



**THE CITY OF WINNIPEG**

# **REQUEST FOR PROPOSAL**

**RFP NO. 182-2015**

**PROFESSIONAL ENGINEERING CONSULTING SERVICES FOR THE NORTH END  
SEWAGE TREATMENT PLANT (NEWPCC) UPGRADE**

**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 PROFESSIONAL ENGINEERING CONSULTING SERVICES FOR THE NORTH END SEWAGE TREATMENT PLANT (NEWPCC) UPGRADE

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, July 15, 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 of the NEWPCC on May 13, 2015 and May 20, 2015 at 9am prompt. The same tour will be provided on both days.

B3.1.1 Proponents are requested to register for the Site Investigation by contacting the Project Manager identified in D2.

B3.1.2 Registration requests shall identify the Proponent, their contact information, names of intended attendees and date of attendance. Subconsultants shall also be identified along with their intended attendees.

B3.1.3 Proponents are to meet at the reception area of the NEWPCC located at 2230 Main St.

B3.1.4 Proponents are required to provide their own Personal Protective Equipment (PPE); at a minimum hard hat, safety footwear, safety glasses and flashlights.

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 B4 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;
  - (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;
  - (d) Co-Location Strategy (Section F) in accordance with B13; and
  - (e) Project Schedule (Section G) in accordance with B14.

- 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 two (2) unbound 8.5" x 11" original (marked "original") including drawings and seven (7) copies (copies can be in any size format) for sections identified in B7.1 and B7.2.
- B7.6 Proponents should additionally submit on a standard compact disk a duly completed Form B: Fees in Microsoft Excel format (.xls).
- B7.7 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.
- (a) Proposal submissions should generally employ a minimum printed text font size of 11 point.
- B7.8 Proponents are advised that inclusion of terms and conditions inconsistent with the Request for Proposal, will be evaluated in accordance with B23.1(a).
- B7.9 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.
- B7.10 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.
- B7.11 Proposals shall be submitted to:  
The City of Winnipeg  
Corporate Finance Department  
Materials Management Division  
185 King Street, Main Floor  
Winnipeg MB R3B 1J1
- B7.12 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;
- (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;
  - (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 The Form B: Fees comprises of the following tables:
- (a) Summary of all Fees;
  - (b) Hourly rates – Time Based Fee; and
  - (c) Allowable Disbursement – Time Based Fee.
- B9.1.2 Fees shall include Allowable Disbursements as defined in C1.1(b).
- B9.1.3 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 Fixed Fees for D6.1.4(a) as described in Scope of Services and as listed in Form B: Fees:
- B9.2.1 In addition to the Form B: Fees, proposals shall **also** include a detailed breakdown of the Fixed Fee in matrix format for all disciplines according to the Scope of Services. Details shall include as a minimum:
- (a) the work activities of the proposed Services organized by Proponent, partners, Subconsultants or member of consortium;
  - (b) the respective number of hours per work activity per task per each proposed individual;
  - (c) amount per task shall not exceed \$250,000. Tasks greater than \$250,000 shall be subdivided into sub tasks.
  - (d) name and role of proposed individuals;
  - (e) the respective engineering discipline or management function as applicable;
  - (f) the applicable hourly rates; and
  - (g) the associated disbursements.

- B9.3 The Proponent shall submit Time Based Fees for D6.1.4(b) and D6.1.4(c) as described in the Scope of Services and as listed in Form B: Fees. For bid purposes assume that the:
- (a) professional engineering consulting services relating to Contract Administration Services for the Design Build Contract commences in 2018;
  - (b) professional engineering consulting services related to Contract Administration and Post Construction Services for the Design Build should be based on eighty four (84) months as follows:
    - (i) Sixty (60) months for the Contract Administration Services; and
    - (ii) Twenty four (24) months for the Post Construction Services.
  - (c) professional engineering services related to the Contract Administration Services for the design bid build contract commences after the award of the Design Build Contract; and
  - (d) construction for the Design Bid Build Contract(s) may be completed within eighteen (18) months.
- B9.3.1 Notwithstanding C8, the City does not guarantee the number of years or months required during the Contract Administration or Post Construction Services (could be more or less). The number of years or months stated in B9.3 is for evaluation purposes only.
- B9.3.2 In addition to the Form B: Fees, proposals shall **also** include a detailed breakdown of the Time Based Fees in matrix format for all disciplines according to the Scope of Services. Details shall include as a minimum:
- (a) the work activities of the proposed Services organized by Proponent, partners, Subconsultants or member of consortium;
  - (b) the respective number of hours per work activity per task per each proposed individual;
  - (c) Amount per task shall not exceed \$250,000. Tasks greater than \$250,000 shall be subdivided into sub tasks;
  - (d) name and role of proposed individuals;
  - (e) the respective engineering discipline or management function as applicable;
  - (f) the applicable hourly rates; and
  - (g) the associated disbursements.
- B9.3.3 In addition to B9.3.2, the Proponent shall provide
- (a) A table of hourly rates for each year used for the Detailed Design, Contract Administration Services and Post Construction Services. The table shall include hourly rates for all personnel and categories/titles of personnel expected to work on the project;
    - (i) Meal expenses shall not exceed \$100 per day with receipts or \$60 per day as per diem. Costs for alcoholic beverages will not be reimbursable and shall not be claimed.
    - (ii) For bidding purposes, the Proponent should assume that the resident team is on site full time during construction.
    - (iii) The resident teams' hourly rates shall be inclusive of all associated Allowable Disbursements.
  - (b) An average monthly fee for the Allowable Disbursements (less the Allowable Disbursements for the resident teams) during Contract Administration Services and Post Construction Services for each year indicated in Form B Fees;
    - (i) Identify the categories of Allowable Disbursements and estimated cost for each.
    - (ii) Identify the Consultant markup percentage that would be applied. The markup will be limited to a maximum of 5%. Markup shall be included in the Allowable Disbursement indicated in the Fees.
    - (iii) Include assumptions and rationale in obtaining the average monthly Allowable Disbursements specified in C 1.1(b).



- ◆ The Consultant shall ensure that selected third party services are competitively selected based on qualifications and price.
- ◆ Costs shall be substantiated by the provision of suitable documentation correlated with the applicable submitted daily Consultant report log.

- B9.3.4 The Proponent shall allow a total of 1500 hours each for the Administration and Maintenance buildings for modification to the Enhanced preliminary design report as indicated in Form B: Fees and described in Part F.
- (a) The number of hours to be used shall be preapproved by the City before the Consultant commences the work.
  - (b) The number of hours is a total for all required disciplines.
- B9.4 Adjustments to Fees will only be considered based on increases and decreases 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) increases to hourly rates.
    - (i) Proposal shall identify and detail all rate escalations including salary adjustments.
    - (ii) The total Fee in the Proposal shall include all escalations.
- B9.5 If the City requires additional services, the rates to be used will be based on the rates provided in the Proponent's proposal.
- B9.6 During the course of this project, the City intends to procure and engage the Services of a third party:
- (a) Cost Consultant for additional and independent cost estimation purposes;
  - (b) Fairness Advisor to provide independent assurance to the City regarding the fairness of the procurement of the Design Build Proponent; and
  - (c) Partnering Consultant to facilitate project progress.
- B9.6.1 The cost for procuring and engaging the Cost Consultant, Fairness Advisor and Partnering Consultant shall not be part of the Consultant's fee.
- B9.7 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.
- (a) For City information purposes, the subtotal Fees per phase shall be broken down into Category III and non-Category III Consultant Services as indicated in Form B: Fees, and
  - (b) Described in the Province of Manitoba Tax Bulletin 058 at <http://www.gov.mb.ca/finance/taxation/bulletins/058.pdf>.
- B9.8 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 Proponent should submit the experience of their firm and that of their Subconsultants as described in this Section and as listed in Forms C-1 and C-2: Experience of Proponent and Subconsultants.
- B10.2 The Proposal should include general firm profile information, including years in business, average volume of work and number of employees. Include other pertinent information for the Proponent and all Subconsultants demonstrating their ability to undertake the current work.
- B10.3 The Proponent should submit a total of two (2) Design Build municipal water and/or wastewater treatment projects substantially completed in the last ten (10) years. The Projects shall involve the preparation of RFQs and RFPs for the design build procurement.

- B10.3.1 For evaluation purposes, higher scores will be given to projects that meet the following criteria.
- (a) the Proponent performed the role of Owner's Advocate similar to those described in the Scope of Services;
  - (b) the Construction value is  $\geq$ \$100Million;
  - (c) the Owner's Advocate Design Build Procurement Services are similar to those described in E5; and
  - (d) the Design Build delivery method was a fixed price (no later than at preliminary design).
- B10.4 The Proponent should also submit a total of three (3) municipal projects substantially completed in the last ten (10) years regardless of the procurement model. The Proponent should demonstrate their experience and innovations in comparable projects of similar size and scope.
- B10.4.1 The submitted projects will be evaluated based on the following criteria:
- (a) wastewater treatment facility in cold climates for an average daily design flow of approximately equal to or more than 100 mega litres per day to biologically remove nutrients (nitrogen and phosphorus) with wet weather flow treatment from combined sewers;
  - (b) anaerobic digestion, sludge dewatering, energy and nutrient (phosphorus) recovery facilities;
  - (c) wastewater facility planning, design, construction management, contract administration and plant commissioning related Services; and
  - (d) innovations relating to overall project cost, ease of tie-ins, ease of commissioning and obtaining operator, maintenance, and equipment manufacture experiences and incorporating it into the design.
- B10.4.2 Design Build type project(s) that have been submitted under B10.3 may also be submitted as a project(s) for B10.4.
- B10.5 For each project listed in B10.3, the Proponent should submit a Form C-1 with the following information:
- (a) include water or wastewater treatment plant capacity; indicate the treatment processes and other relevant information demonstrating similarity to project criteria in B10.3;
  - (b) provide clear and comprehensive description of the design build RFQ and RFP preparation, design build procurement process, role of the Proponent or Subconsultant and the construction value; and
  - (c) reference information (two current names from the project owner with telephone numbers per project).
    - (i) References may be used to confirm the information provided.
    - (ii) Incorrect or out of date contact information may negatively impact the evaluation.
- B10.5.1 If more than two (2) projects are submitted for B10.3 and/or included in Form C-1, only the first two (2) referenced projects in Form C-1 will be evaluated.
- B10.6 For each project listed in B10.4 the Proponent should submit a Form C-2 with the following information:
- (a) a clear and comprehensive description of the project – include project owner, project objectives; influent flow of wastewater treatment plant in average day; indicate the treatment processes for the liquid and sludge stream; identify influent temperature of the wastewater and other relevant information demonstrating similarity to project criteria in B10.4;
  - (b) a clear and comprehensive description of the Consultant Services– Provide details of the role of the Consultant/ Subconsultant; (indicate involvement in wastewater facility planning;

wastewater design, management of construction, contract administration, plant commissioning and related services, and identify project procurement model);

- (c) project Innovations - describe the innovations and the benefits your firm brought to the submitted project in terms of the overall project cost, ease of tie-ins, ease of commissioning and obtaining operator, maintenance input and incorporating them into the design;
- (d) original and final cost – Provide the value of the scope of the Consultant Services assignment and the value of the construction. Identify the amount of scope changes and the reasons for each of them;
- (e) design and construction schedule – Include anticipated project schedule and actual project delivery schedule, showing design schedules and the construction schedules and provide the reasons for any discrepancies between the two (if any).; and
- (f) reference information (two current names from the project owner with telephone numbers per project).
  - (i) References may be used to confirm the information provided.
  - (ii) Incorrect or out of date contact information may negatively impact the evaluation.

B10.6.1 If more than three (3) projects are submitted for B10.4 and/or included in Form C-2, only the first three (3) referenced projects in Form C-2 will be evaluated.

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

B11.1 The Proponent should submit the experience of the Key Personnel assigned to this Project as described in this Section and in Form D: Experience of Key Personnel.

B11.1.1 A maximum of two (2) key personnel positions may be assigned to one individual

- (a) Separate forms are still required for each Key Personnel position.
- (b) Proponents are required to identify the experience for each position assigned to each Key Personnel.

B11.2 The Proponent should identify the following Key Personnel for the Services detailed in PART E - Owners Advocate \_ Design Build Services. The Proponent is responsible for ensuring they have adequate staff for the successful delivery of the NEWPCC Upgrade Project.

- (a) Owner's Advocate Project Manager (OAPM): This key role shall serve as the project manager for the Services detailed in PART E - Owners Advocate \_ Design Build Services.
- (b) Design Build Procurement Lead: This key role shall lead the Procurement Services outlined in E5.
- (c) Design Leaders:
  - (i) Electrical;
  - (ii) Instrumentation, control and automation;
  - (iii) Structural;
  - (iv) Process – Liquid stream;
  - (v) Process – Sludge stream;
  - (vi) Process mechanical and hydraulics; and
  - (vii) HVAC.
- (d) Lead Resident Engineer: This role is outlined in E6.
- (e) Lead Commissioning Expert: This role is outlined in E6.

B11.2.1 For evaluation purposes, higher scores will be given to Key Personnel with similar role in comparable projects as defined in B10.4.1(a) to B10.4.1(d).

B11.2.2 In addition to B11.2.1, the OAPM, Design Build Procurement Lead and Lead Resident Engineer shall have Design Build experience in a similar role.

- B11.3 The Proponent should identify the following Key Personnel for the Services detailed in PART F - Professional Engineering \_ Design Bid Build Services. The Proponent is responsible for ensuring they have adequate staff for successful delivery of the project.
- (a) Project manager (DBB): This key role shall serve as the project manager for the Services detailed in PART F - Professional Engineering \_ Design Bid Build Services.
- B11.3.1 For evaluation purposes, higher scores will be given to
- (a) Key Personnel with similar role in comparable projects related to upgrades of wastewater treatment facilities; and
  - (b) Projects substantially completed with the past 5 years.
- B11.4 Using Form D: Experience of Key Personnel, the Proponent should indicate the experience of the Key Personnel as follows:
- (a) proposed role and responsibilities;
  - (b) core capabilities and/or technical skills;
  - (c) educational background, degrees, professional recognitions, job title and years of experience (related to scope of services, in similar role as proposed and with existing employer);
  - (d) a total of two (2) comparable projects substantially completed in the last ten (10) years, in which they have played a similar role as proposed for this Project;
  - (e) the OAPM, Design Build Procurement Lead and Lead Resident Engineer should have prior Design Build experience reflected in their projects;
  - (f) for each project provide the following:
    - (i) Role of the person on the project;
      - ◆ Emphasize roles which are similar to those proposed for this project.
    - (ii) Project name and owner;
    - (iii) Description of project;
    - (iv) Responsibilities and achievements; and
    - (v) Reference information should be two current names (from the project owner) with telephone numbers per project.
      - ◆ References will be used to confirm the information provided.
      - ◆ Incorrect or out of date contact information may negatively impact the evaluation negatively impact the evaluation.
  - (g) Other required information as indicated in Form D.
- B11.4.1 If more than two (2) projects are included in Form D, only the first two (2) projects for each Key Personnel position will be evaluated.
- B11.4.2 If a key person is assigned two (2) positions, a Form D for each position must be completed. The comparable projects may be different for each position.

## **B12. PROJECT UNDERSTANDING AND METHODOLOGY (SECTION E)**

- B12.1 The Proponent should describe its approach to overall team formation for the entire project and coordination of team members. Clearly indicate in your approach why the City should select your team. Supporting documents should include
- (a) the Key Personnel indicated in B11.2 , B11.3 and additional personnel proposed by the Proponent;
  - (b) personnel job functions; and
  - (c) two (2) organizational charts (one for Design Build team and one for Design Bid Build team) which include all phases of the Project and the entire team.

- B12.1.1 Include a resume for each personnel identified on the organizational chart that is not identified as a key personnel. Each resume should be a maximum of 2 pages.
- B12.2 The Proponent should clearly describe their firm's project management approach that they will implement during the performance of the Scope of Services. The Proponent's project management approach should be specific to the NEWPCC Upgrade Project. This approach should address how the Proponent intends to manage the following aspects during the engineering assignment and the construction:
- (a) Communications (DB and DBB) – describe how the Proponent will collaborate with the City during the design and construction phase including coordination with the City operation and maintenance staff.
  - (b) Cost management (DB and DBB) – describe how the Proponent will control the engineering costs as well as the life cycle costs of the overall NEWPCC facility.
  - (c) Quality management (DB and DBB) – describe what the Proponent's quality assurance and quality control (QA/QC) will be during design and construction and who will be responsible for QA/QC for each discipline and document.
  - (d) Scope/schedule (DB and DBB) – describe how the Proponent will maintain the Proponent's scope and schedule during the design phase and manage the:
    - (i) design builder so they maintain their schedule; and
    - (ii) DBB contractor so they maintain their schedule.
- B12.3 The Proponent should address how they intend to carry out the Scope of Services as follows:
- (a) clearly identify and explain work activities in each phase. The description should address each of the major sections in;
    - (i) PART E - Owners Advocate \_ Design Build Services; and
    - (ii) PART F - Professional Engineering \_ Design Bid Build Services.
  - (b) describe and address the major design and construction issues in coordinating the design builder and the design bid build Contractor;
  - (c) describe the collaborative process/method to be used by the Key Personnel of the team in the various phases of the Project;
  - (d) describe the activities and Services to be provided by the City and other information that conveys the Proponent understanding of the Project requirements; and
  - (e) provide rationale to support the number of hours assigned by the Proponent in the Form B: Fees and the Proponent's Fee matrix for
    - (i) Contract Administration Services and Post Construction Services in PART E - Owners Advocate \_ Design Build Services.
    - (ii) Detailed Design, Contract Administration Services and Post Construction Services in PART F - Professional Engineering \_ Design Bid Build Services.

### **B13. CO-LOCATION STRATEGY (SECTION F)**

- B13.1 The Consultants' team shall co-locate with the WSTP team as indicated in D6.2:
- (a) after the award of the Consultants' Contract;
    - (i) The Consultants' team and the WSTP team shall be located together in the same area in an office in Winnipeg.
    - (ii) During co-location, the Consultant's team members are required to work only on the NEWPCC Upgrade Project.
  - (b) after the award of the Design Build Contract with the WSTP team and the design builder.
- B13.2 The Proponent shall identify the team that will be co-located with the City during the design, procurement and construction stages.

- (a) The team members shall be identified by the Scope of Services as illustrated in Parts E and F.
- (b) The co-location team does not always have to be the key personnel however the team members should be personnel working on the project.
- (c) Provide an organization chart(s) with roles and responsibilities for the co-located team(s).

