



THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 268-2015

**REQUEST FOR PROPOSAL FOR PROFESSIONAL CONSULTING SERVICES FOR WEST
END SEWAGE TREATMENT PLANT EFFLUENT MONITORING STATION**

Proposals shall be submitted to:

**The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 REQUEST FOR PROPOSAL FOR PROFESSIONAL CONSULTING SERVICES FOR WEST END SEWAGE TREATMENT PLANT EFFLUENT MONITORING STATION

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, June 18, 2015.

B2.2 Proposals determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Project Manager or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 The Project Manager or an authorized representative will conduct a Site Investigation tour at the proposed location for the WEWPCC Effluent Monitoring Station on June 2, 2015, at 10 AM prompt.

B3.1.1 Proponents are requested to meet at the reception area of the West End Sewage Treatment Plant located at 7740 Wilkes Avenue.

B3.1.2 Proponents are required to provide their own Personal Protective Equipment; at a minimum hard hat, safety footwear, and safety glasses.

B3.2 Although attendance at the Site Investigations is not mandatory, the City strongly suggests that Proponents attend.

B3.3 The Proponent shall not be entitled to rely on any information or interpretation received at the Site Investigation unless that information or interpretation is the Proponent's direct observation, or is provided by the Project Manager in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Project Manager identified in D2.

B4.2 If the Proponent finds errors, discrepancies or omissions in the Request for Proposal (RFP), or is unsure of the meaning or intent of any provision therein, the Proponent shall promptly notify the Project Manager of the error, discrepancy or omission at least five (5) Business Days prior to the Submission Deadline.

B4.3 If the Proponent is unsure of the meaning or intent of any provision therein, the Proponent should request clarification as to the meaning or intent prior to the Submission Deadline.

B4.4 Responses to enquiries which, in the sole judgment of the Project Manager, require a correction to or a clarification of the RFP will be provided by the Project Manager to all Proponents by issuing an addendum.

B4.5 Responses to enquiries which, in the sole judgment of the Project Manager, do not require a correction to or a clarification of the RFP will be provided by the Project Manager only to the Proponent who made the enquiry.

B4.6 All correspondence or contact by Proponents with the City in respect of this RFP must be directly and only with the City's Project Manager. Failure to restrict correspondence and contact to the Project Manager may result in the rejection of the Proponents Proposal Submission.

B4.7 The Proponent shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Project Manager in writing.

B5. CONFIDENTIALITY

B5.1 Information provided to a Proponent by the City or acquired by a Proponent by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Project Manager. The use and disclosure of the confidential information shall not apply to information which:

- (a) was known to the Proponent before receipt hereof; or
- (b) becomes publicly known other than through the Proponent; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Proponent shall not make any statement of fact or opinion regarding any aspect of the Request for Proposals to the media or any member of the public without the prior written authorization of the Project Manager.

B6. ADDENDA

B6.1 The Project Manager may, at any time prior to the Submission Deadline, issue Addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B6.2 The Project Manager will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B6.2.2 The Bidder is responsible for ensuring that it has received all Addenda and is advised to check the Materials Management Division website for Addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

B7. PROPOSAL SUBMISSION

B7.1 The Proposal shall consist of the following components:

- (a) Form A: Proposal (Section A) in accordance with B8; and
- (b) Fees (Section B) in accordance with B9.

B7.2 The Proposal should also consist of the following components:

- (a) Experience of Proponent and Subconsultants (Section C) in accordance with B10;
- (b) Experience of Key Personnel Assigned to the Project (Section D), in accordance with B11;
- (c) Project Understanding and Methodology (Section E) in accordance with B12; and
- (d) Project Schedule (Section F) in accordance with B13.

B7.3 Further to B7.1, all components of the Proposal shall be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.

B7.4 Further to B7.2, all components of the Proposal should be fully completed or provided in the order indicated, and submitted by the Proponent no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.

- B7.5 Proponents should submit one (1) unbound 8.5" x 11" original (marked "original") and four (4) copies (copies can be in any size format) for sections identified in B7.1 and B7.2.
- B7.6 Proposal format, including type of binding, number of pages, size of pages and, font, etc., will not be regulated, except that the Proposal should be presented in the Sections identified above. Proponents are encouraged to use their creativity to submit a Proposal which provides the requested information for evaluation and other information which illustrates the strength of their team.
- B7.7 Proponents are advised that inclusion of terms and conditions inconsistent with the Request for Proposal, will be evaluated in accordance with B22.1(a).
- B7.8 The Proposal shall be submitted enclosed and sealed in an envelope/package clearly marked with the RFP number and the Proponent's name and address.
- B7.9 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.10 Proposals shall be submitted to:
The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1
- B7.11 Any cost or expense incurred by the Proponent that is associated with the preparation of the Proposal shall be borne solely by the Proponent.

B8. PROPOSAL (SECTION A)

- B8.1 The Proponent shall complete Form A: Proposal, making all required entries.
- B8.2 Paragraph 2 of Form A: Proposal shall be completed in accordance with the following requirements:
- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
 - (b) if the Proponent is a partnership, the full name of the partnership shall be inserted;
 - (c) if the Proponent is a corporation, the full name of the corporation shall be inserted; and
 - (d) if the Proponent is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.
- B8.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.
- B8.3 In Paragraph 3 of Form A: Proposal, the Proponent shall identify a contact person who is authorized to represent the Proponent for purposes of the Proposal.
- B8.4 Paragraph 11 of Form A: Proposal shall be signed in accordance with the following requirements:
- (a) if the Proponent is a sole proprietor carrying on business in his/her own name, it shall be signed by the Proponent;
 - (b) if the Proponent is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Proponent is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed; and

- (d) if the Proponent is carrying on business under a name other than its own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Proposal should be printed below such signatures.

B8.5 If a Proposal is submitted jointly by two or more persons, the word "Proponent" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Proponents in the Proposal and the Contract, when awarded, shall be both joint and several.

B9. FEES (SECTION B)

B9.1 The Proponent shall utilize and submit Form B: Fees, making all required entries to summarize their Fee proposal for the proposed Services. The Proponent shall be responsible to verify and ensure the correctness of the associated submittals.

B9.1.1 Fees shall include Allowable Disbursements as defined in C1.1(b).

B9.1.2 Notwithstanding C1.1(b), overhead costs or disbursements typically referred to as Type 1 disbursements or general expenses shall be included in the hourly rates.

B9.2 The Proponent shall submit a Fixed Fee for all disciplines and for the following phases as described in the Scope of Services and as listed in Form B: Fees:

- (a) Consultant Services Management Plan,
- (b) Effluent Outfall Pipeline Investigation,
- (c) WSTP Level 2 Design, and
- (d) WSTP Level 3 Design.

B9.2.1 In addition to the Form B: Fees, proposals shall **also** include detailed description of the Fixed Fees for all disciplines according to the Scope of Services. Details shall include as a minimum:

- (i) the work activities and deliverables of the proposed Services;
- (ii) the respective number of hours per work activity per task per each proposed individual;
- (iii) name and role of proposed individuals;
- (iv) the respective engineering discipline or management function as applicable; and
- (v) information relating to points (i) to (vi) above shall be presented in a Matrix form that allows easy understanding of their connections, and the associated Form B: Fees summaries shall be issued from a direct traceable compilation of the Matrix input.

B9.3 The Proponent shall submit a Per Unit Fee, where each unit represents an evaluation of an idea as per D7.6, as listed in Form B: Fees.

B9.3.1 Form B – Main Fee Schedule – Line 6 – Value Engineering

- (a) Allocate twenty-four (24) hours for the evaluation of each value engineering idea, with resources allocated as per below:
 - (i) Project manager: 4 hours
 - (ii) Senior engineer: 16 hours
 - (iii) Junior engineer: 4 hours
- (b) The Consultant shall work within the allocated hours for evaluation of each value engineering idea. Payment will be made on a per unit fee basis for each evaluation idea.

B9.4 The Proponent shall submit a Time Based Fee for all disciplines and the following phases as described in the Scope of Services and as listed in Form B: Fees:

- (a) Contract Administration Services; and
- (b) Post Construction Services.

B9.5 Time Allowances for Time Based Fee Services

B9.5.1 Form B – Main Fee Schedule – Line 8 – Contract Administration Services

- (a) Ensure that resources are allocated to the Contract Administration Services consistent with as per below:
 - (i) Project manager: 5% minimum
 - (ii) Intermediate and Senior engineers: 50% minimum
 - (iii) Administrative: 10% maximum
 - (iv) Other engineering / technical resources may be allocated for the remainder.
- (b) Ensure that the hours allocated for the Contract Administration Services are not less than the minimum indicated in D7.8.2 for specific tasks.

B9.5.2 Form B – Main Fee Schedule – Line 9 – Commissioning Services

- (a) Ensure that resources are allocated to the Commissioning Services consistent with as per below:
 - (i) Project manager: 5% minimum
 - (ii) Commissioning Leader: 50% minimum
 - (iii) Administrative: 10% maximum
 - (iv) Other engineering / technical resources may be allocated for the remainder.
- (b) Ensure that the hours allocated for the Commissioning Services are not less than the minimum indicated in D7.8.3 for specific tasks.

B9.5.3 Form B – Main Fee Schedule – Line 10 – Operations Manuals

- (a) Allow a total of one-hundred sixty (160) hours for development of the Operations Manuals as per D7.8.4, with resources allocated as per below:
 - (i) Project manager: 5% minimum
 - (ii) Senior engineers: 25% minimum
 - (iii) Administrative: 25% maximum
 - (iv) Other engineering / technical resources may be allocated for the remainder.

B9.5.4 Form B – Main Fee Schedule – Line 11 – Post Construction Services

- (a) Allow a total of eighty (80) hours for Post Construction Services as per D7.9, with resources allocated as per below:
 - (i) Project manager: 5% minimum
 - (ii) Senior engineers: 15% minimum
 - (iii) Administrative: 10% maximum
 - (iv) Other engineering / technical resources may be allocated for the remainder.

B9.5.5 In addition to the Form B: Fees, proposals shall **also** include detailed description of the Time Based Fees for all disciplines according to the Scope of Services. Details shall include as a minimum:

- (i) the work activities of the proposed Services;
- (ii) the respective number of hours per work activity per task per each proposed individual;
- (ii) name and role of proposed individuals;
- (iii) the respective engineering discipline or management function as applicable;
- (iv) the applicable hourly rates;

- (v) the associated disbursements; and
- (vi) information relating to points (i) to (v) above shall be presented in a Matrix form that allows easy understanding of their connections, and the associated Form B: Fees summaries shall be issued from a direct traceable compilation of the Matrix input.

- B9.6 Adjustments to Fees will only be considered based on increases to the Scope of Services. The City will not consider an adjustment to the Fees based on:
- (a) Changes in the Project budget or the final total construction cost, or
 - (b) Changes in the Project schedule.
- B9.7 Increases to hourly rates (escalation) should not be included.
- B9.8 If the City requires additional services, the rates to be used will be based on the rates provided in the Proponent's proposal.
- B9.9 If Manitoba Hydro is involved, Manitoba Hydro shall invoice directly to the City of Winnipeg for their Work. Manitoba Hydro's invoices shall not be part of the Consultant's fee and shall not be invoiced through and subject to mark-ups of the Consultant.
- B9.10 The City intends to procure and engage the Services of a third-party cost estimator during the course of this Project for additional and independent cost estimation purposes. The cost for procuring and engaging this estimator shall not be part of the Consultant's fee and shall not be invoiced through and subject to mark-ups of the Consultant.
- B9.11 Notwithstanding C1.1(b), Fees shall include costs for out of town travel, related meals and accommodations for the duration of the Project and shall not be considered an Allowable Disbursement.
- B9.12 The Fee Proposal shall also include an allowance for Allowable Disbursements as defined in C1.1(b), but shall exclude the costs of any materials testing, soils and hazardous materials investigation during construction.
- B9.13 Notwithstanding C10.1, Fees submitted shall not include the Goods and Services Tax (GST) or Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B9.14 Payments to Non-Resident Consultants are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B10. EXPERIENCE OF PROPONENT AND SUBCONSULTANTS (SECTION C)

- B10.1 The Proposal should include general firm profile information, including years in business, average volume of work, number of employees and other pertinent information for the Proponent and all Subconsultants showing their ability to undertake the current work.
- (a) Information submitted relating to B10.1 shall be limited to a maximum of fifteen (15) pages total for Proponent and Subconsultant.
- B10.2 Proposals should include details demonstrating the history and experience of the Proponent and Subconsultants in providing design, management of construction, and contract administration services on two (2) projects of similar complexity, scope and value.
- (a) If more than two (2) projects are submitted for B10.2, only the first two (2) referenced projects will be evaluated.
- B10.3 For each project listed in B10.2, the Proponent should submit:
- (a) A clear and comprehensive description of the project – Include project owner, project objectives, size, and other relevant information;
 - (b) A clear and comprehensive description of the role of the Consultant Services – Provide details of the Consultant Services and details of the role of the project / Subconsultant. This

will be evaluated against the relevance to this project and the applicability to all disciplines to this work;

- (c) Original and final cost – Provide this information separately for the value of the Scope of the Consultant Services assignment and the construction. Identify the amount of scope changes and the reasons for each of them;
- (d) Design and construction schedule – Include anticipated project duration and actual project delivery duration, showing design and construction separately. Provide explanations if there are discrepancies between the projected and the actual durations; and
- (e) Reference information (two current names with telephone numbers per project).
 - (i) References should have worked directly on the projects described, such as the Project Manager or Contract Administrator.
 - (ii) References may be utilized to confirm the information provided in the proposal.
 - (iii) Other sources may be contacted not named in references to verify the work.

B10.3.1 Where applicable, information should be separated into Proponent and Subconsultant project listings.

B11. EXPERIENCE OF KEY PERSONNEL ASSIGNED TO THE PROJECT (SECTION D)

B11.1 Describe your approach to overall team formation and coordination of team members.

B11.1.1 Include an organizational chart for the Project.

B11.2 Key Personnel should include:

- (a) Project Manager;
- (b) Design Lead Structural;
- (c) Design Lead Civil;
- (d) Design Lead Building Mechanical;
- (e) Design Lead Process;
- (f) Design Lead Electrical;
- (g) Design Lead Automation;
- (h) Lead Commissioning; and
- (i) Lead Contract Administration.

B11.3 Submit the experience and qualifications of the Key Personnel assigned to the Project for projects of similar complexity, scope and value. Include educational background and degrees, professional recognition, job title, years of experience in current position, years of experience in design and construction, and years of experience with existing employer. Roles of each of the Key Personnel in the Project should be identified in the organizational chart referred to in B11.1.1.

