



THE CITY OF WINNIPEG

BID OPPORTUNITY

792-2006 BID OPPORTUNITY

**WINNIPEG WATER TREATMENT PROGRAM - CONSTRUCTION OF SODIUM HYPOCHLORITE AND
CHEMICAL STORAGE BUILDINGS**

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<u>Section #</u>	<u>Title</u>
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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 WINNIPEG WATER TREATMENT PROGRAM - CONSTRUCTION OF SODIUM HYPOCHLORITE AND CHEMICAL STORAGE BUILDINGS

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, March 30, 2007.

B2.2 Bids 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 Contract Administrator 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 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site from 11:00 a.m. to 12:00 noon on March 12, 2007 to provide Bidders access to the Site.

B3.2 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B5.2 The Contract Administrator 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.

B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B5.2.2 The Bidder is responsible for ensuring that he has received all addenda and is advised to check the Materials Management Branch internet site for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least seven (7) Business Days prior to the Submission Deadline.

B6.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

B6.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, only to the Bidder who requested approval of the substitute.

B6.6.1 The Bidder requesting and obtaining the approval of a substitute shall be entirely responsible for disseminating information regarding the approval to any person or persons he wishes to inform.

B6.7 If the Contract Administrator approves a substitute as an "approved equal", any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an "approved alternative", any Bidder bidding that approved alternative shall base his Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B15.

B6.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B7. BID COMPONENTS

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

- (a) Form A: Bid;
- (b) Form B: Prices;
- (c) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;

B7.2 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.

B7.3 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.

B7.3.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.

B7.4 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.5 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, may result in the Bid being determined to be non-responsive.

B7.6 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.7 Bids shall be submitted to:

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

B8. BID

B8.1 The Bidder shall complete Form A: Bid, making all required entries.

B8.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his own name, his name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his 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 Bid 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: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B8.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in his own name, it shall be signed by the Bidder;
 - (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
 - (c) if the Bidder 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 Bidder is carrying on business under a name other than his 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: Bid shall be printed below such signatures.
- B8.4.2 All signatures should be witnessed, except where a corporate seal has been affixed.
- B8.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B9. PRICES

- B9.1 The Bidder shall state the price in Canadian funds for each item of the Work on Form B: Prices.
- B9.2 Notwithstanding C12.2.3(c), the price for items 2, 3, 4 and 5 on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B10. QUALIFICATION

- B10.1 The Bidder 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; and
 - (b) be financially capable of carrying out the terms of the Contract; and
 - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B10.2 The Bidder and/or any proposed Subcontractor (for the portion of the Work 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 Branch internet site at <http://www.winnipeg.ca/matmgt>); and
 - (b) have successfully carried out work similar in nature, scope and value to the Work; and
 - (c) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
 - (d) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- B10.3 Further to B10.2(d), the Bidder shall, within three (3) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the

Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a valid COR certification number under the Certificate of Recognition (COR) Program administered by the Manitoba Construction Safety Association or by the Manitoba Heavy Construction Association's Safety, Health and Environment Program; or
- (b) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt.>)

B10.4 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B10.5 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B11. BID SECURITY

B11.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B11.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B11.1.2 All signatures on bid securities shall be original, and shall be witnessed or sealed as required.

B11.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B11.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B11.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B11.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B11.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B12. OPENING OF BIDS AND RELEASE OF INFORMATION

B12.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Branch, or in such other office as may be designated by the Manager of Materials.

B12.1.1 Bidders or their representatives may attend.

B12.1.2 Bids determined by the Manager of Materials, or his designate, to not include the bid security specified in B11 will not be read out.

B12.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B12.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract Amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

B12.4 The Bidder is advised that any information contained in any Bid 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.

B13. IRREVOCABLE BID

B13.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

B13.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B14. WITHDRAWAL OF BIDS

B14.1 A Bidder may withdraw his Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B14.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B14.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B14.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B14.1.3(b), declare the Bid withdrawn.

B14.2 A Bidder who withdraws his Bid after the Submission Deadline but before his Bid has been released or has lapsed as provided for in B13.2 shall be liable for such damages as are imposed upon the Bidder 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, including the right to retain the Bidder's bid security.

B15. EVALUATION OF BIDS

B15.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Bid Opportunity (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B10 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B6.

B15.2 Further to B15.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B15.3 Further to B15.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his Bid or in other information required to be submitted, that he is responsible and qualified.

B15.4 Further to B15.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B:Prices.

B15.4.1 If there is any discrepancy between the Total Bid Price written in figures, the Total Bid Price written in words and the sum of the quantities multiplied by the unit prices for each item, sum of the quantities multiplied by the unit prices for each item shall take precedence.

B16. AWARD OF CONTRACT

B16.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B16.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B16.2.1 Without limiting the generality of B16.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid 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.

B16.3 Subject to B16.2, where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid.

B16.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the construction of a sodium hypochlorite building, chemical storage building and overhead walkway to connect the chemical building to the WTP.

D2.2 The major components of the Work are as follows:

- (a) Construction of:
 - (i) Sodium hypochlorite building,
 - (ii) Chemical storage building,
 - (iii) Transformer pads and cable ducts,
 - (iv) Bridge between the chemical storage building and the WTP, and
 - (v) Link between the chemical storage and sodium hypochlorite buildings.
- (b) Earthworks, grading and supply and installation of culverts and subdrains.
- (c) Rail work consisting of the replacement of the rail siding and ballast.
- (d) Supply, installation, Performance Verification and commissioning support for all mechanical, process, electrical, I&C, associated with the above works and as shown in the Contract Documents, including receiving, unloading, acceptance, storage, and installation of City Supplied Equipment supplied under bid opportunities 742-2005 and 49-2006.
- (e) Shop drawing and other product information has been provided for the following City Supplied Equipment:
 - (i) 49-2006: Supply of Hypochlorite Generation Equipment. Hypochlorite Generation Equipment will be supplied no earlier than November 1, 2007 and no later than November 15, 2007.
 - (ii) Product information for the City Supplied Equipment (SWGR2A, SWGR 2B, XFMR-H965A and XFMR-H965B) supplied under Bid Opportunity 742-2005 is available from the Contract Administrator upon request. SWGR2A, SWGR 2B, XFMR-H965A and XFMR-H965B will be supplied no earlier than December 1, 2007 and no later than January 31, 2008.
- (f) Cleaning of all City Supplied Equipment in accordance with the technical specifications and with the Supply Contractor's instructions.
- (g) Following the completion of Form 103 for all equipment installed under this Contract, including City Supplied Equipment, provide commissioning assistance to the Contract Administrator during the Commissioning Period. This assistance shall be provided at the Contract Administrator's request.
- (h) Provide training to City personnel during the Commissioning Period as specified in Section 01664.
- (i) Provide Supplemental Training during the Warranty Period as specified in Section 01664.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) **Business Day** means any Calendar Day, other than a Saturday, Sunday, or a Statutory or Civic Holiday;
- (b) **Submission Deadline** and **Time and Date Set for the Final Receipt of Bids** mean the time and date set out in the Bidding Procedures for final receipt of Bids;
- (c) **Supply Contractor** means a contractor retained by the City, under a separate contract, to supply City Supplied Equipment which shall be installed by the Contractor;
- (d) **City Supplied Equipment** means equipment purchased by the City under a separate contract which is supplied into the care of the Contractor for installation under this Contract.
- (e) **ANSI** means American National Standards Institute
- (f) **ASME** means American Society of Mechanical Engineers
- (g) **ASTM** means American Society for Testing and Materials
- (h) **AWWA** means American Water Works Association
- (i) **CSA** means Canadian Standards Association
- (j) **CGSB** means Canadian General Standards Board
- (k) **DAF** means Dissolved Air Flotation
- (l) **DBPS** means Deacon Booster Pumping Station
- (m) **ICRI** means International Concrete Repair Institute
- (n) **IEC** means International Electrotechnical Commission
- (o) **ISO** means International Organization for Standardization
- (p) **NACE** means National Association of Corrosion Engineers
- (q) **NEMA** means National Electrical Manufacturers Association
- (r) **NSF** means National Sanitation Foundation
- (s) **SAE** means Society of Automotive Engineers
- (t) **Manufacturer** means the person, partnership or corporation responsible for the manufacture and fabrication of equipment supplied by the Contractor for the completion of the Work.
- (u) **Manufacturer's Representative** means a trained serviceman empowered by the Manufacturer to provide installation, testing, and commissioning assistance to the Contractor in his performance of those functions.
- (v) **IEEE** means Institute of Electrical and Electronics Engineers
- (w) **NEMA** means National Electrical Manufacturer's Association
- (x) **Furnish** means supply
- (y) **ISA** means the Instrumentation Systems and Automation Society
- (z) **AGMA** means American Gear Manufacturer's Association.
- (aa) **API** means American Petroleum Institute
- (bb) **EEMAC** means Electrical and Electronic Manufacturer Association of Canada
- (cc) **VFD** means variable frequency drive
- (dd) **VSD** means variable speed drive
- (ee) **TPSH** means twisted pair shielded cable

- (ff) **RTD** means resistance temperature detector
- (gg) **LOX** means liquid oxygen
- (hh) **GOX** means gaseous oxygen
- (ii) **Contract Work Schedule** means a Gantt Charter developed by the Contractor developed using the critical path method which shows the proposed progress of the major items of work which are to be performed under this Contract
- (jj) **Project Master Schedule** means a schedule developed by the Contract Administrator which includes and coordinates the Contract Work Schedules of several City contracts, including this Contract
- (kk) **Professional Engineer** means a professional engineer registered in the Province of Manitoba.
- (ll) **Major Equipment** means all equipment for which Shop Drawing submittals are required as specified herein.
- (mm) **Performance Verification** means all factory and field tests, demonstrations and other activities required from the Contractor to complete all required Forms 103 – Certificate of Satisfactory Performance and to demonstrate to the Contract Administrator's satisfaction that the equipment installed under this Contract is performing as specified herein.
- (nn) **Certified Shop Drawings** means Shop Drawings prepared by the Contractor after all required Shop Drawings have been "reviewed" or "reviewed as modified" in accordance with Section 01300 of this Bid Opportunity and which incorporate all modifications to the Shop Drawings, comments and notations made by the Contract Administrator in the course of the review.
- (oo) **Acceptable Shop Drawings** means all required Shop Drawings have been reviewed by the Contract Administrator and have been annotated and stamped as "reviewed" or "reviewed as modified" in accordance with Section 01300 of this Bid Opportunity.
- (pp) **Process Unit** means a complete equipment package supplied either by the Contractor or as part of City Supplied Equipment and which includes individual process components, skid mounted equipment and any related appurtenances.
- (qq) **Control System Integrator** means a contractor retained by the City (under a different contract) to program and configure the water treatment plant SCADA system.
- (rr) **Systems Integrator** means Control Systems Integrator.
- (ss) **SCADA** means supervisor control and data acquisition.
- (tt) **TGS** means Manitoba Transportation and Government Service.
- (uu) **MV** means medium voltage.
- (vv) **WTP** means the Winnipeg Water Treatment Plant and includes the structure and all equipment and materials supplied and installed into the building, under multiple construction contracts, including portions of the Work provided under this Contract.
- (ww) **City Warehouse** means the enclosed and heated City owned warehouse located at 1500 Plessis Road, Winnipeg, Manitoba.
- (xx) **Commissioning Period** means the time between the completion of Performance Verification and Total Performance during which a system is operated under Commissioning Operations Agent's control to demonstrate to the City that it operates in conformance with the design intent
- (yy) **Commissioning Operations Agent** means a qualified operations team that takes primary responsibility for operation of the WTP during the Commissioning Period
- (zz) **Certified Shop Drawings** means Shop Drawings prepared by the Contractor after all required Shop Drawings have been "reviewed" or "reviewed as modified" in accordance with Section 01300 of this Bid Opportunity and which incorporate all modifications to the Shop Drawings, comments and notations made by the Contract Administrator in the course of the review.

