documents
- 3) The Proponent must submit the appropriate forms in their Proposal that contain the signature of an authorized officer of the Proponent
- 4) Six (6) hard copies of the Proposal and one (1) electronic copy on CD must be submitted.
- 5) The Document Submission deposit must be received with the RFP proposal as outlined in Part 1 Section 1.7

The Proposal must be accompanied by a certified cheque, bank draft or irrevocable letter of credit issued by a reputable financial institution payable to the Owner in the amount of \$ 150,000; alternately, a bond issued by insurers or surety firms licensed in Yukon will be accepted as per the terms and conditions of the tender documents. The submission deposit is required as security to ensure that, should the proposal be accepted, the Proponent will execute the Contract and provide the requisite bonds, proof of insurance, and all other documents required by the Owner in connection with the Contract. The Document Submission Deposit will be refunded in its entirety upon award and execution of the Design Build agreement.

6.) The proposal must be in English and must not be sent by facsimile or e-mail.

Section 1 Proponent Organization

Confirm the information provided in the Proponent's Request for Qualifications (RFQ) Submissions regarding the Project Team and Organization. Any changes from the original RFQ submission must be clearly documented.

Proponents are reminded that, in response to the RFQ, they understand and agree that consent of the Owner is required for any changes to the Key Member Firms, Project Organization and key personnel assignments.

1.1 General Information and Description of Proponent

Identify all Corporate Team Members for the Project. If new Corporate Team Members are introduced, Proponents may submit additional Corporate Literature for those NEW firms only in Appendix A of the Proposal.

Briefly describe the roles, responsibilities and authority of each Corporate Team Member as they specifically relate to the Project as well as the legal relationship within the team. Highlight any changes to the information provided in the RFQ with respect to the assigned roles and responsibilities of the team members.

1.2 Key Personnel

Provide a list of key personnel for the Project. Clearly indicate changes from the RFQ submission. Submit 3 page CV's for personnel not previously identified in the RFQ submission and note whether any personnel on the team are LEED accredited professionals .A detailed Project team organization chart must be included in the proposal clearly identifying the Team member responsible for the Project in each phase of the Project design and construction, including but not limited to:

- Project Team Coordination
 - Principal in Charge

- Design
 - Principal in Charge
 - Design Team Manager
 - Lead Process Design Engineer and other Process Designers
 - Process Mechanical Design Engineer
 - Structural Design Engineer
 - Architect
 - Mechanical/Building Services Design Engineer
 - Civil Engineer
 - Outfall Design Engineer

- Electrical Design Engineer
 - Instrumentation and Controls Design Engineer
 - Specialist Advisors and Design Reviewers
 - Quality Controller
 - Environmental Protection Coordinator
- Construction
 - Principal in Charge
 - Project Construction Manager/Engineer
 - Construction Superintendent
 - Construction Surveyor
 - Material Testing Engineer
 - Construction Inspector
 - Contract Administrator
 - Safety Officer
 - Environmental Protection Coordinator

Proponents must have designated professional engineers registered with the Association of Professional Engineers of the Yukon Territory for each of the major technical components, for example, process, electrical, mechanical, and civil.

Section 2 Wastewater Treatment Plant Design and Construction Concept

In this Section, address the technical requirements of the Project and outline the Proponent's approach and methodology for carrying out the Project. Describe the key features of the proposed design, including the general form and relationship of major elements, facilities and systems.

Demonstrate to the Owner that a design and construction program has been developed that meets the Owner's requirements in all respects, that can be implemented within the designated time frame and that has suitable long-term operational and maintenance characteristics. Provide sufficient detail such that the evaluation committee can fully understand the design and construction approach for each element and can readily assess compliance with the Owner's requirements.

Provide design drawings in a separate cover as noted elsewhere.

2.1 Code Analysis

Provide a preliminary code analysis addressing as a minimum:

- building classification
- occupancy requirements
- fire separations
- building size and construction relative to occupancy
- safety requirements within floor areas
- requirements for exits
- environmental requirements
- spatial separations
- hazardous area classifications (as defined under the Canadian Electrical Code)

2.2 Site Development

Provide a site plan showing the location of above ground and below ground structures, buildings, access, parking, pedestrian surfaces, landscaping features, site lighting, fencing and electrical service. Clearly indicate the overall site area needed to be developed for the facility.

Provide a description on how the following will be addressed:

- landscaping
- tree protection
- site grading
- roof drainage
- storm drainage
- yard piping
- vehicle and truck access and parking, including proposed pavement subbase types
- electrical service
- site lighting

2.3 Architectural

1. Provide floor plans for all floors. These floor plans shall reflect the following:

- The layout of each and every function, including circulation within each functional area to accurately depict the gross area for each function.
- Circulation between functional areas.
- Exiting.
- Clear dimensions for spaces where building structure or installed equipment will encroach into the space.
- Fire separation and fire walls.

2. Provide drawings showing building sections showing minimum height and width clearances to all structure, mechanical equipment, lighting, overhangs, and floor to floor heights.

3. Provide complete elevations of all four sides of buildings.

4. Provide a brief description of the exterior wall systems, including types of construction, insulation levels, exterior cladding, interior finishes, air/vapour barrier and liner panels.

5. Provide a brief description of roofing, insulation types and level, air/vapour barrier and thermal barrier.

6. Provide a brief description of door and window types and finishes, including design criteria, framing, insulation, glazing and associated hardware.

7. Provide a brief description of stair construction including material, type and finishes of stairs required.

8. Provide a brief description of specialty products and equipment. This description is to include type, operation, dimensions, capacity and construction.

