



INVITATION TO TENDER (“ITT”) No. PS08140

INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE

Tenders will be received in the Purchasing Services Office, 3rd Floor, Suite #320, East Tower, 555 West 12th Avenue, Vancouver, British Columbia, Canada, V5Z 3X7 prior to the Closing Time: 3:00:00 P.M. Vancouver Time (as defined in Note 2 below), Tuesday, September 30, 2008 and registered at 11:00 A.M on Wednesday October 1, 2008.

NOTES:

1. Tenders are to be in sealed envelopes or packages marked with the Tenderer’s Name, the ITT Title and Number.
2. Closing Time and Vancouver Time will be conclusively deemed to be the time shown on the clock used by the City’s Purchasing Services Office for this purpose.
3. The City’s Purchasing Services Office is open on Working Days 8:30 A.M. to 4:30 P.M. Vancouver Time and closed Saturdays, Sundays, and holidays.
4. DO NOT SUBMIT BY FAX.

All queries related to this ITT shall be submitted
in writing to the attention of:

Eamonn Savage
Contracting Specialist

Fax: 604.873.7057 E-mail: purchasing@vancouver.ca

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PART A - INVITATION TO TENDER

1.0 Invitation to Tender

- 1.1 The City of Vancouver (the “City”) invites Tenders for the installation of rail track for the City’s Downtown Historic Railway (the “DHR”) line which runs between Granville Island and the Cambie Bridge. In addition to normal DHR operations this rail line will be used to demonstrate modern street car technology.
- 1.2 The wheel flange profile of the modern vehicles is thinner and shorter than that of the DHR streetcars. This will require special adjustable guard-rails being installed. It will also require either welding wheel flange support ramps in the frogs, or installing specially modified frogs during the demonstration period for the modern vehicles that will be replaced with standard frogs prior to the DHR operations recommencing. All such work is extra to the contract unit prices.
- 1.3 The main track is approximately 1,740 meters long with a 170 meter passing loop. It will be constructed of new 115RE standard rail on concrete ties at 28” centers with two (2) # 8 turnouts at the passing loop.
- 1.4 The project also includes the installation of a turnout for a stub spur to a storage and maintenance barn.
- 1.5 The current season of operation of the DHR will complete by October 14, 2008 after which the site will be available to the Contractor for the removal of the existing track material.
- 1.6 Pursuant to the Supply Contracts (as defined below) the City has contracted for the purchase and delivery of the following major track materials: 115RE rail, concrete ties, turnouts and concrete crossing required for the project. It is a condition of this ITT that the successful Tenderer take an assignment of the Supply Contracts whereupon the Supply Contract Vendors will become sub-contractors to the successful Tenderer.
- 1.7 A primary consideration in evaluating Tenders will be the ability of the Contractor to meet the Project Schedule.

2.0 Tender documents

- 2.1 Tender Documents are available for purchase during normal business hours after 1:00 PM on Thursday, September 11, 2008 at:

Purchasing Services Office,
3rd Floor, Suite #320, East Tower,
555 West 12th Avenue,
Vancouver, British Columbia, Canada, V5Z 3X7

on payment of a non-refundable amount of \$50.00 including GST, payable to “The City of Vancouver”.

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2.2 The Tender Documents are available for viewing at:

Vancouver Regional Construction Association
3636 E 4th Avenue
Vancouver, B.C.
V5M 1M3

3.0 Information Meeting

3.1 Tenderers are invited to attend an Information Meeting on Thursday, September 18, 2008, commencing at 2:00 PM and lasting until approximately 4:00 PM. This meeting will be held at the DHR car barn located near the intersection of 6th Avenue and Ash Street in Vancouver.

3.2 All prospective tenderers are to pre-register for the Information Meeting by submitting an Information Meeting Attendance Form (Appendix 1) by fax to (604) 873-7057 or e-mail to purchasing@vancouver.ca by Tuesday, September 16, 2008.

4.0 Administrative Requirements

4.1 Please indicate whether or not you will be submitting a Tender prior to the Closing Time by submitting the Response Notification Form (Appendix 2).

4.2 It is the sole responsibility of the Tenderer to check the City's website at <http://vancouver.ca/bid/bidopp/openbid.htm> regularly for amendments, addenda, and questions and answers related to this ITT.

4.3 All Tenders are to be completed and submitted in accordance with instructions on the front page to this ITT and as provided within this Part A.

5.0 Conduct of ITT - Inquiries and Clarifications

5.1 The City's Manager - Materials Management will have conduct of this ITT, and all communications are to be directed only to the contact person(s) named on the cover page.

5.2 It is the responsibility of the Tenderer to thoroughly examine the ITT documents and satisfy itself as to the full requirements of this ITT. All inquiries are to be in written form only, faxed to 604-873-7057 or e-mailed to purchasing@vancouver.ca to the attention of the appropriate contact person shown on the cover page before the deadline date. If required, an addendum will be issued to all registered Tenderers and posted on the City's website as noted in item 4.2 above.

5.3 The lowest or any Tender may not be accepted and the City of Vancouver will not be responsible for any cost incurred by the Tenderer in preparing the Tender.

5.4 Tenders are scheduled to close at Closing Time listed on the cover page of this ITT.

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PART B - INSTRUCTIONS TO TENDERERS**

1.0 DEFINITIONS & INTERPRETATION

1.1 Definitions

Capitalized terms used in these Tender Documents shall have the meanings ascribed to such terms in the General Conditions (GC.1. - *Definitions*), unless such terms are specifically defined in this Instructions to Tenderers or the context of their use requires otherwise.

The defined terms in this Instructions to Tenderers include:

“**City**” means the City of Vancouver, a municipal corporation continued pursuant to the Vancouver Charter, SBC 1953, c.55;

“**Closing Time**” means the closing date, time and place as set out on the cover page of this ITT;

“**Contract**” (or “**Agreement**”) means the contract in the Form of Agreement the City will enter into with the successful Tenderer;

“**Contractor**” means a Tenderer whose Tender the City has accepted and to whom the Contract has been awarded;

“**Form of Tender**” means the form of tender in Part C to the ITT;

“**Information and Privacy Legislation**” includes the *Freedom of Information and Protection of Privacy Act* (British Columbia) and all other similar legislation in effect from time to time;

“**Notice of Award**” means a written notice from the City to a Tenderer that the City accepts the Tenderer’s Tender for the performance of the Work;

“**Notice to Proceed**” means a written notice from the City to a Tenderer to whom a Notice of Award has been delivered, directing the Tenderer to proceed with the Work in accordance with the Tender Documents;

“**Losses**” means, in respect of any matter, all:

- I. direct and indirect; as well as
- II. consequential,

claims, demands, proceedings, losses, damages, liabilities, deficiencies, costs and expenses (including without limitation, all legal and other professional fees and disbursements, interest, penalties and amounts paid in settlement, whether from a third person or otherwise);

“**OCS**” means overhead control systems and consists of the overhead electrical control system to be installed by an Other contractor separately and apart from the Work (but in coordination with the Work);

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“**Supply Contracts**” means the contracts entered into by the City with third party suppliers for the Rails, Ties, Turnouts, and a Concrete Crossing all as set out in ITT PS08108, ITT PS08117, ITT PS08119 and RFQ PS 08126 and which contracts will be supplied to the Tenderers as an Amendment to this ITT prior to the Closing Time;

“**Supply Contract Price**” means the aggregate price including all taxes and fees, except GST of the Supply Contracts and for certainty is the sum of each “Contract Price” as defined in each Supply Contract, excluding GST.

“**Supply Contract Vendor**” means the vendor under a Supply Contract;

“**Tax Legislation**” includes the *Income Tax Act* (Canada), *Excise Tax Act* (Canada), and all other similar legislation in effect from time to time;

“**Tender**” means a tender submitted to the City in response to the ITT;

“**Tender Contract**” means any contract whether simple or by deed formed upon receipt by the City of a tender from a Tenderer in response to the Invitation to Tender;

“**Tender Documents**” mean all the documents listed in Paragraph 12 of this Part B, including any addendum issued by the City; and

“**Tenderer**” means the person(s) described in the beginning of the Form of Tender.

“**Tender Price**” means the total monetary amount of all prices proposed in the Tender, including the Supply Contract Price and all applicable taxes;

“**Work Site**” or “**Site**” means the area or areas on and about the City property where the Work is to be carried out.

1.2 Interpretation

- a) In these Tender Documents, any reference to the masculine includes the feminine and bodies corporate, and each includes the others where appropriate. Also, any reference to the singular includes the plural where appropriate.
- b) If there is a conflict between or among the Specifications and Drawings and the Invitation to Tender, Instructions to Tenderers, Form of Tender (including the Schedules), Form of Agreement, General Conditions, Supplementary General Conditions, Appendices and any addenda issued by the City (collectively, the “Balance of Tender Documents”), the Balance of Tender Documents shall prevail over the Specifications and Drawings.

2.0 INTRODUCTION

The City of Vancouver is inviting Tenders for the installation of trackwork at the City’s Downtown Historic Railway site. The work as described in the Tender Documents includes but is not limited to:

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- a) Temporary Facilities;
- b) Environmental Protection;
- c) Traffic Regulation;
- d) Shrub and Tree Preservation;
- e) Clearing and Grubbing;
- f) Site Grading;
- g) Excavating, Trenching and Backfilling;
- h) Aggregates and Granular Fill;
- i) Dust Control;
- j) Site Setting Out;
- k) Borrow;
- l) Stripping;
- m) Ballast;
- n) Sub-ballast;
- o) Roadway Excavation, Embankment and Compaction;
- p) Geosynthetics;
- q) Trackwork Construction (Ties, and Rail);
- r) Hydraulic seeding;
- s) Planting of Trees, Shrubs and Ground Cover;
- t) Concrete;
- u) Drainage Works; and
- v) Retaining walls;

The Site is generally located along the rail corridor linking Granville Island and the South end of the Cambie Bridge.

3.0 TENDERS

- a) Upon payment of \$50.00 (including GST), each Tenderer will be given one copy of the

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Tender Documents. The Tenderer should complete and return the Form of Tender and Schedules as hereinafter provided, and should furnish a Bid Bond.

- b) The sealed Tender on the Form of Tender provided, together with all other documents required by the Tender Documents, shall be filed with:

Purchasing Services Office
3rd Floor, Suite 320, East Tower,
555 West 12th Avenue
Vancouver, B.C. V5Z 3X7

up to the Tender Closing Time shown on the cover of this ITT.

The Tender Closing Time will be conclusively deemed to be the time shown on the clock used by the City's Purchasing Services Office for this purpose.

Tenders received after the Tender Closing Time will be returned unopened to the Tenderer.

Faxed or emailed Tenders and/or other documents will not be accepted, and will be returned to the Tenderer.

- c) Tenders should be enclosed in a sealed plain envelope, clearly marked: "**Installation of Trackwork for Streetcar Demonstration Line, ITT PS08140**", with the Tenderer's name in the upper left hand corner.
- d) Each Tender should be signed in longhand by or on behalf of the Tenderer, with her usual signature. Tenders by partnerships should be signed by at least two of the partners, followed by the designations of the partners signing. Tenders by a company should specify the full legal name of the company followed by the signatures of the duly authorized signing officer(s) and should have the company's seal affixed. Each page of the Form of Tender, including the Schedules should bear the initials of those persons who have executed the Form of Tender.
- e) All blank spaces in the Form of Tender should be filled in. All prices and notations should be typewritten or written in ink. Erasures, interlineations or other corrections should be initialled by the person or persons signing the Tender.
- f) Tenderers should submit on the Form of Tender provided, a Total Tender Price (hereinafter defined), including all taxes and fees.
- g) Tenderers must submit on Schedule A provided, a breakdown of the Total Tender Price referred to in (f) above. These unit prices and/or lump sums will be used to compute interim progress payments and will be reviewed prior to Contract award so Tenderers should ensure that the sums accurately reflect the costs for each item. The Tenderer may be required to justify the submitted breakdown.
- h) Tenderers should submit a price for each item listed. For items which are not specifically listed, Tenderers shall place the costs for these in the nearest applicable item. Failure by the Tenderer to submit a complete breakdown may result in an

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incomplete Tender and may be cause for rejection.

- i) Unless otherwise stipulated, Tenders should be made on the Form of Tender supplied and signed as specified in (d) above.
- j) Tenders should be all inclusive and should be without qualification or condition.

4.0 TOTAL TENDER PRICE

4.1 The price for the Work (the “Total Tender Price”) shall be the sum in Canadian dollars of the following:

- a) the product of the actual quantities of the items of Work listed in the Schedule of Quantities and Prices which are incorporated into or made necessary by the Work and their unit prices listed in the Schedule of Quantities and Prices; plus
- b) all lump sums, if any, as listed in the Schedule of Quantities and Prices, for items relating to or incorporated into the Work;
- c) the Supply Contract Price, plus
- d) all applicable taxes.

Since the Supply Contract Price may not be known at the Closing Time, this amount will be the exact amount shown on each of the Supply Contracts once same have been awarded to the successful bidder on each and then deemed to be included in the Total Tender Price. Once available, Tenderers will promptly receive written copies of the applicable Notice of Award (and any other related contractual documentation) issued or executed under each of the Supply Contracts as a pre-Closing Time or post-Closing Time Amendment to this ITT.

4.2 Subject to any adjustment for changes to the Work, which are approved by the Engineer in accordance with the Contract Documents, the Total Tender Price shall be the maximum compensation owing to the Contractor for the Work and the Contractor’s compensation shall cover and include all profit and all costs of supervision, labour, material, equipment, overhead, financing and all other costs and expenses whatsoever incurred in performing the Work.

4.3 The City may delete any items in Part C Form of Tender Schedule A in order to meet budget limitations, or otherwise, and award a contract for only the remaining items.

5.0 OPENING OF TENDERS

Tenders will be opened publicly in the Purchasing Services Office at the address shown on the cover page of this ITT promptly after the Closing Time.

Award of a Contract will be subject to approval by City Council and the evaluation criteria and legal terms and conditions of this ITT.

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6.0 CONTRACT

The successful Tenderer will become a Contractor and will be required to sign the Contract (on the terms and conditions noted in the Form of Agreement) with the City. Pursuant to Section 13 of the Supplementary General Conditions, the Contract includes an assignment of the Supply Contracts to the Contractor.

7.0 BONDS

a) Each Tender should be accompanied by a Consent of Surety (Schedule "F" of the Form of Tender) or equivalent duly completed by a surety company authorized and licensed to carry on business in British Columbia and having an office in British Columbia and a Bid Bond, payable to the Owner, the City of Vancouver, in the amount of ten percent (10%) of the Total Tender Price, and not a dollar amount, as a guarantee of the due execution of the Agreement with the City and the delivery of the Bonds specified in Paragraph 7(b) hereof.

b) The forms of the Bonds should be those issued by the Canadian Construction Documents Committee as follows:

Bid Bond: CCDC 220 (latest)

Performance Bond: CCDC 221 (latest)

Labour and Material Payment Bond: CCDC 222 (latest)

c) The Bid Bond of unsuccessful Tenderers will be returned to them as soon as possible after the Contract is awarded and the Bid Bond of the Tenderer to whom the award is made will be returned to him/her upon execution of the Agreement, delivery of a Performance Bond for 50% of the Total Tender Price and a Labour and Material Payment Bond for 50% of the Total Tender Price, and commencement of the Work. The cost of all Bond premiums shall be included in the Total Tender Price.

d) All bonds should be issued by a surety company authorized and licensed to carry on business in British Columbia and should have an office in British Columbia.

8.0 INSURANCE

The Contractor shall maintain the insurance provisions described in Section 53 of the General Conditions at the Contractor's expense.

9.0 WORKSAFE BC

Tenderers should familiarize themselves with the latest Worksafe BC requirements as laid out in Sections 7 and 54 of the General Conditions.

10.0 ACCEPTANCE OF TENDERS

Notwithstanding anything to the contrary contained in the Invitation to Tender, the Instructions to Tenderers or any other contractual document:

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- a) Tenderers are notified that the lowest or any Tender need not necessarily be accepted and the City reserves the right to reject any and all Tenders at any time without further explanation or to accept any Tender considered advantageous to the City. Acceptance of any tender is contingent on funds being approved and a contract award being made by City Council and the insurability of the Contractor pursuant to the insurance provisions of the General Conditions. Tenders which contain qualifying conditions or otherwise fail to conform to these Tender Documents may be disqualified or rejected. The City may waive any non-compliance with the Tender Documents or any conditions, including the timing of delivery of anything required by these Tender Documents and may at its sole discretion elect to retain for consideration Tenders which are non-conforming because they do not contain the content or form required by the Tender Documents or because they have not complied with the process for submission set out herein.
- b) Tenders shall remain open for acceptance by the City for a period of ninety (90) calendar days after the Closing Time.
- c) **The award of any contract shall be based on the evaluation of the Tenders by the City on any basis the City deems will best serve its interests, including but not limited to the following criteria, as applicable in the City's sole opinion:**
- i) the overall cost impact of the Tender on the operations of the City, including the addition of all applicable taxes to the prices quoted;
 - ii) the reputation and experience of the Tenderer and of the Tenderer's senior staff to be allocated to the Work;
 - iii) the technical credibility, financial resources and environmental responsibility of the Tenderer;
 - iv) the Tenderer's understanding of all components of the Work based on its proposed methodology;
 - v) the Tenderer's scheduling of the Work in relation to the City's schedule and the ability to complete the Work within the time frame required by the City;
 - vi) **the best value to the City based on quality, service, price and any of the criteria set out herein based solely on the City's subjective assessment of the Tender;**
 - vii) the reputation, references and previous experience of the Tenderer or its Subcontractors;
- d) Where the City determines that all Total Tender Prices are too high, all Tenders may be rejected.
- e) The City may, prior to Contract award, negotiate changes to the scope of the Work or any conditions with the low Tenderer or any one or more Tenderers without having any duty or obligation to advise any other Tenderers or to allow them to vary their Total Tender Prices as a result of changes to the scope of the Work or any conditions and the

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City shall have no liability to any other Tenderer as a result of such negotiations or modifications.

- f) The Tenderer acknowledges and agrees that the City will not be responsible for costs, expenses, Losses, damages (including damages for loss of anticipated profit) or liabilities incurred by a Tenderer as a result of or arising out of submitting a Tender for the proposed Contract, or due to the City's acceptance or non-acceptance of their Tender or any breach by the City of the Tender Contract between the City and each of the Tenderers or arising out of any contract award not made in accordance with the express or implied terms of the Tender Documents.
- g) The City may award the Contract on the basis of policies and preferences not stated in the Tender Documents or otherwise than as stated in the Tender Documents.
- h) Guidelines or policies that may be applicable shall not give rise to legal rights on the part of any Tenderer, Contractor, Subcontractor or others as against the City and shall in no case create any liability on the part of the City.

11.0 SITE EXAMINATION

- a) The Site on which the Work is to be executed is located on City owned property in Vancouver, B.C.
- b) Tenderers shall make a careful examination of the Site and investigate and satisfy themselves at their own risk and expense as to all matters relating to the nature of the Work to be undertaken; the means of access; the extent of the Work to be performed and any and all matters which are referred to in the Specifications and Drawings, Tables, and other Tender Documents, or which are necessary for the full and proper completion of the Work and the conditions under which it will be performed. No allowance shall be made subsequently in this connection on behalf of a Contractor for any error, negligence, interpretation, or misinterpretation on the Contractor's part.
- c) The City and the Engineer do not guarantee Site and geotechnical information (if any) provided in or with the Tender Documents and the Tenderer must evaluate such information relative to actual conditions.

12.0 TENDER DOCUMENTS

The Tender Documents shall consist of the Invitation to Tender, Instructions to Tenderer, Form of Tender (including Schedules A, A1,B, C, D, E, F, G, and H), Form of Agreement, General Conditions, Supplementary General Conditions, Appendix A (the Prime Contractor Agreement Form), Specifications, Drawings, Appendices 1, 2, 3, 4, and 5 the Supply Contracts, and any and all Amendments to this ITT issued by the City prior to the Closing Time and any and all Amendments issued by the City after the Closing Time (provided that same are accepted in writing by the Tenderer).

13.0 EXAMINATION OF TENDER DOCUMENTS

- a) Each Tenderer must examine the Tender Documents and must also satisfy him/herself of the extent of the Work. The Tenderer shall make his/her own estimate therefrom of

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the facilities and difficulties attending the performance and the completion of the Work.

- b) No allowance shall be made subsequently on behalf of a Contractor for any error, omission or negligence on the Contractor's part or for non-compliance with the requirements of this clause.

14.0 INTERPRETATION

- a) If any Tenderer is in doubt as to the true meaning and intent of any part of the Specifications, Drawings, or other Tender Documents, the Tenderer shall request the Engineer for an interpretation thereof at least three (3) Working Days prior to the Closing Time. If such an interpretation is not requested or confirmed by an Addendum, the Tender will be presumed to be based upon the interpretation that may be subsequently given by the Engineer after award of the Contract.
- b) Prior to the Closing Time of Tenders, all requests made according to Paragraph 14(a) for necessary clarification of the Specifications, Drawings, or other Tender Documents will be answered in writing by the Engineer. The City shall not be responsible for verbal or any other explanations or interpretations of the Specifications, Drawings or other Tender Documents. All Addenda and other written notices so issued shall become part of the Tender Documents and shall be binding upon all Tenderers.

15.0 TAXES AND FEES

The Contractor in the Contractor's Tender must allow for the payment of all Permit Fees and Licence Fees and all Municipal, Provincial and Federal taxes, custom duties and other assessments and charges, and the Contractor agrees that the City shall not be liable in any manner therefor and agrees to indemnify and save harmless at all times the City against all claims which shall be made with respect thereto.

16.0 PRODUCT APPROVAL

- a) Wherever any Product (as defined in the General Conditions) is specified or shown by describing proprietary items, model numbers, catalogue numbers, manufacturer or trade names or similar reference, the Contractor obligates himself to submit his Tender and accept award of the Contract based upon the use of such Products. Use of such reference is intended to establish the measure of quality which the Engineer has determined as a requisite and necessary for the Work. Where two or more Products are shown or specified, the Contractor has the option of which to use.
- b) For approval of Products other than those specified, Tenderers shall submit a request in writing to the Engineer at least five (5) Working Days prior to the Tender Closing Time. Requests shall clearly define and describe the Product for which approval is requested. Requests shall be accompanied by manufacturer's literature, specifications, drawings, cuts, performance data or other information necessary to completely describe the item. Approval by the Engineer will only be in the form of an addendum to the Specifications issued by the Engineer to each party receiving a set of Specifications and Drawings.

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- c) Approval of manufacturers and/or Products as noted are approved only insofar as they shall conform to the Specifications.

17.0 METRIC MEASUREMENTS AND COORDINATION

- a) The Work has been designed using metric dimensions. All linear dimensions have been expressed in millimetres in whole numbers (without decimal parts) and in metres with fractions thereof. The unit "mm" for millimetres has been deleted from the dimensioning of the drawings.
- b) Within the Specifications, the unit symbols for all metric units are included. Also, the decimal parts have been included in the Specifications where Products have been "soft converted" (i.e., when the dimensions of the Product remain the same as they are at present but are expressed in metric equivalent units). Dimensions for spacing of Products have been expressed in millimetres in whole numbers in both the Specifications and Drawings.
- c) As a general rule, all dimensioning of Products and equipment has been "soft converted". Exceptions to this rule are certain Products which are presently available in metric sizes and have been "hard converted"; i.e., where the Product itself is manufactured to rational metric dimensions.
- d) Where "hard conversion" Products have been specified and are available they shall be supplied.
- e) Care is required to be executed to ensure coordination of imperial and metric Products and in dimensioning and in this regard, the Contractor shall be entirely responsible for metric coordination of its Work.
- f) The Contractor will ensure that all persons employed on its Work know the metric system of measurement, and that they use metric references and measuring devices.

18.0 SCHEDULING, COORDINATION AND COMPLETION

Time shall be of the essence for all purposes of the Contract and the performance of the Work.

Each Tenderer shall complete and submit Schedule B with the Tender, showing the proposed critical path construction schedule for all Work under the Contract, to clearly demonstrate how the Tenderer will achieve **Total Performance of the Work by February 28, 2009**

The Work is taking place amidst a number of other construction activities ("site constraints") on the rail corridor site. The Contractor will be responsible for completing the Work in a way that does not hinder other work on the rail corridor site. The other existing and future construction activities (which are subject to change) include, but are not limited to:

- a) OCS and electrical work;
- b) Traffic signal work at the Moberly intersection;
- c) Station construction at both ends of the job site;

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The dates for delivery of materials are as set out in the Supply Contracts and the dates for starting and completing the Work will be in accordance with the following schedule (Project Schedule).

Project Start Date	15 October 2008
Substantial Performance	To be provided by the Contractor but must be prior to Total Performance
Total Performance	28 February 2009

The following dates are the currently estimated dates for the installation of the OCS. These dates are estimates only but will be confirmed by way of a post-Closing Time Amendment to be issued to Tenderers shortly after the Closing Time but, in any event, before issuance of a Notice of Award, in order to allow Tenderers to amend their Tender if, but only to the extent that, any changes in these dates affect the contents of their Tender.

OCS Preliminary Staging and Wire Work	21 - 31 October 2008
OCS Installation of Conduit, Pole-bases, and Poles at Track-side, and Wires Over-head of Track	23-February 2009 - 6 April 2009
OCS Substation Installation	24 April 2009 - 22 May 2009

19.0 EXCAVATION, SOIL SUPPORT AND WORK AREAS

The following items are brought to the Tenderer's attention:

- a) The Contractor shall employ all work procedures necessary to eliminate disturbance and inconvenience to all residents and business owners adjacent or near the Site and shall strictly adhere to all construction procedures specified or referenced in the Tender Documents.
- b) Contractor work areas will be approximately as indicated in the Drawings.
- c) Other contractors completing other construction work items will be on-site during the Work as noted in Paragraph 18 of this Instructions to Tenderers. The Contractor will be required to work together with the City and Other contractors to resolve any coordination issues that arise as a result of these construction activities.

20.0 LABOUR AND EQUIPMENT RATES

Tenders should include Schedule "E"- Force Account Labour and Equipment Rates. The Tenderer should insert the hourly rates for labour and equipment including allowances for taxes, assessments, benefits, small tools, overhead and profit as set out in the Supplementary

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General Conditions paragraph section titled "Force Account".

21.0 EXPERIENCE

Tenderers should confirm that they have suitable experience in the performance of this type of work. Each Tenderer should submit Schedule "D" on related projects completed, including the following information:

- a) a brief description of the project;
- b) location;
- c) contract value;
- d) start and completion dates;
- e) completed on schedule or not;
- f) name of project owner and representative to be contacted as reference with the reference's current phone number and email address (if available); and
- g) names and positions of Contractor's key personnel involved in the project.

22.0 LIST OF SUBCONTRACTORS AND SUPPLIERS

The Tenderer should insert in Schedule "C" to the Tender a list of Subcontractors, providing name, address of place of business, and the portion of the Work to be done by the Subcontractor or the equipment or materials to be supplied by the Subcontractor.

23.0 NON-RESIDENT WITHHOLDING TAX

Tenderers are advised that, if they are not residents of Canada, the Income Tax Act of Canada requires that a certain percentage of the monies otherwise payable to the Contractor be withheld by the City and remitted to the Receiver-General for Canada. The percentage required to be withheld and remitted varies depending among other things, on the country of residence, the provisions of any applicable treaties and the nature of the payment. Non-resident Tenderers may contact the Vancouver office of Revenue Canada, Taxation for further details. The City shall receive a credit under the Contract for monies withheld and remitted. The rights of the City in this matter are enlarged in the General Conditions.

24.0 RELEASE, INDEMNITY AND LIMITATION

- a) Release

The Tenderer now releases the City from all liability for any Losses in respect of:

- i) any alleged (or judicially imposed) breach by the City or its employees, officers, officials or agents, including the Engineer, of the Tender Contract (it being acknowledged and agreed that to the best of the parties' knowledge, the City has no obligation or duty under the Tender Contract which it could breach

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(other than obligations or duties merely alleged or imposed judicially));

- ii) any unintentional tort of the City or its employees, officers, officials or agents, including the Engineer, occurring in the course of conducting this Invitation to Tender;
- iii) the Tenderer preparing and submitting a signed Form of Tender;
- iv) the City accepting or rejecting the Tenderer's tender;
- v) the manner in which a Contract award is made or in which no Contract award is made; and
- vi) the Tenderer(s), if any, to whom a Contract award is made.

b) Indemnity

The Tenderer now indemnifies and will protect and save the City and its employees, officers, officials and agents, including the Engineer, harmless from and against all Losses, in respect of any claim or threatened claim by the Tenderer or any of its Subcontractors, subconsultants or materials or equipment suppliers alleging or pleading:

- i) any alleged (or judicially imposed) breach by the City or its employees, officers, officials or agents, including the Engineer, of the Tender Contract (it being agreed that, to the best of the parties' knowledge, the City has no obligation or duty under the Tender Contract which it could breach (other than obligations or duties merely alleged or imposed judicially));
- ii) any unintentional tort of the City or its employees, officers, officials or agents, including the Engineer, occurring in the course of conducting this Invitation to Tender; or
- iii) liability on any other basis related to the tendering process, bidding process or the Tender Contract.

c) Limitation

In the event that, with respect to anything relating to the tendering process, bidding process or the Tender Contract, the City or its employees, officers, officials or agents, including the Engineer, are found to have breached (including fundamentally breached) any duty or obligation of any kind to the Tenderer or its Subcontractors, subconsultants or suppliers, whether at law or in equity or in contract or in tort, or are found liable to the Tenderer or its Subcontractors, subconsultants or suppliers on any basis or legal principle of any kind, the City's liability is limited to a maximum of Five Hundred Dollars (\$500) in Canadian currency, despite any other term or agreement (either expressly stated or implied) to the contrary.

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PART B - INSTRUCTIONS TO TENDERERS**

25.0 DISPUTE RESOLUTION

Any dispute relating in any manner to this Invitation to Tender, except only disputes arising between the City and any Tenderer to whom the City has made an award of the Contract, will be resolved by arbitration in accordance with the *Commercial Arbitration Act* (British Columbia) amended as follows:

- a) The arbitrator will be selected by the City's Manager of Materials Management; and
- b) Paragraph 24 above - Release, Indemnity and Limitation will:
 - i) bind the arbitrator, the Tenderer and the City; and
 - ii) survive any and all awards made by the arbitrator.

26.0 CONFIDENTIALITY AND PRIVACY

The Tender, once submitted to the City, becomes the property of the City, which is a public body required under Information and Privacy Legislation to protect or disclose certain types of records according to certain statutory rules. The Tender, upon submission to the City, will be received and held in confidence by the City unless and to the extent that it is or must be disclosed pursuant to Information and Privacy Legislation or the award and evaluation process adopted by the City for this Invitation to Tender.

27.0 RELEASE OF INFORMATION RESTRICTED

No information will be given out between the Closing Time and the time the Contract award (or decision not to award the Contract) is made. Tenderers must attend the tender opening in order to obtain information prior to the making of the Contract award.

28.0 ENQUIRIES

All enquiries prior to the Closing Time shall be directed to the contact person listed on the cover page of this ITT.

29.0 MASTER MUNICIPAL SPECIFICATIONS AND STANDARD DETAIL DRAWINGS

All Tenderers must thoroughly review the Tender Documents. Specifications for the Work are based on the Master Municipal Specifications and Standard Detail Drawings (printed 2000) as amended by the City of Vancouver (refer to Part G - Specifications and Drawings part of the Tender Documents). For certainty, all of Volume I and the following parts of Volume II of the MMCD are expressly excluded from this ITT and the Contract Documents: Instruction to Tenderers - Part II. General Conditions (including Schedule 17.5.3 Letter Agreement with Referee, Changes Flow Chart, and Dispute Resolution Flow Chart). The Master Municipal Specifications and Standard Detail Drawings may be purchased separately from:

Support Services Unlimited
#302 - 1107 Homer Street
Vancouver, B.C. V6B 2Y1
Phone: 604.681.029

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The Contractor shall comply with all standards for CN Class IV track and ensure construction in accordance with CN Engineering and Maintenance of Way Standard Practice Circulars (SPC) issued April 2005.

The Contractor shall perform all Work in a manner that at all times maintains a standard of care, skill and diligence in performing the Work in accordance with good construction practices. American Railway Engineering and Maintenance of Way Standards, Manual for Railway Engineering will be an additional reference.

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PART C - FORM OF TENDER**

Tender of _____

(Name of Person, Firm, or Company)

Address: _____

Telephone No.: _____

Fax No.: _____

Email: _____

For the following work:

Construction of Downtown Historic Railway/Streetcar Demonstration Trackworks, as described in the Tender Documents.