- (aaa) **Record Drawings** means a minimum of one (1) complete set of Contract Documents and Certified Shop Drawings maintained at the Contractor's Site office on which the Contractor clearly shall clearly record in red pencil all Addenda, Change Orders, Field Instructions, and other revisions or as-built conditions which deviate from the original Contract Documents or Certified Shop Drawings.
- (bbb) **O&M** means operation and maintenance
- (ccc) **I&C** means instrumentation and control
- (ddd) **AASHTO** means American Association of State Highway and Transportation Officials
- (eee) **UV** means ultraviolet
- (fff) **PVC** means polyvinyl chloride
- (ggg) **SSD** means saturated surface dry
- (hhh) **ULC** means Underwriter's Laboratories of Canada
- (iii) **ASHRAE** means American Society of Heating, Refrigerating, and Air Conditioning Engineers
- (jii) **AWS** means American Welding Society
- (kkk) **NFPA** means National Fire Protection Association
- (lll) **OSHA** means Occupational Safety and Health Act
- (mmm) **FS** means Federal Specifications
- (nnn) **AFBMA** means Anti-Friction Bearing Manufacturer's Association
- (ooo) **NACE** means National Association of Corrosion Engineers
- (ppp) **PLC** means programmable logic controller
- (qqq) **I/O** means input/output
- (rrr) **UHMWPE** means ultra high molecular weight polyethylene
- (sss) **NBC** means National Building Code
- (ttt) **NPSH** means net positive suction head
- (uuu) **NPSHR** means net positive suction head required
- (vvv) **TEFC** means totally enclosed fan-cooled
- (www) **ABMA** means American Bearing Manufacturer's Association
- (xxx) **BEP** means best efficiency point
- (yyy) **FRP** means fibre reinforced plastic
- (zzz) **PTC** means positive thermal protection
- (aaaa) **ODP** means open drip proof
- (bbbb) **CSSBI** means Canadian Sheet Steel Building Institute
- (cccc) **CEMA** means Canadian Electrical Manufacturer's Association
- (dddd) **CISC** means Canadian Institute of Steel Construction
- (eeee) **TDH** means total dynamic head
- (ffff) **SSPC** means Steel Structures Painting Council
- (gggg) **P&ID** means process and instrumentation diagram
- (hhhh) **ILD** means instrument loop diagram
- (iiii) **HMI** means human machine interface
- (jjjj) **UPS** means uninterruptible power supply
- (kkkk) **MCC** means motor control centre

- (llll) **BMS** or **BAS** means the building automation system supplied and installed pursuant to Sections 15900, 15901 and 15902.
- (mmmm) **Vendor Package** means a manufactured equipment package supplied and installed by the Contractor.
- (nnnn) **Supplemental Training** means training provided by qualified Manufacturers' Representatives during the Warranty Period.
- (oooo) **Warranty Period** means the period of time between Total Performance and the expiration of the Warranty.

- D3.2 The definitions of technical terms, abbreviations, and symbols will be those of the American Society for Testing and Materials, Canadian Standards Association and the applicable Codes and Standards. In the event of a dispute, the Contract Administrator's decision will be final.
- D3.3 The Manufacturer and Manufacturer's Representative are not parties to this Contract. All work required from the Manufacturer and Manufacturer's Representative shall be provided and coordinated by the Contractor.
- D3.4 Terms related to the multiplex fire alarm system specified in Section 16722 shall be as specified in article 1.3 of Section 16722.
- D3.5 Terms related to the coating of steel tanks and piping specified in Section 09870 shall be as specified in article 1.2 of Section 09870.
- D3.6 Specialized terms relating to the performance and construction of pumps shall be as defined by the Hydraulics Institute Standards.
- D3.7 Terms related to the BAS specified in Section 15900 and 15902 shall be as specified in article 1.2 of Section 15900 and article 1.2 of Section 15902.
- D3.8 Specialized terms relating to instrumentation and control and which are not explicitly defined herein shall be as defined in The Instrumentation Systems and Automation Society (ISA) S51.1, National Electrical Manufacturer's Association (NEMA) Industrial Control and Systems (ICS) 1, American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) Std 100, and the Communications Standard Dictionary, by Martin H. Weik.

D4. CONTRACT ADMINISTRATOR

- D4.1 The Contract Administrator is UMA Projects (CM) Ltd., represented by:
Lawrence Recksiedler, C.E.T.
1479 Buffalo Place
Winnipeg, MB
R3T 1L7
e-mail: lawrence.recksiedlert@uma.aecom.com
Telephone No. (204) 986-4246
Facsimile No. (204) 986-8393
- D4.2 At the pre-construction meeting, the Contract Administrator will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. CONTRACTOR'S SUPERVISOR

- D5.1 At the pre-construction meeting, the Contractor shall identify his designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D6. NOTICES

- D6.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D6.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D6.3, D6.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the address or facsimile number identified in D4.1.
- D6.3 All notices of appeal to the Chief Administrative Officer shall be sent to the following address or facsimile number:

The City of Winnipeg
Chief Administrative Officer Secretariat
Attn: Chief Administrative Officer
Administration Building, 3rd Floor
510 Main Street
Winnipeg MB R3B 1B9
Facsimile No.: (204) 949-1174

- D6.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following address or facsimile number:

The City of Winnipeg
Corporate Services Department
Legal Services Division
Attn: City Solicitor
185 King Street, 3rd Floor
Winnipeg, MB R3B 1J1
Facsimile No.: (204) 947-9155

D7. FURNISHING OF DOCUMENTS

- D7.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him at cost.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

- D8.1 The Contractor 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 Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.

D10. INSURANCE

D10.1 The City will provide and maintain the following Project Insurance Coverages:

- (a) Builder's Risk Insurance in the amount of one hundred percent (100%) of the total project cost.
 - (i) The Contractor shall be responsible for deductibles up to \$25,000.00 maximum of any one loss.
- (b) Wrap-Up Liability Insurance in an amount of no less than 10 million dollars (\$10,000,000.00)
 - (i) The Contractor shall be responsible for deductibles up to \$25,000.00 maximum of any one loss.
- (c) The City of Winnipeg will carry such insurance to cover all parties engaged in the Work in this Contract. Provision of this insurance by the City of Winnipeg is not intended in any way to relieve the Contractor from his obligations under the terms of the Contract. Specifically, losses relating to deductibles for insurance, as well as losses in excess of limits of coverage and any risk of loss that is not covered under the terms of the insurance provided by the City of Winnipeg remains with the Contractor.

D10.2 The Contractor shall provide and maintain the following insurance coverage at all times during the performance of the Work:

- (a) Automobile liability insurance for owned and non-owned automobiles used for or in connection with the work in the amount of at least two million dollars (\$2,000,000.00).
 - (i) Deductibles shall be borne by the Contractor;
 - (ii) The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator;
 - (iii) The Contractor shall provide the Contract Administrator with evidence of insurance of the policy at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D10.3 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least fifteen (15) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

D11.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D11.2 If the bid security provided in his Bid was not a certified cheque or draft pursuant to B11.1(c), the Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D12. DETAILED PRICES

D12.1 The Contractor shall provide the Contract Administrator with a detailed price breakdown in a format acceptable to the Contract Administrator at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in GC:4.1 for the return of the executed Contract.

D12.2 The detailed cost breakdown shall include eighty (80) hours for Supplemental Training.

D13. SUBCONTRACTOR LIST

D13.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D14. DETAILED WORK SCHEDULE

D14.1 The Contract Administrator has developed a Project Master Schedule for the Work. This schedule will be available in the offices of the Contract Administrator and will be updated as required as the Work progresses.

D14.2 The Contractor shall, within 5 Business Days of award of Contract, prepare a detailed Contract Work Schedule for his work based on a critical path method (CPM) approach.

D14.3 The schedule shall conform to the Project Master Schedule and show, in a clear graphical manner, through the use of Gantt charts, in a maximum of weekly stages, the proposed progress of the main items, structures and subtrades of the contract and indicate the labour, construction crews, plant and equipment to be employed. Indicate the delivery date of major pieces of equipment to be supplied. The schedule shall be predicated on the completion of all work on or before the date of Substantial Performance.

D14.4 Upon acceptance by the Contract Administrator, distribute copies of the revised schedule to Subcontractors and other concerned parties.

D14.5 The Contract Work Schedule shall be updated as the Work requires and submitted to the Contract Administrator.

D14.6 The Contractor shall instruct recipients to report to the Contractor immediately any problems anticipated by the timetable shown in the Contract Work Schedule.

D14.7 While it is intended that the Contractor shall be allowed, in general, to carry on the Contract in accordance with such general plans as may appear to him to be most desirable, the Contract Administrator, at his discretion, may direct the order in which, and points at which, parts of the Work shall be undertaken.

D14.8 This control shall be exercised in the interests of the City so that the work or other Contractors who may be working on the site may be coordinated with the work on this Contract. A program of work will be drawn up and agreed to before the commencement of the Contract.

D14.9 The Contract Administrator shall be notified immediately when the work under the Contract Work Schedule will adversely affect the work of other Contractors and the critical path of the Project Master Schedule as the work under the Contractor's Contract Work Schedule is an integral part of the Project Master Schedule.

D14.10 The Contractor shall be familiar with all other Contract Work Schedules as contracted by the City with other Contractors and the critical path of the Project Master Schedule.

D15. SECURITY CLEARANCE

D15.1 Each individual proposed to perform Work under the Contract shall be required to obtain a Criminal Record Search Certificate from the police service having jurisdiction at his place of residence.

D15.2 Prior to the commencement of any Work, and during the term of the Contract if additional or replacement individuals are proposed to perform Work, the Contractor shall supply the Contract Administrator with a Criminal Record Search Certificate obtained not earlier than one (1) year prior to the Submission Deadline, or a certified true copy thereof, for each individual proposed to perform the Work.

D15.3 Any individual for whom a Criminal Record Search Certificate is not provided, or for whom a Criminal Record Search Certificate indicates any convictions or pending charges related to property offences or crimes against another person, will not be permitted to perform any Work.

D15.4 Any Criminal Record Search Certificate obtained thereby will be deemed valid for the duration of the Contract subject to a repeated records search as hereinafter specified.

D15.5 Notwithstanding the foregoing, at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated criminal records search. Any individual who fails to provide a satisfactory Criminal Record Search Certificate as a result of a repeated criminal records search will not be permitted to continue to perform any Work.

SCHEDULE OF WORK

D16. COMMENCEMENT

D16.1 The Contractor shall not commence any Work until he is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D16.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the detailed prices specified in D12;
 - (vii) the Subcontractor list specified in D13;
 - (viii) the detailed work schedule specified in D14; and
 - (ix) the security clearances specified in D15.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D16.3 The Contractor shall commence the Work on the Site within seven (7) Business Days of receipt of the letter of intent.

D17. CRITICAL STAGES

- D17.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Supply Spare PLC components as specified in Section 17500 within 80 Calendar Days of the award of Contract.
 - (b) Provide I&C panel Acceptable Shop Drawings for the System Integrator's use within 80 Business Days of the award of this Contract.
 - (c) Provide satisfactory installation of City Supplied Equipment (hypochlorite generation equipment) specified in D2.2(e)(i) no later than March 31, 2008. This satisfactory installation shall be considered complete upon the issuance of Form 102: Certification of Satisfactory Equipment Installation, for all of the City Supplied Equipment specified in D2.2(e)(i).
 - (d) Provide Performance Verification of all equipment installed under this Contract by October 31, 2008.
 - (e) Satisfactory Training: Training for equipment installed under this Contract shall begin after the completion of Form 103: Certificate of Equipment Satisfactory Performance for all equipment installed under this Contract and prior to Total Performance. The detailed schedule for this training will be prepared and provided by the Contract Administrator upon completion of Form 103: Certificate of Equipment Satisfactory Performance for all equipment installed under this Contract. Training shall not be considered complete until Form T1 is completed for all equipment installed under this Contract.
 - (f) Energize the cables servicing the main water treatment plant electrical room 2 MCC #4A and MCC #4B by December 31, 2007. Successful installation shall be considered complete when service can be energized and the City can use the service to support construction activities in the WTP.