9. Provide a description of all finishes to be used for floors, walls, roofs, and miscellaneous metals.

2.4 Structural

1. Provide a description of the building foundations with pertinent details and requirements including reinforced concrete foundation walls, piles or footings, or other devices if required, and reinforced concrete slabs on grade.

2. Provide a description of tankage foundation, walls and roof structures with pertinent details and requirements including reinforced concrete foundation walls, or footings, soil anchors, or other devices, if required, reinforced concrete slabs on grade, reinforced or precast concrete columns and beams, reinforced or precast concrete roof slab and roof membrane, concrete joint details for expansion and construction joints, and construction and quality control features to be used to ensure a watertight structure is achieved.

3. Provide a description of types of floor framing proposed to be used in the various buildings.

4. Provide a description of type of wall framing with pertinent details including lateral load resisting system proposed to be used.

5. Provide a description of type of roof framing to be used.

6. Indicate design criteria, including:

- Roof design snow, rain, soil, mechanical and electrical equipment loads including piping.
- Wind and seismic design loads.
- Floor design live loads.
- Deflection limits.
- Hoist/crane loadings.

7. Indicate design parameters, materials and material strength used.

8. Provide a plan to show column layout and outlines of roof framing system.

2.5 Process Design

Provide a general description of the wastewater treatment process. Specifically provide clear descriptions on each unit process as applicable to the WWTP design. In particular:

- Influent pumping
- Influent screening
- Grit and scum removal
- Biological treatment
- Sludge pumping
- Biosolids dewater and storage
- Effluent disinfection
- Effluent disposal

Provide general layout drawings including preliminary piping arrangements. Include process and instrumentation diagrams and flow schematics clearly illustrating all commodities, including pipe and valves sizes.

Provide detailed and well documented design calculations taking into account the performance requirements for the treatment plant. Include in the design calculations a mass balance for the treatment plant for the design requirements. Provide descriptions of the proposed design to describe each process element design and key operating parameters.

Provide a hydraulic profile of the wastewater treatment plant under average and peak design flows.

Provide a description of the proposed operation and control strategy for the entire plant and for each unit process. Describe manual and automatic operations and details of proposed instrumentation and monitoring.

Clearly describe how major maintenance of critical components of the plant are intended to be serviced over the life of the WWTP without affecting overall plant performance. Clearly identify those elements that are critical, their cost in 2008 dollars and the expected frequency and duration of process shutdowns. In Part 4, section 5, Long Term Maintenance, there is a table that the Proponent shall use to present this list. Non-critical items shall also be listed."

2.6 Building Mechanical

In this section, describe the mechanical systems to be incorporated into the treatment plant.

1. A brief description of proposed heating and cooling system for all facilities, including system types and sizes, and system output and distribution.
2. A brief description of proposed ventilation system including ventilation unit type(s) and sizes, and miscellaneous exhausts for individual areas and their sizes.
3. A brief description of types of equipment and materials, level of quality and distribution system including basins, WCs, urinals, sinks, fixtures, domestic hot and cold water, and hose stations.
4. A brief description of sanitary and storm water drainage system, including building roof drainage.
5. A description of fire/smoke protection systems proposed for use in meeting performance specification. This description shall include extinguishing systems, and fire separations and fire stopping.
6. A description of proposed controls system, including control system type(s) and supplier(s), operation, and software (if applicable).
7. A statement with respect to proposed design solution addressing thermal insulation of mechanical systems, and acoustics and vibration isolation.

8. A drawing showing size of mechanical room/equipment relative to the rest of the facility, and any additional mechanical room or spaces required, including proposed vertical duct shafts.
9. Plans and section drawings showing location, size and height of all equipment and materials protruding above roof, including air handling units, make-up air units, exhaust and outside air hoods, and chimneys. Sections to indicate distance from edges of roof and distance from windows and openings.
10. Present the design approach to facilitate ease of removal, repair, or replacement of key mechanical components.

2.7 Electrical

Provide a description of the electrical installations for the treatment plant. The description is to include:

1. General description of the proposed main electrical service including the proposed routing of the service and the location of the transformer.
2. Provide an electrical load list for current requirements. Include a single line diagram showing the current requirements for the treatment plant, generator integration, metering and protection.
3. Provide a general description of the power distribution on the plant. The description is to describe electrical room requirements, motor control centre, 600 V feeders, transformers (600 V - 120/208 V), distribution panels, breakers, conductors and moisture protection.

Provide a description of the coordination of suppliers and manufacturers and how ALL the motor control equipment will be included and standardized within the MCC.

Provide a description of the coordination of suppliers and manufacturers to minimize the use of local control panels for packages. Where local control panels are used indicate their specific requirement, location, and function.

4. Provide a general description of the proposed grounding and lightning protection.
5. Provide a general description of the lighting systems and controls to be provided at the plant; include interior areas, exit lights, emergency lights, and exterior lighting.
6. Describe general principles of the design for wiring methods and equipment.
7. Provide the hazardous area classifications for the various areas within the treatment plant.
8. Provide a general description of the standby power system for the treatment plant. Provide a general layout drawing and associated auxiliary equipment showing spatial requirements and clearances around equipment. Provide a description on how the following will be addressed:
 - ventilation requirements for cooling and combustion air.
 - fuel storage and supply, fuel spill prevention and control measures
 - engine/generator controls
 - generator grounding

- generator testing

9. Provide enough conduit capacity with telephone services to allow for future fibre optic cable.

2.8 Instrumentation and Controls

Provide a brief description of proposed field instrumentation and control systems, including the following:

1. Proposed field instrument types for each application including proposed manufacturers.
2. Proposed quantity and proposed locations of local control panels.
3. Brief description of the functionality proposed for each local control panel.
4. Description of components proposed for each control panel.
5. Control narrative, instrumentation list and list of PO's (inputs/ outputs).
6. Proposed Main Control Panel and SCADA System including control system architecture, description of alarm handling protocol, data storage, data retrieval, and reporting capabilities, and functionality of the remote SCADA Project station with respect to database integrity, security, and logon/ logoff procedures.