**B13.3** The Proponent shall provide a detailed and comprehensive co-location strategy. The strategy shall include but not be limited to:

- (a) the co-location approach;
  - (i) What strategic resources the Consultant plans to co-locate and why.
  - (ii) Identify the co-location team makeup for the different phases of the project.
  - (iii) How the Consultant will effectively communicate with their staff and sub-consultants located in other offices to timely and efficiently progress the work.
- (b) activities to be performed either by the Proponent's staff or by Subconsultants outside the
  - (i) Co-location office and
  - (ii) City of Winnipeg.
- (c) proposed arrangements involving out-of-town staff and Subconsultants to participate in the project to ensure:
  - (i) Effective communication;
  - (ii) Quality control;
  - (iii) Distribution and consolidation of information; and
  - (iv) Participation in coordination and review functions
- (d) the period of time each member of the team will be in the allotted area of the co-location office during the co-location period.
  - (i) Identify each period by the major work items in the Parts E and F and per personnel.

#### **B14. PROJECT SCHEDULE (SECTION G)**

**B14.1** Proponents should present the most effective schedule attainable by developing a carefully considered critical path method schedule using or saving as Microsoft Project 2010.

**B14.1.1** There shall be separate schedules for services related to Design Build and Design Bid Build.

- (a) Tie-ins between Design Build and Design Bid Build work should be clearly identified.

**B14.1.2** The schedule should address each requirement of the Scope of Services and be complete with

- (a) activity durations (monthly timescale);
- (b) Design Build milestone submission dates or events for at least;
  - (i) Consultant services management plan and updates;
  - (ii) Project definition report;
  - (iii) Enhanced preliminary design report;
  - (iv) Design Build technical elements;
  - (v) Cost development documents;
  - (vi) Design Build RFQ;
  - (vii) Design Build RFP;
  - (viii) Contract administration Services; and
  - (ix) Post construction Services;.
- (c) Design Bid Build milestone submission dates or events for at least
  - (i) Consultant services management plan and updates;

- (ii) Project definition report;
- (iii) Preliminary design report;
- (iv) Cost development documents;
- (v) 75% Detailed Design;
- (vi) 95% Detailed Design;
- (vii) Construction drawings;
- (viii) Contract Administration Services; and
- (ix) Post Construction Services.

**B14.1.3** The Proponent's schedule should include:

- (a) review and approval times for:
  - (i) Consultant's internal review period;
  - (ii) a minimum of three (3) weeks for reviews by the WSTP unless otherwise agreed. The review period to be commensurate to the number of pages and complexity of the document;
  - (iii) reasonable times for third party review (such as CP rail, Manitoba Hydro, and other City departments) and guidance/approval processes if required; and
  - (iv) Adequate time for the award of RFQ, RFP and Bid Opportunity documents by the City.
    - ◆ Shortlisting of DB proponents through RFQ's may take a minimum of six (6) months from posting the RFQ.
    - ◆ The award of the DB contract from posting of the RFP to contract award may take a minimum of 15 months.
- (b) project deliverables, deliverable review meetings, workshops and progress meetings. Meetings should be identified within the relevant phase;
- (c) adequate breakdown of each phase into activities and organized by deliverables;
- (d) project summary, phase summary, start and completion dates for the Project and each phase;
- (e) expand the schedule to show Project dependency column; and
- (f) the critical path.

**B14.2** The Proponent should provide detailed commentaries supporting the appropriateness of the schedule.

**B14.2.1** For evaluation purposes, higher points will be given to commentaries clearly supporting the logic and time frames behind the schedule.

## **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; and
- (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 and staff an office 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 planning, design, management of construction and contract administration for comparable projects of similar complexity, scope and value; and
- (b) be fully capable of performing the Services required to be in strict accordance with the terms and provisions of the Contract; and
- (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 KGS Group Ltd. is working on the NEWPCC Power Supply Upgrade. In the City's opinion, this relationship or association does not create a conflict of interest or will not likely create a perception of conflict of interest because of this full disclosure. Therefore, KGS Group Ltd. is eligible to participate as a Consultant, Subconsultant, member of consortium, etc. for the Professional Engineering Consulting Services for the NEWPCC Upgrade.

B16.2 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 the NEWPCC Upgrade.

B16.3 Any organization that works on this Project (Professional Engineering Consulting Services for the NEWPCC Upgrade) as a Consultant, Subconsultant, member of consortium, etc., as a result of being awarded the Contract for this Project by the City shall be deemed ineligible to participate in the potential Design Build or Design Bid Build construction contracts for the NEWPCC Upgrade.

B16.4 Proponents are advised that the City will engage the Services of a third party Cost Consultant and Fairness Advisor and may engage a Legal Advisor for Services related to this Project under separate Contracts.

- (a) Any organization that works on this Project (Professional Engineering Consulting Services for the NEWPCC Upgrade) as a Consultant, Subconsultant, member of consortium etc. shall **not** be eligible to be contracted for or perform services under the contract for a Cost Consultant, Fairness Advisor or Legal Advisor.



## **B17. DISCLOSURE**

B17.1 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.

B17.2 The Persons are:

- (a) SNC Lavalin Inc; and
- (b) Stantec Consulting Ltd.
- (c) AECOM.

B17.3 Additional Material:

- (a) Tie-in documents (Appendix 1): The works related to these tie-ins were carried out to demonstrate that a feasible option exists for the tie-ins. The Consultant is responsible for determining tie-in options acceptable to the City.
- (b) A feasibility assessment was carried out to evaluate potential reuse of the existing sludge facilities based on visual observation. The interior of all the digester and sludge tanks were not available for visual observation.
  - (i) Due to risks inherent in reusing existing facilities, the City decided to proceed with a new sludge treatment train for sludge storage, handling and digestion.
- (c) Assistance with the evaluation of fecal coliform non-compliance issues (Appendix 2).

## **B18. OPENING OF PROPOSALS AND RELEASE OF INFORMATION**

B18.1 Proposals will not be opened publicly.

B18.2 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/>.

B18.3 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.

B18.4 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.

## **B19. IRREVOCABLE OFFER**

B19.1 The Proposal(s) submitted by the Proponent shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.

B19.2 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.

## **B20. WITHDRAWAL OF OFFERS**

B20.1 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.

- B20.1.1 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.
- B20.1.2 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.
- B20.1.3 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 B20.1.3(b), declare the Proposal withdrawn.
- B20.2 A Proponent who withdraws its Proposal after the Submission Deadline but before its offer has been released or has lapsed as provided for in B19.2 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.

## **B21. INTERVIEWS**

- B21.1 The Project Manager may, in his/her sole discretion, interview Proponents during the evaluation process.

## **B22. NEGOTIATIONS**

- B22.1 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.
- B22.2 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.
- B22.3 If, in the course of negotiations pursuant to B22.2 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.

## **B23. EVALUATION OF PROPOSALS**

- B23.1 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) 40%
    - (i) Fixed Fees (Phase 1) 20%
    - (ii) Time Based Fees (Phases 2 and 3) 20%
  - (d) Experience of Proponent and Subconsultants; (Section C) 10%
  - (e) Experience of Key Personnel Assigned to the Project; (Section D) 15%

- (f) Project Understanding and Methodology; (Section E) 15%
- (g) Co-location Strategy; (Section E) 15%
- (h) Project Schedule (Section G). 5%

- B23.2 Further to B23.1(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.
- B23.3 Further to B23.1(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.
- B23.4 Further to B23.1(c), Fees will be evaluated based on Total Fixed Fees and Total Time Based Fees submitted.
- B23.4.1 Fees appearing to be inappropriately proportioned within or between the Fixed Fees may be determined to be non-responsive and rejected by the Award Authority in its sole discretion acting reasonably.
- B23.4.2 Fees appearing to be inappropriately proportioned within or between the Time Based Fees may be determined to be non-responsive and rejected by the Award Authority in its sole discretion acting reasonably.
- B23.4.3 Fees, hours and Hourly Rates appearing to be inappropriately proportioned between the Fixed Fees and Time based fees may be determined to be non-responsive and rejected by the Award Authority in its sole discretion acting reasonably.
- B23.5 Further to B23.1(d), Experience of Proponent and Subconsultants will be evaluated based on information requested in B10.
- B23.6 Further to B23.1(e), Experience of Key Personnel Assigned to the Project will be evaluated based on information requested in B11.
- B23.7 Further to B23.1(f), Project Understanding and Methodology will be evaluated based on information requested in B12.
- B23.8 Further to B23.1(g), Co-Location Strategy will be evaluated based on information requested in B13.
- B23.9 Further to B23.1(h), Project Schedule will be evaluated based on information requested in B14.
- B23.10 Notwithstanding B23.1(d) to B23.1(h), where Proponents fail to provide a response to B7.2(a) to B7.2(e), the score of zero may be assigned to the incomplete part of the response.

## **B24. AWARD OF CONTRACT**

- B24.1 The City will give notice of the award of the Contract, or will give notice that no award will be made.
- B24.2 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.
- B24.2.1 Without limiting the generality of B24.2, 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.

B24.3 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.

B24.4 The City may, at its discretion, award the Contract in phases.

B24.5 The City intends to award the entire Scope of Services; however,

- (a) Phase 1 will be awarded separately at the agreed to Fee.
- (b) At the sole City's discretion phases 2 and 3 may be awarded together or separately.
  - (i) Phases 2 and 3 shall only proceed at the City's sole discretion.
  - (ii) The City reserves the right to negotiate the final details of phases 2 and 3 based on the terms of this Request for Proposal and the Proponent's submission.
  - (iii) The Consultant shall not proceed with phases 2 or 3 without a written authorization from the City.

B24.5.1 The City of Winnipeg, in its sole discretion, after consideration of the Consultant's performance with the work associated with B24.5(a), may enter into negotiations with the Consultant, to undertake the work associated with B24.5(b) without a public bid solicitation.

- (a) Negotiations may include the Scope of Services and level of effort. The hourly rates to be applied shall be those submitted in Form B to achieve a negotiated "not to exceed price", which may be more or less than the fees submitted for phases 2 and/or 3 in the proposal and will be determined by the level of effort required for the phase.
- (b) The City will provide terms and conditions and other details if it initiates negotiations with the Consultant;
- (c) No compensation will be provided to the Consultant for participating in this negotiation;
- (d) The City of Winnipeg will be under no obligation to initiate negotiations or enter into subsequent contracts; and
- (e) The City may choose to issue a public bid solicitation for the Work with respect to phases 2 and/or 3.

B24.6 Further to Paragraph 6 of Form A: Proposal and C4, the successful Bidder will be provided with Contract documents for execution following issuance of a Letter of Intent.

B24.7 The form of Contract with the City of Winnipeg will be based on the Contract as defined in C1.1(n).

B24.8 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.

B24.9 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](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:
- (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;
    - (i) car rental premium fees, such as prepaid fuel or re-fuelling surcharges etc. will not be reimbursable unless specifically approved by the Project Manager;
  - (f) costs for alcoholic beverages will not be reimbursable and shall not be claimed. Consultants may invoice meal expenses as per diem;
  - (g) 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; and
  - (h) GST is to be removed from the reimbursable value of merchant/vendor invoices.
- D1.4 Notwithstanding C10, five percent (5%) of the assignment value of each Service outlined in D6.1.1 and D6.1.2 will be retained until all deliverables have been submitted and accepted for that Service.
- D1.5 Monthly Invoices
- D1.5.1 In addition to C10.7 the Consultant shall submit monthly invoices for the Scope of Services.
- D1.5.2 Each invoice shall specify category III Consultant Services and tangible personal property of the category III Services as defined in the Province of Manitoba Tax Bulletin 058 at <http://www.gov.mb.ca/finance/taxation/bulletins/058.pdf>.
- D1.5.3 Each invoice shall also indicate licence related costs, non-licence related costs and Category III Consultant Services associated with the Licence.
- D1.5.4 Payments for the Fixed Fee aspect of the Scope of Services shall be based on the payment schedule included in Appendix 3. Payments shall only be made when deliverables are submitted by the Consultant and acceptable to the City. The invoices shall include:
- (a) Contract amount subtotals;
  - (b) previously invoiced;
  - (c) current invoice;
  - (d) invoiced to date;
  - (e) remaining balance;

- (f) licence related costs;
- (g) tangible personal property;
- (h) category III related costs;
- (i) category III costs related to the Licence; and
- (j) non-category III related costs.

D1.5.5 Monthly invoices for the Time Based Fee shall include:

- (a) activity/ Task Description;
- (b) Contract amount subtotals;
- (c) previously invoiced;
- (d) current invoice;
- (e) invoiced to date;
- (f) remaining balance;
- (g) licence related costs;
- (h) tangible personal property;
- (i) category III related costs;
- (j) category III costs related to the Licence;
- (k) non-category III related costs;
- (l) percent Complete and supporting documentation;
- (m) detailed listing of manpower and costs by activity per task per person as supporting documentation to invoices. The details listing should reconcile to the summary level invoice on a monthly basis; and
- (n) disbursements that are grouped and listed with all supporting documents/receipts attached.

D1.5.6 The Project Manager shall provide the Consultant with an invoice template to be used on this project.

D1.5.7 Invoices shall be submitted in both paper copies and Native Formats.

D1.6 The Consultant shall not substitute or replace Key Personnel throughout the duration of the Project without the written approval of the Project Manager.

D1.6.1 Experience and qualification as specified in B11 shall be submitted for all requested substitute(s) and replacement(s).

## **D2. PROJECT MANAGER**

D2.1 The Project Manager is:  
Remi Adedapo, M.A.Sc., PMP, P.Eng.  
Email: radedapo@winnipeg.ca  
Telephone No. 204 986-5496  
Facsimile No. 204 224-0032

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 B7.11

### **D3. BACKGROUND**

- D3.1 The City of Winnipeg (City) is upgrading the NEWPCC to accommodate future wastewater flows and loadings to the plant and to provide enhanced treatment capability to address environmental and public health concerns and regulatory requirements.
- D3.2 The existing NEWPCC liquid train consists of preliminary treatment (a raw sewage pump station, screening and grit removal), primary treatment (five (5) primary clarifiers), secondary treatment (high purity oxygen reactors and twenty six (26) secondary clarifiers) and final disinfection using ultraviolet rays.
- D3.3 The sludge train consists of six (6) anaerobic digestion tanks and four (4) sludge storage tanks. These tanks receive sludge from the North End, South End and West End Sewage Treatment Plants in the City.
- D3.4 Biogas produced through the digestion process is stored in the gas storage sphere. The stored gas is used to fuel the boilers to heat the treatment plant and the sludge in the digesters. Excess gas is released using the waste gas burners.
- D3.5 Centrate is separated from the digested sludge using centrifuges. The centrate is treated in a sequencing batch reactor to remove nitrogen before it is returned to the head of the plant. Ferric chloride is added to the sludge and the centrate for hydrogen sulphide gas control and phosphorus removal.
- D3.6 The plant will be upgraded to biologically remove, recover, and reuse nutrients from the wastewater with minimal chemical use. The upgrade will also provide treatment during peak flow events so that the plant can comply with anticipated discharge licence requirements.
- D3.7 The upgrade will include a digestion facility to treat sludge from the North End, South End and West End Sewage Treatment Plants. This upgrade will require new facilities; reuse, refurbish and abandoning of some existing facilities.
- D3.8 The City intends to procure the NEWPCC Upgrade Project using a combination of Design Build and Design Bid Build delivery methods.
- (a) The professional engineering consulting Services for both procurement models will be awarded to one firm, partnership or consortium.
  - (b) The WSTP may incorporate construction management into the DBB procurement model.
- D3.9 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.
- D3.10 The works related to the tie-ins in Appendix 1 were carried out to demonstrate that a feasible option exists for the tie-ins. The Consultant is responsible for determining tie-in options acceptable to the City.
- D3.11 A feasibility assessment was carried out to evaluate potential reuse of the existing sludge facilities based on visual observation. The interior of all the digester and sludge tanks were not available for visual observation.
- (a) Due to risks inherent in reusing existing facilities, the City decided to proceed with a new sludge treatment train for sludge storage, handling and digestion.
- D3.12 NEWPCC has experienced difficulties in meeting its license requirements for both fecal coliform and Escherichia coli (E-coli) (most probable number (MPN) less than 200/100 mL on monthly geometric mean) (Appendix 2).
- (a) The Consultant is responsible for performing their own investigation to determine probable causes of E-coli non-compliance.



#### **D4. PROJECT OBJECTIVES**

D4.1 The objectives of this Project are to:

- (a) upgrade the NEWPCC to meet anticipated Licence limits while accommodating year 2037 forecasted influent flows and loads. It is anticipated that the Current NEWPCC Licence on the City of Winnipeg's website will be updated by Manitoba Conservation and Water Stewardship in 2015;
- (b) consider future regulatory trends and long term planning to year 2067 to facilitate effective process or facility modifications should they become needed in the future;
- (c) Minimize to the greatest extent possible, impacts to the current treatment process during design and construction;
- (d) Have an upgraded facility with an economical whole life cost that is an efficient and safe workplace for operational personnel; and
- (e) design and construct the project within City constraints.

D4.2 The Project will not be required to meet any formal LEED Certification requirements.

#### **D5. DEFINITIONS**

D5.1 When used in this Request for Proposal:

- (a) "AACE" means American Association of Cost Engineering.
- (b) "BNR" means Biological Nutrient Removal.
- (c) "CAPEX" means Capital Expenses
- (d) "Consultant" and "Owner's advocate" means the Person undertaking the performance of Services under the terms of the Contract.
- (e) "CHAIR" means Construction Hazard Assessment Implication Review.
- (f) "CSMP" means Consultant Services Management Plan.
- (g) "DB" means Design Build.
- (h) "DBB" means Design Bid Build.
- (i) "DCS" means Distributed Control System.
- (j) "EPD" means Enhanced Preliminary Design.
- (k) "HAZOP" means Hazard and Operability Analysis.
- (l) "LEED" means Leadership in Energy and Environmental Design.
- (m) "Native Format" means the original format from which a deliverable was generated (e.g. MS Word, MS Excel, AutoCAD etc.).
- (n) "NEWPCC" means North End Water Pollution Control Center (also known as North End Sewage Treatment Plant).
- (o) "NPV" means Net Present Value.
- (p) "OA" means Owner's Advocate.
- (q) "OAPM" means Owner's Advocate Project Manager.
- (r) "OPEX" means Operating and Maintenance Expenses.
- (s) "PDF" means Portable Document Format.
- (t) "Project Definition Report" means the report in partial fulfilment of the WSTP Level 1 Design.
- (u) "Enhanced preliminary Design Report" means the report in partial fulfilment of the WSTP Level 2 Design and the design required to produce a cost estimate of  $\pm 20\%$ .
- (v) "PLC" means Programmable Logic Controller.

- (w) "RFI" means Request for Information.
- (x) "RFP" means Request for Proposal.
- (y) "RFQ" means Request for Qualification.
- (z) "SEWPCC" means South End Water Pollution Control Center (also known as South End Sewage Treatment Plant).
- (aa) "WEWPCC" means West End Water Pollution Control Center (also known as West End Sewage Treatment Plant).
- (bb) "WSTP" means Winnipeg Sewage Treatment Program consisting of both City and Veolia personnel.
- (cc) "WWD" means Water and Waste Department.