D18. SUBSTANTIAL PERFORMANCE

- D18.1 The Contractor shall achieve Substantial Performance by June 30, 2008.
- D18.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- D18.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.
- D18.4 Satisfactory Performance cannot be achieved without the completion of the three day running tests for all equipment installed under this Contract.

D19. TOTAL PERFORMANCE

- D19.1 The Contractor shall achieve Total Performance by December 31, 2008.
- D19.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D19.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D20. LIQUIDATED DAMAGES

D20.1 If the Contractor fails to achieve the critical stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Critical stages as specified in D17 – two thousand, six hundred dollars (\$2,600.00);
- (b) Substantial Performance – two thousand, six hundred dollars (\$2,600.00);
- (c) Total Performance – six hundred dollars (\$600).

D20.2 The amounts specified for liquidated damages in D20.1 is based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D20.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D20.4 The City will not pay a bonus for performance if the Contractor reaches Substantial Performance or Total Performance earlier than the dates specified herein.

D21. SUPPLEMENTAL TRAINING

D21.1 The City may, at its sole option, require the Contractor to provide a maximum of eighty (80) hours of Supplemental Training.

D21.2 Supplemental Training is intended to enable the City personnel to ask questions which may arise after Total Performance and after they have acquired several months experience with the equipment.

D21.3 The City may request a maximum of two (2) Supplemental Training sessions for any individual type of equipment supplied under this Contract.

D21.4 Supplemental Training shall be provided at the Site or at an alternate location in the City of Winnipeg as provided by the City.

D21.5 Payment for Supplemental Training shall be made in accordance with D26.

D21.6 Determination of Substantial Performance and Total Performance shall be exclusive of Supplemental Training identified herein. All Supplemental Training will be requested by the City and shall be completed prior to the expiration of the warranty period. Where the Supplemental Training cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the Supplemental Training.

D22. COOPERATION WITH OTHERS

D22.1 The Contractor shall note that several other construction contracts will be underway at the time of construction, including, but not limited to:

- (a) Bid Opportunity 583-2005 Water Treatment Program - Water Treatment Plant Foundations and Concrete Structures
- (b) Bid Opportunity 742-2005 Winnipeg Water Treatment Program – The Supply and Installation of Water Treatment Plant Process Mechanical and Electrical
- (c) Bid Opportunity 34-2006 Winnipeg Water Treatment Program – Construction of Dewatering Cells
- (d) Bid Opportunity 35-2006 Winnipeg Water Treatment Program – Deacon Booster Pumping Station Upgrade
- (e) Bid Opportunity 36-2006 Winnipeg Water Treatment Program – Construction of Surge Tower Overflow Piping

- (f) Bid Opportunity 37-2006 Winnipeg Water Treatment Program – Surge Tower Construction
- (g) Bid Opportunity 171-2006 Winnipeg Water Treatment Program – Supply and Installation of Water Treatment Plant Precast Roof Panels
- (h) Bid Opportunity 498-2006 Winnipeg Water Treatment Program – Construction of Standby Generator Building
- (i) Bid Opportunity 791-2006 Winnipeg Water Treatment Program – Construction of Water Treatment Plant Overflow and Supernatant Line
- (j) Bid Opportunity 793-2006 Winnipeg Water Treatment Program – Construction of Water Treatment Plant Building Envelope
- (k) Bid Opportunity 94-2007 Winnipeg Water Treatment Program – Construction of Site Utilities
- (l) Bid Opportunity 95-2007 Winnipeg Water Treatment Program – Construction of Offices & Plant Interior Finishes
- (m) Bid Opportunity 96-2007 Winnipeg Water Treatment Program – Supply and Installation of Forcemain
- (n) Bid Opportunity 97-2007 Winnipeg Water Treatment Program – Construction of Roads and Landscaping

D22.2 Bid Opportunities for the above are available at the City of Winnipeg Materials Management website at <http://www.winnipeg.ca/matmgt/bidopp.asp>.

D22.3 The Contractor will not have exclusive use of the Site. The Contractor shall coordinate activities with others and minimize disruptions to others, where possible.

D22.4 Where site access requires relocation for installation of works, the Contractor shall construct suitable, all-weather detours, as required.

D22.5 The Contractor shall note that the Deacon Booster Pumping Station and surrounding compound will be in use during the construction period. The Contractor shall maintain reasonable access to all existing plant, valve chambers, rail, mechanical and electrical facilities at all times. The Contractor shall provide all reasonable assistance to City operations personnel to provide safe, secure access to operational facilities.

D23. SITE SECURITY

D23.1 Personnel, material and equipment will only be permitted to access the Site via the main entrance gate, located west of Provincial Road 207, as indicated on Construction Site Layout Drawing CM G001. This gate will normally be staffed 24 hours a day, seven days a week. Access to the DBPS compound is normally through the main gate of the compound and is normally restricted to the hours of 7:00 am to 5:00 pm, Monday to Friday. Alternate Site access arrangements can be made through the Contract Administrator. Access to the Site through other designated gates must be approved by the Contract Administrator.

D24. SCHEDULE RESTRICTIONS

D24.1 Rail work: the GWWD mainline and spur line shall remain in normal operation between Victoria Day and Labour Day in 2007. The maximum duration of any required shutdown to the spur line or main line shall be 21 Calendar Days and shall be coordinated with the Contract Administrator as required to accommodate normal City operations including, but not limited to, the chemical deliveries specified in E5.

MEASUREMENT AND PAYMENT

D25. PAYMENT

D25.1 Further to C12, effective January 1, 2007 the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D26. PAYMENT SCHEDULE

D26.1 Further to C:12, payment shall be in accordance with the following payment schedule:

- (a) The unit price for items 1 and 2 listed in Form B: Prices will be paid on the basis of monthly progress estimates in accordance with C:12 and the detailed price breakdown prepared pursuant to D13.
- (b) Ten thousand dollars (\$10,000) of the unit price for item 1 and fifteen thousand dollars (\$15,000.00) of the unit price for item 2 in Form B: Prices will be paid upon satisfactory completion of Record Drawings.
- (c) Twenty-five thousand dollars (\$25,000) of the unit price for item 1 in Form B: Prices will be paid upon satisfactory completion of all required O&M manuals.
- (d) The unit price for item 3 will be paid on the basis of time spent on Site. Timesheets shall be submitted by the Contractor and approved by the Contract Administrator. The unit prices in Form B: Prices shall be inclusive of all overhead (including small tool costs) and profit. No additional mark-up shall be applied to any labour performed by any Subcontractor during the Commissioning Period.
- (e) Materials supplied by the Contractor, at the request of the Contract Administrator, during the Commissioning Period shall be valued in accordance with C7.4(d).
- (f) The unit price for item 4 will be paid upon the completion of Form T1: Certificate of Satisfactory Training for all equipment installed under this Contract.

D26.2 Supplemental Training is included in the unit price for item 5 in Form B: Prices, and will be paid on the basis of time spent on Site. Timesheets shall be submitted by the Contractor and approved by the Contract Administrator. The hourly rate shall be inclusive of all overhead and profit. No additional mark-up shall be applied to any labour performed by any Subcontractor, Manufacturer or Manufacturer's Representative during the provision of Supplemental Training.

WARRANTY

D27. WARRANTY

D27.1 Further to C10.01, if a defect or deficiency prevents the full and normal use or operation of the Work or any portion thereof, for purposes of calculating the warranty period, time shall be deemed to cease to elapse for the defective or deficient portion, and for any portion of the Work whose use or operation is prevented by such defect or deficiency, as of the date on which the defect or deficiency is observed or the use or operation is prevented and shall begin to run again when the defect or deficiency has been corrected or the Work may be used or operated to the satisfaction of the Contract Administrator.

D27.2 Notwithstanding C10.01, C.10.02 and D27.1, if any law of Manitoba or of the jurisdiction in which the Work was manufactured requires, or if the manufacturer provides, a longer warranty period or a warranty which is more extensive in its nature, then the provisions of such law or manufacturer's warranty shall apply.

D27.3 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire one (1) year thereafter, except where longer warranty periods are specified in the respective Specification sections, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D27.3.1 For the purpose of Performance Security, the warranty period shall be one (1) year.

D27.4 Warranty for the installation of City Supplied Equipment is the responsibility of the Contractor.
Warranty for the proper operation of properly installed City Supplied Equipment is the responsibility of the Supply Contractor

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee dated the

_____ day of _____, 20____, for:

BID OPPORTUNITY NO. 792-2006

WINNIPEG WATER TREATMENT PROGRAM - CONSTRUCTION OF SODIUM HYPOCHLORITE AND CHEMICAL STORAGE BUILDINGS

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D11)

(Date)

The City of Winnipeg
Corporate Services Department
Legal Services Division
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 792-2006

WINNIPEG WATER TREATMENT PROGRAM - CONSTRUCTION OF SODIUM
HYPOCHLORITE AND CHEMICAL STORAGE BUILDINGS

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding
in the aggregate

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (1993 Revision), International Chamber of Commerce Publication Number 500.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.
- E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt>.
- E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.
- E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 The following are applicable to the Work:

<u>Section #</u>	<u>Title</u>
1210	City Supplied Equipment
1300	Submittals
1450	Quality Control
1600	Material and Equipment
1650	Equipment Installation
1664	Training
1670	Commissioning
1730	Operation and Maintenance Manuals
2223	Excavation and Backfilling for Structures
2450	Railroad Work
2451	Pile Foundations, General
2468	Precast Concrete Piles
2581	Concrete Encased Duct Banks and Utility Vaults
2641	Pipe Culverts
3100	Concrete Formwork
3200	Concrete Reinforcement
3250	Concrete Accessories
3300	Cast-In-Place Concrete
3412	Precast Concrete Deck
4051	Masonry Procedures
4060	Masonry Mortar and Grout
4080	Masonry Reinforcement And Connectors
4090	Masonry Accessories
4220	Concrete Masonry Units
5120	Structural Steel
5210	Steel Joists
5311	Metal Deck
5500	Metal Fabrications
5530	Aluminum Fabrications
6100	Rough Carpentry
6640	FRP Fabrications
7210	Building Insulation

<u>Section #</u>	<u>Title</u>
7270	Air Barriers
7400	Metal Cladding
7515	SBS Modified Bituminous Roofing
7724	Roof Hatches
7840	Firestopping and Smoke Seals
7900	Joint Sealants
8110	Steel Doors and Frames
8310	Floor Hatches
8335	Coiling Doors
8520	Aluminum Windows
8700	Door Hardware
8800	Glass and Glazing
9870	Coating Systems for Steel Tanks and Pipes
9900	Finish Painting – Buildings
9901	Painting and Finishing – Process Mechanical
9985	Specialty Coatings for Concrete
11000	Equipment General Provisions
11001	Onsite Hypochlorite Generation Equipment Installation
11247	Chemical Specialties
11251	Chemical Storage Tanks
11308	Gear Pumps - Skid Mounted
11316	Peristaltic Pumps – Skid Mounted
11901	Factory Applied Protective Coatings
11990	Design and Operating Description
14620	Hoist, Monorail and Jib Crane Systems
15010	General Mechanical Provisions
15030	Testing
15060	Piping Support Systems
15061	Vibration Isolation
15070	Meters and Gauges
15085	Mechanical Thermal Insulation
15090	Pre-Occupational Cleaning and Chemical Treatment
15100-00	Plumbing Piping and Appurtances
15100-01	Data Sheet – Polyvinyl Chloride Drain Waste and Vent (PVC-DWV) Pipe and Fittings
15120	Hydronic Specialties
15121	Expansion Compensation
15130	Tanks
15160	Steam Systems
15165	Steam Specialties
15200-000	Process Piping
15200-00L	Piping Service Legend
15200-00S	Piping Schedule
15200-03	Data Sheet – Carbon Steel Pipe and Fittings – General Service
15200-07	Data Sheet – Galvanized Steel Pipe and Fittings – General Service
15200-08	Data Sheet – Stainless Steel Pipe and Fittings – General Service
15200-09	Data Sheet – Stainless Steel Pipe and Fittings – Special Service 1
15200-10	Data Sheet – Polyvinyl Chloride (PVC) Pipe and Fittings
15200-12	Data Sheet – Fibreglass Reinforced Plastic (FRP) Pipe and Fittings
15200-13	Data Sheet – Copper and Copper Alloy Pipe, Tubing and Fittings
15200-14	Data Sheet – High Density Polyethylene (HDPE) Pipe and Fittings
15200-20	Data Sheet – Stainless Steel Pipe and Fittings – Special Service 3