2.9 Effluent Disposal

Provide a detailed description of the effluent disposal system for the new WWTP. Provide information on the pumping and piping for a connection into the existing effluent disposal piping system that originates from the "screening plant." Describe materials of construction, design of pumps, piping, appurtenances, and connection(s) to the existing effluent disposal piping system. Describe how pumping of the effluent from the new WWTP will be controlled to limit the flow and pressures to the levels in the existing effluent pumping system.

2.10 Residuals Storage and Removal

Provide a description of how residuals (screenings, grit, biosolids) generated at the treatment plant will be stored on site, size and type of bins, and how they would be removed from site based on the design.

2.11 Noise Control

Provide a detailed description of how noise from the new WWTP equipment will be mitigated through design to mitigate noise propagation outside of the station and noise propagation inside of the station.

2.12 Odour Control

Provide a detailed description of how odour from the following areas will be controlled:

- Influent pumping
- Headworks screening area
- Sludge dewatering facility
- Biosolids storage area
- Other areas where odour management is required to maintain the desired odour threshold at the property line.

2.13 System Reliability and Redundancy

Provide a description of the reliability of mechanical, electrical and control systems including redundancies in equipment and control systems.

2.14 Project Sustainability

Provide a summary of the sustainability design initiatives to be incorporated into the detailed design. Summary should include the design initiative taken and how this initiative is consistent with sustainable development goals of the community.

2.14.1 LEED –Leadership in Energy and Environmental Design

LEED certification is not a requirement but the Proponent is encouraged to consider initiatives in their design that support minimizing energy use and environmental impacts. Proponents that identify LEED accredited professionals as team members or that can demonstrate success with LEED certification on previous projects or tenure in green building and construction industry knowledge will be considered with favor.

2.15 Future Requirements

Septage Receiving

Considering the existing and future trucked liquid waste receiving from Dawson City provide a conceptual design and description of the future trucked liquid waste accepting facilities in the new WWTP. Outline the effects of trucked liquid waste disposal on the WWTP's effluent quality and quantity. Determine pre-treatment options and measures to minimize the impact on the plant effluent.

2.16 Equipment Selection

Provide a summary of all major equipment selected for the Project. In particular, key process equipment, heating and ventilation equipment, major electrical components (i.e.: soft start controllers, variable frequency drives, automatic transfer switch, standby power generator).

In the Financial Proposal, provide a detailed equipment list which includes the manufacturer, model, capacity, materials of construction, capacity, and other information required for the evaluation team to be able to evaluate the equipment selected by the proponent.

Include the following information, as a minimum, on named equipment. Where alternate suppliers are proposed, the Proponent shall provide the same information for the alternate equipment in its technical proposal.

- Manufacturer's performance data
- Operation information
- Manufacturer recommended installation procedures
- Maintenance information, and
- Catalogue cuts.

2.17 Permits and Approvals

Provide a description of the steps it will take to obtain all necessary approvals and permits including building permits. This section must also include a list of all the required approvals and permits, name of regulatory agency involved, documents required by regulatory agency, and time required to obtain approval or permit.

2.18 Service Areas

Provide as description of the Service Areas as set out in this RFP.

Section 3 -Project Organization and Management

3.1 Project Organization

Clearly describe the proposed Project organization and resource commitments, planning and scheduling of all Project phases, and the approach to and processes for managing and controlling various aspects of the Project. The purpose of this section is to satisfy the Owner that the Proponent has a clear understanding of the Design and Construction Requirements, and has in place the appropriate resources, organization, tools, and processes to satisfy its contractual obligations, duties, and responsibilities.

Describe the Proponent's organization at the functional level, including reporting relationships and proposed liaison with the Owner's Representative. in the, proponents are required to provide organization charts for the design, construction, and commissioning phases of the Project.

3.2 Project Plan and Construction Sequence

Describe the main activities that will be performed in each phase in order to fully implement and complete the Project, and must be coordinated and integrated with the Implementation Schedule.

The Project Plan must address the following, in the order shown:

1. Design phase
2. Procurement phase
3. Mobilization phase
4. Construction phase activities
5. Commissioning phase
6. Acceptance Testing Period
7. Warranty period

Steps to be undertaken within each of the above-noted phases must be described in sufficient detail to provide confidence that all the key activities and their predecessor/ successor

relationships, together with the staffing/ level of effort required to accomplish them, have been properly taken into account.

3.3 Implementation Schedule

The Proponent is required to provide an Implementation Schedule for the above-mentioned phases, in the same order as the Project Plan, that takes into account all of the constraints identified in this RFP.

Submit the schedule in the form of a time-scaled diagram showing the major activities required, their duration, sequence and relationships.

All major milestones, from Contract award through commissioning and start-up of operations, must be clearly depicted, including but not limited to the following:

1. Tentative Contract award date
2. Interim and complete design submissions
3. Owner's compliance reviews
4. Anticipated receipt of required approvals
5. Placement of orders for major materials and equipment
6. Commencement and completion of overall construction, as well as individual construction phases and stages
7. Proposed delivery dates for major components
8. Commissioning and start-up dates.