The work to be done by the Contractor for this Contract shall include overhead, labour, equipment, tools, supplies and all other things necessary for and incidental to the satisfactory performance and completion of all work as specified in the Tender Documents.

(All of the above collectively hereinafter referred to as the "Work".)

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PART C - FORM OF TENDER**

2.0 NOTICE OF AWARD

The undersigned agrees that this Tender will be irrevocable and open for acceptance by the City for a period of sixty (60) calendar days from the day following the Tender Closing Time, even if the Tender of another Tenderer is accepted by the City. If within this period the City delivers a written Notice of Award by which the City accepts the subject Tender, the undersigned will, within 5 Working Days of the receipt of the written Notice of Award, deliver to the City:

- a) a Performance Bond and a Labour and Material Payment Bond, each in the amount of 50% of the Total Tender Price, issued by a surety licensed to carry on the business of suretyship in the province of British Columbia, and in a form acceptable to the City;
- b) a detailed Construction schedule, as required by Section 22 of the General Conditions;
- c) a “clearance letter” indicating that the Tenderer is in WCB compliance, as required by Section 7(f) of the General Conditions; and
- d) a Certificate of Insurance or certified copy of the insurance policies as specified in Section 53 of the General Conditions indicating that all such insurance coverage is in place.

3.0 NOTICE TO PROCEED

The undersigned agrees that upon City acceptance of the submissions of Paragraph 2 above, the City will deliver a Notice to Proceed by which the undersigned will:

- a) commence the Work within 14 calendar days of the receipt of the written Notice to Proceed or such longer time as may be otherwise specified in the Notice to Proceed;
- b) sign the Contract Documents (including the Prime Contractor Agreement referred to GC 7) and return them to the City within five (5) Working Days after receiving the Contract Documents from the City; and
- c) issue, post, and copy the Owner on the Notice of Project as and when required under Section 7(e) of the General Conditions.

4.0 CONDITIONS

The undersigned understands and agrees that:

- a) If the undersigned receives written Notice of Award of this Contract and, contrary to Paragraphs 2 and 3 above of this Form of Tender, the undersigned:
 - i) fails or refuses to deliver the documents as specified by Paragraphs 2 and 3 of this Form of Tender; or
 - ii) fails or refuses to commence the work as required by the Notice to Proceed,then such failure or refusal will be deemed to be a refusal to enter into the Contract

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PART C - FORM OF TENDER**

7.0 LABOUR

The above stated price is based on the Work under the Contract being performed by union/non-union labour. (Delete "union" or "non-union" as applicable).

SIGNED and SEALED this ___ day of _____, 2008 by the duly authorized officers of the Tenderer:

Tenderer's Legal Name or Registered Corporate Name and Address:

(Seal)

per: _____

per: _____

Witness' Name, Signature, and Address where Tenderer is a Proprietorship or Partnership:

(Address)

(Name and Signature)

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 INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
 PART C - FORM OF TENDER**

SCHEDULE "A"

SCHEDULE OF QUANTITIES AND PRICES

The Tenderer submits the following lump sums and/or unit prices for the items listed below. The lump sums and unit prices shall include the supply and installation of all labour, materials and services, together with the Tenderer's overhead and profit and all Fees and Taxes, but shall not include the GST. As set out in Section 8 below, the Supply Contract Price is to be shown separately without the addition of mark-up, taxes, profit, or any other expenses, fees, or costs (except only as already incorporated into the "Tender Price" on the face of each of the Supply Contracts). The GST shall be shown separately. The Tenderer is required to verify the extent of the Work in relation to this Contract. See paragraph "PERSONAL EXAMINATION" of the General Conditions.

ITEM	SCHEDULE	DESCRIPTION	TOTAL PRICE
	SECTION 1	GENERAL	\$
	SECTION 2	EXCAVATION AND EARTHWORK	\$
	SECTION 3	TRACKWORK	\$
	SECTION 4	DRAINAGE	\$
	SECTION 5	MISCELLANEOUS ITEMS	\$
	SECTION 6	SUBSTATION & TRANSFORMER	\$
	SECTION 7	ENVIRONMENTAL	\$
	SECTION 8	SUPPLY CONTRACT PRICE	\$ [TO BE SUPPLIED TO TENDERERS BY AMENDMENT]
SUBTOTAL			\$
Goods and Services Tax (5.0%)			\$
TOTAL TENDER PRICE			\$

LEGEND

- ea - each
- lm - linear metre
- LS - lump sum
- N/A - not applicable
- m² - square metre
- m³ - cubic metre

**INVITATION TO TENDER NO. PS08140
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 PART C - FORM OF TENDER**

SCHEDULE "A" (Continued)

SCHEDULE A1 - GENERAL

ITEM No.	DESCRIPTION OF WORK	UNIT	QUANTITY	UNIT PRICE	AMOUNT
1.0	<u>SECTION 1 - GENERAL</u>				
1.1	Mobilization	L.S.	1		\$
	TOTAL SECTION 1 - GENERAL				\$
2.0	<u>SECTION 2 - EXCAVATION AND EARTHWORK</u>				
2.1	Clearing				
2.1.1	Clearing and Grubbing	L.S.	1		\$
2.1.2	Stripping Organic Material	L.S.	1		\$
	Sub -Total Excavation & Earthwork				\$
2.2	Removal of Existing Material				
	Remove existing track (Including Rail, Ties, Spikes, Plate and Turnouts) (Net of Trackwork Salvage Value - See Supplementary General				
2.2.1	Condition 14)	L.S.	1		\$
2.2.2	Remove existing Granville Island Station	L.S.	1		\$
	Remove existing Moberly Road Crossing and				
2.2.3	Sidewalk	L.S.	1		\$
2.2.4	Remove existing Leg in Boot Station/sidewalk	L.S.	1		\$
2.2.5	Remove existing drainage as necessary	L.S.	1		\$
2.2.6	Remove existing trees	L.S.	1		\$
	Sub -Total Removal of Existing Material				\$
2.3	Excavation				
2.3.1	Excavation including sub-grade preparation, watering, and dust control	L.S.	1		\$

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 INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
 PART C - FORM OF TENDER**

2.3.2	Disposal of excavated material to the City of Vancouver disposal site (the Contractor will not be required to pay the Vancouver Landfill tipping fee; such fee will be paid by the City)". Sub -Total Excavation	m3	2,840		\$
					\$
	TOTAL SECTION 2 - EXCAVATION AND EARTHWORK				\$
3.0	<u>SECTION 3 - TRACKWORKS</u>				
3.1	Trackbed				
	Ballast material supplied and installed around				
3.1.1	tie and rail track	L.S	1		\$
3.1.2	Install and compact sub-ballast material, using existing ballast where possible	L.S.	1		\$
3.1.3	Provide new sub-ballast material to site, actual quantity delivered to site only will be paid	m3	3620		\$
	Sub -Total Trackwork				\$
3.2	Rail and Ties (in addition to Supply Contract Price)				
3.2.1	Tie and ballast trackwork	L.S	1		\$
3.2.2	Turnouts	L.S	1		\$
3.2.3	Track stops	L.S	1		\$
3.2.4	Moberly Road Crossing	L.S	1		\$
	Sub -Total Rail & Ties				\$
3.3	Stations				
3.3.1	Granville Island Station Retaining Walls	L.S	1		\$
3.3.2	Cambie Street Station Retaining Walls	L.S	1		\$
	Sub -Total Stations				\$
	TOTAL SECTION 3 - TRACKWORKS				\$

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4.0	<u>SECTION 4 - DRAINAGE</u>				
4.1.1	Asphalt swale	L.S	1		\$
4.1.2	Subdrain	L.S	1		\$
4.1.3	Infiltration Pits	L.S	1		\$
4.1.4	Retaining wall drainage	L.S	1		\$
	TOTAL SECTION 4 - DRAINAGE				\$
5.0	<u>SECTION 5 - MISCELLANEOUS ITEMS</u>				
5.1.1	Chain link Fence	L.S	1		\$
5.1.2	Gate	L.S	1		\$
5.1.3	Signs	L.S	1		\$
5.1.4	Hydroseeding	L.S	1		\$
	TOTAL SECTION 5 - MISCELLANEOUS ITEMS				\$
	<u>SECTION 6 - SUBSTATION AND BC HYDRO</u>				
6.0	<u>TRANSFORMER</u>				
6.1.1	Sub-Station Concrete Pads and Ductwork	L.S	1		\$
6.1.2	BC Hydro Transformer Concrete Pads and Ductwork (see Appendix 5 for BC Hydro Standard drawings)	L.S.	1		\$
	TOTAL SECTION 6 - SUBSTATION AND TRANSFORMER				\$
	<u>SECTION 7 - ENVIRONMENTAL</u>				
7.1.1	Provisional sum for environmental investigation	L.S.	1		\$
	TOTAL SECTION 7 - ENVIRONMENTAL				\$
	<u>SECTION 8 - SUPPLY CONTRACT PRICE</u>				
8.1.1	Supply Contract Price	L.S.	1		\$

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**SCHEDULE "B"
 PRELIMINARY CONSTRUCTION SCHEDULE**

Please clearly define time requirements. If necessary, please add an attachment to this Schedule. Each such additional page should be clearly marked "ITT PS08140 - SCHEDULE B", and should be signed by the Tenderer.

Work Description	October 2008			November 2008				December 2008				January 2009				February 2009				March 2009				
	12	19	26	02	09	16	23	30	7	14	21	28	4	11	18	25	1	8	15	22	1	8	15	22
Project start October 15, 2008.																								
Total Performance February 28, 2009																								

Name of Tenderer

FT - 10

Initials of Signing Officer

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SCHEDULE "C"

SUBCONTRACTORS AND SUPPLIERS

1.0 SUBCONTRACTORS

- a) In addition to the Supply Contract Vendors, the Tenderer should list all Subcontractors that it intends to use on this project, and the work that each will be undertaking. All Subcontractors (in addition to the Supply Contract Vendors) who will perform any portion of the Work should be listed.

SUBCONTRACTOR	ADDRESS	TYPE OF WORK

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2.0 SUPPLIERS

The Tenderer should list all major suppliers and manufacturers (including those suppliers/manufacturers for the items listed in the table below) that it intends to use on this project, including documentation on significant Products, goods, materials and equipment to be used in any portion of the Work. The Supply Contract Vendors need not be listed unless they are being utilized for supplies additional to those being supplied under the Supply Contracts.

SUPPLIER	MANUFACTURER	ADDRESS	ITEM

Additional pages may be attached to this page. Each such additional page should be clearly marked "ITT PS08140, FORM OF TENDER - SCHEDULE C", and should be signed by the Tenderer.

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SCHEDULE "D"

TENDERER'S EXPERIENCE WITH RELATED WORK

The Tenderer should list any comparable projects which it has undertaken by providing the following information:

Description of Project: _____

Location of Project: _____

Contract Value (Canadian Funds): \$ _____

Start and Completion Dates: _____

Completed on Schedule? Yes/No (Circle Correct Response)

Name of Contract Owner: _____

Name of Project Reference: _____

Current Telephone Number and E-mail of Project Reference:

Names of Key Personnel and Subcontractors:

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SCHEDULE "D" - Continued

TENDERER'S EXPERIENCE WITH RELATED WORK

Description of Project: _____

Location of Project: _____

Contract Value (Canadian Funds): \$ _____

Start and Completion Dates: _____

Completed on Schedule? Yes/No (Circle Correct Response)

Name of Contract Owner: _____

Name of Project Reference: _____

Current Telephone Number and E-mail of Project Reference:

Names of Key Personnel and Subcontractors:

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SCHEDULE "D" - Continued

TENDERER'S EXPERIENCE WITH RELATED WORK

Description of Project: _____

Location of Project: _____

Contract Value (Canadian Funds): \$ _____

Start and Completion Dates: _____

Completed on Schedule? Yes/No (Circle Correct Response)

Name of Contract Owner: _____

Name of Project Reference: _____

Current Telephone Number and E-mail of Project Reference:

Names of Key Personnel and Subcontractors:

**INVITATION TO TENDER NO. PS08140
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SCHEDULE "F"

CONSENT OF SURETY

PROJECT

Should it be required, we the undersigned Surety Company do hereby consent and agree to become bound as sureties in an approved Contract Performance Bond and Labour and Material Payment Bond each in the amount of fifty percent (50%) of the awarded Total Tender Price for the fulfillment of the CONTRACT and for the performance of the Work as described herein, which may be awarded to _____ at the price set forth in the attached Tender, which Performance Bond and Labour and Material Payment Bond we understand are to be filed with the City of Vancouver within five (5) Working Days of receipt of Notice of Award of the CONTRACT.

We hereby further declare that the undersigned Surety Company is legally entitled to do business in the Province of British Columbia and that it has a net worth over and above its present liabilities and the amounts herein set forth.

The Common Seal of _____

was hereto affixed in the

presence of:

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
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SCHEDULE "G"

TENDERER'S PROPOSED VARIATIONS

The Tenderer shall make a full and complete statement and description of its proposed variations to the Tender Documents, if any.

Additional pages may be attached to this page and/or separate numbered documents such as specifications, descriptive literature and drawings may be submitted with this Schedule. Each such additional page and/or separate document should be clearly marked "ITT PS08140, FORM OF TENDER - SCHEDULE G", and should be signed by the Tenderer.

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 INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
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**SCHEDULE "H"
 CERTIFICATE OF INSURANCE
 [NOT REQUIRED FOR TENDER FORM -
 TO BE SUPPLIED ONLY FOLLOWING NOTICE OF AWARD]**

Section 8 b) – to be completed by City staff. Select # of days Written Notice is required.
 Section 2 through 7 – to be completed by the Insurer or its Authorized Representative

1. **THIS CERTIFICATE IS ISSUED TO:** City of Vancouver, 453 W 12th Avenue, Vancouver, BC, V5Y 1V4
And certifies that the insurance policies as listed herein have been issued to the Named Insured(s) and are in full force and effect as of the effective date of the agreement described below.
2. **NAMED INSURED:** *(must be the same name as the Permittee/Licensee or Party(ies) to Contract and is either an individual or a legally incorporated company)*

MAILING ADDRESS: _____

LOCATION ADDRESS: _____

DESCRIPTION OF OPERATION, CONTRACT, AGREEMENT, LEASE, PERMIT OR LICENSE: _____

3. **PROPERTY INSURANCE** naming the City of Vancouver as a Named Insured and/or Loss Payee with respect to its interests (All Risks Coverage including Earthquake and Flood) **INSURED VALUES: (Replacement Cost)**
 INSURER: _____ Building and Tenants Improvement: \$ _____
 TYPE OF COVERAGE: _____ Contents and Equipment: \$ _____
 POLICY NUMBER: _____ Deductible Per Loss: \$ _____
 POLICY PERIOD: From _____ to _____

4. **COMMERCIAL GENERAL LIABILITY INSURANCE (Occurrence Form)**
 Including the following extensions: **LIMITS OF LIABILITY: (Bodily Injury and Property Damage Inclusive)**
 Personal Injury
 Products and Completed Operations Per Occurrence: \$ _____
 Cross Liability or Severability of Interest Aggregate: \$ _____
 Employees as Additional Insureds All Risk Tenant's Legal Liability: \$ _____
 Blanket Contractual Liability
 Non-Owned Auto Liability Deductible Per Occurrence: \$ _____
 INSURER: _____
 POLICY NUMBER: _____
 POLICY PERIOD: From _____ to _____

5. **AUTOMOBILE LIABILITY INSURANCE** for operation of owned and/or leased vehicles
 INSURER: _____ **LIMITS OF LIABILITY:**
 POLICY NUMBER: _____ Combined Single Limit: \$ _____
 POLICY PERIOD: From _____ to _____ *If vehicles are insured by ICBC, complete and provide Form APV-47.*

6. **UMBRELLA OR** **EXCESS LIABILITY INSURANCE** **LIMITS OF LIABILITY: (Bodily Injury and Property Damage Inclusive)**
 INSURER: _____ Per Occurrence: \$ _____
 POLICY NUMBER: _____ Aggregate: \$ _____
 POLICY PERIOD: From _____ to _____ Self-Insured Retention: \$ _____

7. **OTHER INSURANCE** (e.g. Boiler & Machinery, Business Interruption, Crime, etc.) – Please specify Name of Insurer(s), Policy Number, Policy Period, and Limit

8. **POLICY PROVISIONS:**
Where required by the governing contract, agreement, lease, permit or license, it is understood and agreed that:
 - a) *The City of Vancouver, its officials, officers, employees, servants and agents have been added as Additional Insureds with respect to liability arising out of the operation of the Named Insured pursuant to the governing contract, agreement, lease, permit or license;*
 - b) *SIXTY (60) days written notice of cancellation or material change resulting in reduction of coverage with respect to any of the policies listed herein, either in part or in whole, will be given by the Insurer(s) to the Holder of this Certificate; the exception is cancellation for non-payment of premiums in which case the applicable statutory conditions will apply;*
 - c) *The insurance policy (policies) listed herein shall be primary with respect to all claims arising out of the operation of the Named Insured. Any insurance or self-insurance maintained by the City of Vancouver shall be in excess of this insurance and shall not contribute to it.*

SIGNED BY THE INSURER OR ITS AUTHORIZED REPRESENTATIVE _____ Dated: _____
PRINT NAME OF INSURER OR ITS AUTHORIZED REPRESENTATIVE, ADDRESS AND PHONE NUMBER _____

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART D - FORM OF AGREEMENT**

Form of Agreement

This AGREEMENT is made as of the ____ the day of _____, 2008.

BETWEEN:

CITY OF VANCOUVER,
having an office at 453 West 12th Avenue,
Vancouver, British Columbia, V5Y 1V4

(hereinafter referred to as the "Owner")

OF THE FIRST PART

AND:

[NTD: INSERT CONTRACTOR NAME/ADDRESS]

(hereinafter referred to as the "Contractor")

OF THE SECOND PART

WHEREAS:

- (A) The Owner has appointed **Eric Mital, P. Eng.** Project Engineer (hereinafter referred to as the "Engineer" for the purposes of this Contract) to act as its sole and exclusive agent for purposes of managing and administering the performance of the Work by the Contractor in accordance with the Specifications, Drawings and other Contract Documents; and
- (B) The Contractor has agreed with the Owner to perform the Work and to furnish all plant, tools, equipment, labour, Products, material and supervision necessary therefor as hereinafter set forth.

NOW THEREFORE THIS AGREEMENT WITNESSES as follows:

ARTICLE I - ROLE OF THE ENGINEER

The Owner hereby designates and appoints the Engineer as its sole and exclusive agent for the purpose of managing and administering for the Owner under the Contract as set out in the Contract Documents. Unless otherwise notified in writing by the Owner to the Contractor, the agency of the Engineer shall continue for the entire duration of this Contract including the period of any guarantees or warranties given by or through the Contractor. In the event of the revocation in writing of the agency of the Engineer by the Owner, the Engineer shall have no further authority under this Contract, except as may be specifically designated in writing by the Owner and agreed to in writing by the Engineer, and all references to the Engineer in this Contract shall thereafter be deemed to be a reference to the Owner or to such other person designated in writing to the Contractor. The Engineer may from time to time delegate to a representative the performance of or the authority to perform the duties, responsibilities, rights and obligations of the Owner in respect of which the Engineer has been designated and appointed as its sole and exclusive agent.

ARTICLE II - WORK TO BE DONE

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The Contractor and the Owner hereby agree that the Products to be furnished and the Work to be done by the Contractor are to:

Furnish all materials, equipment, Products, labour and services, and supervision necessary for the Work. Any materials, equipment, products, labour and services, and supervision performed by the Engineer or the Engineer's representative with regard to the work required in these Contract Documents shall be in accordance with the requirements of the Contract Documents.

All of the Work shall be done, performed or furnished by the Contractor in a proper and workmanlike manner and in accordance with the requirements of the Contract Documents (as hereinafter defined).

ARTICLE III - CONTRACT DOCUMENTS

The following is a list of the constituents of the Contract Documents referred to in this Agreement. This list is subject to subsequent amendments in accordance with the provisions of the Contract Documents. Terms used in the Contract Documents which are defined in GC.1 - DEFINITIONS shall have the meaning designated in those definitions.

Form of Agreement

Invitation to Tender

Instructions to Tenderers

Form of Tender, including:

Schedules A, A1, B, C, D, E, F, G, and H

General Conditions

Supplementary General Conditions

Appendices, including:

Prime Contractor Agreement Form

Performance Bond

Labour and Material Payment Bond

Addenda:

[NTD: List any addenda issued by the City]

Specifications

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. The intent and spirit of the Contract Documents is that the Contractor is required to complete the Work in every detail within the times and for the purposes designated, and that the Contractor shall furnish and do any and everything necessary for such purposes notwithstanding any omission from the Contract Documents.

ARTICLE IV - SCHEDULE OF WORK

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- (a) The Contractor will commence the Work in accordance with the Notice to Proceed;

The Contractor will proceed with the Work diligently, will perform the Work in accordance with the construction schedules as required by the Contract Documents and will: achieve Total Performance of the Work by **February 28, 2009** (collectively, the “Contract Time”), subject to the provisions of the Contract Documents for adjustments to the Contract Time.

- (b) Time shall be of the essence in this Contract.

ARTICLE V - PAYMENT

- (a) Amount to be Paid:

The Owner agrees, subject to additions and deductions for variation in the Work and to quantities utilized as may be agreed upon in writing, and to the provisions of this Agreement, to pay to the Contractor, the sum of **[NTD: State Total Tender Price \$ _____]** (the “Contract Amount”), including all Taxes and Fees, in Canadian funds for the performance of the Work under this Contract.

- (b) Application for Payment

- (i) During progress of the Work, the Contractor may make application to the Engineer for payment, in the form approved by the Engineer, on or before the last day of every month for Work done to the date of the application, provided that the Engineer may at any time require as a condition of payment the submission of documentation set out in GC.60.
- (ii) On Substantial Performance being certified in accordance with the procedures set out in paragraph (a) of GC.60 and the value of the certified deficiencies being agreed upon, the Contractor may make application to the Engineer for the balance of all monies then owing under this Contract to the Contractor, submitting also such documentation as is required by GC.60.
- (iii) On correction and completion of all deficient work listed on the Certificate of Substantial Performance, the Contractor shall submit her application to the Engineer for final payment, accompanied by the documentation required by GC.60.

- (c) Payment

The payment for any Work under this Contract which shall be made to the Contractor by the Owner shall not be construed as an acceptance of any Work as being in accordance with the Contract Documents. The issuance of the Certificate of Total Performance shall constitute a waiver by the Contractor of all claims except those previously made in writing and still unsettled, if any, and specified by the Contractor in its application for final payment pursuant to Article V(b) (iii) above.

Payments to the Contractor will be made by the Owner as follows:

- (i) On or before the fifth day of the month following the Contractor's application for payment,

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the Engineer will adjust, if necessary, and certify the Contractor's progress estimate. Where the Engineer makes any changes to the amount submitted by the Contractor for payment, the Contractor shall be notified in writing within five (5) Working Days and shall be given the opportunity to defend the Contractor's application without delay.

- (ii) Within thirty (30) calendar days of the date the Owner receives any Engineer certified application for payment the Owner will make payment to the Contractor up to the value of the completed Work as certified by the Engineer less a *Builders Lien Act* holdback amount equal to ten percent (10%) of such certified value and less the aggregate of any previous payments all in accordance with the Contract and with the *Builders Lien Act*.
- (iii) The Owner will, in addition to other holdbacks as provided by the Contract Documents, be entitled to deduct and retain from payments otherwise due to the Contractor, a Maintenance Security holdback in the amount of five percent of the Contract Amount to cover the cost of corrections to the work that may be required under General Conditions 51. The balance of the Maintenance Security not required under GC 51, and the remaining at the end of the warranty period, shall be paid without interest to the Contractor.

The Contractor may substitute a letter of credit, in the amount of the Maintenance Security, in a form and from a financial institution acceptable to the Owner, for the Maintenance Security holdback.

- (iv) Where the Engineer has issued a certificate of completion in respect of a subcontract to which the Contractor was a party, and where fifty-five (55) calendar days have elapsed since the issuance of the certificate without any claims of builders lien being filed which arose under the subcontract, the Owner will release to the Contractor the Builders Lien Act holdback amount retained for such subcontract work.
 - (v) After fifty-five (55) calendar days have elapsed from the date of the Certificate of Substantial Performance issued in accordance with GC.60 and upon the Engineer's satisfaction that no encumbrance, lawful claim or lien exists, the Owner will, within a further ten (10) calendar days, make payment to the Contractor of all monies due under this Contract at the date of Substantial Performance, including the release of all remaining *Builders Lien Act* holdback amounts, but retaining at least twice the estimated value of the certified deficiencies.
 - (vi) Upon the issuance of the Certificate of Total Performance, the Owner will make a final payment of all monies owing to the Contractor under the Contract.
- (d) Interest on Overdue Payments

Where payment is not made in accordance with the payment provisions contained in paragraph (c) above, the overdue amount shall bear interest at the lending rate of the Bank of Montreal for its prime commercial customers and such interest shall be calculated from and after the date upon which such payment was due and shall accrue until the date that payment of the overdue amount together with interest is made. This interest obligation on the Owner shall constitute the sole remedy of the Contractor for late payment.

ARTICLE VI - DELAYS

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(a) Liquidated Damages for Late Completion

If the Contractor fails to complete the Work by the Contract Time as set out in Article IV above, as may be adjusted pursuant to the provisions of the Contract Documents, then the Owner may deduct from any monies owing to the Contractor for the Work:

- (i) as a genuine pre-estimate of the Owner's increased costs for delay of sequential construction tasks, an amount of \$1000.00 per day or pro rata portion for each calendar day that completion of the Work is achieved after the Contract Time; plus
- (ii) all direct out-of-pocket costs such as costs for safety, security, or equipment rental, reasonably incurred by the Owner as a direct result of such delay.

(b) If monies owing to the Contractor are less than the total amount of liquidated damages owed by the Contractor to the Owner under (a) above then any shortfall shall be immediately, upon written notice from the Owner, be due and owing by the Contractor to the Owner.

ARTICLE VII - NOTICES

Unless otherwise specifically provided in the Contract Documents, all notices, instructions, orders or other communications in writing shall be conclusively deemed to have been given to the Contractor if delivered to the Contractor personally (or in the case of a company, to any of its officers or directors personally), or to the Contractor's superintendent or foreman, or delivered by mail to the Contractor at the business address of the Contractor set forth below:

Contractor:

[NTD: INSERT CONTRACTOR INFO]

Unless otherwise specifically provided in the Contract Documents all notices, requests, claims or other communications by the Contractor shall be in writing and shall be given by personal delivery or by registered mail addressed to the:

Owner:

CITY OF VANCOUVER
453 West 12th Avenue
Vancouver, British Columbia
V5Y 1V4
Attention: Eric Mital, Project Engineer,
Olympic Transportation Office

Either of the said addresses may be changed from time to time by written notice to the other party.

Any such notices, instructions, orders, requests or other communications sent by mail as aforesaid shall be

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deemed to have been given on the second Working Day following the mailing thereof.

[INTENTIONALLY BLANK]

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ARTICLE VIII - SUCCESSORS AND ASSIGNS

This Contract shall be binding upon and shall enure to the benefit of the successors and permitted assigns of the respective parties hereto.

IN WITNESS WHEREOF the parties hereto have set their hands and seals as of the day and year first above written.

CITY OF VANCOUVER

BY: _____

C/S

Print Name & Title

*Refer to Council Minutes of _____,
2008.*

[NTD: INSERT CONTRACTOR NAME]

BY: _____

C/S

Print Name & Title

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1.0

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GC.1. DEFINITIONS

Where used in the Form of Agreement, Invitation to Tender, Instructions to Tenderers, Form of Tender (including the Schedules), Bonds, General Conditions, Supplementary General Conditions, Specifications and Drawings, or Addenda (if any), or any other documents forming part of the Contract Documents:

“Approved Equipment Rental Rate Guide” means the publication (as revised from time to time) which is listed on <http://www.roadbuilders.bc.ca/bluebook.php>.

“Certificate of Insurance” means, subject always to Section 53 of the General Conditions, a certificate of insurance duly completed by the Contractor’s insurers or insurance brokers, substantially on the form attached as Schedule “H” of the Contract Documents;

“Certificate of Substantial Performance” means, subject always to Article V(c) of the Form of Agreement and to the warranty under GC.51, the certificate issued by the Engineer indicating that Substantial Performance of the Work has been achieved. Under no circumstances will issuance of the Certificate of Substantial Performance be deemed to mean that the Owner has accepted the Work as being in compliance with the Contract Documents;

“Certificate of Total Performance” means subject always to Article V(c) of the Form of Agreement and to the warranty under GC.51, a certificate issued by the Engineer accepting the Contractor’s certification that the entire Work of the Contract has been performed by the Contractor to the requirements of the Contract Documents;

“City” or “Owner” means the City of Vancouver, a municipal corporation continued pursuant to the *Vancouver Charter*;

“Contract Documents” means the documents set out in Article III of the Agreement;

“Drawings” means all plans, profiles, drawings, sketches, or copies thereof exhibited, used or prepared for or in connection with the Work embraced under this Contract;

“Engineer” means the Engineer as defined in the Agreement or his delegate, who may be an employee of the City or an independent engineer engaged by the City on its behalf;

“Environmental Legislation” means any laws, statutes, regulations, orders, bylaws, permits or lawful requirements of any governmental authority with respect to environmental protection;

“Force Account Work” means work directed by the Owner pursuant to General Condition 47.

“Other contractors” means any person, firm or corporation employed by or having a contract with the Owner and/or associated parties otherwise than through the Contractor;

“Plant” means every temporary or accessory means necessary or required to carry on or complete the Work and extra work, in the time and manner herein provided including, without limiting the generality of the foregoing, all tools, fixed and moveable machinery, engines, motor vehicles, trucks, compressors, all temporary structures such as workshops, sheds, storehouses, shoring forms, trestles and hoardings and all other appliances, apparatus

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or equipment of every sort, kind and description whatsoever;

"Products" means material (including, but not limited to 115RE rail, concrete ties, Pandrol e-clips, insulators, pads, ballast, sub ballast, soils, site furnishings, machinery, equipment, goods and fixtures) incorporated or to be incorporated in the Work as required by the Contract Documents;

"Site" means the place or places where the Work under the Contract is to be carried out, erected, built or constructed;

"Subcontractor" means the person or persons with whom the Contractor has made an agreement to perform a portion or portions of the Work or to supply Products therefor;

"Substantial Performance" means that the Contract is "substantially performed" in accordance with the criteria set out in Section 1(2) of the *Builders Lien Act*;

"Surety" means the company which executes a bond required by the Contract to be furnished to the Owner;

"Total Performance" means when all the Work, including all deficiencies but excluding any correction of completed Work that appears during the Warranty period or other on-going warranty or guarantee as provided by the Contract Documents, has been performed as required by the Contract Documents, as certified by the Engineer;

"WCB" means the Workers Compensation Board established and functioning pursuant to the *Workers Compensation Act* (British Columbia) (the "WCA"), as amended, and/or related or successor legislation, and any successors in function thereto now referred to as "WorkSafe BC";

"WorkSafe BC/OHS Regulation" means the WCA, and all regulations thereto, including, without limitation, the Occupational Health & Safety Regulation (BC Regulation 296/97, as amended by BC Regulation 185/99), as amended or re-enacted from time to time;

"Work" or "Works" means (unless the context requires a different meaning) the whole of the Work as defined in the Form of Tender, including all materials, matters, Products and things required to be done or supplied therefor, and all work(s) mentioned or referred to in the Contract Documents, including all extra or additional work or materials, matters or things which may be ordered by the Owner or the Engineer as herein provided;

"Working Day" means any day other than a Saturday, Sunday or "holiday" as defined in the *Interpretation Act* (British Columbia).

GC.2. INTERPRETATION

In this Contract, the masculine includes the feminine and bodies corporate, and each includes the others. Also, any reference to the singular includes the plural where appropriate.

Drawings and Specifications are intended to be complementary. Should any difference exist between the Drawings and Specifications, or should any errors or inconsistency occur in any or between any of the Drawings and Specifications, the Contractor, before proceeding, shall

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bring them to the attention of the Engineer.

The Engineer will furnish from time to time such detail drawings and information as the Engineer may consider necessary for the Contractor's guidance. These detail drawings shall take precedence over Contract Drawings and shall be considered as explanatory of them and not as indicating changes in the Work.

