
SPECIFICATIONS

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1 RELATED REQUIREMENTS

- .1 Section 01 10 10: General Instructions.
- .2 Section 01 33 00: Submittals.
- .3 Section 01 33 02: Green Building Information Submittal Forms.
- .4 Section 01 35 18: LEED® Requirements and Procedures.
- .5 Section 01 74 20: Waste Management and Disposal.

2 CONTRACT

- .1 The Contract between the Owner and the Contractor shall be **CCDC-2-2008 Stipulated Price Contract**, including the Agreement, Definitions, General Conditions, and any amendments thereto by the Owner.

3 DEFINITIONS

- .1 The term “Owner” where used in the Contract Documents shall mean the City of New Westminster herein after referred to as the “City”.
- .2 The term “Consultant” where used in Contract Documents shall mean Musson Cattell Mackey Partnership.
- .3 The terms “Contractor”, “Subcontractor” and “Supplier” shall be as defined in CCDC-2-2008 – DEFINITIONS.
- .4 Wherever in the Contract Documents the words “review”, “approve”, “approval”, “direction”, “directed”, “selection”, “request”, “requested” and similar words are used, such reviews, approvals, directions, selections, and requests shall be given by the Consultant or the Contractor, unless specifically stated otherwise.
- .5 Wherever in the Contract Documents the word “provide” is used in any form, it shall mean that the Work concerned shall include both supply and installation of the products required for completion of that part of the Work.
- .6 Where a reference is made to Specification standards produced by various organizations, conform to the latest edition of standards, as amended and revised to the date of the Contract.

4 CONTRACT DOCUMENTS / SPECIFICATIONS

- .1 The Bid Documents including Instructions to Bidders, Bid Form the General Conditions of the Contract and Supplementary General Conditions and the Division 01 – General Requirements shall be deemed to be part of all sections of the specifications and shall be read in conjunction therewith, all as part of the Contract Documents.
- .2 In addition to general responsibility for the complete Work, and unless specified otherwise, the Contractor shall be specifically responsible for general work items specified in Division 01 – General Requirements.

5 SPECIFICATION FORMAT

- .1 These Specifications are not intended as a detailed description of installation methods, but serve to indicate particular requirements in the completed work.
- .2 For convenience of reference only, this Specification is separated into titled Sections (see Index). Sections are identified by title and a six-digit numbering system. The first two digits of this system designate the Division, ie. Section 01 10 10 – General Instructions, is a section within Division 01.
- .3 The grammatical style of Division 01 – General Requirements is intentionally abbreviated. When a paragraph commences with a verb, the words “The Contractor shall” are inferred. Where a colon (:) is used, the words “shall be” or “to be” are generally inferred. Omitted words or phrases shall be supplied by inference.
- .4 Where words in the Contract Documents occur in the singular form, they shall be taken as plural where applicable in accordance with the quantities required to satisfy the requirements of the Contract.
- .5 For simplification purposes only, this Specification may refer to participants in the male form (eg. *he, his, him*, etc). No gender is implied in the use of these terms, and these terms shall be read to include both male and female participants.

6 SCOPE CLAUSES

- .1 Scope clauses are included in the various trade specification sections for ease of reference. They shall not be interpreted as limiting the work included in those sections.

7 JURISDICTIONAL AUTHORITIES

- .1 Where reference is made to jurisdictional authorities, it shall mean all authorities who have within their constituted powers the right to enforce the laws of the place of the Work.

8 GENERAL DESCRIPTION OF THE WORK

- .1 The Work includes the excavation and shoring and related civil work required for the construction of Multi-Use Civic Facility and Office Tower located at Columbia Street between 8th Street and Begbie Street, New Westminster B.C. as more fully described in the Bid Documents.

9 CONSULTANT'S FUNCTION

- .1 The Consultant's function within the contract shall be as defined in CCDC2-2008 General Conditions of the Contract, in that he is the interpreter of the Contract and the judge of its performance and shall use his power under the Contract to enforce its faithful performance by all parties concerned, through the Contractor.

10 CONTRACTOR'S RESPONSIBILITIES

- .1 The Contractor shall make himself fully aware of the requirements of every Section of the Specifications and shall be responsible for assisting and making proper preparations for the work of all trades.
- .2 The responsibility as to which subtrade provides required articles or materials to be built in or supplied rests entirely with the Contractor. Differences in interpretation of the Specifications or drawings as to which trade shall provide certain specialty items, materials or labour shall not be grounds for payment of extras.

11 COORDINATION OF THE WORK

- .1 The Contractor shall maintain supervisory personnel at the site, who will assist in and administer the coordination of the work of the various Subcontractors.
- .2 The Contractor shall cooperate and coordinate his work with his Subcontractors so as to ensure that the Work as a whole proceeds with maximum speed and efficiency. In case of disagreement or dispute between Subcontractors, the Contractor shall be consulted and his decision as to the proper coordination of the direct portions of the Work shall be final.
- .3 The Consultant and the Contractor shall ensure that the flow of information and materials and the availability of work force is adequate for satisfactory and expeditious completion of the Work, and complies with and meets the time constraints of the Work Schedule.
- .4 The Contractor shall employ a qualified superintendent and all other necessary personnel on the site who shall:
 - .1 Be on the site at all times.
 - .2 Have full authority to act on Consultant's instructions.
 - .3 Control the Work throughout the construction period.
 - .4 Not be changed without prior approval of the Owner.
- .5 The Contractor shall provide responses to all urgent inquiries of the Owner or Consultant by a responsible pertinent member of the Contractor's staff in a reasonable and timely manner.

12 DIMENSIONS

- .1 The Contractor shall ensure that necessary site dimensions are taken and coordinated for the proper execution of the Work and shall assume complete responsibility for the accuracy and completeness of such dimensions.
- .2 The Contractor shall:
 - .1 Verify that the Work, as it proceeds, is executed in accordance with dimensions and positions indicated which maintain levels and clearances to adjacent work, as set out by requirements of the drawings, and ensure that work installed in error is rectified before work continues.

12 DIMENSIONS (Continued)

- .2 Check and verify dimensions referring to work of his Subcontractors. Verify dimensions, when pertaining to the work of Subcontractors with the trade concerned. Cooperate with Subcontractors for the proper performance of the Work.
- .3 The dimensions given on the drawings of existing work are approximate and the Contractor shall take actual site measurements before ordering materials, equipment and like.
- .4 The Contractor shall not scale directly from the drawings. If there is ambiguity or lack of information, immediately inform the Consultant.

14 WORKMANSHIP

- .1 All Work shall be performed by skilled mechanics, experienced in their trade, according to rules and customs of best trade practices for first class work and to the various standards recommended and specified.

END OF SECTION 01 10 00

1 RELATED REQUIREMENTS

- .1 Section 01 10 00: Summary of Work.
- .2 Section 01 33 00: Submittals.
- .3 Section 01 33 02: Green Building Information Submittal Forms.
- .4 Section 01 35 18: LEED® Requirement and Procedures.
- .5 Section 01 50 00: Temporary.
- .7 Section 01 74 20: Waste Management and Disposal.
- .8 Section 01 77 00: Contract Closeout.

2 GENERAL REQUIREMENTS

- .1 Unless specified otherwise, the provisions of Division 01 – General Requirements shall apply to all sections of the specifications. These General Requirements form part of the specifications referred to in the Agreement and shall apply to all parts of the specifications and shall be read in conjunction therewith.
- .2 The City will not accept any delay on the part of the Contractor or Subcontractor, or any claim for extra expense which is caused by the Contractor or Subcontractor's failure to comply with any provision of these General Requirements.
- .3 The Contractor shall be responsible for coordination and completion of the work to the extent indicated in the Contract Documents, and to coordinate the work of his Subcontractors and suppliers to ensure that this is accomplished.
- .4 Unless specified otherwise, the Contractor shall be specifically responsible for all general work items specified in Division 01 – General Requirements.

3 REFERENCE DOCUMENTS

- .1 The Contractor shall provide at the site one (1) copy of each of the following documents for general reference:
 - .1 Contract Documents.
 - .2 Excavation Permit.
 - .3 Copy of all other permits, licenses etc., issued to the Contractor or Subcontractors.
 - .4 B.C. Building Code 2006.
 - .5 WorkSafe BC Occupational Health and Safety Regulations (latest edition).
 - .6 Contract Change Forms and Change Orders.
 - .7 Construction Safety Program.

3 REFERENCE DOCUMENTS (Continued)

- .8 Field test records and inspection reports.
 - .9 Job Site instructions issued by the Consultant.
 - .10 WHMIS Material Safety Data Sheets.
 - .11 Other reference documents required by the specifications to be on site.
 - .12 Other reference documents required by code or other regulations to be on site.
- .2 The provision of the documents referred to shall not constitute compliance with any provisions of the Contract Documents requiring notice to be given regarding claims or circumstances giving rise to claims for delay, changes or damages.

