

Canada 



Manitoba 

**THE CITY OF WINNIPEG**

# **BID OPPORTUNITY**

**BID OPPORTUNITY NO. 1058-2013**

**PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT  
SUBDIVISION: IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES  
RELOCATION WORKS**

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**WORK PACKAGES**

5421-B-SR-00001	IOL Cased Bore Crossing (Phase 1)
5421-B-SR-00002	IOL NPS 10 Relocation (Phase 3)
5421-B-SR-00003	Shell Canada Horizontal Direction Drill Crossing (Phase 2)

## APPENDICIES

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### APPENDIX B: CN SAFETY REQUIREMENTS AND WORK PERMIT FORM

### APPENDIX C: ALS ENVIRONMENTAL ANALYTICAL REPORT

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## DRAWINGS

<u>City of Winnipeg Drawing No.</u>	<u>Consultant Drawing No.</u>	<u>Drawing Name/Title</u>
U238-2014-3000	1800-000	Cover Sheet
U238-2014-3001	1800-001	Drawing Index
U238-2014-3004	1802-001	Pipeline Cased Bore Railway Crossing WPL NPS 8 Gretna to Transcona
U238-2014-3005	1802-002	Pipeline Cased Bore Railway Crossing WPL NPS 10 Gretna to Imperial Oil Ltd.
U238-2014-3006	1801-003	WPL NPS 10 Gretna to Imperial Oil Ltd. Pipeline Replacement Plan and Profile – IOL North of Valve Station
U238-2014-3007	1801-004	Pipeline HDD Plan & Profile (2) Shell 200 mm Pipelines (1962 & 1975) Plessis Road Crossings
U238-2014-3008	1701-001	Transcona Valve Station Tie-in Location Piping Plan
U238-2014-3009	1701-002	Transcona Valve Station Tie-in Location Piping Sections
U238-2014-3010	1800-001	Typical Trench Detail

## **PART B - BIDDING PROCEDURES**

### **B1. CONTRACT TITLE**

**B1.1 PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT SUBDIVISION:  
IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES RELOCATION WORKS**

### **B2. SUBMISSION DEADLINE**

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, February 7, 2014.

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, a site meeting will be held to provide Bidders access within the CN right-of-way and proposed Contract 4 site on Thursday, January 30, 2014 at 1:30 p.m. Meet at the Contract Administrator Field Office at 1168 Plessis Road. The office is accessible via Plessis Avenue from the north. There is no access from Dugald Avenue. No additional site visits on Railway property will be permitted without prior arrangements with the Contract Administrator.

B3.2 The Bidder is required to complete CN's Contractor Orientation Training as outlined in Appendix "B", prior to entering CN property for the site investigation.

B3.3 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. CONFIDENTIALITY**

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

(a) was known to the Bidder before receipt hereof; or

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

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

## **B6. ADDENDA**

B6.1 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.

B6.2 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.

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

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

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

## **B7. SUBSTITUTES**

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 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 in accordance with B7;
- (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 in accordance with B7, 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.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute in accordance with B7, may in his/her 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.
- B7.6 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.
- B7.6.1 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/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her 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 B16.
- B7.9 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.
- B7.10 Notwithstanding B7.2 to B7.9, and in accordance with B8.6 deviations inconsistent with the Bid Opportunity document shall be evaluated in accordance with B16.1(a).

## **B8. BID COMPONENTS**

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
  - (b) Form B: Prices;
  - (c) Bid Security;
    - (i) Form G1: Bid Bond and Agreement to Bond, or
    - (ii) Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
    - (iii) a certified cheque or draft;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 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.
- B8.4 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.
- B8.4.1 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.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).

B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.8 Bids shall be submitted to:

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

**B9. BID**

B9.1 The Bidder shall complete Form A: Bid, making all required entries.

B9.2 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/her own name, his/her 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/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 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.

B9.4 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/her 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; and
- (d) if the Bidder is carrying on business under a name other than his/her 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.

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.5 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.

**B10. PRICES**

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.



B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

## **B11. QUALIFICATION**

B11.1 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.

B11.2 The Bidder and 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 Division website at <http://www.winnipeg.ca/matmgt/debar.stm>

B11.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have been previously qualified and approved by Imperial Oil Ltd. (IOL) to conduct pipeline work as detailed in the Specifications.
- (e) employ key staff who have successfully carried out comparable work for IOL as that detailed in the Specifications.
- (f) have been previously qualified and approved by Shell Canada (SC) to conduct pipeline work as detailed in the Specifications.
- (g) employ key staff who have successfully carried out comparable work for SC as that detailed in the Specifications.

B11.4 Further to B11.3(c), the Bidder shall, within five (5) 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 Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ 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 Division website at <http://www.winnipeg.ca/matmgt/>)

B11.5 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.

B11.6 The Bidder may be required to submit, within three (3) Business Days of a request by the Contract Administrator, a letter confirming IOL acceptance of Bidder and any proposed subcontractors conducting works within IOL Right of Way satisfactory to the Contract Administrator.

IOL contact regarding Bidder eligibility is:

Mr. Shadan Anwar, P. Eng.

Senior Project Manager, Canada Fuels Operations – Midstream Organization  
Imperial Oil Limited

Telephone No.: (403) 237-3658

B11.7 The Bidder may be required to submit, within three (3) Business Days of a request by the Contract Administrator, a letter confirming SC acceptance of Bidder and any proposed subcontractors conducting works within SC Right of Way satisfactory to the Contract Administrator.

SC contact regarding Bidder eligibility is:

Mrs. Heather Adam

Project Development Engineer, Supply and Distribution  
Shell Pipeline Company Ltd.

Telephone No.: (713) 241-6469

B11.8 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.

## **B12. BID SECURITY**

B12.1 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.

B12.1.1 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.

B12.1.2 All signatures on bid securities shall be original.

B12.1.3 The Bidder shall sign the Bid Bond.

B12.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B12.2 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.

- B12.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B12.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.
- B12.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.
- B12.3 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.

### **B13. OPENING OF BIDS AND RELEASE OF INFORMATION**

- B13.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.
  - B13.1.1 Bidders or their representatives may attend.
  - B13.1.2 Bids determined by the Manager of Materials, or his/her designate, to not include the bid security specified in B12 will not be read out.
- B13.2 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 Division website at <http://www.winnipeg.ca/matmgt/>
- B13.3 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 Division website at <http://www.winnipeg.ca/matmgt/>
- B13.4 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.

### **B14. IRREVOCABLE BID**

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.
- B14.2 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.

### **B15. WITHDRAWAL OF BIDS**

- B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
  - B15.1.1 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.
  - B15.1.2 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.

- B15.1.3** 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 B15.1.3 (b), declare the Bid withdrawn.
- B15.2** A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 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.

## **B16. EVALUATION OF BIDS**

- B16.1** 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, or acceptable deviation there from (pass/fail);
  - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B11 (pass/fail);
  - (c) Total Bid Price;
  - (d) economic analysis of any approved alternative pursuant to B7.
- B16.2** Further to B16.1(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.
- B16.3** Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B16.4** Further to B16.1(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.
- B16.4.1** Further to B16.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

## **B17. AWARD OF CONTRACT**

- B17.1** The City will give notice of the award of the Contract or will give notice that no award will be made.
- B17.2** 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.
- B17.2.1** Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:
- (b) the prices exceed the available City funds for the Work;
  - (c) the prices are materially in excess of the prices received for similar work in the past;
  - (d) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
  - (e) only one Bid is received; or

- (f) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

**B17.3** 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, in accordance with B16.

**B17.3.1** Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

## **PART C - GENERAL CONDITIONS**

### **C1. GENERAL CONDITIONS**

- C1.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C1.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at [http://www.winnipeg.ca/matmgt/gen\\_cond.stm](http://www.winnipeg.ca/matmgt/gen_cond.stm)
- C1.2 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

- (a) Phase I – Imperial Oil Ltd. (IOL) Pipelines Relocation under the CN Main Track and Shoofly
  - (i) Install new NPS 8 and NPS 10 carrier lines with cased crossing
  - (ii) Remove and dispose of abandoned pipe sections
  - (iii) Abandon-in-place existing pipe casings under the CN Main Track and Shoofly
- (b) Phase II – Shell Canada (SC) Pipelines Relocation under Plessis Road
  - (i) Install new two (2) 200 mm lines under Plessis Road by horizontal directional drilling
  - (ii) Remove and dispose of abandoned pipe segments
- (c) Phase III – IOL Pipeline Relocation North of the Valve Station
  - (i) Install new NPS 10 carrier line in open trench system
  - (ii) Remove and dispose of abandoned pipe segments

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

- (a) Phase I – IOL Pipelines Relocation under the CN Main Track and Shoofly
  - (i) Supply of steel carrier and casing pipe and coatings
  - (ii) Excavate/fill as required
  - (iii) Installation of casing pipes by horizontal directional drilling
  - (iv) Installation of carrier lines
  - (v) Hydrostatic Pressure Testing of carrier pipes
  - (vi) Removal and disposal of abandoned steel carrier pipe
  - (vii) Abandonment of old casing sections
  - (viii) Site restoration
- (b) Phase II – SC Pipeline Relocation under Plessis Road
  - (i) Supply of steel pipe and coatings
  - (ii) Excavate/Fill as required
  - (iii) Installation of carrier lines pipes by horizontal directional drilling
  - (iv) Hydrostatic Pressure Testing of carrier pipes
  - (v) Removal and disposal of abandoned piping
  - (vi) Site restoration
- (c) Phase III – IOL Pipeline Relocation North of the Valve Station
  - (i) Supply of steel pipe and coatings
  - (ii) Excavate/Fill as required
  - (iii) Installation of carrier line piping by open cut excavation
  - (iv) Hydrostatic pressure testing of carrier pipe

- (v) Removal and disposal of abandoned piping
- (vi) Site restoration

### D3. DEFINITIONS

#### D3.1 When used in this Bid Opportunity:

- (a) **“Contract 1”** means the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision: Rail Shoofly Grade Preparation and Miscellaneous Wastewater Sewer, Watermain and Land Drainage Works;
- (b) **“Contract 2”** means the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision: Shoofly Track Installation and Permanent Track Construction at Mileage 246.64;
- (c) **“Contract 3”** means the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision: Plessis Road Reconstruction, Underpass Structures, Pumping Station, Land Drainage Sewer and Miscellaneous Underground and Landscaping Works;
- (d) **“Contract 4”** means the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision: Imperial Oil Ltd. and Shell Canada Pipelines Relocation Works;
- (e) **“CN”** means Canadian National Railway Company or designated representative;
- (f) **“Fabricator”** means a person or entity having a direct contract with the Contractor to construct by combining or assembling diverse, typically standardized parts;
- (g) **“IOL”** means Imperial Oil Limited or designated representative;
- (h) **“Manufacturer”** means a person or entity having a direct contract with the Contractor to manufacture products not worked to a special design for the Work;
- (i) **“Project”** means the construction of an underpass and bi-directional rail bridge, and relocation and improvement of certain roadways and intersections, involving certain sections of Plessis Road, Pandora Avenue West and Dugald Road in east Winnipeg, including the Work of Contracts 1 to 4;
- (j) **“Protecting Foreman (also referred to as CN Assigned Employee)”** means the CN employee or Contractor employee qualified in the Canadian Rail Operation Rules (CROR) and CN requirements. Protecting Foremen are responsible for protecting employees against Railway traffic. Protecting Foremen are charged solely with the safe movement of trains and are not responsible for the safety of the Contractor, the Contractor’s personnel or the Contractor’s equipment; and
- (k) **“Down Time Related to Railway Operations”** means the time from when the Protecting Foreman advises the Contractor to shut down their operations until they are advised by the Protecting Foreman it is safe to resume their operations.
- (l) **“SC”** means Shell Canada or designated representative.

#### D3.2 Within the text of the Specifications, reference may be made to the following acronyms in relation to codes, standards and organizations:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
APHA	American Public Health Association
API	American Petroleum Institute



AREMA	American Railway Engineering and Maintenance-of-Way Association
ASCE	American Society of Civil Engineers
ASCII	American Standard Code for Information Interchange
ASTM	ASTM International (formerly American Society for Testing and Materials)
ATP	Active Transportation Pathway
AWS	American Welding Society
CAN	National Standard of Canada
CBM	Certified Ballast Manufacturers
CCA	Canadian Construction Association
CCMC	Canadian Construction Materials Centre
CGA	Canadian Gas Association
CGSB	Canadian General Standards Board
CISC	Canadian Institute of Steel Construction
CIU	Canadian Institute of Underwriters
CMAA	Crane Manufacturers Association of America
CPCA	Canadian Paint and Coatings Association
CSA	Canadian Standards Association
CSPI	Corrugated Steel Pipe Institute
CWB	Canadian Welding Bureau
EJMA	Expansion Joint Manufacturers Association
ETL	Intertek Testing Services (formerly ETL Testing Laboratories)
FM	Factory Mutual Engineering Corporation
IAO	Insurers' Advisory Organization
ICC	International Code Council
ISA	International Society of Automation
ISO	International Organization for Standardization
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
NACE	NACE International (formerly National Association of Corrosion Engineers)
NEB	National Energy Board (Canada)
NRC	National Research Council Canada
NSF	National Sanitation Foundation
OSHA	Occupational Safety & Health Administration (USA)
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
RSIC	Reinforcing Steel Institute of Canada
SAE	Society of Automotive Engineers
SI	International System of Units
SIS	Swedish Institute of Standard Specifications

SSPC	The Society for Protective Coatings
TIAC	Thermal Insulation Association of Canada
UL	Underwriters Laboratories Inc.
ULC	Underwriters Laboratories of Canada
WCB	Workers Compensation Board (Manitoba)

D3.3 Where the edition, version or revision date of a referenced regulation, code or standard is not identified, conform to the latest edition or revision of the referenced regulation, code or standard, including amendments and revisions.