3.4 Project Management and Controls

Except as specifically provided, it is not the intent of the Owner to prescribe the specific Project management tools that must be used to control the Project. The proponent should demonstrate its general capabilities for following major management / control functions:

- Cost management
- Schedule and Project progress management
- Change management
- Safety management
- Environmental Management

3.5 Safety Management

Following award of the Contract, implement comprehensive construction safety and Project zone protection programs, based on proven systems and procedures.

Provide the following:

1. A statement of the Proponent's policy regarding safety
2. A description of the accountable organizational units with defined relationships, duties, responsibilities and authority

3. A summary of the instructions, procedures, and guidelines that will be put in place to ensure the safety of projectors and the public, including a system for promptly identifying and resolving safety issues.
4. Demonstrate an understanding of Yukon Occupational Health and Safety regulations

3.6 Communication Plan

Outline the approach to communicating with the Owner and the Owner's Representative

Outline the approach to communicating with property owners affected by the construction and dealing with complaints.

3.7 Environmental Management and Planning

Describe the strategy for meeting the Owner's requirements with regard to environmental matters, including but not limited to consideration of the following:

1. Compliance with federal, territorial and other applicable environmental legislation.
2. Compliance with EA requirements and commitments.
3. Determination of environmental considerations and sensitivities of the site and areas outside the site that may be impacted by the Project.
4. Acceptability of design and construction impacts, mitigation, and required compensation.
5. Obtaining and complying with the requirements of any external environmental approvals, permits, and agreements.
6. Integration of environmental elements into the remainder of the design and construction Project plan.
7. Environmental quality control and risk management during all Project phases.
8. Environmental reporting requirements.

3.8 Commissioning, Training and Start-up

The proposal should:

1. Provide a detailed description of intended commissioning, training, and start-up activities which will demonstrate capability to respond to requirements as contained in the Contract Documents.
2. Identify how critical components of the WWTP are intended to be operated, maintained and serviced over the life of the facility without affecting overall performance and quality of the effluent during expected frequency and duration of associated shutdowns.
3. Provide a detailed description of the proposed training to be provided to the Owner's operations personnel. Identify the Proponent's staff members to be resident in Dawson City during the 12 month Acceptance Testing.

3.9 Quality Program

As set out in this RFP.

Section 4 Relative Annual Operating Cost Estimates

4.1 Present the relative annual operating costs for the new WWTP, based on the average flow conditions.

Present the information as provided on Table 4-2. Appended to the proposal include detailed calculations and back-up for the calculated operating costs. Key parameters to be used for calculating the relative operating costs are included on Table 4-1:

Table 4-1
Key Parameters of Calculating Annual Operating Costs

Parameter	Unit Cost
Power Consumption (kWh)	\$0.105/kWh
Annual Demand Allowance (Installed kW)	\$6.00/ kW
Sludge Dewatering (Kg)	\$0.15/ Kg
Chemical and Consumables (Market Rates)	To be provided by Contractor
Water Consumption (m3)	\$0.53/m3
Fuel Consumption (litre)	\$1.20/litre

Table 4-2
Annual Relative Operating Costs Presentation

Design Year		Unit	Value Per Annum	Unit Price	Extension Per Annum
1	Headworks				
	Power	kWh		\$0.105	
	Installed kW	kW		\$6.00	
2	Secondary Treatment				
	Power	kWh		\$0.105	
	Installed kW	kW		\$6.00	
3	Disinfection				
	Power kWh	kWh		\$0.105	
	Installed kW	kW		\$6.00	
4	Sludge Dewatering				
	Biosolids	kg		\$0.15	

	Chemicals	lump sum	
	Power kWh	kWh	\$0.105
	Installed kW	kW	\$6.00
5	Building Systems (HVAC)		
	Power kWh	kWh	\$0.105
	Installed kW	kW	\$6.00
6	Odour Control		
	Power kWh	kWh	\$0.105
	Installed kW	kW	\$6.00
	Chemical/Consumables	lump sum	
7	Water Consumption	m3	\$0.53
8	Fuel Consumption	Litres	\$1.20

The purpose of the relative annual operating costs is not to establish budgets for operating the treatment plant but for a basis of comparing the operational components of the treatment plant on a comparable basis.

4.2 MECHANICAL EQUIPMENT

Provide a list of spare parts recommended by the manufacturer for all mechanical equipment installed at the treatment plant. The spare parts list is to include the following information:

- Equipment / Spare Parts Supplier /Part Description / Quantity / Unit Price.
- Unit prices for the spare parts shall remain valid until total completion is issued by the owner in accordance with the Contract.

4.3 ELECTRICAL AND INSTRUMENTATION EQUIPMENT

Provide a list of spare parts recommended by the manufacturer for all electrical and instrumentation equipment installed at the treatment plant. The spare parts list is to include the following information:

- Equipment / Spare Parts Supplier /Part Description / Quantity / Unit Price / Extension.
- Unit prices for the spare parts shall remain valid until total completion is issued by the owner in accordance with the Contract.

4.4 CONSUMABLES

Provide a list of all consumables to be used at the treatment plant. Consumables should include ventilation system filters, lubricants and fluids, etc. The consumable list is to include the following information:

- Equipment / Supplier /Material Part Description / Quantity / Unit Price / Extension.
- Unit prices for the spare parts shall remain valid until total completion is issued by the owner in accordance with the Contract.