4 DAILY RECORD

- .1 From the date of commencement of the Work, the Contractor shall maintain a careful daily record of the progress of the Work using the Contractor's standard diary form, with all applicable trades listed or in such form as designated by the Consultant. This record shall be open to the Consultant's inspection at all reasonable times. Copy shall be turned over to the Consultant with each monthly application for progress payment, and when requested.
- .2 The report shall record all pertinent data including:
- .1 Daily weather conditions, including maximum and minimum temperatures.
 - .2 Commencement, progress and completion of various portions of the Work.
 - .3 Dates of all site meetings.
 - .4 Dates of visits or inspections by government authorities, inspectors, utility companies and any other visitors to the site.
 - .5 Record of work force employed.
 - .6 Information required by the Contractor or Subcontractors.
 - .7 Material deliveries affecting the Work Schedule.
 - .8 Actions or events affecting the Work Schedule.
 - .9 Clarifications or questions by Contractor or Subcontractors, and answers received.

5 LABOUR

- .1 The site is classified as an "Open Site". It is the responsibility of the Contractor and his Subcontractors to ascertain the labour conditions on the site, with particular reference to union or non-union labour, and to comply with these conditions.

5 LABOUR (Continued)

- .2 The Contractor shall maintain good order and discipline among employees engaged on the Work and shall not employ on the Work any unfit person nor anyone not skilled in the task assigned to him.
- .3 The Contractor shall maintain on the Work as large a labour force in the various trades as can be used with efficiency and consistent with the agreed construction schedule.

6 SIGNS

- .1 The Contractor shall control the use of signs. Signs or advertising shall not be placed on site without the written approval of the City.

7 PUBLICITY

- .1 All publicity relating to this project is subject to the approval of the City and no mention of the project in advertising or articles in any publication will be permitted unless approved in writing by the City. Publicity or advertising implying endorsement of a product by the City will not be permitted.

8 WORK AREAS

- .1 The limits of the Work of the Contract shall be mutually agreed upon by the City, Consultant and the Contractor. The Work and the operation of vehicles and machinery, storage of equipment, materials and/or supplies must be contained within authorized designated areas.
- .2 Areas and limits for working purposes and for storage of construction materials on the site shall be designated by the Contractor. Access into and from the site will be approved by the City.
- .3 If revision of limits of the work area limits become necessary for any compelling reason, the Contractor shall contact the Consultant and the City immediately and shall not disturb additional areas without written authorization by the Owner.

9 SETTING OUT WORK AND SURVEY REQUIREMENTS

- .1 The Contractor shall be responsible for establishing all lines and levels for the Work. The Contractor shall employ a registered B.C. Land Surveyor to establish bench marks and the Contractor shall maintain such monuments required for detail setting out of the Work by the Contractor and/or Subcontractors.
- .2 The Contractor shall be responsible for and protect all existing lines, elevations, reference points and measurements of existing services and utilities. The Contractor shall be responsible for maintaining and replacement until the end of the Work.
- .3 The Contractor shall:
 - .1 Preserve permanent reference and grid points during construction.
 - .2 Make no changes or relocations without prior written notice to the Consultant.
 - .3 Establish all lines and levels for the Work, locate and lay out, by instrumentation.

9 SETTING OUT WORK AND SURVEY REQUIREMENTS (Continued)

- .4 Maintain a complete, accurate log of control and survey work as it progresses.
- .4 The Contractor shall submit a certificate signed by the Surveyor certifying that elevations and locations of completed Work are in conformance with Contract Documents.

10 HOURS OF WORK

- .1 The Work shall be carried out during the acceptable working hours stipulated for the construction industry by the City of New Westminster.
- .2 The Contractor shall comply with the requirements of the applicable regulations and shall take all necessary steps to ensure the generation and transmission of noise and vibration due to the Work is kept to a minimum as required by such.
- .3 In the event it is necessary to perform work outside the acceptable working hours, the Contractor shall obtain written approval from the applicable department of the City to carry out such work.

11 NOISE ABATEMENT

- .1 The Contractor and each Subcontractor shall comply with the noise abatement regulations pursuant to the City and shall take all necessary steps to ensure the generation and transmission of noise and vibration due to the work is kept to a minimum. Any such noise or vibration which is found to be objectionable shall be corrected by the Contractor to the satisfaction of the City.

12 PROGRESSIVE AND FINAL CLEAN UP

- .1 The Contractor shall maintain the Site and areas of work in tidy condition, free from the accumulation of waste materials and debris at all times and shall promptly deposit in garbage containers, all waste materials and debris removed in the performance of the Work, to the complete satisfaction of the Consultant, and the City (Refer to Section 01 74 20 - Waste Management and Disposal.)
- .2 The Contractor shall be responsible for the final cleaning of the Work prior to turning over completed areas to the City. Refer to Section 01 70 00 – Contract Closeout.
- .3 The Contractor shall be the arbitrator among Subcontractors at the site as to who is responsible for clean up of various work areas.

13 PROTECTION OF WORK EXISTING FACILITIES

- .1 The Contractor shall be responsible for the protection of the adjoining existing building and facilities and existing utility lines and services to be maintained. If, during the Work, any of the above are damaged, they shall be replaced without cost to the City to the satisfaction of the Consultant and where applicable to the Owner, or the Owners of the adjoining property.
- .2 The Contractor shall exercise due care for the protection of the adjoining sidewalks, streets and other public ways, and the property of abutting owners.

13 PROTECTION OF WORK AND EXISTING FACILITIES (Continued)

- .3 Before commencing any of the Work, the Contractor shall prepare and submit to the Consultant a Site Management Plan to the Consultant and the City indicating the proposed location of all hoardings, barricades and encroachments, if any, on surrounding streets and property and prepare and furnish to the City the consent of the appropriate owners to any such encroachment.
- .4 Pumping, draining and control of surface and ground water shall be carried out so as to avoid endangering the Work or any adjacent facility or property, or interrupting, restricting or otherwise infringing or interfering with the use thereof (Refer to Section 31 23 00 - Excavation and Shoring).
- .5 The Contractor shall make good, at no expense to the City, any damage or disruption to existing roadways, parking facilities, utilities, services, sidewalks and curbs arising out of construction negligence. All repair work shall only be done after consultation with the City and the Consultant and to standards and codes of the authorities having jurisdiction.
- .6 Making good means restoration to at least original condition in terms of strength, safety, workmanship and appearance.
- .7 The Contractor shall take reasonable measures to maintain access to existing manholes, catch basins, electrical pull boxes, fire hydrants, valve boxes and allied services underground and on the surface.

14 RE-ROUTING AND CAPPING UTILITIES AND SERVICES

- .1 The Contractor shall refer to the Contract Documents and shall:
- .2 Cap, plug, disconnect or relocate known existing utilities interfering with site operations and report unidentified utilities discovered in the course of operations to the City and the Consultant. Such action as is necessary or ordered to prevent damage to such utilities shall be taken by the Contractor.
- .3 Cap off and remove known unused existing utility services encountered during Work after approval is given by the City and the utilities concerned, whichever may apply. Relocation, removal, protection and capping of existing utility services shall be performed only by the applicable utility, and of other services licensed mechanics.
- .2 The accuracy or completeness of information regarding the location of existing utilities is not guaranteed. The Contractor shall make own investigation as to the location and type of existing utilities and their appurtenances and service connections which may be affected by the Contract work.
- .3 The Contractor shall notify the City and the Consultant in writing if existing conditions at the place of Work differ materially from those indicated in the Contract Documents, or a reasonable assumption of probably conditions based thereon.
- .4 After prompt investigation, should the Consultant determine that the conditions do differ materially, instructions may be issued for changes in the Work as provided in the General Conditions.

15 SITE MEETINGS

- .1 The Contractor shall coordinate, attend and record regular site meetings at such intervals as may be deemed necessary for the purpose of expediting the progress of the Work and coordinating the work of the various Subcontractors.

16 PRE-CONSTRUCTION MEETING

- .1 Prior to commencing the Work on site, the Contractor shall request a meeting of affected parties to discuss and resolve administrative procedures and responsibilities, scheduling, protection of existing facilities and adjoining building, safety procedures, access, traffic restrictions, deliveries, sustainability requirements, etc.
- .2 Senior representatives of the City, the Consultant, Contractor, Subcontractors, field inspectors and supervisors will attend such meeting.
- .3 The following items will be discussed at meetings:
- .1 Confirmation of authorized representatives of participants in the Work.
 - .2 Work schedule.
 - .3 Quality control policies and procedures.
 - .4 Safety procedures and safety program.
 - .5 Environmental procedures.
 - .6 Site security.
 - .7 Administrative procedures and requirements.
 - .8 LEED® Requirements and Procedures.
 - .9 Waste materials and debris disposal, and re-cycling including construction waste management practices.
 - .10 Other items brought forward at the meeting.
- .4 The Contractor shall record minutes of meetings and circulate to attending parties and affected parties not at the meeting within four (4) calendar days of the meeting.

17 PERMITS

- .1 The Contractor shall obtain and pay for the Excavation Permit and all other permits and necessary damage deposits required by the City.
- .2 The Contractor shall work with the City to arrange and coordinate service connections with the appropriate authorities and/or utility companies.
- .3 Subcontractors shall be responsible for obtaining and paying for all permits necessary to cover their portions of the Work.

END OF SECTION 01 10 10

1 RELATED REQUIREMENTS

- .1 Section 01700: Contract Closeout.