On all Drawings, figures take precedence over scaled dimensions. Scaling of dimensions, if done, is done at the Contractor's own risk. Despite the above, in the event of any inconsistency between the Drawings and Specifications or between any other Contract Documents or within any Contract Documents which could be construed as creating an ambiguity in the amount of Work involved, the cost or amount of Product being supplied, the Contract Amount being lower or higher, or any other similar discrepancy or inconsistency, the discrepancy or conflict will be resolved as follows:

- a) the portion of the Contract Documents most favourable to the Owner will be deemed to be correct;
- b) the more specific provision will take precedence over the less specific;
- c) the more stringent will take precedence over the less stringent; and
- d) the more expensive item will take precedence over the less expensive.

GC.3. PERSONAL EXAMINATION

The Contractor is required to examine carefully the site of the proposed Work, and the Drawings, Tables, Specifications and other Contract Documents. The Contractor shall satisfy himself as to the character, quality and quantity of work to be performed, materials to be furnished, and as to the requirements of the Drawings, Specifications and other Contract Documents. The Drawings and Tables show or describe conditions as they are believed by the Engineer to exist, but it is not to be inferred that all of the conditions as shown thereon are actually existent, nor shall the Owner or any of its respective officers be liable for any loss sustained by the Contractor as a result of any variance between the conditions as stated in the Drawings, Tables, or other Contract Documents and the actual conditions revealed during the progress of the Work, or otherwise.

The submission of a tender shall be prima facie evidence that the Contractor has made such an examination. The Contractor agrees that the Contractor has satisfied him/herself by the Contractor's own investigation and research regarding all conditions, that the Contractor's conclusion to enter into the proposed contract is based upon such investigation and that the Contractor will make no claim against the Owner or the Engineer because any of the estimates, tests or representations of any kind affecting the Work made by any officer or agent of the Owner or the Engineer may prove to be in any respect erroneous. The Contractor assumes the risk of unforeseen conditions and agrees to complete the Work under whatever circumstances that may develop. Any information shown or described in the Drawings, Tables, Specifications or any other Contract Documents as to the soil or material borings or tests of existing material is not guaranteed, and no claim for extra work or damages will be considered if it is found during construction that the actual soil or material conditions vary from those indicated.

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GC.4. CONTRACT AMOUNT

Bids shall include all Federal, Provincial and Municipal fees and other taxes, rates and assessments, and the Contractor agrees that the Owner shall not be liable in any manner therefor and the Contractor agrees to indemnify and save harmless at all times the Owner against all claims which shall be made with respect thereto. All such taxes, rates, assessments and fees shall be paid by the Contractor, but if refundable, shall be refunded to the City and shall be the exclusive property of the City.

The Contractor shall include in the Contract Amount all cash allowances mentioned in the Specifications, if any, which allowances shall be expended in the whole or in part as the Engineer shall direct, the Contract Amount being adjusted in conformity therewith. The Contract Amount includes such sums for expenses and profit on account of such cash allowances as the Contractor requires.

GC.5. PERFORMANCE BOND

The Contractor, together with a surety company authorized to carry on business in the Province of British Columbia, shall be required to enter into a bond in a form satisfactory to the Engineer for a sum equal to fifty per cent (50%) of the Contract Amount as surety for the due and proper performance of the Contract including warranty. The expense of the bond shall be borne by the Contractor.

GC.6. LABOUR AND MATERIALS PAYMENT BOND

The Contractor, together with a surety company authorized to carry on business in the Province of British Columbia, shall be required to enter into a bond in a form satisfactory to the Engineer for a sum equal to fifty percent (50%) of the Contract Amount as surety for the due and proper payment for material and labour used in carrying out the Contract. The expense of the bond shall be borne by the Contractor.

GC.7. WORKSAFE BC COVERAGE AND CONTRACTOR TO BE PRIME CONTRACTOR

- a) **Payment of WorkSafe BC (WCB) Assessments** - The Contractor agrees that it shall at its own expense procure and carry or cause to be procured and carried and paid for, full WorkSafe BC coverage for itself and all workers, employees, servants and others engaged in or upon any work or service which is the subject of this Contract. The Contractor agrees that the City has the unfettered right to set off the amount of the unpaid premiums and assessments for such WorkSafe BC coverage against any monies owing by the City to the Contractor. The City shall have the right to withhold payment under this Contract until the WorkSafe BC premiums, assessments or penalties in respect of work done or service performed in fulfilling this Contract have been paid in full.
- b) **Designation of Contractor as Prime Contractor** - The City now designates the Contractor as the Prime Contractor, and the Contractor now acknowledges and agrees to its designation as the Prime Contractor, for the purposes of the WorkSafe BC OH&S Regulation.
- c) **Prime Contractor's Obligations** - Without in any way limiting the Contractor's

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obligations under the WorkSafe BC / OH&S Regulation, and by way of example only, the Contractor will:

- i) appoint and provide a qualified coordinator for the purpose of ensuring the coordination of health and safety activities for the Site;
 - ii) provide and receive and respond to all information required to be given, received or relayed by the Contractor (both as an employer and as the Prime Contractor) pursuant to the WorkSafe BC / OH&S Regulation; and
 - iii) within five (5) Working Days of the City delivering the Contract Documents to the Contractor, sign and deliver to the City, the "Prime Contractor Agreement" in the form attached.
- d) **General WorkSafe BC Obligations** - In addition to, and not in lieu of, the Contractor's obligations as the Prime Contractor, the Contractor will have a safety program acceptable to WorkSafe BC and will ensure that all City and WorkSafe BC safety policies, rules and regulations are observed during performance of this Contract, not only by the Contractor but by all Subcontractors, workers, material suppliers and others engaged in the performance of this Contract.
- e) **Notice of Project** - Prior to commencement of construction, the Contractor will:
- i) complete and file a "Notice of Project" with WorkSafe BC in compliance with Section 20.2 of the WorkSafe BC / OH&S Regulation;
 - ii) post the Notice of Project at the Site; and
 - iii) will provide a copy of the Notice of Project to the City and confirm in writing that the Notice of Project has been posted at the Site.
- f) **Initial Proof of WorkSafe BC Registration/Good Standing** - Within five (5) Working Days of the City delivering the Notice of Award to the Contractor, the Contractor will provide the City with the Contractor's and all Subcontractor's WorkSafe BC registration numbers.
- g) **Subsequent Proof of WorkSafe BC Registration/Good Standing** - Within five (5) Working Days of the City delivering the Notice of Award to the Contractor, and concurrently with making any application for payment under this Contract, the Contractor will provide the City with written confirmation that the Contractor and all Subcontractors are registered in good standing with WorkSafe BC and that all assessments have been paid to date of the Notice of Award or date of application for payment, as applicable.
- h) **Pre-Contract Hazard Assessment** - The Contractor may or may not have received, as part of the Contract Documents, a "Pre-Contract Hazard Assessment" prepared by or for the City pursuant to the City's statutory obligations under the WorkSafe BC / OH&S Regulation (Section 119 of the WCA) as an "owner of a workplace". Despite the City's statutory obligations, the Prime Contractor now acknowledges and agrees that the Contractor may not rely on the "Pre-Contract Hazard Assessment" and now agrees to

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assume by the terms of this Contract full responsibility for carrying out the City's obligations under Section 119 of the WCA, including without limitation and by way of example only, conducting all due diligence inquiries of all applicable City staff and departments in order to ascertain what, if any, information is known or has been recorded by City staff about the Site that is necessary to identify and eliminate or control hazards to the health or safety of persons at the Site. The City now agrees to make all reasonable efforts to assist the Contractor in obtaining timely access to City staff and City records for this purpose. Within five (5) Working Days of the City delivering the Notice of Award to the Contractor, the Contractor will start conducting such due diligence inquiries and must complete and deliver written confirmation of the completion of such inquiries to the Engineer prior to the City being obligated to issue the Notice to Proceed.

- i) **Special Indemnity Against WorkSafe BC Non-Compliance** - The Contractor will indemnify the City and hold harmless the City from all manner of claims, demands, costs, losses, penalties and proceedings arising out of or in any way related to:
 - i) unpaid WorkSafe BC assessments of the Contractor or any other employer for whom the Contractor is responsible under this Contract;
 - ii) the acts or omissions of any person engaged directly or indirectly by the Contractor in the performance of this Contract, or for whom the Contractor is liable pursuant to the Contractor's obligations as the Prime Contractor, and which acts or omissions are or are alleged by WorkSafe BC to constitute a breach of the WorkSafe BC / OH&S Regulation or other failure to observe safety rules, regulations and practices of WorkSafe BC, including any and all fines and penalties levied by WorkSafe BC; or
 - iii) any breach of the Contractor's obligations under this General Condition.
- j) **Prime Contractor Agreement Form** - The Contractor must complete and sign and deliver the Prime Contractor Agreement in the form set out in Appendix A prior to commencing work on the Site.

GC.8. LABOUR

The Contractor agrees to employ appropriate tradesmen on the Work. Where the tradesmen are covered by collective agreements, the Contractor shall abide by the wages and conditions of such collective agreements covering such tradesmen. Notwithstanding the foregoing, the Contractor shall pay or cause to be paid to every person employed on the Work not less than the wages or remuneration generally accepted as current at the time.

The Contractor shall endeavour to avoid labour problems and minimize work stoppages, jurisdictional or other labour disputes on the Site.

GC.9. COMMENCEMENT AND COMPLETION OF THE WORK

The Contractor shall not commence the Work or procure any material therefor until it has received the Notice to Proceed from the Owner. Forthwith after the receipt of the Notice to Proceed, the Contractor shall at once begin and continuously carry on to completion (subject

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as herein provided) and shall complete and give full possession thereof on or before the date specified by the Contractor in her tender, unless a longer period shall be allowed in writing by the Engineer in which case it shall be carried on to completion and possession given to the Owner within the additional time so allowed. No progress or interim estimate or certificate shall release the Contractor or its surety from any responsibility or shall be taken as evidence of any such release, or as an acceptance of any Work or material, or as a waiver of any condition herein. The whole Work and every portion and detail thereof shall, at the time of completion, be put and left by the Contractor in good and satisfactory condition, finished in all respects and at the time must be fully up to the requirements of the Drawings and Specifications in every particular aspect; all surplus and refuse material and rubbish removed from the vicinity of the Work; the premises left in a neat and tidy condition; all damages to adjacent property, including pavements, foot walks, boulevards, sodding, trees, shrubs and plants, or other things injured or interfered with by the Contractor, or in any way due to her work, made good; all wages paid, and every other requirement of the Contract complied with. In case of the Contractor's failure to finish the Work properly and fully, and as required, or in case of the Work or any part thereof being taken out of her hands, as provided in these General Conditions, the Owner may proceed to finish the Work for the Contractor as her agent in this respect and at the Contractor's expense or proceed as provided in GC.62.

Before the completed Work is accepted and paid for, the Contractor shall notify the Engineer in writing that it is ready for final inspection. Upon receipt of the notifications, the Engineer will arrange to give the entire Work a minute and thorough inspection, either in person or through a competent representative.

Any defects or omissions noted during this inspection must be made good by the Contractor without extra charge before the Work will be accepted.

When the defects or omissions, if any, have been made good to the satisfaction of the Engineer, the Engineer will communicate the Engineer's acceptance of the Work, to the Owner, subject always to Article V - Form of Agreement and to the Contractor's warranty obligations.

GC.10. DELAY IN PROGRESS OF THE WORK

- a) Delays
 - i) If the Contractor is delayed in the performance of the Work by an act, omission or wilful default of the Owner, or the Engineer, or anyone employed or engaged by them, contrary to the provisions of the Contract Documents, then the time fixed herein for completion shall be extended for such reasonable time as the Engineer may decide.
 - ii) If the Contractor is delayed in the performance of the Work by a Stop Work Order issued by a court or other public authority and provided that such Stop Work Order was not issued as the result of an act or fault of the Contractor or anyone employed or engaged by him directly or indirectly, then the time fixed for completion herein shall be extended for such reasonable time as the Engineer may decide.
 - iii) If the Contractor is delayed in the performance of the Work by labour strikes,

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fire, or by 'unforeseeable causes beyond the Contractor's control, then the time fixed for completion herein shall be extended for such reasonable time as the Engineer may decide, but in no case shall the extension of time be less than the time lost as the result of the event causing the delay, unless such shorter extension be agreed to by the Contractor. The Contractor shall not be entitled to payment for any costs, loss, or damages incurred as the result of such delay.

- iv) The Engineer may, from time to time and for such period as the Engineer may deem expedient, suspend in whole or in part, the performance of the Work under the Contract, and the Engineer will order the time herein fixed for the completion of the Work to be extended for a period which is deemed by the Engineer equivalent to the time lost by reason of such suspension.
- v) No extension shall be made for delay unless written notice of claim is given to the Engineer not later than seven (7) calendar days after the commencement of delay, providing however, that in the case of a continuing cause of delay only one notice of claim shall be necessary.
- vi) In the event that the Work is delayed or suspended in accordance with:
 - paragraphs (a)(i) or (iv) of this GC.10, the Contractor shall not be entitled to make any claim by reason of such delay or suspension for any losses, costs of damages except and unless, within seven (7) calendar days of the occurrence of such delay or suspension the Contractor shall give notice in writing to the Engineer of the basis of her claim. Such claim shall be limited to such unavoidable direct costs (excluding all charges for storage of Products, tools and equipment and indirect, overhead or other like costs) incurred as a result of such delay or suspension, and approved by the Engineer. In the case of a delay as described in paragraph (a)(i) or a suspension pursuant to paragraph (a)(iv), a sum equal to five percent (5%) of such approved, unavoidable direct costs (in lieu of all profit) shall also be allowed. Despite any other term of this Contract, in no event will the City's liability for any delay claim (whether under this GC.10 or otherwise, at law or in equity, in contract or in tort) exceed the lesser of \$500.00 for each Working Day of delay or 2% of the Contract Amount. All unavoidable direct costs claimed by the Contractor must be submitted and substantiated to the Engineer for verification on a weekly basis as incurred, failing which, they shall not be considered nor payable by the City. Authorization for any payment of the claim shall only be given by written Work Order, duly signed and issued by the Engineer; and
 - paragraphs (a)(ii) or (a)(iii), the Contractor shall not be entitled to payment for any costs, loss, or damages incurred as the result of such delay and despite any other term of this Contract, the City will incur no liability for any such delay claim whether or not such claim is brought at law or in equity, contract or tort, or any other basis.

b) Non-Avoidance

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No delay or suspension described in this GC.10 shall vitiate or avoid the Contract, or any part thereof, or any security or obligation for the performance thereof, unless the City elects to the contrary.

c) Resumption of Work

At the end of such delay or suspension, or upon the removal of the cause thereof, or upon the Contractor receiving notice from the Engineer requiring the resumption of work, the Contractor shall at once resume the performance of the Work and diligently carry on the same under the direction of the Engineer.

d) Continuance of Work After Time Fixed for Completion

The Contractor shall not construe any direct or inferred permission to continue work after expiry of time for completion of the Work, as stipulated in the Contract or as amended by the order of the Engineer, as a waiver of damages for non-compliance with the requirement for the completion of the Work by or within such time. The Engineer may withhold such amounts from amounts otherwise due to the Contractor as the Engineer deems necessary to satisfy claims by the Engineer, the City, or by Other contractors caused by such non-compliance with the requirement for the completion of the Work by or within such time.

GC.11. SPECIFICATIONS AND DRAWINGS

The Contractor shall keep in its field office and available to the Engineer a complete set of the Specifications and Drawings, and of any further drawings which may from time to time be supplied or approved by the Engineer. The Contractor shall be supplied with five (5) sets of Specifications.

Wherever standard Specifications are referred to, they shall be the latest edition of those Specifications and they shall be considered to be a part of the Contract.

The Contractor will be supplied with five (5) prints of each of the Drawings and the Contractor must satisfy itself as to the accuracy of the said copies in every detail. Any additional copies desired will be furnished by the Engineer at cost to the Contractor.

The Drawings forming part of the Contract are intended to show the position and extent of the works, the general features of the design and construction, and the dimensions and proportions of all principal parts, but neither they nor the Specifications are guaranteed to show or describe every part or detail of the Work; anything omitted from the Drawings and Specifications, which may fairly be considered to be necessary for the proper execution and completion of the Work, shall be deemed to be included in the Contract.

Anything whatever which may be imperfectly specified or imperfectly shown on the Drawings, must be taken, considered and done as if it were perfectly shown and perfectly specified.

All dimensions on the Drawings, except as noted thereon, are shown in metric units.

The Engineer may from time to time issue further drawings or revised drawings as the Engineer deems necessary and such drawings shall be deemed to form part of the Contract.

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All sets of Drawings and Specifications shall be kept up to date at all times utilizing the Engineer's revised drawings and other documents issued to the Contractor.

All Drawings, Specifications, model and copies thereof furnished by the Engineer are and shall remain the Engineer's property. Such documents and models are to be used only with respect to the Work, are not to be copied or revised in any manner without the written authorization of the Engineer and are to be returned to the Engineer on request at the completion of the Work.

GC.12. SHOP DRAWINGS

- a) The Contractor shall submit, with such promptness so as to cause no delay in his work, or that of any Other contractor, one (1) sepia and one (1) copy of all shop or setting drawings and schedules required for the Work of the Contractor, and the Engineer shall pass upon them with reasonable promptness. The Contractor shall make any corrections required by the Engineer, and file with him one (1) sepia and one (1) copy.
- b) The Engineer's review of shop drawings or schedules shall not relieve the Contractor from responsibility for deviations from Drawings and Specifications unless the Contractor has in writing called the Engineer's attention to such deviation at the time of submission, nor shall it relieve the Contractor from the responsibility for errors of any sort in shop drawings or schedules.

GC.13. RECORD PLANS

The Contractor shall supply the Engineer with three (3) complete sets of "as constructed record plans" of the Work, on or before the date the Contractor makes application to the Engineer for a Certificate of Substantial Performance.

GC.14. ENGINEER SOLE JUDGE

Should any discrepancies appear or difference of opinion or misunderstanding arise as to the meaning of the Contract Documents, or as to any omissions therefrom, or misstatements therein, in any respect, or as to quality or dimensions or sufficiency of materials, Products, Plant or Work, or any part thereof, or as to the due and proper execution of the Work, or as to the measurement of quantity or valuation of any Work executed or to be executed under the Contract or as to extras thereupon, or deductions therefrom, or as to any other questions or matters arising out of the Contract, the same shall be determined by the Engineer and the Engineer's decisions shall be final and binding upon all parties concerned, and from it there shall be no appeal; and the Contractor shall immediately, when ordered by the Engineer, proceed with and execute the Work, or any part thereof, forthwith, according to such decision, and with such additions to or deductions from the Contract Amount as are provided under the terms of the Contract, without making any claim for any extension of time in completing the Contract or the Work, unless arranged for in writing with the Engineer as provided herein.

In all cases of misunderstanding and disputes, oral arrangements will not be considered, and the Contractor must produce written authority in support of her contentions, and shall advance no claim in the absence of such written authority, or use, or attempt to use, any conversation with any person whomsoever against the Engineer or the Owner or in prosecuting

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any claim against any of them.

GC.15. ENGINEER'S ABSENCE

In the absence of the Engineer, any of the Engineer's assistants whom the Engineer may designate to supervise the Work, shall have (subject to the instructions of the Engineer) full power to decide as to the manner of conducting and executing the Work in every particular aspect, and the Contractor shall follow the instructions or orders of the person so designated.

GC.16. ACCESS AND ASSISTANCE

The Contractor shall furnish the Engineer and any of the Engineer's assistants at all times with convenient means of access to all parts of the Work, and also with all required assistance, to facilitate thorough examination of the same, and inspection, culling or removal of doubtful or defective material or Products and for any other purpose required in connection with the Work, or in the discharge of their respective duties, for which service no additional allowance will be made.

GC.17. COMMUNICATIONS WITH CONTRACTOR

At all times during the performance of the Work, the Contractor will maintain within the Greater Vancouver area an office equipped with a telephone and staffed at all times on all Working Days between 8:30 a.m. and 4:30 p.m. with a representative of the Contractor authorized to act on its behalf in connection with the Work and the Contract.

Before commencement of construction, the Contractor will provide the Engineer with a list of at least three persons with authority to act on the Contractor's behalf in times of emergency in connection with the Work, at least one of whom will be available at all times 24 hours per day after commencement of the Work until completion thereof.

Any notice or communication to the Contractor pursuant to the Contract will be deemed to be well and sufficiently given, delivered and received by the Contractor if handed to the Contractor or any of the Contractor's apparent representatives, if the Contractor is an individual, or to any of its apparent representatives, if it is not an individual, or if mailed or sent to the Contractor at the address set out in its Tender, or to its place of business, if that is different from the address given there, or left for the Contractor at any Work site or by fax or e-mail to the Contractor's fax number or email address as set out in the Tender.

In any written or printed notice the City gives communicating to the Contractor regarding requirements for the Work or otherwise in connection with the Work or the Contract, the City will not be obligated to specify minutely or in detail everything required, or to specify by measurement the exact extent thereof, or the precise spot or spots where the Work, material or Products that may be defective, or where any of the Specifications have not been observed, but a reference in such notice to the clause or clauses bearing upon the matter, and a description of the locality in general terms and sufficiently clear, in the Engineer's opinion, to indicate where the defects or trouble exists, will be deemed to be and will be ample notice.

GC.18. CONTRACTOR'S SUPERINTENDENT AND EMPLOYEES

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The Contractor shall keep on the Site, during the progress of the Work, a competent superintendent and any necessary assistants, all satisfactory to the Engineer. The superintendent shall not be changed except with the consent of the Engineer, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in her employ. The superintendent shall represent the Contractor in the Contractor's absence and directions on minor matters given to the superintendent shall be held to be given to the Contractor. Important decisions shall be given in writing to the Contractor. The Contractor shall give efficient supervision to the Work, using her best skill and attention.

Should any person employed on the Site, or in connection therewith, give any just cause for complaint, the Engineer may require that such person be replaced forthwith, and such person shall not be again employed by the Contractor on the Site without the consent, in writing, of the Engineer.

GC.19. INSPECTION OF WORK

The Engineer may appoint inspectors or surveyors to inspect all materials used, Products made and all Work done. Such inspections may extend to any or all parts of the Work and to the preparation or manufacture of the Products to be used whether on Site or elsewhere. Inspectors and surveyors are not authorized to revoke, alter, enlarge or accept any portion of the Work or to issue instructions contrary to the Drawings and Specifications.

GC.20. DAILY REPORT

The Engineer will maintain, in detail, a daily report to record progress of the Work, the number of personnel at the Site, the materials delivered to the Site, and all such other items which the Engineer deems necessary to record. The daily reports will be kept in the Engineer's Site Office and the Contractor or the Contractor's representative shall be required to read and sign each report. In case of differences of opinion between the Engineer and the Contractor regarding the particulars stated in the daily report, the Contractor shall, within seven (7) days, give notice in writing to the Engineer expounding such difference.

GC.21. WEEKLY MEETINGS

The Contractor shall meet weekly with the Engineer on the Site to discuss work done in the previous week, and work proposed to be done in the week just starting, and as requested by the Engineer during the course of the Work.

GC.22. CONSTRUCTION SCHEDULE

Before beginning work, the Contractor shall furnish the Engineer with a complete construction schedule showing the Contractor's proposed program of operations. This schedule shall indicate the various subdivisions of the Work and the dates of commencing and finishing of each. The construction schedule shall be completed using Microsoft Project or other scheduling software as approved by the Engineer.

The form of the schedule must be approved by the Engineer. On the last day of each calendar month, a copy of the schedule shall be submitted to the Engineer with particulars indicating the percentage completed of each division of the Work to that date.

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The Contractor shall immediately advise the Engineer of any proposed changes in the submitted construction program. If, in the opinion of the Engineer, the construction program as submitted is inadequate to ensure the completion of the Work within the time limited therefor, or is otherwise not in accordance with the Tender, or if the Work is not being adequately or properly prosecuted in any respect, the Engineer, without derogating from the Owner's rights under the Contract, shall have the right to require the Contractor to submit a new construction schedule providing for proper and timely completion of the Work, and the Contractor shall be entitled to no claim for extension of time on account of such requirement.

GC.23. MAINTENANCE OF SCHEDULE

a) Work Delayed by the Contractor

The Contractor shall at all times provide a sufficient number of skilled personnel to maintain the progress of the Work and compliance with the master schedule, and if in the opinion of the Engineer the Contractor delays the progress of the works of Other contractors then the Contractor shall be responsible for all loss and damage, including, without limitation, that of Other contractors for stand-by and/or delay occasioned thereby.

If, in the opinion of the Engineer, the Contractor delays or is about to delay the Work or the progress of any portion of the Work as shown by the master schedule, then upon the written notification by the Engineer, the Contractor shall use such additional overtime work or shifts as may be necessary to catch up and/or maintain the general progress of the master schedule and the cost and expenses incurred by use of said overtime work or shift shall be borne entirely by the Contractor.

b) Work Accelerated by the Engineer

Should the Engineer be required to expedite the final completion of the Work or the works of Other contractors, then, provided the Contractor is not in default in any of the provisions of the Contract affecting the master schedule, the Engineer may order the Contractor to work additional shifts for which the Owner will pay:

- i) the substantiated extra premium wage incurred by such shift work;
- ii) the approved additional wages of supervision; and
- iii) an agreed percentage addition for profit for accelerated work.

Such instructions to the Contractor will only be valid when given in writing by the Engineer. The Contractor shall be responsible for having time sheets covering all such shift work checked and approved daily by the Engineer and claims for reimbursement of the extra wages will only be accepted when properly supported by such signed time sheets.

c) Work Out-of-Sequence

The Contractor shall at no additional cost perform his Work as to operation or location out-of-sequence as and when directed by the Engineer.

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d) Execution of Other Works or Contracts

The Contractor shall afford all facilities for the execution of any other works which may be undertaken by the Owner or by such parties as may be employed by them, so that such works may be properly and conveniently completed, and the Engineer shall have full authority to make and enforce such regulations as the Engineer may deem necessary for the conduct of the works; and the Contractor shall proceed in such manner and with and complete in such order such portions of the Work as the Engineer may require, and the Engineer shall be the sole judge as to what facilities are due and proper, and can be afforded without any undue interference with the execution of the Contract.

The Contractor shall at all times give free access and every reasonable facility to the employees of the Owner and to Other contractors, to such portion of the works and adjoining land as may be necessary to enable them to execute and maintain works of any description; such accommodation and access being regulated and directed by the Engineer and no inconvenience or alleged inconvenience arising therefrom shall form any ground for claims, losses or damages, compensation or otherwise, by the Contractor against the Owner.

GC.24. EMERGENCIES

The Engineer has the authority in an emergency to stop the progress of the Work whenever in his/her opinion such stoppage may be necessary to ensure the safety of life, or the Work or neighbouring property. This includes authority to make changes in the Work, and to order, assess and award the cost of work extra to the Agreement or otherwise, as may in his/her opinion be necessary. The Engineer shall within two (2) Working Days confirm in writing any such instructions.

GC.25. SUBCONTRACTORS AND SUPPLIERS

The Contractor shall supply complete information to Subcontractors and equipment and material suppliers. The Contractor agrees to bind every Subcontractor by the terms of the General Conditions, Supplementary General Conditions, Drawings, Specifications, and other Contract Documents as far as applicable to their component of the Work. Where both Specifications and Drawings are required to provide complete information on any aspect of the Work, the Contractor shall supply both to the Subcontractor or supplier concerned.

In every subcontract the Contractor shall specify that the Contractor or agent of the Contractor shall be the person responsible for payment certification under that subcontract for the purposes of the Builders Lien Act (and not the Owner or Engineer).

GC.26. CONTRACTOR'S PLANT AND UTILITIES

The Contractor shall at its own expense supply, maintain and remove its field office and whatever electric or telephone facilities the Contractor requires for her Plant for either domestic or construction purposes.

The Contractor must provide and properly maintain, in clean and sanitary condition, suitable and convenient privy or toilet accommodation for the Contractor's employees so that they shall not be a source of inconvenience, complaint or nuisance to the public or to others in the

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vicinity of the Site.

Contractors shall make all necessary arrangements with the Engineering Department of the City for obtaining water from the City.

GC.27. PLANT, LABOUR AND MATERIALS

The Contractor at its own expense shall provide all necessary temporary buildings and storage grounds and shall furnish all necessary labour, materials and plant together with all proper and required facilities for moving and transporting the same, so that the Contract and all Work required to be done under it can and will be carried on in a workmanlike manner, properly, satisfactorily, continuously and expeditiously, to completion, to the Engineer's satisfaction in all respects. Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality.

Should any Plant, equipment, appliance, materials or workmanship which the Engineer may deem to be inferior or unfit for use in or on the Works be brought on the ground or used, the same shall be wholly removed therefrom within twenty-four (24) hours after notification to that effect from the Engineer, and in the case of failure or neglect on the part of the Contractor to remove the same the Engineer may cause the same to be taken away at the Contractor's expense, and deposited, wasted or otherwise disposed of in any locality, place or way the Engineer considers convenient or proper, and the Contractor shall forthwith pay to the Owner on demand, all expenses incurred including storage, if any, or the same may be deducted or collected by the Owner as provided in GC.58.

GC.28. MATERIAL AND EQUIPMENT SUPPLIED BY THE CONTRACTOR

Material and equipment supplied by the Contractor shall be as specified. If the Contractor wishes to supply and install items other than specified, the Contractor shall apply for and must receive written permission from the Engineer before incorporating such items into the Work. Descriptive literature and price schedules covering such alternative items shall be supplied to the Engineer if requested.

The Contractor shall furnish for the approval of the Engineer as the Engineer may reasonably require samples of any material of any kind to be used in the Work and no material shall be used which is in any way inferior to the approved samples; but it is understood that the approval of any material shall not subject the Owner or the Engineer to pay for the same nor prevent the rejection afterwards of any portion thereof which is found in the Engineer's judgement to be unsound or unfit to be used, nor shall such approval be considered as any waiver of objection to the Work at any subsequent period on account of the unsoundness or imperfection of the materials used.

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GC.29. MATERIAL IN IMPERIAL UNITS

Where manufactured materials that are specified in metric units are not available, materials manufactured to Imperial units may be substituted, provided the Contractor can satisfy the Engineer that the substitute materials are at least equivalent to those specified.

GC.30. SUPPLY OF MATERIALS BY THE CITY

The Contractor's responsibility for materials supplied by the City shall begin upon the Contractor's acceptance at the points of supply to the Site. All such materials shall be examined and the Contractor shall advise the Engineer in writing of any defective or damaged material. Any material supplied by the City which is damaged after acceptance by the Contractor shall be replaced by the Contractor at his own expense.

Any material supplied by the City that is not required for the Work shall remain the property of the City. Such material shall be neatly stored at the point of original supply.

GC.31. TEMPORARY STRUCTURES

Temporary structures erected by the Contractor shall remain the Contractor's property and be removed from the Site on completion of the Work.

The Contractor shall be responsible for the design, adequacy, safety and efficiency of all falsework, temporary structures and construction processes required in connection with the completion of the Contract. All such designs and plans shall be prepared and sealed by a Professional Engineer licensed to practice in British Columbia and submitted to the Engineer for review and comment, but such review shall not relieve the Contractor of any responsibility. The Contractor shall make good at the Contractor's expense immediately all defects arising from the Contractor's faulty design, equipment or application thereof.

GC.32. WORK AREAS AND CONTRACT LIMITS

The Contractor shall, as far as is practicable, confine operations to the Engineer's specified area within the Site. Any land or property outside Site boundaries which the Contractor requires during construction shall be acquired by the Contractor at the Contractor's own expense, and the Contractor shall make his/her own arrangements for the use of such land or property and for the compensation of its owners.

Work to be performed by the Contractor outside the Contract Work limits includes:

- a) installation of barricades and barriers and other traffic control measures; and
- b) repairing and making good property and improvements which are damaged or destroyed by the Contractor's operations.

GC.33. OFFICE FACILITIES FOR THE ENGINEER [Intentionally Deleted]

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GC.34. STORAGE AREAS

Working and storage areas will be allocated by the Engineer for use by the Contractor. The Contractor shall be responsible for the maintenance and clean-up of the allotted areas.

GC.35. HOURS OF WORK

The Contractor must comply at all times with all applicable requirements of the City's Noise By-law.

The Contractor shall keep the Engineer advised on the proposed hours of work so that inspection can be co-ordinated. Work without inspection shall not be permitted.

The Owner's forces work between the hours of 7:30 a.m. and 3:30 p.m. on all Working Days, except those where City Hall is closed. The Contractor shall not expect any work to be performed by the Owner's crews outside these hours except by special arrangement agreed to by the Engineer or in case of emergency.