B11.4 For each person identified, list two (2) comparable projects in which they have played a primary role. If a project selected for a key person is included in B10, provide only the project name and the role of the key person. For other projects provide the following:

- (a) Project name and owner;
- (b) Description of project;
- (c) Role of the person; and
- (d) Reference information (two current names with telephone numbers per project).
 - (i) References should have worked directly on the projects described, such as the Project Manager or Contract Administrator.
 - (ii) References may be utilized to confirm the information provided in the proposal.
 - (iii) Other sources may be contacted not named in references to verify the work.

B11.4.1 If more than two (2) projects are submitted for B11.4, only the first two (2) referenced projects will be evaluated.

B11.5 For each person identified in B11.2, provide a detailed breakdown of hours proposed in the detailed fee breakdown requested in B9.5.5.

B12. PROJECT UNDERSTANDING AND METHODOLOGY (SECTION E)

B12.1 Describe your firm's project management approach and team organization during the performance of Services, so that the evaluation committee has a clear understanding of the methods the Proponent will use in the delivery of this Project.

B12.2 Methodology should be presented in accordance with the Scope of Services identified in D7.

B12.3 Describe the collaborative process/method to be used by the Key Personnel of the team in the various phases of the Project, which include:

- (a) Design; and
- (b) Contract Administration including Commissioning.

B12.4 Proposals should address:

- (a) the team's understanding of the broad functional and technical requirements;
- (b) the team's understanding of the Project;
- (c) any innovation to be used to perform the services;
- (d) any activities and services to be provided by the City;
- (e) the deliverables of the Project; and
- (f) any other issue that conveys your team's understanding of the Project requirements.

B13. PROJECT SCHEDULE (SECTION F)

B13.1 Proponents should present a carefully considered Critical Path Method schedule using Microsoft Project, complete with resource assignments (key designers), durations (weekly timescale), and milestone dates or events. The schedule should address each requirement identified in D7 Scope of Services.

B13.2 The Proponent's schedule should include critical dates for review and approval processes by the City and other organizations anticipated during the design and tendering phases of the Project. Reasonable times should be allowed for completion of the processes.

B13.3 Unless otherwise indicated, the review period for City deliverables shall be a minimum of three weeks and commensurate to the number of pages and complexity of the document.

B13.4 The Proponent should develop the most effectual schedule attainable using their expertise and experience to meet the requirements of the City. In circumstance that the Proponent's schedule contrasts with a milestone of D12, the Proponent should provide detailed commentary on their justification.

B14. DISCLOSURE

B14.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B14.2 The Persons are:

- (a) N/A

B15. QUALIFICATION

B15.1 The Proponent shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Proponent does not carry on business in Manitoba, in the jurisdiction where the Proponent does carry on business;
- (b) be financially capable of carrying out the terms of the Contract;
- (c) have all the necessary experience, capital, organization, and equipment to perform the Services in strict accordance with the terms and provisions of the Contract; and
- (d) have or establish a local presence, through the prime Consultant, subconsultant or member of consortium, in Winnipeg for the duration of the Project.

B15.2 The Proponent and any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>.

B15.3 The Proponent and/or any proposed Subconsultant (for the portion of the Services proposed to be subcontracted to them) shall:

- (a) have successfully carried out services for the programming; design, management of construction and contract administration for architectural and/or engineering projects of similar complexity, scope and value; and to those required for this Project;
- (b) be fully capable of performing the Services required to be in strict accordance with the terms and provisions of the Contract;
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have the knowledge and resources to administer the requirements of The Workplace Safety and Health Act (Manitoba) during the construction works associated with this Contract; and
- (e) undertake to meet all licensing and regulatory requirements of the appropriate governing authorities and associations in the Province of Manitoba.

B15.4 The Proponent shall submit, within three (3) Business Days of a request by the Project Manager, further proof satisfactory to the Project Manager of the qualifications of the Proponent and of any proposed Subconsultant.

B15.5 The Proponent shall provide, on the request of the Project Manager, full access to any of the Proponent's equipment and facilities to confirm, to the Project Manager's satisfaction, that the Proponent's equipment and facilities are adequate to perform the Services.

B16. ELIGIBILITY

B16.1 As a result of their involvement in the Project, VWNA (Winnipeg) Inc. (Veolia) or their affiliates are not eligible to participate as a Consultant, Subconsultant, member of consortium etc. for the Professional Engineering Consulting Services for West End Sewage Treatment Plant Effluent Monitoring Station.

B17. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B17.1 Proposals will not be opened publicly.

- B17.2 After award of Contract, the names of the Bidders and the Contract amount of the successful Bidder will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>.
- B17.3 To the extent permitted, the City shall treat all Proposal Submissions as confidential. However, the Proponent is advised that any information contained in any Proposal may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.
- B17.4 Following the award of Contract, a Proponent will be provided with information related to the evaluation of its submission upon written request to the Project Manager.

B18. IRREVOCABLE OFFER

- B18.1 The Proposal(s) submitted by the Proponent shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.
- B18.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Proponents and these Proponents shall be bound by their offers on such Services until a Contract for the Services has been duly executed as herein provided, but any offer shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 10 of Form A: Proposal.

B19. WITHDRAWAL OF OFFERS

- B19.1 A Proponent may withdraw its Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B19.1.1 The time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.
- B19.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Proponent's authorized representatives named in Paragraph 11 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.
- B19.1.3 If a Proponent gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Proposal until after the Submission Deadline has elapsed;
 - (b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Proponent's authorized representatives named in Paragraph 11 of Form A: Proposal; and
 - (c) if the notice has been given by any one of the persons specified in B19.1.3(b), declare the Proposal withdrawn.
- B19.2 A Proponent who withdraws its Proposal after the Submission Deadline but before its offer has been released or has lapsed as provided for in B18.2 shall be liable for such damages as are imposed upon the Proponent by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B20. INTERVIEWS

- B20.1 The Project Manager may, in his/her sole discretion, interview Proponents during the evaluation process.

B21. NEGOTIATIONS

- B21.1 The City reserves the right to negotiate details of the Contract with any Proponent. Proponents are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.
- B21.2 The City may negotiate with the Proponents submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Proponents without being obligated to offer the same opportunity to any other Proponents. Negotiations may be concurrent and will involve each Proponent individually. The City shall incur no liability to any Proponent as a result of such negotiations.
- B21.3 If, in the course of negotiations pursuant to B21.2 or otherwise, the Proponent amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Proponent from the Proposal as originally submitted.

B22. EVALUATION OF PROPOSALS

- B22.1 Award of the Contract shall be based on the following evaluation criteria:
- (a) compliance by the Proponent with the requirements of the Request for Proposal or acceptable deviation therefrom: (pass/fail)
 - (b) qualifications of the Proponent and the Subconsultants, if any, pursuant to B15: (pass/fail)
 - (c) Fees (Section B);
 - (i) Evaluated Total Fees, 32%
 - (ii) Hourly rates for Time Based fee services, see B22.4.2; 8%
 - (d) Experience of Proponent and Subconsultants (Section C); 10%
 - (e) Experience of Key Personnel Assigned to the Project (Section D); 25%
 - (f) Project Understanding and Methodology (Section E); and 20%
 - (g) Project Schedule (Section F). 5%
- B22.2 Further to B22.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.
- B22.3 Further to B22.1(b), the Award Authority shall reject any Proposal submitted by a Proponent who does not demonstrate, in its Proposal or in other information required to be submitted, that it is responsible and qualified.
- B22.4 Further to B22.1(c), Fees will be evaluated based on Fees submitted in accordance with B9.
- B22.4.1 In the event that the Consultant's proposal indicates a quantity of hours less than that indicated in B9.5, the Consultant's fees will be proportionally adjusted to the quantity of hours indicated in B9.5 for the purpose of evaluation.
- B22.4.2 The score for B22.1(c)(ii) will be calculated as follows:
- (a) $Average\ Hourly\ Rate = \frac{Total\ Time\ Based\ Fees}{Total\ Time\ Based\ Hours}$
 - (b) $Score = \left(\frac{Minimum\ Average\ Hourly\ Rate\ of\ All\ Proposals\ Received}{Average\ Hourly\ Rate} \right) \times (8\%)$
- B22.5 Further to B22.1(d), Experience of Proponent and Subconsultants will be evaluated considering the experience of the organization on projects of similar size and complexity as well as other information requested.

- B22.6 Further to B22.1(e), Experience of Key Personnel Assigned to the Project will be evaluated considering the experience and qualifications of the Key Personnel and Subconsultant personnel, including their experience on Projects of comparable size and complexity.
- B22.7 Further to B22.1(f), Project Understanding and Methodology will be evaluated considering your firm's project management approach and Project team organization during the performance of services.
- B22.8 Further to B22.1(g), Project Schedule will be evaluated considering the Proponent's ability to comply with the requirements of the Project.
- B22.9 Notwithstanding B22.1(d) to B22.1(g), where Proponents fail to provide a response to B7.2(a) to B7.2(d), the score of zero may be assigned to the incomplete part of the response.

B23. AWARD OF CONTRACT

- B23.1 The City will give notice of the award of the Contract, or will give notice that no award will be made.
- B23.2 The City will have no obligation to award a Contract to a Proponent, even though one or all of the Proponents are determined to be responsible and qualified, and the Proposals are determined to be responsive.
- B23.2.1 Without limiting the generality of B23.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Services;
 - (b) the prices are materially in excess of the prices received for similar services in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Services, or a significant portion thereof, with its own forces;
 - (d) only one Proposal is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B23.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Proponent submitting the most advantageous offer.
- B23.4 The City may, at its discretion, award the Contract in phases.
- B23.5 Notwithstanding Paragraph 6 of Form A: Proposal and C4, the City will issue a Letter of Intent to the successful Bidder in lieu of execution of a Contract.
- B23.5.1 The Contract documents as defined in C1.1(n)(ii) in their entirety shall be deemed to be incorporated in and to form a part of the Letter of Intent notwithstanding that they are not necessarily attached to or accompany said Letter of Intent.
- B23.6 The form of Contract with the City of Winnipeg will be based on the Contract as defined in C1.1(n).
- B23.7 Following the award of Contract, a Proponent will be provided with information related to the evaluation of its Proposal upon written request to the Project Manager.
- B23.8 If, after the award of Contract, the Project is cancelled, the City reserves the right to terminate the Contract. The Consultant will be paid for all Services rendered up to time of termination.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Consultant Services* (Revision 2010-10-01) are applicable to the Services of the Contract.
- C0.1.1 The *General Conditions for Consultant Services* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm.
- C0.2 A reference in the Request for Proposal to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Consultant Services*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

- D1.1 In addition to the *General Conditions for Consultant Services*, these Supplemental Conditions are applicable to the Services of the Contract.
- D1.2 If there is any conflict or inconsistency between the Proposal and the General Conditions for Consultant Services, the General Conditions for Consultant Services shall take precedence.
- D1.3 Further to C.1.1 (b) and C10, the following is applicable to Allowable Disbursements:
- D1.3.1 Copies of originating merchant/vendor detail receipts shall be provided as backup documentation when invoicing Allowable Disbursements, credit/debit card receipts or statements are not acceptable as backup;
- D1.3.2 GST is to be removed from the reimbursable value of merchant/vendor invoices.
- D1.3.3 For travel outside of the City of Winnipeg applicable to Time Based Fee portions of the Project:
- (a) Booking of transportation and accommodations are expected to take place well in advance to obtain optimal discounted rates;
 - (b) The acceptable standard for air travel shall be economy class;
 - (c) Air travel premium fees, such as seat selection premiums etc., will not be reimbursable unless specifically approved by the Project Manager;
 - (d) The acceptable standard for accommodation will be a single room in a safe environment, conveniently located and comfortably equipped;
 - (e) The acceptable standard for rental vehicles shall be mid-size;
 - (f) car rental premium fees, such as prepaid fuel or re-fuelling surcharges etc. will not be reimbursable unless specifically approved by the Project Manager; and
 - (g) Costs for alcoholic beverages will not be reimbursable and shall not be claimed. Consultants may invoice meal expenses as per diem, up to a maximum of \$60 per day.
- D1.3.4 The following shall be considered incidental to the Contract and will not be accepted as Allowable Disbursements:
- (a) Travel within the City of Winnipeg,
 - (b) Courier costs, and
 - (c) Meal costs for personnel not travelling outside their normal City of employment.

D2. PROJECT MANAGER

- D2.1 The Project Manager is:
Lana Obach, P.Eng., M.A.Sc.
Email: lobach@winnipeg.ca
Telephone No. (204) 986-8335
- D2.2 At the pre-commencement meeting, the Project Manager will identify additional personnel representing the Project Manager and their respective roles and responsibilities for the Services.
- D2.3 Proposal Submissions must be submitted to the address in B7.10.

D3. DEFINITIONS

D3.1 When used in this Request for Proposal:

- (a) "ACC" means approved contract change;
- (b) "BNR" means Biological Nutrient Removal;
- (c) "CHAIR" mean Construction Hazard Assessment Implication Review;
- (d) "Commissioning" means a process by which equipment, a facility or a plant is tested to verify if it functions according to design and functional requirements;
- (e) "CSMP" means Consultant Services Management Plan;
- (f) "DCS" means Distributed Control System;
- (g) "FAT" means Factory Acceptance Test;
- (h) "HMI" means Human Machine Interface;
- (i) "MCC" means Motor Control Centre;
- (j) "Native format" means the original format from which a deliverable was generated (i.e. MS Word, MS Excel, AutoCAD, etc.);
- (k) "NPV" means Net Present Value;
- (l) "OWAM" means Oracle Work and Asset Maintenance;
- (m) "P&ID" means Process and Instrumentation Diagram;
- (n) "PCN" means Proposed Change Notice;
- (o) "PLC" means Programmable Logic Controller;
- (p) "Program Team" means the team consisting of both City of Winnipeg and Veolia personnel;
- (q) "RFI" means Request for Information;
- (r) "RFP" means Request for Proposal;
- (s) "SEWPCC" means South End Sewage Treatment Plant;
- (t) "VDR" means Vendor Document Requirements;
- (u) "WBS" means Work Breakdown Structure;
- (v) "WEWPCC" means West End Sewage Treatment Plant;
- (w) "Working Day" means means any Calendar Day, other than a Saturday, Sunday, or a statutory or civic holiday, on which the Contract Administrator determines atmospheric and Site conditions are such that the contractor is able to work at least seven (7) hours during the period between 7:00 a.m. Winnipeg time or the time the contractor's operations normally commence, whichever is the earlier, and 7:00 p.m. Winnipeg time; and
- (x) "WWD" means Water and Waste Department.

