

Invitation to tender

FOR

GRANVILLE ISLAND TRACK REMOVAL AND ROAD REMEDICATION

Date Issued: February 12, 2018
Tender File #: 201800159

Tender Closes: March 1, 2018

Contracting Authority:
Canada Mortgage and Housing Corporation
(CMHC)

Inquiries: Ryan Lemay

Tel: 604-737-4019

Originating Department:
Granville Island

Email: rlemay@cmhc-schl.gc.ca

Security Classification: PROTECTED

Ce document est aussi disponible en français sur demande

Canada



CANADA MORTGAGE AND HOUSING CORPORATION
Granville Island Administration Office, 1661 Duranleau Street, 2nd Floor,
Vancouver, British Columbia, V6H 3S3

TENDER, ACCEPTANCE AND CONTRACT CONSTRUCTION, ALTERATIONS AND REPAIRS

PROJECT TITLE: <i>Granville Island Track Removal and Road Remediation</i>

Date Issued February 12, 2018	Date Tender Closes March 1, 2018	CMHC File # 201800159
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MANDATORY SITE VISIT

Date February 20, 2018	Time 10:00AM (PST)	Location Granville Island Administration Office 1661 Duranleau St., 2nd Floor Vancouver, British Columbia V6H 3S3
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Inquiries: Ryan Lemay Procurement Advisor	Email: rlemay@cmhc-schl.gc.ca	Phone: 604-737-4019
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CMHC is subject to the Privacy Act. Individuals have a right of access to CMHC controlled information about themselves.

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The meanings of all defined terms used in this document shall be as set out in clause 1 of the Contract and General Conditions.

PART 1

INSTRUCTIONS TO TENDERERS

1. GENERAL REQUIREMENTS

Delivery Instructions and Deadline

Timely and correct delivery of tenders to the exact specified tender delivery address is the sole responsibility of the tenderer. All risks and consequences of incorrect delivery of proposals are the responsibility of the proponent. CMHC will not assume or have transferred to it those responsibilities. All registered times will be in accordance with the time CMHC computer servers **receive** the submission, not the time the tender was sent by the tenderer.*

*** Please be advised that E-BID has a size limitation 10 MB. It is advisable and recommended that proponents submit their proposal in multiple smaller files.**

It is recommended that the tenderer send an e-mail as soon as possible after the EBID tender has been sent, notifying the contact person named listed on page one that a tender has been submitted to EBID, including the company name and e-mail address, with the date and time the submission was sent.

Upon receipt of tenders, an automated confirmation will be issued to the sender's e-mail address. It is strongly recommended that tenders follow up with the contact person listed on page one should they not receive said confirmation within 30 minutes of submission.

*** Please be advised that electronic transmissions may not necessarily be immediate and can experience lengthy delivery delays. Tenderers should ensure that sufficient delivery time is allowed for tenders to be received.**

Address for Delivery

Tenders, including all supporting documentation, are to be sent electronically to the following e-mail address:

EBID@cmhc-schl.gc.ca

The subject line of the transmission must state: ITT, File # 201800159

Format

Tenders may be submitted in MS Word or Adobe Acrobat PDF in English or in French.

NOTE: In certain email programs the “Send” format may need to be specified as either “HTML” or “Plain Text”. Rich Text formatted or Compressed (Zipped) documents cannot be opened by CMHC.

Tender Opening and Verification Period

All EBID tenders received on or before the closing date and time specified in this ITT, will be opened for evaluation purposes and verified by CMHC. If at that time, CMHC is unable to open a proposal, the proponent will be so advised and provided an opportunity to resubmit an openable version within 2 hours from notification.

Submission Deadline

Mandatory

Your proposal must be **received** at the exact location as specified above on or before the submission deadline set as:

11:00 A.M. PST, on March 1, 2018

Tenders arriving late will be automatically rejected, and the sender will be so notified by e-mail.

All tenders, shall be carefully completed, signed and submitted (including any applicable appendices and supplements on the accompanying Tender and Acceptance).

All tenders must be complete. All spaces of the Tender and Acceptance, supplement material and any accompanying Appendices must be completed.

The tenderer may revise its tender by email or letter, provided it is received before Tender Closing Time, as such term is defined in the Tender and Acceptance.

Information given verbally by any person within CMHC shall not be binding upon CMHC. Tenders must have written confirmation from CMHC for any changes, alterations, etc., concerning this ITT. CMHC cannot guarantee a reply to inquiries received less than **seven calendar days** prior to the closing date.

All written questions submitted, which in the opinion of CMHC affect all proponents, will be answered by CMHC in writing and distributed to all proponents by e-mail or GETS. All identification related to the inquiry will be removed in the response. Any questions of a proprietary nature must be clearly marked. CMHC will determine, at its sole discretion, whether it will respond to the question.

In the event that it becomes necessary to revise any part of the ITT as a result of any inquiry or for any other reason, an addendum to this ITT will be provided to each tenderer via e-mail or GETS.

2. SUPPLIER INFORMATION (SI) DATABASE

CMHC's contracting and procurement activities are decentralized among CMHC's National Office in Ottawa and various Business Service Centers throughout Canada.

The policy pertaining to the selection of suppliers is based on the principle that all suppliers must be treated fairly and equally. Suppliers are defined as an individual or firm that could provide, or has provided, goods or services or construction under contract.

CMHC utilizes the Supplier Information (SI) database, maintained by **Business Access Canada** as the official CMHC source list. All suppliers **must** be registered with **Business Access Canada** prior to submitting a proposal. The Procurement Business Number (PBN) provided by **Business Access Canada** must be included with your proposal. If you are not registered, and you wish to do so, you may access **Business Access Canada** (<https://buyandsell.gc.ca/>) or you may call their Information Line at: 1-800-811-1148. Present Suppliers not registered with **Business Access Canada** are required to self-register on the SI via the **Business Access Canada** Web site.

3. TENDERER'S MANDATORY SITE VISIT

It is mandatory that the tenderer visit the site and examine the scope of the work required and the existing conditions.

Arrangements have been made for a mandatory tour of the work site. The site visit will be held on **February 20, 2018 at 10:00AM (PST)**. The site is located at the CMHC Granville Island Administration Office, 1661 Duranleau St, 2nd Floor, Vancouver, BC. **The tenderer must send confirmation of attendance** by 1:00PM (PST) on February 19, 2018, including the name(s) of the person(s) who will be attending, via email to Mark Hsu at mhsu@cmhc.ca. A maximum of three (3) representatives from each firm will be allowed to attend. The tenderer who, for any reason, cannot attend at the specified date and time, will not be given an alternative appointment to view the site.

Tenderers are asked to meet in the Administration Office for an introduction to the project, followed by a question and answer period.

4. UNACCEPTABLE TENDERS

- (1) Tenders not submitted on the accompanying Tender and Acceptance forms will not be considered.
- (2) Tenders received after the Tender Closing Time will not be considered.
- (3) The inclusion of an escalation clause or conditional letter will invalidate the bid and no alternative bid will be permitted.
- (4) Unless otherwise permitted in the Tender and Acceptance, tenders on part of the work only will not be accepted.
- (5) Tenders not accompanied by the required bid security will not be considered.
- (6) Tenders without confirmation of at least three (3) comparable projects completed in the Province of BC

- (7) Tenders without confirmation of five (5) years of experience in road remediation work completed in the Province of BC
- (8) Tenders without confirmation of ten (10) years of related experience for the project supervisor / superintendent assigned to this project.
- (9) Tenders submitted by Tenderers who have not attended the Mandatory Site Visit specified above.
- (10) Incomplete or non-compliant tenders.

5. BID AND CONTRACT SECURITY

- (1) The tender must be accompanied by bid security in an amount equal to ten percent (10%) of the tender price in one of the following forms:
 - (a) A surety (bid) bond, or
 - (b) A certified cheque drawn on a bank to which the Bank Act or Quebec Savings and Credit Union Act applies, or
 - (c) Bearer or negotiable bonds issued or guaranteed by the Government of Canada, or
 - (d) An irrevocable letter of credit, or
 - (e) A money order or bank draft.

Any bond submitted with this proposal must be obtained from the list of Treasury Board approved bonding companies. This list is currently located at the following Web site:

http://www.tbs-sct.gc.ca/pubs_pol/dcgpubs/contracting/contractingpol_1_e.asp>

- (2) Immediately following advice of award, the successful tenderer must provide contract security by replacing or supplementing the bid security to provide:
 - (a) A labour and material payment bond and a performance bond each in the amount of fifty percent (50%) of the contract price, or
 - (b) A labour and material payment bond in the amount of fifty percent (50%) of the contract price, together with either the security outlined in paragraph (b) or (c) or (d) of sub-section (1) preceding, or
 - (c) The security outlined in either (1)(b) or (1)(c) or (1)(d) preceding converted to contract security plus an additional amount equal to ten percent (10%) of the contract price in the form of a certified cheque, bearer or negotiable bonds, irrevocable letter of credit, money order or bank draft.

Note: For information regarding holdbacks to progress payments refer to clause 23 of General Conditions.

Certified cheques provided as contract security shall be cashed and deposited in a trust account and will be returned to the contractor once the contract has been properly executed or expires. Variable interest accumulated in the trust account shall be returned to the contractor, as per CMHC policy.

(3) Information on companies whose bonds are acceptable is available for examination at all CMHC offices.

(4) CMHC may require of any tenderer proof of financial and technical capability to undertake the work for which its tender is submitted.

6. ACCEPTANCE OF TENDER

The lowest cost or any bid will not necessarily be accepted and CMHC reserves the right to accept or reject any or all bids in whole or in part.

CMHC reserves the right to reject any submission that does not demonstrate, to the sole satisfaction of CMHC, that the Tenderer's submission meets the requirements of the Tender document.

CMHC shall conduct the ITT process in a visibly fair manner and will treat all tenders equitably. To this end, it has established objective ITT standards and criteria which will be applied uniformly to all proponents. Therefore, no tenderers shall have any cause of action against CMHC arising out of a failure to award a contract, the failure to evaluate any tender, or the methods by which tenders are assessed.

7. COMPLETION OF TENDER AND ACCEPTANCE

(1) Fill out Schedule 1 as follows:

- For Lump Sum (LS) items, insert the price in the “amount” column;
- For unit price items, insert the price per unit against each item, multiply by the respective estimated quantity and extend the answers in the “amount” column to the right of the page.

The amount to be entered in clause 4(I) of the Tender and Acceptance is the grand total of all those totals in the “amount” column of Schedule 1 (and Supplement, as applicable) of the Tender and Acceptance.

(2) Insert the appropriate totals in clause 4 (I), calculate and insert GST, and calculate and insert the tender total price in clause 4 of the Tender and Acceptance.

(3) Type or legibly print the tenderer's full business name and address under the spaces provided for Contractor's full business name and Contractor's business address respectively.

(4) Sign the tender form in the space provided as indicated below:

Sole Proprietorship:

Signature under seal of sole proprietor in the presence of a witness who will sign where indicated. Insert the words “sole proprietor” under Title(s).

Partnership:

Signature under seal of one of the partners in the presence of a witness who will sign where indicated. Insert the word “partner” against signature.

Limited Company:

If this tender is made by a Limited Company, the tender must be signed by duly authorized signing officers of the Company in their normal signatures designating against each signature the official capacity in which the signing officer acts. The corporate seal of the company must also be affixed to the tender. If the tender is signed by officials other than the President and Secretary of the company or the President and Secretary Treasurer of the company, a copy of a by-law or resolution of the Board of Directors authorizing them to do so must be submitted with the tender documents.

Note: In the Province of Quebec the signature of a witness should appear opposite the signature of company-authorized signing authority.

PART 2

TENDER AND ACCEPTANCE

Granville Island Administration Office 1661 Duranleau Street, 2 nd Floor Vancouver, British Columbia V6H 3S3	Date: February 12, 2018
	File No. 201800159
Project TRACK REMOVAL AND ROAD REMEDIATION	Location GRANVILLE ISLAND, VANCOUVER, BC

Designated CMHC Representative Ryan Lemay, Procurement Advisor	Telephone 604-737-4019	DELIVER TENDERS TO: EBID@cmhc-schl.gc.ca The subject line of the transmission must state: ITT, File #201800159
TENDER CLOSING TIME		
DATE March 1, 2018	HOUR 11:00AM (PST)	

SITE VISIT

Date February 20, 2018	Time 10:00AM (PST)	Location Granville Island Administration Office 1661 Duranleau Street, 2 nd Floor Vancouver, British Columbia V6H 3S3
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GENERAL DESCRIPTION OF WORK TO BE PERFORMED

CMHC is upgrading the existing road at the entrance to Granville Island. The project will remove existing paving bricks and railway tracks, excavate and remove existing subgrade and reinstate imported road structure material and asphalt. Curbs will be removed and reinstated at new alignments to improve functionality of the intersection.

The work has been developed through site survey and a geotechnical investigation.

All work must accommodate the existing tenants and visitors of Granville Island. A detailed Traffic Management Plan, ensuring that Granville Island remains open to traffic at all times, is required as part of the Work. The contract drawings have been prepared by the design consultant, Parsons Inc. Any construction modifications will require approval from Parsons Inc and CMHC.

The work is estimated to consist of the following:

- Removals & Off-site Disposal of Rail Tracks, Ties, Ballast, Asphalt, Curbs, Traffic Island, Catchbasins, Bricks; separating and delivering salvageable bricks on Granville Island
- Excavation, Off-site Disposal, Reshaping and Compaction of Sub-Grade
- Supply & Install 525 tonnes of Asphalt
- Supply & Install 1,950 tonnes of Base Gravels
- Supply & Install 140 square metres of Stamped Asphalt Crossings
- Supply & Install 5 Catchbasins and CB Leads

Please see Parts 4 and 5 of the tender documents for detailed drawings and specifications.

1. Bid and Contract Security

The successful tenderer must replace or supplement its bid security as specified in clause 5 of the Instructions to Tenderers.

2. Qualifications

The Tenderer must demonstrate the following:

Mandatory Criteria	Response (Yes/No)	Initials	Date
Minimum of five (5) years of experience in road remediation work completed in the Province of BC			
Project supervisor assigned must have a minimum of ten (10) years of experience supervising comparable projects (Tenderers must provide detailed resumé of supervisor assigned to this project).			
Three (3) comparable projects completed in the province of British Columbia (Tenderers must provide detailed project information in the forms provided in Appendix B)			

If a response of “NO” is given to any of the above, the Tenderers submission will be deemed non-compliant and eliminated from further consideration.

3. Tender Documents

The Tender Documents shall consist of the following (collectively, the “Tender Documents”):	DATE	PAGES
1. Letter to Tenderers	February 12, 2018	
2. Tender and Contract	February 12, 2018	
(1) Instructions to Tenderers (Part 1)	February 12, 2018	
(2) Tender and Acceptance (Part 2)	February 12, 2018	
(3) General Conditions (Part 3)	February 12, 2018	
3. Sub-Contractors (Appendix “A”)		
4. Comparable Projects Form (Appendix “B”)		
5. Contractor’s Unit Prices and Rates (Appendix “C”)		
6. Resumé of Project Supervisor		
7. Contract Drawings – Civil (Part 4) <ul style="list-style-type: none"> • 01 – Grading Plan & Geometric Layout • 02 – Profiles • 03 – Sections and Details 	February 12, 2018	
8. Contract Specifications (Part 5) <ul style="list-style-type: none"> • 01 01 01 General Specifications • 01 55 00.1S Traffic Regulations 	February 12, 2018	
9. Addenda		

4. OFFER

The undersigned Contractor having made, or caused to be made, an inspection of the site of the work and an examination of all the Tender Documents and having satisfied itself as to site conditions and all conditions surrounding or affecting the proper execution of the work, offers to CMHC to provide the necessary labour, materials, transportation, tools, plant and equipment required, including all sub-trades (if any) and to **pay all Federal, Provincial and Municipal taxes, permits and fees** and to carry out the work as described in a sound, careful and workmanlike manner complete in all respects to the entire satisfaction of CMHC on the terms and conditions contained in the Tender Documents.

(I) Total from Schedule 1 \$ _____
GST \$ _____
TOTAL TENDER PRICE \$ _____

Date	Signature (Tenderer)	Witness
Name & Title:		

SCHEDULE 1 - LABOUR, MATERIAL PLANT AND OR EQUIPMENT

NO	ITEM	UNIT OF MEASURE	EST. QUANTITY	UNIT PRICE	TOTAL
.01	Mobilization / De-mobilization	LS	1		
.02	TMP and Traffic Control	LS	1		
.03	Erosion Sediment Control - Plan, Implementation, Monitoring and Maintenance	LS	1		
.04	Removals & Offsite Disposal: Rail Tracks, Ties, Ballast, asphalt. Curbs, Traffic Island, catch basins, Bricks, separate and deliver salvageable bricks on Granville Island and all other removals	LS	1		
.05	Concrete Slab Removal & Offsite Disposal	m3	40		
.06	Brick Reinstatement behind proposed curb	sq.m	220		
.07	Traffic Island: Reinstatement and Planting	LS	1		
.08	Type 1 Concrete Curb	Lin.m	140		
.09	Type 2 Concrete Curb	Lin.m	50		
.10	Catch Basin (MMCD Dwg S11)	Each	5		
.11	150mm Catch Basin Lead (PVC SDR 35)	Lin.m	30		
.12	Excavation, Off-site Disposal, Reshape and Compact Sub-Grade	m3	950		
.13	75mm Crushed Sub-Base Material	tonnes	1500		
.14	19mm Road Base Material	tonnes	500		
.15	Asphalt (Lower and Upper Course)	tonnes	450		
.16	Adjust all existing utilities boxes, valve covers, manhole lids (including supply of risers), catch basin and all other infrastructure	LS	1		
.17	Permanent Pavement Markings	LS	1		
.18	Stamped Asphalt Crossings	sq.m	140		
.19	Provisional: Filter Cloth, Nilex 4553 or approved equivalent	Sq.m	1500		
TOTAL					
Carry forward to clause 4(l) of the Tender and Acceptance				→	

All items include excavation, replacement, supply, transport, placement, and installation of all materials; all labour, and equipment included.

The Contractor further understands and agrees that the quantities listed in the schedule for unit price items in the Tender and Acceptance preceding (and any attached sheets of supplement) are estimated quantities only and may be increased or decreased in accordance with the requirements of the work, and that all payments for these items shall be based upon the actual quantities of materials supplied and work performed, as authorized and certified by the Designated Corporate Representative.

5. GENERAL AGREEMENT

The Contractor agrees:

1. To complete the work within: 42 WORKING DAYS from the date of notification of acceptance of this tender. This agreement is anticipated to end on May 15, 2018.

The anticipated date of notification of acceptance of tender is: March 8th.

including 12 working days for ordering and delivery of product, and 30 working days for completing the work. Contractors may propose an alternative schedule for consideration and which would require CMHC's written pre-approval before implementing.