GC.36. TRAFFIC CONTROL

For all works on City streets, lanes or sidewalks, all traffic control shall be provided by the Contractor, at the Contractor's expense, except where otherwise specifically provided for in this Contract. The Contractor shall adhere to the standard procedures and practices prescribed in the Ministry of Transportation and Highways "Traffic Control Manual for Work on Roadways" (Second Field Edition).

The Contractor shall also provide, at the Contractor's expense, erect and maintain all requisite barriers, fences or other proper protection and must provide and maintain such flagpersons, watchpersons and lights as may be necessary or as may be ordered by the Engineer, in order to ensure safety to the public as well as to those engaged about the premises or Works, and must (where it is practicable in the Engineer's opinion) keep any roadway open for the use of the public, or for some restricted use specified by the Engineer, for such width as the Engineer may direct.

At the request of the Engineer, the Contractor shall submit a traffic management plan for the Engineer's approval prior to commencing work or at any other time within two (2) Working Days of such request.

The Contractor shall, from the date of commencement to the date of completion of the Work, assume responsibility for the barricading and signing of hazards resulting from such works as utility trenches, out-of-grade utility-access covers, or any other obstruction or impediment to pedestrian or vehicular traffic, be these works in progress prior to or subsequent to the above mentioned date of commencement.

Unless ordered otherwise by the Engineer, the Contractor shall inspect the barricades and warning signs of unattended construction Sites at least once per day.

When any work is carried out at night, the Contractor must supply, at the Contractor's expense, a sufficient number of electric or other approved lights to enable the work to be done in an efficient and satisfactory manner, and the Engineer shall have the right to order

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additional lights at the Contractor's expense if, in the Engineer's opinion, they are or may be required.

Licence numbers of vehicles legally parked at the time of placement of signs shall be recorded by the Contractor and made available for the Engineer. If these vehicles are still parked when work commences, the Engineer shall be contacted by the Contractor for further instructions.

For the information of the Contractor, the Parking Enforcement Branch or the Vancouver City Police are the only designated authorities approved to call tow trucks. Providing the signing is adequate and the Contractor has contacted the Engineer, the City of Vancouver will pay the costs of towing. Owners of vehicles unlawfully parked will be charged with costs of towing and other costs.

GC.37. PUBLIC CONVENIENCE

In carrying out the Work, or any portion thereof, the convenience of the public must always be specially considered and provided for by the Contractor, who must not obstruct any street, thoroughfare or sidewalk longer or to any greater extent than is absolutely necessary in the Engineer's opinion. The Contractor shall not deposit any material upon any street, sidewalk, boulevard, grass plot, or other City or public property, without the Engineer's permission nor shall the Contractor allow the same to remain thereon longer than necessary but must remove all rubbish and other material, clean and thoroughly restore all such places to as good and as tidy a condition as the Contractor found them, as speedily as possible, from time to time as the Work progresses, or as directed. Unless material and rubbish are removed within four (4) days after the completion of the Work and without previous notice to the Contractor the Engineer will proceed to do whatever is necessary to restore such places to as good and as tidy a condition as before the commencement of the Work and charge the cost thereof against the Contractor. Where the Contractor obstructs more of the street, roadway or place than is ordered or sanctioned by the Engineer in writing, then the Engineer may cause such obstructions to be removed at the expense of the Contractor.

GC.38. ACCESS TO EXISTING STRUCTURES

The Contractor shall at all times maintain satisfactory pedestrian access to buildings and private property.

The Contractor shall provide suitable notice to affected property owners prior to changes in access. Interruption of access to any entrance shall be kept to a minimum.

The Contractor shall maintain fire exits from existing buildings as required by the Fire Department.

GC.39. PROTECTION OF WORK AND PROPERTY

The Contractor shall maintain continuously adequate protection of all the Contractor's Work from damage and shall protect the Owner's property from all injury arising in connection with the Contract. The Contractor shall make good any such damage or injury. The Contractor shall protect adequately adjacent property as required by law and the Contract.

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GC.40. FIRE, SECURITY AND SAFETY REGULATIONS

a) Fire and Security

The Contractor shall comply and the Contractor shall enforce compliance by all her agents, employees, Subcontractors and suppliers with any and all fire regulations which have been or may be established from time to time by the Engineer and anybody having jurisdiction over such matters.

All security regulations which have or may be promulgated by the Engineer or other authorized representatives of the Owner shall be complied with. Watchmen for the buildings and grounds may be provided by the Owner at the Owner's discretion. However, neither the Owner nor the Engineer will be responsible for any loss or damage to the property of the Contractor whether or not watchmen are provided by the Engineer. The Contractor will furnish such security as the Contractor feels necessary for the protection of the Contractor's equipment and Products stored or used on Site.

b) Loss Control

The Contractor will provide a Loss Control Program, satisfactory to the Owner to meet WorkSafe BC and other requirements.

c) Safety

When required by WorkSafe BC Regulations, first aid facilities, including an attendant, shall be provided on the Site at all times during working hours by the Contractor. Such facilities will be completely equipped in accordance with the requirements of the WorkSafe BC.

The Contractor shall be fully responsible for taking all necessary precautions for the safety of the Contractor's workers on the Site or of complying with all applicable safety laws and regulations, particularly those regulations pursuant to the WCA to prevent accidents or injury to persons on, about or adjacent to the Site.

The Contractor shall provide all safeguards required directly for or as a result of the Work as referred to in GC.39 - Protection of Work and Property and in the scope of work described in the Contract Documents.

GC.41. OVERLOADING

No part of the Site shall be loaded with a load greater than it is calculated to bear safely. Should any damage or accident occur through the violation of this requirement, the Owner will hold the Contractor solely answerable and liable.

GC.42. DRAINAGE

The Contractor shall keep all portions of the Work well, properly and efficiently drained until completion, and the Contractor will be held responsible for all damage which may be caused or result from water backing up or flowing over, through, from or along any part of the Work, or which any of the Contractor's operations may cause to flow elsewhere.

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GC.43. CLEANING UP

The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by its employees or work, and at the completion of the Work, it shall remove all its rubbish from and about the Site and all its tools, scaffolding and surplus materials, and shall leave the Site "broom clean" or the equivalent, unless more exactly specified. In case of dispute, the Engineer may remove the rubbish and charge the cost to the Contractor as the Engineer shall determine to be just.

GC.44. SAFEGUARDING EXISTING PROPERTY

Existing property, buildings, fences or other improvements of any kind shall be protected by the Contractor during the life of the Contract. The Contractor shall make good to the satisfaction of the Engineer any damage done to the existing property, buildings, fences or other improvements. This applies to areas of private property incorporated in the Work area.

Where removal of existing improvements such as pavement, fences, structures, sewers and ducts is necessary during the course of the Work, the same shall be re-established by the Contractor to the satisfaction of the Engineer. The cost of protection and rehabilitation shall be borne by the Contractor.

GC.45. EXISTING UTILITIES

The Contractor will be responsible for the care of all public utilities and in the event of any of these requiring to be removed, raised or lowered permanently, this will be done either by the City or by the utility company interested and at the expense of the City. If temporary alteration of location is required for purposes of the construction, such work shall be done by the City or by the utility company interested at the expense of the Contractor. The Contractor, however, will be held responsible for, and will have to bear the cost due to any damage done to utility services through its operations.

Reasonable notice must be given to the Engineer of any change required in utility services.

Existing utilities are shown on the Drawings. These, however, are shown for convenience only and the Owner assumes no responsibility for improper locations, or failure to show utility locations on the construction plans. The Contractor shall prove its locations by obtaining relevant City of Vancouver plans and uncovering the utilities on site at no extra cost to the Owner.

The Contractor shall provide adequate barricades and lighting around and adjacent to any open excavation or potentially dangerous location or other locations designated by the Engineer.

The Contractor shall at all times ensure that the fire hydrants are not obstructed.

GC.46. DUST CONTROL

The Contractor shall at all times control the generation of dust by its operations by water sprinkling or by other methods approved by the Engineer.

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GC.47. ALTERATIONS, EXTRAS, DEDUCTIONS & CLAIMS

The Owner without invalidating the Contract shall have the right to make or order any alterations and changes, such as it may deem advisable, at any time before or during the prosecution of the Work, in any line, grade, Drawings, Specifications or detail thereof, or to increase or decrease the dimensions, quantity of material or work, or to alter the situation or level, or to vary the form or dimensions of any part of the Work, or to vary in any other way the Work; or to order any additional or extra work to be done or additional or extra materials to be furnished; and the Contractor shall, in pursuance of the Engineer's written orders to that effect, proceed with, carry out and execute the Work as directed, and shall supply such additional materials and do such additional or extra work in pursuance of such orders without being entitled to any extension of time for completion, or any additional payment on account thereof, except only as herein provided.

In each and every case where additional or extra work or material of any kind is ordered to be done or supplied, or where the Contractor does or supplies, or contemplates doing or supplying, any work or material the Contractor shall notify the Engineer in writing and shall state in its notification clearly and fully what the circumstances are, and the additional sum or compensation it intends to demand therefor, otherwise it shall have no claim in respect thereof. If any work, labour or material is not required to be performed or supplied, then the Owner may deduct from the Contract Amount the value of such work, labour or material not required to be performed or supplied which shall be determined by

- a) using the unit or lump sum prices contained in the Schedule of Quantities and Prices applicable to such work, labour or material, or
- b) if, and to the extent that, in the opinion of the Engineer some or none of the unit or lump sum prices aforesaid apply, then using the hourly rates set out in Schedule E Force Account Labour and Equipment Rates.
- c) such fixed sum as agreed upon between the Contractor and the Owner.

All claims of every nature which the Contractor may have in respect of the Contract or Work done thereunder, are to be summarized and submitted by it (in duplicate) to the Engineer within one (1) month of the completion of same, and the Contractor shall make no claim of any nature afterwards; and no claim not then made or not then allowed by the Owner shall be sustainable, and the Owner shall be in no way disentitled to determine any and all questions concerning said claims, and no action or suit shall be commenced by either party to the Contract until after the Final Certificate of Total Performance shall have been signed by the Engineer and then only for the amount appearing thereby to be due to the Contractor.

GC.48. ERRORS BY CONTRACTOR

Changes, errors or mistakes made by the Contractor or the Contractor's Subcontractors, workmen or employees, and all settlements, washouts and defects, shall be rectified by the Contractor at its expense.

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GC.49. TESTING OF MATERIALS

Except where otherwise specified, testing of materials will be carried out by the Contractor and paid for by the Contractor.

GC.50. DEFECTIVE WORK

All defective work must be forthwith made good by the Contractor at its own expense to the Engineer's or Owner's satisfaction, as the case may be.

GC.51. WARRANTY

The Contractor shall perform the Work in a proper and workmanlike manner and in accordance with the requirements of the Contract Documents and maintain the Work against any defects arising from faulty installation, material or workmanship during the period of twelve (12) months from the date of issuance of the Certificate of Substantial Performance and make good in a permanent manner satisfactory to the Owner any defects arising from any of these causes.

Whether the Contractor should replace defective Products or Work, or repair the same, shall be determined by the Engineer. Should the Contractor fail to make good defects within three (3) Working Days after being notified by the Owner to do so, the Owner at its option may do so and all costs, charges and expenses so incurred may be deducted or collected by the Owner as provided in GC.58 - *Money Due to Owner*. If the Owner warrants the defects to be dangerous and an emergency situation exists, the Owner, at the Owner's discretion will effect repairs immediately and all costs, charges and expenses so incurred may be deducted or collected by the Owner as provided in GC.58 - *Money Due to Owner*. The decision of the Owner shall be final as to the necessity of repairs or of any work done or required to be done under the provisions of the Contract and for the amounts expended thereunder. If in the opinion of the Engineer, it is in the Owner's best interests (taking into account effects on the Owner's overall schedule, the difference in value between the Work as performed and that called for by the Contract Documents, and other relevant factors) not to correct defective Work or Work not provided in the Contract Documents, the Engineer will assess the amount which should be deducted from the amount otherwise due to the Contractor and will assess the length of time by which the obligations should be extended in order to put the Owner in as close a position financially and in terms of the useful life of the Work as would have been the case had the Contractor performed the Work as called for by the Contract Documents. For further certainty, the Engineer may extend the warranty period in appropriate circumstances to a minimum of twice the warranty period originally provided for under the Contract Documents, subject always to the above parameters.

GC.52. CONTRACTOR'S LIABILITY

The Contractor shall be liable for any and all damages, or claims for damages, for injuries or accident to person or property done or caused by the Contractor, the Contractor's Subcontractors or employees, or resulting from the prosecution of the Work or any of its operations, or caused by reason of the existence or location or condition of the Work, or of any materials, Products or Plant used therein or thereon, or which may happen by reason thereof, or arising from any failure, neglect or omission on the Contractor's part, or on the part of the Contractor's Subcontractors or employees, to do or perform any or all of the

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several acts or things required to be done by the Contractor or them under and by the Contract, and the Contractor covenants and agrees to indemnify and save harmless at all times the Owner against all such damages and claims for damages whatsoever arising out of or in connection therewith, and in the event of any such action being brought by any person against the Owner, either directly or indirectly, or by reason of the execution of the Contract, the Owner may enforce payment by the Contractor of all such loss, costs, damages and expenses as a debt due to them.

In the case of the Contractor's failure, neglect or omission to observe and perform faithfully and strictly all the provisions of the Contract, the Owner may either with or without notice (except where in this Contract notice is specially provided for, and then upon giving the notice therein provided for), take such steps, procure such material, equipment, trucks, and men, and do such work or things as it may deem advisable towards carrying out and enforcing the same, and any and all expenses so incurred may be deducted or collected by the Owner under the provisions of GC.58.

Any such action taken by the Owner under this General Condition as it is herein empowered to take shall not in any way relieve the Contractor or its sureties from any liability under the Contract.

GC.53. INSURANCE BY THE CONTRACTOR

1. ALL RISK COURSE OF CONSTRUCTION INSURANCE

a) Coverage

"All Risks" of physical loss or damage.

b) Property Insured

i) At Site

All materials, equipment and machinery, labour and supplies of any nature whatsoever, Work in progress, including property of the Insured or of others for which the Insured may have assumed responsibility, to be used in or incidental to the Site preparations, demolition of existing structures, erection and/or fabrication and/or reconstruction and/or repair of the project insured, commencing when the property becomes at the Insured's risk, at the Site, and while there awaiting, during and subsequent to erection and/or fabrication and/or repair and/or testing.

ii) Transit

Property to enter into and form a part of the project insured, from the commencement of loading at the original point of shipment anywhere in Canada or the Continental United States of America, but excluding such property in the course of manufacturing or processing within buildings at the manufacturer's or supplier's site.

iii) Off Site

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Off Site coverage shall apply to property that is to be incorporated into and form a part of the project insured, anywhere in Canada or the Continental United States of America, but excluding such property while in transit or in the course of manufacturing or processing within buildings at the manufacturer's or supplier's site.

c) **Insureds**

The Owner, the Contractor, and their respective officials, officers, employees and agents.

d) **Term**

During the period of the construction operations and also during any period in which the property insured is being prepared for occupancy and while partially

occupied provided all coverage shall cease when the Work has been formally accepted as complete by the Owner, whichever shall first occur.

e) **Limit and Deductibles at Site**

i) **Limit of Liability: Full Value of the Work**

ii) **Deductible not to exceed \$5,000.**

2. **"WRAP UP LIABILITY INSURANCE"**

a) **Insureds**

The Owner, the Engineer, the Contractor, and all Subcontractors, and their respective officials, officers employees and agents.

b) **Limits**

Bodily Injury Liability and Property Damage Liability including aggregate products and completed operations: \$5,000,000 each occurrence.

c) **Extensions of Coverage**

i) **broad form products and completed operations liability, including coverage for activities of the Contractor and Subcontractors during the completed operations period,**

ii) **owner's and contractor's protective liability**

iii) **blanket contractual liability**

iv) **contingent employer's liability**

v) **personal injury liability**

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- vi) non-owned automobile liability
- vii) cross liability or severability of interest clause
- viii) employees as additional insureds;
- ix) Blasting, collapse, underpinning, shoring, pile driving, dredging or grading activities
- x) Loading and unloading of automobiles
- xi) Hoist liability
- xii) Unlicensed and specially licensed vehicles
- xiii) Operation of attached machinery
- xiv) Limited pollution liability arising out of hostile fire and sudden and accidental release of contaminants

d) Deductibles

Deductible not to exceed \$5,000.

e) Cross Liability

The insurance shall apply to any action brought against any one of the Insureds by any other Insured in the same manner as though separate policies were issued to each.

f) Term

Period of construction or completion of the project, whichever shall first occur, plus twenty-four (24) months for completed operations liability thereafter.

g) Waiver of Subrogation

It is understood and agreed that in the event of a loss and upon payment of claim hereunder, the Insurer will waive his/her right of subrogation against the Owner, the Engineer and all architects, engineers or consultants engaged in or connected with the construction and Site preparation and related operations of the Work and any of their servants, agents, employees, and parent, subsidiary, affiliated or associated firms.

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3. AUTOMOBILE INSURANCE

A standard owner's form automobile policy for licensed vehicles providing third party liability and accident benefits insurance as provided by the Insurance Corporation of British Columbia (Autoplan) in accordance with applicable British Columbia laws, the minimum limits as follows:

Bodily injury and property damage (third party limit) inclusive limit \$5,000,000.

4. CONTRACTOR'S EQUIPMENT INSURANCE

"All Risk" insurance with Insurers acceptable to the Owner, covering all construction equipment, owned or rented, or for which the Contractor or any of his/her Subcontractors may be responsible. In the event of loss or damage to the said construction equipment, or any part thereof, the Contractor or the Subcontractor, as the case may be, shall, if so requested by the Owner in writing, forthwith replace such damaged or destroyed construction equipment.

5. GENERAL

- a) All insurance coverage described in this General Condition shall be issued by an insurance carrier or agent acceptable to the Owner and licensed to conduct business in the Province of British Columbia.
- b) Contractors and Subcontractors shall be required to file with the owner prior to commencement of Work, a Certificate of Insurance, and where required by the Owner's Director of Risk Management, certified copies of all policies and endorsements evidencing the placement and endorsement of insurance in accordance with this General Condition.
- c) Contractors and their Subcontractors shall be required to furnish evidence of the renewal of policies described in this General Condition by renewal certificate, endorsement or certified copy to be received by the owner at least fifteen (15) days prior to the expiry date of the policy.
- d) If the Contractor fails to obtain and maintain insurance as required hereunder, or if the Owner does not approve any insurance policy or policies submitted to the Owner and the Contractor thereafter does not meet the requirements of the Owner as to terms and conditions of the insurance policy, the Owner shall have the right to place and maintain such insurance in the name of the Contractor. The cost thereof shall be payable by the Contractor to the Owner on demand, and the Owner may deduct the cost thereof from any monies which are due or may become due to the Contractor. If coverage should lapse, all work by the Contractor shall be stopped until satisfactory evidence of renewal is produced.
- e) Each policy described in this General Condition shall be required to be endorsed to provide the following Notice for Policy Changes and Cancellations to the City of Vancouver:

"It is understood and agreed that this policy will not be cancelled, reduced,

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materially altered or changed without the Insurer giving at least thirty (30) days prior written notice by registered mail to the City of Vancouver."

f) Subject to the provisions of Section 1, each Contractor and each of the Contractor's subcontractors shall provide at his/her own cost any additional insurance which he/she is required by law to provide or which he/she considers necessary.

g) Deductibles

All deductibles shall be for the account of and be paid by the Contractor upon demand by the City.

The Owner shall have the right to deduct amounts for which the Contractor is responsible under this Section from any monies which are due or may become due to the Contractor.

6. The Contractor will obtain or cause its Subcontractors to obtain Hull and Machinery Insurance with a minimum limit of not less than the full value of such vessel, barge or equipment and a deductible of not more than Five Thousand (\$5,000) Dollars protecting the Contractor and its Subcontractors from all claims for loss or damage to any vessel, barge or equipment arising out of ownership or operation of the Contractor or its Subcontractors. This policy shall contain a Waiver of Subrogation that in the event of a loss or damage and upon payment of claim hereunder, the Insurer will waive his/her subrogation against the Owner (City), its officers, officials and employees.
7. The Contractor will obtain or cause its Subcontractors to obtain Protection and Indemnity Insurance to cover all claims for bodily injury including death, property damage or loss arising out of the activities conducted by the Contractor, the Subcontractors, or their employees, agents or subcontractors, with a minimum limit of not less Five Million (\$5,000,000) Dollars per occurrence and a deductible of not more than Five Thousand (\$ 5,000) Dollars. This policy shall name the City, its officials, officers, employees and agents as an additional insured or co-insured.

GC.54. WORKSAFE BC ASSESSMENTS

Prior to execution of the Agreement and prior to commencing the Work under the Contract, the Contractor shall provide a letter from the WorkSafe BC confirming the Contractor's registration and that all assessments have been paid to the date thereof. The Contractor shall require that the Contractor's Subcontractors maintain such coverage and pay such assessments as will protect them, the Owner and the Engineer from claims under the *Workers' Compensation Act (British Columbia)*, as amended from time to time and regulations pursuant thereto.

GC.55. CLAIMS FOR WAGES

The Owner may settle any claim for damages, and pay all wages overdue or the price of any materials or the amount due and payable by the Contractor to any Subcontractor, for which payment is in arrears, and the amount thereof shall be debt due by the Contractor to the Owner, as and for money paid by them for the Contractor and shall be deducted or collected

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by them as provided in GC.58 - Money Due to Owner, but they do not assume any liability in this respect; nor shall the persons to whom such wages or payments are paid become, by such payments, the employees or servants of the Owner.

GC.56. LIENS

The Contractor hereby agrees to make payment and take all other steps which may be necessary to insure that all Contract monies, and the Work, and every part thereof, shall be and remain at all times free from and not liable to any lien or charge at law or in equity, or to any claim of liability under the Builders Lien Act, or to any attachment for debt, garnishee process or otherwise, and the Contractor and her sureties, as well as its respective executors, administrators, successors and assigns, shall fully indemnify and save harmless the Owner and all its officers, employees from any and all such liability, and shall, on demand, immediately cause any such lien, charge, claim or attachment to be removed or released from the records of any Land Title Office or Court in which the same may appear.

Notwithstanding anything to the contrary contained in the Contract Document, the Owners shall not be obliged to pay any monies to the Contractor if and for so long as any liens exist against the Works or the Site.

GC.57. PATENT INFRINGEMENT

The Contractor shall fully indemnify the Owner against and from all suits or actions arising from the claim of any person or persons who are or claim to be patentees of any process used in connection with the Work or of any material, Products, Plant, machinery, tool or appliance used therein or thereon, or in any way therewith.

GC.58. MONEY DUE TO OWNER

All money payable to the Owner by the Contractor may be retained out of any money then due, or which may become due from them to the Contractor under this or any other contract with the Owner, or otherwise howsoever, or may be recovered from the Contractor and its sureties, or any of either of them, in any Court of competent jurisdiction, as a debt due to them; and the Engineer shall have full power to withhold any estimate or certificate, if circumstances arise which may indicate to him the advisability of so doing, until the Engineer is satisfied that the Work and material so far done or furnished are in accordance with the Contract and that the Contractor is otherwise entitled thereto, though the sum to be retained may be unascertained.

GC.59. ASSIGNMENT

The Contractor shall not, without the consent in writing of the Owner first had and obtained, assign or transfer any sum or sums, or any part thereof, due or to become due to the Contractor under the Contract, or assign, transfer or sublet any portion of the Contract or of the Work but must carry out the Work with its own men or subcontract under the Contractor's supervision. This section however does not apply to the furnishing of material for the different parts of the Work, for which material, however, the Contractor will be held strictly responsible, and no excuse for the quality of the material or for the non-delivery in good time by any Subcontractor, as affecting the progress of the Work, will be entertained, nor will the Owner's consent to the assigning, transferring or subletting of any portion of the Work relieve

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the Contractor from any of its obligations or liabilities under the Contract. No assignment, transfer or subletting hereinbefore mentioned, except if the same is made in accordance herewith, shall be in any manner valid or binding on the Owner.

GC.60. CERTIFICATES AND PAYMENTS

a) Payment Certifier:

The Engineer shall be the “payment certifier” and the person responsible for payment certification under the Contract for the purposes of the *Builders Lien Act*. The Engineer will not be the “payment certifier” under any subcontract.

b) Certificate for Substantial Performance:

i) The Contractor shall give written notice to the Engineer that the Work is substantially performed, and, upon subsequent inspection by the Engineer, a list of deficient work shall be issued to the Contractor by the Engineer. When these deficiencies have been rectified to the satisfaction of the Engineer, the Engineer shall recommend that the Work is substantially performed and ready for official inspection.

At the time of the application for a Certificate of Substantial Performance, the Contractor shall deliver up to, and to the complete satisfaction of the Engineer:

- the “as constructed record plans” of the Work required by GC.13 - *Record Plans*;
- documentation showing compliance with WCB requirements; and
- a sworn declaration in a form acceptable to the Engineer that all amounts relating to the Work, due and owing as of the end of the month covered by Article V (c) of the Form of Agreement to third parties including all Subcontractors and suppliers, have been paid.

ii) The Owner, the Engineer and the Contractor shall inspect the Work and any remaining deficiencies shall be detailed and included on the Certificate of Substantial Performance. The date of Substantial Performance shall be as stated in this Certificate. Upon issuance of the Certificate of Substantial Performance to the Contractor, the Engineer shall set a reasonable date for the Total Performance of the Work.

iii) For the purposes of the *Builders Lien Act*, the Certificate of Substantial Performance as described herein shall serve as the Contract’s certificate for completion, and the date of Substantial Performance stated in the Certificate shall be deemed to be the date of the Certificate’s issuance.

c) Certificate of Total Performance:

Upon the provision of satisfactory evidence that the deficiencies have been rectified, the Owner and the Engineer will then be permitted to verify such rectification. Upon

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rectification of all claims and statutory declarations as specified in GC 60(d) ii and to the reasonable satisfaction of the Engineer, the Engineer will issue the Certificate of Total Performance.

d) Statutory Declarations:

The Contractor shall submit with the Contractor's application for payment such statutory declarations as may be required herein, which shall be sworn in duplicate by the Contractor, or by such person on behalf of the Contractor as the Engineer may approve.

- i) Prior to payment and as condition to any payment, the Engineer may at any time require the Contractor to file with him a Statutory Declaration showing that all wages for the various classes of labour, the hire of trucks, equipment, etc., employed in or about the Site, all Products or other things supplied for use in or upon the Work and amounts due to Subcontractors and suppliers have been paid and satisfied and that there is no encumbrance, lawful claim or lien accruing for labour or services in connection with the Work.

Should any amounts be due and unpaid for wages, equipment, hire, Products and Subcontractors or suppliers as above listed or any encumbrance, lawful claim or lien accrue, the amounts shall be listed on a duly attested statement, in duplicate, and attached to the Statutory Declaration referred to above.

The Engineer may at any time, if the Engineer deems it advisable, require from the Contractor a statement showing the rates of wages paid by him for the various classes of labour, the rates of hire of trucks and equipment employed and the prices and quantities of any Products supplied for use in or upon the Work and may also require the statement to show in detail the names of unpaid employees, the rates of wages and amounts due to each, and the names of creditors, quantities, prices and amounts due to each. Such statement shall be duly attested in duplicate as above and be a condition precedent to the right of the Contractor to receive payment.

- ii) Prior to final payment and as a condition to issuance by the Engineer of a Certificate of Total Performance, the Contractor shall file with the Engineer a Statutory Declaration showing that all Work in respect of the Contract has been completed; all accounts, detailed in the first sentence of paragraph (d)(i) of this General Condition have been paid and satisfied and there is no encumbrance, lawful claim or lien accruing for labour, products or services in connection with the Work; and payments already received and now due under the final payment application are accepted by the Contractor as full compensation for everything furnished and done by the Contractor under the Contract.

e) Other Documentation

The Engineer may as a further condition to any payment, at any time, require the Contractor to furnish such or other detailed information as may be necessary to establish to their satisfaction the compliance by the Contractor with the conditions of the Contract.

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f) Books Open for Inspection

The Contractor's payrolls, time-books, books of account, invoices, receipt and statements relating to her Work under the Contract shall be at all times open for inspection and extract by the Engineer and the Owner and any authorized representative of them.

GC.61. TERMINATION OF CONTRACT WITHOUT DEFAULT OF CONTRACTOR

The Engineer may, as agent for and on behalf of the Owner, at the Engineer's discretion terminate the Contract at any time upon written notice to the Contractor notwithstanding the fact that the Contractor may not then be in default, in which event the Owner shall be liable to the Contractor only for a reasonable amount for Work done and materials delivered at or to the Site up to the date of the termination.

Upon payment of the aggregate of the aforesaid sums, the Owner, the Engineer and the Contractor shall be released from their liabilities or obligations under the Contract save and except that the liabilities and obligations of the Contractor shall continue with respect to deficiencies and warranties in the portion of the Work completed prior to termination.

GC.62. TERMINATION OF CONTRACT FOR CONTRACTOR'S DEFAULT

- a) The Engineer as agent for and on behalf of the Owner, without prejudice to any other right, may elect to terminate the Contract forthwith upon notice to the Contractor if:
- i) the Contractor fails to comply with the requirements following Notice of Award under paragraph 2 of the Form of Tender;
 - ii) the Contractor fails to commence the Work or otherwise comply with the requirements following the Notice to Proceed under paragraph 3 of the Form of Tender;
 - iii) the Contractor commits an act of bankruptcy or becomes a bankrupt or makes a general assignment for the benefit of the Contractor's creditors;
 - iv) a receiver is appointed for the Contractor's business;
 - v) the Contractor fails, on reasonable notice from the Engineer, to supply enough proper workmen or Products;
 - vi) the Contractor does not pay promptly the Contractor's employees, Subcontractors or suppliers;
 - vii) the Contractor does not comply with the requirements of the WorkSafe BC / Occupational Health and Safety Regulations, and any failure to meet the safety requirements of the Contract; or
 - viii) the Contractor persistently or substantially breaches any provision of this Contract.

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- b) On such termination the Engineer may arrange for the performance of the Work by whatever method the Engineer deems expedient but without undue delay or expense.
- c) The Engineer may take possession of all Products, equipment, tools, structures and appliances belonging to or provided by the Contractor located on the Site which the Engineer deems necessary to prosecute the Work which possession the Contractor hereby pledges to the Engineer as agent for and on behalf of the Owner, as security for the performance of the Contract and the Work, provided that upon completion of the Work the Engineer shall return to the Contractor or her legal representative any such chattels so taken in possession in their original condition (ordinary wear and tear excepted) if not incorporated in the Work, without any compensation for use thereof.
- d) In case the Work or any part thereof is taken out of the hands of the Contractor, as herein provided, it shall in no way affect the relative obligations of the Owner and the Contractor or its sureties in respect of the Contractor's or their obligation, or in respect of the remainder of the Work (if any), as the Engineer may consider reasonable. The Contractor and its sureties in every case shall be liable for such damages, expenditures and extra expenditures, and for all additional cost of the Work which may be incurred by reason of termination of the Contract pursuant to this GC.62, together with the compensation for liquidated damages, if any, from the date fixed for the completion of the Work, and the same may be deducted or collected by the Owner as provided by GC.58.
- e) All the powers of the Engineer with respect to the determination of any doubts, disputes and differences, and the determination of the sum or sums, or balance of money to be paid to or received from the Contractor, and otherwise in respect of the Contract shall nevertheless continue in force.
- f) The fulfilment by the Contractor of any stipulation in the Contract may be enforced by legal proceedings and judgement, or order of Court, without prejudice to any other remedy herein contained. Neither the Owner nor any of its officials, officers or employees, or agents shall be liable or accountable to the Contractor in any way for the manner in which, or the price at which the Work, or any portion thereof, may have been or may be done or completed by the Owner.
- g) No proceeding taken pursuant to this GC.62 or pursuant to any other provision of the Contract, shall at any time be deemed to be an assignment of the Contract or of any portion thereof, unless otherwise agreed to in writing.

GC.63. SUBMITTALS

The Contractor shall submit Product data and samples to the Engineer for review on request. The Contractor's responsibility for deviation in submissions is not relieved by the Engineer's review unless the Engineer gives written acceptance of specific deviations from the requirements of the Contract Documents. The Contractor shall make any changes in submissions which the Engineer may request consistent with the Contract Documents and shall resubmit as directed by the Engineer. The Contractor shall not proceed with Work until relevant submittals have been reviewed by the Engineer. The Contractor shall co-ordinate submittals with the requirements of the Contract Documents and shall allow fourteen (14) days for the Engineer's review.