D3.3.1 Where a regulation, code or standard stipulates the edition, version or revision date of a subordinate regulation, code or standard, conform to the stipulated edition, version or revision of the subordinate regulation, code or standard to the extent of the primary regulation, code or standard.

#### **D4. CONTRACT ADMINISTRATOR**

D4.1 The Contract Administrator is AECOM, represented by:

Marshall Gibbons  
Technologist, Community Infrastructure  
99 Commerce Drive, Winnipeg, Manitoba R3P 0Y7  
Telephone No. 204 928-9256  
Facsimile No. 204 284-2040

D4.2 At the pre-construction meeting, Marshall Gibbons will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4.3 Bid Submissions must be submitted to the address in B8.8.

#### **D5. CONTRACTOR'S SUPERVISOR**

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

D5.2 At least two (2) business days prior to the commencement of any Work on the site, the Contractor shall provide the Contract Administrator with a phone number where the supervisor identified in D5.1 or an alternate can be contacted twenty-four (24) hours a day to respond to an emergency.

#### **D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE**

D6.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D6.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
- (b) the Contract, all deliverables produced or developed; and
- (c) any statement of fact or opinion regarding any aspect of the Contract.

D6.4 The Work Packages that form a portion of Division E make reference to proprietary standards of IOL and SC. These documents are not included with the bid documents and will be provided post award to the successful bidder once confidentiality agreements with IOL and SC have been executed.

D6.5 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

#### **D7. NOTICES**

D7.1 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 facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.

D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at facsimile number identified in D4.1.

D7.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg  
Chief Financial Officer

Facsimile No.: 204 949-1174

D7.4 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 facsimile number:

The City of Winnipeg  
Legal Services Department  
Attn: Director of Legal Services

Facsimile No.: 204 947-9155

#### **D8. FURNISHING OF DOCUMENTS**

D8.1 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**

#### **D9. AUTHORITY TO CARRY ON BUSINESS**

D9.1 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.

#### **D10. SAFE WORK PLAN**

D10.1 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.

D10.2 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 Division website at  
<http://www.winnipeg.ca/matmgmt/Safety/default.stm>

- D10.3 Notwithstanding D10.1, D10.2, and Appendix "B" CN Safety Requirements and CN Work Permit Form, the Contractor shall conform and operate in accordance with the CN "Safety Guidelines for Contractor's" for works within CN Right of Way.

## **D11. INSURANCE**

- D11.1 The Contractor shall provide and maintain the following insurance coverage to remain in place at all times during the performance of the Work:

- D11.1.1 General liability insurance in an amount of no less than ten million dollars (\$10,000,000) inclusive, covering bodily injury, property damage, personal injury, products and completed operations, the City of Winnipeg and the Canadian National Railway, the Province of Manitoba, the Federal Government of Canada and their ministers, officers, employees and agents, Imperial Oil Ltd. and Shell Canada as additional insured, contractual liability, cross liability clause or severability of interest, contingent employers liability, unlicensed motor vehicle liability, owner and contractors protective, no XCU exclusion, and non-owned automobile liability. Such policy to specifically include liability for operations within or around railroads and railway tracks, contain a waiver of subrogation right in favour of the City and the Canadian National Railway and remain in force at all times during the performance of the Work and 36 months after total completion;
- D11.1.2 An all risks installation floater carrying adequate limits to cover all supplies and/or materials intended to enter into and form part of the Work;
- D11.1.3 All risk property insurance for equipment and tools used on the Project that may be owned, rented, leased or borrowed and will contain a waiver of subrogation right in favour of the City and the Canadian National Railway;
- D11.1.4 Automobile liability insurance covering all motor vehicles owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The limit of liability shall not be less than five million dollars (\$5,000,000) inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
- D11.1.5 Project specific Contractors Pollution Liability (CPL) insurance in the amount of at least five million dollars (\$5,000,000) per occurrence and five million dollars (\$5,000,000) aggregate insuring against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder performed by the Contractor, its agents, representatives, employees or subcontractors. Coverage to include:
- (a) bodily injury, sickness, disease, mental anguish or shock sustained by any person, including death;
  - (b) property damage including physical injury to or destruction of tangible property and the resulting loss of use thereof; loss of use of tangible property that has not been physically injured or destroyed; diminution in value; and Natural Resource Damages;
  - (c) clean-up costs (including restoration/replacement costs);
  - (d) defense including costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages.
  - (e) transported cargo and Non-Owned Disposal Sites (blanket basis)

Coverage shall apply to both sudden and gradual pollution conditions, including the further disruption of pre-existing conditions, arising from the services rendered by the Contractor or others on their behalf. Further, coverage shall apply to conditions on, at, under and emanating from the job site including the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, structures thereupon, the atmosphere or any watercourse or body of water, which results in any loss or damages

defined above. Coverage shall not contain any "Insured vs Insured" exclusions preventing the City from bringing a claim against the Contractor, nor any restrictions for property of others in the care, custody or control of the Contractor.

CPL to remain in place during the performance of the Work and for 24 months after completion.

- D11.2 Deductibles shall be borne by the Contractor or Subcontractor.
- D11.3 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D11.4 The Contractor shall not cancel, or cause any such policy or policies to lapse without a minimum thirty (30) days prior written notice to the City.
- D11.5 The Contractor shall provide the Contract Administrator with evidence of insurance 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 the Contract. The evidence shall be in a form of a certificate of insurance and must be satisfactory to the City Solicitor.
- D11.6 All policies shall be in a form satisfactory to the City and shall be kept in full force during the Work and throughout the warranty period.

## **D12. PERFORMANCE SECURITY**

- D12.1 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.
- D12.1.1 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.
- D12.2 If the bid security provided in his/her Bid was not a certified cheque or draft pursuant to B12.1(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.

## **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. EQUIPMENT LIST**

- D14.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment 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.

## **D15. DETAILED WORK SCHEDULE**

D15.1 The Contractor shall provide the Contract Administrator with a detailed work schedule 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.

D15.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work; and
- (b) a Gantt chart for the Work based on the C.P.M. schedule;

all acceptable to the Contract Administrator.

D15.3 Further to D15.2 (a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) Phase I – IOL Pipelines Relocation under the CN Main Track and Shoofly
  - (i) Supply of steel carrier and casing pipe and coatings
  - (ii) Excavate/fill as required
  - (iii) Installation of casing pipes by horizontal directional drilling
  - (iv) Installation of carrier lines
  - (v) Hydrostatic Pressure Testing of carrier pipes
  - (vi) Pigging, purging and tie-in of new piping to existing pipelines by IOL
  - (vii) Removal and disposal of abandoned steel carrier pipe
  - (viii) Abandonment of old casing pipe sections under the CN Main Track
  - (ix) Site restoration
- (b) Phase II – SC Pipeline Relocation under Plessis Road
  - (i) Supply of steel pipe and coatings
  - (ii) Excavate/Fill as required
  - (iii) Installation of carrier lines pipes by horizontal directional drilling
  - (iv) Hydrostatic Pressure Testing of carrier pipes
  - (v) Pigging, purging and tie-in of new piping to existing pipelines by SC
  - (vi) Removal and disposal of abandoned piping
  - (vii) Site restoration
- (c) Phase III – IOL Pipeline Relocation North of the Valve Station
  - (i) Supply of steel pipe and coatings
  - (ii) Excavate/Fill as required
  - (iii) Installation of carrier line piping by open cut excavation
  - (iv) Hydrostatic pressure testing of carrier pipe
  - (v) Pigging, purging and tie-in of new piping to existing pipeline by IOL
  - (vi) Removal and disposal of abandoned piping
  - (vii) Site restoration

D15.4 Further to D15.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or Specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D15.5 In addition to all other schedules the Contractor is required to submit a detailed breakdown in 15 min increments of all work to be performed during any main track blocks. This is to be submitted a minimum of seven (7) days prior to the requested block date. Included with this submission will be a list of all equipment and personnel that will be on-site to support the planned work during the block. The equipment and personnel shall be of a sufficient number to provide redundancy such that any failures do not cause the time limits of the block to be exceeded.

## **D16. ENVIRONMENTAL PROTECTION PLAN**

D16.1 Prior to commencing construction activities or delivery of materials to Site, submit an Environmental Protection Plan for review and approval by Contract Administrator. The Environmental Protection Plan shall present a comprehensive plan to address known or potential environmental issues which may be present during construction. Where applicable, the Environmental Protection Plan shall include sub-contractor activities. The submission of the Environmental Protection Plan to the Contract Administrator shall in no way relieve the Contractor of full responsibility for the success or failure of all environmental management practices and procedures.

D16.2 The Contractor is advised that at least the following Acts, Regulations, and By-laws apply to the Work:

(a) Federal

- (i) Canadian Environmental Assessment Act (CEAA) C.37;
- (ii) Fisheries Act C.F-14;
- (iii) Transportation of Dangerous Goods Act and Regulations C.34;
- (iv) Navigable Waters Protection Act; and
- (v) National Energy Board Act.

(b) Provincial

- (i) The Dangerous Goods Handling and Transportation Act D12;
- (ii) The Endangered Species Act E111;
- (iii) The Environment Act C.E125;
- (iv) The Fire Prevention Act F80;
- (v) The Manitoba Heritage Resources Act H39-1;
- (vi) The Manitoba Noxious Weeds Act N110;
- (vii) The Manitoba Nuisance Act N120;
- (viii) The Public Health Act C.P210;
- (ix) The Workplace Safety and Health Act W210;
- (x) Current applicable Associated Regulations (Note: Provincial Regulations updated as of September 1999); and
- (xi) The Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat, Manitoba National Resources, 1996.
- (xii) The Pesticides and Fertilizer Control Act, C.C.S.M. c.P40

(c) Municipal

- (i) The City of Winnipeg By-law No. 1/2008 and all amendments up to and including 110/2012;
- (ii) The City of Winnipeg By-law No. 1573/77 and all amendments up to and including 154/2012; and
- (iii) Any other applicable Acts, Regulations, and By-laws.

D16.3 The Environmental Protection Plan shall address the following:

- (a) Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

- (b) Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from Site.
- (c) Name[s] and qualifications of person[s] responsible for training Site personnel.
- (d) Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- (e) Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features including vegetation to be preserved within authorized Work areas.
- (f) Environmental Emergency Response: including procedures, instructions, and reporting in the event of unforeseen spill of regulated substance.
- (g) Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- (h) Hazardous materials and waste management plan outlining storage, transportation and disposal.
- (i) Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project Site.
- (j) Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- (k) Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete wash or curing water, clean-up water, dewatering of ground water, hydrostatic test water, and water used in flushing of lines.
- (l) Monitor and report to ensure implementation of environmental protection measures.

#### D16.4 Fires

- (a) Fires and burning rubbish or waste materials on Site is not permitted.

#### D16.5 Disposal of Waste

- (a) Dispose all waste at licensed facilities or with licensed haulers.
- (b) All waste disposal grounds receiving debris and construction waste from this project must be operated under the authority of a valid permit issued pursuant to MR 150 (latest edition) Waste Disposal Grounds Regulation under the Environment Act.
- (c) Dispose of all sewage and seepage from the on-site sanitary facilities in accordance with the Onsite Wastewater Management Systems Regulation MR 83/2003.
- (d) Do not bury waste materials on Site.
- (e) Do not dispose of solid or liquid wastes in drains or waterways.

#### D16.6 Hazardous Waste

##### D16.6.1 Definitions

- (a) Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in the Dangerous Goods Handling and Transportation Act or regulations including hazardous materials and wastes.
- (b) Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.



- (c) Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- (d) Workplace Hazardous Materials Information System (WHMIS): a Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

D16.6.2 Materials Management

- (a) Only bring on Site quantity of hazardous materials required to perform Work.
- (b) Maintain MSDSs in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.
- (c) Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

D16.6.3 Storage and Handling

- (a) Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
  - i) Sign storage areas;
  - ii) Store and handle flammable and combustible materials in accordance with current Manitoba and National Fire Code of Canada requirements;
  - iii) Do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices;
  - iv) Do not use flammable liquids having flash point below 38 degrees C, such as naphtha or gasoline as solvents or cleaning agents;
  - v) Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum; and
  - vi) Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- (b) Keep no more than 100 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
  - i) Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada (ULC) Certified Mark or Factory Mutual (FM) Approved Mark;
  - ii) Storage of quantities of flammable and combustible liquids exceeding 100 litres for Work purposes requires the written approval of the Contract Administrator; and
  - iii) Fuel storage exceeding 100 litres shall be a minimum distance of 100 metres from any water body and in compliance with the requirements of the Storage and Handling of Petroleum Products and Allied Products Manitoba Regulation 188/2001 of the Dangerous Goods Handling and Transportation Act.
- (c) Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
  - i) Store hazardous materials and wastes in closed and sealed containers;
  - ii) Label containers of hazardous materials and wastes in accordance with WHMIS;
  - iii) Store hazardous materials and wastes in containers compatible with that material or waste;
  - iv) Segregate incompatible materials and wastes. Ensure that different hazardous materials or hazardous wastes are not mixed;
  - v) Store hazardous materials and wastes in secure storage area with controlled access;

- vi) Maintain clear egress from storage area;
- vii) Store hazardous materials and wastes in location that will prevent them from spilling into environment;
- viii) Store products on spill trays or berms with 110% capacity;
- ix) Do not store within 30 metres of a waterway or drain;
- x) Have appropriate emergency spill response equipment available near storage area, including personal protective equipment; and
- xi) Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began and disposal occurred. Maintain tipping and other disposal receipts.