## **D6. SCOPE OF SERVICES**

D6.1 The Consultant shall provide comprehensive engineering Services for the NEWPCC Upgrade Project which includes the requirement for the Consultant to prepare:

- (a) Request for Qualifications (RFQ) and a Request for Proposals (RFP) for design builders, including the descriptive and prescriptive documents to be attached to the RFQ and RFP documents;
- (b) Bid Opportunity document(s) to upgrade the Administration Building and Maintenance Building using DBB delivery method; and
- (c) other documents as defined in this RFP.

D6.1.1 The Consultant shall provide the following professional engineering Services and as described in PART E - Owner's Advocate \_ Design Build Services.

- (a) Project Management;
- (b) WSTP Level 1 Design;
- (c) WSTP Level 2 Design;
- (d) Procurement Services;
- (e) Contract Administration Services; and
- (f) Post Construction Services.

D6.1.2 The Consultant shall provide the following professional engineering Services and as described in PART F - Professional Engineering \_ Design Bid Build Services:

- (a) Project Management;
- (b) WSTP Level 1 and 2 Design;
- (c) Detailed Design;
- (d) Contract Administration Services; and
- (e) Post Construction Services.

D6.1.3 The specifics described in PART E and PART F are not all inclusive of the work the consultant will need to provide the City in fulfilment of the Consultant's contract. The Consultant shall provide the comprehensive engineering services, even if not specifically described, but required to define the work for the

- (a) City to adequately procure DB and DBB contracts; and the
- (b) Consultant to carry out Contract Administration and Post Construction Services for the DB and DBB contracts.

D6.1.4 The Consultant shall provide the Services detailed in Parts E and F when authorized by the City. The Services shall be provided in phases as listed below including associated project management (D6.1.1(a) and D6.1.2(a)).

- (a) Phase 1: D6.1.1(b) to D6.1.1(d) and D6.1.2(b).

(b) Phase 2: D6.1.1(e) to D6.1.1(f).

(c) Phase 3: D6.1.2(c) to D6.1.2(e).

D6.2 The Consultant shall include co-location of its proposed team with WSTP Team staff in the same area of an office to be provided by the Consultant for the duration of the work until posting of the Design Build RFP.

(a) Co-location shall commence within 60 days after the City issues the Letter of intent.

(b) Staff to be co-located by Consultant shall be as required for the stage of the work.

(c) Staff to be co-located by the WSTP may include up to five (5) members of the WSTP Team.

(d) As a minimum, the Consultant shall provide for a complete working office including access to the internet for the Consultant and WSTP team.

(e) As a minimum, the Consultant shall provide one (1) administrative support personnel for the co-location. Other administrative support personnel required by the Consultant shall also be provided in their Fees.

D6.2.1 The Consultant's personnel for construction and commissioning shall be prepared to co-locate with the WSTP team and the design builder after the award of the DB Contract.

(a) The City shall provide the office location and amenities after the award of the DB Contract.

D6.3 At this time, the following indicates the probable major items the Consultant shall include as part of the DB work:

D6.3.1 The DB work shall include but not be limited to the following major new process facilities with their associated piping, tie-ins, supporting services and accessories.

(a) Raw sewage pumping station;

(b) Headworks buildings (grit removal and screening);

(c) High rate clarifiers (HRC) and associated sludge storage tanks;

(d) Primary fermenters;

(e) Intermediate pumping;

(f) Bioreactors for the BNR – IFAS process ;

(g) New secondary clarifiers;

(h) Sludge receiving station(s) ( for SEWPCC and WEWPCC);

(i) Sludge phosphorus release and thickening;

(j) Sludge screens and intermediate dewatering facility;

(k) Thermal hydrolysis facility;

(l) Mesophilic anaerobic digesters;

(m) Combined heat and power (CHP) facility;

(n) Phosphorous-recovery system ( including provision for a struvite storage and hauling station);

(o) Final dewatering facility;

(p) Sludge cake hauling station(s);

(q) Biogas system, including gas dome and flare;

(r) Access road to Ferrier St across the CPR rail tracks;

(s) Standby generation; and

(t) Odour control.

- D6.3.2 Installation of required electrical, controls, automation and instrumentation systems. This includes migration of existing DCS of the whole NEWPCC to new PLC based process control systems.
- D6.3.3 Reuse the following facilities.
- (a) Primary clarifiers;
  - (b) UV disinfection facility;
  - (c) Secondary clarifiers #1 to #10;
  - (d) The leachate and hauled liquid waste facility;
  - (e) The centrate treatment facility; and
  - (f) Various existing conduits, pipes, gate chambers, junction chambers, channels, gates, valves, flow meters, appurtenances and supporting systems within the NEWPCC and the outfall.
- D6.3.4 Repurpose the following facilities.
- (a) Secondary clarifiers #11 to #26 in part or all ;
  - (b) Digester tanks #13 and #14 for sludge storage;
  - (c) Dewatering building; and
  - (d) Various existing conduits, pipes, gate chambers, junction chambers, channels, gates, valves, flow meters, appurtenances and supporting systems within the NEWPCC and the outfall.
- D6.3.5 Decommissioning or demolishing of unused facilities, conduits and appurtenances including process components in the Administration Building.
- D6.3.6 Construction of final site services (such as landscaping, road resurfacing, walkways etc.)
- D6.4 At this time, the following indicates the probable major items the Consultant shall include as part of the DBB work but not limited to:
- (a) rehabilitation/ upgrade of the Administration Building and
  - (b) rehabilitation/ upgrade and possible expansion of the Maintenance Building.
- D6.5 A description of the existing NEWPCC plant and a high level overview of the proposed process units for the NEWPCC upgrade are included in Appendix 4 – RFP 182-2015 Supporting Documentation.
- (a) The document is not intended to explain all elements of the existing plant or the required NEWPCC upgrade.
  - (b) The Consultant must provide the necessary investigations of the existing facilities to prepare a comprehensive design for a complete and operable upgrade to the NEWPCC.
  - (c) Appendix 4 is for information only. The Consultant is required to carry out and justify their design.
  - (d) The upgrade must provide compliance with the effluent quality parameters.
  - (e) The site layout in Appendix 4 was for City planning purposes. An optimized layout is required from the Consultant. There is space beyond the rail tracks identified as Parcel B, if needed.
- D6.6 Upgrading of the NEWPCC Laboratory and Power transformation and distribution station is excluded from the Scope of Services.
- D6.6.1 The Consultant shall coordinate its work with the NEWPCC Power Supply Upgrade presently under design.

## **D7. INITIAL PROJECT RISKS**

- D7.1 The following are initial risks identified by the City to be managed, minimized or eliminated by the Consultant. Additional risks must be identified by the Consultant during the course of the project and managed, minimized or eliminated. Risks associated with:
- (a) reuse of older facilities including tie-ins between the existing and new facilities;
  - (b) space restrictions within the plant between operation and construction areas, including accessibility and layout optimization;
  - (c) site access issues due to the volume of vehicle traffic on Main Street, vehicle traffic to the operating plant and construction vehicle traffic;
  - (d) project issues such as odour, noise, dust and vibration and their impact on all onsite workers and the surrounding areas; and
  - (e) NEWPCC operation and compliance during construction and commissioning.
    - (i) It may not be possible to shutdown a digester due to digester #11 being out of service.
    - (ii) Shutdown of certain process facilities may not be possible during periods of high wastewater flows into the plant

## **D8. GENERAL REQUIREMENTS**

- D8.1 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) All final documents irrespective of the level of design shall have an engineer's seal.
  - (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.
- D8.2 The City requires a Consultant Services Management Plan as detailed in E2.3.
- D8.3 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 not limited to, detailed evaluation of options indicating for each option:
- (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 NPV costs and payback period(s) where appropriate;
  - (f) training requirements;
  - (g) comparison of the options against each other; and
  - (h) conclusions and recommendations.

- D8.3.1 In the case of a sole source business case, D8.3 applies except the comparison against other options is a comparison against a “do-nothing” option.
- D8.3.2 Where business cases have not been identified, all recommendations  $\geq$  \$2,000,000 of NPV shall be justified by the criteria in D8.3 and included as part of the project definition or EPD reports.
- D8.4 The City requires a number of technical memoranda to be performed as part of the Consultant's Scope of Services and shall be provided as follows:
- (a) the technical memoranda shall be written as a standalone independent section of the respective report and all City review comments incorporated into the respective report;
  - (b) 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; and
  - (c) where appropriate, supporting documentation for technical memoranda shall be as indicated in D8.3.
- D8.5 The City has standardized a number of process, electrical, instrumentation and control equipment types. Some of which are in the process of being preselected.
- (a) The Consultant is required to include the preselected equipment in their design.
  - (b) Preselected equipment are indicated in Appendix 4.
  - (c) The Consultant shall ensure the intent of the City E&IC equipment standardized vendor contracts is followed.
- D8.6 All documents, including drawings, are to be delivered with a documentation lifecycle approach.
- (a) Existing drawings shall be modified (or superseded) rather than creating a new drawing.
  - (b) The documents are to be prepared in a manner that is useful for maintenance purposes. For example, partial site plans or partial 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.
- D8.7 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. Without limiting the preceding, the Consultant shall comply with
- (a) Canadian Electrical Code C22.1;
  - (b) Canadian Standards Association CSA Z320 Building Commissioning; and
  - (c) relevant Province of Manitoba building and electrical codes and City of Winnipeg by-laws.
- D8.8 The Consultant shall comply with the following:
- (a) WSTP Design Standards – Appendix 5;
  - (b) Water and Waste Department Identification Standard (Appendix 6) - The Consultant shall request clarification from the Project Manager should undefined identification requirements be encountered;
  - (c) WSTP Project Document Numbering Standard – Appendix 7;
  - (d) Wastewater Treatment Plants Automation Master Plan – Appendix 8;
  - (e) WWD Electrical Design Guide – Appendix 9;
  - (f) WWD Automation Design Guide – Appendix 10;
  - (g) WWD Wastewater Historical Data Retention Standard – Appendix 11;

- (h) WWD Tag Naming Standard - Appendix 12;
  - (i) WSTP CHAIR and HAZOP Procedures – Appendix 13;
  - (j) WSTP Contract Administration Manual – Appendix 14; and
- D8.8.1 The Project manager shall be notified of conflict between the documents for resolution.
- D8.9 A listing of currently available drawings associated with the NEWPCC facility is included in Appendix 15. Proponents may request for an electronic PDF file of a drawing(s) via email to the Project Manager at least two weeks prior to the RFP closing date.
- (a) The Proponent will be required to sign a non-disclosure statement prior to receiving the drawings.
- D8.10 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 16.
- D8.11 The Consultant shall co-ordinate and obtain approval(s) where required such as CP Rail, City departments; Manitoba Hydro etc.
- D8.12 The Consultant shall be responsible for the integration of the DB and DBB Projects including and not limited to:
- (a) defining the limits of construction;
  - (b) construction staging areas;
  - (c) site access issues;
  - (d) managing the interface between the DB contract, and the DBB contract(s); and
  - (e) managing the interface between all the Contracts and the NEWPCC operations and maintenance.
- D8.13 The City is implementing a cloud based Document Management System (DMS) to facilitate document management.
- (a) The City anticipates that the DMS will be in operation by Project award.
  - (b) The Consultant shall upload and maintain all project documents and drawings on the DMS for the entire life of the project. The DMS shall be utilized for transmittal of all documents between the City, the design builder, contractor(s) and any other 3<sup>rd</sup> party.
  - (c) All documents uploaded to the DMS shall be provided with the required metadata. The metadata shall include, but not be limited to: Document Title, Revision, Document Type, Discipline, Area Code, Organization, Status, and other applicable items.
  - (d) The City will provide up to a maximum of two training sessions for users on the use of the DMS. Additional training sessions may be coordinated at the Consultant's cost.
  - (e) It is anticipated that the documents and drawings prepared by the design builder and the contractor(s) will be uploaded by the originating organization. The Consultant shall coordinate the review of all documents utilizing the DMS and shall enforce the usage of the DMS.
  - (f) Anyone in the Consultant's organization that is given access to the DMS will be required to sign a non-disclosure agreement (Appendix 17).
- D8.14 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 and followed in accordance with the consultant services management plan.
  - (b) No deliverable will be accepted by the City without indication that the Consultant's internal quality procedures have been completed.

D8.14.1 Review period for City deliverables shall be a minimum of three weeks and commensurate to the number of pages and complexity of the document.

#### **D9. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D9.1 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 Consultants own use, or for the use of any third party.

D9.2 The Consultant shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Project Manager.

D9.3 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.

D9.4 A Consultant who violates any provision of D9 may be determined to be in breach of Contract.

#### **SUBMISSIONS PRIOR TO START OF SERVICES**

#### **D10. AUTHORITY TO CARRY ON BUSINESS**

D10.1 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.

#### **D11. INSURANCE**

D11.1 The Consultant shall procure and maintain, at its own expense and cost, insurance policies with limits no less than those shown below.

D11.2 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 \$10,000,000 for each occurrence or accident with a minimum \$10,000,000 Products and Completed Operations aggregate and \$10,000,000 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;
  - (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 \$10,000,000 per claim and \$10,000,000 in the aggregate.
- D11.2.1 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.
- D11.3 The policies required in D11.2(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.
- D11.4 The Consultant shall require each of its Subconsultants to provide comparable insurance to that set forth under D11.2(a).
- D11.5 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 D11.10.
- D11.6 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.
- D11.7 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.
- D11.8 If the Consultant fails to do all or anything which is required of it with regard to insurance, the City may do all that is necessary to affect and maintain such insurance, and any monies expended by the City shall be repayable by and recovered from the Consultant.
- D11.9 The failure or refusal to pay losses by any insurance company providing insurance on behalf of the Consultant or any Subconsultants shall not be held to waive or release the Consultant or Subconsultants from any of the provisions of the insurance requirements or this Contract. Any insurance deductible maintained by the Consultant or any Subconsultants under any of the insurance policies is solely for their account and any such amount incurred by the City will be recovered from the Consultant as stated in D11.8.
- D11.10 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**

### **D12. COMMENCEMENT**

- D12.1 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.
- D12.2 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 D10;
    - (ii) evidence of the insurance specified in D11;
  - (b) the Consultant has attended a meeting with the Project Manager.
- D12.3 The City intends to award this Contract by December 31, 2015.

## **PART E - OWNERS ADVOCATE \_ DESIGN BUILD SERVICES**

### **E1. SUMMARY OF SERVICES**

E1.1 The Consultant shall provide the following professional engineering Services:

- (a) Project Management
- (b) WSTP Level 1 Design;
- (c) WSTP Level 2 Design;
- (d) Procurement Services;
- (e) Contract Administration Services; and
- (f) Post Construction Services.

### **E2. PROJECT MANAGEMENT**

E2.1 Deliverables, workshops and meetings

- (a) The following deliverables shall apply to the Project Management phase carried out under this Part:
  - (i) Consultant Services Management Plan (CSMP) with updates prior to the end of WSTP Design Level 1, WSTP Design Level 2, Procurement Services, Contract Administration Services and the annual updates;
  - (ii) agenda, PowerPoint presentation slides and meeting minutes;
    - (i) The agenda of monthly or special meetings shall be forwarded to the City's project manager a minimum of four (4) working days before the meeting.
    - (ii) No formal agenda is expected before the weekly meetings between the OAPM and the City's PM.
    - (iii) Provide draft minutes to the City's project manager a maximum of three (3) working days after the meeting.
    - (iv) Action items are expected after the weekly meetings between the OAPM and the City's PM.
  - (iii) cash flow forecasts;
  - (iv) monthly performance reports;
  - (v) monthly project meetings; and
  - (vi) allow for adequate meetings to review the Project with the WSTP and the City.
- (b) The deliverables expected during the Time Based Fee time and material based portion of the work shall include E2.1 (a)(i) to E2.1 (a)(v) plus the deliverables required in the Contract Administration Manual.
- (c) Draft copies of the initial CSMP and its updates shall be provided in Native Format and PDF while final copies shall be submitted in native format, PDF and seven (7) hardcopies.
- (d) Draft and final copies of the cash flow forecast, agenda, workshop minutes, meeting minutes and monthly status reports shall be provided in native format and PDF.

E2.2 This section includes project management activities the City requires of the Consultant when carrying out the professional engineering Services required in this Part.

E2.2.1 The OA shall carry out the following:

- (a) direct and coordinate efforts of the OA's team to achieve the objectives of the Project and to meet the City's requirements;
- (b) provide advice, engineering Services, consultation, and oversight with respect to the Scope of Services;
- (c) effectively oversee the DB Project in accordance with the DB Contract between the City and the design builder and any subsequent approved changes;

- (d) carry out its Services without relieving the design builder of their contractual and other legal obligations;
- (e) request or coordinate the request of existing construction, as-built and/or record drawings;
- (f) assist the City with public relation during the design and construction periods;
- (g) coordinate the design and the design builder's work with the City's Staff; and
- (h) liaise with the City through the City Project Manager with other City resources(Legal Services, Materials Management, Wastewater Services, Information Systems and Technology, Engineering, Insurance etc.) throughout the provision of the Services and provide ample opportunity for input and review by the various City stakeholders with advice from the WSTP Team as applicable.

E2.2.2 The Consultant shall represent the City as the Owner's Advocate and deliver the duties of the Contract Administrator as contained in the WSTP Contract Administration Manual.

- (a) Any conflict between the RFP and the Contract Administration Manual shall be governed by the scope of work in this RFP Document.
- (b) The following modifications to the Contract Administration Manual shall apply as follows:
  - (i) Section 15.3.2 - Visitors, the sentence "The Contract Administrator shall obtain prior approval from the City, for Consultants visits of non-resident personnel to the site." is hereby modified to read: "The Contract Administrator shall obtain prior approval from the City, for Owner's Advocate visits of non-resident personnel to the site."
  - (ii) In all other cases where the terms "Consultant or Consultant's" are used it shall be interpreted as the "design builder or design builder's"
  - (iii) Where the term "contractor" is used, it shall mean "design builder".
  - (iv) Section 6.4 - Inspection and Test Plans (ITP), the first sentence is hereby modified to read: "The Contract Administrator shall obtain Test Plans from the design builder based on the design specifications for construction of the Project."
  - (v) Section 6.5 - Operations and Maintenance Manuals, the last paragraph is hereby modified to read: "The Contract Administrator shall require the O&M manuals to incorporate
    - ◆ the City's and the Owner Advocate's comments as a pre-requisite for commissioning and
    - ◆ any modifications as a result of commissioning as a prerequisite for Substantial Performance."
  - (vi) Section 7.1 – Schedule of Work, change last paragraph from "...in conjunction with the City can assess liquidated damages..." to "...shall advise the City to assess liquidated damages..."