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART E - GENERAL CONDITIONS**

GC.64. NON-RESIDENT WITHHOLDING TAX

If the Contractor is, at any time, a non-resident of Canada, within the meaning of the *Income Tax Act* (Canada) as amended, then, and the Contractor hereby so agrees, the City may deduct from all money payable under the Contract and remit to the Receiver-General of Canada, the Government of Canada or the Canada Revenue Agency sums not greater than the greater of:

- a) twenty-five percent (25%) of all money payable under the Contract; and
- b) sums required to be withheld and remitted by the *Income Tax Act* (Canada) as amended.

The City will receive a further credit under the Contract for money withheld as of and from the date of the withholding (regardless of when or whether remitted) and no interest will be payable by the City on sums withheld, not remitted as aforesaid and later paid directly to the Contractor.

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INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART E - GENERAL CONDITIONS
APPENDIX A - PRIME CONTRACTOR AGREEMENT FORM

PRIME CONTRACTOR AGREEMENT FORM

1.0 DEFINITIONS

- (a) **“OH&S Regulation”** means Occupational Health & Safety Regulation (British Columbia Regulation 296/97), as amended by British Columbia Regulation 185/9) enacted pursuant to the WCA, and any successor legislation, all as such Regulation is amended or re-enacted from time to time;
- (b) **“Owner”** means City of Vancouver;
- (c) **“Place of the Work”** means the work site consisting of the Downtown Heritage Railway corridor
- (d) **“Prime Contractor”** means the Contractor, who is designated pursuant to Article 3 below by the Owner to be the Prime Contractor for the Project with respect to occupational health and safety for the purposes of WCB Legislation;
- (e) **“Project”** means the installation of rail track along the railway corridor to be used for the Downtown Heritage Railway and the Streetcar demonstration contemplated by the Contract Documents, and includes all the Work;
- (f) **“WCA”** means the *Workers Compensation Act*, R.S.B.C. 1996, Chapter 492, and any successor legislation, as such Act is amended or re-enacted from time to time;
- (g) **“WCB”** means the Worker’s Compensation Board of British Columbia;
- (h) **“WCB Legislation”** means the WCA and all regulations thereto including the OH&S Regulation, and all rules, regulations and requirements of WorkSafeBC, and any successor legislation, rules, regulations and requirements, all as amended or re-enacted from time to time; and
- (i) **“WorkSafeBC”** means the British Columbia Provincial governmental organization by that name which is responsible, inter alia, for promoting workplace health and safety for the workers and employers of British Columbia, and for working with the affected parties to provide return-to-work rehabilitation, compensation, health care benefits and a range of other services, in the event of work-related injuries or diseases suffered by workers in British Columbia.

All other capitalized terms used in this Prime Contractor Agreement have the meanings given to them in the Contract Documents of which this Prime Contractor Agreement is a part, as applicable.

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2.0 PRIME CONTRACTOR'S RESPONSIBILITIES

Proof of Qualification to act as Prime Contractor

- The Prime Contractor is to provide a copy of its WCB/WorkSafeBC "Clearance Letter", a signed copy of this Prime Contractor Agreement and all other documents requested by the Owner prior to commencement of the Work.
- The Prime Contractor is to notify the Owner of any changes of status with WorkSafeBC or the WCB during the course of the Project.

After the Prime Contractor has been designated and before Work has commenced, the Prime Contractor shall:

- Conduct all necessary and appropriate inquiries of all relevant Owner staff and records in order to verify in writing to the Owner that the Owner has given to the Contractor all information known to the Owner that is necessary to identify and eliminate or control hazards to the health and safety of persons at the Place of the Work.
- Conduct a pre-contract hazard assessment and carefully review, and plan to address, all hazards identified in that assessment.
- Inform all other employers whose employees are providing services for the Project at the Place of the Work, that it is the Prime Contractor.
- Establish and maintain a system or process to ensure all employers, employees and visitors at/to the Place of the Work comply with the WCA, the OH&S Regulation and the requirements of WorkSafeBC. The Prime Contractor will thus be responsible for site orientation and hazard communication.
- Review and complete a "Pre-Job Meeting Form" if the Owner requests.
- For construction projects, post the Notice of Project on the Place of the Work and deliver a copy to WorkSafeBC at least twenty-four (24) hours before construction commences.
- Comply with OH&S Regulation 20.2 in respect of the Notice of Project.
- Identify and set expectations for each subcontractor's safety contact.
- Coordinate all safety-related activities, from site orientations to safety committee meetings and toolbox talks, to inspections and incident reviews.
- Inform employers and workers of the workplace hazards associated with the Place of the Work.
- At the Place of the Work, provide the information listed in WorkSafeBC OH&S Regulation 20.3(4).

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- In all other respects strictly comply with, and strictly enforce compliance by others, as applicable, with, the WCA, the OH&S Regulation, the requirements of WorkSafeBC, the safety policies and procedures of the Owner and the terms and conditions of the Contract Documents applicable.

Throughout the term of the Project, the Prime Contractor shall:

- Ensure that all hazards are promptly and appropriately identified and addressed.
- Ensure the health and safety of the workers on the Project.
- Maintain a current list of persons that each sub-trade (employer) has designated to be responsible for that employer's health and safety activities.
- Ensure provision of first aid equipment and services as required by the OH&S Regulation.
- Coordinate all occupational health and safety activities for the Project.
- Prepare, and communicate to all workers on the Place of the Work, an emergency response plan, taking into account the number of people onsite, the people who work outside regular hours and the types of emergencies that may arise. This plan should also describe subcontractor and individual worker responsibilities (e.g. responding to a fire) and provide for any necessary training and equipment, including first aid supplies as work processes change over the course of the Project, this emergency response plan must be updated as appropriate.
- Make and maintain detailed notes and reports in respect of the initial site safety meeting, safety committee meetings, reviews of contractors' safety systems, inspection and incident investigations, first aid records and orientation and training.
- On any site where workers of two (2) or more employers are working at the same time and the combined workforce is greater than five (5), identify and designate a "Qualified Coordinator" to coordinate health and safety activities.
- In all other respects strictly comply with, and strictly enforce compliance by others, as applicable, with, the WCA, the OH&S Regulation, the requirements of WorkSafeBC, the safety policies and procedures of the Owner and the terms and conditions of the Contract Documents applicable.

Prime Contractor's Qualified Coordinator, if applicable, (Construction Only) responsibilities:

- Comply with all requirements listed in OH&S Regulation Clause 20.3(3) and on page 13 of the Owner's Multiple Employer Workplace/Contractor Coordination Program (2003).
- Coordinate all health and safety activities for the Project.
- Post workplace drawings showing where first aid is located, the emergency transportation system for injured workers and evacuation marshalling points.

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- Ensure that regular workplace safety meetings are held and documented.
- Know who all other contractors' "Qualified Persons" are.
- Ensure that all workers at the Place of the Work are informed of workplace hazards, from both the pre-contract hazard assessment and from ongoing work activities of all employers at the Place of the Work, and ensure that hazards are properly and punctually addressed throughout the duration of the Project.

3.0 DESIGNATION AS PRIME CONTRACTOR

By signing this Prime Contractor Agreement, the undersigned Contractor accepts all responsibilities of a **Prime Contractor** as outlined above and in the Owner's Contractor Coordination Program (2003), Part III of the WCA and the OH&S Regulation, as well as any other responsibilities required by WorkSafeBC.

As a Contractor signing this Prime Contractor Agreement with the Owner, the undersigned company agrees that the company and its management staff, supervisory staff and workers will comply with the all WorkSafeBC requirements, the OH&S Regulation and Part III of the WCA.

Any violation of a requirement of WCB Legislation by the Prime Contractor may be considered a breach of the Contractor's Contract with the Owner resulting in possible termination or suspension of the Contract and/or any other actions deemed appropriate at the discretion of the Owner.

Any penalties, sanctions or additional costs levied against the Owner, as a result of an action or inaction of the Prime Contractor in its capacity as such, are the sole responsibility of the Prime Contractor, as set out in the Contract.

I, the undersigned, acknowledge that I have read and understand the information above. By signing this Prime Contract Agreement, I agree as a representative of the Contractor to accept all responsibilities of the **Prime Contractor** for this Project.

Date

Contract #

Name of Contractor

Qualified Coordinator's Name

(Construction Only)

Signature of Authorized
Representative

Print Name and Title

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART F - SUPPLEMENTARY GENERAL CONDITIONS**

SUPPLEMENTARY GENERAL CONDITIONS

1.0 HOURS OF WORK

The City Noise By-Law allows construction between the hours of 7:00 A.M. to 8:00 P.M., Monday to Saturday, and 10:00 A.M. to 8:00 P.M. on Sundays and holidays. No work shall be done outside these hours except as approved by the Engineer. A request for a Noise By-Law exemption to work outside the specified hours must be made in writing to the Mayor's Office a minimum of two (2) weeks prior to the work being done.

Notwithstanding GC.35, the City's forces work between the hours of 7:30 A.M. and 3:30 P.M. Mondays to Fridays, except statutory holidays. Work will not be performed by City forces or City inspectors outside these hours except by special arrangement agreed to by the Engineer or in case of an emergency. Work performed in the absence of a required inspection is not permitted.

2.0 WORK WITH ENGINEER

The Work shall be done in accordance with the Contract Documents and to the satisfaction of the Engineer. The Contractor shall coordinate the Work with the Engineer. The Contractor shall have no cause for claim against the City whatsoever with respect to delays or other interruption of the Work by City forces or due to the above requirement to coordinate the Work with the Engineer.

3.0 COORDINATION WITH OTHER WORK ON SITE

Time shall be of the essence for all purposes of this Contract and the performance of the Work.

The Contractor will be responsible for completing the Work in a way that does not hinder other work on the Site (as described in Paragraph 18 of the Instructions to Tenderers). The Contractor shall have no cause for claim against the City whatsoever with respect to delays or other interruption of the Work due to the above requirement to complete the Work in a way that does not hinder other work on the Site.

4.0 DESIGN AND INSPECTION

Hatch Mott Macdonald ("HMM") has been hired to prepare the Specifications and Drawings and conduct inspections during the Work. The Contractor must allow inspectors from HMM and its sub-consultants and from the City to perform their reviews and inspections during the Work so that all design standards, specification requirements, quantities and prices may be independently verified.

5.0 COMPLY WITH APPLICABLE LAW

The Contractor will be required to conduct the Work in accordance with the requirements of all applicable Federal, Provincial and Municipal laws and regulations.

6.0 TRUCK SAFETY

All truck operators must operate the vehicle in a safe and courteous manner and in full

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PART F - SUPPLEMENTARY GENERAL CONDITIONS

compliance with the Motor Vehicle Regulations.

All truck operators must comply with the City of Vancouver By-laws regulating truck use, including truck route, engine brake noise, and weight and load securement provisions. There will be zero tolerance on overloading trucks and untarped loads.

[Note: The City of Vancouver Street and Traffic By-Law 2849 - Spilling of Vehicle Loads on Streets - Securing of Loads

99. (2) (a) No person shall drive, ride, or propel any vehicle containing any sawdust, solid waste, liquid waste, dirt, gravel, rocks, or other loose material on any street in the City unless such vehicles are kept tightly and securely covered in such a manner as to prevent any of the load from being blown, dropped or spilled from such vehicle.]

All vehicles must be inspected prior to leaving a site to ensure that loads are properly secured and tarped and that there is no debris on the vehicle and no debris or rocks between the tires.

7.0 INTENTIONALLY OMITTED

8.0 FORCE ACCOUNT

Payment for Force Account Work shall be calculated as follows:

- a) Labour - at the lower of the hourly rates set out in Schedule E of the Form of Tender or the actual cost to the Contractor including all amounts paid for labour and all related taxes, assessments payable as required by any statutory scheme such as WorkSafe BC, Employment Insurance, holiday pay, insurance and all employee benefits.
- b) Equipment:
 - i) Contractor Owned or Bare Rented-at the non-operated hourly rates as set out in Schedule E of the Form of Tender based on actual hours, in minimum increments of 0.5 hours, inclusive of all overhead costs and profit. If equipment is not listed in the Approved Equipment Rental Guide then at a rate determined by the Engineer based on local market equipment rates; or
 - ii) Non-Contractor Owned and Operated - at the lower of the all found rate in the Approved Equipment Rental Rate Guide for operated equipment, or the actual rental costs incurred by the Contractor, as evidenced by invoice, plus, in either case, a 10% markup to cover all overhead costs and profit.

Separate rental for small tools under \$1000.00 (purchase price)will not be allowed.

- c) Materials incorporated into the work or consumed in performing the Work by the contractor shall be at the Contractor's actual cost, as evidenced by invoice, including all transportation, freight and haulage costs plus a markup of 10% on such actual cost to cover all overhead, handling and profit.
- d) Force Account Work performed by a Subcontractor shall be paid for in the lesser of: (i) the amount as provided by subparagraphs (a), (b) and (c) above, plus a mark-up of 5% to

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cover all overhead and profit; or (ii) the actual amount the Contractor pays the Subcontractor including a mark-up of 10% on such actual cost to cover all overhead and profit.

9.0 RELEASE AND INDEMNIFICATION

- a) The Contractor now releases the City, its officers, officials, employees and agents from all costs, Losses, damages and expenses, including those caused by personal injury, death, property damage, loss and economic loss arising out of, suffered or experienced by the Contractor, its Subcontractors, and their respective officers, employees and agents in connection with the performance of the Work.
- b) Despite the provision of insurance coverage by the City, the Contractor hereby agrees to indemnify and save harmless the City, its successors, assigns and authorized representatives and each of them from and against Losses, claims, damages, actions, and causes of actions that the City may sustain, incur, suffer or be put to at any time either before or after the expiration or termination of the Contract, that arise out of the acts of the Contractor, its Subcontractors, or their respective officers, employees or agents under the Contract.
- c) This indemnity will not affect or prejudice the City from exercising any other rights that may be available to it at law or in equity.
- d) The release and indemnity set out above will survive the expiry or sooner termination of the Contract.

10.0 NO PROMOTION OF RELATIONSHIP WITH THE CITY OR THE OLYMPICS

The Contractor shall not disclose or promote its relationship with the City, including by means of any verbal declarations, announcements, sales, marketing or other literature, letters, client lists, press releases, brochures or other written materials (the "Communications") without the express prior written consent of the City (except as may be necessary for the Contractor to perform the Contractor's obligations under the terms of the Agreement).

Furthermore, the Contractor undertakes not to disclose or promote its relationship with the City in any Communications in a manner which could suggest or create an association, express or implied, between the Contractor and the International Olympic Committee, the 2010 Olympic and Paralympic Winter Games, the Olympic Movement or the Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games (also known as "VANOC"). Without limiting the generality of the foregoing, the Contractor shall not refer to "VANOC", "Vancouver 2010", the "2010 Games", the "Games", "Host City", Olympic Village", "Athletes' Village" or "Olympics", and shall not use any official emblem, logo, website, domain name, or mascot of the 2010 Games, in any Communications, without the express prior written consent of the City.

11.0 PROTECTION OF CITY FROM ENVIRONMENTAL LIABILITY FOR CONTAMINATED SOILS

- a) The Contractor must monitor excavated soils on an ongoing basis in compliance with the Downtown Streetcar Demonstration Line Soil Environmental Management Plan Appendix 4.

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INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART F - SUPPLEMENTARY GENERAL CONDITIONS

- b) If the excavated soils and/or materials are tested and determined to be contaminated, the Contractor shall remove the contaminated soils and/or materials at its own expense (excluding tipping fees at the Vancouver Landfill, if applicable) and treat them in conformity with all Environmental Legislation. The Contractor will be deemed to have taken ownership of such excavated soils and/or materials once they are removed from the Work Site. The Contractor shall be liable for handling, transporting, or disposing of these contaminated soils and/or materials as specified in the Contract Documents.

All contaminated soils are to be disposed of at the Vancouver Landfill, located at 5400 72nd Street, Delta, British Columbia. For certainty, the Contractor will not be required to pay the Vancouver Landfill tipping fee; such fee will be paid by the City.

If the Vancouver Landfill refuses to accept any of the contaminated soils from the Site, the Contractor shall dispose of such soils in accordance with Environmental Legislation, and provide to the Engineer, prior to any disposal of contaminated soils and/or materials:

- copies of applicable site disposal permit, along with a letter of consent signed by the Contractor authorizing the City to make all relevant enquiries of the applicable issuer of such permits as to their validity, authenticity, and current status, and the Contractor's compliance with same;
- a copy of all relevant bonds, insurance certificates, and procedures which the Contractor utilizes for ensuring that its customers are fully protected from liability for claims that contaminated soils deposited on a disposal site originated from the customer's site; and
- copies of relevant documents from applicable federal, provincial and municipal authorities with respect to authorization or permits for disposal of contaminated soils and/or materials at a particular disposal site.

Unless a separate unit rate is provided in Schedule A, the City shall pay the Contractor its commercially reasonable additional costs (without any markup for overhead, profit or otherwise) for disposing of the contaminated soils at another disposal site (instead of the Vancouver Landfill site).

The Contractor shall keep a complete record of all contaminated soils removed from the Site and the location of disposal, including dates when such work was completed.

12.0 SUPPLY AND INSTALLATION RISK

Notwithstanding anything to the contrary in the Contract Documents (expressly stated or implied), the Products (including, but not limited to and by way of example only, the products to be supplied pursuant to the Supply Contracts) to be transported and delivered by the Contractor will be so transported and delivered at no risk or cost to the City with the intent and effect that until such Products are delivered, installed/planted and accepted in writing by the Engineer, all freight, brokerage, customs, insurance, handling, shipping, risk of loss or damage, and all other costs and risks will be borne by the Contractor.

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INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART F - SUPPLEMENTARY GENERAL CONDITIONS**

13.0 SUPPLY CONTRACT ASSIGNMENT

Upon issuance of a Notice of Award, the City will concurrently give a copy of such Notice of Award to each of the Supply Contract Vendors, and by issuance of same, the City now agrees that such issuance automatically and without further document or instrument operates to fully and irrevocably assign to the Contractor and the Contractor will thereby fully and irrevocably assume an assignment in whole (and not in part) of all of the legal rights and obligations of the City under each of the Supply Contracts, and the Contractor will immediately assume complete responsibility for the administration and control of the Supply Contracts with the legal intent and effect that the Supply Contract Vendors will automatically and without further legal document or instrument become approved Sub-Contractors under this Contract to the Contractor and the City will no longer have any rights nor any obligations under such Supply Contracts except that where any Supply Contract Vendor contests this assignment the City will fully cooperate with and assist the Contractor to enforce this assignment. This assignment expressly includes the rights under all Performance Bonds and Labour & Material Bonds, insurance, and other ancillary rights under the Supply Contracts, and the City will sign all documents and do all things reasonably necessary to assign the benefit of such bonds, insurance, and other rights to the Contractor.

- 14.0 TRACKWORK SALVAGE:** The contractor is responsible for the removal of the existing trackwork from the Site. For certainty, the Contractor will be entitled to the salvage value of the trackwork and will account for this credit in 2.2.1 of Schedule A1 in Part C of the Form of Tender.

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INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART G -- SPECIFICATIONS AND DRAWINGS**

SPECIFICATIONS AND DRAWINGS

All references to “Specifications”, “Master Specifications”, “Master Municipal Specifications”, “Technical Specifications”, etc. will be taken to mean Volume II of the “Master Municipal Construction Document” (“MMCD”) and Standard Detail Drawings (printing 2000) as amended by the City of Vancouver in the Supplemental Specifications and Detail Drawings. For certainty, all of Volume I and the following parts of Volume II of the MMCD are expressly excluded from this ITT and the Contract Documents: Instruction to Tenderers - Part II. General Conditions (including Schedule 17.5.3 Letter Agreement with Referee, Changes Flow Chart, and Dispute Resolution Flow Chart)but expressly excluding Volume I and all Measurement and Payment provisions of Volume II. Note: Superpave Asphalt Specifications and Design Mix added (revised 2004).

Section numbers in the form ##### are to be taken directly from the Master Municipal Construction Document (MMCD). Section numbers in the form S-##### are to be taken directly from The City of Vancouver Street Restoration Manual available on-line at <http://www.vancouver.ca/engsvcs/streets/design/pdf/SRMFinalN59August2008.pdf>. Sections which are specific to this contract are noted as such. All specifications should be read in conjunction with the contract drawings.

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DIVISION 1 - GENERAL

<u>No.</u>	<u>Title</u>	<u>Comments</u>
01535	Temporary Facilities	Direct MMCD Specification
01561	Environmental Protection	Direct MMCD Specification
01570	Traffic Regulation	Direct MMCD Specification

DIVISION 2 - SITE WORK

<u>No.</u>	<u>Title</u>	<u>Comments</u>
02104	Shrub and Tree Preservation	Direct MMCD Specification
02111	Clearing & Grubbing	Direct MMCD Specification
02210	Site Grading	Direct MMCD Specification
02223	Excavating Trenching and Backfilling	Direct MMCD Specification
S-02226	Aggregates and Granular Fill	Use in conjunction with 02226. S-02226 takes precedence over 02226.

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 INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
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S-02242	Dust Control	Use in conjunction with 02242. S-02242 takes precedence over 02242.
02273	Site Setting Out	Project Specific Specification.
02274	Borrow	Project Specific Specification. 02274 takes precedence over 02228.
02275	Stripping	Project specific specification. 02275 takes precedence over 02111 and 02228.
02276	Ballast	Project Specific Specification.
02277	Sub-ballast	Project Specific Specification.
02278	Roadway Excavation, Embankment and Compaction	Project Specific Specification. Use in conjunction with 02224 and S-02224. 02278 takes precedence over S-02224, which takes precedence over 02224.
02498	Geosynthetics	Direct MMCD Specification
02582	Trackwork Construction	Project Specific Specification.
02934	Hydraulic Seeding	Direct MMCD Specification
02950	Planting of Trees, Shrubs and Ground Covers	Direct MMCD Specification

DIVISION 3 - CONCRETE

<u>No.</u>	<u>Title</u>	<u>Comments</u>
03301	Concrete	Project Specific Specification. Use in conjunction with 03300. 03301 takes precedence over 03300.

**INVITATION TO TENDER NO. PS08140
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PART G -- SPECIFICATIONS AND DRAWINGS**

02273 SITE SETTING OUT

1 GENERAL

1.1 Description

This document sets out the specification for a Contractor to set out the horizontal and vertical alignment of the track centre line along with trolley pole locations based on the construction drawings.

1.2 Coordinate With Others

Coordinate and schedule work with the Engineer.

2 EXECUTION

2.1 Monumentation Standards

Horizontal and vertical control monument locations shall be used and obtained from the City of Vancouver.

2.2 Horizontal Alignment

2.2.1 Main Line

The Contractor shall set out the horizontal alignment of the centre line of the main line track at 20m intervals as set out in the construction drawings. Timber reference points/stakes shall be located clear of construction and outside of the clearing and grubbing line as shown on the construction drawings.

2.2.2 Passing Loop

The Contractor shall set out the horizontal alignment of the centre line of the passing loop at 20m intervals as set out in the construction drawings. Timber reference points/stakes shall be located clear of construction and outside of the clearing and grubbing line as shown on the construction drawings.

2.3 Vertical Alignment

The Contractor shall set the vertical control points as the low rail level of both the main line and the passing loop as indicated on the construction drawings. Control points' elevation shall be clearly indicated as the top of a timber batter securely nailed to every timber stake at 20m intervals.

2.4 Trolley poles

The Contractor shall set out the location of the centre of the trolley pole (to be installed by others) as set out in the construction drawings. Timber reference points/stakes shall be located clear of pole locations as shown on the construction

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART G -- SPECIFICATIONS AND DRAWINGS**

drawings. Work shall be done after all the clearing and grubbing is complete and prior to the Systems Contractor starting their installation work. The location for Trolley Pole No. C21 shall be set out as soon as possible upon notice to proceed.

3 VERIFICATION

The Contractor shall provide any documentation requested by the Engineer to allow verification checks to be undertaken.

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART G -- SPECIFICATIONS AND DRAWINGS**

02274 BORROW

4 GENERAL

4.1 Description

This Section describes the requirements for earth borrow to be utilized in raising sub-grade elevations after stripping and Ordinary Material (OM) distribution is complete. Material specifications and placement and compaction requirements are described.

4.2 Related Work

- Stripping.
- Roadway Excavation, Embankment, and Compaction.

4.3 Definitions

For the purpose of this contract the following definitions shall apply:

Borrow shall mean all material acquired from outside the limits of the Site, from a designated location provided by the Engineer, or selected by the Contractor and approved by the Engineer, to be utilized in raising the sub-grade to specified elevations after stripping and OM distribution is complete.

Unsuitable material is defined as material the Engineer determines to be:

- Of such unstable nature as to be incapable of being compacted to a specified density using ordinary methods; or
- Too wet to be properly compacted and circumstances prevent suitable in-place drying prior to incorporation into the Work; or
- Frozen or containing ice particles; or
- Containing organic, peat or other deleterious material.
- Otherwise unsuitable for the planned use.

Top of sub-grade shall mean the top of embankment or the bottom of excavation after redistribution of OM and placement of Borrow, ready to receive sub-ballast material.

Top dressing or topsoil means surface material containing organic components or other material suitable for plant growth.

5 PRODUCTS

5.1 Borrow

Borrow for this Contract may be hauled from a location provided by the Engineer or

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selected by the Contractor and approved by the Engineer. Where the Contractor proposes the source, they shall arrange access to the borrow source with the Engineer, giving two days written notice. Borrow material shall be tested at the Contractor's expense to ensure its compliance with this specification. Test results shall be submitted to the Engineer for review and approval prior to commencement of hauling.

Embankment material above native sub-grade shall be non-frost susceptible material conforming to specification section S-02226.

It shall be the responsibility of the Contractor to pay all applicable fees, royalties, rentals, commissions, permits, reclamation and cleanup costs etc., associated with using the source.

6 EXECUTION

6.1 Placement and Compaction

Embankment construction with borrow material and compaction shall be in accordance with section 02278 - Roadway Excavation, Embankment and Compaction.

Where applicable the borrow source shall be rehabilitated to comply with the requirements of provincial regulations and any other stipulations. Provide proof of compliance to meet the satisfaction of the Engineer. Such rehabilitation will be performed at the expense of the Contractor.

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02275 STRIPPING

7 GENERAL

7.1 Description

The Work specified in this Section consists of stripping topsoil and organic material after clearing and grubbing has been performed and stockpiled on site beyond grading limits for redistribution on final slopes.

7.2 Related Work

Clearing and Grubbing.

7.3 Definitions

Stripping shall include excavation of the remaining organic material after clearing and grubbing is complete, including topsoil, chippings, small branches and other decomposed organic material.

8 PRODUCTS

None Required

9 EXECUTION

9.1 General

The extent of stripping will be identified on the construction drawings and/or set out by the Engineer. Stripping is anticipated to include surface grasses and topsoil to an expected average depth of approximately 300mm; areas consisting of primarily surface grasses with minimal to no topsoil removal; and areas with surface grasses and a topsoil depth of about 600 mm existing.

The initial depth of stripping below the existing ground surface will be as directed by the Engineer. If materials found after initial stripping are not compliant with the geotechnical reports (where applicable) or are unacceptable in any other way, obtain direction from the Engineer before proceeding.

Stripped top-soil may be re-used for grading of slopes within the legal land parcels as shown on the construction drawings provided that its suitability is proven and does not exceed the recommended contamination levels set out in the Environmental Management Plan. Material may not be transferred between land parcels.

The disposal of all stripped and unsuitable materials shall be set out in the Environmental Management Plan.

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02276 BALLAST

10 GENERAL

10.1 Description

New ballast is required in all locations along the proposed alignment. New ballast is to be laid on top of the previously prepared sub-ballast to the minimum recommended thicknesses and levels. Supply, hauling, placing, spreading, shaping and compaction of track ballast material placed above the completed sub-ballast to the cross-sections and tolerances as shown on the construction drawings. The material used shall meet the criteria as set out in this document.

10.2 Related Work

- Roadway Excavation, Embankment, and Compaction.
- Dust Control.
- Sub-Ballast

10.3 Coordinate With Others

Coordinate and schedule work with the Engineer.

11 PRODUCTS

11.1 Material Requirements

Imported ballast materials shall be well graded aggregate, with gradation that defines a curve (% passing versus log sieve size) with a slope between adjacent sieves, equal or intermediate to the corresponding slopes of the boundary curves. Gradations shall fall within limits below:

Sieve Size (mm)	Percent Passing % (by weight)
50	100
7.5	90 - 100
25	20 - 55
19	0 - 5
12.5	-
9.5	-
4.75	0 - 3
0.075	0 - 2

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Ballast materials may be crushed from cobbles and boulders provided the minimum cobble or boulder size before crushing is greater than or equal to 150 mm.

Ballast shall be composed of clean, hard, strong and durable uncoated particles capable of withstanding the deleterious effects of exposure to water, freeze-thaw, handling, spreading and compacting. The particles shall be uniform in quality and free from an excess of flat / elongated pieces.

Ballast shall have a minimum of 80% particles with three or more fracture faces, measured by weight.

Ballast shall meet the following material test standards:

- Bulk Specific Gravity > 2.60
- Magnesium Soundness < 3.0
- Absorption < 0.75
- Los Angeles Abrasion (LAA) < 30
- Mill Abrasion (MA) < 4 (optional test)
- Abrasion Number (AN) < 50, where AN = LAA + 5MA

11.2 Handling and Loading

Ballast shall be handled, stockpiled and/or loaded into trucks in such a manner as to minimize the abrasion of particles and the segregation of sizes.

Under no circumstances shall rubber tired or crawler type vehicles be allowed to operate or traverse repeatedly over the stockpile of crushed material.

The handling and loading procedures shall have the prior approval of the Engineer.

11.3 Weighing

All ballast delivered to site shall be weighed by the Contractor at his expense and proof of such weight shall be supplied to The Engineer.

All measurement shall be by actual weight in net tonnes (1000 kg).

The accuracy of any weighing device may be checked by the Engineer at any time and should any discrepancies be found in the reading, adjustments to the production quantities will be made by the Engineer.

11.4 Test Samples

Ballast material shall be tested at the Contractor's expense to ensure its compliance with this specification. The incidence of sampling and the location at which samples are

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selected for testing shall be at the discretion of The Engineer. The samples shall be taken by the Contractor in such a manner as to ensure that they truly represent the material being produced. The sample size for complete testing shall be not less than 50 kg. Test results shall be submitted to the Engineer for review and approval.

Borrow material shall be tested at the Contractor's expense to ensure its compliance with this specification

Rejected material shall be replaced at the Contractor's cost.

11.5 Alternative Material

Any alternative material to the above specified shall be submitted to the Engineer for approval prior to use.

12 EXECUTION

Supply, place, shape and compact ballast as shown on the construction drawings.

The recommended thickness of ballast from the underside of tie to top of sub-ballast is 300mm.

Do not mix ballast with underlying materials.

Compact ballast to a dense, uniform condition, free from ruts or excess deflection under construction traffic. Compact to 98% of the Standard Proctor maximum Dry Density and within 2% of optimum water content.

Shape the surface to the lines and grades specified. Finished surface shall be free of any ruts or irregularities.

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02277 SUB-BALLAST

13 GENERAL

13.1 Description

The existing ballast shall be used as the sub-ballast material for all locations where the proposed alignment is above the existing alignment and the minimum recommended depths of sub ballast, as shown on the construction drawings are achieved. In areas where new sub-ballast is required, or the existing ballast is not deemed acceptable, the material used shall meet the criteria set out in this document.

Supply, hauling, placing, spreading, shaping and compaction of track sub-ballast material placed above the completed sub-grade to the cross-sections and tolerances shown on the construction drawings.

13.2 Related Work

- Roadway Excavation, Embankment, and Compaction
- Dust Control
- Ballast

13.3 Coordinate With Others

Coordinate and schedule work with the Engineer.

14 PRODUCTS

14.1 Existing ballast

The existing ballast may be used as sub-ballast in all areas where a minimum of 300mm is achievable. Where the existing ballast appears to have a fines percentage greater than 8%, the area shall be excavated and replaced with imported sub-ballast material as per this specification.

14.2 Material Requirments

Sub-ballast materials shall be well graded aggregate, with gradation that defines a curve (% passing versus log sieve size) with a slope between adjacent sieves, equal or intermediate to the corresponding slopes of the boundary curves. Gradations shall fall within the limits shown below:

Sieve Size (mm)	Percent Passing % (by weight)
50	100
37.5	80 - 100
19	50 - 100

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12.5	40 - 80
4.75	25 - 55
2.36	20 - 40
1.18	15 - 30
0.300	5 - 15
0.075	0 - 5

Sub-ballast materials may be crushed from cobbles and boulders provided the minimum cobble or boulder size before crushing is greater than or equal to 150 mm.