(d) Report spills or accidents immediately:

- i) to the Contract Administrator;
- ii) to Manitoba Conservation Accident Reporting Line at 204-944-4888 in accordance with Manitoba Regulation 439/87 of the Dangerous Goods and Transportation Act; and
- iii) Submit a written spill report to the Contract Administrator outlining cause and proposed corrective action and Manitoba Conservation as required. Provide copies of reports submitted to Manitoba Conservation to the Contract Administrator.

D16.6.4 Transportation

- (a) Transport hazardous materials and wastes in accordance with the Manitoba Dangerous Goods Handling and Transportation Act.
- i) Ensure that trained personnel handle, offer for transport, or transport dangerous goods;
  - ii) Use licensed carrier authorized by provincial authorities to accept subject material;
  - iii) Label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations;
  - iv) Provide photocopy of shipping documents and waste manifests to the Contract Administrator;
  - v) Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to the Contract Administrator; and
  - vi) Report discharge, emission, or escape of hazardous materials immediately to the Contract Administrator and appropriate provincial authority. Take measures to control release.

D16.6.5 Disposal

- (a) Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- i) Recycle hazardous wastes for which there is approved, cost effective recycling process available;
  - ii) Send hazardous wastes to authorized hazardous waste disposal or treatment facilities;
  - iii) Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited; and
  - iv) Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

## D16.7 Erosion and Sediment Control

### D16.7.1 General

- (a) Develop an erosion control plan to control negative impacts on water and air quality; plan should meet these objectives:
  - i) Prevent loss of soil during construction by storm water run-off and wind erosion;
  - ii) Protect against erosion from stockpiled topsoil aggregates; and
  - iii) Prevent sedimentation of the land drainage system and receiving streams with dust, particulate matter or eroded sediment.
- (b) Supply, install, maintain and remove (as applicable and when no longer required) effective sediment control barriers and erosion control before starting Work that may result in the deposit of sediment into a ditch or water body to avoid potential impacts to fish and fish habitat.
  - i) Erosion and sediment control measures and installations include, as required, silt socks around storm drains, silt fence barriers, erosion control blanket, straw wattles, and geotextile fabric as appropriate; and
  - ii) Routinely inspect all erosion and sediment control measures and installations and immediately repair any deficiencies.

### D16.7.2 Work to Adjacent Waterways

- (a) Do not operate construction equipment in waterways and, where possible, avoid operating equipment within 30 metres of the waterway;
- (b) Do not use waterway beds for borrow material;
- (c) Do not dump excavated fill, waste material or debris in ditches or waterway;
- (d) Design and construct temporary crossings to minimize erosion to waterways; and
- (e) Dispose of excavated materials above the high water mark and 30 metres way from a watercourse.

### D16.7.3 Drainage

- (a) Provide temporary drainage and pumping as necessary to keep excavations and Site free from water;
- (b) Do not pump water containing suspended materials into waterways, sewer or drainage systems; and
- (c) Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

### D16.7.4 Reducing Site Disturbances

- (a) Do not disturb, in any way, the embankment slopes, roadway shoulders, and adjacent ground surfaces areas outside the limits of the construction areas including the approved lay down, staging and access unless written permission has been obtained from the Contract Administrator. Such written permission will be granted only if it can be shown that there is no alternative.
- (b) Minimize disturbance of any undeveloped areas on Site and maintain existing Site grading where indicated and where possible.
  - i) Minimize stripping of topsoil and vegetation;
  - ii) Re-grade and plant vegetation on construction Site as soon as possible; and
  - iii) Avoid soil compaction where possible.

### D16.7.5 Pollution Control

- (a) Maintain temporary erosion and pollution control features installed under this contract.
- (b) Maintain construction equipment in good working order. Control emissions from equipment.

- (c) Cover or wet down dry materials and stockpiled soils to prevent blowing dust and debris. Provide dust control for the construction Site, temporary and access roads.
- (d) Bring only clean fill, granular, rip rap and other similar construction materials to the project Site.

#### D16.8 CN Environmental Requirements

- D16.8.1 Carry out all measures which CN, in its sole discretion considers necessary to keep the work free and clear of all environmental contaminants or residue results from the Contractor's occupation or use of the CN's premises (Premises), such condition to be confirmed by a post-termination environmental inspection/audit of the Premises to be carried out by CN. The Contractor shall be solely responsible for the cost of all work carried out to correct any environmental contamination which occurs on the Premises, or which occurs on other lands as a result of the Contractor's occupation or use of the Premises.
- D16.8.2 CN shall have the right to enter upon the Premises, at all reasonable times and from time to time, in order to inspect the Premises and conduct or require the Contractor to conduct, at the Contractor's expense, such tests as may be required to verify the condition of the Premises.
- D16.8.3 The Contractor shall be responsible to notify CN of all environmental contamination that the Contractor suspects is occurring on or escaping onto the Premises from adjacent lands or resulting from third party occupation.
- D16.8.4 If the Contractor fails to correct any environmental contamination to the satisfaction of CN and any public authority having jurisdiction, CN may perform such work by its employees or agents. CN may charge the Contractor from time to time for all the costs incurred by CN in correcting such environmental contamination, plus fifteen per cent (15%) for overhead, and the Contract shall pay CN's invoice or invoices for such costs within ten (10) days of receipt of each invoice. In the event such remedial work is carried out by any public authority, the cost of such work shall be borne by the Contractor.
- D16.8.5 Upon completion of the contract, the Contractor shall leave the Premises in a clean and tidy condition, free of any environmental contamination resulting from or occurring during the Contractor's occupation or use of the Premises. If the Contractor has installed any facility on or under the Premises, the Contractor shall remove such facility. The Contractor shall have the burden of proving that any environmental contamination has not resulted from or occurred during its occupation or use of the Premises.
- D16.8.6 The responsibility of the Contractor to CN with respect to the environmental obligations contained herein shall continue to be enforceable by CN.

#### D16.9 Imperial Oil Limited Environmental Requirements

- D16.9.1 Carry out all measures which IOL, in its sole discretion considers necessary to keep the work free and clear of all environmental contaminants or residue results from the Contractor's occupation or use of the IOL's premises (Valve Station Premises), such condition to be confirmed by a post-termination environmental inspection/audit of the Premises to be carried out by IOL or its designated Environmental Contractor. The Contractor shall be solely responsible for the cost of all work carried out to correct any environmental contamination which occurs on the Premises, or which occurs on other lands as a result of the Contractor's occupation or use of the Premises.
- D16.9.2 IOL shall have the right to enter upon the Premises, at all reasonable times and from time to time, in order to inspect the Premises and conduct or require the Contractor to conduct, at the Contractor's expense, such tests as may be required to verify the condition of the Premises.
- D16.9.3 The Contractor shall be responsible to notify IOL of all environmental contamination that the Contractor suspects is occurring on or escaping onto the Premises from adjacent lands or resulting from third party occupation.

- D16.9.4 If the Contractor fails to correct any environmental contamination to the satisfaction of IOL and any public authority having jurisdiction, IOL may perform such work by its employees or agents. IOL may charge the Contractor from time to time for all the costs incurred by IOL in correcting such environmental contamination, plus fifteen per cent (15%) for overhead, and the Contract shall pay IOL's invoice or invoices for such costs within ten (10) days of receipt of each invoice. In the event such remedial work is carried out by any public authority, the cost of such work shall be borne by the Contractor.
- D16.9.5 Upon completion of the contract, the Contractor shall leave the Premises in a clean and tidy condition, free of any environmental contamination resulting from or occurring during the Contractor's occupation or use of the Premises. If the Contractor has installed any facility on or under the Premises, the Contractor shall remove such facility. The Contractor shall have the burden of proving that any environmental contamination has not resulted from or occurred during its occupation or use of the Premises.
- D16.9.6 The responsibility of the Contractor to IOL with respect to the environmental obligations contained herein shall continue to be enforceable by IOL.
- D16.9.7 If the Contractor, after commencing the Relocation Work, encounters or has reason to believe in the existence of any Contamination in, on or under the Right-of-Way or the New Right-of-Way or affecting any portion of the Right-of-Way or the New Right-of-Way, the Contractor shall:
- (a) immediately take all reasonable steps, including suspension or stoppage of the Relocation Work, as are necessary and appropriate to minimize the risk of any person or property suffering injury, sickness, death, damage or destruction as a result of exposure to, or the presence of, such Contamination;
  - (b) report any known release of a hazardous substance, or the discovery of the existence of any Contamination, to IOL as soon as reasonably practicable and in no event later than within 24 hours of such knowledge or discovery, and to any and all relevant governmental authorities in compliance with all Applicable Laws, and promptly thereafter give a comprehensive written report to IOL describing all remedial measures to be taken;
  - (c) otherwise act in compliance with all Applicable Laws in respect of such Contamination.
- D16.10 Shell Canada Environmental Requirements
- D16.10.1 Carry out all measures which SC, in its sole discretion considers necessary to keep the work free and clear of all environmental contaminants or residue results from the Contractor's occupation or use of the SC's premises (Valve Station Premises), such condition to be confirmed by a post-termination environmental inspection/audit of the Premises to be carried out by SC or its designated Environmental Contractor. The Contractor shall be solely responsible for the cost of all work carried out to correct any environmental contamination which occurs on the Premises, or which occurs on other lands as a result of the Contractor's occupation or use of the Premises.
- D16.10.2 SC shall have the right to enter upon the Premises, at all reasonable times and from time to time, in order to inspect the Premises and conduct or require the Contractor to conduct, at the Contractor's expense, such tests as may be required to verify the condition of the Premises.
- D16.10.3 The Contractor shall be responsible to notify SC of all environmental contamination that the Contractor suspects is occurring on or escaping onto the Premises from adjacent lands or resulting from third party occupation.
- D16.10.4 If the Contractor fails to correct any environmental contamination to the satisfaction of SC and any public authority having jurisdiction, SC may perform such work by its employees or agents. SC may charge the Contractor from time to time for all the costs incurred by SC in correcting such environmental contamination, plus fifteen per cent (15%) for overhead, and the Contract shall pay SC's invoice or invoices for such costs within ten (10) days of receipt of each invoice. In the event such remedial work is carried out by any public authority, the cost of such work shall be borne by the Contractor.

- D16.10.5 Upon completion of the contract, the Contractor shall leave the Premises in a clean and tidy condition, free of any environmental contamination resulting from or occurring during the Contractor's occupation or use of the Premises. If the Contractor has installed any facility on or under the Premises, the Contractor shall remove such facility. The Contractor shall have the burden of proving that any environmental contamination has not resulted from or occurred during its occupation or use of the Premises.
- D16.10.6 The responsibility of the Contractor to SC with respect to the environmental obligations contained herein shall continue to be enforceable by SC.
- D16.10.7 If the Contractor, after commencing the Relocation Work, encounters or has reason to believe in the existence of any Contamination in, on or under the Right-of-Way or the New Right-of-Way or affecting any portion of the Right-of-Way or the New Right-of-Way, the Contractor shall:
- (a) immediately take all reasonable steps, including suspension or stoppage of the Relocation Work, as are necessary and appropriate to minimize the risk of any person or property suffering injury, sickness, death, damage or destruction as a result of exposure to, or the presence of, such Contamination;
  - (b) report any known release of a hazardous substance, or the discovery of the existence of any Contamination, to SC as soon as reasonably practicable and in no event later than within 24 hours of such knowledge or discovery, and to any and all relevant governmental authorities in compliance with all Applicable Laws, and promptly thereafter give a comprehensive written report to SC describing all remedial measures to be taken;
  - (c) otherwise act in compliance with all Applicable Laws in respect of such Contamination.

## **SCHEDULE OF WORK**

### **D17. COMMENCEMENT**

- D17.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.
- D17.2 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 D9;
    - (ii) evidence of the workers compensation coverage specified in C6.15;
    - (iii) the twenty-four (24) hour emergency response phone number specified in D5.2;
    - (iv) the Safe Work Plan specified in D10;
    - (v) evidence of the insurance specified in D11;
    - (vi) the performance security specified in D12;
    - (vii) the Subcontractor list specified in D13;
    - (viii) the equipment list specified in D14;
    - (ix) the detailed work schedule specified in D15; and
    - (x) the Environmental Protection Plan specified in D16.
  - (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.
  - (c) The Contractor has provided proof of CN Contractor Safety Training for each individual proposed to work on the Site to the Contract Administrator and;
  - (d) The Contractor has completed the CN Work Permit Application (Appendix B) and submitted with the permit fee to the Contract Administrator.
- D17.3 The Contractor shall commence the Work on the Site within seven (7) days of receipt of the letter of intent.

D17.4 The City intends to award this Contract by February 21, 2014.

D17.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

#### **D18. RESTRICTED WORK HOURS**

D18.1 All Work shall be carried out between the hours of 0700 and 2200 Monday to Friday and between 0900 and 2100 Saturday.

D18.2 No Work shall be performed outside the hours stated in D18.1 or on Sunday or Statutory or Civic holidays without written permission from the Contract Administrator. Approval will only be granted if it is in the best interests of the City to do so.

D18.3 Further to clause 3.10 of CW 1130, the Contractor shall require written permission forty-eight (48) hours in advance from the Contract Administrator for any Work to be performed outside the hours stated in D18.1.

#### **D19. SITE REQUIREMENTS AND SCHEDULE RESTRICTIONS**

D19.1 CN Protecting Foremen

D19.1.1 The Contractor will be required to provide qualified protecting foremen for the project as outlined in Specification E12 Co-ordination of Construction with CN.