<u>Section #</u>	<u>Title</u>
15200-21	Data Sheet – Carbon Steel Pipe and Fittings – Natural Gas Service
15202	Process Valves and Operators
15202-01	Automated Valve Schedule (all sizes)
15202-02	Manual Valve Schedule (all sizes)
15205	Piping Specialties
15310	Air Compressors
15410	Plumbing Fixtures and Trim
15440	Plumbing Equipment
15470	Natural Gas Distribution System
15510	Fire Extinguishers
15600	Cast Iron Boilers
15630	Packaged Vertical Water Tube Boilers
15640	Steam Boiler Auxiliary Equipment
15705	Heat Tracing
15710	Heat Transfer
15720	Air Handling
15730	Unitary Air-Conditioning Equipment
15760	Terminal Heat Transfer Units
15810	Metal Ductwork and Accessories
15830	Fans
15850	Grilles, Registers and Diffusers
15855	Air Outlets and Inlets
15900	HVAC Instrumentation And Controls – General
15901	HVAC Controls, Field Components, and Instruments
15902	Microelectronic Control Components
15930	Sodium Hypochlorite Building HVAC Control Sequences
15940	Bulk Chemical Building HVAC Control Sequences
15950	HVAC Systems Testing, Adjusting, and Balancing
15999	List of Schedules
16010	Electrical General Requirements
16015	Scope of Electrical Work
16106	Installation of Cables in Trenches and In Ducts
16111	Conduits, Conduit Fastenings and Conduit Fittings
16114	Cable Trays
16115	Busways
16120	HV Power Cables & 8 Kv Shielded Cable Terminations
16122	Wires and Cable 0-1000V
16131	Splitters, Junction Boxes, Pull Boxes and Cabinets
16132	Outlet Boxes, Conduit Boxes and Fittings
16141	Wiring Devices
16151	Wire and Box Connectors
16160	Grounding
16191	Fastenings and Supports
16321	Distribution Transformers – Liquid Cooled
16426	Secondary Switchgear
16440	Disconnect Switches Fused and Non-Fused Up to 600V-Primary
16461	Dry Type Transformers Up to 600 V Primary
16471	Panelboards – Breaker Type
16476	Air Circuit Breakers
16477	Moulded Case Circuit Breakers
16480	Power Surge Protectors

<u>Section #</u>	<u>Title</u>
16500	General Provisions for Interior Lighting
16519	Exit Lights
16610	Uninterruptible Powers Systems Static
16670	Lightning Protection
16722	Multiplex Fire Alarm System
16811	Motor Starters to 600 V
16815	Variable Frequency Drives
16820	Motor Control Centre
16825	Control Devices
16896	Liquid Heaters
16950	Connections to Mechanical Equipment
16960	Starting of Electrical Equipment Systems
16980	Testing, Adjusting and Balancing of Electrical Equipment and Systems
16990	Electrical Equipment and Systems Demonstrations and Instruction
17010	Instrumentation and Control General Requirements
17015	Scope of Instrumentation and Control Work
17110	Enclosures
17124	Instrumentation Cable
17130	Power Supplies
17140	Instrument Air Supply and Transmission
17211	Process Taps and Primary Elements
17212	Transmitters and Indicators
17216	Switches and Relays
17275	Miscellaneous Panel Devices
17300	Gas Detection Systems
17500	Programmable Logic Controllers
17501	Operator Interface Requirements
17600	PLC I/O Index
17600-A	PLC I/O Index
17700	Instrument Index
17700-A	Instrument Index
17701	Instrument Specification Sheets
17701-A	Instrument Specification Sheets
17702	Instrument Loop Drawings
17704	Instrument Standard Details
Appendix A	Vendor List for Instrumentation and Control Devices

CHEMICAL STORAGE BUILDING

<u>Consultant Dwg No.</u>	<u>City Dwg No.</u>	<u>Title</u>
WB-A0401	1-0601B-D-A0401-001-04B	AUTOMATION / I&C - ULTRASONIC LEVEL TRANSDUCER - INSTALLATION DETAILS
WB-A0402	1-0601B-D-A0402-001-04B	AUTOMATION / I&C - LOOP POWERED REMOTE INDICATING TRANSMITTER - INSTALLATION DETAILS
WB-A0407	1-0601B-D-A0407-001-04B	AUTOMATION / I&C - THERMOWELL MOUNTED RTD - INSTALLATION DETAILS
WB-A0408	1-0601B-D-A0408-001-04B	AUTOMATION / I&C - PRESSURE TRANSMITTER AND INLINE PRESSURE SENSOR - INSTALLATION DETAILS
WB-A0458	1-0601B-H-A0458-001-02B	AUTOMATION / I&C – TYPICAL CONDUCTIVITY LEVEL SWITCH SINGLE POINT – INSTRUMENTATION LOOP DIAGRAM

Consultant	City Dwg No.	Title
WB-A0461	1-0601B-H-A0461-001-02B	AUTOMATION / I&C - TYPICAL MCC STARTER - INSTRUMENTATION LOOP DIAGRAM
WB-A0463	1-0601B-H-A0463-001-02B	AUTOMATION / I&C - TYPICAL DISCRETE INPUT - INSTRUMENTATION LOOP DIAGRAM
WB-A0464	1-0601B-H-A0464-001-02B	AUTOMATION / I&C - TYPICAL VALVE LIMIT SWITCH - INSTRUMENTATION LOOP DIAGRAM
WB-A0465	1-0601B-H-A0465-001-02B	AUTOMATION / I&C - TYPICAL LOOP POWERED ANALOGUE INPUT - INSTRUMENTATION LOOP DIAGRAM
WB-A0466	1-0601B-H-A0466-001-02B	AUTOMATION / I&C - TYPICAL 3 WIRE RTD - INSTRUMENTATION LOOP DIAGRAM
WG-E0102	1-0601G-A-E0102-001-05D	ELECTRICAL - CRAWLSPACE POWER PLAN AND SECTIONS
WG-E0112	1-0601G-A-E0112-001-06D	ELECTRICAL - MAIN FLOOR POWER PLAN
WG-E0401	1-0601G-F-E0401-001-04D	ELECTRICAL - SINGLE LINE DIAGRAM MAIN DISTRIBUTION
WH-A0100	1-0601H-E-A0100-001-05D	AUTOMATION / I&C - PLANT COMMUNICATION NETWORK - OVERALL BLOCK CABLE DIAGRAM
WH-A0104	1-0601H-E-A0104-001-05D	AUTOMATION / I&C - PLANT COMMUNICATION NETWORK - BLOCK DIAGRAM
WH-A0534	1-0601H-J-A0534-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0535	1-0601H-J-A0535-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0536	1-0601H-J-A0536-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0537	1-0601H-J-A0537-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0588	1-0601H-J-A0588-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0589	1-0601H-J-A0589-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0590	1-0601H-J-A0590-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0591	1-0601H-J-A0591-001-04B	AUTOMATION / I&C - PLANT COMMUNICATION CABLE - TERMINATION DIAGRAMS
WH-A0701	1-0601H-K-A0701-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0702	1-0601H-K-A0702-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0703	1-0601H-K-A0703-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0704	1-0601H-K-A0704-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0705	1-0601H-K-A0705-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0706	1-0601H-K-A0706-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0707	1-0601H-K-A0707-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0708	1-0601H-K-A0708-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0709	1-0601H-K-A0709-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0710	1-0601H-K-A0710-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WH-A0711	1-0601H-K-A0711-001-08B	AUTOMATION / I&C - PLANT COMMUNICATION CABLES - CABLE LIST
WJ-B0100	1-0601J-A-B0100-001-00D	ARCHITECTURAL - LOWER LEVEL PLAN
WJ-B0110	1-0601J-A-B0110-001-00D	ARCHITECTURAL - MAIN FLOOR PLAN
WJ-B0115	1-0601J-A-B0115-001-00D	ARCHITECTURAL - MEZZANINE FLOOR PLAN
WJ-B0120	1-0601J-A-B0120-001-00D	ARCHITECTURAL - CATWALK PLAN
WJ-B0121	1-0601J-A-B0121-001-00D	ARCHITECTURAL - REFLECTED CEILING PLANS
WJ-B0125	1-0601J-A-B0125-001-00D	ARCHITECTURAL - STAIRS AND PLATFORM LAYOUT
WJ-B0130	1-0601J-A-B0130-001-00D	ARCHITECTURAL - ROOF PLAN
WJ-B0201	1-0601J-A-B0201-001-00D	ARCHITECTURAL - BUILDING SECTION
WJ-B0202	1-0601J-A-B0202-001-00D	ARCHITECTURAL - BUILDING SECTIONS
WJ-B0203	1-0601J-A-B0203-001-00D	ARCHITECTURAL - WALL SECTIONS
WJ-B0301	1-0601J-A-B0301-001-00D	ARCHITECTURAL - BUILDING ELEVATIONS
WJ-B0302	1-0601J-A-B0302-001-00D	ARCHITECTURAL - BUILDING ELEVATIONS AND DETAILS
WJ-B0401	1-0601J-A-B0401-001-00D	ARCHITECTURAL - DETAILS
WJ-B0402	1-0601J-A-B0402-001-00D	ARCHITECTURAL - WALL SECTION DETAILS
WJ-B0403	1-0601J-A-B0403-001-00D	ARCHITECTURAL - BUILDING LINK DETAILED PLAN & SECTIONS
WJ-B0501	1-0601J-A-B0501-001-00D	ARCHITECTURAL - SCHEDULES AND CODE ANALYSIS
WM-E0010	1-0601M-D-E0010-001-02D	ELECTRICAL - SYMBOLS LEGEND