1 WORK SCHEDULE

- .1 The Contractor shall:

- .1 Prepare and submit to the Consultant a schedule in Bar Chart format or computer generated program that indicates the timing (start and completion date of activities) of all major activities of the Work and provides details of the critical events and their inter-relationship to demonstrate the Work will be performed in conformance with the Contract Time; and
- .2 Submit one colour reproduction (plus four copies) to the Consultant, who will review the schedule for conformity to the conditions of the Contract or as stipulated by the Contract Documents, and will return one reviewed copy to the Contractor within ten (10) Working Days after receipt; and
- .3 Monitor the progress of the Work relative to the approved schedule and update the schedule on a monthly basis for Consultant review at time of submission for application for payment and as stipulated by the Contract Documents; and
- .4 Promptly advise the Consultant of any revisions required to the schedule as a result of extensions of the Contract Time as provided in the General Conditions for the City's approval; and
- .5 Indicate changes occurring since previous submission of schedule such as major changes in scope, activities modified since previous submission, revised projections of progress and completion, other identifiable changes; and
- .6 Provide a narrative report to define problem areas, anticipated delays, the impact on the schedule, corrective action recommended and its effect, the effect of changes on schedules of Other Contractors, where present; and
- .7 Distribute copies of the Consultant approved revised schedule to the City, Consultant, Job Site office, Subcontractors, other concerned parties etc.; and
- .8 Instruct recipients of the revised schedule to report to the Contractor within five (5) Working Days, any problems anticipated by the time frames noted in the schedule.

3 GENERAL SCHEDULE REQUIREMENTS

- .1 After award of the Contract and during the Work meetings will be held with the authorized representatives of the City, the Consultants, the Contractor and the applicable Subcontractors in attendance at these meetings. The required staging and scheduling of the Work will be discussed in detail including the Owner's priorities, and any questions with respect to the construction staging or scheduling will be brought forward and clarified.

3 GENERAL SCHEDULE REQUIREMENTS (Continued)

- .2 The Work shall be carried out in accordance with the final reviewed and agreed Work schedule as amended from time to time.
- .3 In order to improve the schedule, modifications to the schedule may be suggested by the City, Consultant or the Contractor during construction subject to the General Conditions and such modifications may be implemented by mutual agreement between the City and the Contractor.

END OF SECTION 01 32 00

1 RELATED REQUIREMENTS

- .1 Section 01 32 00: Submission of schedules.
- .2 Section 01 33 02: Green Building Information Submittal Forms.
- .3 Section 01 35 18: LEED® Requirements and Procedures.
- .4 Section 01 74 20: Waste Management and Disposal.
- .5 Section 01 77 00: Submission of contract closeout documents.

2 ADMINISTRATIVE

- .1 The Contractor shall submit to the Consultant all submittals required for review by the Consultant with reasonable promptness and in an orderly sequence so as to not cause delay in the Work.
- .2 Work affected by the submittals shall not proceed until review is complete.
- .3 The Contractor shall review submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittals has been checked and coordinate with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, dated and identified as to the specific project will be returned without being examined and shall be considered rejected.
- .4 The Contractor shall verify that field measurements and affected adjacent Work are coordinated.
- .5 The Contractor's responsibility for errors and omissions in submission is not relieved by the Consultant's review of submittals.
- .6 The Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Consultant's review.
- .7 The Contractor will keep one reviewed copy of each submission on site.

2 PROJECT DOCUMENTATION SUBMITTALS (CHECK-LIST)

- .1 The Contractor shall be responsible for arranging, obtaining, collecting, compiling all clearances, certificates, permits, etc. as required by the specifications, codes or by-laws and as related to his Contract. Without limiting the generality of the foregoing requirement, or the General Conditions, the following is a consolidated checklist for convenience only. Forward to the Consultant as applicable:
- .2 Provide within ten (10) days of date of Owner's Notice of Acceptance of contract and **prior to commencement of construction on site:**
 - .1 Performance Bond and Labour and Material Payment Bond each in the amount of fifty percent of the contract amount.
 - .2 Certified copy of Contractor's complete insurance policies called for in GC 11.1, as amended by Supplementary General Conditions.

2 PROJECT DOCUMENTATION SUBMITTALS (CHECK-LIST) (Continued)

- .3 Detailed Work Schedule (in triplicate).
 - .4 Confirmation of site and managerial personnel to be employed on the Project.
 - .5 A Contract price detailed breakdown (Schedule of Values) must be submitted in a form acceptable to the Consultant and the City. The breakdown shall indicate all relevant trade responsibilities on the project. The City and the Consultant shall review the proposed Contract price breakdown and offer suggestions to the Contractor on any improvements required. Prior to submission of the initial progress payment, a reviewed and accepted Contract price breakdown shall be presented to the Consultant for review.
 - .6 Projected cash flow requirement for the various certificate of payment stages.
 - .7 Signed contract agreement.
 - .8 Construction Safety Plan.
- .3 Prior to making application for first payment and as a condition thereof, submit the following items in advance a minimum of ten (10) working days.
- .1 WorkSafe BC letter stating that the Contractor and all Subcontractors are in good standing.
 - .2 Copies of all permits and receipts for fees paid.
 - .3 Sample of proposed progress claim form, statutory declaration forms and list of corporate signing officers.
- .4 Provide the following during progress of the contract:
- .1 Copies of test reports, other than those prepared by Owner appointed independent testing agencies.
 - .2 Copies of inspection reports issued by authorities.
 - .3 Copies of all permits, licenses, certificates and receipts for fees paid.
 - .4 The Contractor's daily record.
 - .5 Revised Work Schedule (at end of each month).
 - .6 Monthly LEED® documentation and submittals.
- .5 Provide the following prior to application for Substantial Performance of the Work:
- (a) Any testing, balancing and checking of equipment and systems as specified under Contractor's scope of work.
 - (b) Statutory declaration that all wages, accounts for materials, Subcontractors and suppliers have been paid as required by the General Conditions.

2 PROJECT DOCUMENTATION SUBMITTALS (CHECK-LIST) (Continued)

- (c) Any outstanding LEED® documentation required by the Project LEED® Coordinator.
 - (d) Any letters of assurance required by the documents for sections of work that are required to be designed, fabricated and installed un the supervision of the professional engineer register in BC.
 - (e) Deficiency List.
- .6 Provide the following before release of holdback monies or at Final Payment, whichever occurs first.
- .1 Compliance with the requirements of the Builder's Lien Act S.B.C. 1997, Chapter 45, including release of all liens arising out of this Contract.
 - .2 WorkSafe BC letter stating that Contractor and all Subcontractors are in good standing, and have been assessed for and have paid all assessments for the work up to and including the date of Substantial Performance.
 - .3 Certification, acceptable to the Owner, stating that all taxes, EI payments, Canada Pension Plan contributions, duties, royalties and all other monies required to be paid by law or statute have been paid in full.
 - .4 Refer to GC 5.5 Payment of Holdback.
- .7 For any and all billings, forward to the Consultant:
- .1 Application for payment.
 - .2 Associated documentation as required and as specified.
 - .3 Updated Schedule.
 - .4 Detailed project record.
 - .5 Coordinate progress billing with cost breakdown.
 - .6 Include gross and net value of Work completed during billing period.
 - .7 Include running total of gross and net value of Work completed by the end of the building period.
- .8 The documentation required by the General Conditions and amendments thereto under the Supplementary Conditions shall accompany each application for progress payments.

END OF SECTION 01 33 00

1.1 PRODUCT SUBMITTALS

- 1.1.1 Appropriate form(s) must be completed for every product installed and returned PRIOR to installation from this section.
- 1.1.2 These forms are available in an editable PDF and PDF'S may form part of project close out submittals and burned on CD's.
- 1.1.3 Submit Material Safety Data Sheet and/or manufacturer's literature for each product incorporated into the building.

.1 **Materials & Resources Credit 3.1 – 3.2**

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number: _____	Total cost of this material (excluding labour):	\$ _____

Material Reuse and Salvage	Materials & Resources Credit 3.1 – 3.2
Is this material (in whole or in part) salvaged, refurbished, or reused?	<input type="checkbox"/> yes <input type="checkbox"/> no
Is the material modified on site or salvaged off site	<input type="checkbox"/> on site <input type="checkbox"/> off site
What is the value of the salvaged, refurbished, or reused part of this material? If it is reused, use market replacement value.	\$ _____
Comments:	

.2 **Materials & Resources Credit 4.1 – 4.2**

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number: _____	Total cost of this material (excluding labour):	\$ _____

Recycled Content	Materials & Resources Credit 4.1 – 4.2
Does this material contain recycled content? <input type="checkbox"/> yes <input type="checkbox"/> no	
Percent post-consumer recycled portion: _____% Percent post-industrial recycled portion: _____%	
Recycled content information source (describe and attach, i.e. manufacturer's literature): _____	
NOTE: If information is being provided on an assembly (e.g. windows) please provide separate information on separate forms for the component parts (e.g. glass, frames, films) including an estimated budget for each assembly component.	
Comments:	

Concrete Containing SCM to Partially			Materials & Resources Credit 4.1 – 4.2		
Total Cost of Concrete		\$ _____	Cost of Form Materials		\$ _____
Mix No.	Concrete Design Strength @ 28d (MPa)	Air Entrained (Y/N)	Base Portland Cement (kg/m ³)	Portland Cement used (kg/m ³)	Volume of Mix (m ³)

If Supplementary Cementing Materials (SCMs) are used as part of the percentage recycled content, a letter signed by the concrete supplier / manufacturer or professional engineer must be submitted that certifies the reduction in Portland cement from Base Mix to Actual SCM Mix (as a percentage). This can be provided as a total reduction in Portland cement for all the concrete used on the project.