E2.2.3 The OAPM shall be the prime contact with the City's Project Manager for the duration of the program. The OAPM shall be directly responsible for:

- (a) managing the project in accordance with the Consultant's Consultant Services Management Plan;
- (b) organizing, chairing, providing minutes and agenda for monthly Project status meetings, workshops and presentations;
- (c) liaising with the City's Project Manager on a weekly basis to provide Project status;
- (d) submitting monthly performance reports. The reports are to include the following as a minimum:
  - (i) work carried out in the previous month;
  - (ii) work in progress;
  - (iii) work anticipated for the following month;

- (iv) the budgeted cost for work scheduled monthly (BCWS);
  - (v) the actual cost for work performed (ACWP);
  - (vi) the budgeted cost for work performed (BCWP);
  - (vii) Earned value analysis;
  - (viii) variances against baselines for scope, schedule, and cost;
  - (ix) description, action and mitigation of variances in scope, schedule, and cost;
  - (x) percentage completion of the overall project and per phase;
  - (xi) description, action and mitigation of extreme and high risk(s) as per the risk analysis;
  - (xii) information request for the following month;
  - (xiii) issues to date (resolved issues and date resolved , unresolved issues and party responsible for resolution);
  - (xiv) safety;
  - (xv) schedule; and
    - ◆ Schedule shall include recovery schedule to account for any schedule slippage
    - ◆ Milestones and completion dates shall not be changed without prior City approval
  - (xvi) requests for modifications to the accepted Consultant Services Management Plan.
- (e) Coordinating access to NEWPCC through the City's Project Manager or delegate; and
- (f) Submitting cash flow forecast to the City's Project Manager at the onset of the Project and then semi-annually (March and September).
- (i) This shall reflect cost to date as well as revised forecast.
  - (ii) Forecasts shall include the OA's fees, design builder's fees and the contractor's fees.
  - (iii) Forecasts shall be presented in a quarterly format.
  - (iv) The cash flow format shall be presented in a format agreed to by the City.

E2.3 The OA shall submit a CSMP.

- (a) A draft of the initial CSMP shall be submitted six (6) weeks after Project award.
- (b) The CSMP shall be specific to the Consultant's Scope of Services for the NEWPCC Upgrade.
- (c) The Plan shall follow the Consultant Services Management Plan Minimum requirements in Appendix 18.
- (d) The OA should use the sample of a CSMP for small projects included in the appendix as a guide for developing the OA's CSMP for the NEWPCC Upgrade Project.

E2.3.1 The initial CSMP submittal shall include the following:

- (a) Details for WSTP Level 1 Design, WSTP Level 2 Design, and Procurement Services. Initial planning for Contract Administration and Post Construction Services. Detailed planning for Contract Administration and Post Construction Services shall be submitted and accepted by the City before the award of the DB Contract.
  - (i) The Consultant shall update the CSMP prior to the end of WSTP Level 1 Design, WSTP Level 2 Design, Procurement Services, and Contract Administration Services to reflect the most current planning for the upcoming phases;
  - (ii) The next stage shall not proceed without the submission and acceptance of the updated CSMP.
  - (iii) The CSMP shall be updated when requested by the City and at a minimum, once a year.

### E2.3.2 The CSMP shall also include

- (a) communication management elements. This shall identify and address
  - (i) All interfaces (organizational, technical and interpersonal) and the roles and responsibilities of each stakeholder.
  - (ii) Who needs what information, when it will be needed and how it will be provided.
  - (iii) The use of City templates (Appendix 19) for facilitating communication.
  - (iv) Liaising with the City throughout the provision of the Services and providing ample opportunity for input and review by the various City stakeholders as applicable. Clearly identify the processes that will be used to achieve this outcome.
  - (v) Processes for tracking and monitoring the documents through creation, checking, review, comment, verification, certification and approval processes.
  - (vi) Project meetings, workshops and presentations; and their frequency.
  - (vii) Records management as specified in E2.3.3.
- (b) processes for updating and submitting the risk register. The risk register shall be used to document and update risk in various phases of the project;
- (c) processes for carrying out earned value analysis such that the Consultant, the design builder and the contractor's performance can be measured against scope, schedule and cost baselines;
- (d) a deliverable based Work Breakdown Structure (WBS) that identifies major elements relative to how the assignment will be managed and in terms of tangible and verifiable results (including milestones, critical triggers, deliverables, % completion of design, posting to Materials Management site, etc.);
- (e) list of deliverables (drawings, reports, business cases, technical memorandums) planned for each phase. Include
  - (i) Submission deadlines.
  - (ii) Consultant reviewer and approval names.
- (f) resources requirements, responsibilities, effort, duration, costs, per work package;
- (g) list of progress meeting, presentation, review meetings, workshops that identifies anticipated City personnel and other resources required;
- (h) schedule – shall include information required in B14. The approved schedule will be used as the Project baseline;
- (i) integrated change control process for both the Consultant assignment and the DB Contract. Identify and include the documents, tracking system and approval processes necessary to authorize change to the assignment; and
- (j) include information required in B12, B13 and other relevant information.

### E2.3.3 As part of the CSMP, The Consultant shall include a records management plan for all Project documents as follows:

- (a) use the WSTP Document Numbering Standard to generate numbers for all documents associated with the NEWPCC Upgrade Project;
- (b) each document shall be provided with a unique independent document number. Grouping of documents under a single document number is not acceptable;
  - (i) For example, a process control narrative document shall be produced for each major process.
  - (ii) Grouping all process control narratives under a single document number is not permissible.
- (c) develop and propose the design document area codes and process codes for the NEWPCC facility;

- (i) The codes shall be set up in a manner consistent with the City Identification Standard and Project Document Numbering Standard
- (ii) The Codes shall be systematic and allow for logical grouping of documents under the Project and for long-term operations use.
- (d) coordinate the document numbering process with the Project Manager; and
- (e) ensure the design builder use the appropriate numbering systems.

### **E3. WSTP LEVEL 1 DESIGN**

E3.1 A WSTP Level 1 Design, as used in this RFP, shall include but is not limited to conceptual design and:

- (a) Business Cases (separately and as part of the project definition report);
- (b) Project implementation plan;
- (c) Risk and opportunity assessments; and
- (d) Level five (5) cost estimates.

E3.1.1 This Level 1 design is where the Project components including those identified in Appendix 4 are defined and validated. At the completion of this phase, the Consultant shall be in a position to enter into the WSTP Level 2 Design with a defined scope, constraints and risks associated with the NEWPCC Upgrade.

E3.2 WSTP Level 1 Design deliverables and workshops.

E3.2.1 The Project definition report and associated drawings is the major deliverable for the WSTP Level 1 design and consist of the following:

- (a) Project definition report – 75% complete;
- (b) Presentation of Project definition report submittal – 75% complete;
- (c) Project definition report – 100% complete; and
  - (i) Encompasses all work carried out, including data gathered, explains adequately the assessments made, states with clarity the resulting conclusions, and contains all recommendations and information which are relevant to the WSTP Level 1 Design.
  - (ii) Final report shall incorporate the technical memoranda in the body of the report and not as appendices.
  - (iii) Include in the appendix the proposed Table of Content for the EPD report indicating the material to be included with the 75% submittal.
- (d) Presentation of Project definition report.

E3.2.2 The following are other deliverables and workshops associated with the WSTP Level 1 Design but not limited to:

- (a) Technical workshop – One (1) full day workshop to be carried out two (2) months after the kick-off meeting. The purpose of the workshop is to present :
  - (i) the project's concept to date;
  - (ii) information gathered or missing;
  - (iii) reaffirmation of the project needs;
  - (iv) proposed table of content for the final Project definition report; and
  - (v) material to be included with the Project definition report - 75% complete.
- (b) Environmental assessment report.
- (c) Geotechnical investigation report.
- (d) Business cases indicated in E3.3.12(a) to E3.3.12(f)
- (e) Technical memoranda.

- (i) Project layout;
    - (ii) Process flows and mass balance of the proposed upgrade;
    - (iii) Traffic study;
    - (iv) Reuse/repurposes facilities and conduits; and
    - (v) Project implementation plan.
  - (f) Risk and opportunity.
  - (g) Two (2) full day workshops with the WSTP Team and other City selected stakeholders.
    - (i) One (1) day to focus on DB phase of the work, and
    - (ii) One (1) day to focus on reliability, redundancy, operability and maintainability of the upgraded plant.
    - (iii) Submit completed risk register prior to the workshop.
    - (iv) Submit a final risk register after the workshop.
  - (h) Commissioning
    - (i) Two (2) half day commissioning workshops.
    - (ii) Technical memorandum of the commissioning workshops.
  - (i) HAZOP and CHAIR
    - (i) One (1) full day workshop for HAZOP and CHAIR node (process areas) identification.
    - (ii) Technical memorandum of the nodes identified for HAZOP and CHAIR.
- E3.2.3 All deliverables shall be submitted in draft and final copies with WSTP comments included in final copies.
- (a) The OA shall maintain a comments log in a format acceptable to the City. The log shall include as a minimum comments on all deliverables and action on the comments.
  - (b) Technical memoranda and risk register shall be included in the final Project definition report.
  - (c) Draft copies of all deliverables shall be provided in Native Format and PDF and seven (7) bound hardcopies.
  - (d) Final copies of all deliverables shall be provided in Native Format and PDF; one (1) unbound and seven (7) bound hardcopies.
- E3.3 Conceptual design
- E3.3.1 The Consultant shall provide a comprehensive design that encompasses the Scope of Services to effectively accommodate and treat the NEWPCC influent, up to and including the identified design flows and loads in Appendix 4 and be able to produce final effluent that meets regulatory requirements.
- E3.3.2 The Consultant shall provide a design that meets the requirements of the Manitoba Environment Act Licence 2684RRR and the 2012 effluent quality parameters indicated in Appendix 4.
- E3.3.3 The Consultant shall review and confirm the project's design flows and loads including the flows and loads supporting documentation that will be provided to the successful Consultant upon project award.
- (a) The design flows and loads for the Project as applicable to year 2037 with future considerations for year 2067 are indicated in Appendix 4.
- E3.3.4 Review all available information including existing drawings and reports necessary to complete the work and provide all discipline required for the work.
- E3.3.5 The Conceptual Design shall include, but not limited to:

- (a) process units sizing of the liquid and sludge streams;
  - (i) Provide a biological model using the most current BioWin™ simulation software to demonstrate the effluent will meet the discharge requirements.
    - ◆ If required, identify under which circumstances and frequencies one or more effluent parameters may not be met.
    - ◆ The model and electronic files of the model shall be provided to the City when requested.
  - (ii) Review and utilize in the design the NEWPCC Influent characterization study that will be provided to the successful Consultant..
- (b) effluent disinfection requirements;
- (c) operation philosophy for 2020 startup conditions and 2037 flows and loads. The operational philosophy shall include but not limited to
  - (i) Wet weather flow management;
  - (ii) Sludge handling, thickening, digestion, dewatering, storage, treatment
- (d) determining the hydraulic capacities of the existing facilities, pipes and appurtenances that will be reused as part of the upgrade. The Consultant shall include in the design any modifications to be implemented by the design builder;
- (e) assessment of the need for supplemental chemical and sources for VFAs;
- (f) justification and recommendation of adequate reliability, redundancy and operability for all discipline work;
- (g) consideration of the cold weather conditions and assessment of their implications and requirements for all disciplines;
- (h) ensure new building systems match the existing facilities for a campus like setting;
- (i) identification of permits and construction easements and indication of entity responsible for obtaining the permits/easements;
- (j) determination of the process and potable water needs of the facility, including
  - (i) maintenance requirements;
  - (ii) definition of adequate process water needs and systems for cleaning of tanks, and connections for tank drainage; and
  - (iii) location of flow meters and sampling points.
- (k) confirmation that adequate electrical grounding systems are maintained throughout the phases of the project;
- (l) determination of an adequate lightning protection for new and existing structures;
- (m) field and boundary survey, arc flash studies and other investigations to support the EPD and to include in the design builder performance elements;
- (n) conduct additional investigations to verify existing conditions and to supplement available information;
- (o) asbestos abatement requirements and for heavy metals and Polychlorinated bi-phenols (PCBs) where necessary; and
  - (i) The NEWPCC Hazardous Material Inventory System (HMIS) Report are provided in Appendix 20 for information.
  - (ii) This excludes the existing electrical building under the NEWPCC Power Supply Project
- (p) determination, identification and inclusion of the following support systems.
  - (i) detection, alarm and communication systems;
  - (ii) odour control;
  - (iii) operational consumables;
  - (iv) safety, site security and fencing requirements; and
  - (v) fire alarms and fire suppression systems.



- E3.3.6 Provide a conceptual decommissioning and demolition plan.
- (a) Identify existing buildings and facility components that will become redundant due to the project and specify decommissioning and demolition requirements.
  - (b) Identify limits of demolition as it pertains to the Praxair oxygen plant.
  - (c) Include a phasing plan for decommissioning and demolition.
- E3.3.7 Carry out Tie-ins study.
- (a) Identify all and provide requirements for all tie-ins into the existing facility (including isolation and temporary facilities) such as process, utilities, automation, electrical, HVAC etc.
  - (b) Determine different options for each tie-in.
  - (c) Review tie-ins to ensure that they have sufficient capacity and functionality to meet the intent of the design.
- E3.3.8 Environmental Site Assessment.
- (a) Carry out a non-intrusive environmental site assessment on the NEWPCC site and Parcel B in accordance with CSA Z768-01 Phase I Environmental Site Assessment.
  - (b) Provide a report with work carried out, conclusions and recommendations.
- E3.3.9 Geotechnical Study – The study shall include but not limited to
- (a) Review existing data, prepare an exploratory program, carry out field soil borings, laboratory analyses, preparation of recommendations and submittal of a detailed subsoil investigation in a report.
  - (b) Field work shall include but not limited to:
    - (i) Thirty (30) soil borings including split-barrel and Shelby tube sampling;
    - (ii) Core drilling to bed rock or auger refusal;
    - (iii) Observation wells to monitor ground water, and determine field permeability; and
    - (iv) Groundwater testing (slug tests or pump tests) such that impact of groundwater on subsurface construction can be addressed as required.
  - (c) Laboratory Investigations shall include but not limited to:
    - (i) routine laboratory tests;
    - (ii) moisture content and Natural Dry Density;
    - (iii) Atterberg limits;
    - (iv) grain size distribution, using sieve analysis and hydrometer analysis;
    - (v) specific gravity of soils;
    - (vi) triaxial compression tests;
    - (vii) consolidation tests;
    - (viii) classification of soil using the unified soil classification;
    - (ix) permeability tests;
    - (x) proctor compaction tests; and
    - (xi) CBR tests.
  - (d) Analyze laboratory and field data and finalize geotechnical report including:
    - (i) field monitoring;
    - (ii) review of design criteria;
    - (iii) ground water level and flow/recharge rate;
    - (iv) evaluation of the results of field investigations, laboratory tests and soil boring logs with respect to
      - ◆ proposed lowest depth of foundations;

- ◆ design loads and settlement criteria, and make appropriate recommendations for type of foundation (shallow or deep);
  - ◆ method of excavation and lateral supports;
  - ◆ backfilling (structural and non-structural);
  - ◆ demolition;
  - ◆ method for dewatering;
  - ◆ underpinning considerations;
  - ◆ sub-drainage system requirements; and
  - ◆ any other special requirements.
- (v) Recommendations for corrosion control of underground piping and structures;
- (e) Describe and outline in the geotechnical report, general profile of the soil stratification of a group of soil borings with identical/similar classification of strata, including recommended values of soil parameters per each stratum such as, but not limited to, the following:
- (i) Total unit weight;
  - (ii) Buoyant unit weight;
  - (iii) Effective friction angle;
  - (iv) Shear strength;
  - (v) Allowable bearing capacity;
  - (vi) Coefficient of permeability; and
  - (vii) Coefficient of active, passive, and "at rest" lateral earth pressures.
- (f) A geotechnical report for the NEWPCC Sludge Digester Expansion Project performed in 1984 is attached as Appendix 21.

E3.3.10 Develop and provide a critical path schedule for the Project from Detailed Design to turnover to operations.

- (a) The level of detail shall be such that it clearly conveys the significant activities related to the various Project components with their inter-dependencies and anticipated construction sequences.
- (b) The schedule shall include interdependences with the DB Project
- (c) The schedule shall be configured suitable for use by Microsoft® Office Project 2010.

E3.3.11 The Consultant shall conduct one (1) full day workshop towards the end of the WSTP Level 1 Design with the WSTP Team and other City selected stakeholders to Identify representative nodes (process areas) to be used during WSTP Level 2 Design workshops for the

- (a) HAZOP and
- (b) CHAIR

E3.3.12 Business Cases - Develop business cases in accordance with D8.2 for the following:

- (a) Raw sewage Pump station.
  - (i) Evaluate wet well pump station vs. wet well/drywell pump station.
  - (ii) Evaluate wet well/drywell pump station for extended shaft drywell pumps and dry pit submersible pumps.
- (b) Intermediate pump station to be similar to existing UV pumps station vs. wet well/drywell pump station.
- (c) A combined heat and power (CHP) system including but not limited to:
  - (i) seasonal digester gas flows as determined by the consultant;
  - (ii) include cost for gas cleaning;

- (iii) meeting the requirements of Manitoba Hydro's Power Smart Load displacement Program Engineering Cost Estimate Study Guide Version 3 in Appendix 22; and
  - (iv) ensuring Manitoba Hydro is included in the review of the work.
- (d) Evaluate emergency standby generation and uninterrupted power supply (UPS) requirements.
  - (i) Determine critical plant areas for emergency standby generation;
  - (ii) Determine load requirements and battery systems for uninterrupted power supply;
  - (iii) Determine equipment and systems (including emergency lighting and exit signage) to be powered by UPS or standby generator(s).
- (e) Process tank covers
  - (i) Covering for the circular primary clarifiers;
  - (ii) Partial/full covering for the secondary clarifiers; and
  - (iii) Partial/full covering for the BNR tanks.
- (f) NEWPCC hydraulic profiles from the sewage influent to the Outfall considering varying high river levels.
  - (i) Confirm the existing hydraulic profile;
  - (ii) Provide hydraulic profile for the proposed upgrade including hydraulics for flow splitting and for flows during commissioning;
  - (iii) Hydraulic profiles shall consider varying river levels. Identify river levels that the proposed upgrade cannot meet the effluent quality parameters;
  - (iv) Identify river backwater effects on the existing and proposed hydraulic profile and any impacts it may have on fecal/E-coli issues in Appendix 2;
  - (v) Determine flood protection requirements during varying river levels;
  - (vi) Assess the outfall piping to accommodate peak flows at varying river levels;
  - (vii) Evaluate the impact of high river levels on the existing and new secondary clarifiers;
  - (viii) Provide mitigation steps to allow the existing clarifiers #1 to 10 to function during wet weather flow and high river levels; and
  - (ix) Determine the elevation of new secondary clarifiers to allow the effluent to flow by gravity through the existing UV system while preventing flooding of the clarifiers.
- (g) Plant heat and cooling
  - (i) Plant heating satellite vs. central boiler system. Including the possibility of reusing the existing boiler system to heat buildings and tunnels (including the Administration and Maintenance buildings).
  - (ii) Plant wide ventilation and cooling system to include tunnels and existing buildings that will remain (including the Administration and Maintenance buildings) and new facilities.
- (h) Two stage screening vs. one stage (Coarse screen plus fine screen vs. fine screen).
- (i) Facilities to be decommissioned and demolished and the extent of demolition.
  - (i) Includes dry well, surge well, discharge chamber in the administrative building, and other facilities recommended by the Consultant.
  - (ii) The business case shall consider the upgrade construction phasing requirements and include a phasing plan.
- (j) Repurposing or decommissioning and demolition of the existing dewatering building.
- (k) Repurposing some of the existing digester tanks for sludge storage.
- (l) Intermediate and final dewatering.