Consultant	City Dwg No.	Title
WM-E0011	1-0601M-D-E0011-001-02D	ELECTRICAL - SYMBOLS
WM-H0001	1-0601M-D-H0001-001-02D	MECHANICAL - LEGENDS AND SYMBOLS
WM-P0001	1-0601M-D-P0001-001-03D	CONSTRUCTION STANDARDS - PROCESS AND INSTRUMENTATION - IDENTIFICATION
WM-P0002	1-0601M-D-P0002-001-02D	CONSTRUCTION STANDARDS - PROCESS AND INSTRUMENTATION - SYMBOLS
WS-A0110	1-0601S-A-A0110-001-00D	AUTOMATION / I&C - INSTRUMENT LOCATION PLAN - LOWER LEVEL
WS-A0125	1-0601S-A-A0125-001-00D	AUTOMATION / I&C - INSTRUMENT LOCATION PLAN - UPPER LEVEL
WS-A0451	1-0601S-H-A0451-001-00B	AUTOMATION / I&C - TYPICAL MOTORIZED VALVE OPEN/CLOSE - INSTRUMENTATION LOOP DIAGRAM
WS-A0452	1-0601S-H-A0452-001-00B	AUTOMATION / I&C - TYPICAL MOTORIZED VALVE MODULATING - INSTRUMENTATION LOOP DIAGRAM
WS-A0453	1-0601S-H-A0453-001-00B	AUTOMATION / I&C - TYPICAL MAGNETIC FLOW METER - INSTRUMENT LOOP DIAGRAM
WS-A0454	1-0601S-H-A0454-001-00B	AUTOMATION / I&C - MOTORIZED VALVE OPEN/CLOSE WITH LOCAL CONTROL STATION - INSTRUMENTATION LOOP DIAGRAM
WS-A0455	1-0601S-H-A0455-001-00B	AUTOMATION / I&C - TYPICAL MOTORIZED VALVE OPEN CLOSE - INSTRUMENTATION LOOP DIAGRAM
WS-B0100	1-0601S-A-B0100-001-00D	ARCHITECTURAL - LOWER LEVEL
WS-B0110	1-0601S-A-B0110-001-00D	ARCHITECTURAL - MAIN FLOOR PLAN
WS-B0115	1-0601S-A-B0115-001-00D	ARCHITECTURAL - SECOND FLOOR PLAN
WS-B0120	1-0601S-A-B0120-001-00D	ARCHITECTURAL - CATWALK LEVEL
WS-B0121	1-0601S-A-B0121-001-00D	ARCHITECTURAL - MAIN FLOOR REFLECTED CEILING PLAN
WS-B0122	1-0601S-A-B0122-001-00D	ARCHITECTURAL - SECOND FLOOR REFLECTED CEILING PLAN
WS-B0130	1-0601S-A-B0130-001-00D	ARCHITECTURAL - ROOF PLAN
WS-B0201	1-0601S-A-B0201-001-00D	ARCHITECTURAL - BUILDING SECTIONS
WS-B0202	1-0601S-A-B0202-001-00D	ARCHITECTURAL - BUILDING SECTIONS
WS-B0203	1-0601S-A-B0203-001-00D	ARCHITECTURAL - WALL SECTIONS
WS-B0204	1-0601S-A-B0204-001-00D	ARCHITECTURAL - WALL SECTIONS
WS-B0301	1-0601S-A-B0301-001-00D	ARCHITECTURAL - BUILDING ELEVATIONS
WS-B0302	1-0601S-A-B0302-001-00D	ARCHITECTURAL - BUILDING ELEVATIONS
WS-B0401	1-0601S-A-B0401-001-00D	ARCHITECTURAL - DETAILS
WS-B0402	1-0601S-A-B0402-001-00D	ARCHITECTURAL - DETAILS
WS-B0403	1-0601S-A-B0403-001-00D	ARCHITECTURAL - SKYWAY BRIDGE DETAILED PLAN & SECTIONS
WS-B0404	1-0601S-A-B0404-001-00D	ARCHITECTURAL - ROOF PLAN OF BRIDGE
WS-B0405	1-0601S-A-B0405-001-00D	ARCHITECTURAL - WASHROOM DETAILS & DOOR JAMB/HEAD DETAILS
WS-B0501	1-0601S-A-B0501-001-00D	ARCHITECTURAL - SCHEDULES AND CODE ANALYSIS
WS-C0001	1-0601S-A-C0001-001-00D	CIVIL - GRADING PLAN AND DETAILS
WS-C0002	1-0601S-A-C0002-001-00D	CIVIL - RAILWAY CONSTRUCTION - HORIZONTAL GEOMETRY
WS-C0003	1-0601S-A-C0003-001-00D	CIVIL - RAILWAY CONSTRUCTION - PLAN & PROFILE
WS-C0004	1-0601S-A-C0004-001-00D	CIVIL - RAILWAY CONSTRUCTION - PLAN & PROFILE
WS-C0005	1-0601S-A-C0005-001-00D	CIVIL - RAILWAY CONSTRUCTION - SECTIONS & DETAILS
WS-E0001	1-0601S-A-E0001-001-00D	ELECTRICAL - DUCT BANK LOCATION - PLAN AND PROFILE
WS-E0111	1-0601S-A-E0111-001-00D	ELECTRICAL - MAIN FLOOR LIGHTING PLAN AND SCHEDULE
WS-E0112	1-0601S-A-E0112-001-00D	ELECTRICAL - MAIN FLOOR POWER PLAN
WS-E0113	1-0601S-A-E0113-001-00D	ELECTRICAL - MAIN FLOOR LIFE SAFETY
WS-E0121	1-0601S-A-E0121-001-00D	ELECTRICAL - SECOND FLOOR LIGHTING PLAN
WS-E0122	1-0601S-A-E0122-001-00D	ELECTRICAL - SECOND FLOOR POWER PLAN
WS-E0123	1-0601S-A-E0123-001-00D	ELECTRICAL - SECOND FLOOR LIFE SAFETY
WS-E0141	1-0601S-A-E0141-001-00D	ELECTRICAL - ROOF POWER PLAN
WS-E0142	1-0601S-A-E0142-001-00D	ELECTRICAL - ROOF PLAN - LIGHTING PROTECTION
WS-E0451	1-0601S-D-E0451-001-00D	ELECTRICAL - STANDARD DETAILS
WS-E0452	1-0601S-D-E0452-001-00D	ELECTRICAL - STANDARD DETAILS

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WS-E0453	1-0601S-D-E0453-001-00D	ELECTRICAL - STANDARD DETAILS
WS-E0503	1-0601S-F-E0503-001-00D	ELECTRICAL - SINGLE LINE DIAGRAM - MAIN SWITCHGEAR
WS-E0504	1-0601S-F-E0504-001-00D	ELECTRICAL - SINGLE LINE DIAGRAM - 600 VOLT MCC #12A AND MCC #12B
WS-E0505	1-0601S-F-E0505-001-00D	ELECTRICAL - MCC ELEVATION
WS-E0506	1-0601S-A-E0506-001-00D	ELECTRICAL - SCHEDULES
WS-E0507	1-0601S-A-E0507-001-00D	ELECTRICAL - SCHEDULES
WS-E0510	1-0601S-H-E0510-001-00D	ELECTRICAL - VARIABLE SPEED CHEMICAL FEED PUMP - TYPICAL STARTER SCHEMATIC
WS-E0511	1-0601S-H-E0511-001-00D	ELECTRICAL - FANS TYPICAL STARTER SCHEMATIC
WS-E0512	1-0601S-H-E0512-001-00D	ELECTRICAL - FANS TYPICAL STARTER SCHEMATIC
WS-E0513	1-0601S-H-E0513-001-00D	ELECTRICAL - SCHEMATICS
WS-F0100	1-0601S-B-F0100-001-00D	STRUCTURAL - FOUNDATION PLAN - PARTIAL PILE LAYOUT
WS-F0101	1-0601S-B-F0101-001-00D	STRUCTURAL - FOUNDATION PLAN - PARTIAL PILE LAYOUT
WS-H0100	1-0601S-A-H0100-001-00D	MECHANICAL - FOUNDATION PLUMBING PLAN
WS-H0110	1-0601S-A-H0110-001-00D	MECHANICAL - MAIN LEVEL GENERAL ARRANGEMENT PLAN
WS-H0111	1-0601S-A-H0111-001-00D	MECHANICAL - PLUMBING PLAN AND SECTION
WS-H0112	1-0601S-A-H0112-001-00D	MECHANICAL - MAIN LEVEL HYDRONIC PLAN
WS-H0113	1-0601S-A-H0113-001-00D	MECHANICAL - MAIN LEVEL COMPRESSED AIR PLAN
WS-H0114	1-0601S-A-H0114-001-00D	MECHANICAL - MECHANICAL ROOM COMPRESSED AIR PARTIAL PLAN
WS-H0115	1-0601S-A-H0115-001-00D	MECHANICAL - PARTIAL MECHANICAL ROOM PLUMBING PLAN
WS-H0116	1-0601S-A-H0116-001-00D	MECHANICAL - MECHANICAL ROOM PARTIAL PLANS
WS-H0118	1-0601S-A-H0118-001-00D	MECHANICAL - MAIN LEVEL VENTILATION PLAN
WS-H0120	1-0601S-A-H0120-001-00D	MECHANICAL - UPPER LEVEL GENERAL ARRANGEMENT PLAN
WS-H0121	1-0601S-A-H0121-001-00D	MECHANICAL - UPPER LEVEL PLUMBING PLAN AND SECTION
WS-H0122	1-0601S-A-H0122-001-00D	MECHANICAL - UPPER LEVEL HYDRONIC PLAN
WS-H0123	1-0601S-A-H0123-001-00D	MECHANICAL - UPPER LEVEL VENTILATION PLAN
WS-H0124	1-0601S-A-H0124-001-00D	MECHANICAL - UPPER LEVEL COMPRESSED AIR PLAN
WS-H0140	1-0601S-A-H0140-001-00D	MECHANICAL - ROOF PLAN
WS-H0201	1-0601S-A-H0201-001-00D	MECHANICAL - SECTION A
WS-H0202	1-0601S-A-H0202-001-00D	MECHANICAL - SECTIONS B & C
WS-H0203	1-0601S-A-H0203-001-00D	MECHANICAL - SECTION D
WS-H0204	1-0601S-A-H0204-001-00D	MECHANICAL - SECTIONS E & F
WS-H0205	1-0601S-A-H0205-001-00D	MECHANICAL - SECTION G
WS-H0206	1-0601S-A-H0206-001-00D	MECHANICAL - SECTIONS J & H
WS-H0207	1-0601S-A-H0207-001-00D	MECHANICAL - SECTION K
WS-H0208	1-0601S-A-H0208-001-00D	MECHANICAL - SECTIONS L & M
WS-H0301	1-0601S-A-H0301-001-00D	MECHANICAL - LOUVER ELEVATION
WS-H0401	1-0601S-D-H0401-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0402	1-0601S-D-H0402-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0403	1-0601S-D-H0403-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0404	1-0601S-D-H0404-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0410	1-0601S-D-H0410-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0411	1-0601S-D-H0411-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0412	1-0601S-D-H0412-001-00D	MECHANICAL - STANDARD DETAILS
WS-H0501	1-0601S-G-H0501-001-00D	MECHANICAL - PROCESS WATER SYSTEM - SCHEMATICS
WS-H0502	1-0601S-G-H0502-001-00D	MECHANICAL - DOMESTIC WATER SYSTEM - SCHEMATICS
WS-H0503	1-0601S-G-H0503-001-00D	MECHANICAL - STEAM HEATING SYSTEM SCHEMATIC
WS-H0504	1-0601S-G-H0504-001-00D	MECHANICAL - STEAM HEATING SYSTEM SCHEMATIC
WS-H0508	1-0601S-G-H0508-001-00D	MECHANICAL - HEATING SCHEMATIC - HOT WATER BOILERS
WS-H0509	1-0601S-G-H0509-001-00D	MECHANICAL - WEST HYDRONIC SCHEMATIC - BUILDING HEATING