Sub-ballast shall be composed of clean hard durable uncoated particles capable of withstanding the deleterious effects of exposure to water, freeze-thaw, handling, spreading and compacting.

The particles shall be uniform in quality and free from an excess of flat or elongated pieces.

Sub-ballast shall meet the following requirements:

- The sand equivalent value (ASTM - D2419 - Sand Equivalent) shall not be less than 40
- The soundness (ASTM C - 88 - Soundness of Aggregates by Use of Magnesium Sulphate), if the loss after 5 cycles exceeds 20% for coarse aggregate and 25% for fine aggregate.

14.3 Handling and Loading

Sub-ballast shall be handled, stockpiled and/or loaded into trucks in such a manner as to minimize the abrasion of particles and the segregation of sizes.

Under no circumstances shall rubber tired or crawler type vehicles be allowed to operate or traverse repeatedly over the stockpile of crushed material.

The handling and loading procedures shall have the prior approval of the Engineer.

14.4 Weighing

All sub-ballast delivered to site shall be weighed by the Contractor at his expense and proof of such weight shall be supplied to The Engineer.

All measurement shall be by actual weight in net tonnes (1000 kg).

The accuracy of any weighing device may be checked by the Engineer at any time and should any discrepancies be found in the reading, adjustments to the production quantities will be made by the Engineer.

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14.5 Test Samples

Sub-ballast material shall be tested at the Contractor's expense to ensure its compliance with this specification. The incidence of sampling and the location at which samples are selected for testing shall be at the discretion of The Engineer. The samples shall be taken by the Contractor in such a manner as to ensure that they truly represent the material being produced. The sample size for complete testing shall be not less than 50 kg. Test results shall be submitted to the Engineer for review and approval.

Rejected material shall be replaced at the Contractor's cost.

14.6 Alternative Material

Any alternative material to the above specified shall be submitted to the Engineer for approval prior to use.

15 EXECUTION

Supply, Place, Shape and Compact Sub-ballast as shown on the Construction Drawings.

Supply and place in lifts not exceeding 150 mm compacted thicknesses.

Do not mix Sub-ballast with underlying materials.

Scarify and air-dry excess moisture or add and mix water as required to obtain the specified soil density. Watering and rolling must be controlled to prevent pumping of fines to the surface.

Compact Sub-ballast to a dense, uniform condition, free from ruts or excess deflection under construction traffic. Compact to 98% of the Standard Proctor maximum Dry Density and within 2% of optimum water content.

Shape the surface to the lines and grades specified. Finished surface shall be free of any ruts or irregularities.

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02278 ROADWAY EXCAVATION AND EMBANKMENT COMPACTION

16 GENERAL

16.1 Description

The Work of this Section consists of OM excavation and embankment construction utilized in lowering or raising the sub-grade in areas specified in the construction drawings. Compaction methods for such Work are also detailed in this Section.

16.2 Related Work

- Clearing & Grubbing.
- Stripping.
- Borrow.
- Dust Control.

16.3 Definitions

The following definitions apply for this Contract:

Ordinary Material (OM) is defined as any material remaining on site after stripping has been performed. OM Excavation refers to the removal of such material as specified in the construction drawings to lower sub-grade elevations to the required level. Suitable OM shall be utilized for embankment construction where specified within the originating legal land parcel only. Suitable OM is specified in Clause 17.1 of this Section.

Earth means all soils except those defined as rock, and excludes stone masonry, concrete, and manufactured materials.

Embankment refers to fills used to elevate the sub-grade (after stripping) to the underside of sub-ballast (or sub-base) level specified on the construction drawings. Embankments shall consist of suitable material redistributed from OM excavation within the originating legal land parcel only. Where insufficient material from OM excavation is available, Borrow shall constitute the remainder of the embankment material.

Borrow is defined in section 02274 - Borrow.

Top dressing or topsoil means surface material containing organic components or other material suitable for plant growth.

16.4 Quality Control Methods

All materials that are to be incorporated in the Work are to be approved by the Engineer. Material found not satisfactory shall be disposed of as instructed by the Engineer. Quality control methods for determining conformance to specified

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requirements and finishing tolerances shall be as follows:

- British Columbia Ministry of Transportation, Standard Specifications for Highway Construction, 2004
- Master Municipal Construction Document, Specifications, Volume II, Printed 2000

16.5 Submittals

Where applicable, submit drawings stamped by a Professional Engineer Licensed to practice in the Province of British Columbia showing any temporary shoring systems planned for use with progress of the work.

17 PRODUCTS

17.1 Ordinary Material (OM)

Suitable OM for earth embankments shall consist of material passing 100% through a U.S. Standard 75mm sieve with greater than 50% by weight passing a U.S. Standard 20mm sieve. Suitable OM shall be free of organic or deleterious material.

Embankment material shall be as outlined in this section, unless otherwise directed by the Engineer. Material shall not be placed over frozen earth or ice surfaces. Frozen earth shall be deemed unsuitable for use in embankment construction.

Embankment material within 1.5 meters of the top of sub-ballast shall be non-frost susceptible material with less than 30% passing by weight sieve No. 200.

18 EXECUTION

18.1 Preparation and Layout

Establish extent of excavation and embankment construction area.

Set out all lines and levels as indicated on construction drawings or as directed by the Engineer required for proper excavation and embankment construction.

Maintain benchmarks, monuments and other reference points. The Contractor shall re-establish disturbed or destroyed benchmarks, monuments and other reference points at their own cost.

Dust control shall be the responsibility of the contractor. Dust suppressant materials shall be utilized as specified in section S-02242 Dust Control.

18.2 Utilities

Prior to commencement of excavation work, establish location and extent of all underground utilities occurring in work area. Notify utility companies to remove and relocate lines that interfere with excavation. Notify utility companies to locate existing lines in excavation areas.

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Coordinate and cooperate with utilities for protection of existing utilities that are to remain. Obtain direction prior to using compaction equipment in vibratory mode over existing protected utilities.

Maintain, re-route or extend as required existing utility lines which pass through work area and which must remain. Pay all costs for this work except costs borne by utility companies.

Protect utility services uncovered by excavation.

Remove abandoned utility service lines encountered from areas of construction. Cap, plug or seal such lines and identify at grade with markers.

Accurately locate and record abandoned and active utility line re-routed or extended on as-built Drawings.

18.3 Excavation

If the Engineer determines that soils encountered at the bottom of excavation are unacceptable, the excavation shall be deepened until soils are encountered which are acceptable and/or a geotextile-reinforcing layer shall be placed. Obtain direction in writing from the Engineer prior to proceeding with sub-excavation or placement of geotextile.

The Contractor shall keep excavations free of water and keep the site in a well-drained condition at all times. A minimum of 300 mm starter lift of pitrun granular material (refer to City of Vancouver Street Restoration Manual, 2nd Printing, 2002 section S-02226 clause 2.3) shall be placed within the base of the sub-excavated areas immediately following completion of the excavation, prior to construction traffic travel in the area.

The Contractor shall not excavate beyond the lines and grades shown on the construction drawings without the written approval of the Engineer. Any excavation beyond the lines and grades shown on the construction drawings that is performed by the Contractor, without the Engineer's approval, shall be at the expense of the Contractor. If such over excavation should, in the opinion of the Engineer, be backfilled in order to complete the Work, such excess backfilling shall be done by and at the expense of the Contractor and to the satisfaction of the Engineer.

Unsuitable or excess material shall be identified and disposed of in accordance with the Environmental Management Plan.

Erosion control is the responsibility of the Contractor. Temporary drainage shall be established in order to allow for the passage of surface water across the construction lands without becoming laden with silts or other suspended solids that may be introduced due to construction activity along the construction lands. The Contractor shall be responsible for all costs to repair erosion damage to the works, and/or to adjacent private and/or public lands and property.

All excavation shall be carried out in a manner to prevent material from becoming too wet for placement and compaction.

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Any temporary shoring required shall be the Contractor's responsibility.

18.4 Embankment

Earth Embankments are to be re-graded or constructed in accordance with details shown on the construction drawings or as directed by the Engineer. The existing ground, if required, is to be stripped to a depth as indicated on the construction drawings, removing all topsoil and organic matter, then scarified and aerated to ensure a proper bond between the new materials and the existing surfaces. Soft spots and unsuitable materials shall be sub-excavated, backfilled and compacted with native inorganic material as directed by the Engineer. Compaction shall be as per requirements of section 18.7.

Existing ditches shall be backfilled using suitable OM or Borrow after clearing and stripping has been performed. Where OM is used, this can only be placed if it originated from the same legal land parcel (as identified on the construction drawings) as the area to be filled.

Where new embankment is to be compacted against existing embankment or side hill slope, the slope of the old embankment or original ground shall be benched a minimum of 300mm perpendicular to the slope or a maximum of 600mm horizontally into the slope in vertical steps of 600mm as the Work is brought up. Material cut out shall be re-compacted along with the new embankment material. This Work is incidental to embankment construction and costs are to be included in appropriate bid items.

The surface of the embankment fill shall be maintained at a slope sufficient to ensure free drainage at all times. Ruts that form in the fill shall be levelled to prevent ponding and any loosened soil shall be re-compacted before placement of succeeding layers of fill.

Embankments shall be constructed with approved materials hauled from required OM excavations or with approved Borrow. Transport of all excavated and Borrow material shall be at the expense of the Contractor.

Embankments shall be constructed in successive horizontal layers for the full width of the embankment with each layer having a maximum thickness of 150mm unless otherwise directed by the Engineer. Each layer shall be compacted in accordance with this Section and shall meet the final approval of the Engineer prior to placement of the succeeding layer.

Proof-roll stripped areas prior to placement of embankment fill in accordance with section 18.7

Sub-excavate native frost susceptible material (where identified) within 1.5m from top of sub-ballast and replace with suitable non-frost susceptible embankment material in accordance with section 18.8.

18.5 Ditching

Ditches of whatever nature, including infiltration pits, which may be considered

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necessary for the proper drainage of the Work shall be constructed as soon as possible at such points and to such cross-sections, alignments and grades as indicated on the construction drawings. All suitable materials excavated from ditches shall be used to grade the adjacent embankment in the same legal land parcels.

All temporary ditching required to carry out the Work will be assumed incidental to the Work, and will be neither measured nor paid for.

18.6 Slopes and Slides

The slopes of all excavations and embankments shall be trimmed to the lines and slopes indicated on the construction drawings or as stated by the Engineer.

No undercutting of slopes in excavation will be permitted.

Slopes undercut at the base or destroyed by the Contractor shall be re-graded and re-compacted by the Contractor at his own expense.

Slide material shall be removed from the sub-grade or replaced in the embankment by the Contractor.

The slopes shall be refinished by the Contractor as directed by the Engineer. Materials to replace embankment slides shall be obtained from sources designated by the Engineer.

18.7 Compaction and Moisture Control

Upon completion of stripping and OM excavation the Contractor shall proof roll all areas to 95% of the Standard Proctor Maximum Dry Density of the compacted material. Proof rolling shall be carried out using heavy compaction equipment. Any softened, rutted or displaced areas are to be either re-compacted with suitable fill or the existing material shall be removed, replaced, and re-compacted with better quality material to meet the approval of the Engineer.

Embankments shall be placed in successive horizontal layers with each layer having a maximum thickness of 200mm and compacted to 95% of the Standard Proctor Maximum Dry Density over the entire width. The top 300mm of embankment shall be compacted to 98% of the Standard Proctor Maximum Dry Density and within $\pm 2\%$ of optimum water content.

The Contractor shall perform scarifying, blading, compacting or other methods of Work as necessary to provide a thoroughly compacted surface shaped to grades and cross-sections shown on the Drawings.

Water content shall be adjusted where necessary to achieve proper compaction. Water utilized in compaction shall be free of contaminants that could adversely affect the fill material or the environment.

All materials that are to be incorporated in the Work are to be approved by the Engineer. Material found not satisfactory, shall be disposed of as instructed by the Engineer.

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When the material cannot be compacted to the specified density, and with the Engineer's approval, lime (at one percent of the total weight of material) may be permitted to be added to the soil mass. Use of lime will be at the Contractor's expense.

18.8 Frozen Material and Snow Removal

Snow or ice or frozen material shall not be placed or allowed in embankment construction. Snow or ice shall be removed from embankment, or slope before additional material is placed.

The Contractor shall not place fill material under freezing conditions. If materials freeze before the required compaction is attained, the frozen material shall be removed and stockpiled for later use at the Contractor's expense.

Materials excavated for sub-grade construction that does not meet the Specifications may be stockpiled, re-handled, or dried at the Contractor's expense and later placed in the embankment at the Engineer's direction if the material then meets the Specification.

18.9 Overhaul

There will be no overhaul for this Contract. Material will be required to be hauled whatever distance is required to construct embankments or place it in a waste area.

18.10 Final Sub-grade Preparation

To prepare for placement of the sub-ballast in the areas identified, the completed OM Fill sub-grade shall be shaped and smoothed to within + 25mm of design elevations and shall, on average, meet the lines and grades specified on the Contract Drawings.

All ruts or depressions and failure areas shall be reshaped and re-compacted. The finished surface shall be free from depressions exceeding 10 mm as measured in any direction with a 3.0 metre straight edge.

Wet, un-trafficable sections of the sub-grade shall be dried. The final sub-grade shall meet the approval of the Engineer prior to placement of the sub-ballast.

Sub-grade preparation is not a separate pay Item. All materials, labour, use of equipment, tools and incidentals necessary to complete this portion of the Work shall be included in the appropriate Bid Items for excavation and embankment construction.

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02582 TRACKWORK CONSTRUCTION

19 GENERAL

19.1 Description

This specification covers the construction of the main track of approximately 1,740 metres long; a 170 metre passing loop; turnout for a stub spur to a storage and maintenance barn; and trackwork through Moberly Road.

19.2 Related Work

- Roadway Excavation, Embankment, and Compaction.
- Site Setting Out
- Dust Control
- Ballast
- Sub-Ballast

19.3 Materials

The City will purchase and deliver all major track materials, including the concrete panel crossing required for the project with the exception of track ballast which is to be supplied and placed by the Contractor.

The Contractor will supply all 6-hole joint bars or 6-hole compromise joint bars (c/w new bolts, nuts and washers) required in the project within the unit prices for track and turnout construction.

The City supplied track material will be available for delivery after November 12, 2008. The Contractor is responsible to coordinate the delivery, unload, inspect, accept and stockpile the track material. The Contractor is responsible to reject any damaged material at delivery and notify The Engineer. The Contractor is responsible for the security of the material on site until the project completion. For further clarity, the City will hold the Contractor responsible for the repair or replacement of any damaged material after it has been accepted by the Contractor. The Contractor is not responsible for the material quality of The City supplied materials. i.e. hardness of the steel, strength of the concrete, durability of the pads, etc.

20 REFERENCES

The Contractor shall establish and maintain a quality system to ensure compliance with all drawings, specifications, codes and standards.

The Contractor shall comply with all standards for CN Class IV track and ensure construction in accordance with CN Engineering and Maintenance of Way Standard Practice Circulars (SPC) issued April 2005.

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The Contractor shall perform all Work in a manner that at all times maintains a standard of care, skill and diligence in performing the Work in accordance with good construction practices. American Railway Engineering and Maintenance of Way Standards, Manual for Railway Engineering will be an additional reference.

21 EXECUTION

21.1 Site Setting Out

The Contractor shall be responsible for setting out the horizontal and vertical alignment of the track centreline based on the construction drawings. This is detailed further in Specification Section 02273 - Site Setting Out.

21.2 Construction

The rail is to be electric flash butt (EFB) welded into continuous welded rail (CWR). In lieu of EFB, thermite welds may be employed to join CWR strings.

The laying temperature of CWR shall be as CN SPC 3205, except modified for a Preferred Rail Laying Temperature of 80° F.

If it is decided to weld the turnouts in place, the cost of the thermite welding will be paid under the provisional pricing for thermite welding.

Concrete ties are to be placed at 28" centres.

For sub-ballast and ballast dimensions, refer to tender drawings.

21.3 Quality Control

The City of Vancouver is showcasing the Work as part of the 2010 Winter Olympics and has high expectations for the final product quality; particularly a smooth alignment and cross-level that will produce a world class transit ride experience.

The Contractor must supply an autoliner with the full capability and features of a current model Harsco Mark IV to perform the final surfacing and alignment.

During construction, The Contractor shall coordinate material delivery and ensure construction quality. The Contractor shall complete all of the Work to the satisfaction of The Engineer in accordance with the reference documentation and approved Project Schedule.

Any work that does not comply with the standards set out in the reference documentation (see section 2. REFERENCES) shall be corrected at the Contractor's own cost.

The integrity of all welds will also be tested and results provided to The Engineer. Any weld found to be defective will be replaced at the Contractor's own cost

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03301 CONCRETE

22 GENERAL

22.1 Description

This section specifies the materials required for cast-in place concrete, reinforcing bars, fibre board and the mix for the station platform retaining walls, substation & transformer pad foundations and ductwork as indicated on the construction drawings.

22.2 Related Work

- Dust Control.

22.3 Coordinate With Others

Coordinate and schedule work with the Engineer.

22.4 References

Concrete materials, methods of construction, testing and inspections to:

- Canadian Standards Association CSA/CAS - A23.1 - 04, Concrete Materials and Methods of Concrete Construction.
- Canadian Standards Association - A23.2 - 04, Methods of Test and Standard Practices for Concrete.

23 PRODUCTS

23.1 Materials

Portland cement: Type GU.

Shrinkage compensating grout: pre-mixed, non-metallic aggregate, 30 MPa compressive strength at 28 days.

Reinforcing bars: to CAN/CSA - G30.18 - M92, Grade 400.

Premoulded joint filler: bituminous impregnated fibreboard to ASTM D 1751-[83(1991)].

All other concrete materials: to CAN/CSA - A23.1 - 04.

23.2 Mix Proportions

Method: As exposure class F-1.

Cement type: as specified under 23.1.

Minimum 28 day compressive strengths and exposure classifications:

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- Concrete exposed to freezing and thawing but not to chlorides 30MPa.

Nominal size of coarse aggregate: 28mm as CAN/CSA - A23.2 - 04 Table 11.

Slump: to clause 4.3.2.3 of CAN/CSA - A23.1 - 04.

Air content: all concrete to contain purposely entrained air in accordance with Table 4 of CAN/CSA - A23.1 - 04.

Admixtures: to Clause 4.2.4 of CAN/CSA - A23.1 - 04.

24 EXECUTION

24.1 Finishes

Formed finishes exposed to view: Smooth-rubbed finish in accordance with CAN/CSA - A23.1 - 04.

24.2 Isolation Joints

Install bitumen impregnated fibreboard to faces of concrete wall that will be adjacent to footing for shelter.

24.3 Curing

Cure and protect concrete in accordance with clause 7.4 of CAN/CSA - A23.1 - 04.

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MEASUREMENT AND PAYMENT

General

For certainty, no payment or measurement provisions of the MMCD will apply to the Contract. All measurement and payment terms are as set out below and elsewhere in the Contract Documents.

The Lump Sums and Unit Prices listed in the Form of Tender shall represent components of the Contract Price upon Contract Award, for all of the work included and necessary to complete all of the Work under this Contract. The Lump Sums and Unit Prices shall be composite prices for carrying out the work and no premium will be paid for special or complicated pieces of work. For certainty, each "Contract Price" under the Supply Contracts, will be treated as a lump sum amount payable on satisfaction of the conditions for payment under that Supply Contract.

The quantities shown for Unit Price items of Work in the Form of tender are approximate and the actual quantity required for the Work will be paid at the unit rate set out in the Form of Tender. The Contractor will proceed with the Work, regardless of whether the quantities required are greater or lesser than those set out in the Form of Tender and the Final Contract Price will be adjusted to reflect the actual quantities required to perform the Work under this Contract at the unit rates set out in the Form of Tender. There shall be no other change to the Contract Price due to the change in quantities from those set out in the form of tender to those actually required to carry out the Work. The actual quantities required will be confirmed by count and measurement to be agreed between the Engineer and the Contractor.

No payment shall be made for rejected work, or for materials used or disposed of in a manner not called for under the Contract, or for any materials wasted.

Each Lump Sum and Unit Price shall make allowance for all costs to performing the work under the Contract, and include but not be limited to all overhead costs and profit for providing all labour, materials, equipment, and services required to complete the Work and meet all the dates set out in the Contract Schedule. These costs shall include all costs incurred by meeting all the Contract and Specification requirements and all other Contract requirements for which payment is not specifically indicated.

Payment for the Work of the Contract will be made in accordance with the Contract Documents to the Contractor for the items of Work listed in the Lump Sums and Unit prices listed and described below. Payment for all other Work required and necessary to complete the Work necessary under this Contract, but not specifically listed for payment in the Form of Tender shall be considered to be included in the amounts paid for the Work of the Contract within the items listed, and no separate or additional payment will be made in respect thereof.

Lump Sums and Unit Prices

Mobilization

The Lump Sum Price listed for mobilization will cover all costs related to setting up the Work Site, and paying for all services and fees required to commence the Work.

The Lump Sum Price listed for Clearing and Grubbing shall cover all work necessary to clear and grub all existing vegetation, waste material and debris currently remaining on the Work Site and shall include,

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but not be limited to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Stripping Organic shall cover all work necessary to clear all organic material off the Work Site and shall include, but not be limited to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Removing Existing Track shall cover all work necessary to clear all existing trackwork material off the Work Site and shall include, but not be limited to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal and/or salvage reclamation sites.

The Lump Sum Price listed for Removing Granville Island Station shall cover all work necessary to clear all material forming the existing station off the Work Site and shall include, but not be limited to backfilling the area with suitable material and to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Removing Leg In Boot Station shall cover all work necessary to clear all material forming the existing station off the Work Site and shall include, but not be limited backfilling the area with suitable material and to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Removing Existing Drainage shall cover all work necessary to clear existing drainage material off the Work Site, in a sufficient manner to allow for the construction of the new Work and shall include, but not be limited to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Removing Existing Trees shall cover all work necessary to clear all existing trees off the Work Site and shall include, but not be limited to obtaining all necessary permits (and paying for all applicable tipping fees) together with removal and disposal of the material to approved and authorized disposal sites.

The Lump Sum Price listed for Excavation shall cover all work necessary for all excavation to carry out the Work and shall include, but not be limited to removing and setting aside existing ballast for re-use on Work Site, sub-grade preparation, watering, dust control, and obtaining all necessary permits (and paying for all applicable tipping fees) but expressly excluding transportation and disposal of the material that is to be removed from Work Site to approved and authorized disposal sites.

The Unit Rate listed for the Disposal of Excavated Material to the City of Vancouver Disposal Site shall cover all work of transporting and disposing of excavated material to an approved and authorized disposal site and shall include, but not be limited to obtaining all necessary permits together with removal and disposal of the material to approved and authorized sites (but excluding tipping fees where material is disposed of at Vancouver Landfill and tipping fees are waived pursuant to Supplementary GC 11.0). The quantities will be derived from delivery slips for transporting the material from the Work Site to the disposal site. This Unit Rate does not apply to and will not include the costs of disposing of any material referenced in items above under "Excavation", "Removing Existing Trees", "Removing

INVITATION TO TENDER NO. PS08140
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Existing Drainage”, “Removing Leg In Boot Station”, “Removing Granville Island Station”, “Removing Existing Track”, “Clearing and Grubbing”, “Stripping Organic Material”.

The Lump Sum Price listed for Ballast Material Around the Tie and Rail Track, shall include, but not be limited to, all work necessary to supply, install and compact all ballast material around the tie and rail track necessary for the trackwork installation.

The Lump Sum Price listed for Install and Compact Sub-Ballast Material, Using Existing Ballast where possible shall cover all work necessary to install and compact all sub-ballast material with existing ballast, and where additional new sub-ballast is required the supply of the new sub-ballast will be paid under a separate Unit Rate as set out in this Contract, and shall include, but not be limited to re-grading, re-laying existing ballast set aside for re-use, compacting, and preparing the sub-ballast course for trackwork ballast.

The Unit Rate listed for Provide New Sub-Ballast to Work Site shall cover the additional costs of providing new sub-ballast material to Work Site to allow the sub-ballast bed to be completed in accordance with the Contract. The actual quantity required will be agreed by the Engineer and the Contractor, based upon the quality and ability to re-use the existing material. The Unit rate will cover the cost of supply and delivery to Work Site only of the new material, the costs of installation being covered in the Lump Sum to Install and Compact Sub-Ballast Material. The quantities will be derived from delivery slips for transporting the material to the Work Site.

The Lump Sum Prices listed for Rail, Tie and Ballast Trackwork, Turnouts, Track Stops, and Moberly Crossing shall cover, but not be limited to, all work to construct the rail, tie and ballast trackwork system complete, including the supply of all material provided for in the Supply Contracts, and providing all other material necessary to complete the installation.

The Lump Sum Price listed for Granville Island Station Retaining Walls shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the new station retaining walls, in accordance with the Contract.

The Lump Sum Price listed for Cambie Street Station Retaining Walls shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the new station retaining walls, in accordance with the Contract.

The Lump Sum Price listed for the Asphalt Swale shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the asphalt swale in accordance with the Contract.

The Lump Sum Price listed for the Sub-Drain shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the sub-drain in accordance with the Contract.

The Lump Sum Price listed for the Infiltration Pits shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the infiltration pits in accordance with the Contract.

The Lump Sum Price listed for the Retaining Wall Drainage shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the retaining wall drainage in accordance with the Contract.

The Lump Sum Price listed for the Chain Link Fence shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the chain link fence in accordance with the

**INVITATION TO TENDER NO. PS08140
INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE
PART G -- SPECIFICATIONS AND DRAWINGS**

Contract.

The Lump Sum Price listed for the Gate shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the gate in accordance with the Contract.

The Lump Sum Price listed for the Signs shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the signs in accordance with the Contract.

The Lump Sum Price listed for the Hydroseeding shall cover, but not be limited to, all work, including watering, necessary to carry out the hydroseeding in accordance with the Contract.

The Lump Sum Price listed for the Civil Engineering Works in Connection with Signalling shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the necessary engineering work required for signalling in accordance with the Contract.

The Lump Sum Price listed for the Sub-Station and Transformer concrete pads and associated duct banks shall cover, but not be limited to, all work, including excavation and earthwork, necessary to construct the sub-station and transformer bases and associated duct banks in accordance with the Contract.

Prior to issuing the Notice to Proceed, the Engineer at his sole option, will give written notice to the Contractor, to keep or delete from the Contract Price the Provisional Sum for Environmental Investigation, and where the notice is to delete same, no other adjustments to the Contract Price associated with this Provisional Sum will be allowed. In the event the Engineer elects to keep same, then the work related to this item will be carried out by the Contractor, as Force Account Work, provided always that the maximum amount chargeable for this Work will be the lesser of (i) the Provisional Sum and (ii) the Contractor's direct out-of-pocket costs of carrying out such Environmental Investigation as directed and agreed by the City, plus 10% of such direct costs on account of all other expenses of the Contractor.



FINANCIAL SERVICES GROUP
 Supply Management
 Purchasing Services

Invitation to Tender No PS08140
 Installation of Trackwork for Streetcar Demonstration Line

To acknowledge your intent to attend the Informational Meeting being held as per Part A, Introduction, 3.1, and to ensure that you receive the required information, please submit this form to the person identified below before close of business day, **Tuesday September 16, 2008**.

Wen Shi
 Administrative Assistant
 City of Vancouver
 Fax: 604.873.7057
 Email: purchasing@vancouver.ca

Your details:

Proponent's Name: _____
 "Proponent"

Address: _____

Telephone: _____ Fax: _____

Key Contact Person: _____

E-mail: _____ Incorporation Date: _____

Our company **WILL** / **WILL NOT** attend the informational meeting for
 "ITT No. PS08140 Installation of Trackwork for Streetcar Demonstration Line"

 Authorized Signatory and Name of Company (Please print)

 E-mail Address (Please print)

 Date



Invitation to Tender No. PS08140

INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE

To acknowledge your intent to submit a proposal, and to ensure that you receive the required information, please submit this form to the person identified below on or before **Tuesday September 23, 2008**

Wen Shi
Administrative Assistant
City of Vancouver
Fax: (604) 873-7057
Email: purchasing@vancouver.ca

Your details:

Proponent's Name: _____
"Proponent"

Address: _____

Telephone: _____ Fax: _____

Key Contact Person: _____

E-mail: _____ Incorporation Date: _____

Our company WILL / WILL NOT submit a tender for
"ITT No. PS08140- INSTALLATION OF TRACKWORK FOR STREETCAR DEMONSTRATION LINE"
by the closing date of Tuesday September 30, 2008 at 3:00:00 P.M.

Authorized Signatory and Name of Company (Please print)

E-mail Address (Please print)

Date

Refer to C.D. provided as part of the package for this ITT.

Downtown Streetcar Demonstration Line Soil Environmental Management Plan.

Downtown Streetcar Demonstration Line Soil Environmental Management Plan

Prepared by: _____ August 21, 2008
Wang, Luke Date

Approvals

Hatch

Approved by: _____ Date _____
Hanna, Scott

[Client Name, if required]

Approved by: _____ Date _____
Smitten, Andrew / Riddick, Stuart

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Appendices

1. Introduction

Hatch Ltd. was retained by Hatch Mott MacDonald (HMM) to work out a soil management plan for the Downtown Streetcar Demonstration Line project (“the Project”) from Granville Island to Cambie Street Bridge, which is being carried out by HMM on behalf of the City of Vancouver.

This Soil Management Plan (SMP) outlines the findings of the previous tests, identifies legal parcels indicating contamination, describes various procedures for onsite and offsite soil relocation and monitoring requirements to ensure proper monitoring, assessment and management of potentially contaminated soil.

This document should be read in conjunction with drawings 246353-HMM-ENV-001 to 012.

2. Soil Standards

The railway right-of-way (ROW) of the Project zoned as Comprehensive Development District (False Creek - South Side) (FCCDD). Based on the zoning designation and the intended function of the ROW, the commercial level (CL) standards outlined in the Contaminated Sites Regulation (CSR) are applied to determine whether contamination exists. If the tested soil level exceeds the CSR CL Standards but does not exceed the standards outlined in the Hazardous Waste Regulation (HWR), the soil is classified as Waste. If the tested soil level exceeds the standards outlined in the HWR, the soil is classified as Hazardous Waste. Otherwise, the tested soil is not contaminated. The indicators for soil are as follows:

Hazardous Waste (HW)
Waste (>IL <HW or >CL <HW)
Industrial Quality (<IL)
Commercial Quality (<CL)
Residential Quality (<RL)
Urban Park Quality (<PL)
Agricultural Quality (<AL)

3. Summary of Previous Tests

Based on the zoning for the ROW lands, a summary of the previous tests (**Table 1**) indicates that four sections (Parcels 5 and 7, Moberly-Ash and Ash–Proposed Cambie Station) show signs of contamination, other sections (Parcels 6, 8, 9, 10, 11 and 12) do not show signs of contamination and the extent of contamination

on Parcel 13 is not known. Note that the previous tests, with the exception of some tests on Moberly–Ash and Ash–Proposed Cambie Station, are preliminary, therefore, the results cannot be used to represent contamination profile for the entire parcel. Each discrete sample tested may only represent a volume of 10 m³ of the material designated as waste, industrial or commercial quality and 5 m³ of material designated as hazardous waste (MoE 2005). Detailed testing that is systematically designed may be required depending on the location of the soil to be excavated.

Table 1: Summary of Previous Tests

Section	Standard	Showing Signs of Contamination?	Contaminants	Exceeding CSR Schedule 7 Criteria
Parcel 5	> CL < HW	Yes	PAHs	Yes
Parcel 6	< CL	No	-	Yes
Parcel 7	> CL < HW	Yes	Metals (copper, zinc)	Yes
Parcel 8	< RL	No	-	?
Parcel 9	< RL	No	-	No
Parcel 10	< CL	No	-	Yes
Parcel 11	< CL	No	-	Yes
Parcel 12	< RL	No	-	No
Parcel 13	?	Maybe	(Possibly EPHs)	?
Moberly-Ash	> CL < HW	Yes	PAHs; Metals (zinc); LEPHs; HEPHs; VOC	Yes
Ash-Proposed Cambie Station	> CL < HW [*]	Yes	Metals (arsenic, cadmium, chromium, lead, copper and zinc)	Yes

* One sample shows that arsenic exceeds HW.