- (i) Determine if sludge sources should be combined and completely mixed prior to the intermediate dewatering system.
- (ii) Determine if dedicated intermediate dewatering equipment is required for some sludge sources to achieve a better process function and be more cost efficient.
- (iii) Determine Intermediate and final dewatering equipment.
- (m) Determine a blending strategy for sizing the BNR and HRC systems.
  - (i) Consider varying flow split scenarios; and
  - (ii) Predict annual percentage compliance for all effluent parameters.
- (n) Effluent disinfection.
  - (i) Determine if disinfection is required to meet the effluent quality parameter for the blended effluent.
  - (ii) Determine if chlorination/dechlorination or UV is the best option if disinfection is necessary.
  - (iii) Investigate fecal/E-coli contamination issues including those listed in Appendix 2 and design modification to eliminate non-compliance.
- (o) Final business cases for E3.3.12(a) to (f) shall be submitted prior to the Project definition report - 75% complete of the WSTP Level 1 Design.
- (p) Draft business cases for E3.3.12(g) to (n) shall be submitted as part of the Project definition report - 75% complete of the WSTP Level 1 Design.
- (q) The Consultant shall follow D8.3 for the evaluation and selection of equipment (process, electrical, HVAC, instrumentation control etc.) not specified and include same as part of the project definition report.
- (r) Incorporate City approved recommendations within the Project definition report - 100% complete.

#### E3.3.13

Technical Memoranda - Develop technical memorandum in accordance with D8.4 for the following:

- (a) Provide Project layout with vehicular access and site requirements.
  - (i) Provide plant layouts incorporating new and existing pipe routes including underground rail crossings;
  - (ii) Determine if Parcel B, west of the CP Rail tracks, needs to be used for the upgrade;
  - (iii) Optimize the size and layout of the processes;
  - (iv) Site development for future expansion/upgrade;
  - (v) Allocate corridors for potable water, wastewater, sludge, cabling, plumbing and HVAC pipes and tie-ins; and
  - (vi) Provide railway crossings and site access with internal 2 lane road width to Ferrier Street from Parcel A even if Parcel B is not required for the upgrade.
- (b) Process flows and mass balance of the proposed upgraded.
  - (i) Consider cold raw sewage conditions and assessment of their implications and requirements.
- (c) Carry out traffic study and design for the NEWPCC site
  - (i) Determine traffic control and site access to ensure safe access is provided during construction and for future operational needs through 2037 including
    - ◆ road and rail traffic including any rail crossings;
    - ◆ impacts of traffic volumes to construction; and
    - ◆ traffic volumes shall include haulers (sludge and liquid) within the plant during construction and for the upgraded plant.
  - (ii) Prepare a communication strategy in conjunction with the City's project manager regarding construction impacts on haulers.

- ◆ assist in the preparation of a frequently asked questions/facts sheet to respond to potential inquiries from haulers.
  - ◆ coordinate with CP rail, Public Works Department and other required City departments
- (d) Reuse/repurposed facilities.
- (i) Determine modifications to be made to reused/repurposed facilities.
  - (ii) Identify the parts of the existing facility that can be reused/repurposed, based on cost efficiency, risk assessment, and operation reliability.
  - (iii) Verify that reused/repurposed facilities and conduits have sufficient capacity and functionality to meet the intent of the design.
  - (iv) Confirm that the existing centrate treatment facility can handle centrate flows from the upgraded facility.
  - (v) Assess the actual conditions of the center ring in the control chamber for the primary clarifiers and define the required rehabilitation works.
  - (vi) Evaluate of the reuse of the existing and installation of new chemical receiving, storage and feed systems. The evaluation shall include both truck and rail access.
  - (vii) Identify and assess all existing electrical systems and circuit to be reused and all existing electrical systems and circuits that are to be retained.
    - ◆ Systems must be justified and assessed to ensure sufficient service life for continued safe and reliable operation to the year 2037 horizon.
    - ◆ If any electrical systems or circuits identified will not meet the requirement for the year 2037 horizon a replacement work will be required.
  - (viii) Evaluate and recommend for reuse or new all existing conduits, pipes, gate chambers, junction chambers, channels, gates, valves, flow meters, tunnels, sumps and sump pumps, heating and ventilation, lighting and other supporting systems and appurtenances within the NEWPCC and the outfall .
- (e) Project implementation plan - develop a conceptual level Project implementation plan including:
- (i) construction sequencing plan with associated implementation schedule that takes into consideration seasonal work;
  - (ii) logistics for hydrotesting of tanks. Including recirculating and disposal of the water;
  - (iii) construction impacts with adjacent environment and traffic, and mitigation;
  - (iv) potential tie-ins to the existing system;
  - (v) phasing requirements including temporary facilities;
  - (vi) maintaining plant operation and compliance strategy;
  - (vii) accelerating construction of key process components that could provide early compliance benefits; and
  - (viii) construction staging opportunities and commissioning plan.
  - (ix) The Consultant shall conduct two (2) half day commissioning workshops to review the project implementation plan with focus on potential tie-ins and impact on plant operations.

#### E3.3.14 Risk and opportunity assessment

- (a) The Consultant shall conduct risk and opportunity assessments towards the end of the conceptual design as two (2) full day workshops with the WSTP Team and other City selected stakeholders.
- (i) allow One (1) day to focus on DB phase of the work and the other to focus on reliability, redundancy, operability and maintainability of the upgraded plant.

- (ii) in preparation for the workshop the consultant shall prepare and submit a risk register using the required City template.
- (iii) the risk register shall identify the Projects risks and opportunities. This includes qualitative and quantitative analysis, risk responses and risk control measures of the risk and opportunities.

**E3.3.15** Level five (5) cost estimate.

- (a) Provide class five (5) cost estimates in accordance with AACE International Recommended Practice No. 17R-97, No.18R-97 and No. 56R-08.
  - (i) Cost shall include whole life cost (CAPEX, OPEX & NPV).
  - (ii) Costs shall be presented by process area.

**E4. WSTP LEVEL 2 DESIGN**

**E4.1** The WSTP Level 2 Design shall commence with a letter of acceptance of the Project definition report from the Project Manager. The WSTP Level 2 Design, as used in this RFP, includes but is not limited to:

- (a) An Enhanced Preliminary Design (EPD) and, but not limited to;
  - (i) Business cases (separately and as part of the EPD report);
  - (ii) Project implementation plan
  - (iii) Risk and opportunity assessments;
  - (iv) HAZOP and CHAIR; and
  - (v) Cost estimates ( $\pm 20\%$ ).
- (b) Design Build technical elements; and
- (c) Cost development documents.

**E4.1.1** The EPD shall be developed in enough detail to obtain a  $\pm 20\%$  cost estimate.

**E4.1.2** At the end of Level 2 design, drawings and specifications and other documentation for all disciplines shall be at the same level of completion.

**E4.2** WSTP Level 2 Design deliverables and workshops.

**E4.2.1** The EPD report, Design Build technical elements, cost development documents, and associated drawings are the major deliverables for the WSTP Level 2 Design and consist of the following:

- (a) EPD report.
  - (i) EPD report – 75% complete;
  - (ii) Presentation of EPD report – 75% complete;
  - (iii) The OA shall commence weekly technical review meetings (including preparation of minutes) with the WSTP after the acceptance of 75% complete EPD report until the acceptance of all work in the WSTP Level 2 Design phase.
  - (iv) EPD report – 100% complete;
    - ◆ Encompasses all work carried out during the Level 2 design.
    - ◆ Technical memoranda shall be included in the body of the final EPD report while the risk register may be included in the appendix of the report.
  - (v) Presentation of EPD report -100% complete.
- (b) Design Build technical elements; and
  - (i) Design Build technical elements as a separate document.
  - (ii) Presentation of design build technical performance elements;
- (c) Cost development documents.
  - (i) Cost development documents as a separate report; and
  - (ii) One (1) full day workshop.

E4.2.2 The following are other deliverables and workshops associated with the WSTP Level 2 Design but not limited to:

- (a) Updated business case for CHP;
- (b) HAZOP and CHAIR;
  - (i) Two (2) full day HAZOP workshops for the liquid process stream;
  - (ii) Two (2) full day HAZOP workshops for the sludge process stream;
  - (iii) One (1) day CHAIR workshop;
  - (iv) Technical memorandum for each workshop.
- (c) Maintenance Review;
  - (i) One (1) full day workshop on the liquid stream
  - (ii) One (1) full day workshop on the sludge stream
  - (iii) A list of key areas of the design to review.
  - (iv) A technical memorandum of the workshops
- (d) Risk and opportunity; and
  - (i) Two (2) full day workshops
  - (ii) Submit completed risk register prior to the workshop.
  - (iii) Submit a final risk register after the workshop
- (e) Training requirement for operations and maintenance staff.
  - (i) Two (2) half day workshops.
  - (ii) A technical memorandum after all the workshops.
- (f) Cost Estimate
  - (i) To be submitted separately from the EPD report and shall not be included in the EPD report.
  - (ii) The Cost estimate shall be sealed.

E4.2.3 All deliverables shall be submitted in draft and final copies with WSTP comments incorporated into final copies.

E4.2.4 Draft and final copies of all documents and models shall be provided in Native Format and PDF; one (1) unbound and six (6) bound hardcopies.

- (a) The City and/or design builder shall have the full capability to continue development of the design drawings and models.
- (b) All documents shall be 100% consistent with each other.
- (c) All documents produced at this stage shall be thoroughly quality checked for consistency and completeness by the Consultant.
  - (i) For instance: It is not acceptable for a motor to be shown as 40 hp on a P&ID drawing and 50 hp on an electrical drawing.

E4.3 Enhanced Preliminary Design

E4.3.1 As a minimum, the EPD shall consist of the following and not limit to:

- (a) Civil/Site development
  - (i) Provide a comprehensive set of civil drawings and specifications to clearly indicate all site construction requirements and other major civil works, including:
    - ◆ Roadway and parking lot construction, including temporary construction roads and parking areas.
    - ◆ Construction stockpile and laydown areas, sized appropriately for the planned construction.
  - (ii) 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.

- (iii) Provide plan drawings to show all site and yard piping and appurtenances greater than or equal to 100mm in diameter. Include water-mains, fire protection, and other site piping. Also show all site electrical power distribution between buildings.
    - (iv) Provide a description of all minor civil works, not clearly shown on the drawings, in the EPD report.
  - (b) Provide a comprehensive set of demolition drawings and specifications to clearly indicate all building and equipment demolition requirements.
  - (c) Temporary Construction Requirements
    - (i) 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.
    - (ii) Provide a description of all minor temporary construction requirements, not clearly shown on the drawings, in the EPD report.
  - (d) Structural drawings and specifications that enable quantitative take-offs of piles, reinforced concrete, structural steel and other structural elements.
  - (e) Architectural
    - (i) Provide a comprehensive drawings and specifications for architectural design for all new and modified buildings 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.
  - (f) Provide comprehensive drawings and specifications for HVAC design for buildings, covered tanks and tunnels based on architectural, process and operational requirements and the proposed equipment layout.
  - (g) Process flow diagrams and area process mechanical design drawings and specification. The drawing sections should highlight:
    - (i) major equipment layouts;
    - (ii) arrangement and interconnection of key process components;
    - (iii) hydraulic profile and standard mechanical details such as pipe and valve supports, backflow prevention, etc;
    - (iv) provide mass balance drawings for all operating scenarios;
    - (v) provide a comprehensive P&ID drawing set for the entire process;
    - (vi) provide general arrangement plan drawings for all processes and building areas. Show all equipment and piping equal or greater than 100mm in diameter;
    - (vii) provide general arrangement section drawings for processes and building areas where the plan drawings do not sufficiently show the requirements of the work;
    - (viii) provide standard/typical equipment details such as equipment pads, pipe and valve supports, etc; and
    - (ix) provide a comprehensive set of equipment datasheets for all process equipment, valves and gates with an estimated value of \$50,000 or more.
  - (h) Electrical, Instrumentation, Controls and Automation
    - (i) Provide a preliminary electrical site plan inclusive of single line diagrams and area electrical plans identifying all major equipment and building services loads and requirements. The electrical site plan shall include above and below ground systems for plant lighting, low voltage and medium voltage power distribution, security system, telephone/communication systems, HVAC power,



- gas detection and alarm systems, electrical decommissioning and other miscellaneous electrical systems.
- (ii) Identify and assess standby power requirements for critical plant operations.
  - (iii) Provide preliminary area process and instrumentation drawings (P & ID), PROFIBUS network drawing and preliminary process control narrative for the Project.
  - (iv) Provide preliminary instrument list defining all process sensing equipment including level, flow, pressure and on-line monitoring instrumentation and with appropriate PROFIBUS Node segmentation so that in the event that one single instrument fails it doesn't not adversely impact the process automation network.
  - (v) All new and existing instruments and equipment shall be tagged in line with the Water & Waste Department Identification Standard.
    - ◆ Identify and create a list of all equipment identifiers to be used by the design builder.
    - ◆ The list will consist of both existing and new identifiers with regards to existing equipment.
    - ◆ In addition, all instruments and equipment (new and existing) to be retained or replaced are to be retagged by the design builder in line with the Water & Waste Department Identification Standard.
  - (vi) Provide a replacement and detailed migration strategy to move all existing facility DCS, HMI and PLC systems that will remain to the new PLC based process control system.
  - (vii) Document all safety instrument systems with reference to the ISA 84 series of standards.
  - (viii) All HVAC controls both new and existing will be PLC based control. Use of commercial-grade or industrial-grade proprietary systems will not be accepted.
    - ◆ Ventilation of all electrical rooms, control rooms and server rooms is to include installation of a media scrubber, unless specifically approved otherwise by the City.
  - (ix) Design new and existing fire alarm systems and gas detection systems.
  - (x) Identify all existing E&IC systems and circuits that are to be retained from the existing facility.
    - ◆ Assess the E&IC systems and circuits to ensure there is sufficient service life for continued safe and reliable operation to the year 2037 horizon.
    - ◆ If any E&IC systems or circuits identified will not meet the requirement for the year 2037 horizon, the OA shall develop a replacement strategy for E&IC systems or circuits that will not meet the requirement for the year 2037 horizon for the DB's scope of work.
  - (xi) Prepare E&IC drawings in accordance with City standards and industry best practices consisting but not be limited to;
    - ◆ comprehensive set of P&ID drawings for the entire facility including updates to existing facility P&ID's and where all P&ID's will be prepared using "smart" P&ID software;
    - ◆ facility one line diagrams;
    - ◆ grounding riser diagrams;
    - ◆ conduit riser diagrams;
    - ◆ three line schematics for all switchgear greater than 600V, along with specific details within electrical distribution equipment such as power meters and voltage monitors;
    - ◆ control room(s) equipment layout drawings for the entire facility;
    - ◆ hazardous location plan drawings for the entire facility including required equipment temperature codes;

- ◆ automation networking diagrams including Network Overview drawings, Networking Details drawings, and Network Cable Routing Diagrams for the entire facility, and;
  - ◆ automation system architecture / block diagrams for the entire automation system.
- (i) Provide detailed listings of major equipment and associated information (major equipment being defined as equipment with significant electrical loads, process implications or capital/operational cost contribution).
- (i) The listings shall include all major process equipment, major valves and key instruments.
  - (ii) Include preliminary equipment data sheets for major process equipment that indicates general process / mechanical data, service conditions, performance requirements, materials of construction, electrical data, environmental controls etc.
  - (iii) Provide lists and quantities of any other consumables and spare parts required for the operation of the works.
- (j) The Consultant shall develop a preliminary Project commissioning plan.
- (i) The plan shall provide the concept and preliminary details as to how the Project components can be brought on-line relative to the overall plant construction and ongoing operations.
  - (ii) The plan shall address all key Project components.
  - (iii) The plan shall minimize impact to the facility's capability to meet its regulatory obligations and provide detail of any planned impacts.
  - (iv) The plan shall encompass the various aspects of commissioning including training, inspection, quality, start-up, testing, verification and handover to operations. The plan shall identify roles and responsibilities, procedures and processes, quantified anticipated resources, equipment, utilities and consumables, including start-up chemicals.
  - (v) The level of detail shall be such as to enable the needed level of costing of the commissioning efforts.
  - (vi) The plan shall be in conformance with the Consultant Services Commissioning Requirements.
- (k) Operational Data - The Consultant shall develop and provide the deliverables identified in the following table:

Opex Adjustment Model Requirements	Consultant Deliverables	Comments
Power / Load schedule	Equipment Electrical load list.	Schedule to include load type, rate, process area, Unit capacity, output units, power units, efficiency, estimated run time in hours/day and days/year, energy used per year, energy cost, demand cost, consumption total energy, asset ID, Parent ID, P&ID tag reference.

<b>Opex Adjustment Model Requirements</b>	<b>Consultant Deliverables</b>	<b>Comments</b>
Residuals Schedule	Data required; Provide for new assets: Grit: Annual average Tonnes of grit produced / MLD influent All sludge and biosolids streams: % dry solids Screenings: Annual average tonnes of screenings produced / MLD influent	For the City to evaluate impact of new streams on existing streams.
Chemicals Requirements schedule	Data required; For each chemical used, provide guaranteed annual average chemical usage per respective process parameter (e.g. flow; TSS; BOD etc.)	
Asset Data Schedule	<ul style="list-style-type: none"> <li>• Equipment and instrumentation lists</li> <li>• Equipment data sheets</li> </ul>	Must include all maintainable equipment. This is not necessarily the same as the equipment list. Data shall be in a City approved format ( a template will be provided to the successful Consultant)
Gas & Heating schedule	Provide gas usage impact (difference between existing demand and future demand). Including assumptions supply source.	
Water demand	Provide potable water usage requirements. Including any guarantees if applicable.	
De-commissioned assets schedule	Data required Provide a list of assets to be decommissioned as a result of the Project. Must be based on data held within the City OWAM system.	Data shall be in a City approved format ( a template will be provided to the successful Consultant)
Other consumables	Data required Provide a list and quantities of any other consumables required for the operation of the works.	
Spares	Data required Provide a list of recommended spares	

#### E4.3.2 Critical path schedule

- (a) The OA shall develop and provide a critical path schedule for the Project covering the design-build operation from Detailed Design to turnover to operations.
- (b) The level of detail shall be such that it clearly conveys the significant activities related to the various Project components with their inter-dependencies and anticipated construction sequences.
- (c) The schedule shall be configured suitable for use by Microsoft® Office Project 2010

#### E4.3.3 Risk and opportunity assessment - The OA shall conduct a risk and opportunity assessment towards the end of the WSTP Level 2 Design with the WSTP Team and other City selected stakeholders.