.3 **Materials & Resources Credit 5.1 – 5.2**

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number: _____	Total cost of this material (excluding labour):	\$ _____

Regional Manufacturer and Harvest of Materials	Materials & Resources Credit 5.1 – 5.2
Is this material manufactured locally, within 800 km (truck) / 2400 km (ship or rail) radius of the <u>project</u> site? (Provide waybill for ship or rail.)	<input type="checkbox"/> yes <input type="checkbox"/> no
Name of city of manufacture: _____	
Method of Transportation: <input type="checkbox"/> Truck <input type="checkbox"/> Rail/Water	
Distance between project site and location of manufacture: (use www.mapcrow.info)	_____ km
If the item is a component, what percentage (by weight) is manufactured locally?	_____
Is this material harvested/extracted locally, within 800 km (truck) / 2400 km (ship or rail) radius of the <u>manufacture</u> site?	<input type="checkbox"/> yes <input type="checkbox"/> no
Name of city of harvest/extraction: _____	
Method of Transportation: <input type="checkbox"/> Truck <input type="checkbox"/> Rail/Water	
Distance between project site and location of harvest/extraction: (use www.mapcrow.info)	_____ km
If the item is a component, what percentage (by weight) is manufactured locally?	_____
Regional information source (describe and attach, i.e. manufacturer's literature):	_____

.4 Materials & Resources Credit 6.0

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number: _____	Total cost of this material (excluding labour):	\$ _____

Rapidly Renewable Materials	Materials & Resources Credit 6.0
Is this material made from a rapidly renewable resource?	<input type="checkbox"/> yes <input type="checkbox"/> no
What is the value of the rapidly renewable portion?	\$ _____
What is the total weight of this material?	_____ kg
What is the weigh contributing to rapidly renewable contents?	_____ kg
Rapidly Renewable resource information source (describe and attach i.e. manufacturer letter, map):	
Comments:	

.5 **Materials & Resources Credit 7.0**

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number: _____	Total cost of this material (excluding labour):	\$ _____

Certified Wood	Materials & Resources Credit 7
Is this material a wood-based product or material:	<input type="checkbox"/> yes <input type="checkbox"/> no
Is the wood-based material certified by the Forest Stewardship Council (FSC)?	<input type="checkbox"/> yes <input type="checkbox"/> no
What is the value of the FSC portion of the product	\$ _____
Vendor's or Manufacturer's FSC chain-of-custody certificate number:	_____
Certified wood information source (describe and attach, i.e. manufacturer's literature):	_____
Certified wood information source(s) (describe and attach):	_____
Comments:	

.6 **Indoor Environmental Quality Credit 4.1 – 4.4**

General Information Requirements		
Product Name:	Manufacturer's name:	
Submitted by (company):	Contact information:	
Specification Section Number:	Total cost of this material (excluding labour):	\$ _____

Low-emitting Materials	Indoor Environmental Quality Credit 4.1 – 4.4
Fill out for EVERY adhesive, sealant, sealant primer paint or other coating, carpet, composite wood/agrifiber, laminate adhesive, including mechanical and electrical.	
Is this material an adhesive, sealant, sealant primer paint or other coating, carpet, composite wood/agrifiber, laminate adhesive product? If yes, circle which one.	<input type="checkbox"/> yes <input type="checkbox"/> no
If yes, does it meet the emission limits described in LEED Reference Guide & State of California South Coast Air Quality Management District (SCAQMD) Low Emitting Materials Emissions Limits Table?	<input type="checkbox"/> yes <input type="checkbox"/> no
What category and Limit does it fall under from the table?	Total Volume
Category: _____ Limit _____ g/l	
Note: Products containing VOC applied offsite to materials not applicable, refer to Canada LEED NC Reference Guide.	Used: _____ L
What are the VOC emissions for the adhesive, sealant, sealant primer, paint or other coatings?	VOC from MSDS: _____ g/l
Conversion: 0.0083lb/gal = 1.0 g/l	
For Carpet Products: Does it comply with Carpet and Rug Institute's (CRI) Green Label Program?	<input type="checkbox"/> yes <input type="checkbox"/> no (Attach product emission literature)
For Carpet Cushion: Does it comply with Carpet and Rug Institute's (CRI) Green Label Program?	<input type="checkbox"/> yes <input type="checkbox"/> no (Attach product emission literature)
For composite wood and laminate adhesive products: Does the material contain added urea-formaldehyde resin?	<input type="checkbox"/> yes <input type="checkbox"/> no
Low-emitting material information source(s) (describe and attach, i.e. manufacturer's literature): _____	
Comments: _____ _____	

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

- 1.1.1 LEED® procedures and implementation.
- 1.1.2 LEED® project scorecard.

1.2 RELATED SECTIONS

Section 01 33 00 – Submittal Procedures.

- 1.2.1 Section 01 33 02: Green Building Products Information Submittal Form.
- 1.2.2 Section 01 43 00 – Quality Assurance.
- 1.2.3 Section 01 45 00 – Quality Control.
- 1.2.4 Section 01 62 00 – Product Exchange Procedures.
- 1.2.5 Section 01 74 20: Waste Management and Disposal.
- 1.2.6 Section 01 74 20: Schedule W1: Waste Management and Disposal Proposed Receiving Facilities.
- 1.2.7 Section 01 74 20: Schedule W2: Waste Management and Disposal Waste Tracking Worksheet.
- 1.2.8 Section 02 42 13: Indoor Air Quality Management.
- 1.2.9 Section 31 25 05: Erosion and Sediment Control.
- 1.2.10 This section describes requirements applicable to all Sections within Divisions 02 to 49.

1.3 PERFORMANCE OBJECTIVE

- 1.3.1 Project LEED® credits needed to obtain Canada NC 2009 – Gold Certified.

1.4 DEFINITIONS

- 1.4.1 Canada Green Building Council, URL: www.cagbc.org.
- 1.4.2 Certificates of Chain of Custody: Certificates signed by manufacturers stating that materials were obtained or disposed of in a sustainable manner and issued by a recognized and accredited certification agency, example follows:

- .1 Certificates signed by manufacturer certifying that wood used to make product was obtained from forests certified by a Forestry Stewardship Council (FSC) accredited certification body to comply with FSC 1.2, Principles and Criteria; certificates shall include evidence that mill is certified for chain of custody by an FSC accredited certification body.
- 1.4.3 LEED®: Leadership in Energy and Environmental Design; the word Certification is used to describe the level of LEED® accreditation required for this Project. All reference of LEED® in this project is referring to Canada LEED® Reference Guide for Green Building Design & Construction 2009.
- 1.4.4 Rapidly Renewable Materials: Materials made from agricultural products that are typically harvested within a ten year or shorter cycle. Rapidly renewable materials include products made from bamboo, cotton, flax, jute, straw, sunflower seed hulls, vegetable oils, or wool.
- 1.4.5 Regionally Manufactured Materials: Materials that are manufactured within a radius of 800 km (500 miles) or 2400 km (1500 miles) shipped by water or rail from the Project location; manufacturing refers to the final assembly of components into the building product that is installed at the Project site.
- 1.4.6 Regionally Extracted, Harvested, or Recovered Materials: Materials that are extracted, harvested, or recovered and manufactured within a radius of 800 km (500 miles) or 2400 km (1500 miles) shipped by water or rail from the Project site.
- 1.4.7 Recycled Content: The percentage by weight of constituents that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre consumer), or after consumer use (post consumer), and as further defined as follows:
 - .1 Spills and scraps from the original manufacturing process that are combined with other constituents after a minimal amount of reprocessing for use in further production of the same product are not recycled materials.
 - .2 Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre consumer recycled materials.

1.5 LEED® OBJECTIVES

- 1.5.1 Three (3) days after contract award, Contractor to select and name a primary LEED® Accredited Professional and or coordinator for the project. This person is responsible to hold a LEED® introduction meeting to all involving subcontractors one (1) week prior to commencement of work to familiarize subcontractors the goals and objectives of this project's LEED® requirements.
- 1.5.2 This section includes general requirements and procedures for compliance with certain Canada Green Building Council's (CaGBC) LEED® prerequisites and credits needed for the Project to obtain certification:
 - .1 Other LEED® prerequisites and credits needed to obtain LEED® certification are dependent on material selections and may not be specifically identified as LEED® requirements.