NOTE: Do not include the price of spare parts in the Financial Proposal.

Section 5 Long Term Maintenance

Present the expected long term maintenance items and their anticipated cost, with the expected frequency and duration of shutdown where applicable.

Table 4-3 Anticipated additional plant costs above normal operation and maintenance cost (for example, equipment replacement)

Table 4-3

Interval	Item to be Maintained or Replaced	Frequency of Shutdown (If Applicable)	Duration of Shutdown (If Applicable)	Cost in 2008 Dollars
Years 1 to 5				
Years 5 to 10				
Years 10 to 15				
Years 15 to 20				

4.4 FINANCIAL PROPOSAL

Each Proponent is required to submit one financial proposal. The financial proposal must include one original of all of the forms and documents referred to below. The blank forms provided (Appendix D of this RFP) by the Owner are to be completed, without alteration, in ink or typewritten and signed in ink in accordance with the signing instructions noted on the form.

4.4.1 Financial Proposal Form

The Proponent must complete the Financial Proposal Form provided, carefully

observing the requirements for signatories indicated on the form.

4.4.2 Schedule of Prices

The Proponent must complete Schedule of Prices. The Total Proposal Price that appears on the corresponding Financial Proposal form will be the sum of the Proponent's lump sum prices shown in the Schedule of Prices.

4.4.3 Payment Forecast

The Proponent must estimate the value of monthly payment requests over the period of the Contract and enter these in the Payment Forecast.

NOTE: Spare Parts Proposal - Do not include the price of spare parts in the Financial Proposal. The Spare Parts Proposal should be included with the Relative Annual Operating Costs.

PART 5

EVALUATION SELECTION PROCESS

5.1 EVALUATION OF PROPOSALS

The Owner will evaluate all proposals received by the proposal Closing Time. The evaluation will be based on the Proponent's ability to meet the design and performance requirements of the RFP. The objective of the evaluation process is to determine the proposal that provides the best overall value to the Owner, in terms of both technical and financial aspects. Consequently, the Contract will not necessarily be awarded to the Proponent with the lowest price.

An evaluation committee will be formed to review and rank proposals in accordance with a pre-determined criteria, such that a Preferred Proponent may be recommended to the Yukon Government.

5.1.1 Mandatory Criteria

Proposals not clearly demonstrating that they meet the following mandatory criteria will be excluded from further consideration during the evaluation process.

Table 5.1

Mandatory Criteria
1) An authorized representative of the Proponent must complete the mandatory site visit on the stipulated time and date indicated in the Contract documents.
2) The Proponent must submit their complete Proposal within the stipulated closing time for the proposals, and at the stipulated location indicated in the Contract documents.
3) The Proponent must submit the appropriate forms in their Proposal that contain the signature of an authorized officer of the Proponent
4) Six (6) hard copies of the Proposal and one (1) electronic copy on CD must be submitted..,
5) The Document Submission deposit must be received with the RFP proposal as outlined in part 1.7
6) The proposal must be in English and must not be sent by facsimile or e-mail.

5.2 EVALUATION OF TECHNICAL PROPOSALS AND MANDATORY ELEMENTS

5.2.1. Mandatory Elements

Prior to the opening of the Financial Proposals, the evaluation committee will evaluate the Technical Proposals. At this time, the proposals will be screened to ensure the Mandatory Elements have been included with the proposal. Proposals that do not comply with the mandatory submission requirements will be disqualified at the sole discretion of the Owner.

5.2.2. Technical Submissions

Technical Proposals will be evaluated based on the criteria provided in Table 5.1. The Technical Proposal must conform in all respects with the Owner’s requirements outlined in the RFP Document.

Proponents must PASS all of the Mandatory Elements in order to advance in the proposal evaluation. Proponents that do not pass all of the Mandatory Elements shall be disqualified from competing in the Project. Proponents must achieve a minimum score of 65 % in the Technical Evaluation in order for their Financial Proposals to be considered. Proponents that do not meet the minimum score on the Technical Evaluation will be disqualified from competing in the Project, and have their financial proposals returned unopened along with their Document Submission Deposit.

Proponents must achieve a minimum score of 65% in the Technical Evaluation in order to qualify to receive the \$30,000 Honorarium. Proponents that do not achieve the minimum score of 65% will not receive the Honorarium.

Table 5.1 Technical Proposal Evaluation Criteria

Technical Proposal	Available Points
Proponent Organization	10
General Information and Description of Proponent Key Personnel	
Treatment Plant Design (See Part 2)	75
Code Analysis	
Site Development (Access, Landscaping, Security Lighting)	
Architectural	
Structural	
Process Design	
• Influent Processes (Pumping, Screening, Grit, Scum)	
• Biological Treatment Processes	
• Biosolids Processes (Pumping, Dewatering,)	
• Effluent Processes (Disinfection)	

- Building Mechanical (Climate Control, Plumbing, Fuel, Fire Protection)
- Electrical
- Electrical Instrumentation and Controls
- Effluent Disposal
- Residuals Storage and Removal
- Noise Control
- Odour Control
- System Reliability and Redundancy
- Project sustainability
- Future Requirements
- Equipment Selection
- Permits and Approvals
- Service Areas

Project Management (See Part 4) 15

- Project Plan
- Project Management and Controls
- Safety Management Plan
- Communications Plan
- Environmental Management Plan
- Permits and Approvals Plan
- Commissioning, and Training Plan

Total Score 100

Evaluation Notes:

Each element will be evaluated with respect to the requirements and specifications outlined in the RFP. Elements that are judged to meet the Owner requirements and specification will be graded at 70% of the points available. Proposal Elements and Solutions that exceed the Owner requirements will be granted additional points to a maximum of 100% of the points available. Similarly, Proposal Elements that may fall short of the requirements and specifications will be granted less points than the 70% available. General guidelines are as follows:

Superior Solution	80%-100%
Exceeds Performance Requirements	70% - 80%
Meets the Requirements of Specifications	70 %
Meets the Project Requirements with Minor Deficiencies	60%-70%
Deficiencies but Operationally Feasible	40%-60%
Fails to Meet Specified Performance	20%-40%
Unacceptable, or Information Not Provided	0%-20%

5.2.3. Relative Annual Operating Cost Estimates

Relative Operating Costs will be evaluated based on the information provided in the proposal. The Owner reserves the right to adjust the submitted costs based on an independent assessment of the costs provided. These adjusted costs will then be used in the final ranking process. The basis of the scoring for the relative costs is as follows:

$$\frac{\text{Price Proponent} - \text{Price Lowest}}{\text{Price Lowest}} \times \text{X Available Points}$$

Lowest price receives full available points

The spare parts proposed will be evaluated as part of Relative Annual Operating Costs. The evaluation will be based on the completeness of the spare parts proposal and relative costs. Any spare parts that are replaced less often than once per year shall be listed in Table 4.3 (Long Term Maintenance)

5.2.4 Long Term Maintenance

Present the expected long term maintenance items and their anticipated cost, with the expected frequency and duration of shutdown where applicable.

5.2.5. Communications and Interviews

The Owner reserves the right (without obligation to do so) to request clarification or additional information from any or all Proponents in order to clarify, confirm, or correct inconsistencies in the submitted material. All requests will be made in writing, and replies must be delivered to the Owner within three (3) business days of receipt, unless a shorter or longer time frame is specified by the Owner.

The Owner reserves the right to contact anyone it wishes to confirm any material received from the Proponent. Owner reserves the right in its sole and absolute discretion to incorporate information received from those inquiries into the evaluation of the Proponent's Proposal.

Clarifications, confirmations or corrections submitted will become part of the proposal.

During the evaluation period, one or all Proponent(s) may be interviewed to review their proposals with the Owner and respond to questions. Financial details will not be discussed.

Technical scores will be finalized after all additional requested information has been received and interviews completed. Financial Proposals will not be opened until all Technical Proposal evaluations are finalized.

Proponents will not be permitted to revise their Financial Proposals, if applicable, based on the clarifications provided to the Owner during the evaluation period. Proponents must be certain at the time of submitting their proposals that the proposals fully meet the requirements of the Contract Documents and are clear, concise and complete.

5.3 FINANCIAL PROPOSALS

Upon completion of the evaluation of Technical Proposals (and alternatives, if applicable), for proposals with technical scores that exceed the minimum requirements, the Financial Proposals will be opened. Financial Proposals that are not opened will be returned to the Proponent along with the Document Submission Deposit.

Upon confirmation that the Financial Proposals meet the requirements of the RFP, the Owner will assign price points to each proposal according to the following pre-determined formula:

$$\frac{\text{Price Proponent} - \text{Price Lowest}}{\text{Price Lowest}} \times \text{Available Points}$$

Lowest price receives full available points

Financial Proposals that do not meet the requirements of the RFP may be disqualified at the sole discretion of the Owner.

5.4 SELECTION OF THE PREFERRED PROPONENT

The final ranking of the proponents will be based on the sum of the Technical and Financial scores. Calculation of the final scores is provided on **Table 5-2**. The Proponent with the highest overall score will be identified as the Proponent offering the best value accordingly and will be recommended as the preferred Proponent. A minimum score of 65 is required in order to advance any further in the proposal evaluation. A Fail will not advance any further in the proposal evaluation.

Table 5-2

Mandatory Elements	Pass or Fail
Proposal Scoring	Available Points
Technical Proposal	100 (minimum score = 65)
Relative Operational Cost and Spare Parts Proposal	75
Long Term Maintenance Cost Proposal	25
Financial Proposal	50
Yukon Content	10
Total Available Points	260

In the event that two or more proponents have an overall score of within 3%, they will be deemed as tied. In the event of a tie, both proponent's proposals will be brought to the Yukon Government for direction based on the breakdown of the total score. In the event of a "tie", the selection of the preferred proponent will be at the sole discretion of the Owner.

5.5 NEGOTIATION AND AWARD

Upon selection of a preferred proponent, the Owner may, at its own discretion, commence negotiations with the Preferred Proponent to address any major issues or concerns identified by the Owner.

If negotiations are successfully completed with the Preferred Proponent a Contract the Owner and Proponent will execute the CCA-CSC-RAIC Document 14-2000 Design Build Stipulated Price Contract.

If negotiations with the preferred proponent are not successful, the Owner at its own discretion may terminate the negotiations and select the next highest rated proponent as the Preferred Proponent.

APPENDIX A

Glossary of Terms and Abbreviations

In this RFP:

Addenda or **Addendum** means each and every written document issued by the Contact Person for the purpose of amending or clarifying this RFP.

Authorized Signatory or **Authorized Signatories** of a Proponent means the person(s) or firm(s) having the authority to legally bind the Proponent.

BC Bid is a British Columbia-based procurement service that is providing consulting inputs and e-procurement capabilities to the Yukon Government.

Claim means any claim, demand, liability, damage, loss, suit, action or cause of action and all costs and expenses relating thereto.