2. To start work within 12 working days of notification of acceptance of tender.
3. That the documentation listed in clause 2 of the Tender and Acceptance is the complete tender and this offer is made subject to all provisions contained in these documents, which provisions are accepted by the Contractor.
4. That this tender supersedes and cancels all communications, negotiations and agreements relating to the work other than that contained in the completed tender.
5. That this tender may not be withdrawn for a period of 30 DAYS following the Tender Closing Time.
6. That if this tender is duly accepted and the Contractor refuses to enter into a contract, bid security will be forfeited.
7. That the complete tender together with and subject to all the provisions contained in the Tender Documents shall, when accepted and executed on behalf of CMHC, constitute a binding contract between the Contractor and CMHC.
8. That the following insurance will be maintained:

A) **Commercial General Liability Insurance**

The Contractor will provide and maintain Commercial General Liability insurance with an insurer licensed to do business in Canada with a limit of not less than \$5,000,000 per occurrence for bodily injury or damage to property including loss of use of such property. This policy shall include the following extensions:

- cross liability including severability of interest
- personal injury
- broad form property damage
- broad form products and completed operations
- blanket contractual liability
- employers liability (or confirmation that all employees including sub-contractors and independent contractors are covered by Workers Compensation)

- non owned automobile liability
- Canada Mortgage and Housing Corporation to be added as additional insured.
- 30 days prior written notice of cancellation to CMHC’s Senior Advisor, Corporate Insurance, 700 Montréal Road, Ottawa, Ontario K1A 0P7
- contractors liability to include operations of independent contractors (*if not provided then each subcontractor must provide a certificate of insurance confirming that they have liability insurance as detailed in the ITT*).
- hook liability extension
- collapse hazards coverage
- liability arising of attached and mobile equipment

B) **Workers Compensation**

The Contractor shall abide by the rules and regulations pursuant to the workmen’s compensation laws of the province where the work is performed and shall ensure permitted subcontractors abide by same.

C) **Commercial Automobile Insurance**

The Contractor will provide and maintain Commercial Automobile Insurance with an insurer licensed to do business in Canada with limits of not less than \$5,000,000 Third Party Liability for all motor vehicles used by the Contractor in the performance of this Contract.

D) **Broad Form Contractor's Equipment Insurance**

The Contractor will provide and maintain Broad Form Contractor's Equipment Insurance with an insurer licensed to do business in Canada covering all equipment owned or rented by the Contractor and its servants, agents or employees used for the performance of the work against all risks of loss or damage in an amount not less than the value of the equipment.

E) **Contractor’s Pollution Liability Insurance**

The Service Provider will provide and maintain Contractors Pollution Liability insurance with an insurer licensed to do business in Canada insurance for a limit of not less than \$5 million per event. Canada Mortgage and Housing Corporation is to be added as an additional insured

F) **Other conditions**

If there are material changes in the scope of Services provided under this Agreement, CMHC may, request changes to the minimum insurance coverages set out above.

All insurance policies required to be maintained by the Contractor pursuant to this Section 5.8 shall be primary with respect to this Agreement and any valid and collectible insurance of CMHC shall be excess of Contractor’s insurance and shall not contribute to it.

All Certificates of Insurance shall mention that insurers will provide CMHC with at least thirty (30) days’ written notice prior to cancellation of any insurance referred to under this Section 5.8. In addition the Contractor shall provide written notice to CMHC

forthwith upon learning that an insurer described in this Section 5.8 intends to cancel, or intends to make or has made a material change to, any insurance referred to in this Section 5.8.

A Certificate of Insurance meeting the above requirements shall be delivered to CMHC upon execution of this Agreement and for each renewal thereafter.

Without in any way restricting CMHC’s direction to grant or withhold its consent to a request to subcontract pursuant to Section 5.8, the Contractor agrees that it shall contractually obligate any subcontractor or independent contractor retained in connection with this Agreement to maintain insurance against such risks and in such amounts that having regard to such subcontractor’s or independent contractor’s involvement in the provision of the Services could reasonably be expected to be carried by Persons acting prudently and in a similar business to that of such subcontractor or independent contractor.

It shall be the sole responsibility of the Contractor to decide whether or not any other insurance coverage, in addition to the insurance requirements stipulated herein, is necessary for its own protection or to fulfill its obligation under the contract. All insurance policies shall be provided and maintained by the Contractor at its own expense.

6. ADDENDA

The Contractor acknowledges receipt of the following addenda:

Addenda No. / Date received

7. CONTRACTOR’S INFORMATION

Company Name:			
Address:			
Phone #:		E-mail:	
Fax #:		Contact name/title:	

Legal Structure of Contractor (mark one <input 3"="" checked="" type="checkbox>):</td> <td>Limited Company</td> <td>Partnership</td> <td>Sole Proprietorship</td> </tr> <tr> <td>Names and titles/positions of officers, partners, principal</td> <td colspan="/>			
Year Established:			

8. FINANCIAL REFERENCES

Bank Name:			
Address:			
Contact Name & Title:			
Phone #:		E-mail:	
Fax: #			

I/We agree and consent that you may make credit inquiries at any time in connection with my/our financial status or otherwise

Date	Signature (Tenderer)	Witness
Name & Title:		

CMHC accepts the above tender and undertakes and agrees subject to compliance of the Contractor with all terms and provisions of the Tender Documents to pay the Contractor for the work at the price(s) set out above and in accordance with the terms and conditions stated herein, in the Working Drawings, Specifications and in the Tender Documents.

CMHC USE ONLY

Date	Authorized Signatory	Witness
Name & Title:		

Appendix “A”

Sub-Contractors

The Contractor shall list below the name and address of all sub-contractors it proposes to employ for any portion of the work. When work for trades other than those listed is sub-contracted, the work shall be identified in the blank spaces provided.

Where a sub-contractor is not named, it will be assumed that the Contractor intends to use its own forces; and it is understood and agreed that no substitution of sub-contractors may be made, and that additional work may not be sub-contracted, without consent of the Designated Corporate Representative having been previously obtained in writing, as indicated in clause 3 of the General Conditions.

WORK SUB-CONTRACTED	NAME	ADDRESS
Excavation and Related Work		
Concrete Work		
Stamped Asphalt		
Asphalt Paving		
Landscaping		

Appendix “B”

Comparable Project Form

PROJECT #1

Project Name:			
Name of the Client:			
Client Contact Person and Contact Information:			
Description of the project and relevance to present requirements:			
Awarded Contract Cost:		Final Contract Cost:	
Scheduled Completion Date:		Actual Completion Date:	

PROJECT #2

Project Name:			
Name of the Client:			
Client Contact Person and Contact Information:			
Description of the project and relevance to present requirements:			
Awarded Contract Cost:		Final Contract Cost:	
Scheduled Completion Date:		Actual Completion Date:	

PROJECT #3

Project Name:			
Name of the Client:			
Client Contact Person and Contact Information:			
Description of the project and relevance to present requirements:			
Awarded Contract Cost:		Final Contract Cost:	
Scheduled Completion Date:		Actual Completion Date:	

Appendix “C”

Contractor’s Unit Prices and Rates

The following are the unit prices to be used to calculate adjustments to the Contract Price (**Article 4 – Total Tender Price**) for work to be undertaken outside of *Part 4 – Contract Drawings*. Any work undertaken outside of the specifications and drawings must first be approved in writing by the Consultant and the Designated Corporate Representative and documented via signed change orders or amendments. Payment for this work shall be determined as per General Condition 10.0 of the MMCD Platinum Edition. This section is reproduced below for reference only.

Payment for *Force Account Work* shall be calculated as follows:

1. labour at 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 Workers Compensation, unemployment insurance, holiday pay, insurance, and all employee benefits. A markup of 3% on the foregoing shall be allowed for all *Small Tools*. A markup of 10% on the total of the foregoing shall be allowed for overhead. A further markup of 10% on the total of the foregoing including the markup for overhead shall be allowed for profit.
2. major equipment:
 - a. *Contractor Owned or Bare Rented* -at the non-operated hourly rates as set out in the *Approved Equipment Rental Rate Guide* based on actual hours, in minimum increments of 0.5 hours, plus a 10% markup to cover all overhead costs and profit. If equipment is not listed in the *Approved Equipment Rental Rate Guide* then at a rate determined by the *Contract Administrator* based on local equipment rental rates; or
 - b. *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 a 10% markup to cover all overhead costs and profit;
 - c. No separate rental for *Small Tools*;
3. materials incorporated into the *Work* or required for the performance of the *Work* and not re-usable, 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;
4. *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) of this GC, plus a mark-up of 5%, or (ii) the actual amount the *Contractor* pays the subcontractor including a markup of 10% on such actual cost to cover all overhead and profit.

PART 3

CONTRACT - GENERAL CONDITIONS

1. DEFINITIONS OF TERMS

The following definitions shall apply to the tender and contract documents:

- (a) "CMHC" means Canada Mortgage and Housing Corporation.
- (b) "Contract" means the undertaking by the parties to perform their respective duties, responsibilities and obligations as prescribed in the Tender Documents listed in clause 3 of the Tender and Acceptance, and represents the entire agreement between the parties.
- (c) "Contractor" means the person, firm or corporation whose tender offer has been accepted by CMHC and is identified as the tenderer in the Tender and Acceptance document.
- (d) "DCR" or the "Designated Corporate Representative" means the person specially authorized by CMHC from time to time to perform on its behalf functions under the Contract.
- (e) "General Conditions" means the terms and conditions contained herein.
- (f) "Holdback Monies" or "Holdback" means such percentage of the progress payment payable to the Contractor as CMHC may determine.
- (g) "Instruction to Tenderers" means the direction given to tenderers on how to respond to the Tender, Acceptance and Contract for Construction, Alterations and Repairs document.
- (h) "Specifications" means written documentation associated with Working Drawings to provide information on the type and quality of materials and workmanship required for a project.
- (i) "Tender Closing Time" means the date and time indicated in the Tender and Acceptance.
- (j) "Tender Documents" shall have the meaning set out in clause 3 of the Tender and Acceptance.
- (k) "Work" means the total construction and related services required by the Contract and includes the materials, matters and things to be done, furnished and performed by the Contractor under the Contract.

- (1) “Working Drawings” means the architectural and / or engineering mechanical and electrical tender drawings associated with a project such as, but not limited to, vicinity maps, site plans, foundation plans, demolition plans, construction plans, reflected ceiling plans, finishing plans, power and communication plans, roof plans, cross sections, interior elevations, exterior elevations and details; and may also include schedules, general notes and specifications associated with such drawings/plans.

2. INTERPRETATION

In the event of discrepancies or conflicts:

- (a) between Working Drawings, Specifications and General Conditions, General Conditions shall govern.
- (b) between Working Drawings and Specifications, Specifications shall govern.
- (c) between Working Drawings, the working drawing drawn with the largest scale shall govern.
- (d) between figured dimensions and scaled dimensions, the figured dimensions shall govern.

3. ASSIGNMENT AND SUBCONTRACTING

This Contract may not be assigned without the written consent of CMHC, which consent will not be unreasonably withheld, and neither the whole nor any part of the Work may be subcontracted by the Contractor without the prior consent of the DCR. The Contractor shall enter into contracts and written agreements with its subcontractors to require them to perform their work in accordance with and subject to the terms and conditions of the Contract.

4. MEMBERS OF THE HOUSE OF COMMONS

No Member of the House of Commons shall be admitted to any share or part of the Contract or to any benefit arising from the Contract.

5. INDEMNIFICATION

The Contractor shall indemnify and save harmless CMHC, its agents and employees from and against all claims, losses, demands, costs, damages, suits, proceedings or actions by third parties arising out of or related to or attributable to the Contractor's (and any subcontractor's) performance of the Contract and the Contractor's (and any subcontractor's) activities in executing the Work, including those resulting from the Contractor's (and any subcontractor's) omissions, improper acts or delays in executing the Work under the Contract, and whether such actions suits or proceedings are brought in the name of CMHC or in the name of the Contractor.

6. PROTECTION OF WORK AND PROPERTY

The Contractor shall protect the Work and CMHC's property adjacent to the site of the Work from damage and shall be responsible for any damage which may arise as the result of the Contractor's operations under the Contract except damage which occurs as the result of:

- (a) errors in the Tender Documents, or
- (b) acts or omissions by CMHC or the DCR which the Contractor cannot reasonably be expected to prevent by the exercise of ordinary prudence. The Contractor shall use CMHC's property only at such times and in such a manner as may be directed by the DCR and the Contractor shall, at the DCR'S request, account to the DCR, for the use of CMHC's property.

Should the Contractor, (or any subcontractor) in the performance of this Contract or, in the case of a subcontractor, any subcontracting agreement, damage the Work, or CMHC's property or property adjacent to the site of the Work, the Contractor shall be responsible for the making good of such damage at the Contractor's expense.

7. PERMITS AND BY-LAWS

The Contractor shall comply with the most current version of the applicable provincial building code, the National Building Code, and all applicable federal, provincial and municipal laws and regulations and shall apply for, obtain and pay for all permits and certificates required in respect of the execution of the Work. No act or omission by CMHC or the DCR shall constitute a waiver of the Contractor's obligations to apply for, obtain and pay for such permits.

8. PUBLICITY

The Contractor will neither permit any public ceremony nor erect or permit the erection of any sign or advertising, in connection with the Work without the prior written approval of CMHC.

9. CONTRACTOR'S SUPERINTENDENT

The Contractor will employ a competent superintendent and necessary assistants who shall be in attendance on the site of the Work at all times during the progress of the Work unless otherwise authorized by the DCR. The superintendent and necessary assistants must be acceptable to the DCR and have the authority to receive on behalf of the Contractor any order or communication in respect of the Contract. The Contractor shall remove from the site and replace any superintendent and workmen not acceptable to the DCR because of incompetence or improper conduct, as determined by the DCR in its sole discretion.

10. COOPERATION WITH OTHER CONTRACTORS

The Contractor will cooperate fully with other contractors or workmen sent onto the site of the Work by the DCR. If the sending onto the site of such other contractors and workmen could not have been reasonably foreseen by the Contractor when entering into the Contract, and if in the opinion of the DCR the Contractor has incurred additional expense by such action, and if the Contractor gives written notice of claim within thirty days of such action CMHC will pay the cost of such additional expense to the Contractor calculated in accordance with clause 17 of the General Conditions.

11. CLAIMS AGAINST AND OBLIGATIONS OF THE CONTRACTOR OR SUBCONTRACTOR

The Contractor shall ensure that all the lawful obligations and lawful claims against the Contractor or subcontractor(s) arising out of the execution of the Work are discharged and satisfied at least as often as this Contract requires CMHC to discharge its obligations to the Contractor and the Contractor shall supply the DCR with a Statutory Declaration deposing to the existence and condition of such claims and obligations when called upon to do so. In the event that the Contractor or any subcontractor fails to discharge and satisfy said lawful obligations and claims at the request of CMHC, CMHC may, in order to discharge lawful obligations of and satisfy lawful claims against the Contractor or a subcontractor arising out of the execution of the Work, pay any amount which is due and payable to the Contractor under the Contract or derived from a conversion or a negotiation of the surety bonds or other security, if any, directly to the obligees of and the claimants against the Contractor or the subcontractor.

12. EXECUTION OF WORK UNDER DIRECTION OF DESIGNATED CORPORATE REPRESENTATIVE

The Contractor will permit the DCR to have complete and full access to the Work at all times during the execution of the Work, will provide the DCR with full information concerning what is being done to execute the Work and will give the DCR every possible assistance in respect of the performance of his/her duty to see that the Work is executed in accordance with the Contract.

13. DCR MAY ORDER ADDITIONAL WORK OR CHANGES

The DCR may at any time by written notice order work or material deleted from or added to the Work provided for in the Working Drawings and Specifications, and the Contractor will execute the Work in accordance with such orders. The costs of work deleted or additional work required by the DCR shall be calculated in accordance with clause 17 of the General Conditions.

14. TAKING WORK OUT OF CONTRACTOR'S HAND

- (a) CMHC may take all or part of the Work out of the Contractor's hands and may employ such means as it sees fit to complete the Work, including without limitation, in the following circumstances:

- (i) if the Contractor has made default or delayed in the commencement or execution of the Work and CMHC has given notice thereof to the Contractor and has by such notice required the Contractor to put an end to such default or delay, and such default or delay continues for six days after such notice was given to the Contractor;
 - (ii) if the Contractor makes a voluntary assignment into bankruptcy or is adjudged insolvent or bankrupt or commits an act of insolvency or bankruptcy or makes a general assignment for the benefit of its creditors or if a receiver is appointed on account of its insolvency;
 - (iii) if, in the opinion of the DCR, the Contractor has abandoned the Work;
 - (iv) if the Contractor assigns the Work without the consent of CMHC; or
 - (v) if the Contractor fails to comply with any of the provisions of the Contract.
- (b) Where the Work has been taken out of the Contractor's hands, the Contractor shall not be entitled, except as provided in subsection (c), to any further payments, and CMHC's obligation to make payments as provided for in clause 23 of the General Conditions shall be at an end, and the Contractor shall be liable for, and upon demand shall pay to CMHC an amount equal to all loss and damage arising out of or caused by non-completion.
- (c) Where the Work has been taken out of the Contractor's hands, CMHC shall determine the amount of claims and holdbacks unpaid at the time of taking the Work out of the hands of the Contractor and to the extent that any portion of that amount is not required by CMHC for the purposes of completing the Work, CMHC shall authorize payment to the Contractor of that portion of the amount. The taking of work out of the Contractor's hands does not relieve or discharge the Contractor of any legal or contractual obligation excepting only the obligation to physically execute that portion of the Work taken out of the Contractor's hands pursuant to this paragraph.
- (d) If the Work or any part of it is taken out of the Contractor's hands under this clause, all material, plant and interest of the Contractor in all real property, permits, certificates, licences or privileges acquired, used or provided by the Contractor for the purposes of the Work shall be the property of CMHC without compensation to the Contractor, except that any interest in the property of CMHC which the DCR has certified is no longer required for purposes of the Work and is not in the interest of CMHC to retain shall become the property of the Contractor.
- (e) In adopting its remedies or rights under either clause 13 or this clause, CMHC is in no way assuming any of the Contractor's liabilities or responsibilities pursuant to the applicable provincial lien legislation which may have arisen or may arise as a result of this Contract and those liabilities and/or responsibilities remain with the Contractor regardless of CMHC's exercise of its discretion under these clauses.

15. DELAY BY CMHC

No extra payment will be made to the Contractor for any extra cost, expense, loss or damage arising out of or attributable to unreasonable delay by CMHC unless the DCR shall certify that such extra cost, expense, loss or damage arises out of or is directly attributable to unreasonable delay by CMHC occurring after the execution of the Contract in providing any information or doing any act which is expressly required to be done by CMHC by the Contract, and the Contractor has, within 30 days of the commencement of such delay, given written notice to the DCR of a claim for such extra cost, expense, loss or damage. The amount of extra payment to be made pursuant to this clause will be calculated in accordance with clause 17 of the General Conditions.

16. TERMINATION OF CONTRACT

- (1) CMHC may terminate the Contract without cause and without penalty at any time by giving notice of such termination in writing, and the Contractor shall immediately upon receipt of such notice, cease all operations. Following such termination, no material or any part of the work may be removed from the site without the written permission of the DCR.
- (2) If the Contract that is terminated without cause pursuant to this clause is a firm lump sum arrangement, CMHC shall pay to the Contractor an amount equal to the lesser of
 - (a) the cost agreed upon by the Contractor and the DCR of all Contractor supplied labour, plant and material to the date of termination or, if the Contractor and the DCR cannot agree, the cost shall be the total of all reasonable and proper amounts actually expended or payable by the Contractor in respect of labour, plant or material costs directly attributable to the execution of the work and less all amounts which the Contractor is liable to pay to CMHC, and
 - (b) the amount calculated in accordance with clause 23(1)(a) of the General Conditions which would have been payable to the Contractor had it completed the Work.
- (3) If the Contract terminated is a unit price arrangement, CMHC will pay to the Contractor an amount equal to the cost as agreed upon by the Contractor and DCR of all labour, material and plant supplied by the Contractor as of the date of termination; failing agreement between the DCR and the Contractor, CMHC will pay to the Contractor an amount calculated in accordance with paragraph (2) preceding.
- (4) Any termination of this Contract and any payments out which may be made as a result of this clause or other provisions of this Contract shall be made subject always to the proviso that CMHC shall retain any and all holdback monies necessary to satisfy lawful claims against the Contractor or a subcontractor arising out of the execution of the Work.