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WS-H0510	1-0601S-G-H0510-001-00D	MECHANICAL - EAST HYDRONIC SCHEMATIC - BUILDING HEATING
WS-H0511	1-0601S-G-H0511-001-00D	MECHANICAL - HYPO BLDG HYDRONIC SCHEMATIC - BUILDING HEATING
WS-H0512	1-0601S-G-H0512-001-00D	PROCESS HOT WATER HEATING SCHEMATIC - DOMESTIC HOT WATER HEATING SCHEMATIC
WS-H0513	1-0601S-G-H0513-001-00D	FERRIC CHLORIDE ROOM - HEATING AND VENTILATION SYSTEM SCHEMATIC
WS-H0514	1-0601S-G-H0514-001-00D	SULPHURIC ACID ROOM - HEATING AND VENTILATION SYSTEM SCHEMATIC
WS-H0515	1-0601S-G-H0515-001-00D	SODIUM HYDROXIDE ROOM - HEATING AND VENTILATION SYSTEM SCHEMATIC
WS-H0516	1-0601S-G-H0516-001-00D	AQUA AMMONIA ROOM - HEATING AND VENTILATION SYSTEM SCHEMATIC
WS-H0517	1-0601S-G-H0517-001-00D	ELECTRICAL ROOM - HEATING, COOLING AND VENTILATION SCHEMATIC
WS-H0518	1-0601S-G-H0518-001-00D	CONTROL ROOM - HEATING, COOLING AND VENTILATION SCHEMATIC
WS-H0519	1-0601S-G-H0519-001-00D	RAILCAR SHELTER - HEATING & VENTILATION SYSTEM SCHEMATIC
WS-H0520	1-0601S-G-H0520-001-00D	HEAT TRACING SCHEMATICS
WS-H0521	1-0601S-G-H0521-001-00D	MECHANICAL – COMPRESSED AIR SYSTEM – PROCESS AND INSTRUMENTATION DIAGRAM
WS-M0110	1-0601S-A-M0110-001-00D	PROCESS MECHANICAL – GROUND FLOOR PLAN – GENERAL ARRANGEMENT
WS-M0111	1-0601S-A-M0111-001-00D	PROCESS MECHANICAL – GROUND FLOOR PLAN
WS-M0112	1-0601S-A-M0112-001-00D	PROCESS MECHANICAL – GROUND FLOOR PLAN
WS-M0120	1-0601S-A-M0120-001-00D	PROCESS MECHANICAL – UPPER LEVEL PLAN – GENERAL ARRANGEMENT
WS-M0121	1-0601S-A-M0121-001-00D	PROCESS MECHANICAL – UPPER LEVEL PLAN
WS-M0122	1-0601S-A-M0122-001-00D	PROCESS MECHANICAL – UPPER LEVEL PLAN
WS-M0201	1-0601S-A-M0201-001-00D	PROCESS MECHANICAL – SECTION
WS-M0202	1-0601S-A-M0202-001-00D	PROCESS MECHANICAL – SECTION
WS-M0203	1-0601S-A-M0203-001-00D	PROCESS MECHANICAL – SECTION
WS-M0204	1-0601S-A-M0204-001-00D	PROCESS MECHANICAL – SECTION
WS-M0205	1-0601S-A-M0205-001-00D	PROCESS MECHANICAL – SECTION
WS-M0206	1-0601S-A-M0206-001-00D	PROCESS MECHANICAL - SECTION
WS-M0401	1-0601S-D-M0401-001-00D	PROCESS MECHANICAL – STANDARD DETAILS
WS-M0402	1-0601S-D-M0402-001-00D	PROCESS MECHANICAL – STANDARD DETAILS
WS-M0403	1-0601S-D-M0403-001-00D	PROCESS MECHANICAL – STANDARD DETAILS
WS-M0404	1-0601S-D-M0404-001-00D	PROCESS MECHANICAL – STANDARD DETAILS
WS-M0450	1-0601S-A-M0450-001-00D	PROCESS MECHANICAL – FERRIC CHLORIDE TANK DETAILS
WS-M0451	1-0601S-A-M0451-001-00D	PROCESS MECHANICAL – SODIUM HYDROXIDE TANK DETAILS
WS-M0452	1-0601S-A-M0452-001-00D	PROCESS MECHANICAL – SULPHURIC ACID / AQUA AMMONIA TANK DETAILS
WS-M0453	1-0601S-A-M0453-001-00D	PROCESS MECHANICAL – CHEMICAL SPILL CONTAINMENT – PLAN, SECTIONS AND DETAILS
WS-M0454	1-0601S-A-M0454-001-00D	PROCESS MECHANICAL – CHEMICAL FILL STATION - DETAILS
WS-P0001	1-0601S-G-P0001-001-00D	BULK SULPHURIC ACID OFFLOADING AND STORAGE - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0002	1-0601S-G-P0002-001-00D	SULPHURIC ACID FEED SYSTEM 1 OF 2 - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0003	1-0601S-G-P0003-001-00D	SULPHURIC ACID FEED SYSTEM 2 OF 2 - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0004	1-0601S-G-P0004-001-00D	BULK FERRIC CHLORIDE OFFLOADING AND STORAGE - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0005	1-0601S-G-P0005-001-00D	FERRIC CHLORIDE FEED SYSTEM 1 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0006	1-0601S-G-P0006-001-00D	FERRIC CHLORIDE FEED SYSTEM 2 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0007	1-0601S-G-P0007-001-00D	FERRIC CHLORIDE FEED SYSTEM 3 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0008	1-0601S-G-P0008-001-00D	SODIUM HYDROXIDE OFFLOADING AND STORAGE - PROCESS AND INSTRUMENTATION DIAGRAM
WS-P0009	1-0601S-G-P0009-001-00D	SODIUM HYDROXIDE FEED SYSTEM 1 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM

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	WS-P0010	1-0601S-G-P0010-001-00D	SODIUM HYDROXIDE FEED SYSTEM 2 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM
	WS-P0011	1-0601S-G-P0011-001-00D	SODIUM HYDROXIDE FEED SYSTEM 3 OF 3 - PROCESS AND INSTRUMENTATION DIAGRAM
	WS-P0012	1-0601S-G-P0012-001-00D	BULK AMMONIA OFFLOADING AND STORAGE - PROCESS AND INSTRUMENTATION DIAGRAM
	WS-P0013	1-0601S-G-P0013-001-00D	BULK AMMONIA OFFLOADING AND STORAGE - PROCESS AND INSTRUMENTATION DIAGRAM
	WS-P0014	1-0601S-G-P0014-001-00D	PROCESS - AMMONIA FEED SYSTEM - PROCESS AND INSTRUMENTATION DIAGRAM
	WS-S0001	1-0601S-A-S0001-001-00D	STRUCTURAL - GENERAL NOTES
	WS-S0100	1-0601S-A-S0100-001-00D	STRUCTURAL - FOUNDATION FRAMING PLAN (LOWER LEVEL)
	WS-S0110	1-0601S-A-S0110-001-00D	STRUCTURAL - MAIN FLOOR FRAMING PLAN
	WS-S0120	1-0601S-A-S0120-001-00D	STRUCTURAL - SECOND FLOOR PLAN - MASONRY WALL LAYOUT
	WS-S0125	1-0601S-A-S0125-001-00D	STRUCTURAL - CATWALK FRAMING PLAN
	WS-S0126	1-0601S-A-S0126-001-00D	STRUCTURAL - PARTIAL CATWALK STAIRS AND PLATFORMS PLAN
	WS-S0127	1-0601S-A-S0127-001-00D	STRUCTURAL - PARTIAL CATWALK STAIRS AND PLATFORMS PLAN
	WS-S0128	1-0601S-A-S0128-001-00D	STRUCTURAL - CATWALK HANGER DETAILS
	WS-S0140	1-0601S-A-S0140-001-00D	STRUCTURAL - ROOF PLAN - STEEL FRAMING (PARTIAL)
	WS-S0141	1-0601S-A-S0141-001-00D	STRUCTURAL - ROOF PLAN - STEEL FRAMING (PARTIAL)
	WS-S0201	1-0601S-A-S0201-001-00D	STRUCTURAL - BUILDING SECTIONS
	WS-S0202	1-0601S-A-S0202-001-00D	STRUCTURAL - BUILDING SECTIONS
	WS-S0203	1-0601S-A-S0203-001-00D	STRUCTURAL - BUILDING SECTIONS
	WS-S0301	1-0601S-A-S0301-001-00D	STRUCTURAL - WEST & EAST ELEVATIONS
	WS-S0302	1-0601S-A-S0302-001-00D	STRUCTURAL - WEST & EAST ELEVATIONS
	WS-S0303	1-0601S-A-S0303-001-00D	STRUCTURAL - NORTH & SOUTH ELEVATIONS
	WS-S0400	1-0601S-A-S0400-001-00D	STRUCTURAL - DUCT BANK PLAN AND DETAILS
	WS-S0401	1-0601S-A-S0401-001-00D	STRUCTURAL - BUILDING SECTIONS AND DETAILS
	WS-S0402	1-0601S-A-S0402-001-00D	STRUCTURAL - STANDARD DETAILS
	WS-S0403	1-0601S-A-S0403-001-00D	STRUCTURAL - STANDARD DETAILS
	WS-S0404	1-0601S-A-S0404-001-00D	STRUCTURAL - STANDARD DETAILS
	WS-S0405	1-0601S-A-S0405-001-00D	STRUCTURAL - STANDARD DETAILS
	WS-S0406	1-0601S-A-S0406-001-00D	STRUCTURAL - STANDARD DETAILS
	WS-S0407	1-0601S-A-S0407-001-00D	STRUCTURAL - BUILDING SECTIONS AND DETAILS
	WS-S0408	1-0601S-A-S0408-001-00D	STRUCTURAL - BUILDING SECTIONS AND DETAILS
	WS-S0409	1-0601S-A-S0409-001-00D	STRUCTURAL - BUILDING SECTIONS AND DETAILS
	WS-S0410	1-0601S-A-S0410-001-00D	STRUCTURAL - BUILDING SECTIONS AND DETAILS
	WS-S0411	1-0601S-A-S0411-001-00D	STRUCTURAL - DUCT BANK PLAN AND DETAILS
	WS-S0421	1-0601S-A-S0421-001-00D	STRUCTURAL - MAIN FLOOR STAIR SECTIONS AND DETAILS
	WS-S0422	1-0601S-A-S0422-001-00D	STRUCTURAL - MAIN FLOOR STAIR SECTIONS AND DETAILS
	WS-S0423	1-0601S-A-S0423-001-00D	STRUCTURAL - MAIN FLOOR STAIR SECTIONS AND DETAILS AND PLATFORMS
	WS-S0424	1-0601S-A-S0424-001-00D	STRUCTURAL - CATWALK STAIRS AND PLATFORMS DETAILS
	WS-S0425	1-0601S-A-S0425-001-00D	STRUCTURAL - CATWALK STAIRS AND PLATFORMS DETAILS
	WS-S0426	1-0601S-A-S0426-001-00D	STRUCTURAL - CATWALK STAIRS AND PLATFORM DETAILS
	WS-S0427	1-0601S-A-S0427-001-00D	STRUCTURAL - PARTIAL CATWALK STAIRS AND PLATFORMS PLAN
	WS-S0501	1-0601S-A-S0501-001-00D	STRUCTURAL - SCHEDULES
	WS-S0502	1-0601S-A-S0502-001-00D	STRUCTURAL - PILE SCHEDULES

Sodium Hypochlorite Building

	WJ-E0111	1-0601J-A-E0111-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - GROUND FLOOR FACILITY PLAN
	WJ-E0112	1-0601J-A-E0112-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - GROUND FLOOR PROCESS PLAN