Sources:

- Environmental Liability Site Assessment Study A, Parcels 5 through 15 C.P. south False Creek Properties (Norecol,1990)
- Remediation Action Plan, South False Creek Parcels 5 though 15 (Clifton 1995)
- Historical Review, Lot 14 and Lot K, South False Creek Properties (Clifton 1995)
- Environmental Sampling – 6th Ave. and Cambie (Keystone1999)
- Summary Table for 6th & Ash Soil Removal Project (Morrow 2007)
- Downtown Streetcar Demonstration Line Percolation and Environmental Testing (Thurber, 2008) – See Appendix A

4. Regulatory Requirements

The relevant legislation listed below must be followed to ensure the appropriate handling, temporary storage, backfilling, disposal and management of excavated soil and imported soil (if applicable) and discharge of groundwater:

- BC Environmental Management Act
- BC Contaminated Sites Regulation and associated protocols, procedures and guidance documents
- BC Hazardous Waste Regulation
- Transportation of Dangerous Goods Act
- BC Water Quality Guidelines
- CCME Canadian Water, Soil and Sediment Quality Guidelines
- Discharge Bylaws of City of Vancouver and Metro Vancouver
- Applicable Occupational Health and Safety Requirements in BC's Occupational Health and Safety Regulation

5. Environmental Management of Excavated Soil during Construction

5.1 Monitoring Requirements

Contractors must monitor excavated soil on an ongoing basis, observing visual and olfactory indicators of contamination. The EM, when on site, will monitor excavated soil by similar methods. Some contamination indicators include:

- Unusual odour, discoloration and differences in soil properties
- Staining – stained soils typically may have darker color, oily feel, wet appearance and odour;
- Buried debris and artifacts such as timbers, chemical containers, barrels, bottles, cleaning rags, abandoned underground tanks and pipes, metal parts, batteries, spent abrasives or other containers indicating hazardous content; and
- Sheen on groundwater infiltrating into groundwater.

5.2 Management of Non-Suspect Soil

Non-Suspect soil to be excavated can be used for backfilling and grading within the same legal parcel where it is originated.

Non-Suspect soil to be excavated, which does not exceed the numerical standards in Schedule 7 of the CSR (standards triggering contaminated soil relocation agreements) through confirmation testing, can be also used for backfilling and grading in other legal parcels or transported to private commercial/industrial fill sites.

Non-Suspect soil to be excavated, which exceeds the numerical standards in Schedule 7 but does not exceed the CL standards as outlined in the CSR through confirmation testing, can be used for backfilling and grading within the same legal parcel from which it has originated. It can not be used in other legal

parcels unless a Contaminated Soil Relocation Agreement has been obtained from the Ministry of Environment (MOE).

5.3 Management of Suspect Soil

In the event that the excavated soil is suspected to be contaminated, the soil will be isolated to a secured location and the contractor will notify the Environmental Monitor (EM), who will advise the contractor for further action. The soil will not be used for backfilling or grading in the same legal parcel or in other legal parcels without further testing done, instead,

- it will be placed on plastic sheeting (polyethylene) and be covered securely by plastic sheeting within the same legal parcel (if same parcel temporary storage is not possible, consult the EM for advise), and
- it will be assessed through stockpile sampling and analyses.

If testing and analyses confirm that the suspect soil is contaminated, the soil will not be reused within the legal parcel from which it has originated or in any other legal parcels. Instead, it will be transported to a waste soil facility licensed to take the type of soil for disposal. The contractor is required to record the following with regard to the export of the contaminated soil:

- date, time and volume of soil transported off site;
- transporter used to remove soil off site;
- classification of soil; and
- name and MOE permit number of licensed receiving facility.

Soil immediately below the contaminated soil excavated will be treated as if it is contaminated unless testing and analyses are done and the results turn out otherwise. It will be covered with a thin layer of Non-Suspect soil originated from the same legal parcel or imported from an offsite location (the criteria of the imported soil should be below numerical standards in Schedule 7 of the CSR regulation unless a contaminated soil relocation agreement has been obtained). Thus, it eliminates potential contaminant pathway, such as leaching, uptake, inhaled and ingested.

If testing and analyses confirm that the suspect soil is not contaminated, follow Management of Non-Suspect Soil in **Section 5.2**.

5.4 Management of Groundwater

Contractors who excavate or expose suspected contaminated soils should also assume that contaminants may be present in underlying groundwater. Consult the EM for advice on requirements for treatment and discharge of suspected contaminated groundwater if discharge is necessary.

5.5 Management of Hazardous Waste

In the event that the excavated material is suspected with evidence to be hazardous waste, the contractor will isolate the material to a secured location and notify the EM immediately. The EM will then instruct the contractor for further action or stop work. If the suspected material is required by the EM to be transported offsite for further action, the contractor will use a licensed hauler to transport the material under manifest to a facility licensed to store the material. If hazardous materials are present in volumes / amounts that exceed Schedule 6 limits, then a BC Waste Generator Number (BCG#) must be obtained prior to transporting the material to a licensed waste facility (MoE 2006).

6. References

Ministry of Environment (MoE) 2005. Technical Guidance on Contaminated Sites – Site Characterization and Confirmation Testing (Technical Guidance #1).

Ministry of Environment (MoE) 2006. Hazardous Waste Regulation, Section 43.

APPENDIX A - Downtown Streetcar Demonstration Line Environmental Testing Analysis Results (Thurber, 2008)

Analysis Report



CANTEST LTD.

REPORT ON: Analysis of Soil Samples

REPORTED TO: Thurber Consultants Ltd.
200-1445 West Georgia St
Vancouver, BC
V6G 2T3

Att'n: Scott Brown

Professional Analytical Services

4606 Canada Way
Burnaby, B.C.
V5G 1K5

FAX: 604 731 2386

TEL: 604 734 7276

1 800 665 8566

CHAIN OF CUSTODY: 2025887
PROJECT NAME: Van Street Car
PROJECT NUMBER: 19-1605-100
P.O. NUMBER: 19-1605-100

NUMBER OF SAMPLES: 7

REPORT DATE: July 22, 2008

DATE SUBMITTED: July 15, 2008

GROUP NUMBER: 90715085

SAMPLE TYPE: Soil

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Moisture in Soil - analysis was performed gravimetrically by heating a separate sample portion at 105 C and measuring the weight loss.

pH in Soil or Solid - analysis was performed based on procedures described in the "Manual on Soil Sampling and Methods of Analysis" (1993) published by the Canadian Society of Soil Science. The test was performed using a deionized water leach with measurement by pH meter.

Extractable Petroleum Hydrocarbons and Light and Heavy Extractable Petroleum Hydrocarbons - analysis was performed using B.C. MOELP CSR-Analytical Method 3 "Extractable Petroleum Hydrocarbons in Solids by GC/FID" and CSR-Analytical Method 6 "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water (LEPH & HEPH)". The method involves acetone/hexane extraction and GC/FID analysis. EPH components ranging from C10 to C and C19 to C32 are quantified against eicosane (n-C20). LEPH & HEPH are calculated by subtraction of specified PAH's.

Polynuclear Aromatic Hydrocarbons - analysis was performed using procedures based on U.S. EPA Methods 625/8270, involving extraction, clean-up steps, and analysis using GC/MS.

Mercury in Soil - analysis was performed using Cold Vapour Atomic Fluorescence.

Strong Acid Leachable Metals in Soil - analysis was performed using B.C. MOELP Method "Strong Acid

(Continued)

CANTEST LTD.

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Strong Acid Leachable Metals in Soil

Leachable Metals in Soil, Version 1.0". The method involves drying the sample at 60 C, sieving using a 2 mm (10 mesh) sieve and digestion using a mixture of hydrochloric and nitric acids. Analysis was performed using Inductively Coupled Argon Plasma Spectroscopy (ICAP) or by specific techniques as described.

COMMENTS:

Samples received at a temperature of 19.6 degrees Celsius.

TEST RESULTS:

(See following pages)

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Conventional Parameters in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Moisture	pH
TP08-1	Jul 9/08	807150280	7.3	6.3
TP08-1(DUP)	Jul 9/08	807150281	7.3	6.4
TP08-2	Jul 9/08	807150282	20.6	5.3
TP08-3	Jul 9/08	807150283	4.1	6.8
TP08-4	Jul 10/08	807150284	11.0	6.5
TP08-6	Jul 10/08	807150285	31.7	7.0
TP08-7	Jul 10/08	807150286	0.7	7.1
DETECTION LIMIT UNITS			0.1 %	0.1 pH units

% = percent

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Polycyclic Aromatic Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	TP08-1	TP08-1(DUP)	TP08-2	TP08-3	
DATE SAMPLED:	Jul 9/08	Jul 9/08	Jul 9/08	Jul 9/08	
CANTEST ID:	807150280	807150281	807150282	807150283	
ANALYSIS DATE:	Jul 22/08	Jul 22/08	Jul 18/08	Jul 22/08	DETECTION LIMIT
Naphthalene	< 0.5	< 0.5	0.45	<	0.05
2-Methylnaphthalene	< 0.5	< 0.5	0.48	<	0.05
Acenaphthylene	< 0.5	< 0.5	0.11	<	0.05
Acenaphthene	< 0.5	< 0.5	<	<	0.05
Fluorene	< 0.5	< 0.5	<	<	0.05
Phenanthrene	1.7	0.50	0.83	<	0.05
Anthracene	< 0.5	< 0.5	0.06	<	0.05
Total LMW-PAH's	1.70	0.50	1.93		
Fluoranthene	6.4	4.4	1.1	<	0.05
Pyrene	7.5	5.3	0.71	<	0.05
Benzo(a)anthracene	6.2	4.8	0.26	<	0.05
Chrysene	9.1	7.1	0.25	<	0.05
Benzo(b)fluoranthene	11	8.4	0.41	<	0.05
Benzo(k)fluoranthene	3.9	3.1	0.15	<	0.05
Benzo(a)pyrene	7.2	6.1	0.28	<	0.05
Indeno(1,2,3-cd)pyrene	6.4	5.0	0.06	<	0.05
Dibenz(a,h)anthracene	1.8	1.4	<	<	0.05
Benzo(g,h,i)perylene	5.5	4.5	0.25	<	0.05
Total HMW-PAH's	65.0	50.1	3.47		
Total PAH's	66.7	50.6	5.40		

Results expressed as micrograms per gram, on a dry weight basis. ($\mu\text{g/g}$)

< = Less than detection limit

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Polycyclic Aromatic Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	TP08-4	TP08-6	TP08-7	
DATE SAMPLED:	Jul 10/08	Jul 10/08	Jul 10/08	
CANTEST ID:	807150284	807150285	807150286	
ANALYSIS DATE:	Jul 22/08	Jul 18/08	Jul 18/08	DETECTION LIMIT
Naphthalene	<	0.30	<	0.05
2-Methylnaphthalene	<	0.28	<	0.05
Acenaphthylene	<	0.10	<	0.05
Acenaphthene	<	0.06	<	0.05
Fluorene	<	0.05	<	0.05
Phenanthrene	<	0.78	<	0.05
Anthracene	<	0.15	<	0.05
Total LMW-PAH's		1.72		
Fluoranthene	<	0.98	<	0.05
Pyrene	<	0.99	<	0.05
Benzo(a)anthracene	<	0.55	<	0.05
Chrysene	<	0.55	<	0.05
Benzo(b)fluoranthene	<	0.59	<	0.05
Benzo(k)fluoranthene	<	0.26	<	0.05
Benzo(a)pyrene	<	0.56	<	0.05
Indeno(1,2,3-cd)pyrene	<	0.40	<	0.05
Dibenz(a,h)anthracene	<	0.07	<	0.05
Benzo(g,h,i)perylene	<	0.36	<	0.05
Total HMW-PAH's		5.31		
Total PAH's		7.03		

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)

< = Less than detection limit

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Extractable Petroleum Hydrocarbons (EPH) in Soil

CLIENT SAMPLE IDENTIFICATION:	TP08-1	TP08-1(DUP)	TP08-2	TP08-3	
DATE SAMPLED:	Jul 9/08	Jul 9/08	Jul 9/08	Jul 9/08	DETECTION LIMIT
CANTEST ID:	807150280	807150281	807150282	807150283	
EPHs10-19	<	<	<	<	250
EPHs19-32	390	410	270	<	250
LEPHs (corrected for PAH's)	<	<	<	<	250
HEPHs (corrected for PAH's)	350	380	270	<	250

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)

< = Less than detection limit

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Extractable Petroleum Hydrocarbons (EPH) in Soil

CLIENT SAMPLE IDENTIFICATION:	TP08-4	TP08-6	TP08-7	
DATE SAMPLED:	Jul 10/08	Jul 10/08	Jul 10/08	
CANTEST ID:	807150284	807150285	807150286	DETECTION LIMIT
EPHs10-19	<	<	<	250
EPHs19-32	<	<	<	250
LEPHs (corrected for PAH's)	<	<	<	250
HEPHs (corrected for PAH's)	<	<	<	250

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)
 < = Less than detection limit

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		TP08-1	TP08-1(DUP)	TP08-2	TP08-3	
DATE SAMPLED:		Jul 9/08	Jul 9/08	Jul 9/08	Jul 9/08	DETECTION LIMIT
CANTEST ID:		807150280	807150281	807150282	807150283	
Selenium	Se	<	<	<	<	2
Antimony	Sb	<	10	<	<	10
Arsenic	As	23	30	<	<	10
Barium	Ba	69	104	67	45	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	1.0	1.1	0.6	<	0.5
Chromium	Cr	59	83	11	8	2
Cobalt	Co	7	8	6	4	1
Copper	Cu	86	101	48	12	1
Lead	Pb	242	254	59	8	5
Mercury	Hg	0.03	0.03	0.01	0.01	0.01
Molybdenum	Mo	12	17	<	<	4
Nickel	Ni	67	86	9	6	2
Silver	Ag	<	<	<	<	2
Tin	Sn	9	12	6	<	5
Vanadium	V	23	23	30	24	1
Zinc	Zn	198	235	93	25	1
Aluminum	Al	6560	7010	8360	4940	10
Boron	B	<	<	<	<	1
Calcium	Ca	3220	3290	3250	2650	1
Iron	Fe	37400	43100	15500	13000	2
Magnesium	Mg	1420	1550	4000	2330	0.1
Manganese	Mn	677	807	285	191	1
Phosphorus	P	331	389	333	282	20
Potassium	K	623	683	906	613	10
Sodium	Na	179	161	184	153	5
Strontium	Sr	37	71	27	17	1
Titanium	Ti	220	215	330	242	1
Zirconium	Zr	7	9	2	2	1

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)
 < = Less than detection limit

REPORTED TO: Thurber Consultants Ltd.



REPORT DATE: July 22, 2008

GROUP NUMBER: 90715085

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		TP08-4	TP08-6	TP08-7	DETECTION LIMIT
DATE SAMPLED:		Jul 10/08	Jul 10/08	Jul 10/08	
CANTEST ID:		807150284	807150285	807150286	
Selenium	Se	<	<	<	2
Antimony	Sb	<	<	<	10
Arsenic	As	<	<	<	10
Barium	Ba	226	734	35	1
Beryllium	Be	<	<	<	1
Cadmium	Cd	<	1.5	0.5	0.5
Chromium	Cr	9	19	17	2
Cobalt	Co	10	9	8	1
Copper	Cu	33	230	144	1
Lead	Pb	7	194	16	5
Mercury	Hg	<	0.05	<	0.01
Molybdenum	Mo	<	8	<	4
Nickel	Ni	11	27	10	2
Silver	Ag	<	<	<	2
Tin	Sn	<	33	<	5
Vanadium	V	24	32	35	1
Zinc	Zn	59	260	76	1
Aluminum	Al	7920	11700	11100	10
Boron	B	<	2	<	1
Calcium	Ca	3760	21700	5870	1
Iron	Fe	16900	65000	22800	2
Magnesium	Mg	4910	4000	5610	0.1
Manganese	Mn	168	7510	377	1
Phosphorus	P	318	1900	627	20
Potassium	K	640	1180	1080	10
Sodium	Na	282	1190	195	5
Strontium	Sr	71	285	18	1
Titanium	Ti	96	325	422	1
Zirconium	Zr	18	6	2	1

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)

< = Less than detection limit

CHROMATOGRAM COVER SHEET



CONTACT SCOTT BROWN		COMPANY NAME THURBER CONSULTANTS LTD.	
FAX NUMBER 604-684-5124	DATE JULY 21, 2008	PGS INCL. COVER 4	
FROM CANTEST LTD	RETURN FAX 604 731 2386	TELEPHONE 604 734 7276	
SUBJECT Chromatogram(s).			

Please find the attached chromatograms associated with:

CANTEST Group # **9071508**

Your Project Name **VAN STREET CAR**

Your Project Number **19-1605-100**

Sample Matrix **SOIL**

The originals will follow with the report.

www.cantest.com



Head Office:
4806 Canada Way
Burnaby, BC V5G 1K5
Tel: 604 734 7276

Victoria:
1102 - 4464 Markham St.
Victoria, BC V8Z 7X8
Tel: 250 385 6112

Kelowna:
1328 Land Road
Kelowna, BC V1P 1K9
Tel: 250 765 7501

Winnipeg:
Unit D - 675 Berry St.
Winnipeg, MB R3H 1A7
Tel: 204 772 7276

Toronto:
18 Inkpen Lane
Whitby, ON L1R 2H2
Tel: 905 665 6556

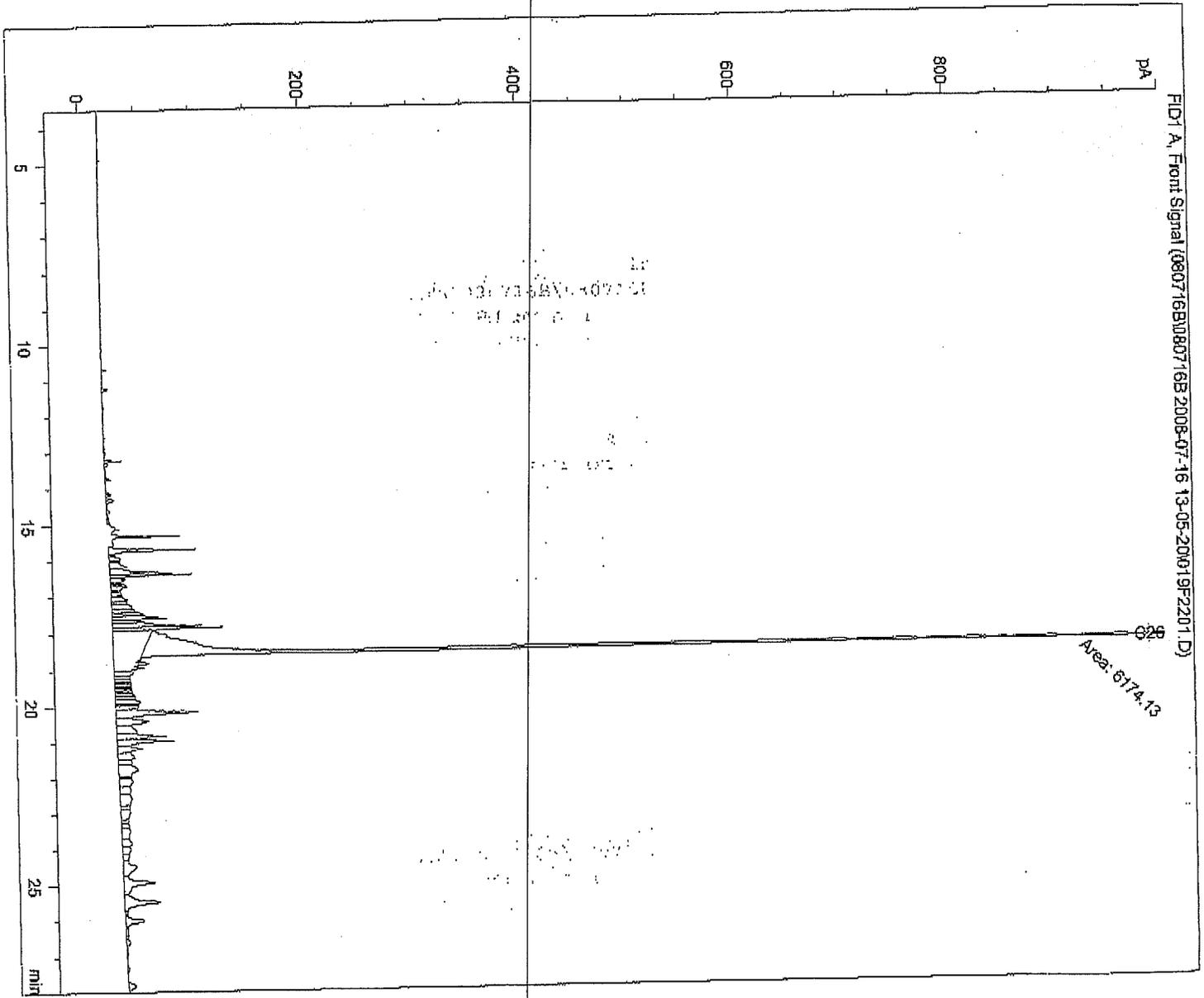
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Acq. Operator : pcn	Seq. Line : 22
Acq. Instrument : 7890_1	Location : Vial 19
Injection Date : 7/17/2008 1:14:29 AM	Inj : 1
	Inj Volume : 2 µl
Acq. Method : C:\CHEM32\1\DATA\080716B\080716B 2008-07-16 13-05-20\EPH3.M	
Last changed : 7/16/2008 9:08:51 PM by pcn	
Analysis Method : C:\CHEM32\1\METHODS\EPH1P.M	
Last changed : 7/21/2008 8:01:22 AM by pcn	
	(modified after loading)
Method Info : Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.	

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90715 085
THU 001

TPO 8-1



Acq. Operator : pcn
Acq. Instrument : 7890_1
Injection Date : 7/17/2008 1:49:09 AM

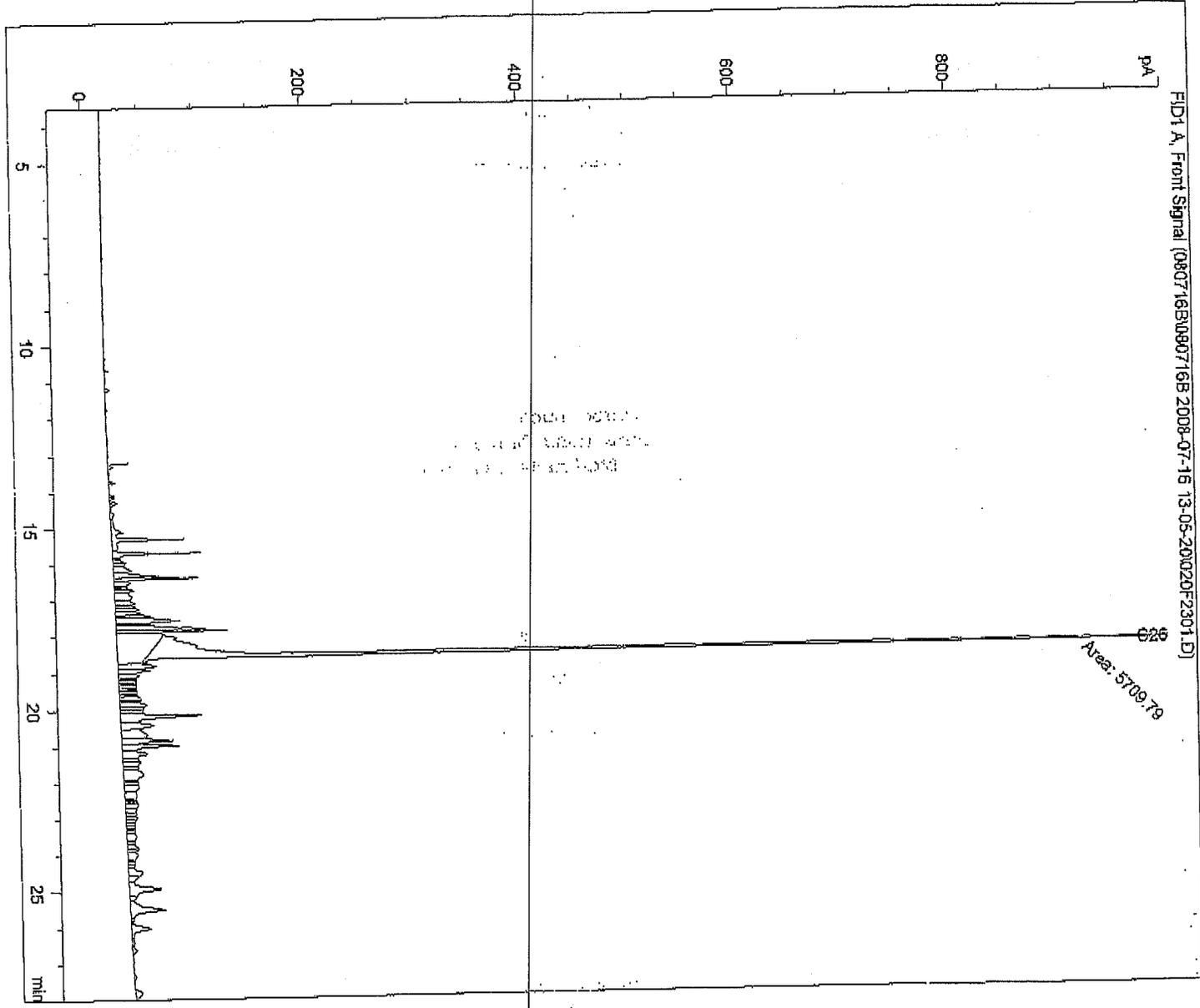
Seq. Line : 23
Location : Vial 20
Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\CHEM32\1\DATA\080716B\080716B 2008-07-16 13-05-20\EPH3.M
Last changed : 7/16/2008 9:08:51 PM by pcn
Analysis Method : C:\CHEM32\1\METHODS\EPH1P.M
Last changed : 7/21/2008 8:01:22 AM by pcn
(modified after loading)

THU 001

Method Info : Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.

TPO 8-1 (dup)



Acq. Operator : pcn
Acq. Instrument : 7890_1
Injection Date : 7/17/2008 2:23:33 AM

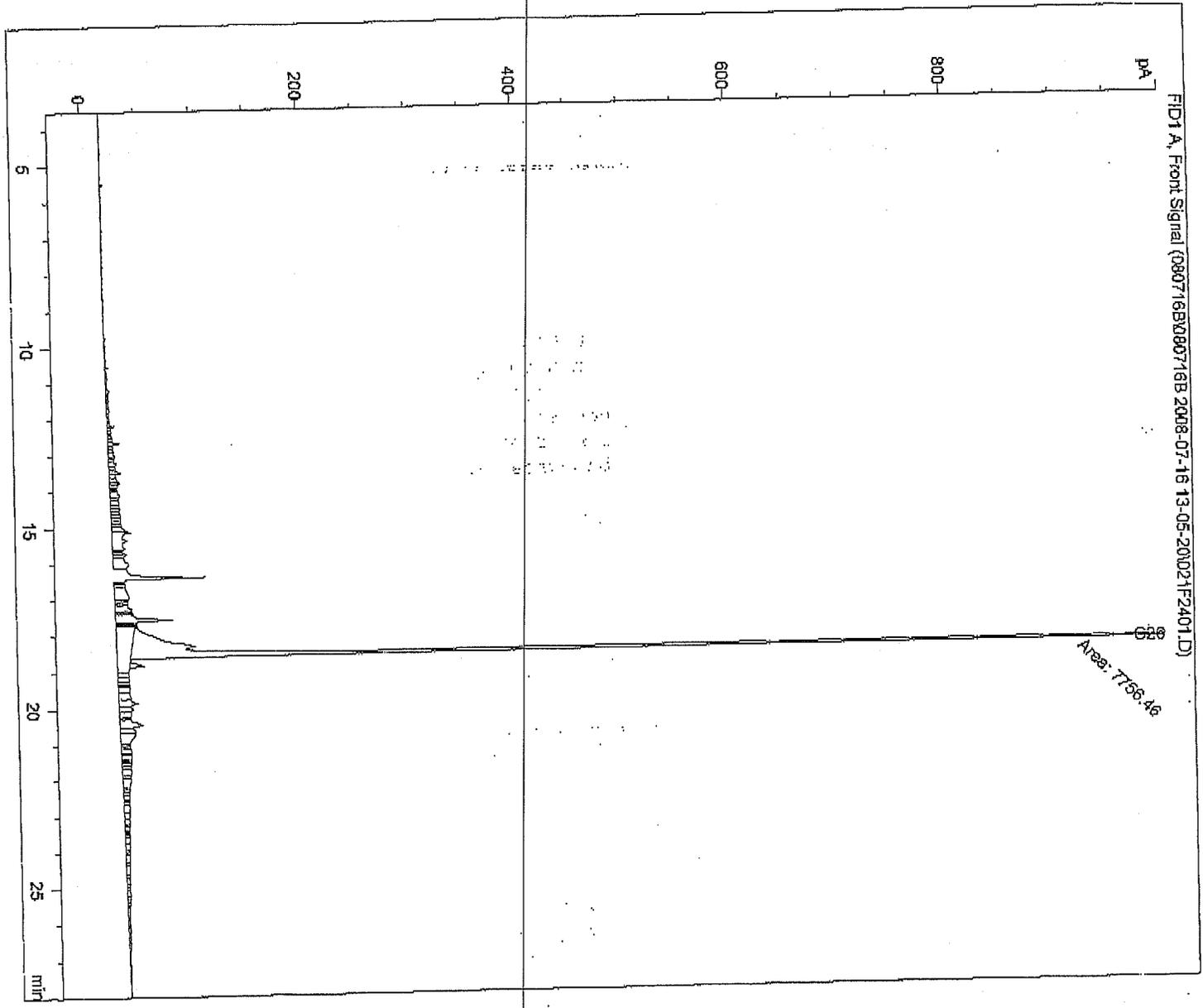
Seq. Line : 24
Location : Vial 21
Inj : 1
Inj Volume : 2 µl

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Last changed : 7/16/2008 9:08:51 PM by pcn
Analysis Method : C:\CHEM32\1\METHODS\EPHLP.M
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(modified after loading)

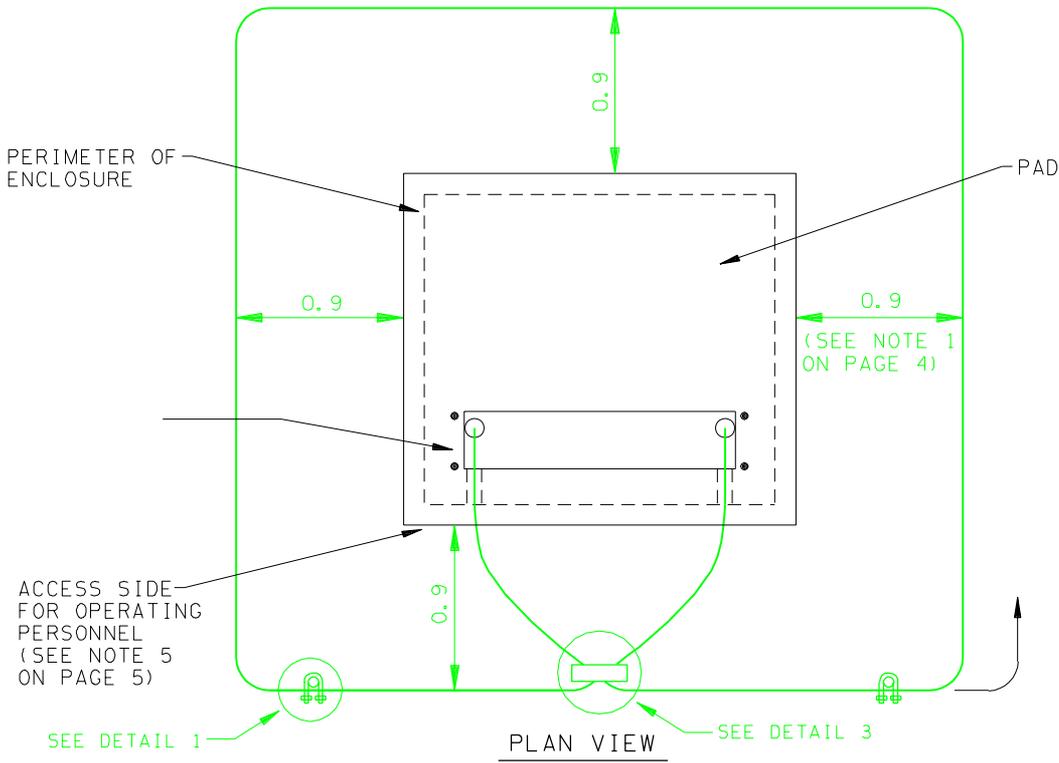
THU 001

Method Info : Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.