D19.1.2 The Prime Contractor, either Contract 2 or Contract 3 (D28), will be required to provide qualified protecting foremen for the project for periods when the Contract 4 Contractor is not working within the CN right-of-way, as outlined in Specification E12 Co-ordination of Construction with CN.

D19.2 Imperial Oil Limited Site Requirements

D19.2.1 The Contractor will be required to provide a qualified Supervisor on the project site at all times during the work on IOL pipelines.

D19.2.2 All workers/staff/employees of the Contractor / Sub Contractor will have IOL P&D Orientation before commencement of site work on IOL Pipelines.

D19.2.3 Access notification 24 hours prior to working on IOL ROW or Valve Site will be required to obtain ROW permit and/or Safe Work Permit.

D19.3 Shell Canada Site Requirements

D19.3.1 The Contractor will be required to provide a qualified Supervisor on the project site at all times during the work on SC pipelines.

D19.3.2 All workers/staff/employees of the Contractor / Sub Contractor will have SC P&D Orientation before commencement of site work on SC Pipelines.

D19.3.3 Access notification 24 hours prior to working on SC ROW or Valve Site will be required to obtain ROW permit and/or Safe Work Permit.

#### **D20. WORK BY OTHERS**

D20.1 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Manitoba Telecom Services – Relocation/protection of existing lines;
- (b) Shaw – Relocation/protection of existing lines;
- (c) Manitoba Hydro – Removal and relocation of existing hydro poles and street lighting;

- (d) Manitoba Hydro – Installation of new street lighting;
- (e) Manitoba Hydro – Relocation of a 12kV line and a 24 kV Feeder;
- (f) CN – Fiber relocation
- (g) CN – CN Signal and Communication Works; - Signal and communication cable and train movement control signal installation;
- (h) Contract 1 – Rail Shoofly Grade Preparation and Miscellaneous Wastewater Sewer, Watermain and Land Drainage Works. Work has commenced with an anticipated Total Performance Date of January 31, 2014; and
- (i) Contract 2 – Shoofly Track Installation and Permanent Track Construction is expected to commence on January 2, 2014 with an anticipated Total Performance date of May 7, 2014. Phase I – Temporary Shoofly track construction for Contract 2 is anticipated to be complete May 30, 2014. Designated work areas on the southwest and northeast corners of Plessis Road and the CN Redditt Subdivision will be required for track assembly.
- (j) Contract 3 – Plessis Road Reconstruction, Underpass Structures, Pumping Station, Land Drainage Sewer and Miscellaneous Underground and Landscaping Works is expected to commence on January 31, 2014 with an anticipated Total Performance date of August 28, 2015.

## **D21. SEQUENCE OF WORK**

D21.1 Further to C6.1, the sequence of work shall be as follows:

D21.1.1 The Work shall be divided into three (3) phases. Each phase shall be subdivided into major items of work.

D21.1.2 Phase I – IOL Pipelines Relocation under the CN Main Track and Shoofly

- (a) Supply of steel carrier and casing pipe and coatings;
- (b) Excavate boring and receiving pits with adequate trench shoring;
- (c) Trenchless installation of 300 mm and 400 mm cased crossings under shoofly and existing mainline track using only one setup;
- (d) Field joint coating and testing;
- (e) Install new NPS 8 and NPS 10 carrier lines;
- (f) Hydrostatic testing of new carrier lines (Critical Stage 1);
- (g) Purge, clean and inject inert gas of existing NPS 10 carrier line (by IOL);
- (h) Tie-in the remaining segments of the IOL carrier lines to the newly installed NPS 10 line (by IOL);
- (i) Re-commissioning the NPS 10 carrier line (by IOL);
- (j) Buffer period for reservoir management (by IOL);
- (k) Purge, clean and inject inert gas of existing NPS 8 line (by IOL);
- (l) Tie-in the remaining segments of the IOL lines to the newly installed NPS 8 line (by IOL);
- (m) Re-commissioning the NPS 8 carrier line (by IOL) (Critical Stage 2);
- (n) Remove and dispose of the existing NPS 8 and 10 carrier pipes;
- (o) Cut and cap existing casing pipes under CN main track and shoofly;
- (p) Grout and abandon-in-place the remaining capped segments under CN main track and shoofly; and
- (q) Site restoration

D21.1.3 Phase II – SC Pipeline Relocation under Plessis Road

- (a) Supply of steel pipe and coatings;



- (b) Prepare drilling and receiving pits;
- (c) Field joint coating and testing;
- (d) Trenchless installation of two (2) 200 mm carrier lines under Plessis Rd., preferably by horizontal directional drilling method;
- (e) Hydrostatic testing of new carrier lines (Critical Stage 3);
- (f) Purge, clean and inject inert gas of existing SC 1962 line (by SC);
- (g) Tie-in the remaining segments of the SC 1962 line to the new 200 carrier line ( by SC);
- (h) Re-commission SC 1962 line (by SC);
- (i) Purge, clean and inject inert gas of existing SC 1975 line (by SC);
- (j) Tie the remaining segments of the SC 1975 line to the new 200 carrier line (by SC);
- (k) Re-commission SC 1975 line (by SC) (Critical Stage 4);
- (l) Removal and disposal of abandoned SC pipelines; and
- (m) Site restoration.

D21.1.4 Phase III – IOL Pipeline Relocation North of the Valve Station

- (a) Supply of steel pipe and coatings;
- (b) Excavate and open-cut the proposed route of IOL NPS 10 line;
- (c) Field joint coating and testing;
- (d) Installation of NPS 10;
- (e) Hydrostatic pressure testing of NPS 10 line (Critical Stage 5);
- (f) Purge, clean and inject inert gas of existing NPS 10 line (by IOL);
- (g) Tie the remaining segments of the IOL line to the new NPS 10 (by IOL);
- (h) Re-commissioning the IOL line (by Imperial Oil) (Critical Stage 6);
- (i) Removal and disposal of abandoned piping; and
- (j) Site restoration.

**D22. BUILDING CANADA FUND – MAJOR INFRASTRUCTURE COMPONENT**

D22.1 Funding for the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision Project (also known as the Plessis Road Underpass Project) is being provided to the City of Winnipeg by the Government of Canada (“Canada”) and The Province of Manitoba (“Manitoba”). As required by the City’s funding agreements with Canada and Manitoba, the Contractor must:

- (a) Establish and maintain for a period of at least six (6) years following the date of substantial completion of the Plessis Road Twinning and Grade Separation at CN Redditt Subdivision Project proper and accurate financial accounts and records, including but not limited to its contracts, invoices, statements, receipts and vouchers, (including supporting documents), prepared in accordance with generally accepted accounting principles, as are necessary to properly account for the services or goods provided by the Contractor to the City;
- (b) Permit The City, Manitoba, Canada, the Auditor General of Canada, and/or their designated representatives, to the extent permitted by law, at all times, to inspect the terms of the Contract and any records and accounts respecting the Project, and to have free access to the Project sites and any documentation relevant for the purpose of audit;
- (c) Permit the City, Canada and/or Manitoba and its agents, and their respective authorized representatives, to monitor the Work and to inspect and audit the accounting and other records relating to the Work for a period of six (6) years following June 30, 2015;
- (d) Indemnify and save Manitoba and its Ministers, officers, employees and agents harmless from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from the contract or from the goods or services provided, or required

to be provided, by the Contractor, except those resulting from the negligence of any of Manitoba's Ministers, officers, servants, employees or agents;

- (e) Respect and comply with all applicable legislation and standards, whether federal, provincial or municipal, including (without limitation) labour, environmental, and human rights legislation;
- (f) Consent to the City providing a copy of the Contract to Manitoba and its agent upon request from Manitoba; and
- (g) Consent to the City providing Manitoba and its agents with the results of the City's inspections and audits of the Work and of the Contractor's accounts and records.

## **D23. CRITICAL STAGES**

D23.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Critical Stage 1 – Phase I piping installation and testing as described in D22.1.2 (f) shall be completed by April 26, 2014. This will allow IOL a four week buffer period to complete their work prior to the pipe removal and site restoration.
- (b) Critical Stage 2 – Phase I re-commissioning of IOL pipelines as described in D22.1.2 (m) shall be completed by May 23, 2014.
- (c) Critical Stage 3 – Phase II piping installation and testing as described in D22.1.3 (e) shall be completed by June 21, 2014. This will allow SC a three week buffer period to complete their work prior to the pipe removal and site restoration.
- (d) Critical Stage 4 – Phase II re-commissioning of SC pipeline as described in D22.1.3 (k) shall be completed by July 11, 2104.
- (e) Critical Stage 5 – Phase III piping installation and testing as described in D22.1.4 (e) shall be completed by August 2, 2014. This will allow IOL a two week buffer period to complete their work prior to pipe removal and site restoration.
- (f) Critical Stage 6 – Phase III re-commissioning of IOL pipeline as described in D22.1.4 (h) shall be completed by August 23, 2104.

D23.2 When the Contractor considers the Work associated with each Critical Stage described in D23.1 to be completed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Completion. 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.

D23.3 The dates on which each Critical Stage described in D23.1 Work has been accepted by the Contract Administrator as being completed to the requirements of the Contract is the date on which completion of each Critical Stage described in D23.1 has been achieved.

## **D24. SUBSTANTIAL PERFORMANCE**

D24.1 The Contractor shall achieve Substantial Performance by August 23, 2014.

D24.2 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.

D24.3 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.

## **D25. TOTAL PERFORMANCE**

- D25.1 The Contractor shall achieve Total Performance by September 20, 2014.
- D25.2 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 re-inspected.
- D25.3 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.

## **D26. LIQUIDATED DAMAGES**

- D26.1 If the Contractor fails to achieve 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 Stage 1 – Five thousand dollars (\$5,000);
  - (b) Critical Stage 3 – Five thousand dollars (\$5,000);
  - (c) Critical Stage 5 – Five thousand dollars (\$5,000);
  - (d) Substantial Performance – Five thousand dollars (\$5,000);
  - (e) Total Performance – One thousand dollars (\$1,000).
- D26.2 The amounts specified for liquidated damages in D26.1 are 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.
- D26.3 Should the Contractor fail to achieve more than one Critical Stage date the liquidated damages will not be compounded. Liquidated Damages will be charged in sequence until each Critical Stage is met.
- D26.4 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

## **CONTROL OF WORK**

### **D27. JOB MEETINGS**

- D27.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D27.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

### **D28. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)**

- D28.1 Further to C6.26, the Prime Contractor shall serve as and will have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba) as follows:

- (a) Contractor for Contract 2: from the commencement of the Work of Contract 2 until the commencement on Site of the Work of Contract 3.
- (b) Contractor for Contract 4: from the commencement of the Work of Contract 4 until the commencement on Site of the Work of Contract 3.
- (c) Contractor for Contract 3: upon commencement on Site of the Work of Contract 3.

D28.1.1 The time and date of the commencement on Site of the Work of Contract 3 shall be the time and date determined by the Contract Administrator and stated in a notice to the contractors.

## **D29. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS**

D29.1 Further to B11.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B11.4.

## **D30. LAYOUT OF WORK**

D30.1 Further to City of Winnipeg Specification GC 6.26(h) and/or CW 1130 the following shall apply:

D30.2 Pipeline Work

D30.2.1 The Contract Administrator shall provide the basic centrelines and a benchmark for construction of pipeline relocation Work.

D30.2.2 The Contractor shall be responsible for the true and proper laying out of the Work and for the correctness of the location, levels, dimensions, and alignment of all aspects of the Work. He shall provide all required instruments and competent personnel for performing all layouts.

D30.2.3 The Contract Administrator shall be notified at least one (1) Business Day prior to any Work being commenced in order to have the option to check and review all elevations and layouts at his discretion.

D30.2.4 The Contractor shall carefully protect and preserve all benchmarks, stakes, and other items of the basic data supplied by the Contract Administrator. Any such benchmarks or stakes removed or destroyed by the Contractor, without the consent of the Contract Administrator, shall be replaced by the Contract Administrator at the expense of the Contractor.

## **MEASUREMENT AND PAYMENT**

### **D31. PAYMENT**

D31.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

## **WARRANTY**

### **D32. WARRANTY**

D32.1 Notwithstanding C13.2, the warranty period shall begin on the date of Total Performance and shall expire two (2) years thereafter, except where longer warranty periods are specified in the Specifications, unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D32.2 Notwithstanding C13.2 or D32.1, the Contract Administrator may permit the warranty period for a portion or portions of the Work to begin prior to the date of Total Performance if:

- (a) a portion of the Work cannot be completed because of unseasonable weather or other conditions reasonably beyond the control of the Contractor but that portion does not prevent the balance of the Work from being put to its intended use.

D32.2.1 In such case, the date specified by the Contract Administrator for the warranty period to begin shall be substituted for the date specified in C13.2 for the warranty period to begin.

**FORM H1: PERFORMANCE BOND**  
(See D12)

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 for

BID OPPORTUNITY NO. 1058-2013

**PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT SUBDIVISION: IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES RELOCATION WORKS**

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 as to Principal if no seal)

\_\_\_\_\_  
(Name of Principal)

Per: \_\_\_\_\_ (Seal)

Per: \_\_\_\_\_

\_\_\_\_\_  
(Name of Surety)

By: \_\_\_\_\_ (Seal)  
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT  
(PERFORMANCE SECURITY)**  
(See D12)

\_\_\_\_\_  
(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 1058-2013

**PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT SUBDIVISION: IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES RELOCATION WORKS**

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 (2007 Revision), International Chamber of Commerce Publication Number 600.