- .2 Compliance with requirements needed to obtain LEED® prerequisites and credits will be used as one criterion to evaluate requests for substitutions described in Section 01 61 00 and Section 01 62 00.
 - .3 Additional LEED® prerequisites and credits needed to obtain the indicated LEED certification are dependent on the Consultant's design and other aspects of the Project that are not part of the Work of the Contract.
- 1.5.3 No single manufacturer, supplier, fabricator or subcontractor can fulfill the total requirements for LEED® Certification for the project; the Consultant will assemble LEED® information submitted for the project and prepare the required letters, calculations, and spreadsheets for submitting to CaGBC. LEED® Certification requires the cooperation and diligence of all project participants for a successful application and acceptance for LEED® certification.
- 1.5.4 Failure to provide products or methods of construction contributing towards LEED® prerequisites or credits will result in the Owner achieving a Certification less than that specified, or no Certification at all; the Owner will reserve the right to seek compensation where failure to achieve Certification is a result of direct neglect or misrepresentation of any material or construction method.
- 1.5.5 LEED® requirements apply to all Sections and Work of this Project, whether specifically indicated or not.
- 1.5.6 Utilize Section 01 33 02: Green Building Products Information Submittal Forms for documenting LEED® requirements.

1.6 SUBMITTALS

- 1.6.1 Provide requested information in accordance with Sections 01 33 00, 01 33 02 and 01 61 00; coordinate submission of additional LEED® submittal requirements included in other sections of the Project Manual.
- 1.6.2 LEED® submittals are in addition to other submittals required for the project, where submitted item is identical to that submitted to comply with other requirements, duplicate copies shall be provided as a separate submittal to verify compliance with indicated LEED® requirements.
- 1.6.3 Provide Project Materials Cost Data:
- .1 Total construction cost, including labour, materials, mechanical and electrical components, but no Division 12 – Furnishings.
 - .2 Total construction material cost, Divisions 2 through 10 (excluding labour, mechanical, electrical and Division 12 – Furnishings).
- 1.6.4 LEED® Action Plans: Provide preliminary submittals within fourteen (14) days of date established for the Notice to Proceed indicating how the following requirements will be met:
- .1 Credits MR 2.1 and 2.2: Waste management plan complying with Section 01 74 00 – Cleaning & Waste Processing, and Section 01 74 20 - Waste Management and Disposal.
 - .2 Credits MR 4.1 and 4.2: List of proposed materials with recycled content:

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- .1 Indicate cost, post consumer recycled content, and post industrial recycled content for each product having recycled content.
 - .3 Credits MR 5.1 and 5.2: List of proposed regionally manufactured materials and regionally extracted, harvested, or recovered materials:
 - .1 Identify each regionally manufactured material, its source, cost and travel distance to site.
 - .2 Identify each regionally extracted, harvested or recovered material, its source, cost and travel distance to site.
 - .4 Credit MR 7.0: List of proposed certified wood products:
 - .1 Indicate each product containing certified wood, its source, and cost.
 - .2 Include statement indicating total cost for wood based materials used for Project, including non rented temporary construction.
 - .5 Credits IEQ 4.1, 4.2 and 4.4 – Low-Emitting Materials.
 - .6 Credit IEQ 3.1: Construction indoor air quality management plan.
- 1.6.5 LEED® Progress Reports: Concurrent with each Application for Payment, submit reports comparing actual construction and purchasing activities with LEED® action plans for the following:
- .1 Credit MR 2.1 and 2.2: Waste reduction monthly progress reports complying with Section 01 74 20 – Waste Management and Disposal.
 - .1 Provide waybills for recycled materials.
 - .2 Credits MR 4.1 and 4.2: Recycled content.
 - .3 Credits MR 5.1 and 5.2: Regionally manufactured materials and regionally extracted, harvested, or recovered materials.
 - .4 Credit MR 7.
 - .5 Credits IEQ 4.1, 4.2 and 4.4 – Low-Emitting Materials.
- 1.6.6 LEED® Documentation Submittals:
- .1 Credit SS 7.2: Product Data for roofing materials for green vegetated roof system.
 - .2 Credit SS 8.0: Product Data for interior and exterior lighting fixtures that stop direct beam illumination from leaving the building site.
 - .3 Credits WE 3.1 and 3.2: Product Data for plumbing fixtures indicating water consumption.
 - .4 Prerequisite EA 3.0: Product Data for new HVAC equipment indicating absence of CFC refrigerants.
 - .5 Credit EA 4.0: Product Data for new HVAC equipment indicating absence of HCFC refrigerants.
 - .6 Credit EA 5.0: Product Data and wiring diagrams for sensors and data collection system used to provide continuous metering of building energy and water consumption performance over time.
 - .7 Credit MR 2.1 and 2.2: Comply with Section 01 74 00 – Cleaning and Waste Processing, and Section 01 74 20 – Waste Management and Disposal.
 - .8 Credit MR 4.1 and 4.2: Product Data and certification letter indicating percentages by weight of post consumer and pre-consumer content for products

-
- having recycled content. Include statement indicating costs for each product having recycled content.
- .9 Credit MR 5.1 and 5.2: Product Data indicating location of material manufacturer for regionally manufactured materials:
- .1 Include statement indicating cost and distance from manufacturer to Project for each regionally manufactured material.
 - .2 Include statement indicating cost and distance from point of extraction, harvest, or recovery to Project for each raw material used in regionally manufactured materials.
- .10 Credit MR 7.0: Product Data and certificates of chain of custody for products containing certified wood:
- .1 Include statement indicating costs for each product containing certified wood.
 - .2 Include statement indicating total cost for wood based materials used for Project, including non rented temporary construction.
- .11 Credit IEQ 1.0: Product Data and Shop Drawings for carbon dioxide monitoring system.
- .12 Credit IEQ 3.1:
- .1 Construction indoor air quality management plan.
 - .2 Product Data for temporary filtration media.
 - .3 Product Data for filtration media used during occupancy.
 - .4 Construction Documentation: (18 photos in total.) Six photographs at three different occasions during construction along with a brief description of the SMACNA approach employed, documenting implementation of the IAQ management measures, such as protection of ducts and on site stored or installed absorptive materials.
- .13 Credit IEQ 3.2:
- .1 Signed statement describing which method is employed and provide subsequent required documents.
 - .2 Path 1 or 2, Product Data for filtration media used during flush out and during occupancy – indicate dates when flush out was begun and completed and statement that filtration media was replaced after flush out.
 - .3 If using Option 2, report from testing an inspecting agency indicating results of IAQ testing and documentation showing conformance with IAQ testing procedures and requirements.
- Note: Minimum 10 days before occupancy.
- .14 Credit IEQ 4.1: Product Data for adhesives and sealants used on the interior of the building indicating VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).
- .15 Credit IEQ 4.2: Product Data for paints and coatings used on the interior of the building indicating chemical composition and VOC content of each product used. Indicate VOC content in g/L calculated according to 40 CFR 59, Subpart D (EPA method 24).
- .16 Credit IEQ 4.3: Product Data for carpet products indicating VOC content of each product used and percent of non-compliance product.

- .17 Credit IEQ 4.4: Product Data for composite wood and agrifiber products indicating that products contain no urea formaldehyde resin:
 - .1 Include statement indicating adhesives and binders used for each product.

Note: Materials considered fixtures, furniture and equipment (FF&E) are not to be included as base building elements.
- .18 Credit IEQ 7: Product Data and Shop Drawings for sensors and control system used to monitor and control room temperature and humidity.

PART 2 PRODUCTS

2.1 RECYCLED CONTENT OF MATERIALS

- 2.1.1 Credits MR 4.1 and MR 4.2: Provide building materials with recycled content such that post consumer recycled content constitutes a minimum of 10% of the cost of materials used for the Project or such that post consumer recycled content plus one half of post industrial recycled content constitutes a minimum of 20% of the cost of materials used for the Project:
 - .1 The cost of post consumer recycled content of an item shall be determined by dividing the weight of post consumer recycled content in the item by the total weight of the item and multiplying by the cost of the item.
 - .2 The cost of post consumer recycled content plus one half of post industrial recycled content of an item shall be determined by dividing the weight of post consumer recycled content plus one half of post industrial recycled content in the item by the total weight of the item and multiplying by the cost of the item.
 - .3 Do not include mechanical and electrical components in the calculation.
 - .4 Recycled content of materials shall be as defined above.

2.2 REGIONAL MATERIALS

- 2.2.1 Credit MR 5.1: Provide 20% of building materials, by cost, that are regionally manufactured materials.
- 2.2.2 Credit MR 5.2: Of the regionally manufactured materials required by Credit MR 5.1 above, provide at least 30%, by cost, that are regionally extracted, harvested, or recovered materials.

2.3 CERTIFIED WOOD

- 2.3.1 Credit MR 7.0: Provide a minimum of 50%, by cost, of wood based materials that are produced from wood obtained from forests certified by an FSC accredited certification body to comply with FSC 1.2, Principles and Criteria.
 - .1 Wood based materials include but are not limited to the following materials when made from made wood, engineered wood products, or wood based panel products:
 - .2 Rough carpentry.
 - .3 Miscellaneous carpentry.
 - .4 Finish carpentry.

- .5 Architectural woodwork.
- .6 Wood cabinets.
- .7 Non-rented temporary construction, including bracing, concrete formwork, pedestrian barriers, and temporary protection.