17. DETERMINATION OF COSTS

For the purposes of clauses 10, 13 and 15 of the General Conditions the amount payable to the Contractor shall, subject to the provisions of clause 23 (1) (b) (ii) following, be based upon the unit prices, if any are set out in clause 4 of the Tender and Acceptance. If such unit prices are not applicable, the DCR and the Contractor may mutually agree on the amount payable. Failing such agreement, the amount payable shall be the reasonable and proper expenses paid or legally payable by the Contractor directly attributable to the Work plus 10% of such expenses to cover overhead and profit, as certified by the DCR.

18. RECORDS TO BE KEPT

The Contractor shall for a period of two years from the date of the Final Certificate of Completion, maintain and keep full records, vouchers, other writings and information in respect of its estimates and actual cost of the Work and upon request shall immediately make them available for copy, audit or inspection by CMHC or persons acting on its behalf.

19. AUDIT

The Contractor shall keep proper and detailed records and statements of account, including receipts, vouchers and all other documents relating to the cost of carrying out the Work, and shall at all reasonable times permit inspection and audit of such records and statements by CMHC and/or its internal or external auditors. While any such audit may be conducted without prior notice, CMHC agrees to cooperate with the Contractor in the course of conducting any audit in order to avoid disruption in day-to-day operations and to preserve confidentiality.

20. EXTENSION OF THE TIME

CMHC may, on the application of the Contractor made before the day fixed for the completion of the Work, extend the time for completion of the Work. The Contractor shall pay to CMHC an amount equal to CMHC's expenses, damages incurred or suffered by reason of the delay in completion of the Work unless in the opinion of CMHC such delay was due to causes beyond the control of the Contractor.

21. CLEANING OF WORK

The Contractor will, upon completion of the Work, clear and clean the Work and its site to the satisfaction of and in accordance with any directions of the DCR.

22. RECTIFICATION OF DEFECTS

The Contractor will, upon notice from the DCR or CMHC and within such reasonable time as is specified in said notice, rectify at the Contractor's own expense any defect or fault, however caused, which appears in the Work. Notwithstanding any such rectification, the Contractor shall remain liable for all loss or damage to CMHC arising from such defects, faults or rectifications.

23. PAYMENT

(1) Subject to clause 16 of the General Conditions, CMHC will, subject to and in accordance with subsections (2) and (3), pay to the Contractor and the Contractor will accept as full consideration for the work performed and executed,

(a) in the case of a firm lump sum arrangement:

- (i) the tender amount stated in clause 4 of the Tender and Acceptance;
- (ii) any extra calculated in accordance with General Conditions clauses 10, 13, 15 and,
- (iii) less amounts calculated in accordance with General Conditions clauses 5, 6, 13, 14, 16, 22.

(b) in the case of a unit price contract:

- (i) the amount referred to in Clause 4(I) of the Tender and Acceptance will be deemed to be the amount computed by totalling the products of the unit prices set out in the unit price schedule and the actual quantities of such units as set out in the DCR's Final Certificate of Measurement, subject to any adjustment provided for in subparagraph (ii) of this subsection;
- (ii) the DCR and the Contractor may by agreement in writing add to the aforesaid unit price table other classes of labour, material, plant, etc., units of measure, estimated quantities and prices per unit, and may, if the actual quantities as set out in the aforesaid Final Certificate of Measurement exceed or fall short of the estimated quantities in respect of any item(s) shown in the aforesaid unit price table by more than 15%, amend the unit prices shown in the unit price table for such items. Where the DCR and the Contractor fail to agree on the amount of any adjustment as contemplated by this sub-section, the revised or new prices per unit shall be determined in accordance with clause 17 of the General Conditions.

(2) Progress Payments

- (a) The Contractor shall be entitled to receive progress payments based upon progress certificates issued by the DCR at monthly intervals.
- (b) Applications for payment shall be dated the last day of the agreed monthly payment period and the amount claims shall set out the value, proportionate to the amount of the Contract, of work performed and, where applicable, of materials delivered to the site by that date.
- (c) The Contractor shall submit to CMHC, at least fourteen (14) days before the first application for payment, a schedule of values of the various parts of the Work, aggregating the total amount of the Contract price and divided so as to facilitate evaluation of applications for payment.

- (d) This schedule shall be made out in the appropriate CMHC form and supported by such evidence as to its correctness as CMHC may reasonably direct and when approved by CMHC shall be used as the basis for applications for payment, unless it is found to be in error.
- (e) When making applications for payments, the Contractor shall submit a statement based upon this schedule. Where applicable, claims for materials delivered to the site but not yet incorporated into the Work shall be supported by such evidence as CMHC may reasonably require to establish the value and delivery and payments made to the suppliers in relation to the said materials or products.
- (f) Applications for release of Holdback Monies following substantial performance of the Work and the application for final payment shall be made at the time and in the manner set forth in subsection 3.
- (g) The Contractor shall submit a statutory declaration with each progress claim declaring that all wages and account for materials, subcontractors and suppliers, as well as all payments required by the applicable provincial Worker's Compensation legislation, have been paid up to the date of the preceding progress claim.
- (h) The Contractor shall submit with its final application for payment a letter from the Worker's Compensation Board stating that the Contractor is in good standing and that all assessments have been paid.

(3) Payments Following Substantial Performance

- (a) The DCR will, no later than fifteen (15) days after receipt of the claim for substantial performance of the Work from the Contractor, make an inspection and assessment of the Work to verify the validity of the claim and shall, no later than ten (10) days after the inspection, notify the Contractor of the approval or the reasons for the disapproval of the application. When the DCR finds that the Contractor's claim for substantial performance of the Work is valid, the DCR shall issue, to the Contractor, confirmation that the substantial performance of the work is valid. Following confirmation, the DCR, in consultation with the Contractor, shall establish a reasonable date for the total performance of the Work.
- (b) Immediately following the issuance of confirmation, the DCR will issue, to the Contractor, an interim payment of Holdback Monies statement. The Holdback Monies shall become due and payable on the day following the expiration of the holdback period stipulated by CMHC, providing that CMHC may retain out of such Holdback Monies any sums it considers necessary to satisfy the lawful monetary claims against the Contractor or subcontractor arising out of the execution of the Work and that the Contractor has submitted to CMHC a sworn statement that all accounts for labour, subcontracts, materials, construction machinery and equipment and other indebtedness which may have been incurred by the Contractor in the substantial performance of the Work have been paid in full except Holdback Monies properly retained.

- (c) Where legislation permits and where, upon application by the Contractor, the DCR has certified that the work of a subcontractor has been totally performed to CMHC's satisfaction prior to the substantial performance of the Work, CMHC shall pay the Contractor the Holdback Monies retained for such subcontractor on the day following the expiration of the holdback period for such subcontractor stipulated by CMHC, and the DCR shall issue an interim payment of Holdback Monies statement.
- (d) The Contractor shall ensure that such work is protected pending the total performance of the Work and shall be responsible for the correction of defects in it regardless of whether or not they were apparent when such certificates were issued.
- (e) The DCR shall within fifteen (15) days of receiving an application for payment upon total performance of the Work and Statutory Declaration by the Contractor before a Notary Public or Commissioner for Oaths that to the best of the Contractor's knowledge, opinion and belief, the Work has been performed in its entirety and to the requirements of the Contract, make an inspection and assessment of the Work to verify the validity of the application. No later than seven (7) days following the inspection, the DCR will notify the Contractor of the approval or the reasons for the disapproval of the application for payment. When the DCR finds that the Contractor's claim for total performance of the Work is valid, the DCR shall issue confirmation that the total performance of the Work is valid - and certify for payment the remaining monies due to the Contractor under the Contract, less Holdback Monies which are required to be retained. Subject to the provisions of clause 28(a) of the General Conditions, CMHC shall, no later than five (5) days after the issuance of the final payment of Holdback Monies statement, make payment to the Contractor in accordance with the provisions of subsection (1).
- (f) The release of the remaining Holdback Monies shall become due and payable on the day following the expiration of the holdback period stipulated by CMHC providing that CMHC may further retain out of such Holdback Monies any sums required to satisfy any monetary claims against the Contract.
- (g) If because of conditions reasonably beyond the control of the Contractor there are items of work that cannot be performed, payment in full for work which has been performed as certified by the DCR shall not be withheld or delayed by CMHC on account thereof, but CMHC may withhold until the remaining work is finished such monies as CMHC determines are sufficient and reasonable to cover the costs and expenses of performing such remaining work.
- (h) No certificate issued by the DCR, no payment made by CMHC under this Contract and no partial or entire use or occupancy of the Work by CMHC shall constitute an acceptance of work or products which are not in accordance with the requirements of the Contract.

- (i) The issuance of the final payment of Holdback Monies statement and payment of all monies due under the Contract shall not constitute a waiver by CMHC of claims against the Contractor respecting defects and deficiencies in the Work:
 - (i) made in writing prior to the issuance of the final payment of Holdback Monies statement and still unsettled;
 - (ii) made in writing within a period of six (6) years from the date of substantial performance of the Work or within such shorter period as may be prescribed by any limitation statute of the province or territory of the Work.
- (j) The acceptance by the Contractor of the final payment of Holdback Monies statement or of the payment due thereunder shall constitute a waiver of all claims against CMHC under this Contract except those made in writing prior to the Contractor's application for payment upon total performance of the Work and still unsettled.
- (k) Prior to issuing the final payment of Holdback Monies statement , the DCR may, in addition to the matters described in the interim payment Holdback Monies statement, require the Contractor to rectify any other portions of the Work not completed to the satisfaction of the DCR and to do any other things necessary for the completion of the Work.

24. SET OFF

CMHC may set off against any amount payable or any debt due by CMHC to the Contractor under this contract the amount of any amount payable or any debt due by the Contractor to CMHC under this contract or any other contract between CMHC and the Contractor.

25. NO ADDITIONAL PAYMENTS

The amount payable to the Contractor under this contract will not be increased or decreased by reason of any increase or decrease in the cost of labour, material, or plant except that an adjustment to the Contract price may be made in the event of a change in any tax that affects the cost of the work to the Contractor imposed under the Excise Act, the Excise Tax Act, the Old Age Security Act, the Customs Act or Customs Tariff made public after date of the submission of the tender by the Contractor.

26. INSURANCE

The Contractor will at its expense maintain insurance coverage as in clause 5.8 of the Tender and Acceptance.

27. CONTRACT SECURITY

- (a) The Contractor shall promptly provide to CMHC contract security pursuant to clause 5(1) of the Instructions to Tenderers.

- (b) The contract security must be delivered by the successful bidder to CMHC before the contract documents are executed by CMHC.
- (c) Where the contract security is a bearer or negotiable bond, the bond shall provide that in the event that CMHC or the DCR determine that the Contractor is in breach or default under the contract, CMHC may convert or negotiate the bond to its own use. If a Labour and Material Payment Bond is provided pursuant to the Contract, the Contractor shall post on the site of the work a notice that a Labour and Material Payment bond is provided pursuant to the Contract and the notice shall include the name and address of the Surety, a definition of those persons protected thereunder and an outline of the procedure for submitting a claim.

28. WORKER'S COMPENSATION

- (a) Prior to commencing the Work and prior to receiving payment on substantial and total performance of the Work, the Contractor shall provide evidence of compliance with the requirements of the province or territory of the site of the Work with respect to Workers' Compensation, including payments due thereunder.
- (b) At any time during the term of the Contract, when requested by CMHC, the Contractor shall provide such evidence of compliance by himself and his subcontractors.

29. INSTRUCTIONS FOR PERFORMANCE OF THE WORK

Notwithstanding any provision to the contrary in this Contract, the DCR will give to the Contractor such instructions as in the DCR's opinion are necessary for the proper performance of the Work and to prevent delays pending settlement of any dispute, and the parties shall act immediately according to such instructions, it being understood and agreed that such action shall not constitute a waiver of any claim by either party against the other party if it is subsequently determined that such instructions were in error or at variance with the Contract CMHC shall pay the Contractor costs incurred by the Contractor in carrying out such instructions which the Contractor was required to do beyond what the Contract correctly understood and interpreted would have required the Contractor to do, including costs resulting from interruption of the Work.

30. CLOSURE OF CMHC OFFICE

- (a) Where services are being provided by the Contractor pursuant to this Contract on CMHC premises and the premises become inaccessible due to evacuation or closure because of events or circumstances beyond the control of CMHC, and where the health and / or safety of persons on the premises may be reasonably determined by CMHC, in its sole judgment, to be at risk, payment to the contractor hereunder may be suspended or modified. Payment will be suspended in full after 48 hours written notice unless the Contractor provides satisfactory evidence to CMHC that the Contractor will continue to incur monetary obligations to others directly as a result of its undertakings under this Contract and is unable to mitigate its losses due to such obligations. Based on such evidence and the extent to which the Contractor is able to mitigate, CMHC may continue payment in full (subject to subsection (b) below), or at a reduced amount, or suspend payment completely.

- (b) Notwithstanding subsection (a) above, if closure is continued beyond one calendar week, payment under this Contract may be suspended in full immediately, on further written notice by CMHC to the Contractor, until reopening permits the services to continue.

31. CONFLICT OF INTEREST

The Contractor and its principals, employees and agents shall avoid any conflict of interest during the term of this Contract and shall immediately declare any existing, potential or apparent conflict and shall, upon direction of CMHC, take steps to eliminate any conflict or perception that a conflict of interest exists.

The Contractor must not provide any services to any third party in circumstances that might reasonably give rise to a conflict of interest, including a conflict between the Contractor's duties to that third party and the Contractor's duties to CMHC.

In the event that a conflict of interest, real or perceived, cannot be resolved to the satisfaction of CMHC, CMHC shall have the right to immediately terminate the Contract. All portions of any work which have been completed at the date of termination shall be forwarded to CMHC and CMHC shall be liable for payment to the Contractor of an amount which, in the sole opinion of CMHC, constitutes reasonable payment for the partial performance of the Contractor's obligations under the Contract. Upon such payment, CMHC shall have no further obligation of any nature or kind to the Contractor.

32. SECURITY CLEARANCE

CMHC may require the Contractor and any persons who are to perform the Work to be security cleared. Any and all information requested by CMHC's Security and Risk Management Centre must be provided immediately upon request. Should the Contractor or any other person who is to perform the Work fail to receive such a security clearance, CMHC may in its sole discretion exclude such person from performing any services under this Contract, or terminate this Contract immediately.

33. INDEPENDENT CONTRACTOR

The Contractor shall act as an independent contractor for the purposes of this Contract. It and its employees, officers and agents are not engaged as employees of CMHC. The Contractor agrees to so advise its employees, officers, and agents. Without limiting the generality of the foregoing, the Contractor shall retain complete control of and accountability for its employees and agents. The Contractor shall prepare and process the payroll for its employees directly, and shall withhold and/or pay all applicable employment taxes and payroll deductions required in respect of its employees. All personnel shall, at all times, and for all purposes, be solely in the employment of the Contractor.

34. CONTRACTOR’S AUTHORITY

The Contractor agrees that it has no authority to give any guarantee or warranty whatsoever expressed or implied on behalf of CMHC and that it is in no way the legal representative or agent of CMHC and that it has no right or authority to create any obligation on behalf of CMHC or to bind CMHC in any way.

35. CONFIDENTIALITY

- (a) The Contractor and its employees and agents will treat as confidential during and following the term of this Contract all information relating to the affairs of CMHC of which it acquires knowledge as a result of its engagement hereunder.
- (b) The Contractor shall, at the request of CMHC, provide an Oath of Secrecy for each of its employees or persons engaged in carrying out the Work, in a form prescribed by CMHC.
- (c) Upon termination or expiration of this Contract for any reason, the Contractor shall promptly (and in no event later than 10 days thereafter) return all writings and materials whatsoever which contain information which is confidential or proprietary to CMHC, including all copies thereof, and the Contractor shall certify in writing to CMHC that all such materials have been returned (or, at the option of CMHC, destroyed).

36. WAIVER

No waiver by either party of any delay, default or omission by the other party shall affect or impair the rights of the non-defaulting party in respect of any subsequent delay, default or omission of the same or different kind.

37. SEVERABILITY

If any covenant or provision of this Contract is determined to be void or unenforceable in whole or part, it shall not be deemed to affect or impair the validity of any other covenant or provision.

38. SURVIVAL OF TERMS

The Contractor’s obligations under clauses 5, 18, 19, 22 and 35 of the General Conditions shall survive the expiry or termination of this Contract regardless of the method or manner in which it is terminated.

PART 4

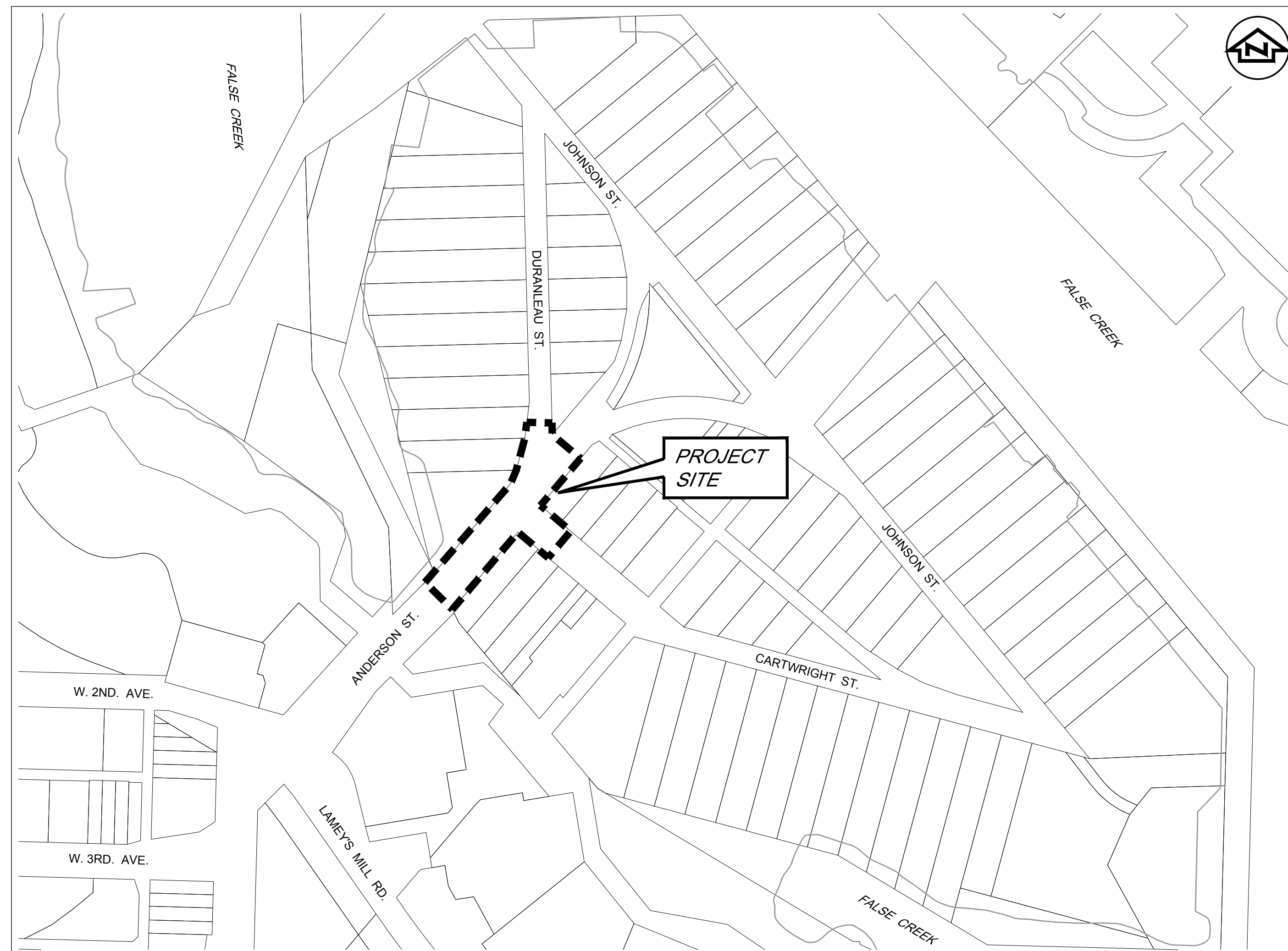
CONTRACT DRAWINGS – CIVIL

Please refer to the attached for drawings and specifications.