\_\_\_\_\_  
(Name of bank or financial institution)

Per: \_\_\_\_\_  
(Authorized Signing Officer)

Per: \_\_\_\_\_  
(Authorized Signing Officer)





**FORM K: EQUIPMENT**  
(See D14)

**PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT SUBDIVISION: IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES RELOCATION WORKS**

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

**FORM K: EQUIPMENT**  
(See D14)

**PLESSIS ROAD TWINNING AND GRADE SEPARATION AT CN REDDITT SUBDIVISION: IMPERIAL OIL LIMITED AND SHELL CANADA PIPELINES RELOCATION WORKS**

<p>4. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

## PART E - SPECIFICATIONS

### 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 Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm>
- 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 Appendix "B" CN Safety Requirements & Work Permit Form take precedence on all matters within CN property.
- E1.4 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
5421-B-SR-00001	IOL Cased Bore Crossing (Phase 1)
5421-B-SR-00002	IOL NPS 10 Relocation (Phase 3)
5421-B-SR-00003	Shell Canada Horizontal Direction Drill Crossing (Phase 2)

<u>City of Winnipeg Drawing No.</u>	<u>Consultant Drawing No.</u>	<u>Drawing Name/Title</u>
U238-2014-3000	1800-000	Cover Sheet
U238-2014-3001	1800-001	Drawing Index
U238-2014-3004	1802-001	Pipeline Cased Bore Railway Crossing WPL NPS 8 Gretna to Transcona
U238-2014-3005	1802-002	Pipeline Cased Bore Railway Crossing WPL NPS 10 Gretna to Imperial Oil Ltd.
U238-2014-3006	1801-003	WPL NPS 10 Gretna to Imperial Oil Ltd. Pipeline Replacement Plan and Profile – IOL North of Valve Station
U238-2014-3007	1801-004	Pipeline HDD Plan & Profile (2) Shell 200 mm Pipelines (1962 & 1975) Plessis Road Crossings
U238-2014-3008	1701-001	Transcona Valve Station Tie-in Location Piping Plan
U238-2014-3009	1701-002	Transcona Valve Station Tie-in Location Piping Sections
U238-2014-3010	1800-001	Typical Trench Detail

### E2. GEOTECHNICAL REPORT

- E2.1 Further to C3.1, test hole logs from the March 2013 AECOM geotechnical report and from the supplemental investigation of August 2013 are provided to aid the Contractor's evaluation of the existing soil conditions. The summary of the test caisson investigation is provided to assist the Contractor in equipment selection and proper construction practices. The test hole logs, Summary of Test Caisson Investigation dated September 5, 2013 and CN Railway Detour Stability Analysis memorandums dated April 22, 2013 and October 25, 2013 are contained in Appendix 'A'. The information presented is considered accurate at the locations and time of drilling as outlined in the Appendix. However, 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. The nature and extent of variations may not become evident

until construction commences. The complete AECOM geotechnical report and AECOM investigation memo may be viewed at the Contract Administrator's Office upon request.

### **E3. SUBMITTALS AND SHOP DRAWINGS**

#### **E3.1 Submittals**

E3.1.1 Further to CW 1110, all submissions must be in metric units. Where data is in imperial units, the correct metric values shall also be shown on the submissions for Contract Administrator review.

#### **E3.2 Shop Drawings**

E3.2.1 The term 'Shop Drawings' means drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, including Site erection drawings which are to be provided by the Contractor to illustrate details of a portion of the Work.

E3.2.2 Original drawings shall be prepared by Contractor, Subcontractor, supplier, distributor or manufacturer to illustrate appropriate portion of Work including fabrication, layout, setting or erection details as specified in appropriate sections.

E3.2.3 Shop Drawings for the following components shall bear the seal of a Professional Engineer registered in the province of Manitoba:

- (a) Shoring and dewatering systems for excavations
- (b) Welding Procedure Specifications (WPS) as called for in the Work Packages
- (c) Hydrostatic test, pressure-volume plot as called for in the Work Packages

E3.2.4 Review Shop Drawings, product data and samples prior to submission and stamp and sign Shop Drawings indicating conformance to the Contract requirements.

E3.2.5 Schedule submittals at least fourteen (14) Calendar Days before dates reviewed submittals will be needed, and allow for a fourteen (14) Calendar Day period for review by the Contract Administrator of each individual submission and re-submission, unless noted otherwise in the Contract.

E3.2.6 Submit five (5) paper prints of Shop Drawings. The Contract Administrator will retain three (3) copies of all submittals and return two (2) copies to the Contractor.

E3.2.7 Accompany submittals with transmittal letter containing:

- (a) Date
- (b) Project title and Bid Opportunity number
- (c) Contractor's name and address
- (d) Number of each Shop Drawing, product data and sample submitted
- (e) Specification Section, Title, Number and Clause
- (f) Drawing Number and Detail / Section Number
- (g) Other pertinent data

E3.2.8 Submittals shall include:

- (a) Date and revision dates.
- (b) Project title and Bid Opportunity number.
- (c) Name of:
  - i) Contractor
  - ii) Subcontractor
  - iii) Supplier
  - iv) Manufacturer
  - v) Detailer (if applicable)

- vi) Identification of product or material.
- vii) Relation to adjacent structure or materials.
- viii) Field dimensions, clearly identified as such.
- ix) Specification section name, number and clause number or Drawing number and detail / section number.
- x) Applicable standards, such as CSA or CGSB numbers.
- xi) Contractor's stamp, initialed or signed, certifying review of submission, verification of field measurements and compliance with Contract.

E3.2.9 After Contract Administrator's review and return of copies, distribute copies to Subcontractors and others as appropriate.

E3.2.10 Maintain one (1) complete set of reviewed Shop Drawings, filed by Specification Section Number, at the Site of the Work for use and reference of the Contract Administrator and Subcontractors.

### E3.3 Other Considerations

E3.3.1 Fabrication, erection, installation or commissioning may require modifications to equipment or systems to conform to the design intent. Revise pertinent Shop Drawings and resubmit.

E3.3.2 Material and equipment delivered to the Site of the Works will not be paid for at least until pertinent Shop Drawings have been submitted and reviewed.

E3.3.3 Incomplete Shop Drawing information will be considered as stipulated deductions for the purposes of progress payment certificates.

E3.3.4 No delay or cost claims will be allowed that arise because of delays in submissions, resubmissions and review of Shop Drawings.

## E4. INSPECTIONS AND VERIFICATION

E4.1 Further to clause 3.16.3 of CW 1130 no charge shall be made to the City for any delays or loss of production caused by inspection and verification.

## E5. MOBILIZATION AND DEMOBILIZATION

### DESCRIPTION

#### E5.1 General

E5.1.1 This Specification covers all operations relating to the mobilization and demobilization of the Contractor to the Site, as specified herein.

E5.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

#### E5.2 Scope of Work

E5.2.1 The Work under this Specification shall include but not be limited to:

- (a) Mobilizing and demobilizing on-site Work facilities;
- (b) Supplying and installing Type 1 secure fencing as per E5.6.3 around the site where noted in this Specification and as directed by the Contract Administrator; and
- (c) Maintaining and removing any access roadway.



## MATERIALS

- E5.3 All materials supplied under this Specification shall be of a type approved by the Contract Administrator, and shall be subject to inspection and testing by the Contract Administrator.
- E5.4 The Contractor shall be responsible for the supply, safe storage and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
- E5.5 Equipment
- E5.5.1 All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

## CONSTRUCTION METHODS

- E5.6 General
- E5.6.1 Layout of On-Site Work Facilities
- (a) The Contractor shall mobilize all on-site Work and other temporary facilities where noted on the Drawings or as directed by the Contract Administrator.
  - (b) Upon completion of construction activities, the Contractor shall remove all on-site Work and other temporary facilities.
- E5.6.2 Cellular Telephone Communication
- (a) The Contractor's site supervisor is required to carry, at all times, a cellular telephone, with voice mail.
- E5.6.3 Secure Site Fencing (Type 1)
- (a) A minimum 2.4 m high chain-link secure fence around the site lay-down and Work site areas shall be installed prior to commencement of site activities.
  - (b) The fencing shall remain secure and in place during all construction operations.
  - (c) The fencing shall be removed upon demobilization of on-site Work operations.
- E5.6.4 Traffic Gates
- (a) The Contractor shall supply, install, maintain, and remove steel gates to keep non-Contract traffic and pedestrians out of the Work site.
  - (b) The gates shall be removed upon completion of construction activities.
- E5.6.5 Access Roadway
- (a) The Contractor shall maintain any access roadway they install.
  - (b) The access road shall be maintained on a regular basis to provide continual unrestricted site access, to the satisfaction of the Contract Administrator.
  - (c) Upon completion of the Work, the area shall be restored to its original condition.
- E5.6.6 Restoration of Existing Facilities
- (a) Upon completion of the Work and demobilization, the Contractor shall restore existing facilities.

## MEASUREMENT AND PAYMENT

- E5.7 Mobilization and Demobilization
- E5.7.1 Mobilization and demobilization will not be measured. This Item of Work will be paid for at a percentage of the Contract Lump Sum Prices, which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator. These percentages shall be as follows:

- (a) When Contract Administrator is satisfied that construction has commenced 30%
- (b) During construction 60% prorated on a monthly basis
- (c) Upon Total Performance 10%

## **E6. CONSTRUCTION FACILITIES**

### **E6.1 General**

E6.1.1 This Specification covers all operations relating to the construction facilities.

E6.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

### **E6.2 Temporary Utilities**

E6.2.1 The Contractor shall be responsible for the cost of all temporary utilities.

#### **E6.2.2 Natural Gas, Gasoline and Other Fuels**

- (a) Provide and pay all costs for natural gas, gasoline and other fuels required for the performance of the Work, in accordance with governing regulations and ordinances, and the Contract.
- (b) Furnish and install all necessary temporary piping and upon completion of the Work remove all such temporary piping.

#### **E6.2.3 Water**

- (a) See Section E11 regarding use of City water.
- (b) Furnish and install all necessary temporary piping and upon completion of the Work remove all such temporary piping.

#### **E6.2.4 Electricity and Lighting**

- (a) Provide and pay all costs for electricity and artificial lighting required for the performance of the Work, in accordance with governing regulations and ordinances, and the Contract.
- (b) Furnish and install all necessary temporary wiring, distribution boxes, panels, etc., and upon completion of the Work, remove all such temporary installations.

#### **E6.2.5 Heating and Ventilation**

- (a) Provide and pay all costs for heating and ventilating, coverings, and enclosures as necessary to protect and perform the Work.
- (b) Furnish and install all necessary temporary equipment, piping, wiring, ducting, and other materials to perform the Work and upon completion of the Work, remove all such temporary equipment.
- (c) Temporary heating and ventilating shall be in accordance with all governing regulations and ordinances, and the Contract.
- (d) Temporary heating and ventilating shall be provided to:
  - i) Facilitate progress of the Work
  - ii) Protect the Work and Product and Material against dampness
  - iii) Prevent moisture condensation on surfaces
  - iv) Provide an atmosphere for curing Material as required
  - v) Provide adequate ventilation to meet safety regulations
  - vi) Prevent hazardous accumulation of dust, fumes, mist, vapours or gases in areas occupied during construction
  - vii) Ventilate storage spaces containing hazardous or volatile materials.

E6.2.6 Fire Protection

- (a) Provide and pay all costs for adequate fire protection of the Work and adjacent property.
- (b) Furnish and install temporary extinguishers, hydrants and other equipment, and upon completion of the Work remove all such temporary equipment.

E6.3 Construction Aids

E6.3.1 Temporary Plant

- (a) Provide, arrange for, maintain and pay for all temporary items such as, but not limited to, stairs, ladders, scaffolding, ramps, transportation of labour and material, runways, chutes, hoists, elevators, tools, templates, as required for the completion of the Work.
- (b) The location of such items shall be such as to prevent inference with, marking of, or damages to any portion of the Work.
- (c) All such items shall conform to all applicable national and local ordinances regulating safety and to the National Building Code of Canada, and to the requirements of the Contract.

E6.3.2 Temporary Enclosures

- (a) Furnish, install and maintain for the duration of construction all required scaffolds, tarpaulins, barricades, canopies, warning signs, steps, bridges, platforms and other temporary construction necessary for proper completion of the Work in compliance with all pertinent safety and other regulations.

E6.3.3 Falsework and Temporary Construction Supports

- (a) The Contractor shall be responsible for means and methods used for the falsework and temporary construction supports.
- (b) The Contract requires that the Contractor employ a qualified Registered Professional Engineer for the design of temporary works, and design in accordance with CSA S269.1.
- (c) Record design calculations and drawings to show that temporary works are adequate. Provide design loads, material details, and dimensions. Sign and seal design calculations and drawings, and revisions thereto.
- (d) The Contract Administrator's approval to proceed with falsework and temporary construction supports shall not relieve the Contractor of his responsibility under the Contract, The Contract Administrator's review shall be for general conformance to the intent of design and for permanent effects on the Site, or areas adjacent to the Site.

E6.3.4 Temporary Excavation

- (a) The Contractor is responsible for the means and methods of making temporary excavations in order to install components of the Work.

E6.3.5 Winter Construction

- (a) Special construction methods required to perform the Work in severe weather shall be the responsibility of the Contractor.
- (b) Where the Specifications call for work to be performed within a given temperature range or above a minimum temperature. It shall be the Contractor's responsibility to provide all temporary enclosures and heat necessary to provide the conditions specified.
- (c) Where compaction of backfill is specified, the Contractor shall perform the Work in a manner such that compaction can be achieved.
- (d) Where weather conditions are such that compaction of backfill consisting of excavated materials is not possible, the Contractor shall provide unfrozen granular material for backfill, at the Contractor's expense.