2.4 LOW EMITTING MATERIALS

2.4.1 Credit IEQ 4.1: For interior applications use adhesives, sealants and sealant primers that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D, EPA Method 24:

- .1 Wood Glues: 30 g/L.
- .2 Metal to Metal Adhesives: 30 g/L.
- .3 Adhesives for Porous Materials (Except Wood): 50 g/L.
- .4 Subfloor Adhesives: 50 g/L.
- .5 Plastic Foam Adhesives: 50 g/L.
- .6 Carpet Adhesives: 50 g/L.
- .7 Carpet Pad Adhesives: 50 g/L.
- .8 VCT and Asphalt Tile Adhesives: 50 g/L.
- .9 Cove Base Adhesives: 50 g/L.
- .10 Gypsum Board and Panel Adhesives: 50 g/L.
- .11 Rubber Floor Adhesives: 60 g/L.
- .12 Ceramic Tile Adhesives: 65 g/L.
- .13 Multipurpose Construction Adhesives: 70 g/L.
- .14 Fibreglass Adhesives: 80 g/L.
- .15 Structural Glazing Adhesives: 100 g/L.
- .16 Wood Flooring Adhesive: 100 g/L.
- .17 Contact Adhesive: 80 g/L.
- .18 Plastic Cement Welding Compounds: 350 g/L.
- .7 ABS Welding Compounds: 325 g/L.
- .8 CPVC Welding Compounds: 490 g/L.
- .9 PVC Welding Compounds: 510 g/L.
- .10 Adhesive Primer for Plastic: 550 g/L.
- .11 Sealants: 250 g/L.
- .12 Sealant Primers for Nonporous Substrates: 250 g/L.
- .13 Sealant Primers for Porous Substrates: 775 g/L.

2.4.2 Credit IEQ 4.2: For interior applications use paints and coatings that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D, EPA Method 24 and the following chemical restrictions:

- .1 Flat Paints and Coatings: VOC not more than 50 g/L.
- .2 Non Flat Paints and Coatings: VOC not more than 100 g/L.
- .3 Anti Corrosive Coatings: VOC not more than 250 g/L.
- .4 Varnishes and Sanding Sealers: VOC not more than 275 g/L.
- .5 Stains: VOC not more than 250 g/L.

-
- .6 Aromatic Compounds: Paints and coatings shall not contain more than 1.0% by weight total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 - .7 Restricted Components: Paints and coatings shall not contain any of the following:
 - .1 Acrolein.
 - .2 Acrylonitrile.
 - .3 Antimony.
 - .4 Benzene.
 - .5 Butyl benzyl phthalate.
 - .6 Cadmium.
 - .7 Di (2 ethylhexyl) phthalate.
 - .8 Di n butyl phthalate.
 - .9 Di n octyl phthalate.
 - .10 1,2 dichlorobenzene.
 - .11 Diethyl phthalate.
 - .12 Dimethyl phthalate.
 - .13 Ethylbenzene.
 - .14 Formaldehyde.
 - .15 Hexavalent chromium.
 - .16 Isophorone.
 - .17 Lead.
 - .18 Mercury.
 - .19 Methyl ethyl ketone.
 - .20 Methyl isobutyl ketone.
 - .21 Methylene chloride.
 - .22 Naphthalene.
 - .23 Toluene (methylbenzene).
 - .24 1,1,1 trichloroethane.
 - .25 Vinyl chloride.
 - 2.4.3 Credit IEQ 4.3: Installation of carpet systems must meet or exceed requirements of the Carpet and Rug Institute's Green Label and Green Label Plus Indoor Air Quality Test Program.
 - 2.4.4 Credit IEQ 4.4: Do not use composite wood, agrifiber products and laminating adhesives that contain urea formaldehyde resin.

PART 3 EXECUTION

3.1 SITE DISTURBANCE

- 3.1.1 Credit SS 5.1: Comply with requirements of Section 01 10 00 – Summary of Work, and Section 31 25 05 – Erosion and Sediment Control.

3.2 CONSTRUCTION WASTE MANAGEMENT

- 3.2.1 Credit MR 2.1 and 2.2: In accordance with Section 01 74 00 – Cleaning and Waste Processing, and Section 01 74 20 - Waste Management and Disposal.

3.3 CONSTRUCTION INDOOR AIR QUALITY MANAGEMENT

- 3.3.1 Credit IEQ 3.1: In accordance with Section 02 42 13 – Indoor Air Quality Management and SMACNA IAQ Guideline for Occupied Buildings under Construction:

- .1 If Owner authorizes the use of permanent heating, cooling, and ventilating systems during construction period as specified in Section 01 57 20 - Temporary Facilities and Controls, install filter media having a MERV 8 according to ASHRAE 52.2 at each return air inlet for the air handling system used during construction.
- .2 Replace all air filters immediately prior to building air flush out. Replacement air filters shall have a MERV 13 according to ASHRAE 52.2.

- 3.3.2 Credit IEQ 3.2:

- .1 Conduct building air flush after construction ends with new air filters and 100% outdoor air to reach required air volume. Replace air filters after building air flush. Replacement air filters shall have a MERV 13 according to ASHRAE 52.2:
 - .1 Refer to Mechanical documents, Division 15.
- .2 Engage an independent testing and inspecting agency to conduct a baseline indoor air quality testing program according to EPA Protocol for Environmental Requirements.

LEED Canada-CS 2009 Project Scorecard

Yes	?	No	61	13	23
Project Totals (pre-certification estimates)					
Certified 40-49 points Silver 50-59 points Gold 60-79 points Platinum 80 points and above					
110 Possible Points					

Yes	?	No	Points
14	4	7	28
Sustainable Sites			
✓			Required
1			1
3			3, 5
6			1
1			3, 6
3			2
1			4
1			4
1			1
1			1
1			1
1			1

Yes	?	No	Points
6	4	0	10
Water Efficiency			
✓			Required
2			2, 4
2			2
4			2, 4

Yes	?	No	Points
20	2	6	37
Energy & Atmosphere			
✓			Required
✓			Required
12			9 - 21
4			2, 4
2			2
3			3
3			3
2			2

Yes	?	No	Points
6	1	6	13
Materials & Resources			
✓			Required
5			1-5
2			1-2
1			1
2			1-2
2			1-2
1			1

Yes	?	No	Points
9	0	3	12
Indoor Environmental Quality			
✓			Required
✓			Required
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1
1			1

Yes	?	No	Points
5	1	0	6
Innovation in Design			
1			1
1			1
1			1
1			1
1			1

Yes	?	No	Points
1	1	1	4
Regional Priority			
1			1
1			1
1			1

Responsibility

- CLIENT Uptown Property Group & City of New Westminster
- MCM
- MECH
- ELEC
- CM / GC
- BUILDING ENVELOPE CONSULTANT
- CIVIL
- LANDSCAPE
- COMMISSIONING AGENT

END OF SECTION

1 RELATED REQUIREMENTS

- .1 Section 01 33 00: Submittals.
- .2 Section 01 33 02: Green Building Information Submittal Forms.
- .3 Section 01 35 18: LEED® Requirements and Procedures.
- .4 Section 01 74 20: Waste Management and Disposal.

2 REVIEW PROCEDURE

- .1 The City and the Consultant shall have access to the Work.
- .2 The Contractor shall give timely notice requesting review if work is designated for special tests, inspections or reviews by Consultant's instructions, or the law of the place of the Work.
- .3 The Consultant may order any part of the Work to be examined if such work is suspected to be not in accordance with the Contract Documents. If, upon examination such work is found not in accordance with the Contract Documents, the Contractor shall correct such work and pay the cost of examination and correction. If such work is found in accordance with the Contract Documents, the Owner shall pay the cost of examination and replacement.

3 INDEPENDENT INSPECTION AGENCIES

- .1 The Contractor shall control, administer and expedite all independent inspection and testing services, including those specified to be paid by the City.
- .2 Independent Inspection / Testing Agencies must be approved by the City and Consultant. The agency will be appointed by the City for the purpose of inspecting and/or testing portions of Work. Unless specified otherwise, the cost of such inspection and testing will be borne by the Owner. The required testing and inspection to be carried shall be as specified in the specifications.
- .3 Tests to be carried out shall be as described under the respective specification sections.
- .4 Employment of inspection / testing agencies does not relax the responsibility to perform Work in accordance with the Contract Documents.
- .5 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. The Contractor shall correct defects and irregularities as advised by the Consultant and pay costs for retesting and reinspection.
- .6 The Contractor shall:
 - .1 Allow inspection/testing agencies access to the Work, offsite manufacturing and fabrication plants.
 - .2 Notify the appropriate agency and the Consultant in advance of the requirement for tests, in order that attendance arrangements can be made.

4 INSPECTION AND SUPERVISION

- .1 Work specified to be inspected by an independent inspection agency and which is carried out by the Contractor without such inspection will not be paid for and may be ordered removed and replaced at the Contractor's sole cost and expense. The Contractor shall conduct and carry out such work to allow the inspector to be in close touch with all operations.

5 REPORTS

- .1 The Contractor shall submit three (3) copies of inspection and test reports promptly to the Consultant, other than those prepared by City appointed testing agencies.
- .2 The Contractor shall provide copies to Subcontractors for work being inspected/tested or manufacturer/fabricator of material being inspected/tested.

END OF SECTION 01 40 00

1 RELATED REQUIREMENTS

- .1 Section 01 10 10: General Instructions.