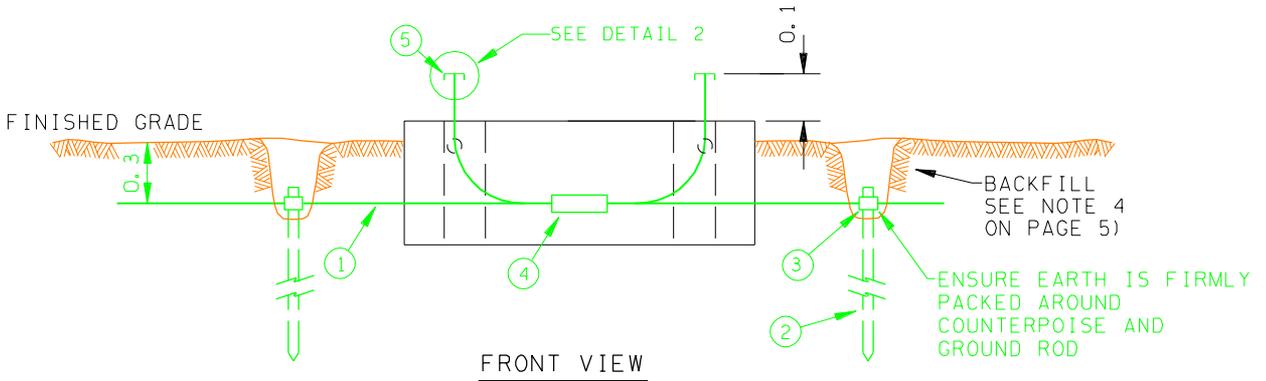
TP08-2



Typical BC Hydro Transformer Base Drawings.

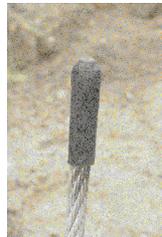


MOVE GROUND RODS UP ALONG THE SIDE OF PAD. IF A SIDEWALK IS INSTALLED OVER FRONT OF COUNTERPOISE THEN RODS TO CLEAR EDGE OF SIDEWALK BY 0.1m MIN.



DETAIL 1

COUNTERPOISE TO GROUND ROD CONNECTION



DETAIL 2

HEAT SHRINK CAP



DETAIL 3

MECHANICAL RESTRAINT OF COUNTERPOISE

DRAFTER
JW

DESIGNER
M. FISCHER

APPROVED
F. KAEMPFER

ORIGINAL ISSUE DATE: JUNE 1980

GROUNDING
AT PADMOUNT ENCLOSURES
INSTALLATION DETAILS

REVISED | R3-REDRAWN SEPT. '02 MF

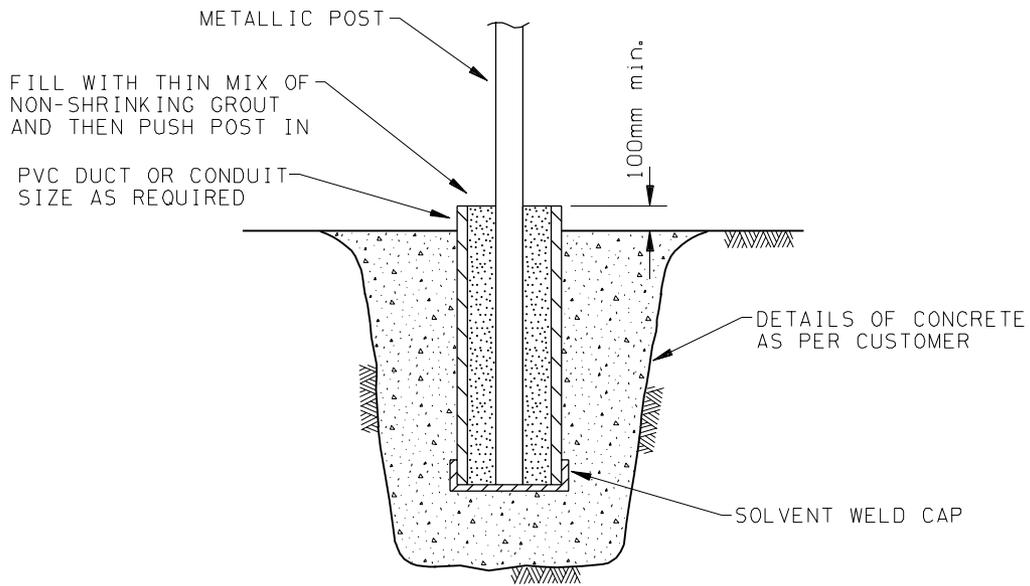


FIGURE 1 - INSULATION OF METALLIC FENCE POSTS, ETC FROM SURROUNDING EARTH (SEE NOTES 9 AND 10 ON PAGES 5 AND 6)

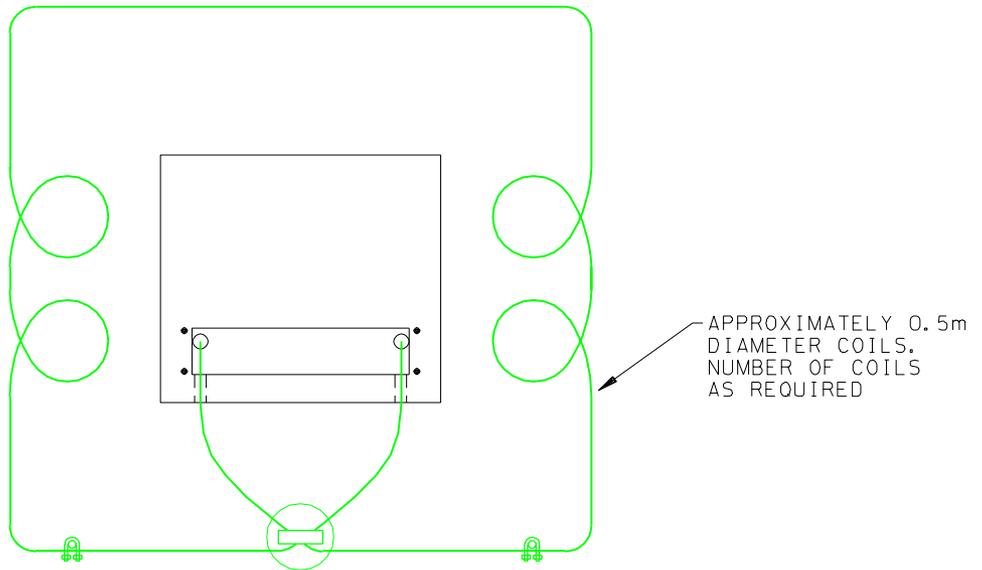


FIGURE 2 - COILING OF EXCESS LENGTH OF COUNTERPOISE IN GROUNDING KITS (SEE NOTE 3 ON PAGE 5)

DRAFTER

JW

DESIGNER

M. FISCHER

APPROVED

F. KAEMPFER

GROUNDING
AT PADMOUNT ENCLOSURES
INSTALLATION DETAILS

ORIGINAL ISSUE DATE: JUNE 1980

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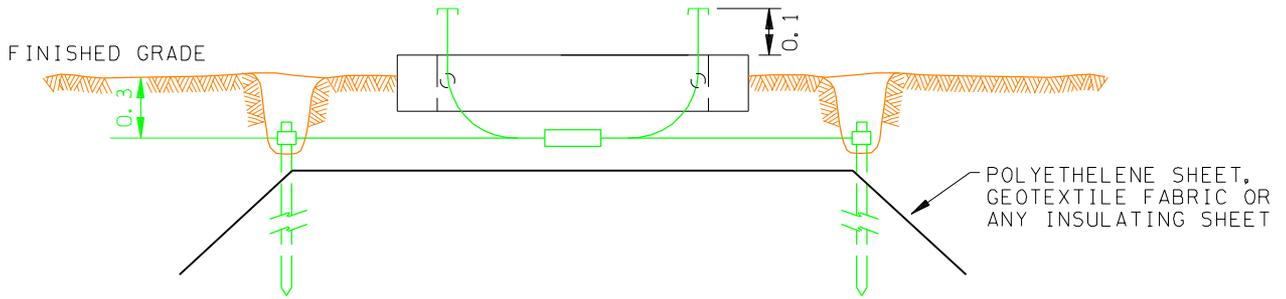


FIGURE 3 - INSTALLATION OF POLYETHYLENE SHEETS
 GEOTEXTILES, ETC. BELOW A PAD.
 COUNTERLPOISE TO BE INSTALLED ABOVE
 GEOTEXTILES OR POLYETHYLENE SHEETS

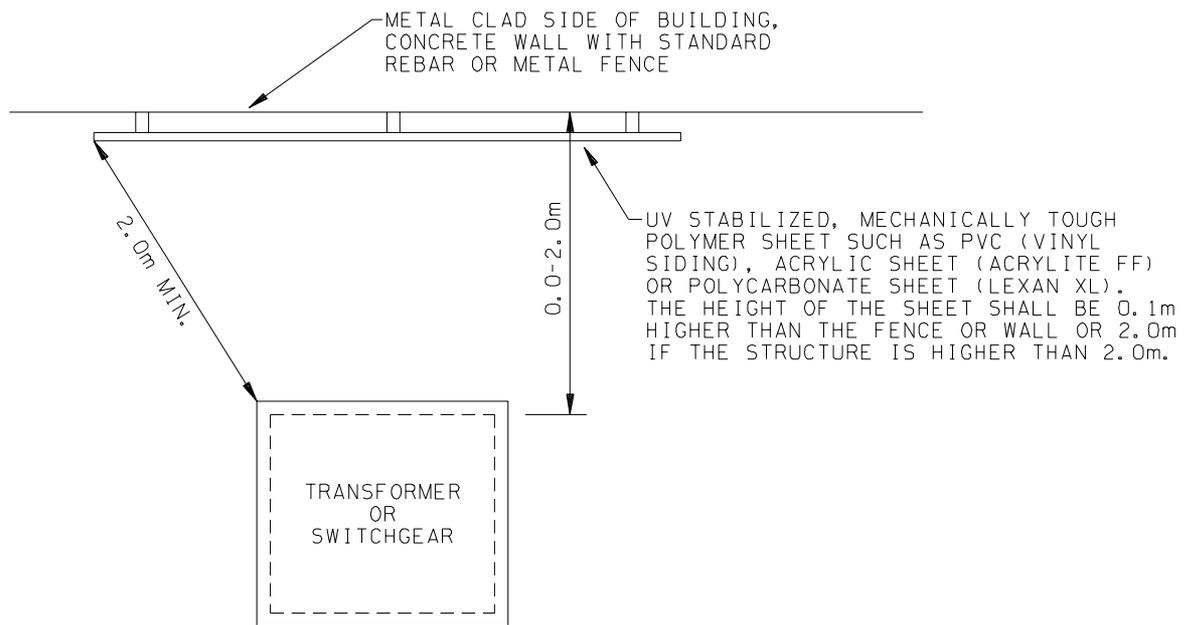
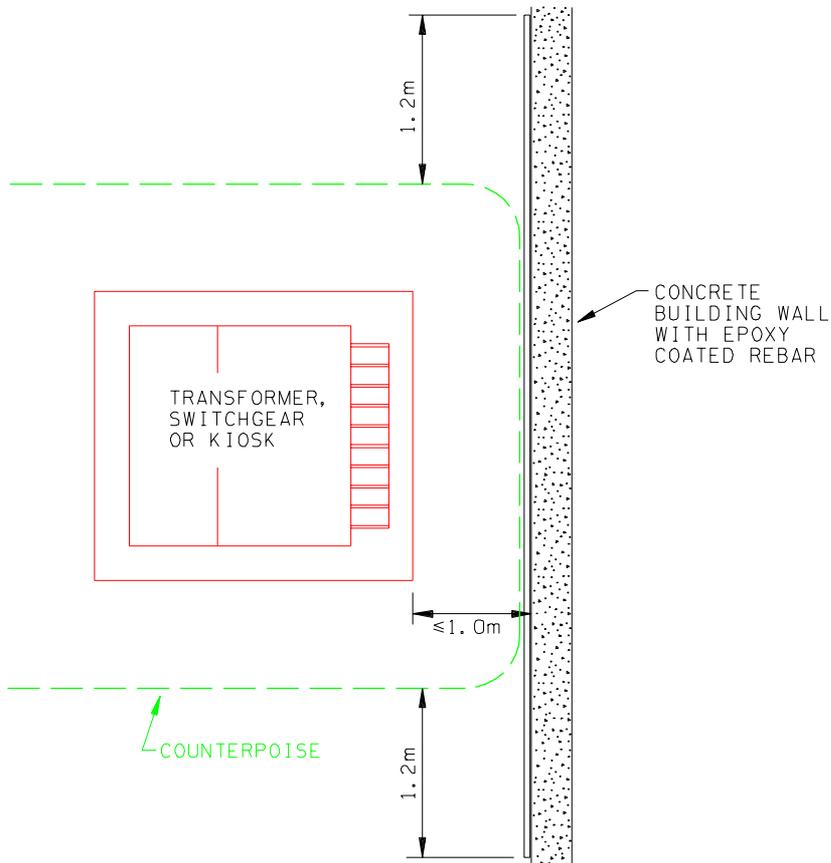
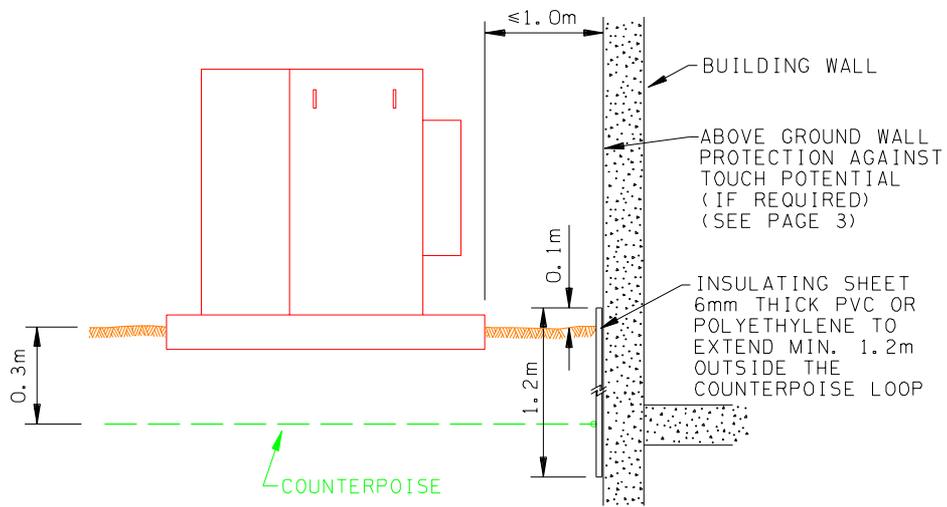


FIGURE 4 - DETAILS WHEN TRANSFORMER OR SWITCHGEAR IS WITHIN
 2.0m OF METAL CLAD BUILDING OR METAL FENCE.

REVISED | R3-REDRAWN | SEPT. '02 MF

DRAFTER JW	DESIGNER M. FISCHER	APPROVED F. KAEMPFER
ORIGINAL ISSUE DATE: JUNE 1980		

**GROUNDING
 AT PADMOUNT ENCLOSURES
 INSTALLATION DETAILS**



BELOW GROUND WALL PROTECTION AGAINST STEP POTENTIAL INSIDE THE BUILDING

DRAFTER
JW

DESIGNER
M. FISCHER

APPROVED
F. KAEMPFER

GROUNDING
AT PADMOUNT ENCLOSURES
INSTALLATION DETAILS

ORIGINAL ISSUE DATE: SEPTEMBER 2003

NOTES:

1. The distance of the counterpoise from the pad shown in the plan view is designed for optimum protection against touch potential. Every effort should be made to conform with the standard. However, if limited clearance from other objects and utilities is unavoidable (see Note 9), the distance of the counterpoise from the pad may be reduced to as little as 0.3m. The reduced distance will elevate the touch potential level to the threshold of safety and any further reduction of the pad to counterpoise distance will result in inadequate protection against touch potential and is not recommended.
2. Ground rods should be driven in whenever possible. In rocky or hardpan areas where the rod can not be advanced to at least 2/3 of its length, the rod may be deleted. However, every effort should be made to use a rod including driving the rod in at an angle. For rods driven in at least 2/3 of their length but not fully, bend the rod over horizontal and parallel to the counterpoise and install the connector below the bend using the parallel connector grooves. (See Detail 1 on page 1). **DO NOT UNDER ANY CIRCUMSTANCES CUT OFF THE GROUND ROD.**
3. Any apparent excess length of the counterpoise supplied in the grounding packages must not be cut off. The excess length shall be taken up by making a series of coils as shown in figure 2 on page 2.
4. Backfill within 0.3m of the counterpoise and ground rods shall be sand or native fill devoid of rocks 50mm or greater in diameter.
5. Ground rods must be placed on either side of any access door or hood used by operating personnel. Thus some installations may require 3 or 4 ground rods and connectors.
6. The counterpoise must not be installed under a roadway or curb. Installation under sidewalk should be avoided if possible. However, if it cannot be avoided, position the ground rods along the side of the counterpoise as shown on page 1.
7. The counterpoise must not be installed under polyethylene sheet, geotextile fabric or any other insulating material. If one of these materials is required, then the installation shall be done as shown in figure 3 on page 3.
8. The following materials are acceptable ground cover materials over the counterpoise: soil, gravels, sands, drain rock, decorative rocks, concrete, concrete or masonry products, asphalt and bark mulches.
9. Other utility installations or fixtures such as TELUS service boxes, street light bases, fence posts, sprinkler pipes, etc. must be outside the counterpoise loop, unless modifications to existing installations are specifically approved by Standards Dept. The only fixture allowed inside the loop is the stanchion which must be installed in accordance with drawing ES54 U2-01. If any structure has to be located near the counterpoise and the structure contains subsurface conductive materials such as metallic fences, pipes or reinforced concrete, the structure must be isolated from the counterpoise with a BC Hydro approved barrier material.

REVISED	DRAFTER DM	DESIGNER M. FISCHER	APPROVED F. KAEMPFER	GROUNDING AT PADMOUNTED ENCLOSURES INSTALLATION DETAILS	
	ORIGINAL ISSUE DATE: JUNE 1980				
	 DISTRIBUTION STANDARDS				PAGE 5 OF 6

10. All installations and fixtures containing subsurface conductive materials such as metallic fences, streetlight bases, reinforced concrete walls and sprinkler pipes must be kept a minimum of 2.5m from the nearest point of the counterpoise. Only installations and fixtures which can be insulated (such as fence posts) in accordance with figure 1 on page 2 may be located within the 2.5m zone. Concrete walls utilizing epoxy coated rebar would also be allowed within the 2.5m zone.
11. Any installations and fixtures containing above surface conductive materials such as metallic fences, metalclad buildings, reinforced concrete walls, mailboxes mounted on reinforced concrete pads, TELUS or cablevision pedestals, etc. that are located within 2.0m of the padmount's metal enclosure must be insulated such that a person cannot contact it and the padmount's enclosure simultaneously. See figure 4 on page 3 for details on metalclad buildings and fences.
12. Grounding in high corrosion areas shall be in accordance with drawing ES43 R4-01.
13. Cutting of the steel counterpoise shall be in accordance with drawing ES54 R5-01.

BILL OF MATERIAL

Item	Quantity	Description	Stock No.
1	As required	Counterpoise, 3/4" dia., galv. steel	106-2510
2	2	Ground rod, 5/8" x 8', galv. steel	420-1093
3	2	Connector, counterpoise to ground rod, galv. steel	420-1157
4	1	Rope clamp, 3/4" dia., galv. steel	420-0965
5	2	Cap, heatshrink, 1.2" x 3"	394-0605

Items 1 through 5 are available in packages with varying lengths of counterpoise. See drawing ES53/54 Z3-01 in the Distribution Standards Underground Electrical/Civil books for details.

- ES54 U2-06 Walls - General Guidelines near Pads
 ES54 U2-01 Stanchions - Installation Details
 ES54 R5-01 Cutting Steel Counterpoise
 ES54 R4-01 Grounding in High Corrosion Areas
 ES53 Z3-01 Grounding Hardware Assemblies

REFERENCE DRAWINGS

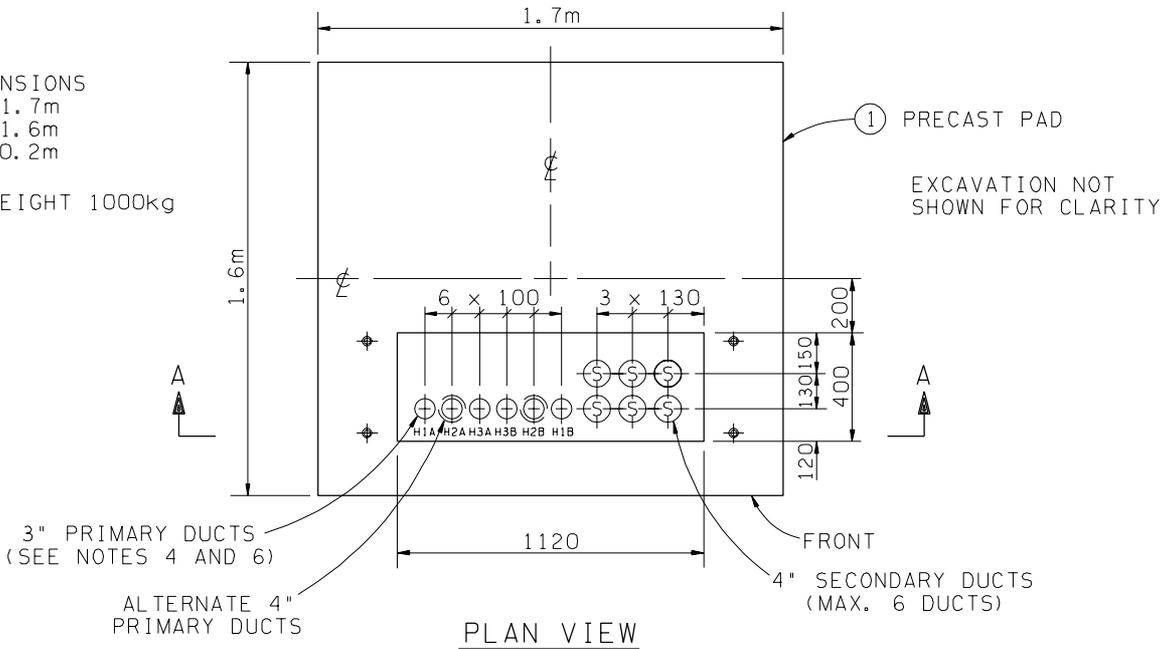
DRAFTER DM	DESIGNER M. FISCHER	APPROVED F. KAEMPFER	GROUNDING AT PADMOUNTED ENCLOSURES INSTALLATION DETAILS
ORIGINAL ISSUE DATE: JUNE 1980			

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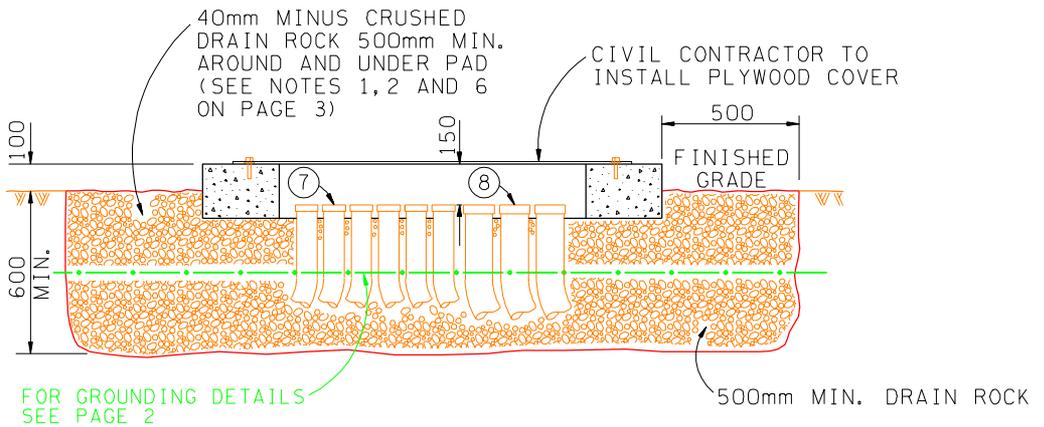
PAD DIMENSIONS

WIDTH: 1.7m
 LENGTH: 1.6m
 HEIGHT: 0.2m

APPROX. WEIGHT 1000kg



PLAN VIEW



SECTION A-A

INSTALLATION DETAILS

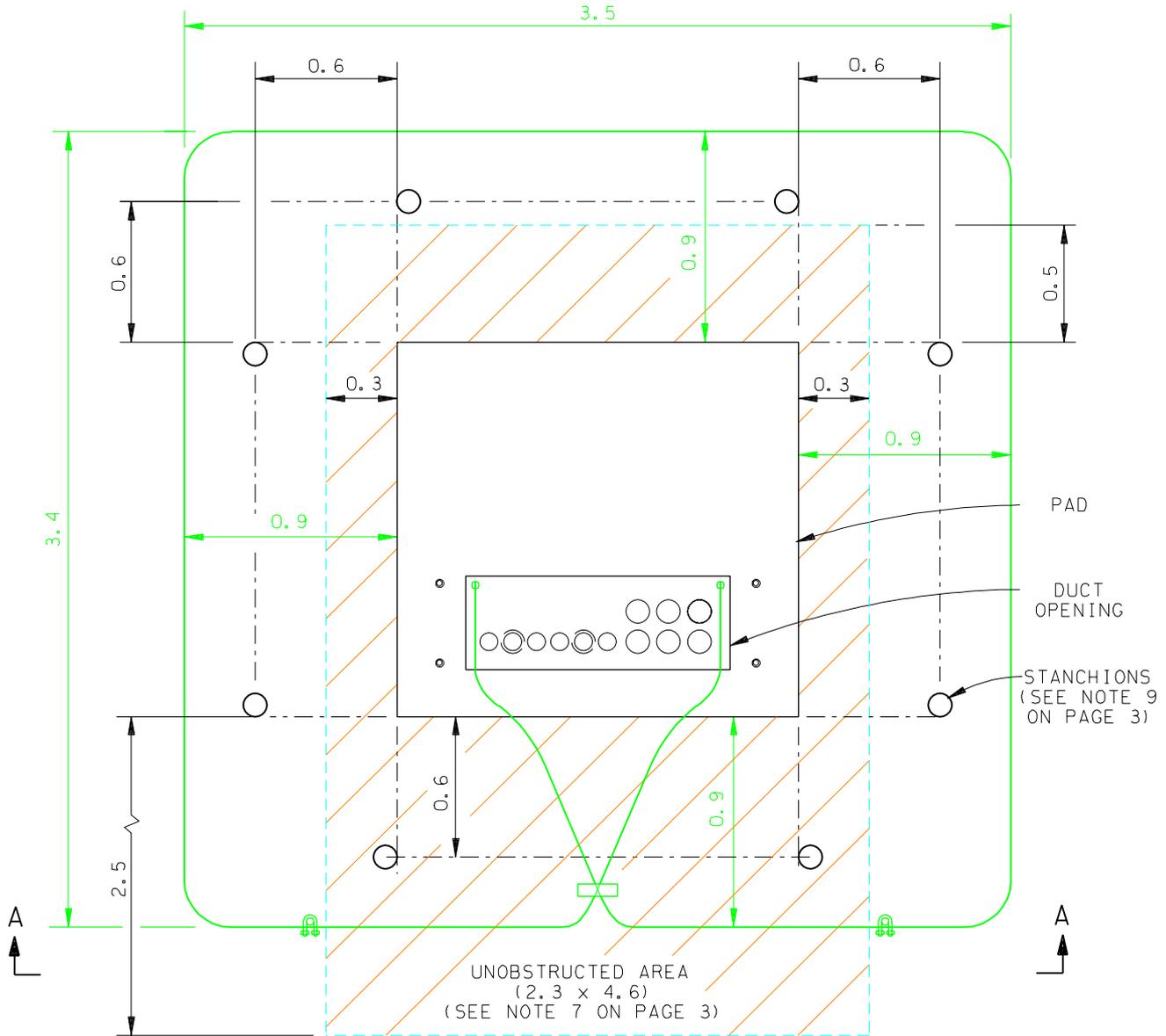
NOTES:

1. For general trenching details see ES54 H1-01/02.
2. For installation in unstable ground see ES54 U4.
3. There shall be no vegetation or pavement over the drain rock around the pad.
4. For radial connected units, use only ducts located in H1A, H3A and H2B position.
5. Designer is to specify orientation of pad to allow for safe operating position for crews.
6. H1A, H2A, H3A are incoming source side ducts.
 H1B, H2B, H3B are outgoing load side ducts.

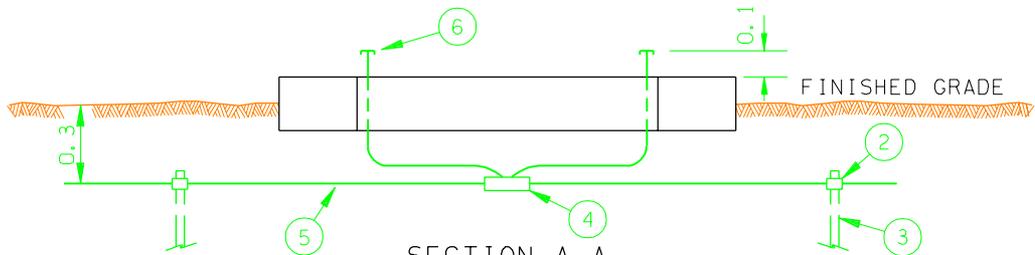
CUG: PD "X" "Y"
 "X" - Number of 3" bends
 "Y" - Number of 4" bends

DRAFTER DM	DESIGNER M. FISCHER	APPROVED F. KAEMPFER
ORIGINAL ISSUE DATE: JUNE 1999		

3 PHASE PMDF TRANSFORMER,
 500kVA AND SMALLER
 PRECAST CONCRETE PAD
 INSTALLATION DETAILS



PLAN VIEW (EARTH NOT SHOWN)



SECTION A-A

GROUNDING SYSTEM DETAILS

REVISED R4-REDONE JAN.05 FK

DRAFTER DM	DESIGNER M. FISCHER	APPROVED F. KAEMPFER
ORIGINAL ISSUE DATE: JUNE 1999		

3 PHASE PMDF TRANSFORMER
500kVA AND SMALLER
PRECAST CONCRETE PAD
INSTALLATION DETAILS

NOTES:

1. Allow minimum of 0.50m of 40mm minus crushed drain rock base under and around transformer pad.
2. Compaction density requirements are 85% of standard proctor density in boulevard areas.
3. Maintain 0.9m minimum cover over ducts.
4. Duct entry shall be in accordance with ES54 H1-03.
5. For grounding details see drawings ES54 R1-01.
6. Restore surface at finished grade as required in the project specifications.
7. The dimensions of the unobstructed area are minimum clearances. Any vegetation on the perimeter of the unobstructed area must be of the type that can be trimmed annually to maintain clearances.
8. For structures in the vicinity of ditches and roads see ES54 U5-02.
9. Maximum number of stanchions shown. Designer to determine the number of stanchions required. Stanchions to be installed in accordance with ES54 U2-02. Stanchions are required when transformer is within a distance of less than 1.5m from a rectangular curb.

BILL OF MATERIAL

Item	Quantity	Description	Stock No.	Supplied By	Installed By
1		Pad - Precast Concrete	400-0853	BC Hydro	Contractor
2	2	Connector, Grounding	420-1170	BC Hydro	Contractor
3	2	Ground Rod, 5/8" x 8'			
4	1	Rope Clamp, 3/4"			
5	18m	Counterpoise			
6	2	Cap, Heat Shrink			
7	As Req'd	3" Duct Cap	401-0173	Contractor	Contractor
8	As Req'd	4" Duct Cap	401-0174	Contractor	Contractor
9	As Req'd	3" 90° Bend	400-4021	Contractor	Contractor
10	As Req'd	4" 90° Bend	400-4023	Contractor	Contractor
11	As Req'd	PVC Cement	141-1044	Contractor	Contractor
12	As Req'd	Twine #8 Polypropylene	106-0420	Contractor	Contractor

- ES54 U5-01 Pads in vicinity of ditches & roads
- ES54 U4 Installation in unstable ground
- ES54 U2-02 Stanchions
- ES54 H1-03 Duct Entries at Pads
- ES54 H1-01/02 General Trenching details
- ES53/54 Z2-01 Duct and Accessories
- ES53/54 Z1-05 Transformer Pads

REFERENCE DRAWINGS

DRAFTER DM	DESIGNER M. FISCHER	APPROVED F. KAEMPFER	3 PHASE PMDF TRANSFORMER 500kVA AND SMALLER PRECAST CONCRETE PAD INSTALLATION DETAILS
ORIGINAL ISSUE DATE: JUNE 1999			

REVISED R4-REDONE JAN. '05 FK