CANADA MORTGAGE AND HOUSING CORPORATION

GRANVILLE ISLAND TRACK REMOVAL AND ROAD REMEDIATION

**ISSUED FOR
TENDER**
February 1, 2018



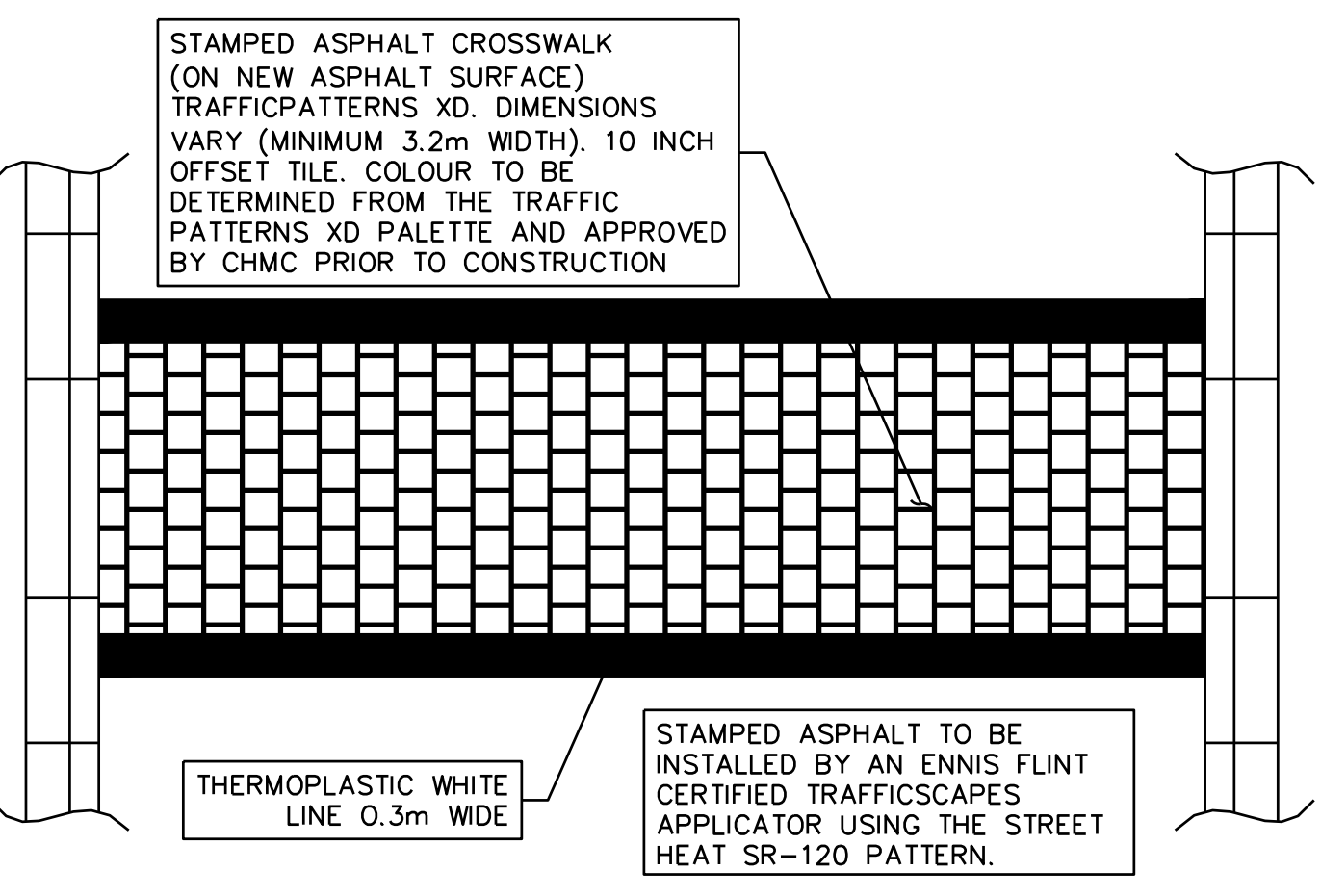
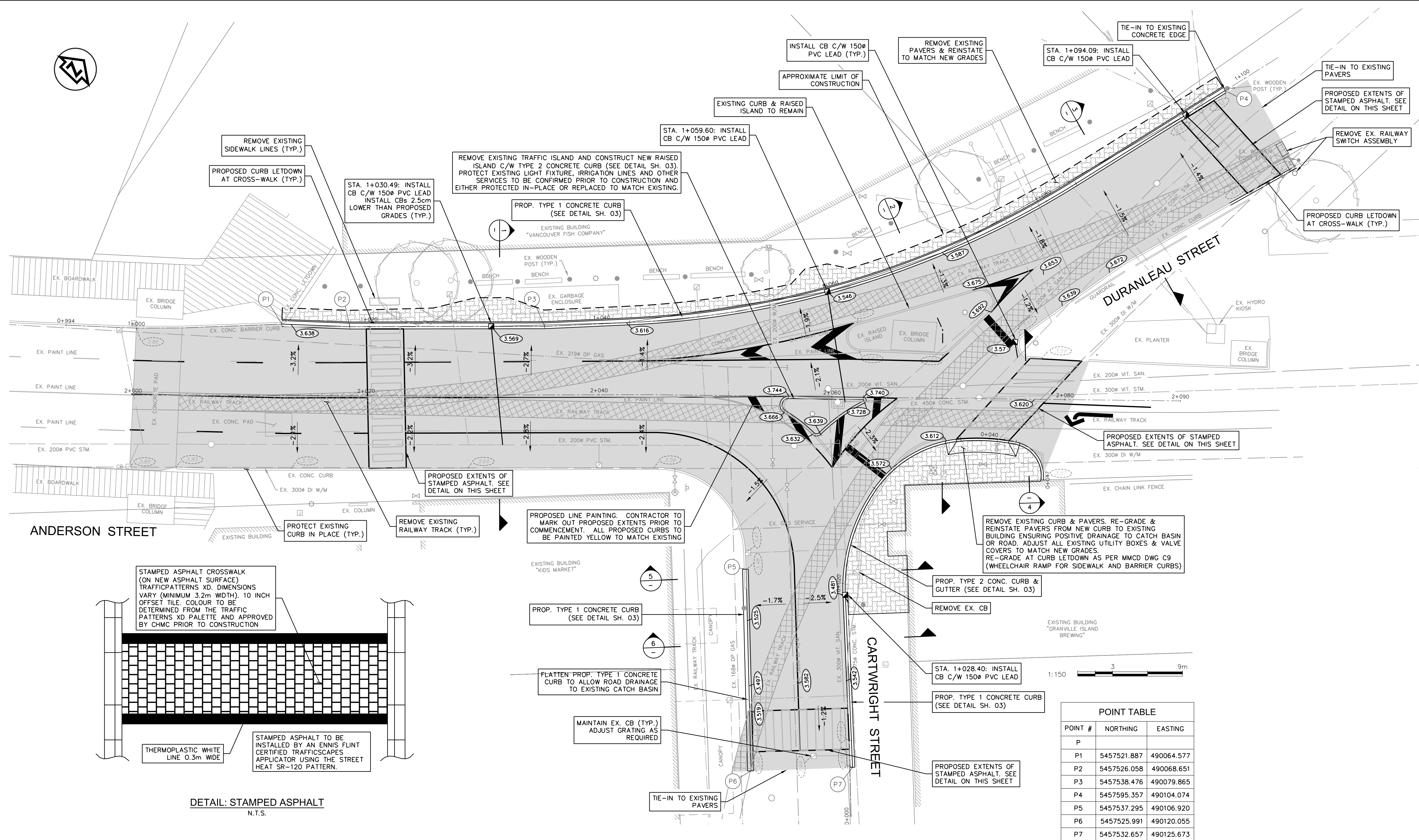
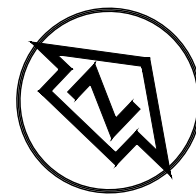
LOCATION PLAN
N.T.S.

DRAWING INDEX	
SHEET No.	TITLE
00	DRAWING INDEX & COVER SHEET
01	GRADING PLAN & GEOMETRIC LAYOUT
02	PROFILES
03	SECTIONS AND DETAILS

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PROJECT: 475296
February 2018

PARSONS
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BURNABY, BRITISH COLUMBIA, CANADA V5H 4M2
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DETAIL: STAMPED ASPHALT
N.T.S.

POINT TABLE

POINT #	NORTHING	EASTING
P		
P1	5457521.887	490064.577
P2	5457526.058	490068.651
P3	5457538.476	490079.865
P4	5457595.357	490104.074
P5	5457537.295	490106.920
P6	5457525.991	490120.055
P7	5457532.657	490125.673

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No.	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHECK	PROJECT No.
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B	ISSUED FOR 100% DESIGN REVIEW	2018/01/25	DCB	BD	
A	ISSUED FOR 90% DESIGN REVIEW	2017/01/18	DCB	BD	

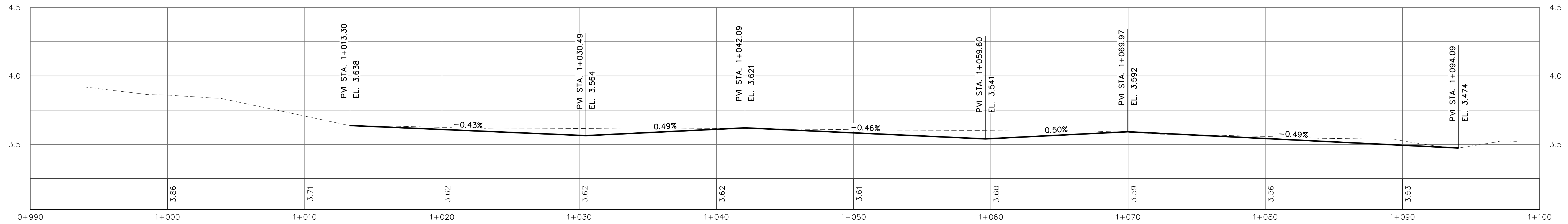
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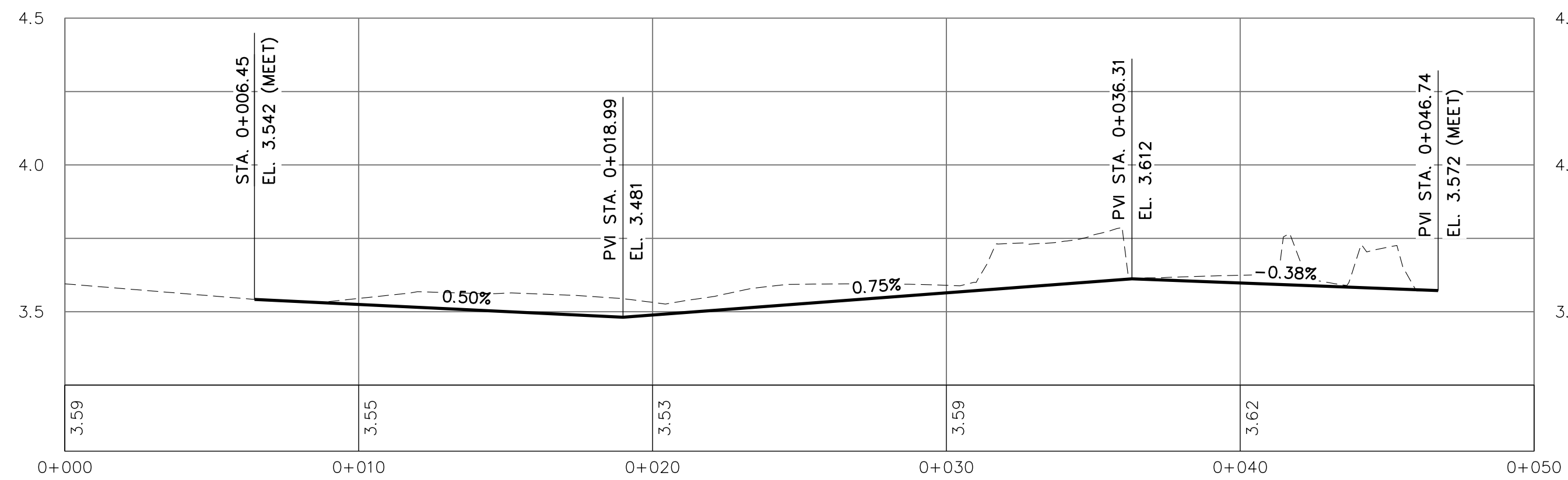
CANADIAN HOUSING AND MORTGAGE CORPORATION
 GRANVILLE ISLAND TRACK REMOVAL AND ROAD REMEDIATION

GRADING PLAN & GEOMETRIC LAYOUT

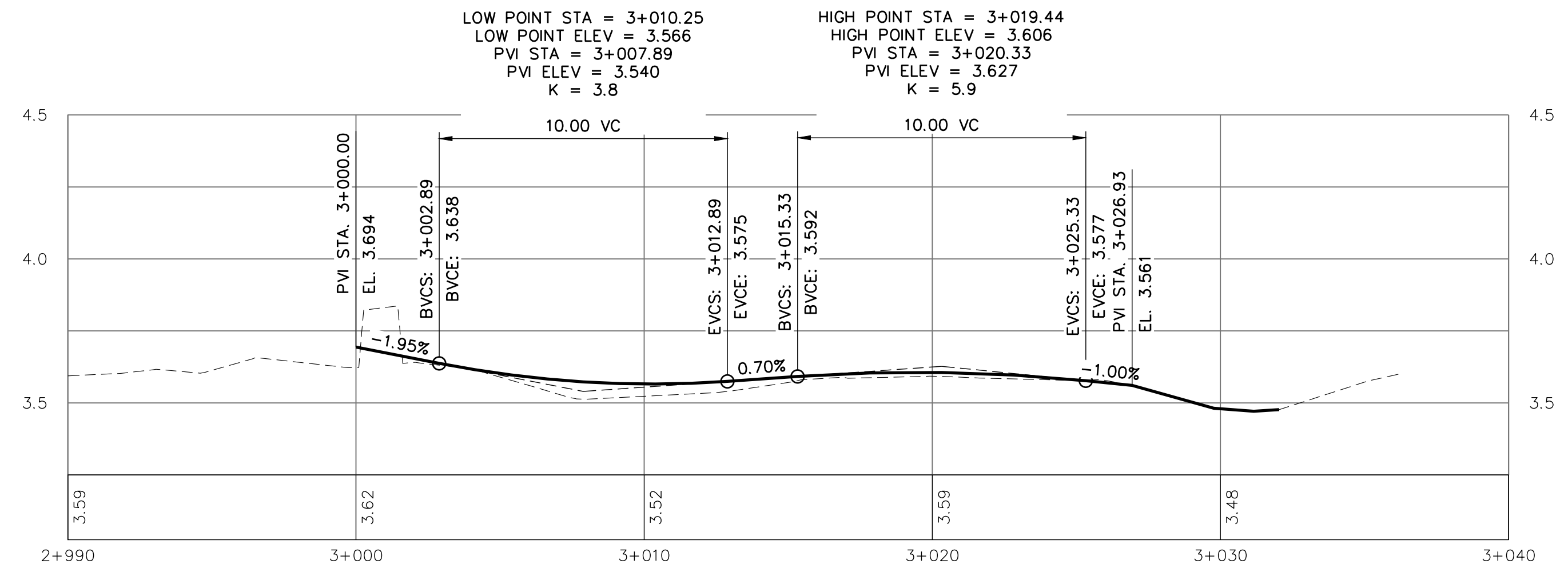
SHEET No.		01	
OF 3	REV.	B	
DRAWING No.		475296-01	



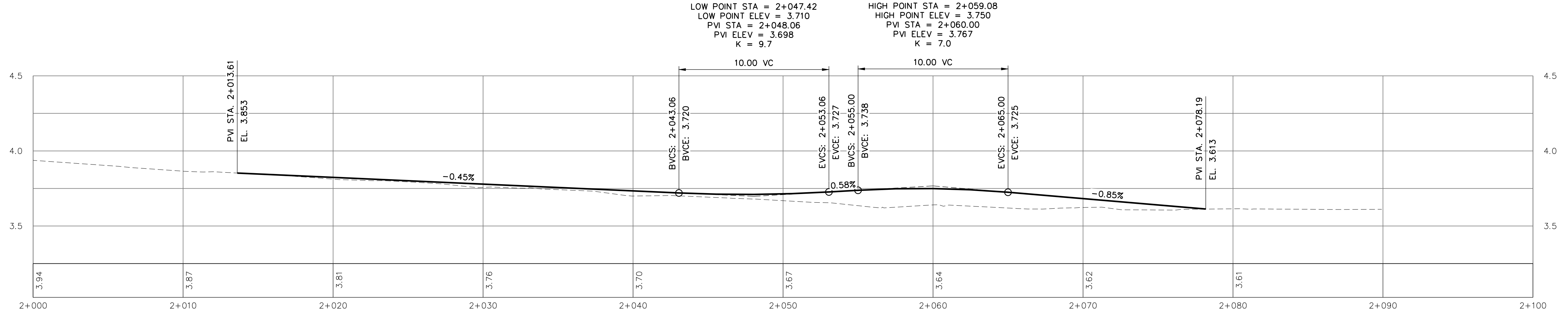
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1:150H & 1:15V



PROFILE ALONG PROPOSED TYPE 2 CURB (NORTHEAST SIDE ANDERSON / CARTWRIGHT)
1:150H & 1:15V



PROFILE ALONG CARHWRIGHT STREET
1:150H & 1:15V



PROFILE ALONG ANDERSON STREET
1:150H & 1:15V

LOW POINT STA = 3+010.25
LOW POINT ELEV = 3.566
PVI STA = 3+007.89
PVI ELEV = 3.540
K = 3.8

HIGH POINT STA = 3+019.44
HIGH POINT ELEV = 3.606
PVI STA = 3+020.33
PVI ELEV = 3.627
K = 5.9

LOW POINT STA = 2+047.42
LOW POINT ELEV = 3.710
PVI STA = 2+048.06
PVI ELEV = 3.698
K = 9.7

HIGH POINT STA = 2+059.08
HIGH POINT ELEV = 3.750
PVI STA = 2+060.00
PVI ELEV = 3.767
K = 7.0

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No.	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHECK	PROJECT No.