- (a) The OA shall prepopulate the risk register initially submitted according to the City's format.
- (b) The risk register shall identify the opportunities, risks, qualitative and quantitative analysis of the risk and opportunities, risk responses and risk control measures with emphasis on risks with implication on design build procurement, construction and post construction phases of the Project.

- E4.3.4 The OA shall assist the City in obtaining railway permits, construction easements and other permits.
- E4.3.5 The OA shall identify overall training requirements for the operations and maintenance staff.
- (a) This shall include two (2) half day workshops with the City to identify specific training needs including specific training levels.
- E4.3.6 Operational Philosophy
- (a) Update the operation philosophy for 2020 startup conditions and 2037 flows and loads;
- (b) Update the operation philosophy including wet weather flow management; and
- (c) Provide an operational staffing plan for the upgraded plant.
- E4.3.7 Business case
- (a) CHP business case shall be updated and validated based on the EPD.
- E4.3.8 Project Implementation Plan - The OA shall update the Project implementation plan based on the WSTP level 2 design.
- (a) Include impacts to current facility treatment capabilities that need to be addressed to achieve the Project objectives.
- (b) Include construction sequencing with associated implementation schedule that takes into consideration.
- (i) seasonal work;
- (ii) potential tie-ins to the existing system;
- (iii) ability to accelerate construction of key process components that could provide early treatment benefits; and
- (iv) construction staging opportunities.
- (c) Include commissioning sequencing.
- E4.3.9 HAZOP and CHAIR - The OA shall provide the following analysis and assessments:
- (a) A preliminary Hazard and Operability Analysis (HAZOP) with select WSTP Team members and recommended City Operations/Maintenance or other personnel; and
- (i) The OA shall take on the role of the consultant, facilitator and scribe.
- (b) Construction Hazard Assessment Implication Review (CHAIR) of the design and require same from the design builder.
- (c) Incorporate the recommendations from the workshops into the design documents
- E4.3.10 Maintenance Review Workshops- the OA shall provide maintenance review workshops with the WSTP tam and City operations and maintenance personnel. The workshop shall be used to review access, lifting and maintainability of the design.
- (a) The OA shall take on the role of the consultant, facilitator and scribe.
- (b) Provide select key areas of the design prior to the workshops for City approval.
- (i) It is understood that the workshop is not comprehensive of the entire design.
- (c) Incorporate City approved recommendation in to the design.
- E4.3.11 Cost estimate
- (a) Provide a detailed cost estimate to an accuracy level of  $\pm 20\%$  for the full DB project scope of work.
- (b) The cost estimate shall be based on the EPD and shall be more accurate than a class three (3) cost estimate.

- (c) The estimate shall be prepared in accordance with AACE International Recommended Practice No. 17R-97, No.18R-97 and No. 56R-08; and include a detailed breakdown with unit cost source listed for each line item.
- (d) Cost shall include whole life cost (CAPEX, OPEX & NPV).
- (e) Cost shall be presented by each process area.
- (f) Acceptance of this estimate by the City is a prerequisite to issuing the DB RFP.

#### E4.3.12

Design Build technical elements - These shall include but is not necessarily limited to

- (a) WSTP Design Standards, performance requirements, performance criteria, performance specification and/or prescriptive specification.
  - (i) Address site development, structural, architectural elements, process, HVAC, plumbing, mechanical, electrical, detection and alarm, instrumentation, controls, automation, security, flood protection, fire protection, odour control, asbestos abatement, temporary facilities, road access, parking, truck traffic, rail traffic, rail crossing, landscaping, operational consumables etc.
  - (ii) Include minimum sizes, installation requirements, and requirements for major equipment.
  - (iii) Include volume and footprint of facilities, pipes and appurtenances.
  - (iv) Identify quality requirements, quality checklists, expectations, tolerances, standards and work performance measurements;
  - (v) Indicate equipment lists and requirements, criteria and/or specifications;
  - (vi) Specify commissioning activities and expectations demonstrating that the performance testing in the commissioned year will meet the design year 2037 requirements.
- (b) clearly defined criteria for the construction project, including
  - (i) legal description of the site;
  - (ii) survey information concerning the site;
  - (iii) construction impacts on adjacent environment and traffic;
  - (iv) geotechnical survey;
  - (v) interior space requirements;
  - (vi) material quality standards;
  - (vii) schematic layouts;
  - (viii) conceptual and EPD criteria of the project;
  - (ix) limits of work for the DBB, DB and Praxair;
  - (x) staging areas for the DBB, DB and Praxair;
  - (xi) testing requirements;
  - (xii) commissioning requirements;
  - (xiii) decommissioning requirements;
  - (xiv) site development requirements;
  - (xv) operator and operational and maintenance training requirements
  - (xvi) provisions for utilities;
  - (xvii) other site requirements; and
  - (xviii) closeout requirements.
- (c) Include requirements from the OA's CHAIR and HAZOP workshops;
- (d) Inclusion of HAZOP and CHAIR #2 and #3 workshops in the design builder's Scope of Services.
- (e) Training requirements (including multiple training session for shift work)
- (f) Provide operations manual (O&M manuals), standard operating procedures, job hazard analysis, lock out – tag-out procedure templates and requirements.

(g) Include other relevant information in E4.3.1 to E4.3.10.

**E4.3.13 Cost Development Document**

- (a) The OA shall provide E4.3.1 to E4.3.3 as the cost development document.
- (b) The cost development document shall be provided as a separate report.
  - (i) This information shall also be included in the EPD report.
- (c) The information provided in the report shall be sufficient for use by a third party Cost Consultant engaged by the City to quantify and assess the Project components.
- (d) The information provided shall enable an overall construction cost estimate to an accuracy level of  $\pm 20\%$ .
- (e) Associated specifications shall be provided to convey quality information.
- (f) The OA shall facilitate a one day workshop with members of the WSTP together with the City engaged independent Cost consultant. The workshop is to facilitate a forum to present the EPD cost development documents and provide clarification as needed.
  - (i) The OA shall be prepared to answer the cost consultant's subsequent questions outside the workshop.

**E5. PROCUREMENT SERVICES**

**E5.1 Procurement Services deliverables and meetings.**

**E5.1.1** The major deliverables associated with the Procurement Services includes but not limited to the following:

- (a) RFQ documents, including addenda, for the DB Contract.
- (b) Presentation of RFQ documents;
- (c) RFQ pre-bid meeting(s) and site tours;
  - (i) A minimum of two site tours for all DB Proponents.
- (d) RFQ evaluation process and guideline document
- (e) RFP documents, including addenda for the DB Contract;
- (f) Presentation of RFP documents;
- (g) RFP pre-bid meeting(s) and site tours. Allow a minimum of
  - (i) Three (3) site tours per preselected DB Proponent.
  - (ii) Three (3) full days for each site tour.
- (h) Commercial confidential meetings;
  - (i) Three (3) full day meetings to be held with each pre-selected DB proponent during the RFP process for commercial issues.
  - (ii) Three (3) full day meetings to be held with each pre-selected DB proponent during the RFP process for technical issues.
  - (iii) The meetings for each proponent will be approximately six (6) weeks apart.
- (i) RFP evaluation process and guideline document;
- (j) Bid evaluation report for the DB Contract; and
- (k) Debriefing reports.

**E5.1.2** Draft and final documents shall be provided in Native Format and PDF; and one (1) unbound and six (6) bound hardcopies.

**E5.2** The procurement process shall comprise of a RFQ and a RFP for the NEWPCC Upgrade Project.

**E5.2.1** The OA's Scope of services during the RFQ process shall include but not limited to the following:

- (a) Prepare the RFQ, including all supporting documents, for posting on the City's website;
- (b) In consultation with the City, provide an RFQ evaluation process and guideline which includes but not limited to;
  - (i) Evaluation plan;
  - (ii) Responsibilities of the project team;
  - (iii) Procedures and agreements for confidentiality and conflict of interest;
  - (iv) Individual evaluations and consensus scoring;
  - (v) Evaluation worksheets;
  - (vi) Interview processes;
  - (vii) Communications;
  - (viii) Notification of Proponents; and
  - (ix) Debriefing of Proponents.
- (c) Incorporate comments from the City and Fairness Advisor;
- (d) Coordinate pre bid meetings and site tours of the NEWPCC for the DB Proponents;
  - (i) There shall be a minimum of two site tours for all DB Proponents.
- (e) Prepare responses to RFI's submitted by the DB Proponents;
- (f) Prepare addenda;
- (g) Attend the City's evaluation training (one half day); and
- (h) Participate with the City in evaluating the RFQ submittals and shortlisting to a maximum of three DB proponents;

E5.2.2 The OA's Scope of Services during the RFP process shall include but not limited to the following:

- (a) Prepare the RFP, including all supporting documents, for posting on the City's website;
- (b) Provide an RFP evaluation process and guideline document which includes but not limited to items in E5.2.1(b).
- (c) Incorporate comments from the City and Fairness Advisor;
- (d) Coordinate pre-bid meetings and site tours of the NEWPCC for each of the preselected DB Proponents;
- (e) Prepare responses to RFI's submitted by the DB Proponents;
- (f) Review with the City, the DB Proponents' submittal prior to the commercially confidential meetings;
  - (i) The DB proponents shall be required to submit their information/questions a minimum of two weeks before the meetings.
- (g) Attend, participate, provide minutes and technical guidance at the commercially confidential meetings to be held with preselected DB proponents;
- (h) Prepare addenda;
- (i) Review and recommend DB Proponents' written requests for equals/alternatives;
- (j) Attend the City's evaluation training (one half day);
- (k) Participate with the City in evaluating the RFP submittals and the selection of the successful design build proponent;
  - (i) The Consultant's evaluation shall include review of the DB proposal for compliance with the RFP on technical merits and costs (CAPEX, OPEX & NPV).

- (l) Review and recommend for City approval the bridging documents(that incorporates contract negotiations, amendments and accepted alternatives) to be prepared and submitted by the DB before the DB contract is awarded;
  - (m) Prepare and submit a bid evaluation report on the compliance of each proposal, technical merits and costs with respect to the DB RFP; and
  - (n) Assist in preparing debriefing reports and debriefing of bidders.
- E5.3 Prepare tender packages (RFQ and RFP documents) that include general description of the proposed upgrade, preselected vendors/equipment, required technical performance elements (performance requirements, performance criteria, performance specification and/or prescriptive specification), to provide sufficient information for DB Proponents to prepare responses to the RFQ and RFP. Performance elements shall also include the following criteria:
  - (a) Management – this shall include design and construction quality assurance and quality control, safety, traffic control, logistics management, environmental protection, personnel qualifications, qualifications and past performance of organizations and detailed project execution plans;
  - (b) Submittal requirements;
  - (c) Schedule – including design and construction schedules and the type of schedule criteria;
  - (d) Design Build Technical Elements – as indicated in EPD; and
  - (e) Whole life cost (CAPEX, OPEX & NPV) – forms for bid prices.
- E5.4 The OA shall use the City’s standard RFQ and RFP templates and expand upon as required to incorporate the needs of design build.
  - (a) The OA shall meet with various City departments (Legal Services, Materials Management, Wastewater Services, Information Systems and Technology, Engineering, Insurance etc.) to finalize the procurement documents.
- E5.5 All tender packages shall be prepared and posted in accordance with the City of Winnipeg Materials Management Division requirements.
- E6. CONTRACT ADMINISTRATION SERVICES**
- E6.1 The Contract Administration Services shall commence when the design builder receives notification of the contract award from the City.
- E6.2 Without relieving the design builder of their contractual and other legal obligations, the OA’s Contract Administration Services shall consist of resident and non-resident engineering Services as detailed below.
- E6.3 The OA shall provide Contract Administration Services in accordance with E2.2.2.
- E6.4 The OA shall participate in the design builder’s HAZOP and CHAIR workshops.
- E6.5 Partnering
  - (a) The OA shall participate in partnering sessions with the design builder and the City to facilitate project progress by resolving project conflicts and claims before it escalates.
  - (b) The WSTP will hold an initial three (3) day partnering session with members (project managers and principals in-charge) of the OA and design builder’s firms facilitated by a partnering consultant.
  - (c) Subsequent sessions shall be one day sessions held quarterly.
  - (d) Additional sessions will be held as necessary to address critical issues.
- E6.6 Non-Resident Engineering Services
  - (a) Provide adequate and timely direction and advice to OA’s field personnel.



- (b) Review the design builder's design for conformity with the project requirements and budget and administer design changes.
- (c) Monitor and report on the progress of construction activities in relation to established schedule, and assess and document earned value measurement.
- (d) Review and accept submittals supplied by the design builder or supplier to for conformance with the approved project criteria.
- (e) Coordinate, consolidate and remove duplication on City and OA's comments for the design builder's deliverables.
- (f) Review and report to the City regarding laboratory, shop, factory acceptance tests and other tests conducted on materials and/or equipment placed or installed by the design-builder for conformance with the approved project criteria, drawings and specifications.
- (g) Review and accept, or reject, subject to prior approval of the City, of alternate materials and equipment submitted by the design builder.
- (h) Review acceptability of inspection and test plans.
- (i) Review and respond to design-builder RFI's.
- (j) Prepare as required field instructions, clarifications and directives.
- (k) Review, comment, approve, or reject, specifications and drawings for proposed design-builder scope changes.
- (l) Identify to the City the impact of proposed changes (on time, quality, cost, scope, risk and human resources), so that the City may make well-informed decisions whether or not to proceed with the proposed changes.
- (m) Provide interpretation of technical aspects of DB contract.
- (n) Provide technical assistance in development of tie-in protocols, phasing and inspections.
- (o) Verify the design builder is
  - (i) meeting zoning, legal, permit and environmental requirements at all stages of the project; and
  - (ii) obtaining all required final approvals and inspections, including procurement of an Occupancy Permit.
- (p) Monitor compliance with the Building Code, health, safety and other regulations.
- (q) Obtain from the design builder, review, and provide to City:
  - (i) Detailed Design notes package and calculations including items such as structural, geotechnical, HVAC, electrical, equipment and building services, mechanical, instrumentation and control; and
  - (ii) Approved submittals, including but not limited to, shop drawings, final operation & maintenance manuals, standard operating procedures, and reference submittals, all within two (2) months of Total Performance of the Contract. A summary list of all documents provided shall be included.
- (r) Prepare and assist in preparation of regular financial reports identifying expenditures and cost projections to completion.
- (s) Consult with and advice the City during this phase.
- (t) Provide to the City complete current report on the Project status on a monthly basis;
- (u) Provide to the City a current update of revised Contract-end cost estimate on a monthly basis, or more frequently if found necessary, with explanation and justification of any significant variation from the preceding contract-end cost estimate.
- (v) Administer contract changes and make recommendation to the City.
- (w) Coordinate with responsible parties in resolution of issues.
- (x) Define and justify estimate of costs for additions or deletions from the contract for authorization by the City.

- (y) Arrange, attend, chair and produce meeting notes of pre-construction meetings, on-site or off-site design review meetings and construction meetings including CHAIR#2 and #3 meetings.
  - (i) These meetings shall include representatives of the OA, design builder and the City.
  - (ii) Provide the meetings' minutes, details of completion and outstanding action items.
- (z) Monitor construction and commissioning schedules and budget.
- (aa) Promptly arrange for and take part in a detailed final inspection of the Project with the design builder and the City prior to commencement of the warranty period specified in the Contract and provide in electronic format an appropriate recommendation of acceptance of the constructed or partially constructed Project.
- (bb) Undertake detailed inspections of the Project with the design builder and the City prior to the end of the period of design builder maintenance guarantee specified in the contract for the Project.
- (cc) Provide a report at the end of 1 year from substantial performance assessing if the Project meets the intent of the design or if modifications are required.
- (dd) Provide certification prior to Total Performance acceptance that the Project has been built in accordance with the design and any authorized modifications.
- (ee) Coordinate all Project related activities.
- (ff) Provide site inspections by lead designers at appropriate points of construction.

#### E6.7 Resident Engineering Services

- (a) Provide full time construction inspection and acceptance of the work during installation and construction. This shall include but not limited to
  - (i) general excavation and exposing of underground services;
  - (ii) bedding placement;
  - (iii) all electrical and instrumentation installations and connections;
  - (iv) where required, connections to watermains, sewers, manholes, valves, hydrants, and excavation and/or exposing of underground services, structures, or facilities;
  - (v) component laying and backfilling in respect of installation of buried services and foundations;
  - (vi) excavations to determine soil adequacy prior to installation of base and subbase courses for buried services, buried structures foundations, roads and sidewalks;
  - (vii) formwork, reinforcing, foundations and piling; and
  - (viii) construction and installations sufficient to ensure that the construction is carried in conformance with the drawings and specifications and provide report.
- (b) Coordinate a preconstruction visual survey with the design builder and the WSTP team and provide a preconstruction video survey of the existing site.
- (c) Attend, contribute to and produce meeting notes of weekly progress meetings with the design builder and the City.
- (d) Provide for and coordinate third party testing with the design builder.
  - (i) Witness testing of materials, structures, equipment and systems including, but not limited to, structural, electrical, instrumentation and controls.
  - (ii) Ensure tested materials conform to the drawings and specifications.
- (e) Provide reference line and elevation control points for the works and check the design builder's adherence.
- (f) Promptly report to the City any significant and unusual circumstances.
- (g) Provide oversight of equipment installation and start-up.
- (h) Review, comment and provide oversight of the commissioning work, commissioning plans, training and training manuals.