D4. BACKGROUND

D4.1 In 1965 the WEWPCC, located at 7740 Wilkes Avenue, consisted of a lagoon (Polishing Ponds), an Effluent Gate Chamber Building, and a Final Effluent Outfall pipeline, among other facility structures. Since 1965, the WEWPCC has undergone major plant additions, however, these three structures remain relatively unchanged with only minor modifications. Today, the WEWPCC consists of a biological nutrient removal (BNR) wastewater treatment plant and the current use of the polishing ponds are to naturally disinfect via ultra violet from sunlight, and cool the treated effluent from the BNR plant before it is discharged to the Assiniboine River. The function of the Effluent Gate Chamber Building and the Final Effluent Outfall pipelines have not changed.

D4.2 In 1998, a Polishing Pond Bypass pipeline was installed. This pipeline originates at the BNR plant effluent discharge line, by-passes the Polishing Ponds and Effluent Gate Chamber Building, and discharges directly into the Final Effluent Outfall pipeline approximately 200

metres north of Effluent Gate Chamber Building. The Polishing Pond by-pass pipeline was designed to accept surface water runoff as well as the treated effluent from the BNR plant. Surface water runoff is not included under the WEWPCC environmental license and shall not be included in the final effluent monitoring. Refer to Appendix 1 Drawings.

- D4.3 The main objective of this Project is to design, construct, and commission an effluent monitoring station at the WEWPCC on the Final Effluent Outfall pipeline, downstream of the polishing ponds but upstream of the emergency pond-by-pass line. The name of this building will be the WEWPCC Effluent Monitoring Station. The scope of work will include, but is not limited to, the design, construction, commissioning, and project turnover of a building that contains an automated effluent flow measurement and flow proportional water sampling system. The WEWPCC Effluent Monitoring Station must meet the requirements stated in Environmental Act Licence No. 2669 E RR, refer to Appendix 2 WEWPCC Environmental License.
- D4.4 Reference Information
- (a) Previous work performed under the SEWPCC Effluent Sampling Facility Project may be utilized as a reference for the work. This information will be provided to the successful proponent, as reference information; but should not be construed as a basis for the scope of work of this Project.
- D4.5 The City has engaged Veolia Water North America to provide advice to the City during the delivery of this Project. Veolia will be in attendance at meetings and workshops and assist with reviews throughout the Project. This does not relieve the Consultant of their obligation.

D5. MONTHLY INVOICES

- D5.1 In addition to C10.7, the Consultant shall submit monthly invoices for all phases of the work.
- D5.2 Effluent Outfall Inspection
- (a) A single payment will be made upon completion and acceptance of the Effluent Outfall Inspection Report.
- D5.3 WSTP Level 2 Design
- (a) All payments for the fixed-fee WSTP Level 2 Design phase will be made upon progress estimates approved by the Project Manager, with the following as maximums:
- (i) A maximum of 60% of WSTP Level 2 Design prior to submission of the Draft WSTP Level 2 Design Documents.
 - (ii) A maximum of 80% of WSTP Level 2 Design upon submission of a complete set of Draft WSTP Level 2 Design documents.
 - (iii) A maximum of 95% of WSTP Level 2 Design upon submission of a complete sealed set of WSTP Level 2 Design documents.
- (b) The remaining amount of WSTP Level 2 Design will be paid out upon acceptance by the Project Manager of completion of all WSTP Level 2 Design requirements, including but not limited to D7.5.26.
- D5.4 Value Engineering
- (a) All payments for the Value Engineering phase will be made on a per-unit basis, based upon the number of Value Engineering Ideas submitted to the Consultant for evaluation.
- (i) In the event that the Consultant's quality of work is not consistent with the level of effort indicated, the City may, at the sole discretion of the Project Manager, reject the work and reduce payment accordingly.
- D5.5 WSTP Level 3 Design
- (a) All payments for the fixed-fee WSTP Level 3 Design phase will be made upon progress estimates approved by the Project Manager, with the following as maximums:

- (i) A maximum of 60% of WSTP Level 3 Design prior to submission of the Draft Detailed Tender Package.
 - (ii) A maximum of 80% of WSTP Level 3 Design upon submission of a complete set of Draft WSTP Level 3 Design Deliverables.
 - (iii) A maximum of 90% of WSTP Level 3 Design upon posting of the Bid Opportunity on the Materials Management website.
 - (iv) A maximum of 95% of WSTP Level 3 Design upon closing of the Bid Opportunity Tender period.
 - (b) The remaining amount of WSTP Level 3 Design will be paid out upon acceptance by the Project Manager of completion of all WSTP Level 3 Design requirements, including provision of an award recommendation letter for the construction contractor based upon the bids received.
- D5.6 Contract Administration
- (a) All payments for this phase will be made upon a time basis, as approved by the Project Manager.
 - (b) All allocated fees shall be considered upset limits.
- D5.7 Post Construction Services
- (a) All payments for this phase will be made upon a time basis approved by the Project Manager, however, no payments will be made until receipt and acceptance of the As-Built Drawings, as indicated in D7.9.1.
- D5.8 It is expected that the values stated in Form B: Fees will form the basis for valuation of the completed work, for the purposes of payment via progress estimates. However, if in the opinion of the Project Manager, the values are “front-loaded” such that the Form B prices reflect higher values for work that is sequenced earlier in the schedule, the Project Manager reserves the right to revise the payments as required to ensure that the total payment does not exceed the true value of the work performed.

D6. GENERAL REQUIREMENTS

- D6.1 The Consultant shall ensure that the Scope of Services is performed under direct supervision of a professional engineer.
- (a) All drawings, reports, recommendations and other documents involving the practice of professional engineering shall bear the stamp or seal and signature of a qualified engineer as required by the Engineering and Geoscientific Professions Act of the Province of Manitoba and By-laws of the Association of Professional Engineers and Geoscientists of the Province of Manitoba.
 - (i) Final design documents irrespective of the level of design shall have an engineer's seal.
 - (ii) All WSTP Level 2 Design documents shall have an engineer's seal with a qualifying note such as “For Cost Estimation Only – Not For Construction”.
 - (b) Other reports and documents not involving the practice of professional engineering, such as letters of information, minutes of meetings, construction progress reports, may be originated and signed by other personnel engaged by the Consultant and accepted by the City.
 - (c) Progress estimates, completion certificates and other reports related to the technical aspects of this Project, must be endorsed by the Consultant in a manner acceptable to the City.
- D6.2 The Consultant shall not substitute or replace Key Personnel throughout the duration of the Project without the written approval of the Project Manager.
- D6.3 The City requires a Consultant Services Management Plan (CSMP) as detailed in D7.2.
- (a) The Consultant shall manage the Project in accordance with the approved CSMP.

- D6.4 Chair regular Project meetings and provide minutes. Minutes are to be submitted within four (4) Business Days of the meeting date.
- D6.5 General Requirements for Deliverables
- (a) The deliverables shall be submitted in draft for review prior to submittal as a final document.
 - (b) Revise and finalize documents based upon comments from the Program Team.
- D6.6 General Requirements for Business Cases
- D6.6.1 The City requires a number of business cases to be performed as part of the Consultant's Scope of Services. The business cases shall include, but are not limited to:
- (a) Description of the option(s);
 - (b) Pros and cons;
 - (c) Supporting documentation and calculations;
 - (d) Physical characteristics of size, volume, etc., as appropriate;
 - (e) Capital, operation and maintenance, and Net Present Value costs and payback period(s) where appropriate;
 - (f) Training requirements;
 - (g) Comparison of the options against each other; and
 - (h) Conclusions and recommendations.
- D6.7 The City requires a number of technical memoranda to be performed as part of the Consultant's Scope of Services. Technical memoranda shall include sufficient evaluation documentation to justify conclusions and recommendations presented to allow the City to make a decision regarding the conclusions and recommendations.
- D6.8 The City has standardized a number of process, electrical, instrumentation, and control equipment types.
- (a) The Consultant is required to include the preselected equipment in their design.
 - (b) Preselected equipment vendors are as follows:
 - (i) Control System and Motor Control Equipment – RFP 756-2013: Covering voltages of 600V and lower for Motor Control Centre (MCC)'s both intelligent and standard, MCC related equipment such as semiconductor based drives, metering and switchgear. PLC's, Human Machine Interface (HMI)'s, historians, software and related protocol and communication equipment. Preselected vendor is Schneider Electric Canada Inc.
 - (ii) Electric Valve Actuators RFP 331-2014: Covering electric valve actuators in the range of >150 Nm for the applications of multi-turn and quarter-turn applications. The preselected vendor is Rotork Controls Canada Ltd.
 - (iii) Gas Detection Equipment RFP 123-2014: Covering fixed gas detection systems. The preselected vendor is Mine Safety Appliances LLC.
 - (iv) Uninterruptible Power Supplies RFP 341-2013: Covering three phase Uninterruptible Power Supplies (UPS). The preselected vendor is Eecol Electric.
 - (v) Instrumentation RFP 449-2014: Covering flow, level, pressure and temperature instrumentation of all types. The preselected vendor is Trans-West Supply Company Inc.
 - (c) The Consultant shall ensure the intent of the City Electrical and Automation equipment standardized vendor contracts is followed.
- D6.9 All documents, including drawings, are to be delivered with a documentation lifecycle approach.
- (a) Where existing systems are being modified, the existing drawings shall be modified or superseded rather than creating a new drawing only showing a limited portion of the new work.

- (b) The documents are to be prepared in a manner that is useful for maintenance purposes. For example, partial site plans or partial process and instrumentation diagrams (P&IDs) are not acceptable, but rather the existing electronic site plans shall be updated.
 - (c) Where possible, all documents provided as PDF shall be searchable.
 - (d) The Consultant shall use reference datum provided by the City. The Consultant shall reconcile datum used in as built drawings.
- D6.10 The Consultant shall, as a minimum, utilize the most current industry standard sustainable practices and conform to the latest codes, standards, regulations and legislative requirements in effect. The Consultant shall liaise with the City on the application of codes and standards.
- D6.11 The Consultant shall comply with the following:
- (a) WSTP Design Standards (Appendix 3);
 - (b) Water and Waste Department (WWD) Identification Standard (Appendix 4) – the Consultant shall request clarification from the Project Manager should undefined identification requirements be encountered;
 - (c) WSTP Project Document Numbering Standard (Appendix 5);
 - (d) WWD Electrical Design Guide (Appendix 6);
 - (e) WSTP Automation Design Guide (Appendix 7);
 - (f) WWD Wastewater Historical Data Retention Standard (Appendix 8);
 - (g) WWD Tag Naming Standard (Appendix 9);
 - (h) WWD HMI Layout and Animation Plan – this plan is being developed and will be provided to the Consultant when available;
 - (i) WSTP CHAIR Procedure (Appendix 10);
 - (j) WSTP Contract Administration Manual (Appendix 11);
 - (k) Operations Manual Specification (Appendix 12); and
 - (l) City Templates (Appendix 13).
- D6.11.1 The Project Manager shall be notified of conflict between the documents for resolution.
- D6.12 The Consultant and their partners, Subconsultant, and contractors shall be aware of their obligation as stated in the Wastewater Services Environmental Preservation and Compliance Statement in Appendix 14.
- D6.13 The Consultant shall coordinate and obtain approval/permit(s) where required such as CP Rail, City departments, Manitoba Hydro, etc.
- D6.14 Deliverables
- D6.14.1 All deliverables shall have incorporated Consultant's internal quality procedures before they are submitted to the City.
- (a) The transmittal letter for each deliverable shall indicate that the internal procedures have been followed in accordance with the accepted CSMP.
 - (b) No deliverable will be accepted by the City without indication that the Consultant's internal quality procedures have been completed.
- D6.14.2 Unless otherwise indicated, the review period for City deliverables shall be a minimum of three weeks and commensurate to the number of pages and complexity of the document.
- D6.14.3 Unless otherwise indicated, the format and number of copies of deliverables shall follow Appendix 15 Project Documentation Requirements.

D6.15 Printing Services

- D6.15.1 As part of the overall provision of Services the Consultant is required to submit to the City a variety of documents, drawings, specifications, manuals, plans etc. in both hard copy and electronic versions.
- D6.15.2 For Fixed Fee and Per Unit portions of the Project:
- (a) All printing costs and associated disbursements for the indicated deliverables shall be included in the Fixed-Fee.
- D6.15.3 For Time Based Fee portions of the Project:
- (a) The cost to the Consultant for the provision of hard copies as requested by the Project Manager and issued solely to the City or its authorized recipient will be reimbursed on a Cost basis as indicated below:
 - (i) All letter and 11x17 sized documents are reimbursable only if the total number of sheets / pages delivered exceeds 2000 as part of any specific transmittal. Printing costs for document transmittals less than 2000 pages are not reimbursable.
 - (ii) All full-size drawings are reimbursable.
 - (b) The reimbursable cost shall be applicable only to the provision of the paper stock, binders, dividers, cover pages, and printing.
 - (c) Costs shall be substantiated by the provision of suitable documentation correlated with the applicable document transmittal.
 - (d) All internal printing costs for the Consultant's own use are not reimbursable.
 - (e) Printing costs for delivery to the contractor are reimbursable.

D6.16 Safe Work Plan

- D6.16.1 Develop a safe work plan for all Consultant work on site.
- D6.16.2 The proposed location for the WEWPCC Effluent Monitoring Station is a goose habitat. Develop and follow specific safety precautions regarding working in an area with a high concentration of geese. The Consultant is responsible for all additional work associated with working around geese.

D7. SCOPE OF SERVICES

- D7.1 The Services required under this Contract shall consist of Professional Consulting Engineering Services required for the design, construction, commissioning and turnover of the Project in accordance with the following sections.
- D7.2 Consultant Services Management Plan
- D7.2.1 Upon assignment award, the Consultant shall prepare a comprehensive CSMP detailing the process that will be applied during the provision of the assigned services. Requirements are outlined in the document number CSMP Minimum Requirements (Appendix 16), and an example is attached in Appendix 17 Sample CSMP. This RFP document shall override the CSMP document requirements where indicated.
- D7.2.2 For this assignment the following sections of the CSMP shall be modified as follows:
- (a) Section 1.3: Advisory services and Project definition design are not applicable to this Project.
 - (b) Section 2.2.1: See D7.5.24 Risk and Opportunity Assessment.
 - (c) Section 2.2.4 and Section 3.2 (b) and (c): The Document Management System (DMS) will not be finalized prior to the completion of this Project, and as such, will not be utilized for this assignment. The Consultant is responsible for maintaining an organized internal document storage system and transmitting documents to the City in a manner acceptable to the City.