Contact Person means the person designated by the Government on the Cover Page

“Contract” and **“Contract Agreement”** is the signed CCA-CSC-RAIC Document 14-2000 Design Build Stipulated Price Contract executed by the Owner and the selected Proponent.

Contractor means a Qualified Proponent who is the Preferred Proponent to an RFP who enters into a Contract with the Yukon Government.

Department means the Yukon Department of Highways and Public Projects.

Disqualification or **Disqualify** means exclusion of a submission by the Government from the Procurement Process

DR means Design Report

Evaluation Criteria means the criteria described in section 5.

Evaluation Committee shall include individuals representing the City of Dawson, the Yukon Government and may include individuals representing private sector.

Government means the Government of the Yukon as represented by the Minister of Highways and Public Works and any or all departments, ministries, agencies, boards, commissions, corporations or other entities thereof.

HPW means the Government of the Yukon’s Department of Highways and Public Works.

Pacific Time means the 8th time zone west of Greenwich that includes the Yukon.

Preferred Proponent means the person, corporation or partnership which is selected for negotiations with the Owner following evaluation of the Proposals

Prime Member means the lead company for the Proponent team.

Procurement Process means the overall process for selection of a Preferred Proponent for the Project including, but not limited to, the RFP.

Project means the design, build, and warrant operational costs for a mechanical waste water treatment facility in Dawson City.

Proponent means the person, corporation or partnership which participate in this RFP.....

Qualified Proponent means a Proponent possessing the qualifications described in this RFP.

Proponent's Representative means the person or firm, who is fully authorized to represent the Team Members in any and all matters related to its Response.

RFP means the request for proposals to be issued by the Government as part of the Procurement Process and includes any addenda thereto.

Response means the formal submission by a Proponent in response to this RFP that complies with the requirements of this RFP.

Submission Location means the location, as described in this RFP on the Cover Page at which Responses must be submitted before the Submission Time.

Submission Time means the time and date as described on the Cover Page or the submission of Responses after which no further Responses will be accepted.

Team Member means a individual as in a sole proprietorship, corporation, partnership, association, trust, pension fund and the heirs, beneficiaries, executors, legal representatives or administrators of an individual as the context requires, who is expected to have significant responsibility for implementation of the Project and who has agreed to participate as part of a Proponent.

Yukon Business means a business that meets two or more of the following criteria:

1. the business employs Yukon Residents;
2. the business owns, for purposes directly related to the operation of the business, real property in the Yukon;
3. the business operates a permanently staffed office, year-round in the Yukon;
4. the business is owned, or is a corporation that is owned, 50% or more by Yukon residents.

Yukon Resident means a person who has resided full time in the Yukon for a minimum of the immediately preceding three months. Except where otherwise provided in this directive, proof of residency for the required period will be a valid Yukon Health Care Insurance Plan card.

Abbreviations:

The following abbreviations will be used:

Unit	Abbreviation
Air Change	AC
A-Weighted Decibel	dBA
Cubic Metre	m ³
Day	d
Decibel	dB
Degrees Celsius	°C
Gram	g
Horsepower	hp
Hour	Hr
Input /Output	I/O
Kilonewton	kN
Kilopascal	kPa
Kilowatt	kW
Kilowatt-hour	kWh
Litre	L
Lux	lx
Metre	m
Milligram	mg
Millilitre	mL
Millimetre	mm
Most Probable Number	MPN
Second	s
Square Metre	m ² or sm
Volt	V

APPENDIX B

General Conditions

APPENDIX C

Supplementary General Conditions

This Appendix is used when changes or additions to the standard conditions are required. The Owner will have Supplementary General Conditions which will not be available at the time of issue of this RFP but the Owner will forward these Conditions upon their completion.

1. **CONFLICTS** Where a conflict exists between a General Condition clause and the Supplementary General Conditions, the Supplementary General Conditions will govern.

Any clauses in the General Conditions that do not apply to this specific Contract should be removed through a Supplementary General Condition (eg. General Condition #?? does not apply to this Contract).

When the standard Yukon Government Contract is used in conjunction with this document, and there is a conflict between the General Conditions of the Government Contract, and the General Conditions of this document, the General Conditions of this document will govern.

APPENDIX D

Financial Proposal Form

For the

DAWSON CITY
WASTEWATER TREATMENT PLANT

TO: Yukon Government

The undersigned Proponent, having carefully examined the RFP Documents and locality of the proposed Project, and having full knowledge of the Project required and of the materials to be furnished and used, hereby agrees to provide all necessary technical and professional services, materials, supervision, labour and equipment and perform and complete the Project and fulfill everything as set forth and in accordance with the RFP Documents and Addenda for the sum of:

Lump Sum Price:	¹ \$
Contingency Allowance: **	<u>\$ 150,000</u>
TOTAL PROPOSED PRICE: (excluding GST)	¹ \$ <u> </u>

** Payment of the Contingency Allowance or portions thereof will only be made in the event that the Owner's Representative authorizes it, in which case the amount of the payment will be determined as specified in the General Conditions. Any unused portion thereof will be retained by Owner.

The attachments to this Financial Proposal Form are part of the Proposal of the Proponent.