- (i) Provide the City with the following records weekly in Native Format and PDF:
  - (i) weekly reports with attached daily daily;
  - (ii) reports and logs of inspections performed the previous week;
  - (iii) record of work events kept continuously. Including working days and days lost due to inclement weather during the course of the design builder's Work;
  - (iv) written and photographic records of the construction:
    - ◆ include construction progress, assessment of the physical condition of adjacent buildings, facilities, and structures;
    - ◆ include quantity and quality of information to provide valid evidence and relevant testimony in settling any claim involving the City by, any court of law, or any other party for damages arising from the Project.
    - ◆ photographic records shall have a minimum resolution of twelve (12) mega pixel along with date and time stamps.
- (j) Review, certify and promptly submit to the City the DB's progress estimates in accordance with the drawings, specifications and as required under the Builder's Liens Act of Manitoba.
- (k) Prepare the DB's progress estimates.
- (l) Participate in inspection of the construction along with the design-builder and the City to establish Substantial Performance, Total Performance and Warranty Inspection.
  - (i) Provide an itemized deficiency lists or appropriate recommendation of acceptance of the contract work.
  - (ii) Issue Substantial Performance, Total Performance and Acceptance Certificates for the City and design builder to execute.
- (m) Provide the City with summary timesheets detailing the Resident Services in a format acceptable to the City.
- (n) Comment upon and provide recommendation for approval of operations manuals, standard operating procedures, job hazard analysis, lock out – tag-out procedures.
- (o) Ensure the design builder maintains daily electronic updates of the construction drawings in order to produce a complete set of as-built drawings.
- (p) Review completed, or substantially completed, drawings and/or specifications that were in conformance with the original intent of the City or had been accepted by the City.
- (q) Hold weekly safety/training sessions for the OA's staff, Subconsultant and any City staff on site.
- (r) Meet with the design builder's safety personnel at least monthly to review their safety program and any modifications.

#### E6.8 Commissioning

- (a) This project is expected to be commissioned in phases. The OA's work shall apply to all phases.
- (b) Consult with and advise the City during commissioning.
- (c) The OA shall
  - (i) oversee the development of the commissioning plan;
  - (ii) not be required to attend formal off-site training classes provided by equipment manufacturers or software integrators;
  - (iii) oversee the implementation of the commissioning requirements and design builder's commissioning plan;
  - (iv) log all commissioning issues and provide weekly briefing to the City summarizing commissioning status, and indicating where City's response is required; and
  - (v) attend and document all training programs that they have been provided by the design builder in accordance with commissioning plan.

E6.9 All deliverables associated with this phase shall be provided in Native Format and PDF; and in seven (7) hardcopies, unless otherwise specified.

## **E7. POST CONSTRUCTION SERVICES**

E7.1 The Post Construction Services comprise of two-year warranty and operational advice services.

(a) Post construction shall not commence until the design builder has achieved Total Performance.

E7.2 The warranty services shall include but not limited to the following:

(a) Confirm and ensure complete turnover of project documents (shop drawings, as built drawings, design notes and calculations, software programs and licences etc.) to the City by the design builder and that documents are in conformance with the Contract;

(b) Determine if corrective work is part of design builder's warranty;

(c) Conduct inspection and approval of warranty work.

(d) Provide instructions for correction of deficiencies;

(e) Review updates to operation and maintenance manuals and resolve deficiencies;

(f) Respond to requests of the City related to the project;

(g) Issue acceptance certificates of warranty work;

(h) Liaise and coordinate with the design builder to repair defective work; and

(i) Prior to the end of the warranty period, conduct an inspection and complete the City of Winnipeg Acceptance Certificate.

E7.3 The two-year operational advice service shall be performed on an on call basis.

E7.4 Update SOPs, JHA, operations manual, LOTO documents as required.

E7.5 Composite Base Plan Update

(a) Update the NEWPCC composite base plan and area site plans (Appendix 23) for the NEWPCC after the completion of the NEWPCC Upgrade Project.

(b) The composite base plan and area plans shall be updated in accordance with

(i) CI/ASCE 38-02 ASCE Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data and

(ii) CSA 250 Mapping of Underground Utility Infrastructure.

(c) The plan shall include information on the as-builts from the NEWPCC Power Supply Project, NEWPCC Upgrade Projects and other site as-builts provided by the City.

E7.6 All deliverables associated with this phase shall be in Native and PDF format and provided in seven (7) hardcopies, unless otherwise specified.

(a) One (1) set of the final composite base plan and area site plans shall also be provided in mylar.

## **PART F - PROFESSIONAL ENGINEERING \_ DESIGN BID BUILD SERVICES**

### **F1. SUMMARY OF SERVICES**

F1.1 As part of this task, the Consultant shall provide the following services:

- (a) Project Management;
- (b) WSTP Level 1 and 2 Design;
- (c) Detailed Design;
- (d) Contract Administration Services; and
- (e) Post Construction Services.

### **F2. PROJECT MANAGEMENT**

F2.1 This phase shall include all Project management activities required to carry out Professional engineering \_ Design Bid Build Services.

F2.2 Deliverables and Meetings

- (a) Deliverables and meetings are as described in E2.1
- (b) The deliverables shall be submitted separately from those described in E2.1.

F2.3 The Services under F2 shall be carried out similar to those described in E2 with the following exceptions:

- (a) The firm is referred to as the Consultant instead of the OA.
- (b) The Consultant's project manager (DBB) shall be the prime contact with the City's Project Manager for the duration of the program.
- (c) The Consultant shall represent the City as the Contract Administrator and deliver such duties as contained in the Contract Administration Manual.
  - (i) Any conflict between the RFP and the Contract Administration Manual shall be governed by the scope of work in this RFP Document.
- (d) The Consultant Services Management Plan (CSMP) shall include professional engineering services for DBB with
  - (i) Details for conceptual design, EPD, Detailed Design and Procurement Services;
  - (ii) Initial planning for Contract Administration and Post Construction Services. Detailed planning for these Services shall be submitted before the award of the construction Contract(s).

### **F3. WSTP LEVEL 1 AND 2 DESIGN**

F3.1 The Consultant shall carry out all works required to perform WSTP Levels 1 and 2 design.

F3.2 The Consultant shall coordinate this work with the OA's scope of work indicated in Part E.

F3.3 It is required that the Consultant carry out this phase in a coordinated and organized manner such that any aspect required by the design builder is ready for use s when needed e.g. relocation/expansion of the control room.

F3.4 WSTP Level 1 Design

F3.4.1 A WSTP Level 1 Design, as used in this RFP, includes conceptual design and, but not limited to:

- (a) Risk and opportunity assessments;

- (b) Level five (5) cost estimates; and
- (c) Project Implementation plan.

#### F3.4.2 WSTP Level 1 Design deliverables and workshops.

- (a) The Project definition report and associated drawings is the major deliverable for the WSTP Level 1 Design and consist of the following:
  - (i) Project definition report – 75% complete.
    - ◆ Submitted separately from E3.2.1(a).
  - (ii) Presentation of Project definition report submittal – 75% complete.
  - (iii) Project definition report – 100% complete.
    - ◆ Encompasses all work carried out, including data gathered, explains adequately the assessments made, states with clarity the resulting conclusions, and contains all recommendations and information which are relevant to the WSTP Level 1 Design.
    - ◆ Final report shall incorporate the technical memoranda in the body of the report and not as appendices.
    - ◆ Include in the appendix the proposed Table of Content for the EPD report indicating the material to be included with the 75% submittal
    - ◆ Submitted separately from E3.2.1(c)
  - (iv) Presentation of Project definition report.
- (b) The following are other deliverables and workshops associated with the WSTP Level 1 Design but not limited to:
  - (i) Two (2) half day workshops to develop needs and develop alternative layouts for the Administration Building;
  - (ii) Two (2) half day workshops to develop needs and develop alternative layouts for the Maintenance Building;
  - (iii) Provide proposed table of content for the final Project definition report;
  - (iv) Provide material to be included with the Project definition report - 75% complete;
  - (v) HAZOP and CHAIR; and
    - ◆ One (1) half day workshop each for HAZOP and CHAIR nodes (process areas) identification for the Administration Building.
    - ◆ One (1) half day workshop each for HAZOP and CHAIR nodes (process areas) identification for the Maintenance Building.
    - ◆ Technical memoranda of the nodes identified for HAZOP and CHAIR for both buildings.
  - (vi) Two (2) half day risk and opportunity workshops with the WSTP Team and other City selected stakeholders;
    - ◆ One (1) half day on the Administration Building;
    - ◆ One (1) half day on the Maintenance Building;
    - ◆ Submit completed risk register prior to each workshop.
    - ◆ Submit a final risk register after each workshop.
    - ◆ Risks for both buildings may be populated on same risk register.
- (c) All deliverables shall be submitted in draft and final copies with WSTP comments included in final copies.
  - (i) The OA shall maintain a comments log in a format acceptable to the City. The log shall include as a minimum comments on all deliverables and action on the comments.
  - (ii) Technical memoranda and risk register shall be included in the final Project definition report.

- (iii) Draft copies of all deliverables shall be provided in Native Format and PDF and seven (7) bound hardcopies.
- (iv) Final copies of all deliverables shall be provided in Native Format and PDF; one (1) unbound and seven (7) bound hardcopies.

F3.4.3 The WSTP Level 1 Design is a conceptual design where the project components including those identified in Appendix 4 are defined and validated. At completion of this phase the Consultant shall be in a position to enter into the WSTP Level 2 Design with a clear understanding of scope, constraints and risk associated with the Administration and Maintenance Buildings.

F3.4.4 In consultation with the City, the Consultant shall provide a Project concept for the Administration and Maintenance Buildings. This includes but not limited to:

- (a) Review of all available information including existing drawings and reports necessary to complete the work.
- (b) Define the needs and requirements for the expansion of the control and server rooms.
- (c) Develop alternative layouts based on the different suitable locations identified for the control and server rooms. These layouts options should include scenarios with satellite vs. main control and server rooms.
- (d) Modification to the Administration building or to any other building impacted by the expansion of the control and server rooms.
  - (i) Develop alternative layouts of the main level of Administration Building or to any other building impacted by the expansion of the control and server rooms.
  - (ii) Layout shall provide for adequate control and server rooms and locker rooms while not diminishing existing facilities (modification to the laboratory is not part of the Scope of Services).
  - (iii) Include two (2) half day workshops with the City to develop needs and review possible alternative layouts and Service needs based on the upgraded plant.
  - (iv) Provide optional layouts prior to the second half day workshops for each of the buildings
- (e) Expansion/upgrade of the Maintenance Building.
  - (i) Develop a list of maintenance activities and stock room needs.
  - (ii) Identify required maintenance equipment, lifts, overhead cranes, space needs, electrical needs, safety requirements.
  - (iii) Develop alternative layouts of the Maintenance Building.
  - (iv) Include two (2) half day workshops with the City to develop needs and review possible alternative layouts and service needs based on upgraded plant equipment.
  - (v) Include offices, washrooms, training room, lunch room and locker rooms.
  - (vi) Provide optional layouts prior to the second half day workshops for each of the buildings.
  - (vii) Obtain spare parts requirements from the design builder under Part E and allow for storage.
- (f) Locker rooms, washrooms and offices required due to the upgraded plant and to support the staffing plan provided in Part E.
- (g) Provide a contracting strategy for the DBB Work.

F3.4.5 In addition, the consultant shall

- (a) determine and provide all required disciplines to carry out the work;
- (b) determine asbestos abatement requirements;
- (c) Include adequate reliability, redundancy and operability;
- (d) Provide project vehicular access and site requirements;

- (e) determine and identify the following:
  - (i) safety requirements, detection and alarm and security;
  - (ii) flood protection measures, odour control, temporary facilities and operational consumables;
  - (iii) site security and fencing requirements; and
  - (iv) fire suppression systems;
- (f) maintain adequate electrical grounding systems throughout the phases of the project;
- (g) perform arc flash studies, and other investigations to support the EPD;
- (h) utilize electrical, instrumentation, control and automation requirements specified in E4.3.1(h).
- (i) develop conceptual level project implementation plan as described in E3.3.13(e)
- (j) provide a detailed class five (5) cost estimate for the DBB Project from construction to turnover.
  - (i) The estimate shall be in accordance with AACE International Recommended Practice No. 17R-97, No.18R-97 and No. 56R-08; and include a detailed breakdown with unit cost source listed for each line item.
  - (ii) Cost shall include whole life cost (CAPEX, OPEX & NPV).

#### F3.4.6 Risk and opportunity assessment

- (a) The Consultant shall conduct risk and opportunity assessments towards the end of the WSTP Level 1 Design with the WSTP Team and other City selected stakeholders.
  - (i) Allow two (2) half day workshops each for the Administration and Maintenance Buildings.
  - (ii) In preparation for the workshop the consultant shall prepare and submit a risk register using the required City template.
- (b) The risk register shall identify the Projects risks and opportunities. This includes qualitative and quantitative analysis, risk responses and risk control measures of the risk and opportunities.

F3.5 The Consultant shall conduct one half day workshop each towards the end of the WSTP Level 1 Design with the WSTP Team and other City selected stakeholders to Identify representative nodes (process areas) to be used during WSTP Level 2 Design workshops for the

- (a) HAZOP and
- (b) CHAIR

#### F3.6 The WSTP level 2 Design

F3.6.1 The WSTP level 2 Design shall commence with a letter of acceptance of the Project Definition Report from the Project Manager. The WSTP Level 2 Design, as used in this RFP, includes but is not limited to:

- (a) EPD and;
  - (i) Project implementation plan;
  - (ii) HAZOP and CHAIR;
  - (iii) Cost estimates; and
  - (iv) Risk and opportunity assessments.
- (b) Cost development documents; and
- (c) Value engineering.

#### F3.6.2 WSTP Level 2 Design deliverables and workshops.

- (a) The EPD report, cost development document, value engineering report and associated drawings are the major deliverables for the WSTP Level 2 Design and consist of the following:



- (i) EPD report.
  - ◆ EPD report – 75% complete;
  - ◆ Presentation of EPD report – 75% complete;
  - ◆ This shall be submitted separately from E4.2.1(a)(i);
  - ◆ EPD report – 100% complete;
  - ◆ Encompasses all work carried out during the Level 2 design; and
  - ◆ Technical memoranda shall be included in the body of the final EPD report while the risk register may be included in the appendix of the report.
  - ◆ Presentation of EPD report -100% complete.
- (ii) Cost development documents.
  - ◆ Cost development documents as a separate report; and
  - ◆ One (1) full day workshop.
- (iii) Value Engineering.
  - ◆ One (1) full day workshop for the Administration Building
  - ◆ One (1) full day workshop for the Maintenance Building
  - ◆ VE team suggestions provided in a report.
- (b) The following are other deliverables and workshops associated with the WSTP Level 2 Design, but not limited to:
  - (i) HAZOP and CHAIR; and
    - ◆ One (1) half day workshop each for HAZOP and CHAIR on the Administration Building.
    - ◆ One (1) half day workshop each for HAZOP and CHAIR on the Maintenance Building.
    - ◆ Technical memorandum for each workshop.
  - (ii) Risk and opportunity;
    - ◆ One (1) half day workshop for the Administration Building
    - ◆ One (1) half day workshop for the Maintenance Building
    - ◆ Submit completed risk register prior to the workshop.
    - ◆ Submit a final risk register after the workshop
    - ◆ Risk register shall be submitted separately from E4.2.2(c).
- (c) All deliverables shall be submitted in draft and final copies with WSTP comments included in final copies.
- (d) Draft and final copies of reports shall be provided in Native Format and PDF; one (1) unbound and six (6) bound hardcopies.

- F3.6.3 The Consultant shall carry out all works required to perform WSTP Level 2 Design.
- (a) At completion of this phase the Consultant shall be in a position to enter into Detailed Design with a clear understanding of scope, constraints and risk associated with the Administration and Maintenance Buildings.
  - (b) The EPD shall be developed in enough detail to obtain a  $\pm 20\%$  cost estimate.
  - (c) At the end of WSTP Level 2 design, drawings and specifications and other documentation for all disciplines shall be at the same level of completion.
- F3.6.4 Develop an Enhanced Preliminary Design (EPD) as specified in E4.3.1.
- F3.6.5 Develop a preliminary level Project implementation plan as described in E4.3.8.
- F3.6.6 The Consultant shall carry out HAZOP and CHAIR as described in E4.3.9.
- F3.6.7 Provide a detailed Cost estimate for the DBB Project from construction to turnover.

- (a) Provide a detailed cost estimate to an accuracy level of  $\pm 20\%$  for the full DBB project scope of work.
- (b) The cost estimate shall be based on the EPD and shall be more accurate than a class three (3) cost estimate.
- (c) The estimate shall be prepared in accordance with AACE International Recommended Practice No. 17R-97, No.18R-97 and No. 56R-08; and include a detailed breakdown with unit cost source listed for each line item.
- (d) Cost shall be present by each building.
- (e) Cost shall include whole life cost (CAPEX, OPEX & NPV).

F3.6.8 Provide a critical path schedule for the Project from Detailed Design to turnover to operations.

- (a) The level of detail shall be such that it clearly conveys the significant activities related to the various Project components with their inter-dependencies and anticipated construction sequences.
- (b) The schedule shall include interdependences with the design build project.
- (c) The schedule shall be configured suitable for use by Microsoft® Office Project 2010.

F3.6.9 Conduct a risk and opportunity workshop

- (a) To be carried out as described in F3.4.6 and towards the end of WSTP Level 2 Design.
- (b) Risks and opportunities should be populated in the same risk register in F3.4.6.
- (c) Incorporate the recommendations from the workshops into the design documents.

F3.6.10 Cost development document - The OA shall also provide cost development documents and workshop in accordance with E4.3.13.

- (a) The Cost Development Document and the Cost Consultant workshop shall be separate from that indicated in Part E.

F3.7 Value Engineering

- (a) The Consultant shall conduct two (2) Value Engineering (VE) workshops after the EPD - 100% complete has been determined acceptable by the WSTP.
  - (i) One (1) day each dedicated to the Administrative and Maintenance Buildings.
- (b) The Consultant shall follow the Value Engineering guideline and procedure outlined in Appendix 24 for project value < \$10Million to \$3million.
- (c) Notwithstanding Appendix 24, the Consultant shall provide a facilitator and third party staff from the Consultant's firm that have not been involved with the design of the NEWPCC Upgrade project.
- (d) The Consultant shall review the suggestions of the VE team and provide recommendations to be implemented in the Detailed Design.
  - (i) Recommendations shall be based on evaluation of the technical benefits and costs.
  - (ii) Costs shall be in Capex, Opex and NPV
  - (iii) Provide written justification for acceptance or rejection of VE suggestions.

#### F4. DETAILED DESIGN

F4.1 Deliverables and Workshops

F4.1.1 The Modified EPD, Bid Opportunity Document(s), Detailed design drawings, specifications and bids evaluation report are the main deliverables of this phase and consist of the following:

- (a) Modified EPD report;
- (b) Bid Opportunity Documents (tender package);

- (c) Final Bid Opportunity Documents ( tender package incorporating all addenda)
- (d) Detailed design drawings, specifications and review meetings;
  - (i) 70% complete;
  - (ii) 95% complete;
  - (iii) 100% complete;
  - (iv) issued for construction drawings; and
  - (v) final construction drawings ( issued for construction drawings incorporating all addenda).
  - (vi) The OA shall commence bi-weekly technical review meetings (including preparation of minutes) with the WSTP after the acceptance of 70% complete drawings until the acceptance of all work in the Detailed Design.
  - (vii) It is required the City sign drawings issued for construction.
- (e) Presentation of Construction drawings; and
- (f) Bids evaluation report.