- (d) Section 2.3.2:
 - (i) Design submissions shall be made to the Project Manager at stages referred to in D7 Scope of Services.
 - (ii) Documents to be presented or reviewed in a meeting or workshop shall be issued a minimum of five (5) Business Days prior to the presentation.
- (e) Section 2.3.3: City document review or approval timeframes shall follow timeframes referred to in D7 Scope of Services.
- (f) Section 2.3.6: Earned Value Analysis reporting and Estimate at Completion forecasting are not required for this Project.
- (g) Section 2.4(c): Standard Operating Procedures are not required for this Project.
- (h) Section 3.1.2: Weekly design team meetings are not mandatory for this Project. The Consultant is responsible for coordinating internal team members as required.
- (i) Section 3.1.3:
 - (ii) A HAZOP workshop will not be required, however, it is expected that the Consultant will integrate HAZOP type methodology into their internal quality control processes.
 - (iii) A CHAIR workshop will be required, as per D7.5.22. Note however that the CHAIR ONE and CHAIR TWO workshops will be combined into a single workshop. The CHAIR THREE workshop will be replaced by the Maintenance Review Workshop, as per D7.5.23.
 - (iv) A Value Engineering Phase will be implemented as per D7.6; however a formal Value Engineering workshop will not be required.
 - (v) Appendix 2(a): Reference Document DMS File Structure and Definitions is not applicable to this Project.

D7.2.3 Submit the Draft CSMP to the City, as outlined in Appendix 15 Project Documentation Requirements, one (1) month after assignment award. The Consultant should allow for a ten (10) Business Day review period for the City to provide comments. This should be accounted for and shown in the proposal.

- (a) Upon receipt and implementation of the City's review comments, submit the Final CSMP as outlined in Appendix 15 Project Documentation Requirements.

D7.3 WSTP Level 1 Design

D7.3.1 As the conceptual scope of work for this Project is well defined, a WSTP Level 1 Design is not required for this Project.

D7.4 Effluent Outfall Pipeline Inspection

- (a) Engage a third-party contractor to inspect the entire 750mm (30") section of concrete effluent outfall pipeline downstream of the Effluent Gate Chamber Building. The inspection shall consist of a robotic inspection for a condition assessment of the pipeline.
- (b) Perform this work as early as possible in the Project.
- (c) Assess the data provided from the inspection for structural integrity.
- (d) Provide a detailed Effluent Outfall Pipeline Inspection Report on the condition of the effluent outfall pipeline, including all raw data captured by the inspection.
- (e) In the Effluent Outfall Pipeline Inspection Report, make a recommendation regarding the suitability of integrating the proposed WEWPCC Effluent Monitoring Station and associated flowmeter with the existing effluent outfall pipeline.
- (f) Submit the Draft Effluent Outfall Pipeline Inspection Report to the City as outlined in document Appendix 15 Project Documentation Requirements. The Consultant should allow for a ten (10) Business Day review period for the City to provide comments. This should be accounted for and shown in the proposal.

- (g) Upon receipt and implementation of the City's review comments, submit the Final Effluent Outfall Pipeline Inspection Report as outlined in Appendix 15 Project Documentation Requirements.
- (h) The cost to the Consultant for the provision of third-party inspection services shall be included as part of the Fixed Fee.

D7.4.1 Deliverables from the Effluent Outfall Pipeline Inspection phase shall include, but not be limited to:

- (a) Effluent Outfall Pipeline Inspection Report.

D7.5 WSTP Level 2 Design

D7.5.1 Level of Design

(a) The WSTP Level 2 Design will establish the configuration of the Project scope to allow for the establishment of a cost estimate with an accuracy of -15%, +20% as per AACE Class 2. The Consultant shall perform sufficient design and provide associated design documents to achieve the indicated cost estimate accuracy. The design work required will be greater than an industry-typical preliminary design. The scope of work indicated in this section indicates minimum requirements, but is not exhaustive of the Consultant's scope of work to achieve the required set of design documents.

- (i) The deliverables provided in WSTP Level 2 Design shall be appropriate for use by a third-party cost estimator engaged by the City.
- (ii) Ensure that sufficient design resources are engaged at the WSTP Level 2 Design stage to achieve the specified level of costing accuracy and the delivery of the required deliverables.
- (iii) The Consultant shall not defer any indicated design responsibility to the WSTP Level 3 Design phase.

D7.5.2 General Requirements

- (a) Where necessary, conduct field investigations to verify existing conditions and to supplement available information.
- (b) Organize meetings with City staff to ensure all required information, issues, and concerns are accounted for.
- (c) Provide any other information applicable to the design.

D7.5.3 License Requirements

(a) Identify the WEWPCC Effluent Monitoring Station requirements outlined in Environmental Act Licence No. 2669 E RR. This includes, but is not limited to:

- (i) Flow proportional sampling requirements;
- (ii) Grab sampling requirements;
- (iii) Flow measurement requirements;
- (iv) Flow calibration requirements;
- (v) Accuracy requirements; and
- (vi) Accessibility requirements.

(b) All designs shall incorporate the license requirements identified in D7.5.3(a).

D7.5.4 Site Selection

(a) The City has indicated a preferred site just to the west (approximately 10 to 100 meters) of the existing Effluent Gate Chamber Building for the WEWPCC Effluent Monitoring Station. This would be located on the 750mm (30") diameter concrete effluent outfall pipeline.

- (i) The existing Effluent Gate Chamber Building is currently operational and not in the scope of this Project; however, the City would like to ensure that sufficient space is provided to allow for replacement of/upgrade to the Effluent Gate Chamber Building in the future.

- (ii) Provide sufficient space between the Effluent Gate Chamber Building and the proposed WEWPCC Effluent Monitoring Station to allow for potential future work.
- (b) Review the site selected to ensure this is an appropriate location with respect to system hydraulics and flows, access to power, road access, flood protection, security and any other appropriate concerns.
- (c) Make a recommendation as to whether the proposed site is suitable. If it is not suitable, make a recommendation(s) for a more suitable location.
- (d) Provide a plan drawing indicating the proposed site of the building.

D7.5.5

Civil / Site

- (a) Provide geotechnical field investigations and soil testing for use in design and obtaining required construction permits.
 - (i) Provide a complete geotechnical report with the results of the field investigations and analysis. The report shall be suitable for use in detailed design and excavation design.
 - (ii) The cost to the Consultant for the provision of third-party testing shall be included as part of the Fixed Fee.
- (b) The civil work requirements include, but are not limited to:
 - (i) Road construction,
 - (ii) Small parking lot, and
 - (iii) Modifications to the pre-existing fencing at the site.
- (c) Survey
 - (i) Perform a Registered Land Survey of the area around the proposed location for the WEWPCC Effluent Monitoring Station.
 - (ii) Identify the elevation of the effluent outfall pipeline at applicable points.
 - (iii) The survey shall be sufficiently detailed to provide the full level of detail required for design.
 - (iv) Provide fully documented survey results.
 - (v) The cost to the Consultant for the provision of third-party services, if applicable, shall be included as part of the Fixed Fee.
- (d) Provide a set of civil drawings to clearly indicate all site construction requirements and other major civil works, including:
 - (i) Roadway and parking lot construction, including temporary construction roads and parking areas.
 - (ii) Construction stockpile and laydown areas, sized appropriately for the planned construction.
- (e) Provide site excavation plan drawings showing all excavations, slopes and shoring requirement. Dimensions and depths shall be clear on the drawings. Ensure sufficient construction clearances are provided.
- (f) Provide a description of all minor civil works, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance. For example, the scope of work associated with landscaping shall be described.

D7.5.6

Temporary Construction Requirements

- (a) Identify and design temporary construction works required to implement the planned construction. This may include, but is not limited to temporary piping / flow bypasses, special tie-in requirements, electrical cable relocations, and temporary structural supports. Provide drawings to clearly indicate the work required to a sufficient detail to allow for costing.

- (i) It should be noted that the existing stop logs within the Effluent Gate Chamber Building are known to leak and the Consultant's plan shall address all requirements to complete the required construction, including safety.
- (b) Provide a description of all minor temporary construction requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.

D7.5.7 Architectural

- (a) Provide a design for the new building and structures to meet process and operational requirements, considering all requirements for equipment layout. Ensure that sufficient space for process, building mechanical, electrical and automation equipment is provided. In addition, ensure sufficient space is allocated for Operations' needs including maintenance activities, and Environmental Standards' needs including water sampling.
- (b) Provide floor plans for each level and all architectural elevations. Show all dimensions.
 - (i) Indicate access hatches sizes and materials for covers.
 - (ii) Indicate all ladders, guardrails, and other access and safety requirements.
 - (iii) Indicate all special architectural details to accommodate the process.
 - (iv) Note all confined spaces.
- (c) Provide building exterior elevation drawings, with dimensions and materials of construction shown.
- (d) Provide building section drawings, to allow for complete definition of the building configuration.
- (e) Provide typical wall and roof sections for each type of construction, identifying all materials of construction.
- (f) Provide a description of all internal and external architectural finishes including special finishes as appropriate such as waterproofing, etc.
- (g) Ensure significant material specifications are shown on the drawings.
- (h) Provide a description of all minor architectural requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.

D7.5.8 Structural

- (a) Provide a structural design based on architectural, process and operational requirements and the proposed equipment layout. All structural drawings shall be complete with dimensions, materials of construction, and include provisions for support and lifting of large equipment. All hoists, monorails, and cranes shall be shown.
 - (i) The design documents shall be provided and conveyed in such a manner that a quantitative take-off of required components, piling, reinforced concrete, and structural steel, etc., can be performed.
- (b) Provide general notes for the building indicating design criteria, foundation requirements, concrete material and concrete reinforcing requirements, concrete surface finishing, masonry requirements, as well as structural steel and metal fabrication requirements. Ensure that all significant material specifications are shown.
- (c) Provide foundation / piling drawings.
- (d) Provide structural plan and section drawings for all building elevations.
 - (i) Ensure guardrails, platforms, stairs, and lifting devices are shown.
- (e) Provide a description of all minor structural requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.

D7.5.9 P&ID Drawings

- (a) Provide a complete set of P&ID drawings for the new building that integrates into the existing facility's P&ID set. The P&ID drawings shall be prepared consistent with the WSTP Design Standards and include all relevant equipment details, pipe diameters, pipe specification codes, instrumentation, etc.
 - (i) The P&IDs shall include the Polishing Pond outlet, the Effluent Gate Chamber Building, the WEWPCC Effluent Monitoring Station, the flow measurement, and the effluent outfall piping to the river.
 - (ii) Updates to existing drawings are expected to be limited to drawing links and other minor modifications.
- (b) All equipment and instruments within the P&ID set shall be identified as per the WWD Identification Standard (Appendix 4).
- (c) P&IDs shall be prepared for all systems, including but not limited to:
 - (i) Process;
 - (ii) Heating, ventilation, and air conditioning (HVAC);
 - (iii) Sump pumps and other building mechanical systems;
 - (iv) All plumbing systems; and
 - (v) Miscellaneous systems.
- (d) P&IDs shall be prepared to 100% completion as per City WSTP Design Standards. All equipment, motors, piping, ductwork, valves, dampers, instrumentation and control shall be shown, regardless of size or significance.

D7.5.10 Building Mechanical

- (a) Provide a building mechanical design based on architectural, process and operational requirements, and the proposed equipment layout. Review the ventilation requirements and propose a ventilation and heating system for the proposed installation. The minimum requirements for the design are as follows:
 - (i) Utilize electricity as the basis for all heating.
 - (ii) Ensure that a single unit of equipment being offline does not result in a total lack of heat in the building.
 - (iii) Consider temperature setback when the building is unoccupied.
 - (iv) Utilize the programmable logic controller (PLC) for temperature alarming.
 - (v) While the design may utilize basic control components such as thermostats and timers, commercial-grade programmable controllers are not acceptable. In the event that programmable control is required this shall be accomplished via PLC-based control, designed as per the City's Automation Design Guide.
- (b) Develop a room schedule consisting of room description, seasonal temperature objectives, minimum ventilation requirement, heat dispersion ventilation requirements, pressurization requirement (negative or positive), special classification and explanatory remarks.
- (c) As per D7.5.9, provide P&ID drawings for all new and modified HVAC systems to 100% completion as per WSTP Design Standards. All components are to be shown including unit heaters, piping, and valves.
 - (i) Indicate the design airflow and temperature values for all equipment and spaces for all operating states (i.e. occupancy, summer / winter).
 - (ii) Show all building rooms and spaces, along with ductwork interconnections. Indicate louvres, grilles, and balancing dampers.
 - (iii) Indicate ductwork materials.
 - (iv) Indicate dimensions for all ductwork.
- (d) Show building mechanical equipment on equipment layout drawings. These drawings may be common with the process equipment layout drawings.

- (e) Provide a description of all minor building mechanical requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.

D7.5.11

Process

(a) Effluent Outfall Pipeline Hydraulics

- (i) Identify the hydraulic profile in the effluent outfall pipeline.
- (ii) Perform hydraulic analysis to determine if hydraulics are acceptable with the proposed design.
- (iii) Provide hydraulic profile drawing(s) for the proposed design showing the complete effluent outfall pipeline and all manholes in the pipeline, from the Polishing Ponds to the Assiniboine River, at a maximum flow scenario.
- (iv) Previous work performed under the WEWPCC BNR Project may be utilized as a reference for the work. This information shall be provided to the successful proponent.

(b) Flowmeter

- (i) Review the requirements of the Environmental Act Licence No. 2669 E RR regarding flow measurement. Provide a design for a flow measurement installation that meets the requirements of the licence.
- (ii) Propose a means to calibrate and/or verify the flowmeter accuracy. Consider the licence requirements for flowmeter calibration. Coordinate with the City to ensure that the flowmeter calibration proposed is practical and cost effective.
- (iii) The City prefers the use of an electromagnetic flowmeter in this application; however, other options shall be investigated. At minimum, electromagnetic flowmeter and open channel flowmeter shall be investigated. Verify that these technologies will work appropriately in the application. Provide a technical memoranda for all viable options.
 - ◆ Submit the Draft Flowmeter Technical Memoranda to the City, as outlined in Appendix 15 Project Documentation Requirements. This shall be provided prior to WSTP Level 2 Design development of the flowmeter installation. The Consultant should allow for a ten (10) Business Day review period for the City to provide comments. This should be accounted for and shown in the proposal.
 - ◆ Upon receipt and implementation of the City's review comments, submit the Final Flowmeter Technical Memoranda as outlined in Appendix 15 Project Documentation Requirements.
- (iv) Review the flow velocities for all operating scenarios and ensure conformance with accepted industry practice.
- (v) Provide a plan and section view of the proposed flowmeter installation, showing all piping and the associated flowmeter chamber. Ensure that sufficient access is provided for flowmeter maintenance and removal.

(c) Sampling Process

- (i) Review the licence sampling requirements of the Environmental Act Licence No. 2669 E RR and propose a complete sampling installation that meets the requirements. Consider and include requirements for daily sample collection.
- (ii) Provide a means acceptable to the City for obtaining grab samples of the effluent. Coordinate with the City to ensure that the proposed solution meets Environmental Standards' operational requirements.