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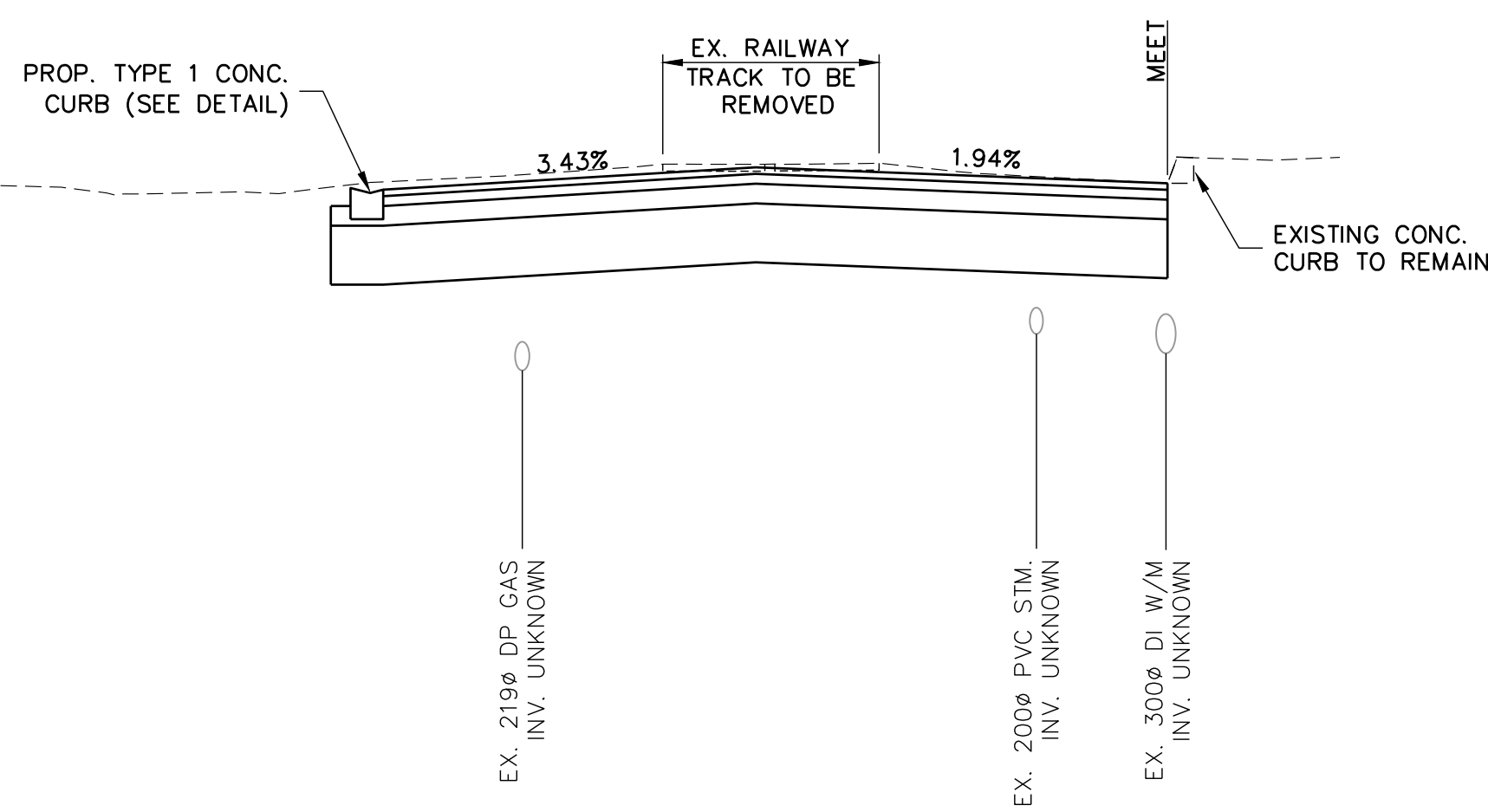
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GRANVILLE ISLAND TRACK REMOVAL AND ROAD REMEDIATION

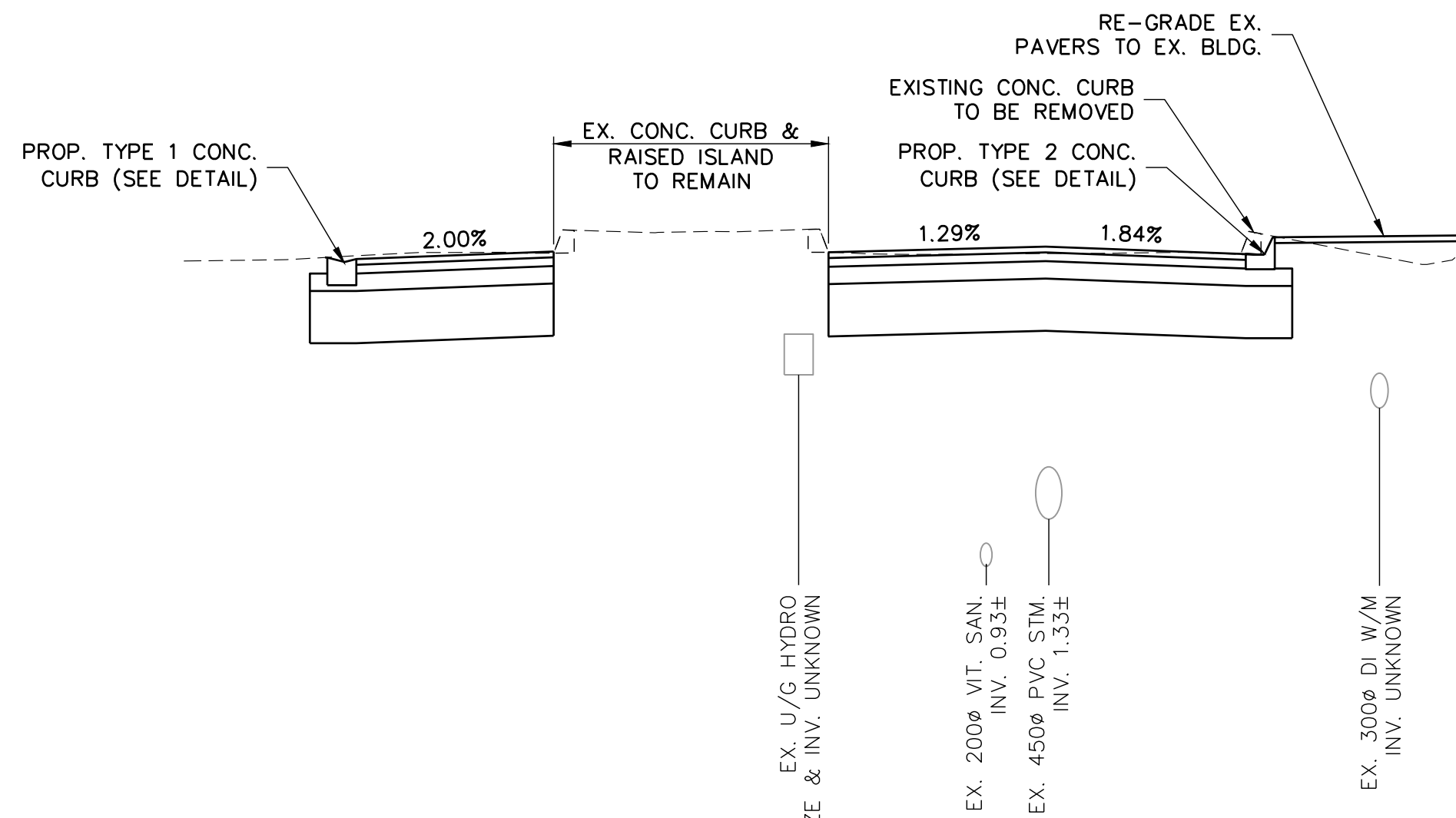
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OF	3	REV.	B
DRAWING NO.		475296-02	

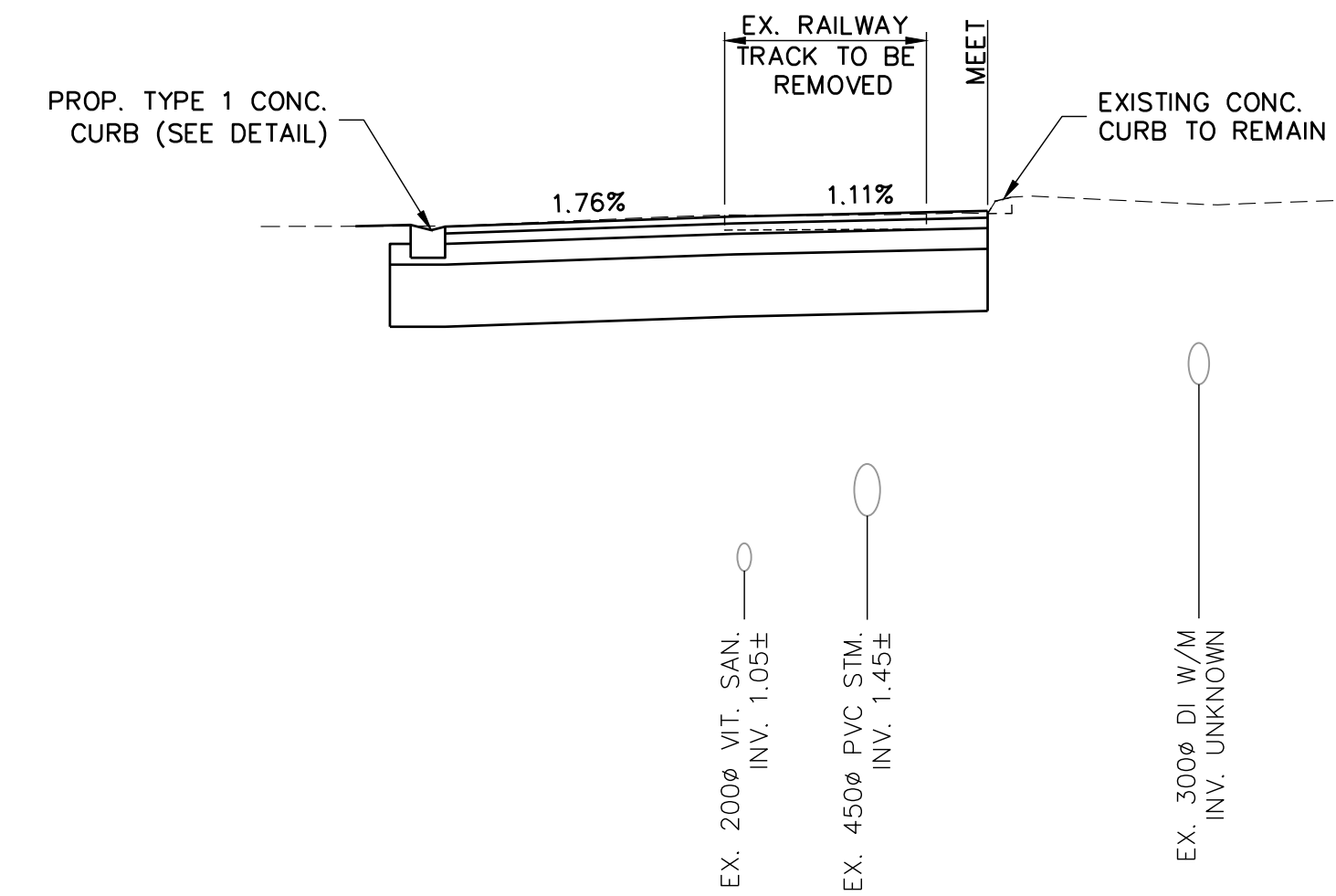
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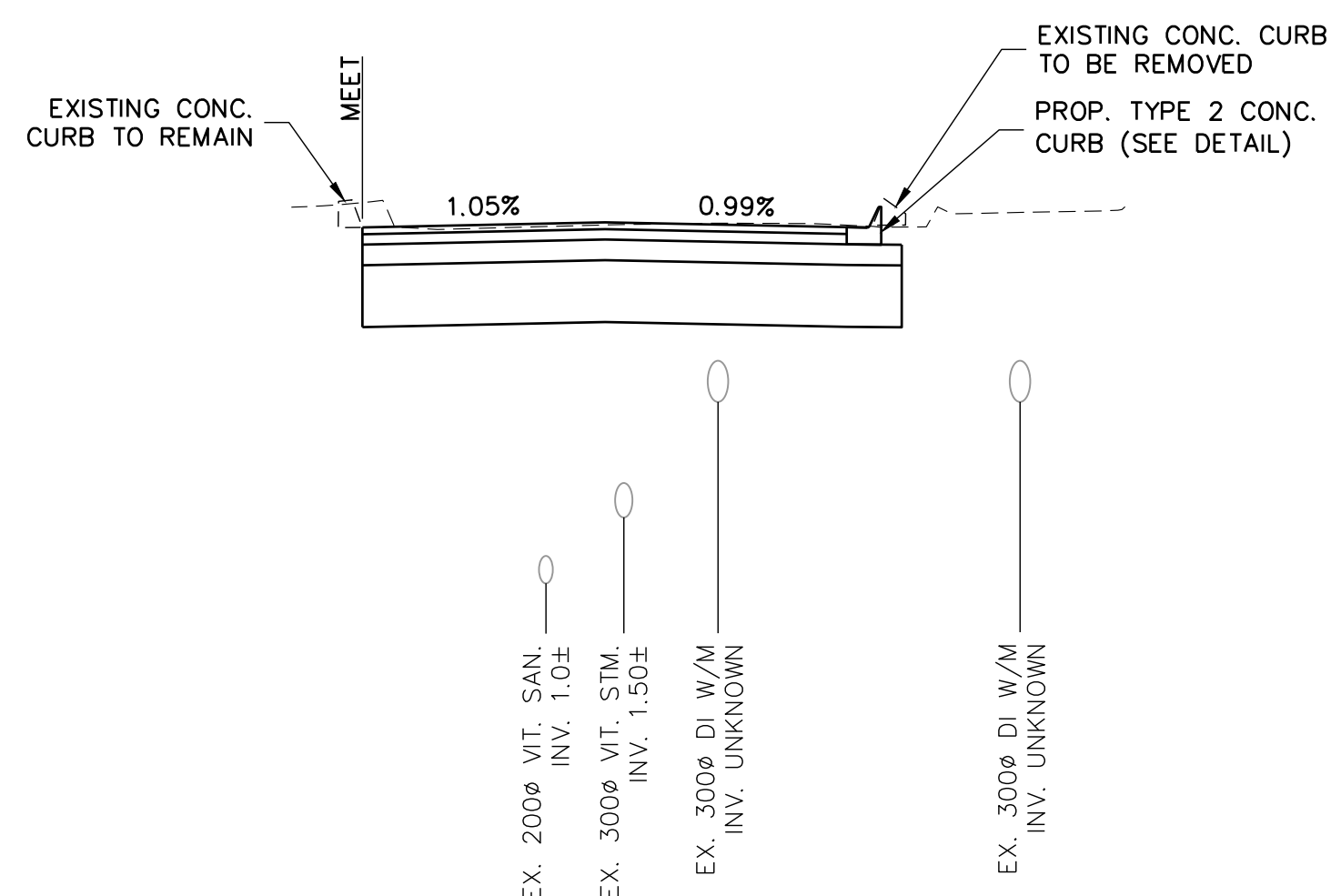
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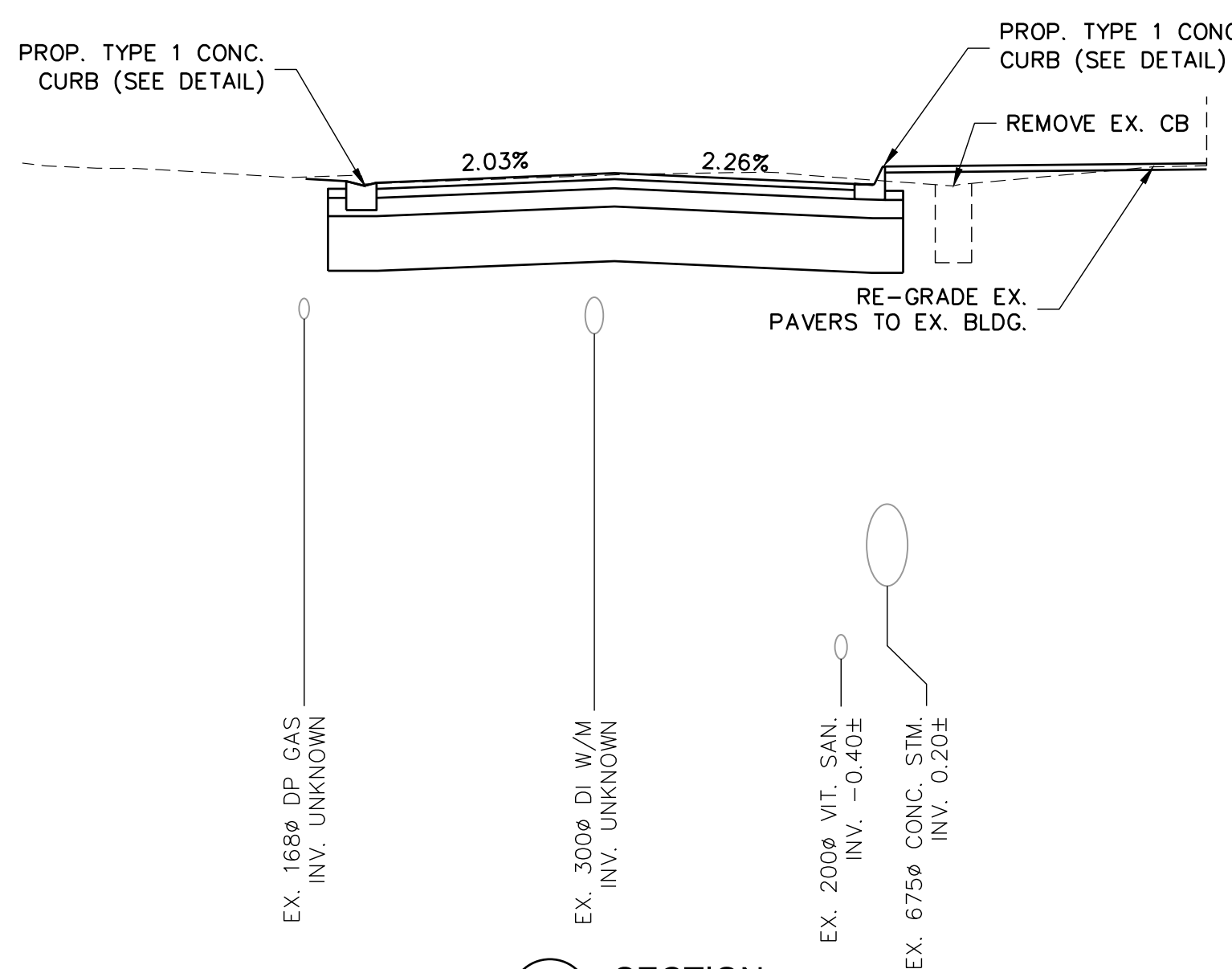
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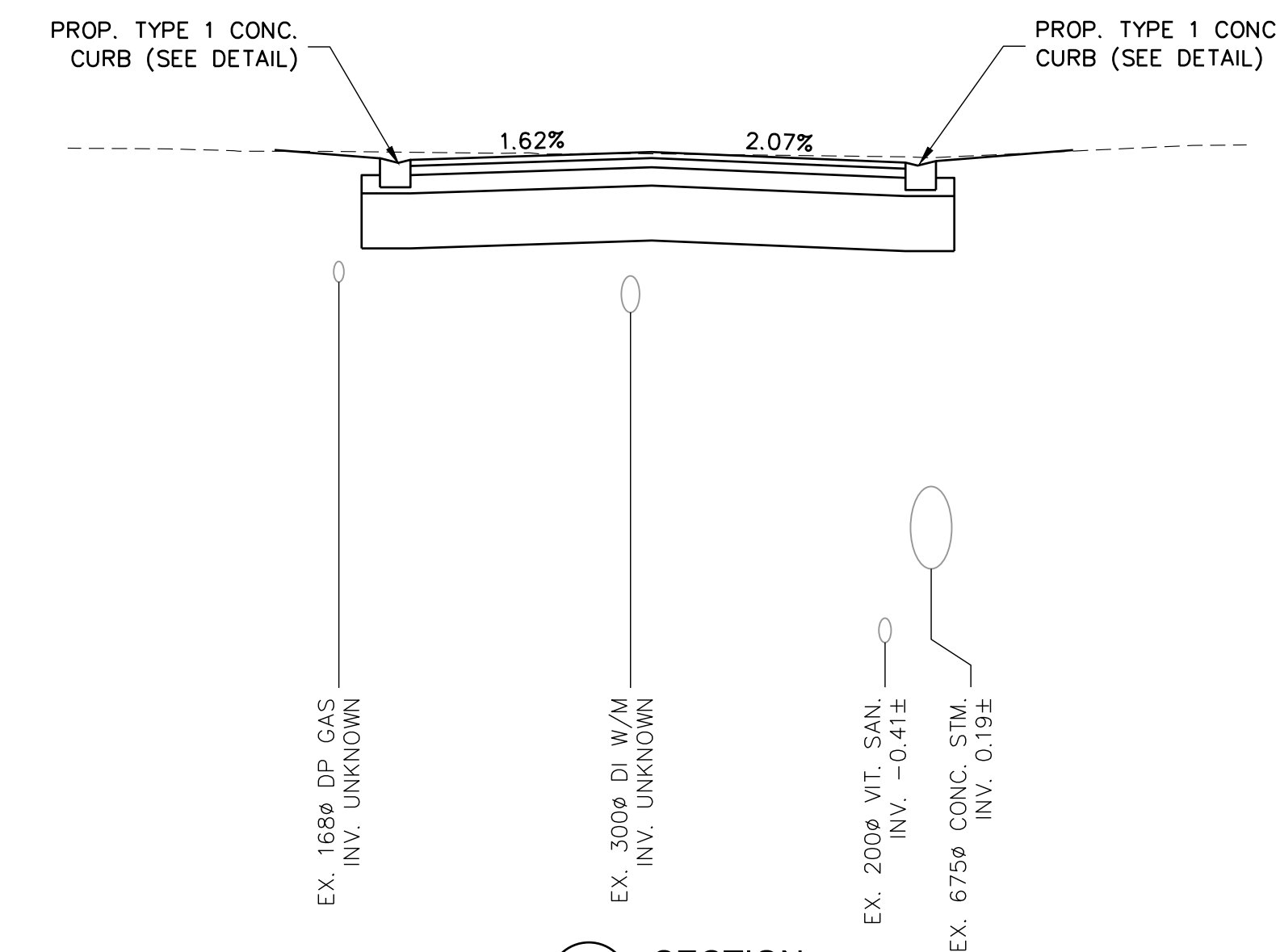
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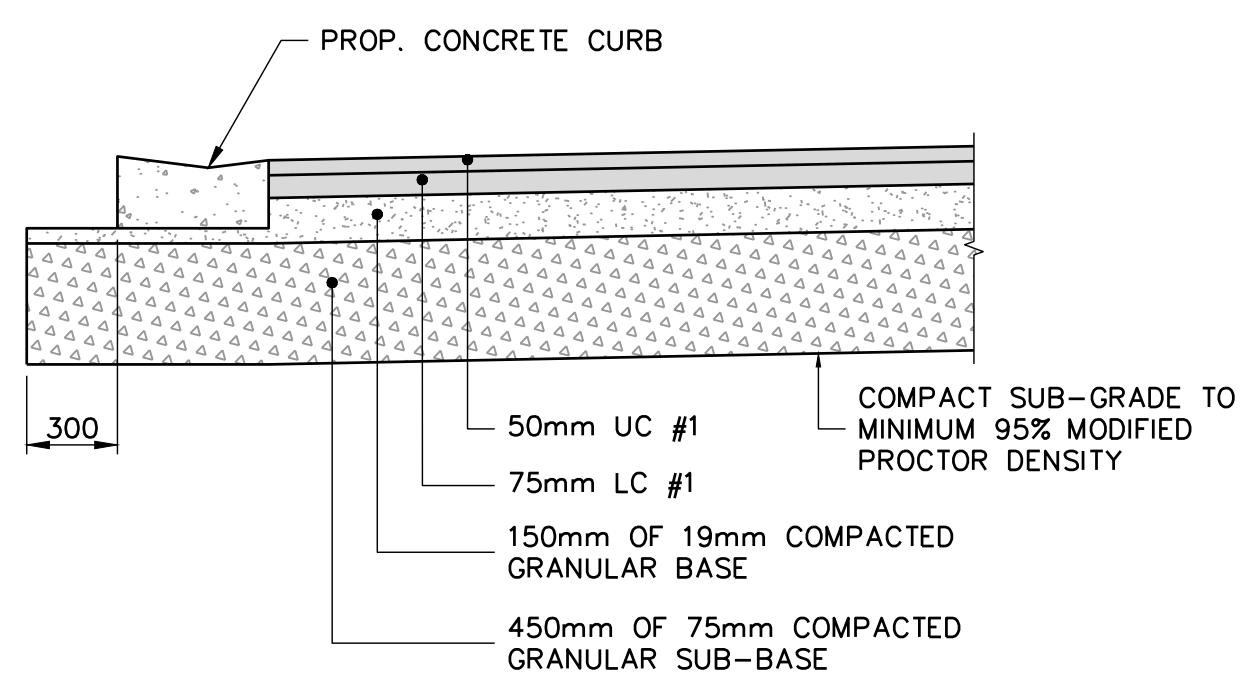
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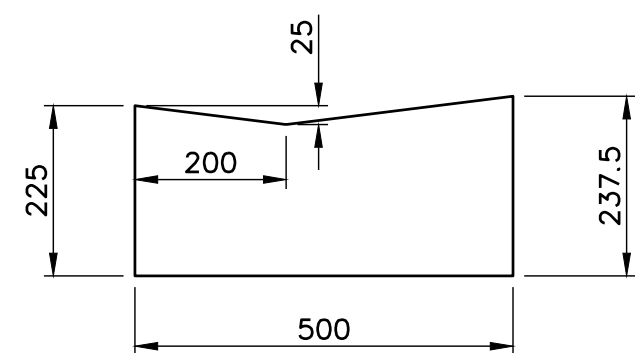
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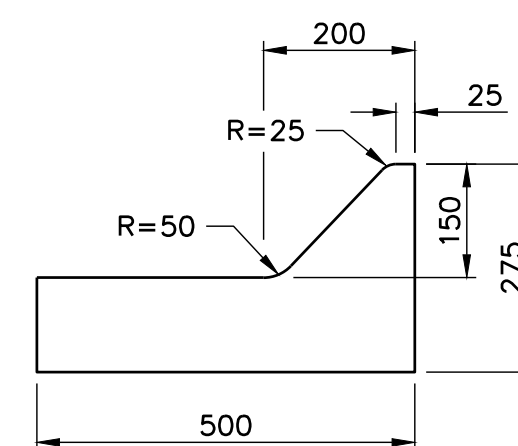
SECTION 06 1:100 H & 1:50V