- E6.3.6 Access Roads
- (a) Construct temporary access roads as necessary to perform the Work, and maintain temporary access roads until construction is over or until permanent access is established.
  - (b) Locations and drainage facilities for temporary access roads are subject to the approval of the Contract Administrator.
  - (c) No direct payment will be made to the Contractor for construction of temporary access roads.

## **E7. GEOTECHNICAL INSTRUMENTATION**

### **E7.1 General Requirements**

- E7.1.1 Geotechnical instrumentation (by others) for the purpose of construction and post-construction performance monitoring is expected for the site as shown on the Drawings. The instrumentation of the site may include, but is not limited to, the installation of monitoring wells, vibrating wire piezometers, settlement gauges and slope inclinometers within the construction area.

### **E7.2 Monitoring**

- E7.2.1 The instrumentation will be monitored by the Contract Administrator during construction. Contractors are advised that it may be necessary to limit equipment movement in the vicinity of the monitoring work. The Contract Administrator will make every effort to coordinate the monitoring with the Contractor's operation so as to minimize disruption of the Work.

### **E7.3 Protection of Instrumentation**

- E7.3.1 The Contractor shall take all necessary precautions to prevent damage to geotechnical instrumentation where shown on the Drawings. Should instrumentation become damaged as a result of the Contractor's operation, it shall be repaired or replaced, if necessary, at the Contractor's expense.

### **E7.4 Additional Instrumentation**

- E7.4.1 It may become necessary during the Work to install additional geotechnical instrumentation. The Contractor shall facilitate this work. The Contract Administrator will make every effort to coordinate the installation of additional instrumentation with the Contractor's operation so as to minimize disruption of the Work.

## **E8. TREE PROTECTION DURING CONSTRUCTION**

- E8.1 Construction activities near trees may result in injury to the trunk, limbs or roots of trees causing damage or death of the tree. In order to prevent such damage:

- E8.1.1 Trees within or adjacent to a construction area must be protected during construction by means of a barrier surrounding a "Tree Protection Zone" (TPZ) as outlined in Sub Sections E8.2 and E8.3.
- E8.1.2 Activities which are likely to injure or destroy the tree are not permitted within the TPZ.
- E8.1.3 Tree pruning or root pruning of City of Winnipeg owned trees may only be done by a Contractor approved by the project's Qualified Tree Consultant (refer to E8.5) or Urban Forestry Branch.
- E8.1.4 No objects may be attached to trees protected by City of Winnipeg by-laws without written authorization by the City of Winnipeg.
- E8.1.5 No City of Winnipeg tree or tree protected by a City of Winnipeg by-law may be removed without the written permission of the City of Winnipeg.

## E8.2 Tree Protection Zone:

E8.2.1 The following is a chart showing optimal distances for determining a tree protection zone (the roots of a tree can extend from the trunk to approximately 2-3 times the distance of the drip line). Some site conditions may dictate the need for a smaller TPZ. The City of Winnipeg Urban Forestry Branch must be notified in these instances. Forestry will determine if the smaller TPZ is acceptable in the specific circumstance and advise of any additional tree protection or removal requirements.

Table 1 – Tree Protection Zones

Trunk Diameter (DBH)	Minimum Protection Distances Required
<10 cm	2.0m
11-40cm	2.4m
41-50cm	3.0m
51-60cm	3.6m
61-70cm	4.2m
71-80cm	4.8m
81-90cm	5.4m
91-100cm+	6.0m

E8.2.2 Diameter at breast height (DBH) measurement of tree trunk is taken at 1.4 metres above ground.

E8.2.3 Tree Protection Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided the existing paved surface remains intact throughout the construction work

## E8.3 Tree Protection Barriers:

E8.3.1 Trees within tree protection zones shall be protected by means of a “tree protection barrier” meeting the following Specifications:

- (a) The required barrier is a 1.2 metre high orange plastic web snow fencing on 50mm x 100mm frame or as directed by the City of Winnipeg Urban Forestry Branch in accordance with City of Winnipeg Protection of Existing Tree Specifications. The barrier can be lowered around branches lower than 1.2 metres. The barrier location can be adjusted to align with curbs and edges at clear path of travel zones.
- (b) Tree strapping material will be installed on individual trees, in accordance with CW1140, where Work will be completed within the TPZ.
- (c) Tree protection barriers are to be erected prior to the commencement of any construction or grading activities on the site and are to remain in place throughout the entire duration of the project. The applicant shall notify the City of Winnipeg prior to commencing any construction activities to confirm that the tree protection barriers are in place.
- (d) All supports and bracing used to safely secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots. No grade change, storage of materials or equipment is permitted within this area. The tree protection barrier must not be removed without the written authorization of the City of Winnipeg.

## E8.4 Utility Construction, Engineering and Capital Construction Projects.

E8.4.1 It is recognized that there are cases where trees are growing overtop existing utilities or beside capital infrastructure. While the guidelines in this section still apply, in these cases some modification to Table 1 in addition to root pruning may be permitted provided non-open trench methods of construction are employed (as defined in CW2110 and CW2130).

E8.4.2 Root Pruning will be required to be done under the direction of, and along with, written sign-off by the Project's Qualified Tree Consultant (Refer to E8.5). The objective is to avoid

severance of anchor roots, which provide upright support for trees and minimize damage to the tree.

E8.4.3 Above ground clearance for overhanging branches in the work zone must be anticipated. The utility or its consultant is required to have a Forestry approved tree service raise the crown of all branches to provide adequate clearance for construction equipment.

E8.5 Qualified Tree Consultants

E8.5.1 An arborist certified by the International Society of Arboriculture (ISA) who has a diploma (minimum) in arboriculture or urban forestry; and

E8.5.2 A landscape architect who is a member in good standing of the Manitoba Association of Landscape Architects.

E8.6 No separate measurement or payment will be made for the protection of trees.

## **E9. TREE REMOVAL**

E9.1 Further to CW 3010 - Clearing and Grubbing, tree removal including the roots shall be measured on a unit basis for the number of trees (larger than 75 mm in diameter) removed in accordance with CW 3010. Payment shall be at the Contract Unit Price bid for "Tree Removal" measured as specified herein for the total number of trees removed in accordance with this Specification, accepted and measured by the Contract Administrator.

E9.2 The Contractor shall identify trees that may be affected by Work and inform the Contract Administrator of trees that need to be removed. No trees shall be removed from the project without written approval from the Contract Administrator.

## **E10. SITE SECURITY**

E10.1 During the project the Contractor shall be responsible for maintaining only authorized Site access 24 hours a day. Any existing security fencing, etc. that may be altered during construction will need to have an equivalent replacement. No separate measurement for payment shall be made for this work.

## **E11. WATER OBTAINED FROM THE CITY**

E11.1 Further to clause 3.7 of CW 1120, the Contractor shall pay for all costs, including sewer charges, associated with obtaining water from the City in accordance with the Waterworks and Sewer By-laws.

## **E12. COORDINATION OF CONSTRUCTION WITH CN**

### DESCRIPTION

E12.1 General Requirements

E12.1.1 The Contractor shall be responsible to meet all Canadian National (CN), constraints, requirements, and safety measures.

E12.1.2 The Contractor shall be responsible for any damage, delay, disruption and/or inconvenience caused to CN by his equipment or operations of Work to the tracks, the railway's operation or their property.

E12.1.3 If any emergency occurs, CN can be contacted through its Emergency CN Police Line 1-800-465-9239.

E12.1.4 The Contractor shall follow the requirements of CN as stipulated in the CN Safety Requirements herein in this Bid Opportunity Appendix B. All employees of the Contractor shall obtain the CN Contractor Orientation Identification card and sticker prior to working on Site.

- E12.1.5 The Contractor shall provide CN with a 24 hour phone number through which the Contractor can be contacted for emergency purposes.
- E12.2 Temporary Construction Crossing Permit
- E12.2.1 Should CN allow a temporary construction crossing, the Contractor shall be responsible for the application and payment for the temporary construction crossing permit. The Contractor together with the Contract Administrator will meet with the appropriate CN representative and determine the best location for the crossing. A detailed safety plan regarding vehicle and equipment crossing will need to be submitted with the permit.
- E12.2.2 On a daily basis the designated Contractor's employee will discuss the days' equipment movement over the crossing with the protecting foreman.
- E12.2.3 At the end of each working day the Contractor will be responsible to barricade the crossing to stop vehicle/equipment movements across the active rail lines.
- E12.2.4 All costs, liabilities, cleaning up and restoring of Site after removal of the crossing will be the Contractor's responsibility.
- E12.3 Contractor's Use of Site
- E12.3.1 The Contractor shall confine storage of materials and the operations of equipment, workmen, and erection of trailers to the limits indicated on the Contract drawings.
- E12.3.2 No materials shall be stored closer than 5 m of the nearest rail of any operated track. Material shall not be stockpiled higher than 1.5 m.
- E12.3.3 All costs, liabilities, cleaning up and restoring of Site after completion of the project will be the Contractor's responsibility.
- E12.4 Flag Protection of Work
- E12.4.1 The Prime Contractor will be required to supply flag protection for this project as per D19.1.
- E12.4.2 Protecting foreman must have qualifications that meet CN requirements and are required to provide proof of such with a copy of record provided to the Contract Administrator prior to the start of any works.
- E12.5 Signals and Communication Cables
- E12.5.1 The Contractor shall request CN to locate their cables before commencement of any Work.
- E12.5.2 The Contractor shall give CN 72 hour prior notice to locate cables.
- E12.5.3 The Contractor shall use extreme caution when working in the vicinity of any signal and communication cables.
- E12.5.4 As a result of damage to any cable, fibre optic line or associated equipment by his operations, the Contractor shall be held responsible for all costs required to repair the cable, as well as the loss of all revenue incurred by CN.
- E12.6 Barricades and Signage
- E12.6.1 The Contractor shall observe all necessary precautions and provide, erect, and maintain suitable signs, barricades, and lights to protect all persons from injury and all vehicles from damage during the progress of the Work, all to the approval of the Contract Administrator or any authority having jurisdiction at this location.
- E12.7 Down Time
- E12.7.1 The Contractor shall anticipate down time each day for crane work or any equipment, such as drill rigs, that could fall on CN property. With 15 to 20 trains a day, passing adjacent to the project site, 140 to 200 minutes of down time within a 24-hour period is anticipated.

## **E13. RAILWAY PROPERTY CLEANING**

### DESCRIPTION

#### E13.1 General

- E13.1.1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- E13.1.2 Store volatile wastes in covered metal containers and remove from premises daily.
- E13.1.3 Prevent accumulation of wastes which create hazardous conditions.
- E13.1.4 Provide adequate ventilation during use of volatile or noxious substances.

### MATERIALS

- E13.2 Use only cleaning materials recommended by manufacturer of surface to be cleaned and as recommended by cleaning material manufacturer.

### CONSTRUCTION METHODS

#### E13.3 Cleaning During Construction

- E13.3.1 On a daily basis maintain premises free from debris and waste material.
- E13.3.2 Maintain project site and public properties free from accumulations of waste materials and rubbish.
- E13.3.3 Remove waste materials and rubbish from site.
- E13.3.4 Disposal of wastes on Railway property by burial or burning shall not be permitted.

### MEASUREMENT AND PAYMENT

#### E13.4 Cleaning

- E13.4.1 Cleaning and disposal operations are considered incidental to the Work and no separate measurement or payment will be made

## **E14. PIPELINE AND UTILITY CROSSINGS**

### DESCRIPTION

#### E14.1 General

- E14.1.1 This Specification covers all operations relating to the following Works:
  - (a) Construction equipment crossing existing Shell Canada Products Limited and Imperial Oil Limited pipelines.
  - (b) Construction equipment crossing existing infrastructure within the right-of way and construction easements.
  - (c) Installation of pipeline under wastewater sewer, land drainage sewer and buried power utilities.
- E14.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

### CONSTRUCTION METHODS

- E14.2 The Contractor will be required to construct construction access crossings over the existing buried pipelines. The existing pipelines that are known and shown on the Drawings are:



- (a) Two Shell Canada Products Limited pipelines on the north side of the CN Redditt Subdivision Track;
- (b) Two Imperial Oil Limited pipelines on the east side of Plessis Road south of the valve station; and
- (c) One Imperial Oil Limited pipeline on the east side of Plessis Road north of the valve station.

E14.3 The Contractor is required to verify prior to construction the depth of existing underground pipelines by means of hydro-excavation in accordance with E18 shall be performed at a minimum of one (1) point above each pipeline at each proposed construction access crossing location, at each utility crossing (wastewater sewer and land drainage sewers) and at various locations for the permanent road works/grading works as directed by the Contract Administrator.

E14.4 All hydro-excavations shall be backfilled with sand that is approved by the Contract Administrator.

E14.5 All construction access crossings shall be removed prior to or upon completion of the Work, to the satisfaction of the Contract Administrator.

E14.6 The Work required by the Contractor for each of the pipeline crossings are as follows:

E14.6.1 Existing Oil Pipelines

- (a) The Contractor is responsible to steel plate or place rig matting over the construction access crossings of the pipelines taking into account vehicle weight, wheel or track configuration, material size and utility depth of bury. The Contractor's design must be submitted to the Contract Administrator for approval in advance of any construction access crossings with a drawing showing the locations and depths of the pipes.
- (b) Notify Contract Administrator a minimum of ten (10) days prior to commencement of work to arrange for a representative from the pipeline companies to be on-site. A representative from the pipeline companies will be required to be on-site during installation of the new oil pipelines under the existing pipelines to ensure there is no disruption to the existing pipeline.