2 REGULATORY REQUIREMENTS

- .1 Nothing contained in the Contract Documents shall be so construed as to be in conflict with any law, by-law, code or regulation of the City, Provincial or other authorities having jurisdiction.
- .2 The Project has been designed in accordance with the B.C. Building Code 2006 (latest edition and amendments), applicable Federal and Provincial regulations and other codes and regulations listed under clause 7 herein.
- .3 Contract forms, by-laws, codes, specifications, standards, manuals, maintenance instructions, etc. referred to in the Contract Documents shall be the latest published editions at the date of signing of the Contract between the City and the Contractor.

3 CONSTRUCTION SAFETY PROCEDURES AND ACCIDENT PREVENTION PROGRAM

- .1 The Contractor is obligated to comply with all applicable laws, regulations and codes concerning safety standards and to conduct all operations to these applicable safety standards.
- .2 The Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work. Without limiting the foregoing, the Contractor and his Subcontractor(s) shall take all reasonable precautions against all risks of loss of life or injury to their employees, the Owner's employees, and any other person employed about the Work, and authorized visitors; and to this end shall properly guard and light the work.
- .3 The Contractor shall have in his employ a person qualified to ensure the Work is carried out in compliance with the Construction Safety Program and all applicable WorkSafe BC regulations. For the sole purpose of this Clause 3, the person designated by the Contractor to carry out these compliance duties, in addition to any other duties they may have on site, shall be known as the Construction Safety Officer.
- .4 During normal working hours the Construction Safety Officer shall ensure the Work is carried out in compliance with the Construction Safety Program and WorkSafe Occupational Health and Safety Regulations.
- .5 The Construction Safety Officer shall ensure that each Subcontractor retains a Trade Safety Coordinator who has also successfully completed a recognized construction safety course.
- .6 The Construction Safety Officer shall carry out site reviews, to satisfy himself that all work on the site is proceeding safely and in compliance with the Construction Safety Program, and WorkSafe BC regulations, and after each inspection he shall post a copy of his review in the same manner as and in close proximity to the Site Safety Plan.
- .7 The Contractor shall prepare a Safety Program for the Project. This program shall include provisions for regular inspections of the job site, investigations of all accident/incidents, first aid services, personal protective equipment standards and coordination of all Subcontractor activities.

3 CONSTRUCTION SAFETY PROCEDURES AND ACCIDENT PREVENTION PROGRAM
(Continued)

- .8 The Contractor and Subcontractors must be registered employers with WorkSafe BC.
- .9 The Contractor shall comply with the WorkSafe BC Occupational Health and Safety Regulations of British Columbia (latest edition) and provide all necessary safety requirements as prescribed by the regulations for the Work.
- .10 It is the Contractors' responsibility to ensure that its employees and their Subcontractor's employees comply with WorkSafe BC's safe work procedures and regulations.

4 GENERAL SAFETY RULES

- .1 The Contractor shall actively promote safe working performance on the part of its employees. Site Supervisors shall participate in such activities as safety meetings, safety inspections, and safety incentive programs. It is expected that each Subcontractor will also conduct their own safety programs best suited to their particular needs.
- .2 All Subcontractors shall hold "tailgate" safety meetings with their workers at least once a week. Minutes of these meetings shall be forwarded to the Contractor in the form of the Tailgate Meeting Record Book.
- .3 An effective system of indoctrination and education of new and transferred employees to this project is expected of each Subcontractor. Subcontractors shall inform their employees of all safety rules and safety procedures before the employee begins on site.
- .4 The Contractor shall inform his employees of the location and use of safety equipment.
- .5 The Contractor shall use his own regular system of inspection to detect and correct hazardous conditions, safety rule violations and unsafe working practices in his work areas.
- .6 Good housekeeping and orderliness is a basic requirement for the Project and must be maintained at all times. Special attention must be given to maintaining clear walkways, removal of trash, removal of slipping and tripping hazards, and proper storage of materials. Temporary material storage access must be requested and cleared through the Contractor and kept neat at all times.
- .7 Each Subcontractor's site supervisor or his representative shall give his current address and telephone number to the Contractor so that they may be contacted after hours in case of emergency involving hazard, loss or damage to the Subcontractor's job or equipment.

5 WORKPLACE HAZARDOUS MATERIAL INFORMATION SYSTEM (WHMIS)

- .1 The Contractor, Subcontractors and Suppliers shall comply with WorkSafe BC's Workplace Hazardous Material Information System (WHMIS) Regulations pertaining to labeling, provision of Material Safety Data Sheets (MSDS), education and training programs, safe handling and emergency procedures for "Controlled Products" being used in the Project.
- .2 The Contractor shall submit to the Consultant WHMIS Material Safety Data Sheets for all chemical treatments, adhesives and potentially harmful products to be used in the Work.

6 SPILLS AND CLEAN-UP

- .1 The Contractor, Subcontractors and suppliers must comply with the B.C. Ministry of the Environment Regulations involving the required response to spills of hazardous materials that could result in contamination of the environment (air, water, ground).
- .2 The Contractor, Subcontractors and suppliers shall respond to spills of a hazardous or unknown material while working at the site. Procedures shall include isolating the area to prevent further exposure to the material and immediately informing the Consultant.
- .3 The Contractor, Subcontractors and suppliers shall have available the material, procedures, and trained personnel required to clean up spills of any hazardous material they use in their work.

7 CODES AND REGULATIONS

- .1 The Work shall conform to the latest published editions of all applicable current Codes, By-Laws, Rules and Regulations of authorities having jurisdiction at the place of building including, but not necessarily limited to the following:
 - .1 B.C. Building Code 2006 (latest edition and amendments).
 - .2 WorkSafe BC regulations including:
 - Occupational Health and Safety Regulations;
 - Industrial First Aid Regulations;
 - Occupational Environment Regulations;
 - Workplace Hazardous Materials Information System.
 - .3 B.C. Hydro Regulations, if applicable.
 - .4 Fortis Regulations if applicable.
 - .5 Telus Regulations, if applicable.
 - .6 Builders Lien Act; S.B.C. 1997, Chapter 45;
 - .7 Other Codes, Standards and Regulations referenced in any of the above lists, and being mandatory for compliance.

END OF SECTION 01 41 00

1 RELATED REQUIREMENTS

- .1 Section 01 10 10: General Instructions.
- .2 Section 01 74 20: Waste Management and Disposal.

2 INSTALLATION / REMOVAL

- .1 The Contractor shall provide all temporary construction facilities and temporary controls as required for the execution of the Work and shall remove from site all such facilities after use.

3 HOARDING

- .1 The Contractor shall provide, maintain, alter, adapt, relocate and remove as necessary a fence type hoarding complete with gates and signs to accommodate the Work and for protection of the public and to conform to the regulations and requirements. The Contractor shall apply and pay for all permits and fees required for the hoarding. Include all signs and warning lights and provide locks of all gates and maintain distribution record of all keys.
- .2 The fencing shall be minimum 7'-0" high and shall be installed on all four (4) sides of the site in a location sufficient distance from the edge of the excavation to comply with the City's regulations and protect the public. Where such distance is not available, provide an alternative type of hoarding satisfactory to the City.
- .3 The Contractor shall provide all other barricades, warning signs and lights as necessary for the protection of all people and property adjacent to the site, as required by the City, and WorkSafe BC and shall alter, adapt, maintain, relocate and remove as necessary such items during the Work.
- .4 The Contractor shall conduct all operations outside the hoarding in strict accordance with the directions and regulations of the City.
- .5 **Prior to installation of hoarding, provide a diagram to the Consultant and the City indicating the location and extent of hoarding work. The temporary hoarding and gates shall be left in place on completion of the Work and the City will assume complete responsibility for the hoarding including fencing rental if applicable.**

4 RAMPS AND STAIRS

- .1 The Contractor shall provide, maintain and relocate as necessary all temporary stairs and ramps required for the proper execution of his Work.
- .2 Such facilities shall be provided by the Contractor as construction permits.

5 CONSTRUCTION ACCESS AND TRAFFIC MAINTENANCE

- .1 Access into the site shall be controlled by the Contractor.

5 CONSTRUCTION ACCESS AND TRAFFIC MAINTENANCE (Continued)

- .2 The Contractor shall conduct construction operations with minimum interference to adjacent streets, sidewalks and access facilities in general and keep such areas free from materials, debris and equipment at all times. The Contractor shall not close or obstruct existing roadways, streets, sidewalks, or delivery points and shall not place or store materials or park cars on same without prior approval of the City.
- .3 The Contractor shall be responsible for traffic control of trucks entering and leaving the site to the satisfaction of the City, including flagpersons as required.

6 TEMPORARY SUPPORTS, STRUCTURES AND FACILITIES

- .1 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance, and removal of any temporary supports, structures, and facilities and the design and execution of construction methods required in their use as required for the performance of the Work.
- .2 The Contractor shall engage and pay for registered professional engineering personnel skilled in the appropriate disciplines to perform those functions where required by law or by the Contract Documents and in all cases where such temporary supports, structures, and facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

7 TEMPORARY FIELD OFFICES

- .1 The Contractor shall provide and maintain a field office at the site equipped with heat, light, and containing tables for the examination of drawings for his administrative personnel.
- .2 The field office shall also include a separate, sufficiently sized meeting room equipped with heat and light to accommodate project team meetings.
- .3 The Contractor shall provide and maintain his own temporary weathertight store rooms and sheds as required and shall maintain temporary offices and sheds in good condition and relocate as necessary.