(d) Provide piping layout drawing(s). Ensure pipe specifications are clear on the drawing.

- (i) Ensure that flowmeter maintenance and removal requirements are fully addressed. This may require the installation of a flowmeter bypass pipe/channel.

(e) Provide an equipment list for all new equipment to be supplied under the work. The equipment list shall include all major criteria to allow for costing.

- (f) Provide a valve list for all valves > 100 mm. The valve list shall include all major criteria to allow for costing.
- (g) Provide a description of all minor process requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.

D7.5.12 Electrical

- (a) Power Supply
 - (i) The existing power supply to the Effluent Gate Chamber Building is via a local pole-mounted transformer on a 7.2 kV single-phase pole line from a 12.47 kV three-phase system.
 - (ii) Review the current power supply to the Effluent Gate Chamber Building to determine its configuration and power capacity. Also investigate the existing loads from the power supply both via an on-site investigation and drawing review.
 - (iii) Perform a visual inspection of the pole line to review the condition. Make recommendations of repairs and upgrades, including pole replacements and protection upgrades, to the pole line to ensure continued service.
 - (iv) Provide a plan drawing of the existing electrical pole line to the facility, with the proposed work on the pole line clearly identified.
- (b) Calculate the new load of the WEWPCC Effluent Monitoring Station and include the calculation in the WSTP Level 2 Design Report.
- (c) Prepare a single-line drawing indicating the proposed electrical design. The single line diagram shall include the existing buildings and electrical equipment fed from the pole line. Show all electrical equipment ratings. 120/208/240V loads do not need to be shown on the single-line diagram.
- (d) Provide an equipment list of all electrical equipment that is identified as per the WWD Identification Standard (Appendix 4). For example, a panelboard should be on the list, but not a receptacle. Provide sufficient information in the WSTP Level 2 Design Report to allow for costing.
- (e) Provide a plan layout drawing(s) of the proposed electrical equipment layout of the WEWPCC Effluent Monitoring Station to demonstrate that sufficient space and clearances have been allocated. This may be on common drawings with the automation equipment.
- (f) Provide a lighting basis of design in the WSTP Level 2 Design Report which identifies for each room and chamber, including the exterior:
 - (i) the type of lighting,
 - (ii) the illumination level,
 - (iii) the means of lighting control, and
 - (iv) emergency lighting (if applicable).
- (g) Provide a cable schedule of all cables greater than 1/0 AWG in size or greater than 100 metres in length. Indicate estimated lengths for all the cables.
- (h) Provide design calculations and notes for load calculations.

D7.5.13 Automation (Instrumentation and Control)

- (a) Provide an automation design to meet the building, mechanical, process and operational requirements. Requirements include but are not limited to:
 - (i) Ensure all the instrumentation and control elements are shown on the P&IDs to 100% completion as per the WSTP Design Standards.
 - (ii) Design a PLC based-control system for monitoring and control of the facility. Include a Magellis touchscreen for local indication and control.
 - (iii) Include door contact monitoring for security.

- (iv) Provide integration of the PLC into the existing WEWPCC Distributed Control System (DCS). It is envisioned that the existing WEWPCC DCS will poll the proposed WEWPCC Effluent Monitoring Station PLC via Modbus TCP from the DCS BRC 410 modules.
 - (v) Design control / monitoring of the sample pump and sampler.
 - (vi) Design monitoring of ventilation and heating systems, building flood sensors, electrical power, etc.
- (b) A network connection is required between the proposed WEWPCC Effluent Monitoring Station and the main WEWPCC facility, however, there is no existing communication connection between the WEWPCC Effluent Gate Chamber Building and the main WEWPCC facility. Two alternatives that have been identified for communication include wireless (wi-fi) connectivity and an aerial pole-mounted fibre-optic installation. The Consultant is encouraged to propose alternate connectivity methods as well. Review the merits of all alternatives in a business case, in accordance with D6.6, and make a recommendation to the City.
- (i) Review the constraints of each alternative and identify all direct and indirect associated equipment required, including antennas and masts to support the installation.
 - (ii) Submit the Draft Communication Connection Business Case to the City, as outlined in Appendix 15 Project Documentation Requirements.
 - (iii) The Consultant should allow for a ten (10) Business Day review period for the City to provide comments. This should be accounted for and shown in the proposal.
 - (iv) Upon receipt and implementation of the City's review comments, submit the Final Communication Connection Business Case as outlined in Appendix 15 Project Documentation Requirements.
 - (v) This document shall be scheduled to allow for review and approval prior to the corresponding design development in the WSTP Level 2 Design Report.
- (c) Provide a design to detail the selected communication connection.
- (i) In the event that a radio communication connection is selected, provide radio power calculations, including cable decibel (dB) loss, to support the wireless connection design. Provide preliminary physical layout drawings for any radio antennas required at the WEWPCC Effluent Monitoring Station and the WEWPCC main facility to allow for costing to the indicated accuracy level.
 - (ii) In the event that an aerial pole-mounted fibre-optic communication connection is selected, provide preliminary layout drawings complete with fibre cable specifications to allow for costing to the indicated accuracy level.
 - (iii) In the event that an alternate communication connection is selected, not identified above, provide preliminary drawings to a level of detail sufficient for costing to the indicated accuracy level.
- (d) Provide a control system architecture block diagrams that shows all control system equipment including but not limited to PLCs, remote I/O, network switches, network gateways, firewalls, operator workstations, and PROFIBUS segment couplers.
- (e) Provide automation networking block diagrams showing all networking equipment required. Ensure the integration into the existing facility is shown.
- (i) Review the network security constraints and propose appropriate security measures and equipment.
- (f) Provide a plan layout drawing of the proposed automation equipment layout to demonstrate that sufficient space and clearances have been allocated. This drawing may be common with the electrical equipment.
- (g) Provide a comprehensive instrument list for all new or modified instruments including process instruments, HVAC instruments, and operator pushbuttons and indicators not located within motor starters or other major equipment. Provide service information

and sufficient detail to allow for costing. For example, show the liner material for electromagnetic flowmeters.

- (h) Provide a comprehensive automation equipment list for all automation equipment (other than instruments). The list shall include PLCs, networking equipment, network gateways, segment couplers, operator workstations, panels, large junction boxes and all other equipment with an estimated cost greater or equal to \$1,000 per unit. Sufficient detail shall be provided to allow for cost estimation of the equipment.
- (i) Provide PLC rack layout drawings for the PLC processor and any remote I/O racks (if required). Indicate all PLC module numbers on the drawings. Ensure that sufficient I/O and fieldbus network connections are provided for the design. Ensure that Automation Design Guide requirements are met.
- (j) Provide a description of all minor automation requirements, not clearly shown on the drawings, in the WSTP Level 2 Design Report along with recommendations regarding an estimation allowance.
 - (i) Include a list of the local HMI graphics screens required. Ensure that the list is consistent with the City's standard (HMI and Animation Plan); which will be provided to the successful proponent.

D7.5.14 Operations and Maintenance Technical Memoranda

- (a) The Consultant shall provide a technical memorandum with appropriate supporting data to allow the City to establish the annual operating and maintenance costs associated with the proposed work. The following deliverables shall be included and summarized within the body of the technical memorandum.
- (b) Electrical Energy Load Schedule
 - (i) The schedule shall list and total all electrical loads, identifying the equipment identifier, load rating (kW), efficiency, estimated run time per year, annual energy (kWh), and demand load (kVA) along with a total of all loads to provide an estimate (+/-10%) of the annual electrical load.
 - (ii) Electrical heating loads shall be estimated based upon average daily temperatures for Winnipeg.
- (c) Consumables Schedule
 - (i) The schedule shall identify any consumables utilized by the facility, including type of consumable and annual quantities.
- (d) Spares Schedule
 - (i) Provide a list of recommended spare components for building mechanical, process, electrical and automation systems. For each spare, identify the recommended quantity, estimated value and if the component is a critical spare for facility operation.

D7.5.15 Schedule

- (a) Provide a preliminary level critical path schedule from WSTP Level 3 Design to turnover.
 - (i) The level of detail shall be such that it clearly conveys the significant activities related to the various Project components with their inter-dependencies.
 - (ii) The schedule shall be configured suitable for use by Microsoft® Office Project 2010.
- (b) Indicate deliverables and milestones.
- (c) Indicate sequence of construction, process shutdown schedules, including magnitude and duration, and Manitoba Conservation notification requirements, if applicable.
- (d) Indicate commissioning and training requirements.
- (e) Identify site constraints and develop installation strategies considering:
 - (i) Lead time for delivery of equipment,
 - (ii) Site access, and

- (iii) Evaluation of overall impact on plant operations throughout construction.

D7.5.16 Preliminary Project Commissioning Plan

- (a) Develop a Preliminary Project Commissioning Plan to provide the concept and preliminary details as to how the Project components can be brought on-line while maintaining operations.
- (b) The plan shall minimize impact to the facility's capability to meet its regulatory obligations and provide detail of any planned impacts.
- (c) The plan shall identify and quantify all key commissioning tasks including training, inspection, quality verification, start-up, testing, verification and handover to operations.
- (d) The plan shall identify roles and responsibilities, high level procedures, quantified anticipated resources, and equipment.
- (e) The level of detail shall be such as to enable the required level of costing of the commissioning efforts.
- (f) Submit the Preliminary Project Commissioning Plan to the City, as outlined in Appendix 15 Project Documentation Requirements.

D7.5.17 WSTP Level 2 Design Presentation

- (a) Submit a Draft WSTP Level 2 Design presentation plan indicating the topics to be presented for review by the City prior to completing the presentation plan.
 - (i) The Consultant shall allow for a five (5) Business Days review period for the City to provide comments on the plan. This should be accounted for and shown in the proposal.
- (b) Upon receipt and implementation of the City's review comments, prepare a PowerPoint presentation on the WSTP Level 2 Design.
- (c) Present to the City the WSTP Level 2 Design Presentation. Allow approximately sixty (60) minutes for the presentation and thirty (30) minutes for questions.
- (d) Schedule the WSTP Level 2 Design Presentation to be just prior to the issue of the Draft WSTP Level 2 Design Report. It should be based upon the completed Draft WSTP Level 2 Design Report, but may occur in parallel with the Consultant's internal quality control review process.

D7.5.18 WSTP Level 2 Design Report

- (a) Prepare a comprehensive WSTP Level 2 Design Report documenting investigations performed, findings, designs, recommendations, Project schedules, and supplementary work performed, as part of the WSTP Level 2 Design phase.
 - (i) Submit the Draft WSTP Level 2 Design Report to the City, as outlined in Appendix 15 Project Documentation Requirements.
 - (ii) Allow for a three (3) week review period for the City to provide comments prior to the Consultant's draft review meeting with the City. In addition, allow for sufficient time for the CHAIR and Maintenance Review Workshops and incorporation of associated recommendations to occur prior to finalization of the report. This should be accounted for and shown in the proposal.
 - (iii) Upon receipt and implementation of the City's review comments and the workshop recommendations, submit the Final WSTP Level 2 Design Report to the City, as outlined in Appendix 15 Project Documentation Requirements.

D7.5.19 WSTP Level 2 Design Drawings

- (a) Prepare a comprehensive set of WSTP Level 2 Design Drawings documenting the design development performed as part of the WSTP Level 2 Design phase.
 - (i) Submit the Draft WSTP Level 2 Design Drawings to the City, as outlined in Appendix 15 Project Documentation Requirements.

- (ii) Allow for a three (3) week review period for the City to provide comments prior to the Consultant's draft review meeting with the City. In addition, allow for sufficient time for the CHAIR and Maintenance Review Workshops and incorporation of associated recommendations to occur prior to finalization of the report. This should be accounted for and shown in the proposal.
- (iii) Upon receipt and implementation of the City's review comments, submit the Final WSTP Level 2 Design Report to the City, as outlined in Appendix 15 Project Documentation Requirements.

D7.5.20 Provide the Draft WSTP Level 2 Design Report with the Draft WSTP Level 2 Design Drawings to allow for review in parallel.

D7.5.21 Progress Meetings

- (a) Throughout the WSTP Level 2 Design, meet with City Steering Committee to discuss progress, findings, obtain input from City personnel, and discuss design options, including:
 - (i) Project kickoff,
 - (ii) Review of Project needs, and
 - (iii) Monthly progress meetings.
- (b) These meetings shall be shown in the Consultant's Project schedule.
- (c) Additional formal meetings can be accommodated to suit the Consultant's requirements, and should be shown in the Consultant's Project schedule.

D7.5.22 CHAIR Workshop

- (a) Prepare, coordinate, and facilitate a CHAIR Workshop after the Draft WSTP Level 2 Design Report is issued and prior to finalization of the report.
 - (i) It is the City's expectation that the CHAIR will be facilitated by personnel intimately involved with the design preparation of the Project.
 - (ii) It is not required to bring in specific independent CHAIR expertise.
- (b) Workshop length to be half a day.
- (c) Clearly document all CHAIR findings and recommendations and issue as a CHAIR Report.
- (d) Integrate all City approved CHAIR recommendations into the Final WSTP Level 2 Design documents.

D7.5.23 Maintenance Review Workshop

- (a) Attend and participate in a Maintenance Review after the Draft WSTP Level 2 Design Report is issued and prior to finalization of the report.
 - (i) The City will provide a facilitator for the Maintenance Review Workshop.
 - (ii) It is expected that the only the Consultant's lead designer will be expected to attend.
- (b) Workshop length to be half a day.
- (c) The Program Team will document all findings and recommendations and forward to the Consultant.
- (d) Integrate all City approved Maintenance Review recommendations into the final WSTP Level 2 Design documents.

D7.5.24 Risk and Opportunity Assessment

- (a) The City will develop an initial Risk and Opportunity Register which the Consultant shall incorporate into the Project.
 - (i) The Risk and Opportunity Register will be provided to the successful proponent upon award.

- (b) A Risk and Opportunity Assessment Workshop will be performed near the conclusion of the WSTP Level 2 Design phase with the Program Team and other City selected stakeholders.
 - (i) The Risk and Opportunity Assessment Workshop shall be scheduled prior to the issue of the Draft WSTP Level 2 Design Report.
- (c) Attend, participate and contribute in the Risk and Opportunity Assessment Workshop.
 - (i) Workshop length to be half a day and will be led by the City.
 - (ii) It is expected that a minimum of three lead engineers of the key disciplines participate in the workshop.
 - (iii) The resulting Risk and Opportunity Register will be updated by the City and forwarded to the Consultant.
- (d) Integrate all City approved Risk and Opportunity mitigations and recommendations into the execution of the Project.
 - (i) The Consultant shall take ownership of all risks that are designated under the Consultant's responsibility.
 - (ii) The Consultant shall ensure that all risks designated to be transferred to the contractor are appropriately included in the Detailed Tender Package such that an effective transfer of risk occurs.
- (e) The City and Consultant shall work together to update the Risk and Opportunity Register during the various phases of the Project. The Consultant shall be responsible for notifying the Project Manager of any potential changes to the existing Risk and Opportunity Register or any new risk and opportunities identified. Changes to the individual risk and opportunity items shall be incorporated into monthly reports.
- (f) Review the Risk and Opportunity Register and provide comments on any risks or proposed mitigation which may not be complete or appropriately identified.
- (g) Ensure that all Risk and Opportunity Register mitigation measures are consistent with the WSTP Level 2 Design deliverables.