The undersigned Proponent also agrees:

1. That this proposal is irrevocable **for 120 days** after the closing date for receipt of proposals and that Owner may at any time within such period accept this Proposal whether any other Proposal has previously been accepted or not and whether notice of award of a contract has been given or not.
2. To deposit with the Owner a Performance Bond and a Labour and Material Payment Bond in the and mount forms required by the RFP and CCA-CSC-RAIC Document 14-2000 Design Build Stipulated Price Contract and to provide the Owner with the specified insurance endorsement certificates within ten (10) days of the date of the Notice of Award of the Contract, such time limit being extended only on the written approval of Owner.
3. That we have carefully examined the specifications and together with all other factors affecting the Project hereby propose to furnish the services in the manner called for in the specifications.
4. The Proponent represents that all statements made in response to the Request for Expressions of Interest previously delivered to the Owner (as amended in this submission) and in this proposal are true and correct as the date hereof. The Proponent hereby agrees that the Owner will not be responsible for any errors or omissions in this proposal.

¹ To be completed by the Bidder.

The Proponent warrants that it has full power and authority enter into, perform and execute the Contract on behalf of the Proponent.

For Individual or Partnership:

SIGNED, SEALED AND DELIVERED by

Print Name of Proponent's Authorized Signatory

Signature

Title

Proponent's Legal Name

Business Address

City/Prov/PC

Seal (if any)

For Limited Company:

SIGNED, SEALED AND DELIVERED by

Print Name of Proponent's Authorized Signatory

Signature

Title

Proponent's Legal Name

Business Address

City/Prov/PC

Seal (if any)

2. SUPPLEMENTS TO PROPOSAL FORM

The following supplements to proposal form are included with and form a part of our proposal. We understand that the information provided on these forms will be used by Owner during proposal analysis.

- Schedule of Prices

This proposal is executed under seal at _____
this _____ day of _____, 20__.

Name of Firm

Address

For Individual or Partnership:

SIGNED, SEALED AND DELIVERED by

Bidder (please print)

Signature

in the presence of:

Title

Name

Address

City/Prov/PC

Seal (if any)

Occupation

For Limited Company:

The Corporate Seal of

Bidder (please print)

was hereunto affixed in the presence of:

Seal (if any)

Authorized Signing Officer Title

Authorized Signing Officer Title

3. Supplement to Proposal Form

We certify that the following is an accurate and balanced breakdown of our proposal. Project required, but not specifically mentioned, is included in the item with which it is most closely associated.

Item Description	Lump Sum Price
2.1 Professional Services	
Detailed Design Services	\$ _____
Professional Services During Construction	\$ _____
Professional Services During Start Up and Commissioning	\$ _____
2.2 Construction Program	
1.0 General	
1.1 Mobilization/Demobilization	\$ _____
1.2 Start Up and Commissioning	\$ _____
1.3 O&M Manuals and Record Drawings	\$ _____
1.4 Acceptance Testing	\$ _____
2.0 Utilities and Site Servicing	

2.1 Sanitary Sewer Service	\$ _____
2.2 Water Service	\$ _____
3.0 Site Project	
3.1 Site Preparation	\$ _____
3.2 Site Grading	\$ _____
3.3 Access and Parking	\$ _____
3.4 Landscaping	\$ _____
3.5 Fencing	\$ _____
4.0 Civil/Structural	
4.1 Excavating, Trenching and Backfilling	\$ _____
4.2 Substructure	\$ _____
4.3 Superstructure	\$ _____
4.4 Insulation, Cladding and Roofing	\$ _____
4.5 Metals	\$ _____
4.6 Doors, Windows and Finishes	\$ _____
5.0 Process Mechanical	
5.1 Influent Pumping	\$ _____
5.2 Influent Screening and Grit Removal	\$ _____
5.3 Biological Treatment	\$ _____
5.4 Biosolids Dewatering	\$ _____
5.5 Sludge Storage and Handling	\$ _____
5.6 Effluent Disinfection	\$ _____
5.7 Effluent Pumping	\$ _____
5.8 Valves and Piping	\$ _____
6.0 Mechanical	
6.1 Heating and Ventilation	\$ _____
6.2 Plumbing	\$ _____
6.3 Acoustic Treatment	\$ _____

6.4	Odour Control	\$ _____
7.0	Electrical and Instrumentation	
7.1	MCC	\$ _____
7.2	PLC + Instruments and Control System	\$ _____
7.3	Wiring, Cabling and Lighting	\$ _____

APPENDIX E

Site Geotechnical Documents

Site Geotechnical documents will be provided to Proponents as part of the RFP package.

These documents are a set of Appendixes which are listed as:

- A Final Geotechnical Report New Secondary Sewage Treatment Plant
5TH Avenue Site, Dawson City, Y.T.**

- B Installation of Water Monitoring Wells New Secondary Sewage
Treatment Plant Dawson City, Y.T.**

- C Additional Geotechnical Information Structural Design of Buildings 5th Avenue
Site New Secondary Sewage Treatment Plant Dawson City, Y.T.**

APPENDIX F

Drawings

The following drawings will be made available to proponents with the RFP. Proponents are to ensure that all drawings listed are received as part of this RFP.

<u>Drawing Number</u>	<u>Description</u>
107000-C01 REV A	Location Plan
107000-C02 REV A	Site Plan
107000-P01 REV A	2008 Screening Plant Piping Upgrade
107000-P02 REV A	2008 Screening Plant Piping Upgrades
95011002.DWG	Plan Site Survey
Rem Parvel U-A-Model.pdf	Legal Plan
Twenty-one (21) Drawings in series 1060-8-4	Screening Plant As-builts

APPENDIX G

Heritage Considerations for Design and Construction in Dawson City

This Appendix includes a copy of the City of Dawson Zoning And Historical Control Bylaw 97-25 and

The Proponent is referred to the following link to the Design Guidelines for Historic Dawson

:

http://cityofdawson.com/download/Historic_Guidelines_Booklet.pdf