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	WJ-E0113	1-0601J-A-E0113-001-00D	ELECTRICAL – SODIUM HYPOCHLORITE BUILDING – GROUND FLOOR POWER AND LIGHTING PLAN
	WJ-E0121	1-0601J-A-E0121-001-00D	ELECTRICAL – SODIUM HYPOCHLORITE BUILDING – MEZZANINE FACILITY PLAN
	WJ-E0123	1-0601J-A-E0123-001-00D	ELECTRICAL – SODIUM HYPOCHLORITE BUILDING – MEZZANINE POWER AND LIGHTING PLAN
	WJ-E0131	1-0601J-A-E0131-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - UPPER LEVEL FACILITY PLAN
	WJ-E0132	1-0601J-A-E0132-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - UPPER LEVEL PROCESS PLAN
	WJ-E0133	1-0601J-A-E0133-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - UPPER LEVEL POWER AND LIGHTING PLAN
	WJ-E0144	1-0601J-A-E0144-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - LIGHTNING PROTECTION
	WJ-E0201	1-0601J-A-E0201-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - SECTION
	WJ-E0202	1-0601J-A-E0202-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - SECTION
	WJ-E0203	1-0601J-A-E0203-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - SECTIONS
	WJ-E0511	1-0601J-F-E0511-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - 600V SINGLE LINE DIAGRAM
	WJ-E0512	1-0601J-F-E0512-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - 600V MCC LAYOUT
	WJ-E0521	1-0601J-D-E0521-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - PANNEL SCHEDULES
	WJ-E0522	1-0601J-D-E0522-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - PANEL SCHEDULE
	WJ-E0531	1-0601J-H-E0531-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - CONTROL DIAGRAM
	WJ-E0532	1-0601J-H-E0532-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - CONTROL DIAGRAMS
	WJ-E0541	1-0601J-D-E0541-001-00D	ELECTRICAL - SODIUM HYPOCHLORITE BUILDING - MOTOR SCHEDULE
	WJ-F0105	1-0601J-B-F0105-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - PILING PLAN
	WJ-H0111	1-0601J-A-H0111-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - GROUND FLOOR PLAN
	WJ-H0116	1-0601J-A-H0116-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - MEZZANINE PLAN
	WJ-H0121	1-0601J-A-H0121-001-00D	HVAC AND PLUMBING – SODIUM HYPOCHLORITE BUILDING – ROOF PLAN AND SECTIONS
	WJ-H0501	1-0601J-G-H0501-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING – HEATING AND VENTILATION SCHEMATIC
	WJ-H0502	1-0601J-G-H0502-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - HEATING AND VENTILATION SCHEMATIC
	WJ-H0503	1-0601J-G-H0503-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - HEATING AND VENTILATION SCHEMATIC
	WJ-H0504	1-0601J-G-H0504-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - HEATING AND VENTILATION SCHEMATICS
	WJ-H0505	1-0601J-G-H0505-001-00D	HVAC AND PLUMBING - SODIUM HYPOCHLORITE BUILDING - HEATING AND VENTILATION SCHEMATICS
	WJ-M0111	1-0601J-A-M0111-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - GROUND FLOOR PLAN
	WJ-M0201	1-0601J-A-M0201-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - SECTION
	WJ-M0202	1-0601J-A-M0202-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - SECTION
	WJ-M0203	1-0601J-A-M0203-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - SECTIONS
	WJ-M0204	1-0601J-A-M0204-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - SECTIONS
	WJ-M0401	1-0601J-A-M0401-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - LINK DETAILS
	WJ-M0402	1-0601J-A-M0402-001-00D	PROCESS MECHANICAL - SODIUM HYPOCHLORITE BUILDING - DETAILS
	WJ-S0101	1-0601J-A-S0101-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - PLAN AT ELEVATION 237.000
	WJ-S0111	1-0601J-A-S0111-001-00D	STRUCTURAL – SODIUM HYPOCHLORITE BUILDING – GROUND AND MEZZANINE FLOOR PLANS
	WJ-S0112	1-0601J-A-S0112-001-00D	STRUCTURAL – SODIUM HYPOCHLORITE BUILDING – LINK WAY PLANS AND SECTIONS
	WJ-S0121	1-0601J-A-S0121-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - HIGH AND LOW ROOF PLANS
	WJ-S0201	1-0601J-A-S0201-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - SECTIONS AND DETAILS
	WJ-S0202	1-0601J-A-S0202-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - SECTION AND DETAILS
	WJ-S0203	1-0601J-A-S0203-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - SECTIONS
	WJ-S0401	1-0601J-A-S0401-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - DETAILS
	WJ-S0451	1-0601J-A-S0451-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS

Consultant	Dwg No.	City Dwg No.	Title
	WJ-S0452	1-0601J-A-S0452-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0453	1-0601J-A-S0453-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0454	1-0601J-A-S0454-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0455	1-0601J-A-S0455-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0456	1-0601J-A-S0456-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0457	1-0601J-A-S0457-001-00D	STRUCTURAL - SODIUM HYPOCHLORITE BUILDING - STANDARD DETAILS
	WJ-S0505	1-0601J-D-S0505-001-00D	STRUCTURAL – SODIUM HYPOCHLORITE BUILDING – PILING SCHEDULE AND DETAILS
	WJ-S0515	1-0601J-D-S0515-001-00D	STRUCTURAL – SODIUM HYPOCHLORITE BUILDING – BEAM SCHEDULE AND COLUMN REINFORCING

Issued for Information Only

Consultant	Dwg No.	City Dwg No.	Title
	P01-R2		CITY OF WINNIPEG ON-SITE SODIUM HYPOCHLORITE GENERATION SYSTEM – PROCESS & INSTRUMENTATION DIAGRAM
	CPG0465-I-01-R2		ON-SITE SODIUM HYPOCHLORITE GENERATION SYSTEM - PIPING AND INSTRUMENTATION DIAGRAM (SHEETS 1 THRU 7)
	CM G001-R11		CONSTRUCTION SITE LAYOUT

SOILS INVESTIGATION REPORT

E2. SOILS INVESTIGATION REPORT

- E2.1 Further to C:3.1, a copy of the geotechnical information is available on the Winnipeg Water Treatment Program – Project Site Information page at The City of Winnipeg, Corporate Finance, Materials Management Branch internet site at <http://www.winnipeg.ca/matmgt/projects>
- E2.2 Test Hole Logs
- E2.2.1 Geotechnical information has been compiled from various sources to summarize subsurface conditions within the work area. Test Hole Logs Sets 1 through 3 are available at the aforementioned internet site.
- (a) By UMA Engineering
 - (i) TH's 04-01 to 04-10, 04-12 to 04-24, 04-31, and 04-33 to 04-50 (2004)
 - (ii) TH's 1 to 3 (1996)
 - (b) By Others
 - (i) TH A13 by KGS Group (1991)
 - (ii) TH's 3 to 6 by RM Hardy & Associates (1977)
 - (iii) TH 1 and 2 by Dyregrov Consultants (1993)
 - (c) Within the City of Winnipeg Water Treatment Plant Preliminary Design Report – Section 14 Geotechnical Investigation (2005), UMA Test Hole information is considered accurate at the locations drilled and at the time of the investigations. The inclusion of test hole data recorded by others does not represent any guarantees to the accuracy of this data.
 - (d) Test hole information is provided to assist in the Contractor's evaluation of subsurface conditions and the Contractor shall solely be responsible for any interpretation that they make from this information. Variations in soil conditions may exist between test holes and fluctuations in groundwater levels can be expected seasonally and may occur as a result of construction activities or operation of the Floodway.

E2.3 Test Pile Driving Records

- E2.3.1 Test_Pile_Driving_Records-Set1.pdf at the internet site identified in E2.2. shows data recorded by UMA Engineering Ltd. during driving of ten (10) test piles at the site in March, 2005.

E2.4 Clearwell Pile Driving Records

- E2.4.1 166-2005_Clearwell_Pile_Driving_Records.pdf at the internet site identified in E2.2. shows data recorded by Earth Tech Canada Ltd. during the construction of the Clearwell in 2005.

E2.5 Water Treatment Plant Pile Driving Records

- E2.5.1 Pile Driving Records for the Water Treatment Plant – Area F are provided at the internet site, identified as Pile_Driving_Records.pdf.

E2.6 Reports

- E2.6.1 Additional reports and geotechnical information listed as follows are available for viewing at the offices of Earth Tech Canada Inc., 850 Pembina Highway, Winnipeg, Manitoba.
- (a) The City of Winnipeg Water Treatment Plant Preliminary Design Report – Section 14 Geotechnical Investigation (2005)
 - (b) Water Impounding Reservoir - Cell #2 and Booster Pumping Station Deacon Manitoba by RM Hardy & Associates Ltd. (1977)
 - (c) Proposed Venturi Chambers Deacon Reservoir by Dyregrov Consultants (1993)
 - (d) Deacon Reservoir Expansion Proposed Groundwater Monitoring Program by KGS Group (1993)
 - (e) Shoal Lake Aqueduct Program 5 – Deacon Drainage Improvements by UMA Engineering Ltd. (1996)
 - (f) Pile Driving records from Deacon Booster Pumping Station by RM Hardy and Associates (1979).

Information in these reports has been provided to assist in the Contractor's evaluation of subsurface conditions and the Contractor shall solely be responsible for any interpretation that they make from this information.

E3. PILE CUT-OFF ELEVATIONS

- E3.1 The elevations for pile cut-offs shall be as shown on the Drawings. Should the top of the pile be driven below cut-off elevation by up to 1.8 metres, the Contractor shall construct a pile extension as shown on the Drawings at no additional cost to the City.
- E3.2 Should the top of pile be driven below cut-off elevation by more than 1.8 metres, the Contractor shall supply and install a replacement pile at a location designated by the Contract Administrator. The replacement pile will be paid as additional work to the Contract in accordance with C7.

E4. OFFICE AND SITE FACILITIES

- E4.1 The Contractor shall supply office facilities for his own use. The facilities shall be situated at the area designated on drawing CM G001.
- E4.2 With reference to drawing CM G001, the City will provide to the Contractor without cost:
- (a) Space for a 40A two pole breaker in the Temporary Power Supply adjacent to the rail line will be available to serve office lighting, receptacles and convenience power (electric space heating equipment is not allowed), the Contractor shall supply and install the breaker, cabling and the step down transformer (600v to 120/208v);

- (b) Space for a 40A two pole breaker in the Temporary Power Supply adjacent to the rail line will be available for a temporary site electrical panel to serve the Contractor's construction site power panel (use of electric space heating equipment is not allowed); the Contractor shall supply and install the breaker, cabling, site power panel and the step down transformer (600v to 120/208v);
- (c) Communications connections for two telephones and internet. The Contractor shall supply and install the telephone service from the City's existing telephone service pedestal that is located east of the DBPS compound entrance;
- (d) Onsite washroom and toilet facilities with non-potable water supply;
- (e) Unless otherwise specified, all required over-current protection, portable distribution panels and transformations, cables, conductors, grounding and other materials required to provide construction power for the Work shall be supplied and installed by the Contractor

E4.3 The Contractor may arrange for additional facilities with the approval of the Contract Administrator and at the Contractor's expense.

E5. SITE ROADS AND WORK SITE ACCESS

- E5.1 The Contractor shall have access to the Site on Business Days between 07:00 and 18:00 unless otherwise approved by the Contract Administrator.
- E5.2 Access to the work site is restricted and cooperation with other contractors on site is necessary in the best interest of all parties.
- E5.3 The Site is located on Provincial Road 207, 3.2 km north of Highway 1 in Dugald, Manitoba.
- E5.3.1 The Site address is PR 207, Lot 57082, Dugald, Manitoba.
- E5.4 Provincial Road 207 north of the GWWD rail crossing is a Class B1 road and is subject to load restrictions which will affect the maximum weight of individual deliveries. The approximately 3.2 km of PR 207 between the entrance to the Site and Highway 1 is a TAC Route.
- E5.5 Access to the Site is generally limited as follows:
- (a) From west of the Clearwell: Access to the Site from the west is generally limited to access via the temporary road from west of the Clearwell. The access road will be used by other contractors during the duration of this contract (maintenance will be shared accordingly) and will remain in place to be utilized by future contracts.
 - (b) From the south of the WTP: The permanent bridges and access roads as shown on drawing CM-G001 will be provided by others. The access roads will be used by other contractors during the duration of this contract (maintenance will be shared accordingly) and will remain in place to be utilized by future contracts.
- E5.6 Access to the Site will be interrupted approximately once a month for a duration of approximately four hours due to deliveries of chemical via the railway. Access will also be interrupted for a two day period due to the construction of the future surge tower overflow.
- E5.7 Maintenance and upkeep of the noted roads is the shared responsibility of all contractors who use the roads, including the Contractor.
- E5.8 Construction and removal, if necessary, of any additional access roads is the responsibility of this Contractor.

E6. FIELD ENGINEERING

- E6.1 The Contractor shall engage a qualified surveyor to layout the works and record as-constructed measurements for Record Drawings.

E6.2 The surveyor shall be a registered Manitoba Land Surveyor, or an instrumentman or surveying firm experienced in layout of similar projects, subject to the approval of the Contract Administrator.