D7.5.25 Deliverables from the WSTP Level 2 Design shall include but not be limited to:

- (a) Communication Connection Business Case,
- (b) Flowmeter Technical Memoranda,
- (c) Geotechnical Report,
- (d) Registered Land Survey,
- (e) Operations and Maintenance Technical Memoranda,
- (f) CHAIR Report,
- (g) Preliminary Project Commissioning Plan,
- (h) WSTP Level 2 Design Report, and
- (i) WSTP Level 2 Design Drawings.

D7.5.26 Cost Consultant Support

- (a) The City intends to engage a third-party cost estimate to develop a cost estimate of the total Project costs.
- (b) Respond to and answer questions from the cost estimator about the design to allow the estimator to provide an estimate within the required level of accuracy. Provide any additional information required to supplement the WSTP Level 2 Design documents required to achieve the indicated level of cost estimate accuracy.
- (c) Allow four (4) hours of cost Consultant support.

D7.6 Value Engineering

D7.6.1 General Concepts

- (a) The goal of the Value Engineering will be to provide an organized effort to analyze Project concepts, critical features, function(s) of systems, equipment, facilities and services for the purpose of achieving the essential functions at the lowest life-cycle cost, consistent with required performance, reliability, quality and safety.
- (b) The organization and deliverables for Value Engineering for this Project are intended to be implemented in a manner and scale appropriate for the size of the Project. Thus, for this Project it is expected that the Value Engineering phase will be based upon the ideas generated by the Program Team after the completion of the WSTP Level 2 Design. A formal Value Engineering workshop is not planned.
- (c) The Value Engineering Phase will be led by the Program Team; however the Consultant will be required to participate and provide deliverables as indicated in D7.6.4.
- (d) The scope of value engineering is expected to focus on, but is not limited to, the following:
 - (i) Equipment and material selection;
 - (ii) Layout and general arrangements;
 - (iii) Specifications;
 - (iv) Constructability and phasing of work; and
 - (v) Minimization of operational impact.

D7.6.2 Idea Generation

- (a) The Program Team will prepare Value Engineering Ideas and document them including:
 - (i) Description of the current proposed approach or problem.
 - (ii) Description of the proposed improvement, alternative, or solution.
 - (iii) A short action plan including the level of effort to implement the proposed improvement.
 - (iv) A short description of the benefit of the proposed idea.
 - (v) Identification of risks of the idea.
 - (vi) An order of magnitude estimate (Class 5, -50%, +50% as per AACE) of the cost savings.
- (b) The Consultant will not be expected to provide Value Engineering Ideas, however any ideas presented will be welcome.

D7.6.3 Idea Filtering

- (a) The Program Team will perform an initial filter of the Value Engineering Ideas and organize into four categories:
 - (i) Ideas to proceed directly to WSTP Level 3 Design.
 - (ii) Ideas to be reviewed via Consultant Value Engineering Idea Evaluation.
 - (iii) Ideas to not proceed.
 - (iv) Ideas that should be included as part of good engineering design practice.
- (b) Any ideas, which in the opinion of the Project Manager, are as a result of a Consultant design error or part of industry standard good engineering design practice, shall be included in the WSTP Level 3 Design by the Consultant at no additional cost to the City.
- (c) It is the Program Team's intention to complete the Idea Generation and Filtering within twenty (20) Business Days of receipt of the final WSTP Level 2 Design deliverables.

D7.6.4 Consultant Value Engineering Idea Evaluation

- (a) Upon request by the Project Manager, perform a complete evaluation of each idea presented for evaluation.
 - (i) Up to five (5) ideas have been estimated in the scope of work. As per D5.4 the payment will be based upon a per-unit (idea) basis.
- (b) For each idea, provide an unbiased evaluation of the facility life-cycle costs and savings, benefits, disadvantages, and schedule implications. Provide sufficient evaluation services to ensure all cost estimates are consistent with AACE Class 3 (-20%, +20%). Provide cost calculation details, including quantities.
- (c) For each idea, evaluate the requirement of any changes required to the Consultant's fees for additional or removed work. All proposed fee changes shall be fully integrated and be reasonable for the modified work. Additional fees shall not apply where the proposed Value Engineering Idea will not cause significant design rework.
- (d) For each idea provide a Value Engineering Evaluation Technical Memoranda to the City, including the following:
 - (i) Analysis of benefits and disadvantages.
 - (ii) Construction cost/savings estimate.
 - (iii) Life-cycle cost estimate.
 - (iv) Changes to Consultant Fees. Description of the additional or removed work to support (c) above.
 - (v) Schedule implications.
 - (vi) Associated risk implications (if any).
 - (vii) Attach cost calculation details.
- (e) The Consultant shall provide the Value Engineering Technical Memoranda within fifteen (15) Business days of receipt of the ideas for evaluation.
 - (i) The expected level of effort to evaluate and report on each idea is as per B9.3.1. The level of effort indicated is expected to be indicative of the evaluation effort required for ideas of this Project scale. If the anticipated level of effort exceeds that indicated, notify the Project Manager prior to initiating the work.
- (f) Submit the Value Engineering Technical Memoranda to the City, as outlined in Appendix 15 Project Documentation Requirements.

D7.6.5 City Review and Decision

- (a) The City will review the Consultant Value Engineering Evaluation report and provide instruction to the Consultant as to which Value Engineering Ideas to adopt in the WSTP Level 3 Design.
- (b) The City may, as per D7.6.3(a)(i), direct the Consultant to incorporate Value Engineering Ideas without Consultant evaluation, where the Project Manager deems appropriate.

D7.6.6 Deliverables from Value Engineering shall include, but not be limited to:

- (a) Value Engineering Evaluation Technical Memoranda.

D7.7 WSTP Level 3 Design

D7.7.1 General Requirements

- (a) Provide a comprehensive set of detailed design documents and tender services to allow the City to engage a contractor to construct the work. The development of the WSTP Level 3 Design shall be based upon the final WSTP Level 2 Design deliverables.
- (b) The WSTP Level 3 Design shall include all requirements including but not limited to: site development, civil, structural, architectural, process, HVAC, plumbing, mechanical, electrical, automation, temporary facilities and operational consumables.

- (c) Where necessary, conduct field investigations to verify existing conditions and to supplement available information.
- (d) Organize meetings with City staff to ensure all required information, issues, and concerns are accounted for.
- (e) Identify all permits necessary for construction.
- (f) Provide any other information applicable to the design.
- (g) Integrate all City approved Value Engineering recommendations into the WSTP Level 3 Design documents.
 - (i) As per D7.6.3(b), no additional payment will be made to the Consultant for any ideas initiated out of the Value Engineering phase, which in the opinion of the Project Manager, are as a result of a design error or should be included as part of industry standard good engineering design practice.
- (h) Unless otherwise stated, the indicated deliverables and any other deliverables which, in the opinion of the Project Manager are typical of a Detailed Tender Package, shall be prepared by the Consultant. Delegation of deliverables to the contractor will not be accepted.
- (i) Ensure WSTP standards, such as color uniformity to the WSTP Paint Color Standard, are incorporated into the WSTP Level 3 Design as outlined in Appendix 3 WSTP Design Standards.

D7.7.2 CSMP Update

- (a) Update the CSMP with respect to new information and developments from the WSTP Level 2 Design.
- (b) Submit the Draft CSMP Update to the City, as outlined in Appendix 15 Project Documentation Requirements, two (2) weeks after submission of the Final WSTP Level 2 Design Report.
- (c) The Consultant should allow for a ten (10) Business Day review period for the City to provide comments. This should be accounted for and shown in the proposal.
- (d) Upon receipt and implementation of the City's review comments, submit the Final CSMP Update as outlined in Appendix 15 Project Documentation Requirements.

D7.7.3 Civil / Site

- (a) Provide a comprehensive civil / site detailed design package, including but not limited to:
 - (i) Site plan drawings.
 - (ii) Roadway and parking lot construction, including temporary construction roads and parking areas.
 - (iii) Site excavation plan drawings.

D7.7.4 Temporary Construction Requirements

- (a) Provide a comprehensive temporary construction requirement detailed design package, including but not limited to:
 - (i) Temporary construction work drawings.
 - (ii) Phasing drawings.
 - (iii) Temporary construction supports.

D7.7.5 Architectural

- (a) Provide a comprehensive architectural detailed design package, including but not limited to:
 - (i) Drawings with major design criteria, code analysis, and general notes.
 - (ii) Floor plan drawings for all levels.
 - (iii) Roof plan drawings.

- (iv) Architectural elevations.
- (v) Sections and detail drawings as required to fully detail the work.

D7.7.6 Structural

- (a) Provide a comprehensive structural detailed design package, including but not limited to:
 - (i) Legend and general notes drawing(s).
 - (ii) Piling / foundation drawings.
 - (iii) Plan drawings.
 - (iv) Section and detail drawings.
 - (v) Concrete reinforcing drawings.
 - (vi) Detail drawings showing hatches, guardrails, and other structural steel.
- (b) Provide structural design calculations and notes.

D7.7.7 Process

- (a) Provide a comprehensive process detailed design package, consisting of but not limited to:
 - (i) Comprehensive set of P&ID drawings for the facility.
 - (ii) Hydraulic profile drawings.
 - (iii) Flowmeter installation drawings including plan and section views.
 - (iv) Sampling process plan, section, and detail drawings.
 - (v) Piping layout drawings.
 - (vi) Equipment list.
 - (vii) Valve list.
- (b) Provide a comprehensive Process Control Narrative.
 - (i) Describe the process unit components, parameters measured, control strategy, actual control switch functions, significant alarms, reactions abnormal conditions, and process monitoring.
- (c) Perform investigations, analysis and calculations associated with potential temporary outfall flow interruptions to perform the work. Identify maximum and minimum pond elevations and other constraints regarding outfall flow manipulation. Consider seasonal and weather impacts in the analysis. The analysis shall provide clear guidance that can be given to the contractor regarding potential flow interruption scheduling and duration.
 - (i) Provide a flow interruption analysis document which clearly shows the results of the analysis that can be given to the contractor to allow them to plan their work.
- (d) Design Calculations and Notes
 - (i) Provide hydraulic design calculations and notes.
 - (ii) Provide flowmeter sizing, velocity, and installation calculations and notes.
 - (iii) Provide sampling flow and head-loss calculations.
 - (iv) Provide outfall flow interruption calculations and notes.

D7.7.8 Building Mechanical

- (a) Provide a comprehensive building mechanical design package, including but not limited to:
 - (i) HVAC P&ID drawing(s).
 - (ii) HVAC plan and section layouts, showing all equipment ductwork, grilles, etc.
 - (iii) Plumbing plan and section layouts.
- (b) Design Calculations and Notes
 - (i) Provide airflow and heating design calculations and notes.

D7.7.9 Electrical

- (a) General Requirements
 - (i) Typical drawings will not be accepted for any wiring details, such as motor starter schematics.
- (b) Provide a comprehensive electrical detailed design package, consisting of, but not limited to:
 - (i) Provide a comprehensive single line drawing of the new facility. Update the existing facility single line diagram as required to show the power supply.
 - (ii) Provide MCC elevations, as required.
 - (iii) Provide detailed panel schedules for all panelboards. Indicate loads, wire sizes, breaker details, etc.
 - (iv) Provide hazardous location plan drawings for the entire facility, including required equipment temperature codes and Canadian Electrical Code Category 2 wet / corrosive locations.
 - (v) Provide electrical plan layouts of all equipment and components. Typical standard of acceptance for the scale is 1:50 or less.
 - (vi) Provide cable tray layout plan and section drawings, as required.
 - (vii) Provide buried cable routing and section drawings, as required.
 - (viii) Provide motor starter / variable frequency drive schematics and connection diagrams.
 - (ix) Provide a grounding plan and riser diagrams as required to clearly indicate all new dedicated grounding conductors within the facility.
 - (x) Provide interior and exterior panel layouts for all custom electrical panels.
 - (xi) Provide a detailed cable schedule of all new electrical cables.
 - (xii) Provide electrical pole line layout and detail drawings as required to reflect modifications to the electric power supply to the site.
- (c) The City will provide standard electrical testing and pre-commissioning forms for the contractor to complete.
- (d) Provide the following calculations as part of a design notes and calculation package:
 - (i) Load calculations.
 - (ii) Short circuit calculations.
- (e) Note that the City plans to perform a formal Arc Flash Study for the facility as part of a separate initiative.

D7.7.10 Automation

- (a) General Requirements
 - (i) Typical drawings will not be accepted for any wiring details, such as loop drawings or schematics.
- (b) Provide a comprehensive automation detailed design package, consisting of but not limited to:
 - (i) System architecture / block diagrams for the facility and communications to the DCS. Indicate all PLC controllers, remote I/O notes, and major networked equipment such as intelligent motor starters.
 - (ii) PLC I/O lists.
 - (iii) PLC module lists.
 - (iv) PLC I/O module wiring diagrams.
 - (v) Loop diagrams for all instrumentation loops.
 - (vi) Fieldbus segment drawings, as applicable.
 - (vii) Control panel interior and exterior layouts for all PLC cabinets.

- (viii) Interior panel layouts for all power supply panels, automation device panels, networking panels, junction boxes, and other components of the automation system.
 - (ix) Instrument location plans. Include all automation equipment on plans, in addition to instrumentation.
 - (x) Instrument datasheets for all new and modified process instrumentation. Review the format of the datasheets with the City for approval prior to creation.
 - (xi) Automation power distribution schematics. A dedicated drawing is to be provided for each control panel.
 - (xii) Grounding riser diagrams.
 - (xiii) Conduit riser diagrams.
 - (xiv) Provide fieldbus network diagrams for all fieldbus networks.
 - (xv) Provide a cable schedule of all new automation cables.
 - (xvi) Provide detailed radio and antenna installation drawings or fibre optic layout drawings, depending on the analysis and recommendations of the WSTP Level 2 Design phase.
- (c) Provide a detailed Functional Requirements Specification (FRS) for the PLC/HMI within the WEWPCC Effluent Monitoring Station.
- (i) Note that the PLC programming will be performed a systems integrator engaged by the contractor, based on the FRS provided.
 - (ii) Provide the FRS in a format consistent with the WSTP Automation Design Guide.
 - (iii) Include both process and HVAC equipment in the FRS.
- (d) Provide a detailed FRS for the DCS modifications required to integrate the WEWPCC Effluent Monitoring Station.
- (i) Note that the DCS modifications will be performed by City personnel based upon the FRS provided.
 - (ii) Provide the FRS in a format consistent with the WSTP Automation Design Guide.
- (e) The City will provide standard testing and pre-commissioning forms for the contractor to complete.