E14.6.2 Existing Utility Crossings

- (a) The intersection of the proposed alignment's centerline and any existing utility pipeline shall be located by hydro excavation prior to the commencement of any excavation, or direction drilling.

#### MEASUREMENT AND PAYMENT

E14.7 Hydro-excavation to verify the depth of the pipelines is to be measured and paid for in accordance with E18.

E14.8 All other Items of Work covered by this Specification shall be incidental to the applicable type of Work and no additional payment shall be made.

#### **E15. ENCROACHMENT ON PRIVATE PROPERTY**

E15.1 Further to Section 3.11 of CW 1130 of the General Requirements, the Contractor shall confine his work to the public right-of-ways and construction easements at all times, except if he has received written permission from the property owner. The Contractor shall provide the Contract Administrator with a copy of any written permission he has received to enter onto private property.

E15.2 The Contractor's construction activities shall be confined to the minimum area necessary for undertaking the work and he shall be responsible for all damage to private property resulting from his work. Particular care shall be taken to assure no damage is done to building, fencing, trees and plants, and provision shall be made to maintain full drainage for private properties during construction.

## **E16. DAMAGE TO EXISTING STRUCTURES AND PROPERTY**

- E16.1 Further to Section 3.13 of CW 1130 of the General Requirements, special care shall be taken to avoid damage to existing adjacent structures and properties during the course of the Work.
- E16.2 Any damage cause by the Contractor or his Subcontractors to the adjacent structures or properties shall be promptly repaired by the Contractor at his own expense to the satisfaction of the Contract Administrator.

## **E17. EXCAVATION AND BACKFILL**

### DESCRIPTION

- E17.1 This Specification covers all operations relating to the excavation and backfilling required to construct the Work and shall be read in concert with the Work Packages included as part of these specifications, and the City of Winnipeg Specifications, CW2030-R7.
- E17.2 The Works also include the following items, which are incidental to the Work.
- E17.2.1 Preparation of the base of excavations.
- E17.2.2 The design, fabrication, erection, and removal of all temporary shoring, and such temporary protective measures as may be required to construct the Works.
- E17.2.3 The off-site disposal of surplus and unsuitable material.
- E17.2.4 Dewatering and or precipitation removal of the excavations as may be required for construction of the structures in the dry.
- E17.3 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Work as hereinafter specified.

### MATERIALS

- E17.4 General
- E17.4.1 Protection
- (a) The Contractor shall provide protection to ensure no damage to existing facilities and equipment, including railway infrastructure, utilities, and oil lines.
- E17.4.2 Excavation
- (a) The Contractor shall be responsible for the supply, safe storage, and handling of all materials as set forth in this Specification. All materials shall be handled in a careful and workmanship-like manner, to the satisfaction of the Contract Administrator.
- (b) All excavated materials shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the Contract Administrator. There shall be no charge to the Owner for any materials taken by the Contract Administrator for testing purposes.
- (c) Excavated material shall be unclassified excavation and shall include the excavation and satisfactory disposal of all cleared and grubbed materials, earth, gravel, sandstone, loose detached rock, shale, rubbish, cemented gravel or hard pan, disintegrated stone, rock in ledge or mass formation wet or dry, trees, shrubs, augured material for the vertical drains, abandoned utilities, existing timber or other culverts and structures, or all other material of whatever character which may be encountered.
- E17.4.3 Backfilling
- (a) All materials supplied under this Specification shall be subject to inspection and testing by the Contract Administrator or by the Testing Laboratory designated by the

Contract Administrator. There shall be no charge to the Owner for any materials taken by the Contract Administrator for testing purposes.

- (b) All materials shall be accepted by the Contract Administrator at least seven (7) days before any construction is undertaken. If, in the opinion of the Contract Administrator, such materials in whole or in part, do not conform to the Specification detailed herein, or are found to be defective in manufacture, or have become damaged in transit, storage, or handling operations, then such material shall be rejected by the Contract Administrator and replaced by the Contractor at his own expense.
- (c) Backfill materials shall be free of frozen lumps and shall be placed and compacted in an unfrozen state. Backfill shall not be placed on frozen subsoil.
- (d) All granular backfill for the pipe zone, including levelling base fill shall be clean and free from organic material and in accordance with the following gradation requirements:

CANADIAN METRIC SIEVE SIZE	PERCENT PASSING BY WEIGHT
5 000	90 - 100
2 500	
630	25 - 60
315	
80	0 - 3

- (e) Clay backfill shall be preferably native of a type accepted by the Contract Administrator.
- (f) Concrete Low Shrink Fill (CLSF) as called up by the Work Packages for cold weather backfilling shall be Flowable Cement Stabilized Fill (FCSF) as per the City Construction Specifications, CW2160-R7.
- (g) Excavated material may be used for backfilling provided it meets the above requirements. Excavated granular material intended to be used for backfilling must not be contaminated by top soil or organic materials.

**E17.5 Submittals**

E17.5.1 The Contractor shall submit to the Contract Administrator for review and approval, at least ten (10) Business Days prior to the commencement of any excavations on the Site, detailed design calculations and Shop Drawings for all shoring that is signed, sealed, and dated by a Professional Engineer experienced in shoring design and licensed to practice in the Province of Manitoba in accordance with E3 Shop Drawings.

**E17.6 Equipment**

E17.6.1 All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

**CONSTRUCTION METHODS**

**E17.7 Excavation**

E17.7.1 Excavations shall be completed to the elevations required to construct the Works or to such other elevations as may be directed by the Contract Administrator in the field. Excavation sequence shall be done in a "top down" direction, in order to maintain stability. The dimensions of the excavation shall be such as to give sufficient clearances for the construction of forms and their subsequent removal.

E17.7.2 All material shall be brought to the surface by approved method, suitable fill material placed on site where required as approved by the Contract Administrator or disposed of away from the site.

E17.7.3 After each excavation is completed, the Contractor shall notify the Contract Administrator.

- E17.7.4 The Contractor shall excavate only material that is necessary for the expeditious construction of the structure or as set out by the Contract Administrator in the field. If the Contract Administrator permits the excavation of runways, existing stock piling, or trenches within the right-of-way, the Contractor shall, on completion of the Work, backfill the runways and trenches to the elevation of the original ground existing at the time of excavation and compact the backfill material, all at his own expense and as directed by the Contract Administrator.
- E17.7.5 All excess excavated material shall become the property of the Contractor and shall be removed from the site.
- E17.8 Backfilling
- E17.8.1 The Contract Administrator shall be notified at least one (1) working day in advance of any backfilling operations. No backfill shall be placed against any concrete until accepted by the Contract Administrator.
- E17.8.2 All backfill material shall be supplied, placed, and compacted in lifts of 150 mm (maximum) to a minimum of 97% of Standard Proctor Dry Density. Lifts shall be brought up on all sides at the same time.
- E17.8.3 The Contractor shall be required to provide necessary water or equipment during compaction of backfill material to achieve the required densities.
- E17.8.4 The Standard Proctor Density for granular and clay backfill material shall be determined at the optimum moisture content in accordance with standard laboratory Proctor Compaction Test Procedure.
- E17.8.5 The field density of the compacted layers shall be verified by Field Density Tests in accordance with ASTM Standard, Test for Density of Soil in Place by the Sand-Cone Method, or equivalent as accepted by the Contract Administrator.
- E17.8.6 The frequency and number of tests to be made shall be as determined by the Contract Administrator.
- E17.8.7 All workmanship and materials furnished and supplied under this Specification are subject to close and systematic inspection and testing by the Contract Administrator including all operations from the selection and production of materials through to final acceptance of the specified Work. The Contractor shall be wholly responsible for the control of all operations incidental thereto notwithstanding any inspection or acceptance that may have previously been given. The Contract Administrator reserves the right to reject any materials or Works which are not in accordance with the requirements of this Specification.
- E17.8.8 The Contract Administrator shall be afforded full access for the inspection and control testing of constituent materials both at the site of the Work and at any plant used for production of the materials to determine whether the material is being supplied and placed in accordance with this Specification.
- E17.8.9 Any backfill material that does not meet the gradation and/or compaction requirements of this Specification shall be removed and replaced by the Contractor at his own expense, to the satisfaction of the Contract Administrator.
- E17.8.10 On-Site Disposal Excavated Material from Pipeline Installation
- (a) If the Contractor wishes to dispose of suitable excess material from the pipelines installation on-site in areas where clean fill is required, the Contractor shall strip all organics to the satisfaction of the Contract Administrator prior to placement of the material.
- E17.8.11 Disposal of Unsuitable or Surplus Excavated Material
- (a) There shall be no measurement of surplus soil material disposed of at any disposal site. No additional payment will be made for disposal of surplus soil materials. It shall be considered incidental to the cost of the Work.

## MEASUREMENT AND PAYMENT

### E17.9 Excavation and Backfill

- E17.9.1 The excavation and backfilling required for the Works will not be measured. They will be paid for at the Contract Lump Sum Price for "Excavation and Backfilling", which price will be payment in full for supplying all materials/equipment and performing all operation herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- E17.9.2 The removal and disposal of abandoned Phase II - SC pipeline will be included in contract bid price for "Excavation and Backfill – Phase II". It shall be considered incidental to the cost of the Work.
- E17.9.3 The removal and disposal of abandoned Phase III – IOL pipeline will be included in contract bid price for "Excavation and Backfill – Phase III". It shall be considered incidental to the cost of the Work.

## E18. HYDRO EXCAVATION

### DESCRIPTION

#### E18.1 General

- E18.1.1 This Specification covers all operations relating to the removal of earthen material immediately adjacent to underground utilities infrastructure by means of high pressure water spray, and the recovery of evacuated material by vacuum type means or equivalent method as approved by the Contract Administrator.
- E18.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.

#### E18.2 Equipment

- E18.2.1 Hydro excavation unit shall be capable of maintaining a minimum working pressure of 10,000 psi, at a rate of flow of 10 to 12 gallons per minute. The unit should be adjustable, so as to provide adequate pressure to remove earthen material identified by the Contract Administrator.
- E18.2.2 Spray head shall be equipped with a rotating type nozzle, in order to provide a wider path of cut.

### CONSTRUCTION METHODS

#### E18.3 Hydro-Removal of Earthen Material

- E18.3.1 Earthen material adjacent to utility entity shall be sprayed with high pressure water so as to remove all such material identified by the Contract Administrator.

#### E18.4 Recovery of Excavated Material

- E18.4.1 The recovery of excavated material shall be done using vacuum type method, or other type method as approved by the Contract Administrator.
- E18.4.2 The recovery of material shall follow immediately behind the excavation, to avoid excavated areas from filling with excavated material.
- E18.4.3 The use of mechanical sweepers will not be allowed.
- E18.4.4 Dispose of material in accordance with Section 3.4 of CW 1130.

**E18.5 Backfill of Hydro Excavated Hole**

- E18.5.1 The Contractor shall be responsible for the backfill of the hydro excavated hole with flowable cement-stabilized fill or sand backfill upon completion of the work described herein, to the approval of the Contract Administrator.

**MEASUREMENT AND PAYMENT**

**E18.6 Hydro Excavation**

- E18.6.1 Hydro excavation of earthen material will be measured on a time basis and paid for at the Contract Unit Price per hour for "Hydro Excavation", which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator. Travel to and from the site will not be included for payment.

**E18.7 Hydro Excavation Backfill**

- E18.7.1 Flowable Cement-Stabilized fill or sand backfill is considered incidental to Hydro Excavation and no separate measurement or payment will be made.

**E19. TRENCHLESS EXCAVATION**

**DESCRIPTION**

- E19.1 Further to Clause 3.4.1 of CW 2130, all pipelines and casings to be installed by trenchless methods are as shown on the Drawings. All crossings under the railway and existing roadways are to be installed by trenchless methods as shown on the Drawings.
- E19.2 Selection of excavation equipment for installation of pipelines and casings by trenchless methods shall be the responsibility of the Contractor and shall be made based on the basis of expected soil conditions outlined in the geotechnical report and as detailed on the soil logs. The Contractor shall make allowances in the choice of equipment to account for reasonable and minor deviations in ground conditions and shall have contingency plans for the removal of boulders and other minor changes in ground conditions.
- E19.3 In the event that there is a substantial change in the character or nature of the subsurface conditions or that obstructions are encountered, which adversely impact the Contractor's production or construction procedure, the Contractor shall immediately notify the Contract Administrator.
- E19.4 The notice shall provide details of the change in subsurface soil conditions or obstructions encountered, any proposed construction procedure revision that the Contractor intends to undertake, as well as any other relevant supporting information.
- E19.5 The Contract Administrator shall review the notice as expeditiously as possible to assess whether the change in conditions and revised construction procedures amount to a Change in Work. In the case of obstructions due to boulders in the silt/till or hardpan strata where that stratum is evident in the soils logs, no consideration will be made for a Change in Work as boulder obstructions can be reasonably anticipated when working in this stratum. Obstructions such as "random boulders" in the clay strata well above the till interface may be considered as a Change in Work dependent on the level of effort required to facilitate their removal.
- E19.6 Where the Contract Administrator deems that a Change in Work is necessary, it shall be valued in accordance with the provisions of C7.