TYPICAL PAVEMENT STRUCTURE 1:25



TYPE 1 CONCRETE CURB N.T.S.



TYPE 2 CONCRETE CURB N.T.S.

SEAL

No.	REVISION DESCRIPTION	DATE (Y/M/D)	BY	CHECK	PROJECT No.
C	ISSUED FOR TENDER	2018/02/01	DCB	BD	
B	ISSUED FOR 100% DESIGN REVIEW	2018/01/25	DCB	BD	
A	ISSUED FOR 90% DESIGN REVIEW	2017/01/18	DCB	BD	

DESIGN	RGL
DRAWN	DCB
CHECK	BD
APPROVED	BD
DATE	2017/01/18
SCALE	AS SHOWN

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CANADIAN HOUSING AND MORTGAGE CORPORATION
 GRANVILLE ISLAND TRACK REMOVAL AND ROAD REMEDIATION

SECTIONS AND DETAILS

SHEET No.

03

OF 3 REV. B

DRAWING NO.

475296-03

PART 5

CONTRACT SPECIFICATIONS

Please refer to the attached for specifications.

1.0 GENERAL

- .1 Section 01 55 00.1S addresses the specific requirements for traffic management during the Granville Island Underground Infrastructure Upgrade project. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the work described herein.

The Prime Contractor is responsible for all traffic management associated with the project.

- .2 The Contractor shall submit a full Traffic Management Plan (TMP) to the CMHC for approval for all work on Granville Island. The TMP is to include traffic control plans, a public information plan, an implementation plan, and an incident management plan. Specific traffic control plans are required for all stages of construction for daytime business hours, evenings and after work periods. A TMP shall be submitted a minimum of 10 working days prior to commencing work.

The traffic plan shall consider delivery truck access to Granville Island and concrete truck access to Ocean Concrete.

The public information plan is to address static and changeable message signage required to inform drivers of lane closures and expected delays. Communications with local tenants will be coordinated by the CHMC and should be referenced in the public information plan within the TMP document.

- .3 The Contractor is required to obtain approval from CMHC for all work outside of the standard construction hours. The Contractor shall notify CMHC a minimum of 5 days prior to night work. The request may be denied, restricted to certain hours or certain nights based on CHMC communications with local tenants and specific events on Granville Island.
- .4 All traffic management is to conform to the latest edition of the *BC Ministry of Transportation and Infrastructure Traffic Management Manual for Work on Roadways*.
- .5 The Contractor shall appoint Traffic Control Personnel to set up, maintain, and remove temporary traffic control devices and provide traffic control services as and when required (and permitted). Personnel shall be certified to appropriate WorkSafe BC standards. The Contractor's implementation plan shall identify the roles, qualifications, responsibilities and contact information for all personnel associated with construction traffic management.

**2.0 TRAFFIC
MANAGEMENT
REQUIREMENTS**

.6 On street parking will not be permitted within the work zone. Contractor to make arrangements with the CMHC for parking regulation changes as necessary.

.7 No debris shall be allowed to remain on the roadways, sidewalks, etc. All debris shall be cleaned up and removed from site on a daily basis.

.1 A minimum of one travel lane in each direction (southbound and northbound Anderson Street, eastbound Cartwright Street and eastbound Duranleau Street) shall be maintained in each direction during daytime work (07:00AM to 08:00PM).

.2 If nighttime work is approved by CHMC, additional lane closures may be permitted based on consultation with local tenants, including Ocean Concrete. At all times, there must be a clearly defined traffic route on and off the island. The following lane closures will be considered during nighttime work:

- Anderson Street may be modified to single-lane alternating traffic;
- Southbound Anderson Street north of Cartwright may be temporarily closed providing adequate signage is provided and additional dedicated traffic control personnel are on-site.
- Eastbound Duranleau Street may be temporarily closed providing traffic is routed to southbound Anderson Street.

All lanes must be reinstated to daytime conditions prior to 07:00AM

.3 Pedestrian sidewalk access to businesses shall be maintained at all times during business hours. The contractor shall plan work so that works do not interfere with business access. In addition, sidewalk continuity shall be maintained through the work zone at all times.

Where hazards exist, modoloc fencing shall be used to provide safety to pedestrians on the sidewalk. In addition, handicap ramps and traffic control personnel shall be provided as and when required during construction to assist and/or escort pedestrians around active work zones.

.4 The Contractor will be required to provide construction signage three (3) working days in advance of starting work - to inform users of construction and anticipated delays / alternate routes. Approximate locations and potential messaging shall be included in the traffic control plans for daytime, evening, and after work periods.

- .5 The Contractor shall monitor all temporary advisory signage to ensure correct operation and adjust if necessary. When signs related to traffic control personnel or specific work activities are not required at the end of a shift, they shall be covered or removed.

END OF SECTION

1.0 GENERAL

- .1 These specifications outline the requirements for conducting Rail Removal and Road Resurfacing Works on Granville Island in Vancouver, BC. These specifications must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.
- .2 In general, the works are to be constructed to the requirements as specified in the MMCDA Master Municipal Specifications and Standard Detail Drawings (2009 Platinum Edition). In the event of a discrepancy between the MMCDA documents and the contract drawings and specifications, the drawings and specifications will govern. Payment for each contract item shall be as per Section 2.0 Measurement and Payment

1.1 MMCD Reference Standards

- .1 Traffic Regulations Sec. 01 55 00
- .2 Temporary Facilities Sec. 01 53 01
- .3 Concrete Walks, Curbs and Gutters Sec. 03 03 20
- .4 Aggregates & Granular Materials Sec. 31 05 17
- .5 Reshaping Granular Roadbeds Sec. 31 22 16
- .6 Reshaping Existing Subgrade Sec. 31 22 1.1
- .7 Excavating Trenching & Backfill Sec. 31 23 01
- .8 Roadway Excavation, Embankment And Compaction Sec. 32 24 13
- .9 Pavement Surface Cleaning and Removal of Pavement Markings Sec. 32 01 11
- .10 Hot-Mix Asphalt Concrete Paving Sec. 32 12 16
- .11 Storm Sewers Sec. 33 40 01
- .12 Manholes and Catchbasins Sec. 33 44 01

1.2 MMCD Supplementary Specifications

- .1 Traffic Regulations Sec. 01 55 00S

1.3 Scheduling of Work

- .1 Contractor shall submit a detailed construction schedule prior to commencing works.

1.4 Temporary Paving

- .1 Contractor shall provide temporary paving for all driving lanes at the end of each work week. This shall be incidental to the work.

2.0 MEASUREMENT AND PAYMENT

2.1	Mobilization / De-Mobilization	.1 Payment for all works associated with mobilization and demobilization will be paid as a lump sum. 50% of the lump sum payment will be made at the time of the first invoice after works have commenced. The remaining 50% will be paid upon fully demobilizing and completion of the contract works
2.2	Traffic Management Plan and Traffic Control	.1 Payment will be lump sum with 10% paid upon approval of the Traffic Plan and the remaining 90% paid based on the percentage of work completed on the overall project. .2 This item shall include all work necessary for the completion of an approved Traffic Management Plan (TMP) and the installation, monitoring and maintenance of a TMP and all labour required for the traffic control. The TMP will be based on the Traffic Regulations supplementary specifications. The TMP shall be prepared by a qualified firm and is subject to the approval of the CHMC and is subject to modifications throughout construction.
2.3	Erosion & Sediment Control: Plan, Implementation, Monitoring and Maintenance	.1 Payment for the Erosion and Sediment Control – Plan, Implementation, Monitoring and Maintenance will be 20% upon approval of ESC Plans and 80% paid based on the percentage of work completed on the overall project. .2 The Contractor shall provide Erosion & Sediment Control (ESC) plans and must engage an ESC Supervisor acceptable to the Contract Administrator. The plans shall be signed by the ESC Supervisor and deemed acceptable to the Contract Administrator. .3 The ESC Supervisor shall monitor the works at least once per week to ensure they are in good condition and the water quality standard is being achieved. A written report shall be submitted to the Contract Administrator bi-weekly during the project.

<p>2.4</p>	<p>Removals, Off-Site Disposal</p>	<p>.1 Payment for the Removals and Off-Site Disposal will be made under Item 04 for the removal and off-site disposal of rail tracks, ties, ballast, asphalt, curbs, traffic island, catch basins, bricks, separating and delivering salvageable bricks on Granville Island and all other removals.</p> <p>.2 Payment this item includes separating and delivering salvageable bricks to a warehouse on Granville Island, coordinated with CMHC. The Contractor shall ensure a minimum of 75% of the existing bricks are salvaged.</p> <p>.3 Payment will be made in lump sum.</p>
<p>2.5</p>	<p>Concrete Slab Removal</p>	<p>.1 Payment for removing and replacing existing concrete slabs within the project extents shall be made on a cubic metre bases as measured by the Contract Administrator.</p> <p>.2 Payment includes saw cutting existing pavement / concrete, excavation, disposal of surplus excavated materials.</p> <p>.3 No additional payment will be made for work described in this section for surface restoration if payment is already included under work described in other sections</p>
<p>2.6</p>	<p>Brick Reinstatement behind curbs</p>	<p>.1 Payment for Brick Reinstatement behind proposed curb will be made per square metre of bricks that are reinstated behind curbs as measured by the Contract Administrator in areas shown on the Contract Documents.</p> <p>.2 Payment shall include supply and installation of 100mm thick bedding sand compacted and grading below the bricks. Supply of bricks shall be from bricks removals under the removal contract item.</p> <p>.3 Work includes cutting bricks in half as necessary to facilitate the work.</p>

<p>2.7</p>	<p>Traffic Island: Reinstatement & Planting</p>	<p>.1 Payment for the Traffic Island Reinstatement will be made for permanent restoration of the traffic island as shown on the Contract Drawings.</p> <p>.2 Payment for the traffic island planting includes supply and placement of topsoil and planting to match existing vegetation. Payment includes protection existing irrigation lines and other services as required or removing and reinstating to existing conditions with approved materials</p> <p>.3 Payment will be made in lump sum.</p>
<p>2.8</p>	<p>Type 1 Concrete Curb</p>	<p>.1 Payment for Type 2 Concrete Curb will be per linear metre installed as measured by the Contract Administrator.</p> <p>.2 Payment for the supply and installation of Type 2 concrete curb & gutter includes all saw-cutting, preparation of granular base to design grades, supply and placing of the concrete curbs and gutter, and all other works incidental to the installation of concrete curbs to limits as directed by the Contract Administrator. Payment will only be made for specific segments identified in the Contract Drawings.</p> <p>.3 Curb let-downs at crosswalks will be paid under this item.</p> <p>.4 Concrete curb shall be fabricated to dimensions as shown on the Contract Drawings.</p>
<p>2.9</p>	<p>Type 2 Concrete Curb</p>	<p>.1 Payment for Type 2 Concrete Curb will be per linear metre installed as measured by the Contract Administrator.</p> <p>.2 Payment for the supply and installation of Type 2 concrete curb & gutter includes all saw-cutting, preparation of granular base to design grades, supply and placing of the concrete curbs and gutter, and all other works incidental to the installation of concrete curbs, including grading to curb letdowns, to limits as directed by the Contract Administrator. Payment will only be made for specific segments identified in the Contract Drawings.</p> <p>.3 Curb let-downs at crosswalks will be paid under Type 1 Concrete Curb.</p> <p>.4 Concrete curb shall be fabricated to dimensions as shown on the Contract Drawings.</p>

<p>2.10</p>	<p>Catch Basin (MMCD Dwg S11)</p>	<p>.1 Payment for catch basins will be for each catch basins constructed as per MMCD Dwg S11. Payment includes excavation, disposal of surplus excavated material including existing catchbasins, supply of all units, cast-in-place concrete, fittings and related materials, bedding, imported backfill, cleaning, testing where applicable, surface restoration and all other work and materials necessary to complete the installation as shown on Contract Drawings and specified herein.</p>
<p>2.11</p>	<p>150mm CB Lead (PVC SDR 35)</p>	<p>.1 Payment for CB Leads will be made per linear metre of installed pipe in locations as shown on Contract Drawings. Measurement for catchbasin leads will be made horizontally from manhole / catchbasin centreline to manhole / storm sewer centreline over surface after work has been completed.</p> <p>.2 Payment for CB leads includes all work required to tie-in to the existing storm sewer.</p> <p>.3 Payment for CB leads includes tie-ins to existing PVC or Concrete storm sewer. Contractor to confirm tie-in locations and tie-in methods with the Contract Administrator prior to construction.</p> <p>.4 Payment for CB leads includes all required brick removal and reinstatement, trench excavation, disposal of surplus excavated materials, supply and installation of all pipe, fittings and related materials, bedding, imported backfill, cleaning and flushing, testing, all surface restoration and all other work and materials necessary to complete installation as shown on Contract Drawings and specified under this section.</p>