D7.7.11 Specifications

- (a) Provide a comprehensive specification package for all disciplines and the entire scope of work in NMS specification format. Ensure that the following are included:
- (i) All submittal requirements.
 - (ii) All quality assurance requirements.
 - (iii) All commissioning requirements. Note that the Consultant is responsible for leading commissioning, however it is anticipated that the contractor will perform various tasks to assist with the commissioning efforts.

D7.7.12 Bid Opportunity

- (a) Provide a Bid Opportunity document for the tender package, utilizing the appropriate City template from Materials Management. Identify and comply with all Materials Management policies and requirements.

D7.7.13 Construction Plan

- (a) Provide a construction plan that details the proposed construction sequence, schedule, and mitigation of site constraints. The plan shall clearly demonstrate how the work will be implemented while maintaining operation of the WEWPCC facility. The plan shall be suitable for both City and contractor use.

D7.7.14 Project Commissioning Plan

- (a) Prepare a Project Commissioning Plan to detail the commissioning processes, roles and responsibilities, commissioning specifications and objectives, procedures, verification and certification requirements and documentation and acceptance criteria for the Project.
 - (i) Note that the plan should show detailed planning, lists, and schedules, not merely a high level description of commissioning.
 - (ii) Clearly indicate the tasks required and the party responsible for each task.
 - (iii) Include all disciplines and coordination between the disciplines.
 - (iv) Include all pre-commissioning requirements.
 - (v) Integrate a Project training plan within the Project Commissioning Plan. Identify all operations and maintenance training requirements, responsible party (contractor, Consultant, supplier, etc.) and an outline of the content of each training session. As part of the commissioning process, the Consultant shall provide resources to train City personnel on any areas or gaps that are not addressed by the other planned training providers.
- (b) Ensure integration of contractor commissioning requirements into the Detailed Tender Package.

D7.7.15 Detailed Tender Package

- (a) The Detailed Tender Package shall include:
 - (i) Drawings from all disciplines;
 - (ii) Specifications;
 - (iii) Bid Opportunity document;
 - (iv) Construction Plan;
 - (v) Commissioning Plan;
 - (vi) Geotechnical Report;
 - (vii) Process Control Narrative(s);
 - (viii) Functional Requirement Specifications;
 - (ix) Flow interruption analysis document;
 - (x) Equipment, I/O, PLC module, and other lists;
 - (xi) Applicable reference drawings of the existing site; and
 - (xii) Any other applicable information required by the contractor.
- (b) Submit package as outlined in Appendix 15 Project Documentation Requirements.
 - (i) Intermediate review (60%) of the Detailed Tender Package is not required on a formal basis, however, the Consultant is encouraged to submit for review at an earlier stage for any individual components that may be of interest to the City or where City direction is required. Coordinate with the Project Manager as required.
- (c) The Consultant should allow for a four (4) week review period for the City to provide comments. This should be accounted for and shown in the proposal.
- (d) Upon receipt and implementation of the City's review comments, submit the Final Detailed Tender Package outlined in Appendix 15 Project Documentation Requirements.
- (e) Prepare detailed construction sequencing that addresses site constraints identified in D7.5.15(e).
- (f) Prepare detailed shutdown and tie-in procedures. Include:
 - (i) Pre-Shutdown Requirements,
 - (ii) Operational Notifications - Include required notice periods, department contacts, notification details and responsibilities, including Environmental Standards,

- (iii) Contractor Requirements - Include scope of work, action required and responsibilities,
- (iv) Schedule, and
- (v) Operational Requirements - Include all process systems affected, action required and responsibility.

(g) Attend a WSTP Level 3 Design review meeting and incorporate changes arising from that meeting.

D7.7.16 Progress Meetings

- (a) Throughout the WSTP Level 3 Design, meet with City Steering Committee monthly to discuss progress, findings, obtain input from City personnel, and discuss design options.
- (b) These meetings shall be shown in the Consultant's Project schedule.
- (c) Additional formal meetings can be accommodated to suit the Consultant's requirements, and should be shown in the Consultant's Project schedule.

D7.7.17 Class 1 Cost Estimate

- (a) Provide a construction cost estimate consistent with AACE Class 1 (-5%, +10%) for the construction costs of the proposed work.
- (b) The cost estimate shall be provided a minimum of two (2) weeks prior to tender.

D7.7.18 Detailed Design Notes and Calculations Package

- (a) Prepare and submit a detailed design notes package including items such as structural, geotechnical, mechanical, and electrical design calculations related to process equipment and building services; process design calculations; instrumentation and process control design calculations; and detailed engineering calculations, drawings and criteria employed in the design(s).
 - (i) Submit package as outlined in Appendix 15 Project Documentation Requirements.
 - (ii) Provide Draft Detailed Design Notes and Calculations Package together with the Draft Detailed Tender Package to allow for review in parallel.

D7.7.19 Tender Services

- (a) After approval by the Project Manager, submit the Detailed Tender Package to Materials Management for public bidding.
 - (i) All tender packages shall be prepared and posted in accordance with the City of Winnipeg Materials Management Division requirements.
 - (ii) Coordinate review of the package with Materials Management and make changes as requested to the tender package.
- (b) Provide appropriate response to bidders and advice to the City during tender call and issue addenda to the contract documents as necessary.
- (c) Arrange for and lead bidder's site visit(s).
- (d) If required, coordinate and lead a pre-award meeting with contractor.
- (e) Complete a review, analysis, comparison, tabulation, calculation, and evaluation of the tenders received. Make recommendations for award of Contract.
 - (i) Submit a Letter of Recommendation, copies of the bids, a tender comparison sheet, and a tender tabulation as outlined in Appendix 15 Project Documentation Requirements.
- (f) Following tender close, submit Final Detailed Tender Package including all addenda as outlined in Appendix 15 Project Documentation Requirements.

D7.7.20 Deliverables from the WSTP Level 3 Design shall include, but not be limited to:

- (a) CSMP Update;

- (b) Detailed Tender Package;
- (c) Class 1 Cost Estimate; and
- (d) Detailed Design Notes and Calculations Package.

D7.8 Contract Administration

D7.8.1 General Requirements

- (a) Organize meetings with City staff to ensure all required information, issues, and concerns are accounted for.
- (b) The Consultant shall use the processes, procedures, forms and templates contained within the document WSTP Contract Administration Manual in Appendix 11.
- (c) Use the appropriate City templates throughout the course of the Project, including but not necessarily limited to those in Appendix 13 City Templates.
- (d) All personnel provided by the Consultant for either non-resident or resident Contract Administration work shall be experienced and qualified to perform the work.
- (e) Original photographic records shall have a minimum resolution of twelve (12) megapixel along with date and time stamps. Photos in reports may be reduced in scale. Provide original photos to the City upon request.
- (f) The City reserves the right to withhold payment of Consultant fees for additional Contract Administration services which result out of errors or omissions in the design work prepared by the Consultant.

D7.8.2 Contract Administration Services

- (a) Non-Resident Services
 - (i) Prior to construction, prepare and submit a written and photographic record of the physical condition of the work area, existing facilities, and structures sufficient to equip the City to provide valid evidence and relevant testimony in settlement of any claim involving the City by any court of law, or by any other party for damages thereto arising from the Project.
 - (ii) Conduct and chair a Project kickoff pre-construction meeting and record minutes with the contractor and the Program team, in which the Consultant shall discuss:
 - ◆ Insurance,
 - ◆ Communication, and
 - ◆ Safety, etc.
 - (iii) Make application to public agencies for necessary authorizations and permits, prepare and submit reports and drawings thereto, and appear before the same in support of all applications.
 - (iv) Provide five (5) complete sets of Tender Documents including addenda and drawings as per Appendix 15 Project Documentation Requirements to the contractor.
 - (v) Prepare a detailed Vendor Document Requirements (VDR) list based upon the requirements of the drawings and specifications. The list shall in detail identify all contractor submittal requirements.
 - ◆ Manage the VDR list and logs of contractor submittals.
 - ◆ Update and forward the VDR list and current logs of submittals to the contractor and Program Team.
 - (vi) Review and accept contractor submittals (i.e. shop drawings) supplied by the contractor or supplier. Each submittal shall be reviewed by a professional engineer.
 - ◆ Allow a minimum of one-hundred (100) hours for review of shop drawings and submittals.

- (vii) Forward final contractor submittals to the City as per document Appendix 15 Project Documentation Requirements.
 - (viii) Review and report to the City regarding laboratory, shop and other tests conducted on materials and/or equipment.
 - (ix) Review and provide recommendations for requests for alternate materials and methods. No alternates shall be approved without written authorization from the City.
 - (x) Consult and advise the City during the course of construction.
 - (xi) Provide the City with a copy of all significant correspondence relating directly or indirectly to the contract. These include correspondence originating from or distributed to, parties external to the Consultant. This shall be provided immediately following receipt or dispatch of same by the Consultant.
 - (xii) Keep a continuous record of Project activities including but not limited to daily reports, photographic record of construction work and equipment, Working Days, teleconferences, emails, inspections and observations sufficient to equip the City to provide valid evidence and relevant testimony in settlement of any claim involving the City by any court of law, or by any other party for damages thereto arising from the Project.
 - (xiii) Monitor and manage the contractor's schedule.
 - (xiv) Provide adequate and timely direction of field personnel by senior officers of the Consultant.
 - (xv) Review acceptability of inspection and test plans from contractors, vendors or manufacturers.
 - (xvi) Coordinate and prepare proposed change notice (PCN) regarding the contractor scope of work as required. This may include the preparation of specifications and drawings for the PCN.
 - ◆ Allow a minimum of forty (40) hours for this task.
 - (xvii) Coordinate and prepare Approved Contract Change (ACC) forms regarding the contractor scope of work as required and provide backup material to the Project Manager as requested.
 - ◆ Allow a minimum of twenty (20) hours for this task.
 - (xviii) Review and respond to contractor Request for Information (RFI)'s in a timely manner.
 - ◆ Allow a minimum of twenty (20) hours for this task.
 - (xix) Prepare contractor site instructions / clarifications / directives as required.
 - (xx) Interpret technical aspects of contract as requested by the City.
 - (xxi) Coordinate, manage and lead construction shutdown and tie-in protocols where plant operation is impacted. Prepare detailed shutdown or tie-in protocols that detail out a schedule for the work, delegate responsibilities, and clearly identify all operational impacts and plans to address. Review operational and construction risks and plan risk mitigation measures as appropriate. Act as the interface between the contractor and City during the shutdowns and tie-ins.
 - ◆ Base the construction shutdown and tie-in protocols on the procedures developed during the WSTP Level 3 Design phase.
 - ◆ Allow a minimum of eighty (80) hours for this task.
- (b) Resident Services
- (i) Allow for six (6) months of significant onsite construction activity.
 - (ii) Provide a weekly construction report during the course of construction. The weekly construction report shall include, but not be limited to:
 - ◆ Working Days and days lost due to inclement weather during the course of the construction;
 - ◆ Written and photographic records of the construction, including construction progress; and

- ◆ Provide brief descriptions of each photograph.
- (iii) Provide qualified personnel with appropriate discipline expertise to perform inspections of the construction, including but not limited to the following:
 - ◆ Inspect and accept excavation for, and inspection at the time of bedding placement, component laying and backfilling in respect of installation of buried services and foundations. Inspect installation of all connections to watermains, sewers, manholes, valves, hydrants, and excavation and/or exposing of underground services, structures, or facilities;
 - ◆ Inspect excavations to determine soil adequacy prior to installation of base and subbase courses for buried services, buried structures, foundations, roads and sidewalks;
 - ◆ Inspect formwork, reinforcing, foundations and piling; and
 - ◆ Conduct inspection of construction sufficient to ensure that the construction carried out by the contractor is in conformance with the drawings and specifications, provide report thereof.
- (iv) Provide a specific construction inspection report for each inspection. The construction inspection reports shall be prepared by, or under the supervision of a professional engineer and contain appropriate detail to ascertain whether the construction meets the requirements of the drawings and specifications. The specific construction inspection reports shall be in addition to the daily construction reports.
- (v) Witness quality control procedures implemented by the contractor, including but not limited to:
 - ◆ Witness hydrostatic and pressure testing of tanks, pipes and other specified equipment.
- (vi) Provide reference line and elevation control points for the works and check the contractor's adherence.
- (vii) Arrange for and carry out of testing of materials utilized by the contractor.
 - ◆ Notwithstanding C1.1(b), the cost to the Consultant for the provision of third-party testing, as authorized by the Project Manager, will be reimbursed as an Allowable Disbursement.
 - ◆ The Consultant shall ensure that selected third-party services are provided at competitive market rates.
 - ◆ Costs shall be substantiated by the provision of suitable documentation.
- (viii) Maintain current logs of the following and provide to the Project Manager on a weekly basis:
 - ◆ A current log of all construction reports.
 - ◆ A current log of all specific construction inspections and corresponding reports.
 - ◆ A materials testing log.
- (ix) Promptly report to the City any significant and unusual circumstances.
- (x) Prepare, update, maintain, and coordinate a deficiency list of all issues identified during inspections by the Consultant or the Program Team. Coordinate remediation of the deficiency list with the contractor.
- (xi) Coordinate and lead regular on-site review meetings with representatives of the contractor and Program Team.
 - ◆ The typical frequency of meetings shall be weekly, although meeting frequency may vary based upon the level of construction activity.
 - ◆ Prepare and distribute comprehensive meeting minutes within two (2) Business Days. Update the meeting minutes with corrections from other parties.

- (xii) Promptly prepare, certify, and submit progress estimates to the City for payment to the contractor(s) for construction performed in accordance with the drawings and specifications.
 - ◆ Act as Payment Certifier and administer all contracts as required under the Builder's Liens Act of Manitoba.
- (xiii) Coordinate and lead a comprehensive, detailed inspection prior to Substantial Performance, including the contractor and the Program Team. Document and report on all issues identified and coordinate completion of the issues.
- (xiv) Make a recommendation to the Project Manager when the contractor has achieved Substantial Performance and upon approval, prepare and issue a Certificate of Substantial Performance.
- (xv) Coordinate and lead a comprehensive, detailed inspection prior to Total Performance, including the contractor and the Program Team. Document and report on all issues identified and coordinate completion of the issues.
- (xvi) Provide an appropriate recommendation in written form to the Project Manager when the contractor has achieved Total Performance and upon approval, prepare and issue a Certificate of Total Performance.