E6.3 Survey reference points for horizontal and vertical control are indicated on the Drawings. The Contractor shall locate, confirm and preserve the reference points during construction.

E7. SITE DRAINAGE

E7.1 The Contractor shall be responsible for drainage of all excavations associated with the Work from Award until Total Performance.

E7.2 Provision of adequate site drainage during the performance of the Contract shall be the Contractor's responsibility. The Contractor shall maintain site grading as necessary to provide for proper drainage away from the excavated areas. This water is to be re-directed into ditches outside of the site. Silt fences shall be properly erected and keyed into the primary ditches to prevent eroded materials from leaving the site. No extra payment or time extension will be granted as a result of difficulties associated with site access resulting from poor site drainage during any part of the performance of the Work.

E8. SANITATION FACILITY

E8.1 Portable toilets may be provided by the Contractor. Any portable toilet shall be cleaned on a weekly basis and provided with regular maintenance as required to ensure proper operation.

E8.2 Portable toilets shall be located in an area acceptable to the Contract Administrator.

E9. WASTE CONTAINER

E9.1 A waste container to dispose of garbage produced from the Site shall be provided by the Contractor. It shall be located in a safe, convenient location, and be emptied as necessary by the Contractor. The provision, maintenance and removal of a waste container shall be considered a subsidiary obligation of the Contractor

E10. CONDITION, PROTECTION OF, AND ACCESS TO THE AQUEDUCT

E10.1 Condition of the Aqueduct and Existing Yard Piping

E10.1.1 The Deacon Booster Pumping Station and area contains numerous water conduits of various constructions and vintages. All are critical components of the City of Winnipeg Water Supply and shall be treated with the utmost caution. Work around any of these pipelines shall be well planned and executed to ensure that the Aqueduct and water transmission lines are not subjected to construction related loads, including excessive vibrations and concentrated or asymmetrical lateral loads during backfill placement.

E10.1.2 The Shoal Lake Aqueduct A Section, north of the main access road, between PR 207 and the existing DBPS compound is a 2438 mm diameter cast-in-place reinforced concrete pipe, vintage 1916-1917. The Branch I Aqueduct running east to west, immediately south of the Booster Pumping Station, commencing at the existing main entrance to the station, is constructed of precast reinforced concrete pipe, vintage 1918-1919. The Branch II Aqueduct, running southerly from the surge tower structure, is constructed of AWWA C301 pre-stressed concrete cylinder pipe vintage 1958-1960. Other existing water transmission lines within the Deacon Booster Pumping Station compound and adjacent areas, consist of AWWA C301 pre-stressed concrete cylinder pipe vintage 1970-1995. All of these pipelines have limited capacity to support additional soil cover and live loads beyond their original design condition.

E10.2 Protection of the Aqueducts and Water Transmission Lines

- E10.2.1 The Contractor, while carrying out repair work or working in the vicinity of the Aqueducts and transmission lines shall ensure that:
- (a) Equipment shall only be permitted to cross the pipes at designated locations. Under no circumstances will equipment be permitted to cross the A section of the Aqueduct other than at bridging structures.
 - (b) Granular material, construction material, soil or other material shall not be stockpiled on the Aqueduct or within 5 metres of the Aqueduct centerline.
 - (c) Construction practices shall not subject the Aqueduct to asymmetrical loading at any time.
 - (d) Construction practices or procedures at or near the Aqueduct shall not impart excessive vibration loads on the Aqueduct and/or cause settlement of the subgrade below the Aqueduct.
 - (e) Asymmetrical water pressures shall not be permitted to build up on one side of the Aqueduct arch.
 - (f) Further to CW 2030-R6, only smooth edged excavation buckets, soft excavation or hand excavation shall be used for excavation adjacent to and over the pipelines.

E10.2.2 It is the Contractors' responsibility to ensure that all work crew members understand, observe, and work to the requirements of Specifications.

E10.3 Equipment Restrictions

E10.3.1 Equipment must cross the Aqueduct in a responsible and careful manner (i.e. slowly).

E10.3.2 Loads for Highway No. 207 shall be limited to the weight restrictions in place for the road unless otherwise permitted.

E11. ENVIRONMENTAL PROTECTION

E11.1 The Contractor shall be aware that the Aqueduct is for potable water supply and no contamination by fuel, chemicals, etc. shall be permitted at any time. Fuels or chemicals shall not be stored within 30 metres of the Aqueduct.

E11.2 The Contractor shall plan and implement the Work of this Contract strictly in accordance with the requirements of the environmental protection measures as herein specified.

E11.3 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

E11.3.1 Federal

- (a) Canadian Environmental Protection Act (CEPA) c.16
- (b) Transportation of Dangerous Goods Act and Regulations c.34

E11.3.2 Provincial

- (a) The Dangerous Goods Handling and Transportation Act D12
- (b) The Endangered Species Act E111
- (c) The Environment Act c.E125
- (d) The Fire Prevention Act F80
- (e) The Manitoba Nuisance Act N120
- (f) The Public Health Act c.P210
- (g) The Workplace Safety and Health Act W120
- (h) Current applicable associated regulations.
- (i) The Fisheries Act
- (j) The Migratory Birds Act

(k) The Historic Resources Act

(l) Drinking Water Safety Act

E11.3.3 The Contractor is advised that the following environmental protection measures apply to the Work.

E11.3.4 Materials Handling and Storage

(a) Construction materials shall not be stored within ten (10) metres of the Aqueduct centerline without the approval of the Contract Administrator.

E11.3.5 Fuel Handling and Storage

(a) The Contractor shall abide by the requirements of Manitoba Conservation storage and handling of Petroleum Products and Allied Products Regulations for handling and storage of fuel products.

(b) All fuel handling and storage facilities shall comply with The Dangerous Goods and Transportation Act Storage and Handling of Petroleum Products Regulation and any local land use permits.

(c) Fuels, lubricants, and other potentially hazardous materials as defined in The Dangerous Goods and Transportation Act shall be stored and handled within the approved storage areas.

(d) The Contractor shall ensure that all fuel storage containers are inspected daily for leaks and spillage.

(e) Products transferred from the fuel storage area(s) to specific work sites shall not exceed the daily usage requirement.

(f) When servicing requires the drainage or pumping of fuels, lubricating oils or other fluids from equipment, a groundsheet of suitable material (such as HDPE) and size shall be spread on the ground to catch the fluid in the event of a leak or spill. No repairs within 30 m of aqueduct or watercourse will be permitted.

(g) Refuelling of mobile equipment and vehicles shall take place at least 30 m from a watercourse.

(h) The area around storage sites and fuel lines shall be distinctly marked and kept clear of snow and debris to allow for routine inspection and leak detection.

(i) A sufficient supply of materials, such as absorbent material and plastic oil booms, to clean up minor spills shall be stored nearby on-site. The Contractor shall ensure that additional material can be made available on short notice. All refuelling vehicles shall be equipped with a spill response kit.

E11.3.6 Waste Handling and Disposal

(a) The construction area shall be kept clean and orderly at all times during and at completion of construction.

(b) At no time during construction shall personal or construction waste be permitted to accumulate for more than one day at any location on the construction site, other than at a dedicated storage area as may be approved by the Contract Administrator.

(c) Indiscriminate dumping, littering, or abandonment shall not take place.

(d) No on-site burning of waste is permitted.

(e) Equipment shall not be cleaned within 30 m of watercourses; contaminated water from onshore cleaning operations shall not be permitted to enter watercourses.

E11.3.7 Dangerous Goods/Hazardous Waste Handling and Disposal

(a) Dangerous goods/hazardous waste are identified by, and shall be handled according to, The Dangerous Goods Handling and Transportation Act and Regulations.

- (b) The Contractor shall be familiar with The Dangerous Goods Handling and Transportation Act and Regulations and meet training requirements for these Regulations.

E11.3.8 Emergency Spill Response

- (a) The Contractor shall ensure that due care and caution is taken to prevent spills.
- (b) The Contractor shall report all major spills of petroleum products or other hazardous substances with the potential for impacting the environment and threat to human health and safety to the Contract Administrator and Manitoba Conservation, immediately after occurrence of the environmental accident, by calling the 24-hour emergency telephone phone number (204) 945-4888.
- (c) The Contractor shall designate a qualified supervisor as the on-site emergency response coordinator for the project. The emergency response coordinator shall have the authority to redirect manpower in order to respond in the event of a spill. (Should include reference to a site-specific Emergency Response Plan and Environmental Protection Plan.)
- (d) The following actions shall be taken by the person in charge of the spilled material or the first person(s) arriving at the scene of a hazardous material accident or the on-site emergency response coordinator:
 - (i) Notify emergency-response coordinator of the accident:
 - identify exact location and time of accident
 - indicate injuries, if any
 - request assistance as required by magnitude of accident Manitoba Conservation 24-hour Spill Response Line (204) 945-4888, RCMP (Oakbank Detachment) (911), City of Winnipeg Fire Department (911), Springfield Ambulance (911), company backup, contact Contract Administrator.
 - (ii) Assess situation and gather information on the status of the situation, noting:
 - personnel on site
 - cause and effect of spill
 - estimated extent of damage
 - amount and type of material involved
 - proximity to waterways and the Aqueduct
 - (iii) If safe to do so, try to stop the dispersion or flow of spill material:
 - approach from upwind
 - stop or reduce leak if safe to do so
 - dyke spill material with dry, inert sorbent material or dry clay soil or sand
 - prevent spill material from entering waterways and utilities by dyking
 - prevent spill material from entering Aqueduct manholes and other openings by covering with rubber spill mats or dyking
 - (iv) Resume any effective action to contain, clean up, or stop the flow of the spilled product.

E11.4 The emergency response coordinator shall ensure that all environmental accidents involving contaminants shall be documented and reported to the Manitoba Conservation according to The Dangerous Goods Handling and Transportation Act Environmental Accident Report Regulation 439/87.

E12. SITE RESTORATION

- E12.1 The Contractor shall remove the temporary Site office and storage facilities prior to Total Performance.
- E12.2 The Contractor will be responsible for grounds restoration, as determined necessary by the Contract Administrator.
- E12.3 The Contractor will be responsible for any damage caused by his forces on roadways or accesses.

E13. MATERIAL SAFETY DATA SHEETS

- E13.1 The Contractor shall provide the Contract Administrator with one (1) copy of Material Safety Data Sheets (MSDS's) for all products to used in the performance of the Work at least two (2) Business Days prior to bringing such materials to Site or as otherwise specified in the Contract Documents.
- E13.2 Throughout the term of the Contract, the Contractor shall provide the Contract Administrator with revisions or updates of the MSDS's as soon as may be reasonably possible.

E14. SHOP DRAWING SUBMITTAL LIST

- E14.1 Within forty (40) Business Days notification of the Award of Contract by the way of Letter of Intent, the Contractor shall submit a complete list of all required submittals with specification Section numbers, description of item and estimated dates for submittals. This submittal list must be in electronic spreadsheet format in Microsoft Excel software.

E15. RECORD DRAWINGS

- E15.1 The Contractor shall keep one (1) complete set of white prints at their Site office, including all Addenda, Change Orders, Field Instructions, and other revisions for the purposes of Record Drawings. As the Work proceeds, the Contractor shall clearly record in red pencil all as-built conditions which deviate from the original Contract documents.
- E15.2 The Record Drawings shall be available for review by the Contract Administrator upon request at any time during the performance of the Work.
- E15.3 Prior to achieving Substantial Performance, the Contractor shall submit the Record Drawings prepared to the Contract Administrator for his review and use. If, in the opinion of the Contract Administrator, the Record Drawings are incomplete or inaccurate, the Record Drawings will be returned to the Contractor and the Contractor shall revise and resubmit the Record Drawings at his cost.
- E15.4 Substantial Performance cannot be achieved without the submission of Record Drawings that are acceptable to the Contract Administrator.