<p>2.12</p>	<p>Excavation, Off-Site Disposal, Re-shape and Compact Sub-grade</p>	<p>.1 Payment for Excavation., Off-Site Disposal, re-shape and compact sub-grade includes excavation and offsite disposal of materials of all granular and other materials not covered as part of other unit items in the contract.</p> <p>.2 Payment will be made in cubic metres at the respective unit prices tendered in the Form of Tender as measured by the Contract Administrator based on depths and areas shown in the Contract Documents</p> <p>.3 Excavation to depths deeper than shown on Contract Documents will not be paid without approval from the Contract Administrator.</p>
<p>2.13</p>	<p>75mm Crushed Sub-Base Material</p>	<p>.1 Payment for 75mm Crushed Sub-Base Material includes supply of the granular subbase material, adjustment of moisture content, and compaction.</p> <p>.2 Proctor, sieve, and compaction testing of crushed sub-base material shall be included in this item. All test results must be emailed to the Contract Administrator within 24 hours</p> <p>.3 Payment will be made in tonnage at the respective unit prices tendered in the Form of Tender. Payment will be made in tonnage at the respective unit prices tendered in the Form of Tender based on weight tickets provided to the Contract Administrator</p>
<p>2.14</p>	<p>19mm Road Base Material</p>	<p>.1 Payment for 19mm Road Base Material includes supply of the granular base material, adjustment of moisture content, and compaction, establishing crossfall by survey or boning rods, grading and finish grading, reshaping and compaction.</p> <p>.2 Proctor, sieve, and compaction testing of road base material shall be included in this item. All test results must be emailed to the Contract Administrator within 24 hours.</p> <p>.3 Payment will be made in tonnage at the respective unit prices tendered in the Form of Tender based on weight tickets provided to the Contract Administrator.</p>

<p>2.15</p>	<p>Asphalt (Lower and Upper Courses)</p>	<p>.1 Payment for asphaltic concrete paving will be by tonnes and includes all construction joint preparation, supply and placing of the asphaltic concrete, compaction, and installation of temporary raised pavement markings.</p> <p>.2 Measurements for asphaltic concrete paving for the specified design mixes for lower and upper courses will be for the area of asphalt concrete actually incorporated into work based</p> <p>.3 Payment will be made per tonnes at the respective unit prices tendered in the Form of Tender. No additional payment will be made for hand-placed asphalt, if required</p>
<p>2.16</p>	<p>Adjusting Castings, Valves, Manholes (including risers) and all other infrastructure</p>	<p>.1 Payment for all adjustments required prior to paving shall be lump sum.</p> <p>.2 All existing castings encountered in the contract pavement area shall be adjusted to the new elevations. No cracked or broken grade adjustment rings will be allowed.</p> <p>.3 Payment includes manhole risers and cover rings as required to raise the manhole cover to its proposed elevations, including the manhole that will be raised within the traffic island.</p>
<p>2.17</p>	<p>Permanent Pavement Markings</p>	<p>.1 Payment for Permanent Pavement Markings will be made for supplying all materials and completing all the permanent painted pavement markings to reinstate to existing conditions. The Contractor shall maintain sufficient traffic control to safely permit the installation of permanent pavement markings. All temporary pavement markings to be removed immediately following placement of permanent pavement markings.</p> <p>.2 Payment for Permanent Pavement Markings will be lump sum.</p>

<p>2.18</p>	<p>Stamped Asphalt at Crosswalks</p>	<p>.1 Payment for stamped asphalt will be by the square meter of asphalt surface colored and stamped as determined by the Contract Administrator.</p> <p>.2 Payment for the area of Stamped Asphalt between the curbs will be for the colour and stamping only. Granular Base and SuperPave Hot Mix Asphaltic Concrete Paving between the curbs will be paid separately under their respective unit prices.</p> <p>.3 Payment will include all tools, labor and equipment necessary to complete the color and stamping of the asphalt crosswalk</p>
<p>2.19</p>	<p>Filter Cloth (Provisional)</p>	<p>.1 Payment for filter cloth will be made when directed by the Engineer. Payment will be made based on the square meter based on measurements taken in the field that does not include overlapping.</p> <p>.2 This is an optional item. Work shall only take place if directed by the Contract Administrator, based on sub-grade conditions.</p>

3.0 PRODUCTS

- .1 Refer to the applicable MMCD Reference Standard Section unless noted otherwise in this section.

4.0 EXECUTION

- .1 Refer to the applicable MMCD Reference Standard Section

PART 6

**GEOTECHNICAL REPORTS
(FOR REFERENCE ONLY)**

Please refer to the attached geotechnical reports for reference only.



March 31, 2016

Reference No. VAN-00231172-A0

Canada Mortgage and Housing Corporation
Granville Island Administration Office
1661 Duranleau Street, 2nd Floor
Vancouver, BC V6H 3S3

Email: rlemay@cmhc-schl.gc.ca

Attention: Mr. Ryan Lemay, Procurement Coordinator

**Re: Geotechnical Assessment Report
CMHC Granville Island – Railway Spur Removal and Brick Replacement
Granville Island, Vancouver, BC**

Dear Mr. Lemay:

1.0 INTRODUCTION

In accordance with the Purchase Agreement of January 22, 2016 between **exp** Services Inc. (**exp**) and Canada Mortgage and Housing Corporation (CMHC) and our proposal (Ref. No. 999-00039873-PP), **exp** has completed a geotechnical assessment for the above referenced project on Granville Island in Vancouver, BC. The purpose of the assessment was to explore the existing brick pavement structure, subgrade and groundwater conditions underlying the site for evaluation of a suitable brick replacement methodology.

The scope of services was limited to the provision of geotechnical engineering services only and did not include any provision for the investigation, analytical testing or assessment of the potential for soil and/or groundwater contamination at the site, possible bio-engineering considerations or geotechnical and materials construction services.

2.0 SITE DESCRIPTION AND PROPOSED PAVEMENT IMPROVEMENT

As shown in Figure 1, the site is considered to be the brick surfaced roadway from about the entrance sign to Granville Island extending just north of Cartwright Street, directly below the Granville Bridge, in Vancouver, BC. The railway line ran down the centre of the road separating the northbound and southbound lanes (2 lanes in each direction). There were typically retail establishments on either side of the roadway, with the exception of a boardwalk on the southern portion of the west side. There was a concrete pad strip that crossed the roadway (with the railway running in between) in the southern portion, that separated the asphalt paved roadway to the south and the brick paved roadway to the north which forms the subject of the study area. There were several utilities that ran underneath the roadway, including water, storm, sanitary, hydro and Telus fibre optic line. The overall gradient of the subject roadway section was relatively flat.

The project entails upgrading the existing brick paver portion of the roadway, where warranted, and the removal of approximately 200 lineal metres of existing railway tracks within the roadway and reinstating with brick pavers. It was understood that the Client's preference was to leave the existing railway ties in place if reasonable to do so.

The brick paver roadway section was observed to have several depressions/undulations which cause the bricks to be skewed and have openings at the surface. However, there was no evidence noted of any physically damaged or cracked bricks.

Traffic volume estimates for the existing roadway as provided by Parsons is summarized as follows:

Concrete Trucks from Ocean Cement: approximately 90 round trips per day;

Delivery Trucks: approximately 60 return trips per day.

3.0 SUBSURFACE EXPLORATION

3.1 Geotechnical Drilling Exploration

Exp completed the subsurface exploration of the site on March 3, 2016. A total of two (2) solid stem auger holes were drilled within the roadway, designated as AH16-01 and AH16-02. A number of bricks needed to be removed at each location to facilitate the auger drilling, and were later replaced after backfilling the drill holes. The bricks were found to be 75mm thick. The auger holes were paired with Dynamic Cone Penetration Test soundings (DCPTs') for interpretation of soil density.

The drilling exploration was carried out using a truck-mounted drill rig supplied and operated by Uniwide Drilling Co. Ltd. of Burnaby. Prior to the drilling, all test hole locations were "swept" by Western Locates for underground services clearance.

All field work was carried out under the full-time supervision of a member of our geotechnical engineering staff, who located the testholes in the field, examined and logged the subsurface conditions encountered, and collected representative soil samples for detailed examination and testing in our laboratory.

Test hole locations are shown on the attached Testhole Location Plan, Figure 1. Test hole logs with a detailed description of the subsurface conditions encountered are attached.

3.2 Laboratory Testing

Moisture content determinations were conducted on the majority of samples and two (2) grain size analysis tests were completed on samples of granular base type materials underneath the bricks. Moisture content determination results are presented on the testhole logs. Grain size analysis results are attached separately.

4.0 SOIL AND GROUNDWATER CONDITIONS

4.1 Soil Condition

Beneath the 75mm thick bricks, the test holes encountered a thin leveling course of sand bedding (approximately 75mm thick) underlain by about 300 to 400mm thickness of sand and gravel (trace to some silt) granular base like material. At AH16-01, the granular base like material was found to overlie sand with trace to some silt (generally loose to very loose) and trace gravel, with intermittent wood chips and organics, underlain by very loose silty sand/sand and silt, followed by loose to very loose sand mixed with broken shells extending to bottom of the test hole at 4.6m. The soil conditions below the granular base like material were quite different at the location of AH16-02. They were found to consist of generally loose to very loose silty sand to sandy silt, followed by soft to very soft silt containing pockets of shells extending to the bottom of the test hole at 4.6m. The DCPT extended deeper than the auger holes, and

found that typically loose of soft to firm soils extended to about 7m depth.

Note that a strong hydrocarbon like smell (possibly creosote from the railway ties) was noted in the sand layer, just below the granular base like materials in AH16-01.

Due to the nature of below ground exploratory work, extrapolation of subsurface conditions between and beyond the test holes is necessary. It should be noted that differing subsurface conditions may occur due to the random nature of deposition and the alteration of topography by past grading and/or filling. The nature and extent of any variations from the field explorations may not become fully evident until construction. If variations are observed at that time, it may be necessary to re-evaluate specific recommendations in this report and make appropriate changes.

4.2 Groundwater Condition

The groundwater level was inferred to be at a depth of about 3m below grade in the auger holes at the time of drilling. It should be noted that groundwater levels are expected to fluctuate with tides, variations in rainfall, nearby land use, or other factors.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 General Overview

The study area was found to have 75mm thick brick pavers underlain by about 75mm of bedding sand, followed by about 305 to 460mm of granular base-like materials, immediately underlain by sand to silty sand fill soils which were compact near the top and then became predominantly loose to very loose and transitioned to soft to very soft silt fill below about 2m depth at AH16-02. Sections of the brick paver roadway were seen to have depressions/undulations which consequently distorted the brick surface and created wider than normal openings between the bricks. The distortion may be related to a combination of factors, including cyclic loading from truck traffic, shoving/displacement of the sand layer due to traffic loading, post-construction settlement due to the weight of the fills/traffic loading on top of the loose/soft and compressible underlying soils, and settlement phenomenon within the loose fills from fluctuating water table, surface water infiltration, etc. As the roadway has likely existed for many tens of years, the majority of this long-term settlement phenomenon has likely run its course and future surface settlements are not expected to be significant provided that existing loading conditions are not significantly increased, which is not expected with the current restoration program.

As far as the structural capacity of the roadway is concerned, the existing pavement structure is considered to be somewhat sub-standard to carry the projected future traffic from a typical service life perspective based on pavement structure thickness design we have completed using the 1993 AASHTO Guide for Design of Pavement Structures incorporating the traffic information provided and subgrade conditions encountered. It was also found that the existing granular base would not be compliant with current Municipal standards based on the Master Municipal Construction Documents (MMCD). Therefore, wherever the brick paver sections are removed for upgrading purposes, we suggest that additional excavation be completed to facilitate placement of the recommended pavement sections (outlined below) prior to reinstatement of brick pavers. This same recommendation would generally be applicable for the railway track removal; however, would depend on the thickness of existing railway ballast. For example, if there is adequate railway ballast equivalent to the recommended new granular structure thickness for the upgrading areas, then the area can be restored with brick pavers by excavating a sufficient depth to install a nominal thickness of granular base, bedding sand, and the new brick pavers. Assuming at least a 140mm deep rail section and 150mm thick cross tie timber section, this would result

in approximately 290mm excavation depth. Therefore, if sufficient ballast is present, this would allow the placement of 75mm brick pavers, 25mm bedding sand and approximately 190mm of new granular base which should be adequate. Generally, just removing the rails and leaving the ties in place close to the road surface would not be considered good practice as this could cause bumps/distortions reflecting to the surface from the change in material stiffness properties. It is pointed out that an option to avoid disposal of the railway ties would be to place them at the bottom of the excavation in the brick paver upgrading areas.

Another option which could be considered which would have the benefit of minimizing excavation depths with the compromise of a significantly reduced service life and higher risk of more frequent maintenance and repair would be to remove only the brick pavers and existing bedding sand and restore with brick pavers underlain by 25mm of bedding sand and new granular base as required to reinstate proper grades.

5.2 Brick Paver Road Section Upgrading

We recommend that the applicable brick paver upgrading sections and railroad track replacement areas be reinstated with the following pavement structure depending on the desired service life:

Approximately 10 Yr. Service Life

- 75mm Brick Pavers
- 25mm Bedding Sand
- 150mm Granular Base
- 350mm Crushed Granular Subbase
- Subgrade Compacted to minimum 95% Modified Proctor Density maximum dry density

Total excavation depth = 600mm

Approximately 15 Yr. Service Life

- 75mm Brick Pavers
- 25mm Bedding Sand
- 150mm Granular Base
- 400mm Crushed Granular Subbase
- Subgrade Compacted to minimum 95% Modified Proctor Density maximum dry density

Total excavation depth = 650mm

Approximately 20 Yr. Service Life

- 75mm Brick Pavers
- 25mm Bedding Sand
- 150mm Granular Base
- 450mm Crushed Granular Subbase
- Subgrade Compacted to minimum 95% Modified Proctor Density maximum dry density

Total excavation depth = 700mm

**Reduced Excavation/Cost Alternative
(Removal of Existing Bricks and Bedding Sand Only-Projected 3 to 5 Yr. Service Life)**

- 75mm Brick Pavers
- 25mm Bedding Sand
- Minimum 50mm New Granular Base
- Existing Granular Base-like Material Compacted to minimum 95% Modified Proctor Density maximum dry density

If it can be confirmed that the existing railroad ballast depth is equal or greater than the total excavation depth of the selected pavement structure recommended above, within a tolerance of 50mm, then the railroad tracks and timber ties should be removed and the existing ballast can be left in place as part of the new pavement structure. The area would then be reinstated with the 75mm brick pavers, 25mm of bedding sand, and new granular base as required to achieve the required finished grades. A layer of heavyweight non-woven geotextile fabric (Nilex 4553 or equivalent) should be placed on top of the railway ballast prior to placing the new granular base layer to act as a separator to prevent fines migration into the voids of the ballast. If there is not sufficient ballast in place, the ballast may still be re-used as part of the new pavement structure; however, the ballast would need to be temporarily removed to allow deeper excavation and then replaced, followed by capping with geotextile fabric, and the remaining components of the pavement structure required to achieve finished grades.

All materials, placement and compaction should meet the requirements of the current MMCD.

5.3 Subgrade Preparation

In accordance with the recommended pavement structures outlined above, excavation depths would range from 625 to 725mm depending on the service life desired. The other reduced excavation/cost alternative would only require excavation of approximately 150mm below the existing road surface. Based on the test hole logs, either sand or silty sand fill soils are anticipated at these depths, except for the alternative option where existing granular base like materials would be expected. **Exp** should be called to review the exposed subgrade prior to construction of the pavement structure. Any organic or otherwise unsuitable soils should be over-excavated and grades re-instated with the specified crushed granular sub-base material. It is recommended that the excavated subgrade, and any required grade reinstatement sub-base fill, be compacted to achieve at least 95% Modified Proctor maximum dry density (MPMDD). If the specified subgrade compaction cannot be achieved, a layer of woven geotextile or geogrid may be recommended by the Geotechnical Engineer prior to placing the sub-base. Hand-operated equipment such as a heavy plate tamper would likely be the most practical for compacting the subgrade in relatively tight areas. Field density tests should be conducted to confirm that the compaction requirements are met.

Final trimming of the excavation should be done with a smooth edge clean-out bucket to minimize disturbance, and the surface should be maintained in an undisturbed condition until covered with granular structure. The sub-base should be placed in loose lifts no greater than 300mm in thickness.

5.4 Construction Field Reviews

Geotechnical related field reviews are recommended to document that the recommendations presented in the geotechnical report and construction documents are followed. It is the contractor's responsibility to contact **exp** a minimum of 48 hours in advance to notify us that a field review is required. As a minimum, field reviews should be carried out for the following aspects of the work (but not limited to):

1. Review of excavated subgrade to confirm excavation depth and soil conditions, and determine if over-excavation or use of geotextile/geogrid is required.
2. Review of existing ballast thickness in railroad track areas to determine if it can be left in place.
3. Density testing of subgrade, granular sub-base and granular base layers to confirm that compaction requirements are achieved.

6.0 CLOSURE

Please be advised that the contents of this report are based on information provided to **exp**, and **exp's** understandings of the proposed project as described in this report. If the development plans change or if during construction the soil conditions are noted to be different than those described in this report, **exp** Services Inc. should be notified promptly and the recommendations on the geotechnical aspects of the proposed project reviewed and adjusted accordingly.

Also, note that this report was prepared for the exclusive use of Canada Mortgage and Housing Corporation, Parsons, and their designated consultants and agents, and may not be used by other parties without written consent of **exp** Services Inc.

The use of this report is subject to the Interpretation & Use of Study and Report following the text of this report. The reader's attention is drawn specifically to those conditions, as it is considered essential that they be followed for proper use and interpretation of this report.

Contractors should make their own assessment of subsurface conditions and select the construction means and methods most appropriate to the site conditions. This geotechnical report should not be included in contract specifications without suitable qualifications and prior review by **exp** Services Inc. This report may be provided with the contract specifications, for information purposes only.

If you have any questions regarding this report, or if we can be of further assistance to you on this project, please call the undersigned.

Sincerely,

exp Services Inc.

Reviewed by:

Ben Weiss, P.Eng.
Senior Geotechnical Engineer

Walt Dengler, P.Eng.
Senior Geotechnical Engineer

Enclosures: Interpretation & Use of Study and Report
Figure 1 – Testhole Location Plan
Auger Hole Logs (AH16-01 and AH16-02)
Sieve Analysis Reports (2)

cc: Janet Flowers, Canada Mortgage and Housing Corporation, E: jflowers@cmhc-schl.gc.ca
cc: Barry Dinn, P.Eng., Parsons; E: barry.dinn@parson.com



INTERPRETATION & USE OF STUDY AND REPORT

1. STANDARD OF CARE

This study and Report have been prepared in accordance with generally accepted engineering consulting practices in this area. No other warranty, expressed or implied, is made. Engineering studies and reports do not include environmental consulting unless specifically stated in the engineering report.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report which is of a summary nature and is not intended to stand alone without reference to the instructions given to us by the Client, communications between us and the Client, and to any other reports, writings, proposals or documents prepared by us for the Client relative to the specific site described herein, all of which constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. WE CANNOT BE RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF THE REPORT

The Report has been prepared for the specific site, development, building, design or building assessment objectives and purpose that were described to us by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the document are only valid to the extent that there has been no material alteration to or variation from any of the said descriptions provided to us unless we are specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming the Report, are for the sole benefit of the Client. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT OUR WRITTEN CONSENT. WE WILL CONSENT TO ANY REASONABLE REQUEST BY THE CLIENT TO APPROVE THE USE OF THIS REPORT BY OTHER PARTIES AS "APPROVED USERS". The contents of the Report remain our copyright property and we authorize only the Client and Approved Users to make copies of the Report only in such quantities as are reasonably necessary for the use of the Report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make the Report, or any portion thereof, available to any party without our written permission. Any use which a third party makes of the Report, or any portion of the Report, are the sole responsibility of such third parties. We accept no responsibility for damages suffered by any third party resulting from unauthorised use of the Report.