D7.8.3 Commissioning

(a) General Requirements

- (i) Provide comprehensive leadership to the commissioning of the works. The Consultant has the responsibility to ensure that all commissioning activities are carried out to allow for the delivery of a fully operational facility compliant and complete in every respect.
 - ◆ Provide a Commissioning Leader appropriately qualified to lead the commissioning work. The Commissioning Leader shall be a senior engineer with experience in commissioning Projects.
 - ◆ Provide all qualified resources and organization to perform commissioning related activities pertaining to the Consultant's scope.
- (ii) Consult with and advise the City during the course of commissioning.
- (iii) Coordinate with City Operations personnel as required. Ensure that City Operations personnel are always aware of the current commissioning status and any upcoming operational requirements or impacts.
- (iv) The Consultant is fully responsible for the planning and leadership of the overall commissioning activities. While the contractor and the City may perform specific commissioning tasks, this does not reduce or eliminate the Consultant's responsibilities. Schedule and coordinate all commissioning works in coordination with the contractor's schedule.
- (v) Review all commissioning records and ensure that the overall commissioning records demonstrate compliance to the specifications and overall Project design requirements.
 - ◆ Ensure all equipment and control system settings are documented.
- (vi) Monitor commissioning activities, witness and certify the accuracy of the reported results.
- (vii) Sign-off on all commissioning and training records.
- (viii) Ensure all Commissioning Team members have clear definition of their role and understanding of their responsibilities.
- (ix) Coordinate with the contractor to ensure appropriate measures regarding safety, health and environmental aspects are implemented throughout the commissioning activities.
- (x) Review commissioning documentation for performance, reliability, durability of operation, accessibility, maintainability and operation efficiency under all conditions of operation.
- (xi) Prepare agenda, lead and record minutes of the commissioning meetings.

- (xii) Manage the commissioning documentation.
 - (xiii) Ensure the commissioning process meets effluent licencing requirements. Anticipate any potential commissioning scenarios that impact on licensing compliance and, in conjunction with the Project Manager, liaise with the Wastewater Services with respect to commissioning activities.
- (b) Planning
- (i) The Consultant is fully responsible for the planning of the overall commissioning activities. This includes but is not limited to:
 - ◆ Update the Commissioning Plan prepared during the WSTP Level 3 Design Phase and issue to all relevant parties.
 - ◆ Define the commissioning activities.
 - ◆ Develop commissioning procedures and protocols to fully commission the facility. Coordinate the review of the documents with the City and contractor, and update as required.
 - (ii) Allow a minimum of forty (40) hours for this task.
- (c) Pre-Commissioning
- (i) Pre-Commissioning activities will include the factory acceptance testing, on-site inspection, and testing of equipment incorporated into the Project.
 - ◆ Records shall be generated for all pre-commissioning inspections and tests.
 - (ii) The Consultant is responsible to specify all pre-commissioning requirements as part of the WSTP Level 3 Design.
 - (iii) The Consultant's responsibilities include but are not limited to:
 - ◆ Managing the overall pre-commissioning requirements and ensuring that all required pre-commissioning work is completed. Prepare and manage a master list of pre-commissioning requirements.
 - ◆ Witness the PLC and HMI Factory Acceptance Tests (FATs).
 - ◆ Witness a selected portion of the pre-commissioning tests (approximately a third).
 - ◆ Review all pre-commissioning records, including testing forms.
 - ◆ Organization and filing of all pre-commissioning records with the City.
 - (iv) The contractor is expected to be responsible for the execution of the majority of the pre-commissioning work, such as pre-start-up testing of equipment.
 - (v) Allow a minimum of sixty (60) hours for this task.
- (d) Training
- (i) Coordinate and manage training sessions for City personnel for the operation and maintenance of new facilities and equipment. This includes but not limited to planning and scheduling of training sessions, review of training procedures and training documents prepared by the contractor.
 - (ii) The Consultant is responsible for the overall packaging and quality assurance of the training program, although delivery of selected portions may be by the contractor or subcontractor.
 - (iii) Coordinate to ensure video records of each unique training session are provided to the City. Ensure acceptable and uniform standard of video quality.
 - (iv) In addition to the above, include in the Consultant's scope of work:
 - ◆ One two-hour classroom training session to provide Project overview training to City personnel. Train on overall operation and maintenance requirements. Address detailed training gaps that are not addressed by other training sessions. Provide appropriate hand-outs of the training material.
 - (v) Allow a minimum of forty (40) hours for this task.

- (e) Process Commissioning
 - (i) Be present on-site during commissioning and witness commissioning activities.
 - (ii) Start-up, test, verify and document that the flowmeter, sampling system and all associated controls perform as designed. Representative operating scenarios shall be tested.
 - (iii) Verify the performance of flowmeter installation utilizing WEWPCC plant flow measurement or portable flow measurement technologies.
 - (iv) Allow a minimum of thirty-two (32) hours for this task.
- (f) HVAC Commissioning
 - (i) Be present on-site during commissioning and witness commissioning activities.
 - (ii) Test, verify and document that the HVAC system and all associated controls perform as designed. Test all operating scenarios.
- (g) Automation Commissioning
 - (i) Be present on-site during commissioning and witness commissioning activities.
 - (ii) Test, verify and document that the automation system and all associated controls perform as designed. Test all operating scenarios.
 - (iii) Allow a minimum of twenty-four (24) hours for this task.
- (h) Asset Data Schedule
 - (i) Provide a comprehensive list of all maintainable assets along with associated data. This will be a spreadsheet in a format defined by the City for uploading into the City's Oracle Work and Asset Management (OWAM) system. It is expected that this document will be an amalgamation and reformatting of other information prepared and received by the Consultant.
- (i) Commissioning Handover Package
 - (i) Compile and handover to the City all commissioning documentation, including but not limited to:
 - ◆ Commissioning plans and procedures,
 - ◆ Evidence of commissioning verification,
 - ◆ Deficiency reports and corrective actions taken,
 - ◆ Training material and records, and
 - ◆ Other commissioning documents.
 - (ii) Integrate all relevant and appropriate commissioning documentation into the Commissioning Manual specified in D7.8.4(b)(iv).

D7.8.4 Operations Manuals

- (a) The City Operations team utilizes operations manuals as reference documents for the operation and maintenance of the facility. The operations manuals provide detailed documentation of the area process and its components, monitoring and control, operational and safety requirements and equipment data, etc.
- (b) Develop and provide the following Operations Manuals in accordance with the Operations Manual Specification in Appendix 12:
 - (i) Area Process Operations Manual,
 - (ii) Equipment and Maintenance Task Manual,
 - (iii) Training Manual, and
 - (iv) Commissioning Manual.
- (c) Notwithstanding Appendix 12, the following will not be required:
 - (i) Asset Data Manual, and
 - (ii) Drawing Manual.
- (d) Requirements include:
 - (i) All documents shall be text-searchable.

- (ii) Native versions of all documents produced by the Consultant are required.
- (e) Schedule the production of the Operations Manuals such that the draft version is issued as part of the commissioning / training activities, prior to Substantial Performance.
 - (i) Allow a minimum of twenty-five (25) Business Days for Program Team review of the manuals.
- (f) Submit final copies of the manuals as per the Project Documentation Requirements in Appendix 15.
- (g) Deliverables from Contract Administration shall include, but not be limited to:
 - (i) All Contract Administration documentation such as Meeting Minutes, RFIs, PCN, ACC, weekly construction reports, submittals, etc.,
 - (ii) Commissioning Handover Package,
 - (iii) Asset Data Schedule, and
 - (iv) Operations Manuals.

D7.9 Post Construction Services

D7.9.1 As-Built Drawings

- (a) Prepare and submit As-Built Drawings for the Project within one (1) month of Total Performance as outlined in Appendix 15 Project Documentation Requirements.
- (b) As-Built Drawings shall include contractor markups, contract change orders, RFI's, and Consultant markups from inspections of the work.
- (c) Submit one (1) draft electronic copy of the As-Built Drawings for City review prior to final issuance of the paper copies.
- (d) Upon receipt of the review comments, make required modifications. Submit final As-Built drawings in accordance with Appendix 15 Project Documentation Requirements.

D7.9.2 Warranty

- (a) Provide inspection services during the warranty period of the Contract on an as-needed basis.
- (b) Coordinate the correction of warranty issues with the contractor and City.
- (c) Provide a detailed inspection of the Project with the contractor and the City prior to the end of the period of the contractor warranty period.
- (d) Coordinate and issue Certificate of Acceptance.

D7.9.3 Deliverables from Post Construction shall include, but not be limited to:

- (a) As-Built Drawings, and
- (b) Certificate of Acceptance.

D8. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

- D8.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Consultant are the property of the City and shall not be appropriated for the Consultant's own use, or for the use of any third-party.
- D8.2 The Consultant shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Project Manager.
- D8.3 The following shall be confidential and shall not be disclosed by the Consultant to the media or any member of the public without the prior written authorization of the Project Manager:
 - (a) information provided to the Consultant by the City or acquired by the Consultant during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and

(c) any statement of fact or opinion regarding any aspect of the Contract.

D8.4 A Consultant who violates any provision of D8 may be determined to be in breach of Contract.

SUBMISSIONS PRIOR TO START OF SERVICES

D9. AUTHORITY TO CARRY ON BUSINESS

D9.1 The Consultant shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Consultant does not carry on business in Manitoba, in the jurisdiction where the Consultant does carry on business, throughout the term of the Contract, and shall provide the Project Manager with evidence thereof upon request.

D10. INSURANCE

D10.1 The Consultant shall procure and maintain, at its own expense and cost, insurance policies with limits no less than those shown below.

D10.2 As a minimum, the Consultant shall, without limiting its obligations or liabilities under any other contract with the City, procure and maintain, at its own expense and cost, the following insurance policies:

(a) Comprehensive or Commercial General Liability Insurance including:

- (i) an inclusive limit of not less than \$2,000,000 for each occurrence or accident with a minimum \$2,000,000 Products and Completed Operations aggregate and \$5,000,000 general aggregate;
- (ii) all sums which the Consultant shall become legally obligated to pay for damages because of bodily injury (including death at any time resulting therefrom) sustained by any person or persons or because of damage to or destruction of property caused by an occurrence or accident arising out of or related to the Services or any operations carried on in connection with this Contract;
- (iii) coverage for Products/Completed Operations, Blanket Contractual, Consultant's Protective, Personal Injury, Contingent Employer's Liability, Broad Form Property Damage, Employees as Additional Insureds, and Non-Owned Automobile Liability; and
- (iv) a Cross Liability clause and/or Severability of Interest Clause providing that the inclusion of more than one Insured shall not in any way affect the rights of any other Insured hereunder in respect to any claim, demand, suit or judgment made against any other Insured;

(b) If applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Consultant directly or indirectly in the performance of the Service. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.

(c) Professional Errors and Omissions Liability Insurance including:

- (i) an amount not less than \$500,000 per claim and \$1,000,000 in the aggregate.

D10.2.1 The Consultant's Professional Errors and Omissions Liability Insurance shall remain in force for the duration of the Project and for twelve (12) months after total performance.

D10.3 The policies required in D10.2(a) shall provide that the City is named as an Additional Insured thereunder and that said policies are primary without any right of contribution from any insurance otherwise maintained by the City.

D10.4 The Consultant shall require each of its Subconsultants to provide comparable insurance to that set forth under D10.2(a).

- D10.5 The Consultant shall provide the Project Manager with a certificate(s) of insurance for itself and for all of its Subconsultants, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Services, but in no event later than the date specified in C4.1 for the return of the executed Contract. Such Certificates shall state the exact description of the Services and provide for written notice in accordance with D10.8.
- D10.6 The Consultant may take out such additional insurance as it may consider necessary and desirable. All such additional insurance shall be at no expense to the City.
- D10.7 All insurance, which the Consultant is required to obtain with respect to this Contract, shall be with insurance companies registered in and licensed to underwrite such insurance in the Province of Manitoba.
- D10.8 The Consultant shall not cancel, materially alter, or cause any policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the City.

SCHEDULE OF SERVICES

D11. COMMENCEMENT

- D11.1 The Consultant shall not commence any Services until it is in receipt of a notice of award from the City authorizing the commencement of the Services.
- D11.2 The Consultant shall not commence any Services until:
- (a) the Project Manager has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D9; and
 - (ii) evidence of the insurance specified in D10;
 - (b) the Consultant has attended a meeting with the Project Manager, or the Project Manager has waived the requirement for a meeting.
- D11.3 The City intends to award this Contract by August 31, 2015.

D12. PROJECT MILESTONES

- D12.1 It is desired that the Consultant achieve the following Project milestones in the provision of the Services for this Contract;
- (a) Provision of initial CSMP within one (1) month of assignment award;
 - (b) Effluent Outfall Pipeline Inspection finalized within four (4) months of assignment award;
 - (c) WSTP Level 2 Design finalized within five (5) months of assignment award;
 - (d) WSTP Level 3 Design issued for tender within nine (9) months of assignment award;
 - (e) Construction contract awarded within twelve (12) months of assignment award; and
 - (f) Construction Total Performance complete within twenty-four (24) months of assignment award.

APPENDIX 1 – DRAWINGS

Item Number	City Drawing Number	Drawing Title
1.	CSL-01	Charleswood Sewage Lagoon General Site and Contour Plan
2.	CSL-04	Charleswood Sewage Lagoon Architectural Site Plan, Floor Plan, Elevations, Section & Details. Effluent Gate Chamber.
3.	CSL-05	Charleswood Sewage Lagoon Effluent Gate Chamber Details
4.	CSL-06	Charleswood Sewage Lagoon Effluent Gate Chamber Structural
5.	CSL-22	Charleswood Lagoon Effluent Pipe Line General Layout
6.	CSL-23	Charleswood Lagoon Effluent Pipe Line (as constructed)
7.	CSL-24	Charleswood Lagoon Effluent Pipe Line (as constructed)
8.	CSL-25	Charleswood Lagoon Effluent Pipe Line Standard Manhole Details
9.	CSL-27	Aerated Lagoons Charleswood Site Plan and General Arrangement
10.	WEP-688	West End Water Pollution Control Centre Lagoon Modifications Overflow and Interconnection Pipe Location Plan and Typical Details
11.	CSL-39	Charleswood Sewage Lagoons Interconnection Details
12.	WEP-46	West End Water Pollution Control Centre Areal L – General and Siteworks; Outfall – Plan Profile Sheet No. 1
13.	WEP-47	West End Water Pollution Control Centre Areal L – General and Siteworks; Outfall – Plan Profile Sheet No. 2
14.	WEP-48	West End Water Pollution Control Centre Areal L – General and Siteworks; Outfall – Plan Profile Sheet No. 3