## **E20. TRENCHLESS EXCAVATION OBSTRUCTIONS**

### DESCRIPTION

- E20.1 Contingency plans for removal of the obstructions encountered in trenchless excavations must be approved by the Contract Administrator and may consist of but not limited to one of the following.
- (a) Drill or excavate a shaft at the location of the obstruction and remove the obstruction.
  - (b) Remove the obstruction through the jacking head or core hole following drilling, splitting or breaking the obstruction into smaller components as required.
  - (c) Other removal methods.
- E20.2 Where the Contract Administrator deems that the obstruction encountered represents a Change in Work, it shall be valued in accordance with GC: 7.4 (c) and the following supplemental requirements:
- E20.2.1 The first four (4) hours of handling obstructions for each occurrence shall be the responsibility of the Contractor.
- E20.2.2 Equipment rates for equipment required in support of the obstruction removal shall be compensated at the Manitoba Heavy Construction Association (MHCA) rental rates. Equipment not listed in the MHCA rate schedule shall have their rates established by the Contractor prior to the commencement of Work in accordance with the procedure documented in the MHCA rental guide for establishing equipment rental rates and shall be subject to the approval of the Contract Administrator.
- E20.2.3 Standby equipment that cannot reasonably be deployed elsewhere during the duration of the obstruction removal shall be compensated at 50% of its established rate as noted in E20.2.2 above.
- E20.2.4 Labour rates and material costs associated with obstruction removal shall be compensated as per GC: 7.4 (c) and 7.4.1 with the provision that any removal and replacement of pavements shall be compensated at the Contract Unit Price for such Work.

## **E21. REMOVAL, SALVAGE AND INSTALLATION OF FENCING**

### DESCRIPTION

- E21.1 General
- E21.1.1 This Specification covers the removal, salvaging and installation of the portion of 2.4 m chain link fencing around the SC Valve Station required to be removed to facilitate the Work.
- E21.1.2 The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.
- E21.1.3 Referenced Standard Construction Specifications
- (a) CW 3550 - Chain Link Fencing

### MATERIALS

- E21.2 General
- E21.2.1 The Contractor shall be responsible for the supply, safe storage and handling of all materials set forth in this Specification. All materials supplied under this Specification shall be subject to inspection and acceptance by the Contract Administrator.

### E21.3 Barbed Wire

- E21.3.1 Barbed wire shall be 2 mm diameter galvanized steel wire to ASTM A121, 4 point barbs with 125 mm spacing.

### CONSTRUCTION METHODS

#### E21.4 Installation Chain Link Fencing using Salvaged Materials.

- E21.4.1 Install chain link fence in accordance with CW 3550 using salvaged materials.
- E21.4.2 New fence posts shall be supplied and installed to match the removed posts.
- E21.4.3 Supply and install 3 strand barbed wire, where the existing fence had barbed wire, 0.300 m high on top of the installed fence at the same angle that existing barbed wire was.

#### E21.5 Removal and Salvage of Existing Chain Link Fence.

- E21.5.1 Existing chain link fencing designated for removal shall be carefully removed and salvaged. All chain link fencing components and all hardware shall be salvaged for reuse and stockpiled at locations designated by the Contract Administrator for reinstallation in Contract 4.
- E21.5.2 The Contractor shall remove the fence posts and concrete bases. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed and disposed of by the Contractor.
- E21.5.3 In the event of damage to any materials by the Contractor, the Contractor shall immediately notify the Contract Administrator and make all repairs or replacements necessary, at his own expense, to the satisfaction of the Contract Administrator.

#### E21.6 Removal and Salvage of Existing Chain Link Fence

- E21.6.1 The Contractor shall remove and dispose of chain link fence, posts and concrete bases. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed and disposed of by the Contractor.

#### E21.7 Removal of Existing Chain Link Fence

- E21.7.1 The Contractor shall remove and dispose of chain link fence, posts and concrete bases. The post holes remaining following the removal of the fencing shall be backfilled and compacted to the satisfaction of the Contract Administrator. All concrete rubble shall be removed and disposed of by the Contractor.

### MEASUREMENT AND PAYMENT

#### E21.8 Install Chain Link Fence using Salvaged Materials.

- E21.8.1 The installation of chain link fences will be measured on a length basis and paid for at the Contract Unit Price per metre for "Install Chain Link Fence-Salvaged Materials", which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator.
- E21.8.2 The cost of supplying barbed wire and new posts will be considered incidental to the Works of this Specification. No measurement and payment will be made for this Work.

#### E21.9 Remove and Salvage Chain Link Fence

- E21.9.1 The removal and salvaging of existing chain link fences will be measured on a length basis and paid for at the Contract Unit Price per metre for "Remove and Salvage Chain Link Fence", which price shall be payment in full for supplying all materials and for completing



all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator.

E21.9.2 The cost of backfilling post holes and removing and disposing of old fence posts and concrete rubble will be considered incidental to the Works of this Specification. No measurement and payment will be made for this Work.

E21.10 Removal of Existing Chain Link Fence

E21.10.1 The removal of and dispose of existing chain link fences will be measured on a length basis and paid for per metre at the Contract Unit Price for "Chain Link Fence Removal", which price shall be payment in full for supplying all materials and for completing all operations herein described and all other items incidental to the work included in this Specification, accepted and measured by the Contract Administrator.

E21.10.2 The cost of backfilling post holes and removing concrete rubble will be considered incidental to the Works of this Specification. No measurement and payment will be made for this Work.

**E22. WORK PACKAGES**

DESCRIPTION

E22.1 For the purpose of estimating the number of working and standby days, the milestone events were used as per the table below.

Description	Start Date	End Date
Award		February 21, 2014
Mobilization	March 24, 2014	April 3, 2014
Phase I - Construction	April 7, 2014	May 31, 2014
Buffer Period #1	April 28, 2014	May 23, 2014
Phase II – Construction	June 2, 2014	July 18, 2014
Buffer Period #2	June 23, 2014	July 11, 2014
Phases III – Construction	July 21, 2014	August 23, 2014
Buffer Period #3	August 4, 2014	August 15, 2014
Demobilization	August 24, 2014	September 20, 2014

E22.2 Standby days are normally scheduled work days or work blocks in where the Contractor cannot perform work due to the activities. Within each phase there is a buffer period to allow the oil companies time to purge and clear the existing pipelines prior to the tie-ins of the new pipelines. Phase I and II provide for six (6) standby days, and Phase III provides for five (5) standby days.

E22.3 Non-working days such as Sundays and statutory holidays are not counted as either working days or standby days.

MEASUREMENT AND PAYMENT

E22.4 "Supply construction management, supervision, labour, equipment, rentals, consumables and site facilities for Phase I" will be paid for at the contract unit price per day bid for this work. This item shall include all time and material costs of the Contractor for the Phase I Work Package.

E22.5 "Standby Rate for scheduled work days or work blocks cancelled where Contractor cannot perform work during Phase I" will be paid for at the contract unit price per day bid for standby time. This item shall include all time and material costs of the Contractor for standby time during Phase I.

E22.6 "Supply of CN Protecting Foreman" will be paid for at the contract unit price per day bid for this work for Phases I and II. This item shall include the cost of transportation, meals, lodging and all equipment necessary to provide track protection for the project.

- E22.7 The excavation and backfilling required for the Phase I Works will not be measured. They will be paid for at the Contract Lump Sum Price for "Excavation and Backfilling, Phase I", which price will be payment in full for supplying all materials/equipment and performing all operation herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- E22.8 Supply and Install, Phase I Steel Pipe and Fittings
- E22.8.1 "Steel Pipe, 273 OD, 6.35 T, externally coated" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the pipe including the pipe, coatings, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.2 "Steel Pipe, 273 OD, 6.35 T, bare pipe" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the pipe including the pipe, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.3 "Casing Steel Pipe, 406 OD, 9.5 T, bare pipe" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the casing pipe including the pipe, shipping and handling, cutting, welding, and installation by directional drilling.
- E22.8.4 "Steel Pipe, 219 OD, 6.35 T, externally coated" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the pipe including the pipe, coatings, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.5 "Steel Pipe, 219 OD, 6.35 T, bare pipe" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the pipe including the pipe, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.6 "Casing Steel Pipe, 324 OD, 9.5 T, bare pipe" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the casing pipe including the pipe, shipping and handling, cutting, welding, and installation by directional drilling.
- E22.8.7 "Elbow, 45°, NPS 10, externally coated" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.8 "Elbow, 45°, NPS 8, externally coated" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.9 "Flange, WN, RF, ANSI 600, 260.35 Bore" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.10 "Flange, WN, RF, ANSI 600, 206.375 Bore" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.8.11 "Bolt c/w 2 hex nuts, 31.8 dia., 222.3 L" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, installation, and testing.

- E22.8.12 “Bolt c/w 2 hex nuts, 28.6 dia., 197 L” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, installation, and testing.
- E22.8.13 “Gasket, NPS 10” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.14 “Gasket, NPS 8” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.15 “Pipe spacer for NPS 10, PSI Ranger II” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.16 “Pipe spacer for NPS 8, PSI Ranger II” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.17 “End Seal, PSI Model C for NPS 10 pipeline” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.18 “End Seal, PSI Model C for NPS 8 pipeline” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.8.19 “Weld Cap, 324 OD, BW” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and testing.
- E22.8.20 “Weld Cap, 406 OD, BW” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and testing.
- E22.8.21 “Vent Piping, 60 OD, 3.9 T, Bare Pipe” will be paid at the contract unit price per meter for this work. This item shall include all costs for the supply and installation of the vent piping including the pipe, weldolet, fittings, vent cap or goose neck, shipping and handling, cutting, welding and painting.
- E22.8.22 “Weld Inspections – Phase I” will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the third party testing of 100% of the welds.
- E22.9 “Supply construction management, supervision, labour, equipment, rentals, consumables and site facilities for Phase II” will be paid for at the contract unit price per day bid for this work. This item shall include all time and material costs of the Contractor for the Phase II Work Package.
- E22.10 “Standby Rate for scheduled work days or work blocks cancelled where Contractor cannot perform work during Phase II” will be paid for at the contract unit price per day bid for standby time. This item shall include all time and material costs of the Contractor for standby time during Phase II.
- E22.11 The excavation and backfilling required for the Phase II Works will not be measured. They will be paid for at the Contract Lump Sum Price for “Excavation and Backfilling, Phase II”, which price will be payment in full for supplying all materials/equipment and performing all operation herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- E22.12 Supply and Install, Phase II Steel Pipe and Fittings
- E22.12.1 “Steel Pipe, 219 OD, 8.2 T, externally coated” will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation

of the pipe including the pipe, coatings, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.

- E22.12.2 "Elbow, 45°, NPS 8, externally coated" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.12.3 "Elbow, 90°, NPS 8, externally coated" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.12.4 "Flange, WN, RF, ANSI 600, 206.375 Bore" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.12.5 "Bolt c/w 2 hex nuts, 28.6 dia., 197 L" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, installation, and testing.
- E22.12.6 "Gasket, NPS 8" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, and installation.
- E22.12.7 "Weld Inspections – Phase II" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the third party testing of 100% of the welds.
- E22.13 "Supply construction management, supervision, labour, equipment, rentals, consumables and site facilities for Phase III" will be paid for at the contract unit price per day bid for this work. This item shall include all time and material costs of the Contractor for the Phase II Work Package.
- E22.14 "Standby Rate for scheduled work days or work blocks cancelled where Contractor cannot perform work during Phase III" will be paid for at the contract unit price per day bid for standby time. This item shall include all time and material costs of the Contractor for standby time during Phase III.
- E22.15 The excavation and backfilling required for the Phase III Works will not be measured. They will be paid for at the Contract Lump Sum Price for "Excavation and Backfilling, Phase III", which price will be payment in full for supplying all materials/equipment and performing all operation herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- E22.16 Supply and Install, Phase I Steel Pipe and Fittings
- E22.16.1 "Steel Pipe, 273 OD, 6.35 T, externally coated" will be paid at the contract unit price per lineal meter bid for this work. This item shall include all costs for the supply and installation of the pipe including the pipe, coatings, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.16.2 "Elbow, 45°, NPS 10, externally coated" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the supply and installation of the fitting including the fitting, shipping and handling, cutting, welding, external coating joint repairs, and hydrostatic testing.
- E22.16.3 "Weld Inspections – Phase I" will be paid at the contract unit price per piece bid for this work. This item shall include all costs for the third party testing of 100% of the welds.

## **E23. DRAWINGS OF RECORD**

### **E23.1 Record During Construction**

- E23.1.1 The Contractor shall keep one complete set of all construction drawings on the Site.
- E23.1.2 On the site set of contract drawings, the Contractor shall record any changes that are made during the actual construction of the Work. The purpose of recording these changes is to provide drawings of record at the end of the work. The Contractor shall be responsible for the adequacy and the reliability of the information recorded on the Drawings of Record
- E23.1.3 At the completion of construction, the Contractor shall turn over the set of construction drawings that have been marked up with changes during the course of work to the Contract Administrator to permit the Contract Administrator to prepare the Drawings of Record of the Work.

## **E24. CLOSEOUT SUBMITTALS**

### **E24.1 General**

- E24.1.1 This Specification covers all operations relating to the closeout submittals.

### **E24.2 Cleanup**

- E24.2.1 Maintain the working area in a clean and orderly manner as the Work progresses, and upon completion of construction, remove all waste materials, and all temporary facilities from the Site.
- E24.2.2 Remove surplus or salvaged materials belonging to the Contractor from the Site.

### **E24.3 Record Documents**

- E24.3.1 As specified in other sections of the Specification, the Contractor is required to prepare record drawings, to provide survey notes, to supply test results and other documentation. Such information shall be turned over to the Contract Administrator before Total Performance.