5. INTERPRETATION OF THE REPORT

- a. Nature and Exactness of Descriptions: Classification and identification of soils, rocks, geological units, contaminant materials, building envelopment assessments, and engineering estimates have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature and even comprehensive sampling and testing programs, implemented with the appropriate equipment by experienced personnel, may fail to locate some conditions. All investigations, or building envelope descriptions, utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarising such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and all persons making use of such documents or records should be aware of, and accept, this risk. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. Where special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b. Reliance on Provided information: The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to us. We have relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, we cannot accept responsibility for any deficiency, misstatement or inaccuracy contained in the report as a result of misstatements, omissions, misrepresentations or fraudulent acts of persons providing information.
- c. To avoid misunderstandings, **exp Services Inc. (exp)** should be retained to work with the other design professionals to explain relevant engineering findings and to review their plans, drawings, and specifications relative to engineering issues pertaining to consulting services provided by **exp**. Further, **exp** should be retained to provide field reviews during the construction, consistent with building codes guidelines and generally accepted practices. Where applicable, the field services recommended for the project are the minimum necessary to ascertain that the Contractor's work is being carried out in general conformity with **exp's** recommendations. Any reduction from the level of services normally recommended will result in **exp** providing qualified opinions regarding adequacy of the work.


6.0 ALTERNATE REPORT FORMAT

When **exp** submits both electronic file and hard copies of reports, drawings and other documents and deliverables (**exp's** instruments of professional service), the Client agrees that only the signed and sealed hard copy versions shall be considered final and legally binding. The hard copy versions submitted by **exp** shall be the original documents for record and working purposes, and, in the event of a dispute or discrepancy, the hard copy versions shall govern over the electronic versions. Furthermore, the Client agrees and waives all future right of dispute that the original hard copy signed version archived by **exp** shall be deemed to be the overall original for the Project.

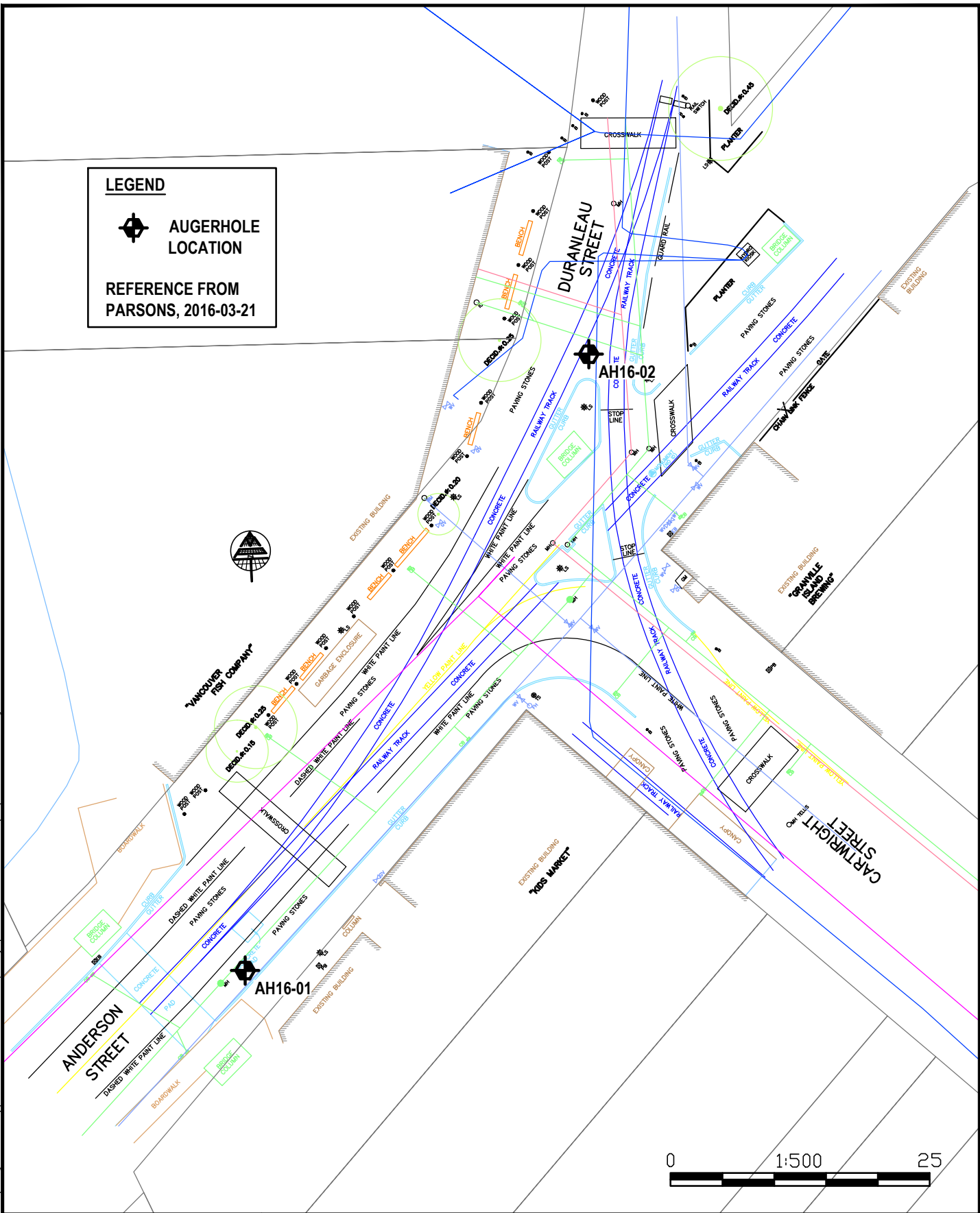
The Client agrees that both electronic file and hard copy versions of **exp's** instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party except **exp**. The Client warrants that **exp's** instruments of professional service will be used only and exactly as submitted by **exp**.

The Client recognizes and agrees that electronic files submitted by **exp** have been prepared and submitted using specific software and hardware systems. **Exp** makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

LEGEND

 **AUGERHOLE LOCATION**

REFERENCE FROM
PARSONS, 2016-03-21



L:\2016 (Starting at 0230792-40)\0231172-40 BW CHMC Granville Island, Railway Spur Removal & Brick Reinstatement\CAD\231172 TESTHOLE PLAN.dwg
 Mar 23, 2016 - 2:39pm



CLIENT CANADA MORTGAGE AND HOUSING CORPORATION				TITLE: TESTHOLE LOCATION PLAN			
PROJECT CHMC GRANVILLE ISLAND - RAILWAY SPUR REMOVAL & BRICK REINSTATEMENT							
PROJECT NO. VAN-00231172-A0	DFTR. MG	DSGN. MAK	CHK. BW	DATE 2016-03-23	SCALE: 1:500	DWG NO. FIGURE 1	



exp Services Inc.
 275-3001 Wayburne Drive
 Burnaby, B.C. V5G 4W3
 Telephone: 604.422.2152

RECORD OF AUGERHOLE : AH16-01

PROJECT NUMBER VAN-00231172-A0
 PROJECT NAME Railway Spur Removal & Brick Reinstatement
 DRILLING DATE 2016-03-03
 DRILLING CONTRACTOR Uniwide Drilling Co. Ltd.
 DRILLING METHOD Solid Stem Auger
 EQUIPMENT TYPE Truck Mounted Auger Drill
 LOGGED BY MAK CHECKED BY BW

CLIENT Canada Mortgage and Housing Corporation
 PROJECT LOCATION Granville Island, Vancouver, BC
 AUGERHOLE LOCATION N: 5457508 E: 490071
 ELEVATION _____
 GROUND WATER LEVELS: ▽ AT TIME OF DRILLING 2.9m
 ▽ AT END OF DRILLING ---
 ▽ AFTER DRILLING ---

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N VALUE BLOWS/0.3m ▲ 20 40 60 80	POCKET PEN. (kPa) ● 100 200 300 400	FINES CONTENT (%) □ 20 40 60 80			
				NUMBER	TYPE	RECOVERY %				DYNAMIC CONE BLOWS/0.3m ↘ 20 40 60 80	FIELD VANE SHEAR (kPa) Peak Remold ● ○ 100 200 300 400	PLASTIC & LIQUID LIMIT MOISTURE CONTENT PL MC LL 20 40 60 80
0.1		BRICK (75mm)	0.1	S01	GB			7				
0.2		SAND, some silt to silty, grey, wet, (compact to dense), sand is well graded, (FILL), (75mm thick) - Perched water was observed ontop of the sand bedding	0.2	S02	GB			12				
0.6		SAND and GRAVEL, some silt, brown, damp, (compact), gravel is sub-rounded to sub-angular, (FILL), (460mm thick)	0.6					5				
0.9		SAND, some to trace silt, trace gravel, grey, (compact at surface then becomes loose to very loose), strong hydrocarbon smell, sand medium to fine grained, (FILL) - Wood chips at 0.9m	0.9	S03	GB			10				
2.6		- Becomes trace gravel with occasional woodchips and organic remains - Pockets of pink broken shells at 2.6m	2.6	S04	GB			11				
2.9		- Inferred water table at 2.9m	2.9									
3.7		SILTY SAND to SAND and SILT, some gravel, trace rootlets, dark brown, wet, (loose to very loose), hydrocarbon smell, (POSSIBLE FILL)	3.7	S05	GB			37				
4.3		SAND and BROKEN SHELLS, trace gravel, light pink, wet, (loose to very loose), sand is coarse to medium grained, (POSSIBLE FILL) - Pockets of CLAYEY SILT at 4.3m	4.3	S06	GB			34				
4.6			4.6	S07	GB			34				
7.3		Bottom of hole at 7.3m.	7.3									

EXP GEO 0231172 LOGS.GPJ EXP STD.GDT 3/21/16



exp Services Inc.
 275-3001 Wayburne Drive
 Burnaby, B.C. V5G 4W3
 Telephone: 604.422.2152

RECORD OF AUGERHOLE : AH16-02

PROJECT NUMBER VAN-00231172-A0

CLIENT Canada Mortgage and Housing Corporation

PROJECT NAME Railway Spur Removal & Brick Reinstatement

PROJECT LOCATION Granville Island, Vancouver, BC

DRILLING DATE 2016-03-03

AUGERHOLE LOCATION N: 5457570 E: 490106

DRILLING CONTRACTOR Uniwide Drilling Co. Ltd.

ELEVATION _____

DRILLING METHOD Solid Stem Auger

GROUND WATER LEVELS: ∇ AT TIME OF DRILLING 3.0m

EQUIPMENT TYPE Truck Mounted Auger Drill

∇ AT END OF DRILLING ---

LOGGED BY MAK CHECKED BY BW

∇ AFTER DRILLING ---

DEPTH (m)	STRATA	SOIL DESCRIPTION	ELEV. DEPTH (m)	SAMPLES			SPT N VALUE BLOWS/0.3m	POCKET PEN. (kPa)	FINES CONTENT (%)
				NUMBER	TYPE	RECOVERY %	20 40 60 80	100 200 300 400	20 40 60 80
							DYNAMIC CONE BLOWS/0.3m	FIELD VANE SHEAR (kPa)	PLASTIC & LIQUID LIMIT MOISTURE CONTENT
20 40 60 80	Peak Remold	PL MC LL							
0.1		BRICK (75mm)	0.1	S08	GB				
0.2		SAND, trace silt, brown, damp, (compact), sand is medium to fine grained, (FILL), (75mm thick)	0.2	S09	GB	20		4	
0.5		SAND and GRAVEL, trace silt, trace shells, mixed brown and grey, moist, (compact), sand is medium to fine grained, gravel is sub-rounded to sub-angular, (FILL), (305mm thick)	0.5	S10	GB	18		5	
0.9		SILTY SAND, trace gravel, some organics and shells, black, moist, (compact to loose), (FILL)	0.9	S11	GB	8		14	
1.5		SILTY SAND and SHELLS to SHELLY SANDY SILT, trace gravel, occasional pockets of clay/silt, mixed black brown and pink, (loose to very loose), (FILL)		S12	GB	2			
1.5		- mixed with wood remains and pockets of peat at 1.5m		S13	GB	3		23	
2.1		SILT, some sand, pockets of shells, pockets of sand and pockets of organics, brown, wet, (soft to very soft), (FILL)	2.1	S14	GB	0		35	
2.7		- Becomes gray at 2.7m		S15	GB	0		55	
3.0		- Inferred water table at 3m	3.0			4			
3.0		SILT, some clay, trace sand, grey, frequent shell pockets, (soft to very soft),				2			
4.6			4.6			2			
4.6						0		62	
4.6						0		62	
4.6						1			
4.6						0		62	
4.6						0			
4.6						0			
4.6						1			
4.6						6			
4.6						5			
4.6						5			
4.6						4			

Bottom of hole at 7.3m.

EXP GEO 0231172 LOGS.GPJ EXP STD.GDT 3/21/16



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604-874-1245

Kamloops Branch
250-372-5321



CERTIFIED TESTING
LABORATORY

SIEVE ANALYSIS REPORT
8 16 30 50 SERIES

PROJECT NO. 002-31172
CLIENT CANADA MORTGAGE AND HOUSING
C.C. exp - BEN WEISS

TO exp - BEN WEISS

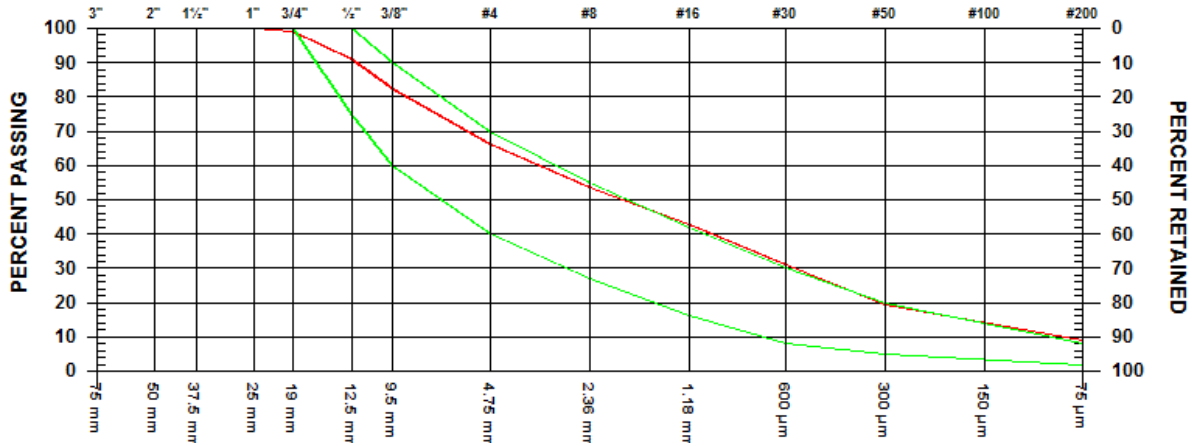
ATTN: MR. BEN WEISS

PROJECT CMHC GRANVILLE ISLAND
GEOTECHNICAL
CONTRACTOR

VANCOUVER

SIEVE TEST NO. 1 DATE RECEIVED Mar 08, 2016 DATE TESTED Mar 08, 2016 DATE SAMPLED Mar 03, 2016

SUPPLIER GRAB SAMPLED BY MAK
SOURCE SITE TESTED BY L. JEAN, ASCT
SPECIFICATION MMCD GRANULAR BASE TEST METHOD WASHED
MATERIAL TYPE SAND AND GRAVEL, TRACE SILT



GRAVEL SIZES	PERCENT PASSING	GRADATION LIMITS
3" 75 mm		
2" 50 mm		
1 1/2" 37.5 mm		
1" 25 mm	100.0	
3/4" 19 mm	99.0	100.0-100.0
1/2" 12.5 mm	91.2	75.0-100.0
3/8" 9.5 mm	82.6	60.0-90.0

SAND SIZES AND FINES	PERCENT PASSING	GRADATION LIMITS
No. 4 4.75 mm	66.0	40.0-70.0
No. 8 2.36 mm	53.7	27.0-55.0
No. 16 1.18 mm	43.0	16.0-42.0
No. 30 600 µm	31.3	8.0-30.0
No. 50 300 µm	19.2	5.0-20.0
No. 100 150 µm	14.0	
No. 200 75 µm	9.0	2.0-8.0

COMMENTS

SAMPLE S09 @ 1' FROM AH16-02. TEST METHOD: ASTM C136, C117.



TO
exp - BEN WEISS

PROJECT NO. 002-31172
CLIENT CANADA MORTGAGE AND HOUSING
C.C. exp - BEN WEISS

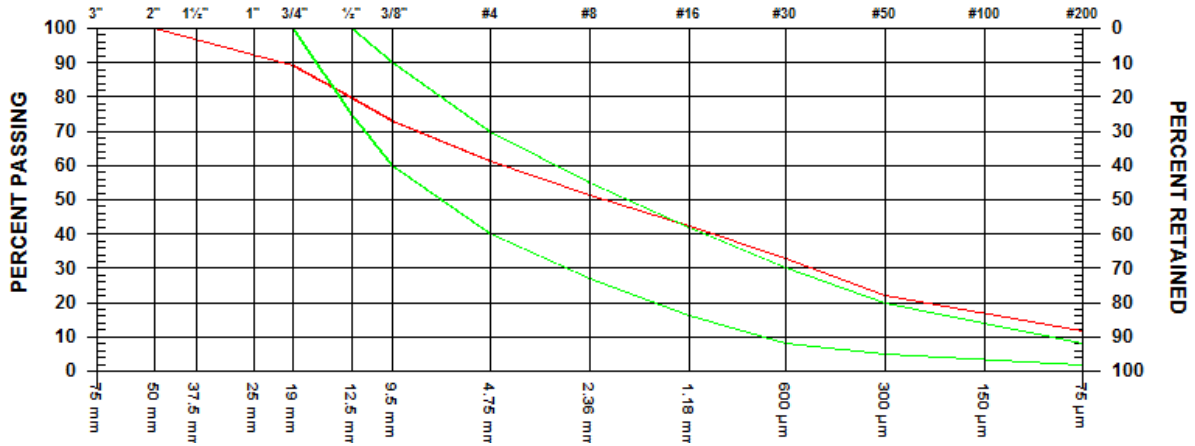
ATTN: MR. BEN WEISS

PROJECT CMHC GRANVILLE ISLAND
GEOTECHNICAL
CONTRACTOR

VANCOUVER

SIEVE TEST NO. 2 DATE RECEIVED Mar 08, 2016 DATE TESTED Mar 08, 2016 DATE SAMPLED Mar 03, 2016

SUPPLIER	GRAB	SAMPLED BY	MAK
SOURCE	SITE	TESTED BY	L. JEAN, ASCT
SPECIFICATION	MMCD GRANULAR BASE	TEST METHOD	WASHED
MATERIAL TYPE	SAND AND GRAVEL, SOME SILT		



GRAVEL SIZES	PERCENT PASSING	GRADATION LIMITS
3" 75 mm		
2" 50 mm	100.0	
1 1/2" 37.5 mm	90.9	
1" 25 mm	89.1	
3/4" 19 mm	89.1	100.0-100.0
1/2" 12.5 mm	79.7	75.0-100.0
3/8" 9.5 mm	72.9	60.0-90.0

SAND SIZES AND FINES	PERCENT PASSING	GRADATION LIMITS
No. 4 4.75 mm	61.2	40.0-70.0
No. 8 2.36 mm	51.3	27.0-55.0
No. 16 1.18 mm	42.3	16.0-42.0
No. 30 600 µm	32.8	8.0-30.0
No. 50 300 µm	22.0	5.0-20.0
No. 100 150 µm	15.0	
No. 200 75 µm	11.9	2.0-8.0

COMMENTS

SAMPLE S02 @ 1.5' FROM AH16-01. TEST METHOD: ASTM C136, C117.