F4.1.2 The following are other deliverables and workshops associated with the Detailed Design but not limited to:

- (a) Project implementation plan;
- (b) Class one (1) cost estimate;
- (c) Risk Register and workshops at various milestones indicated in F4.7;
  - (i) Half day workshops for the Administration Building
  - (ii) Half day workshops for the Maintenance Building
  - (iii) Submit completed risk register prior to the workshop.
  - (iv) Submit a final risk register after the workshop
  - (v) Risk register shall be populated in same register as F3.6.2(b)(ii).
    - (i) Submit completed risk register prior to the workshop.
    - (ii) Provide meeting minutes of workshop and risk register
- (d) HAZOP and CHAIR; and
  - (i) One (1) half day workshop each for HAZOP and CHAIR on the Administration Building.
  - (ii) One (1) half day workshop each for HAZOP and CHAIR on the Maintenance Building.
  - (iii) Technical memorandum for each workshop.
- (e) Opex Adjustment model deliverables.

F4.1.3 All deliverables shall be submitted in draft and final copies with WSTP comments included in final copies.

- (a) Draft and final copies of documents shall be provided in Native Format and PDF; one (1) unbound and six (6) bound hardcopies.

F4.2 Prior to commencing Detailed Design, the Consultant shall modify the EPD report based on the

- (a) design builder's requirements for the control and server rooms; and
- (b) re-established needs for Maintenance Building after the review of the design builder's proposal.

F4.3 The Detailed Design shall commence with a letter of acceptance of the modified EPD report from the Project Manager.

F4.3.1 At the end of the Detailed Design, drawings and specifications and other documentation for all disciplines shall be at the same level of completion.

- F4.4 The Detailed Design shall include all requirements including but not limited to, site development, structural, architectural, process, HVAC, plumbing, mechanical, electrical, detection and alarm, instrumentation, controls, automation, security, flood protection, odour control, asbestos abatement, temporary facilities, operational consumables etc.
- F4.5 The Detailed Design Services involve preparation of detailed designs, specifications, cost estimates, Bid Opportunity Documents (tender documents), addenda, analysis of bids and recommendations for Contract award, and include, but are not limited to:
- (a) addressing alternative methods of accommodating; relocating; avoiding, and/or avoiding injury to existing facilities and services; proposing alternative methods of solution, reviewing same with the appropriate approval agencies and stakeholders;
  - (b) application to public agencies for necessary authorizations (e.g. permits), preparation and submission of reports and drawings thereto, and appearance before same in support of the application;
  - (c) preparation and submission of detailed engineering calculations, drawings, and criteria employed in the design(s), securing review of and an acceptance by the City;
  - (d) preparation of detailed engineering drawings, specifications and tender documents consistent with the standards and guidelines of the City, securing review of and acceptance by the City;
    - (i) Automation and electrical requirements shall be as those identified in E4.3.1(h).
  - (e) providing a detailed class one (1) cost estimate for the DBB Project Contracts from construction design to turnover;
    - (i) The estimate shall be in accordance with AACE International Recommended Practice No. 17R-97, No.18R-97 and No. 56R-08; and include a detailed breakdown with unit cost source listed for each line item.
    - (ii) Cost shall include whole life cost (CAPEX, OPEX & NPV).
    - (iii) Cost shall be present by each individual tender package prior to tender.
  - (f) submission of detailed drawings, specifications and tender package to City of Winnipeg Materials Management Division for public bidding;
    - (i) All tender packages shall be prepared and posted in accordance with the City of Winnipeg Materials Management Division bid opportunity templates.
  - (g) arrange for and attend bidder's site visit(s);
  - (h) provision of appropriate response to bidders and advice to the City during the bid period and, subject to acceptance by the City, issuing addenda to the tender documents;
  - (i) bids evaluation report; and
    - (i) Submit a review, analysis, comparison, tabulation, calculation, and evaluation of the bids received, to the City;
    - (ii) Submit a Letter of Recommendation, copies of the bids, a tender comparison sheet, and a tender tabulation
    - (iii) Preparation of a report including revised contract estimate, identifying and explaining variations from the earlier formal estimate, and containing recommendation regarding contract award identifying the reasons therefore.
  - (j) submit final Detailed Design drawings, specifications and tender documents, incorporating all addenda after successful contractor (s) award, and upon receipt and implementation of City review comments.
- F4.6 Develop a detailed Project implementation plan.
- (a) Provide details on the concepts of how the Project will be delivered;
  - (b) Determine construction impacts with adjacent environment and traffic, and mitigation;
  - (c) Provide maintenance of the operation plan and ability to accelerate construction of key process components that could provide early operational benefits;

- (d) Recommend procurement packages for equipment and components and identify any areas of risk;
- (e) Include impacts to current facility that need to be addressed to achieve the Project objectives; and
- (f) Include construction sequencing with associated implementation schedule that takes into consideration.
  - (i) seasonal work,
  - (ii) potential tie-ins to the existing system,
  - (iii) construction staging opportunities and commissioning, and
  - (iv) coordination with the design builder's work.

F4.7 The Consultant shall conduct risk and opportunity assessments, at the certain milestones with the WSTP Team and other City selected stakeholders.

- (a) The Consultant shall build upon the risk register initially submitted according to the City's format in EPD.
- (b) The risk register shall identify the opportunities, risks, qualitative and quantitative analysis of the risk and opportunities, risk responses and risk control measures with emphasis on those with implication on the next milestone. The milestones are
  - (i) at 75% and 95% Detailed Design levels,
  - (ii) prior to commencement of construction activity;
  - (iii) quarterly during construction;
  - (iv) prior to start of commissioning; and
  - (v) at conclusion of commissioning.

F4.7.1 The Consultant shall refine the Project schedule developed during EPD and provide a detailed Project schedule for all remaining phases of the Project. The schedule shall, be updated, maintained and submitted on a monthly basis. The updated schedule shall be constantly measured against the baseline.

F4.7.2 HAZOP and CHAIR

- (a) After the 75% Detailed Design review the Consultant shall conduct a Hazard and Operability Analysis (HAZOP) with select WSTP Team members and selected City Operations/Maintenance or other personnel.
- (b) As part of the 95% Detailed Design review the Consultant shall conduct a Construction Hazard Assessment Implication Review (CHAIR) or equivalent with select WSTP Team members and selected City Operations/Maintenance or other personnel.
- (c) Incorporate the recommendations from the workshops into the design documents.

F4.7.3 The Consultant shall identify to the City all existing NEWPCC Administration and Maintenance Building drawings made obsolete by the Project. The intent being that together with drawings provided by the design builder, the City will realize an identified comprehensive set of drawings that accurately reflect the upgraded and expanded NEWPCC facility at Project completion.

F4.7.4 Operational Data

- (a) The Consultant shall develop and provide the deliverables identified in the following table;

Opex Adjustment Model Requirements	Consultant Deliverables	Comments
Asset Data Schedule	<ul style="list-style-type: none"> <li>• Equipment and instrumentation lists</li> <li>• Equipment data sheets</li> </ul>	Must include all maintainable equipment. Will require data to

Opex Adjustment Model Requirements	Consultant Deliverables	Comments
	Format to be agreed by Ops	be provided by the Consultant in the required format for uploading to OWAM. Template will be provided. This is not necessarily the same as the equipment list.
De-commissioned assets schedule	Provide a list of assets to be decommissioned as a result of the Project. Must be based on data held within the City OWAM system.	Will require data to be provided by the designer in the required format for uploading to OWAM. Template will be provided. This is not necessarily the same as the equipment list.
Capital replacement plan	Provide a schedule of asset refurbishment or replacement over 25 years	
Spares	Data required Provide a list of recommended spares	

## F5. CONTRACT ADMINISTRATION SERVICES

F5.1 The Contract administration Services shall commence when the Contractor receives notification of the contract award from the City.

- (a) These Services consist of required and optional Contract Administration Services.
- (b) The intent of the required Contract administration Services is for the Consultant to effectively oversee the overall facility functionality and quality of the incorporated components by providing the appropriate support Services to the construction manager.
- (c) At the option of the City, the Consultant shall be required to provide optional Contract Administration Services. The intent being that together with the required non-resident and required resident services the Consultant would provide the entire scope of Contract Administration (office and field Service) required for Project construction and commissioning.
- (d) Personnel from the WSTP may act as construction managers and undertake lead Contract administration duties. The City will make this decision before the commencement of the Contract Administration Services.
- (e) If the WSTP undertakes the lead contract administration duties, the Consultant shall still provide the required non-resident and resident services listed in F5.2 and F5.2.2.

F5.1.2 Without relieving the contractor of their contractual and other legal obligations, Contract Administration Services shall consist of resident and non-resident engineering Services as detailed below.

F5.1.3 The Consultant shall provide Contract Administration Services in accordance with E2.2.2.

F5.1.4 The Consultant shall ensure the Contractor conforms to the drawings and specifications.

F5.1.5 As applicable, the Consultant shall update the information in F4.7.4 to reflect the as-built status.

F5.2 Required Contract Administration Services

F5.2.1 Required Non-Resident Services

- (a) Conduct and chair a Project kickoff meeting and record minutes with the Contractor and the WSTP team, in which the Consultant shall discuss:
  - (i) Insurance,
  - (ii) Communication,
  - (iii) Safety, etc.
- (b) The Consultant shall liaise with the Construction Manager in the provision of the required Services.
- (c) Review and accept shop drawings supplied by the contractor or supplier.
- (d) Review and report to the City regarding laboratory, shop and other tests conducted on materials and/or equipment
- (e) Accept alternate materials and methods, subject to prior acceptance by the City.
- (f) 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.
- (g) Provision of adequate and timely direction of field personnel by senior officers of the Consultant.
- (h) Attend pre-construction meetings and on-site or off-site review meetings. These meetings shall include representatives of the contractor, the Construction Manager and the City;
- (i) Prepare and submit:
  - (i) detailed design notes package including items such as structural, geotechnical, hydraulic and heating, air-conditioning and ventilation design calculations; mechanical and electrical design calculations related to process equipment and building services; process design calculations; and instrumentation and process control design calculations;
  - (ii) approved shop drawings with summary list and final Operation & Maintenance Manuals all within one (1) month of Total Performance of each Contract associated with the Project.
- (j) Review acceptability of inspection and test plans from contractors, vendors or manufacturers.
- (k) Provide specifications and drawings for proposed contractor scope changes as required.
- (l) Review and respond to contractor RFI's.
- (m) Prepare contractor site instructions / clarifications / directives as required.
- (n) Interpret technical aspects of contract as requested by the City;
- (o) Provide technical assistance in the development of tie-in protocols and inspections;

#### F5.2.2 Required Resident Services

- (a) The Consultant shall liaise with the construction manager in the provision of the required Services.
- (b) 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. inspection of installation of all connections to watermains, sewers, manholes, valves, hydrants, and excavation and/or exposing of underground services, structures, or facilities.
- (c) Inspect excavations to determine soil adequacy prior to installation of base and subbase courses for buried services, buried structures, foundations, roads and sidewalks.
- (d) Inspection formwork, reinforcing, foundations and piling; .

- (e) Witness hydrostatic and pressure testing of tanks , pipes and other specified equipment;
- (f) 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.
- (g) Provide reference line and elevation control points for the works and check the contractor's adherence.
- (h) Arrange for and carry out of testing of materials utilized by the contractor.
- (i) Provide the City with the following records weekly in Native Format and PDF:
  - (i) Maintain daily reports and attach to weekly reports;
  - (ii) Reports and logs of inspections performed the previous week;
  - (iii) Record of work events kept continuously. Including working days and days lost due to inclement weather during the course of the design builder's Work;
  - (iv) Written and photographic records of the construction:
    - ◆ include construction progress, assessment of the physical condition of adjacent buildings, facilities, and structures;
    - ◆ include quantity and quality of information to provide valid evidence and relevant testimony in settling any claim involving the City by, any court of law, or any other party for damages arising from the Project; and
    - ◆ photographic records shall have a minimum resolution of twelve (12) mega pixel along with date and time stamps.
- (j) Promptly reporting to the City upon any significant and unusual circumstances;
- (k) Take part in inspection of the contracts with the contractor and the WSTP as necessary to establish Substantial Performance, Total Performance and Warranty Inspection, and provide in written form associated itemized deficiency lists or appropriate recommendation of acceptance of the contract work.
- (l) Prepare and submit "As-Built" drawings in required formats within one (1) month of Total Performance of each contract.
- (m) Attend and contribute to weekly contractor progress meetings.
- (n) Verify contractors' progress estimate quantities and submit progress estimates to the City.
- (o) Provide to the City reports logs for inspections performed the previous day.
- (p) Provide to the City weekly and monthly timesheets detailing the Resident Services provided the previous day.

#### F5.2.3 Commissioning

- (a) The Consultant shall carry out commissioning with regards to Part F.

#### F5.2.4 Operations Manuals

- (a) The NEWPCC Operations team utilizes operations manuals as reference documents for the operation 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) The Consultant shall develop and provide new operations manuals in accordance with the Operations Manual Specification in Appendix 25 for the upgraded Administration and maintenance buildings.
- (c) In general:
  - (i) submit six (6) hard copies as final copies;
  - (ii) submit a final copy as a searchable portable document format (PDF) file and the native MS Word files;



- (iii) each electronic manual should have referenced drawings hyperlinked to electronically connect to drawing files; and
- (iv) where other manuals are referenced (i.e. refer to SOP Manual) each reference should be hyperlinked to provide an electronic path to the file.

#### F5.2.5 Standard Operating Procedures (SOP)

- (a) The NEWPCC Operations team utilizes SOPs as reference documents for the operation of the facility. The SOPs provide standardized documented guidance to plant operators for undertaking key operational and maintenance procedures.
- (b) The Consultant shall develop and issue Project related Standard Operating Procedures (SOP) and their related procedures such as job hazard analysis (JHA), safe work procedure (SWP) and lockout/tag out procedure (LOTO) (Appendix 19),
- (c) As required supporting commissioning and operational requirements.
- (d) In general:
  - (i) Include, as applicable, all drawings referenced in the procedures;
  - (ii) Include tag number with equipment name;
  - (iii) Submit six (6) hard copies as final copies;
  - (iv) Submit a final copy as a searchable portable document format (PDF) file and the native MS Word files;
  - (v) Each electronic procedure should have referenced drawings hyperlinked to electronically connect to drawing files; and
  - (vi) Where other procedures are referenced (i.e. SWP, JHA, LOTO) each reference should be hyperlinked to provide an electronic path to the file.

#### F5.3 Optional Contract Administration

- (a) At the option of the City, the Consultant shall provide the following additional Contract Administration Services. The intent being that together with the above Required Non Resident and Required Resident Services the Consultant would be engaged to provide the entire scope of Contract Administration for office and field Services required to ensure the conduct of the Project construction and commissioning in accordance with the intent of the City and in conformance with the particulars of the drawings and specifications. This would include Construction Management as required for multiple Project contracts.

#### F5.3.1 Optional Non-Resident Services

- (a) Consult with and advise the City during construction and commissioning;
- (b) Provide the City with a current report on the Project status on a monthly basis;
- (c) Provide the City a current update of revised contract-end cost estimate on a monthly basis, or more frequently if found necessary. This shall include explanation and justification of any significant variation from the preceding contract-end cost estimate;
- (d) Administer contract changes and make recommendation to the City;
- (e) Coordinate with responsible parties in resolution of issues;
- (f) Provide definition and justification of estimate of costs for additions to or deletions from the contract for authorization by the City;
- (g) Establish prior to construction and submit to the City written and photographic records of, assessment of the physical condition of adjacent buildings, facilities, and structures sufficient to equip the consulting Engineer 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;
- (h) Determine and monitor construction and commissioning schedules and budget; and
- (i) Act as Lead Contract Administrator and Construction Manager to coordinate and manage all Project Contracts and their activities.

#### F5.3.2 Optional Resident Services

- (a) Prepare, certify, and promptly submit progress estimates for contractor(s) payment for construction performed;
- (b) Arrange, attend, prepare and distribute records of and minutes for, regularly held on-site or offsite Project review meetings including representatives of the contractor(s) and the City;
- (c) Promptly arrange for and take part in a detailed final inspection of the Project;
  - (i) The contractor(s) and the City shall be in attendance
  - (ii) This shall be carried out prior to the contractor maintenance guarantee specified in the Contract(s).
  - (iii) Provide the City in written form an appropriate recommendation of acceptance of the constructed or partially constructed Project;
- (d) Act as Payment Certifier and administer all Contracts as required under the Builder's Liens Act of Manitoba;
- (e) Prepare Certificate(s) of Substantial Performance; Total Performance and Acceptance for the contract(s);
- (f) Provide inspection Services during the warranty period of the Contract(s);
- (g) Keep a continuous record of work events including working days and days lost due to inclement weather during the course of Contract(s) works;
- (h) Maintain a photographic record of the work progress;
- (i) Administer all Project Contracts aspects, including ensuring conformance to the requirements of The Workplace Safety and Health Act (Manitoba) during performance of Project contracts, and including any Project Contract designated as the prime contractor with respect to the Act;
- (j) Promptly report to the City upon any significant and unusual circumstances,
- (k) Perform broad management responsibilities covered in Construction Management, including but not limited to;
  - (i) Direct management and coordination of multiple Contracts (if required) and other entities site activities during construction and commissioning,
  - (ii) management of site security, construction risk and site usage during construction and commissioning,
  - (iii) Construction sequencing and planning including early identification of required Detailed Design deliverables to facilitate fast-track Project construction.

F5.4 All deliverables shall be submitted in draft and final copies with WSTP comments included in final copies.

- (a) Draft and final copies of documents shall be provided in Native format and PDF; one (1) unbound and six (6) bound hardcopies unless otherwise specified.

## **F6. POST CONSTRUCTION**

F6.1 The Post Construction Services comprise of one-year warranty and provision of as-built drawings.

- (a) Post construction shall not commence until the Contractor has achieved Total Performance.

F6.2 The warranty services shall include but not be limited to the following:

- (a) Confirm and ensure complete turnover of project documents (Shop drawings, as built drawings, design notes and calculations, software programs and licences etc.) to the City by the design builder and that documents are in conformance with the contract;
- (b) Determine if corrective work is part of Contractor's warranty;
- (c) Conduct Inspection and approval of warranty work;

- (d) Instructions for correction of deficiencies;
- (e) Review updates to operation and maintenance manuals and resolve deficiencies;
- (f) Respond to requests of the City related to the project;
- (g) Issue acceptance certificates of warranty work;
- (h) Liaise and coordinate with the contractor to repair defective work; and
- (i) Prior to the end of the warranty period, conduct an inspection and complete the City of Winnipeg Acceptance Certificate.

F6.3 As-built Drawings

- (a) The Consultant shall provide to the City a complete set of as-builts for the Administration and Maintenance buildings.

F6.4 All deliverables associated with this phase shall be in Native and PDF format and provided in six (6) hardcopies, unless otherwise specified.

- (a) An addition set of final as-builts drawings shall also be provided in mylar.