8 TEMPORARY TELEPHONE, FAX AND INTERNET / EMAIL SERVICES

- .1 The Contractor shall provide and pay for temporary business telephone, computer internet/email connection and fax services as required for own use and the use of the Consultant.

Note: The primary means of communication between the site and the Consultants will be via email. Therefore, the site office computer system must be capable of scanning, sending, receiving, printing and viewing PDF files.

- .2 All long distance or toll calls to be paid for by the party concerned.

9 SECURITY

- .1 The Contractor shall be responsible for site security as required to suit Work progress and for watching the work areas.
- .2 The Contractor and his Subcontractors shall make their own arrangements to ensure the security of their own equipment, materials and work.

10 TEMPORARY WATER SUPPLY

- .1 The Contractor shall provide and pay for temporary water service as required and shall pay for all water consumed for construction purposes.
- .2 The Contractor shall supply all water distribution systems from an existing connection point designated by the Owner as required to perform the Work, including all the requisite piping connections, valves, hoses and storage facilities and shall pay all costs for supply, installation, maintenance and removal of such items.

11 TEMPORARY POWER

- .1 The Contractor shall provide and pay for temporary power required for the Work.
- .2 The Contractor, at its own expense, shall be responsible for hook-up to existing power source, at location designated by the Owner, and shall provide temporary power outlets and/or panels as necessary for himself and his Subcontractors including wiring from temporary power source to these outlets and/or panels.
- .3 Temporary power services shall conform to the Canadian Electrical Code standards. Make same available for the use of all trades. Alter, adapt, connect, disconnect and remove as necessary.
- .4 Temporary service shall be energized only after the Provincial Electrical Inspector's approval.

12 TEMPORARY SANITARY FACILITIES

- .1 The Contractor shall provide, maintain in clean condition, and remove on completion sufficient temporary sanitary facilities for all workers on site in accordance with local health authority's requirements.

13 CLEANING STREETS

- .1 The Contractor shall maintain existing parking areas, loading areas, roadways, streets, and sidewalks affected by the work of this contract in clean condition as required by City.

14 CONSTRUCTION SIGN AND ADVERTISING

- .1 No signs, bills or posters will be allowed on the Site unless approved in writing by the City.

END OF SECTION 01 50 00

1 WASTE MANAGEMENT OBJECTIVES

- .1 The Owner has established that this Project shall be registered for Leadership in Energy and Environmental Design (LEED®) Certification (refer to Section 01 35 18) and as such the Project must generate the least amount of waste possible and that processes shall be employed that ensure the generation of as little waste as possible including prevention of damage due to mishandling, improper storage, contamination, inadequate protection or other factors as well as minimizing over packaging and poor quantity estimating. The goal is to divert a minimum of 75% of the generated construction waste from going to the landfill, with the ultimate goal of diverting 95% of the generated construction waste from going to the landfill.
- .2 Of the inevitable waste that is generated, the waste materials designated in this specification shall be salvaged for reuse and or recycling. Waste disposal in landfills or incinerators shall be minimized. This means careful recycling of job site waste.
- .3 The Contractor shall:
- .1 Institute construction waste reduction practices.
- .2 Effect optimum control of construction waste.
- .3 Implement a site recycling program that includes source separation of solid waste materials.
- .4 Prepare and implement a solid waste management and environmental protection plan for the Project.
- .5 Submit monthly a summary of solid waste generated by construction operations, complete with the LEED® Excel Template Page for Credit MR2, 2.1, which shall be updated monthly.
- .6 Be responsible for final implementation of site recycling program by disposal of recyclable solid waste at appropriate recycling centres.
- .7 Transport and dispose of waste materials that are not identified to be recycled or reused at permitted landfill facilities.

2 CODE OF PRACTICE

- .1 In addition to other requirements herein, it is a requirement that the Contractor and Subcontractors comply with the Metro Vancouver's "3R's Code of Practice for the Building Industry". Refer also to "Construction Waste Management: A Guide for Builders and Developers" and "Demolition & Salvage: A Guide for Project Managers and Contractors". All documents are available from Metro Vancouver, Sustainable Business Services Division, Telephone: (604) 451-6575. Website address: www.metrovancouver.org/buildsmart

3 CONSTRUCTION WASTE MANAGEMENT PLAN

- .1 Construction Waste Management Plan: The Contractor shall develop a Construction Waste Management Plan before commencement of work, on a custom form generated by the LEED® Consultant. This form shall be reviewed and approved by the Project LEED® Coordinator before the Construction Waste Management Plan is in effect.

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- .2 The Plan shall contain the following:
- .1 Analysis of the proposed job site waste to be generated, including the types of recyclable and waste materials generated (by volume or weight, but be consistent throughout). In the case of demolition, a list of each item proposed to be salvaged during the course of the project shall be prepared by the Contractor.
 - .2 Alternatives to Landfilling: The Contractor and Subcontractors shall designate responsibility for preparing a list of each material proposed to be salvaged, reused, or recycled during the course of the Project.
 - .3 List of compulsory materials to be recycled, shall include, at minimum, the following designated materials:
 - .1 Cardboard.
 - .2 Wood.
 - .3 Concrete/Brick/Concrete Block/Asphalt.
 - .4 Metal.
 - .5 Gypsum.
 - .6 Excavated materials.
 - .7 Organic materials.
 - .8 Paper.
 - .9 Plastic.
 - .10 Glass.
 - .11 Landclearing debris.
 - .12 Paint (return to Paint Depot) and other hazardous materials.
 - .13 "Blue Box" waste.
 - .3 Meetings: The Contractor shall conduct Construction Waste Management meetings. Meetings shall include Subcontractors affected by the Construction Waste Management Plan. At a minimum, waste management goals and issues shall be discussed at the following meetings:
 - .1 Pre-bid meeting.
 - .2 Pre-construction meeting.
 - .3 Regular job-site meetings.

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- .4 Materials Handling Procedures: The Contractor and Subcontractors shall prevent contamination of materials to be recycled and salvaged source and handle materials consistent with requirements for acceptance by designated facilities.
- .5 Recycling and Waste Bins: The Contractor shall provide individual waste bins for each recyclable solid waste material and shall clearly designate recycling bins by colour coding and/or large identification signs. Example: orange bin for wood only, green bin for trash.
- Provide “Blue Box” recycling bins near the construction trailer for recycling waste generated by site workers and visitors. Waste deposited in these bins shall include the following, or adhere to the local recycling program:
- .1 Aluminum food or beverage cans.
 - .2 Glass bottles and jars for food or beverage.
 - .3 PET bottles for food or beverage.
 - .4 Steel food or beverage cans.
 - .5 Cardboard and paper products.
- .6 Source Separation: The Contractor shall educate and monitor the Subcontractors about the acceptable methods of source separation. The Subcontractor may be held liable for illegal dumping by his workers and Sub-Subcontractors.
- .7 Location: The Contractor shall place the recycling bins in convenient location that is out of the way of construction traffic and shall designate one locked recycling area on site to prevent misuse or contamination of bins.
- .8 Contamination: When the recycling program is first started, and during construction operations the Contractor and the Subcontractor shall remind workers to keep trash out of the recyclable material bins. Lunch bags, coffee cups, caulking tubes, etc. must not be deposited into recycling bins unless they are recyclable.
- .9 Handling: Recyclable materials shall be free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process. The Contractor shall monitor source separation and ensure workers clean materials which are contaminated prior to placing in collection containers.
- .10 Collection: The Contractor shall arrange and pay for collection by or delivery of recyclable materials to the appropriate recycling company that accepts construction waste for purpose of recycling. The Contractor shall coordinate regular or “when-called” pick-up or delivery to eliminate overflowing bins.
- .11 Recycling and Waste Facilities: The Contractor shall provide a list of all facilities used to process construction waste. The list should include the name of the facility, its address, phone number and contact person, the type(s) of material(s) processed at the facility, and some information on how the material is used after it is processed.
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.12 Construction Waste Management Plan Implementation:

- .1 **Manager:** The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and recording results of the Construction Waste Management Plan for the project.
- .2 **Distribution:** The Contractor shall distribute copies of the Construction Waste Management Plan to each Subcontractor upon tender award.
- .3 **Instruction:** The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling to be used by all parties at the appropriate stages of the Project.
- .4 **Facilities for Separation of Materials:** The Contractor shall lay out and label a specific area to facilitate separation of materials for recycling and salvage. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials.
- .5 **Hazardous Wastes:** Hazardous wastes shall be separated, stored, and disposed of in accordance with the requirements of the authorities having jurisdiction including the Provincial Waste Management Act and B.C. Special Waste Regulation.

.13 Hauling Records:

- .1 Hauling records shall be submitted within a period and schedule as defined by under Section 01 35 18.
- .2 **NOTE:** The first set of hauling records shall be submitted within ten (10) days of the first pick-up of project waste.

.14 Final LEED® Submission

- .1 The Contractor shall review all Construction Waste Management Reporting Sheets and summarize recycling, re-use, and waste generation amounts (by weight or volume, but be consistent).
- .2 The Contractor shall input this information in the LEED® Can Letter Templates (latest edition). The Contractor will provide the Architect with a completed, signed letter template, and all back-up documentation tracking waste diversion by substantial project completion.

END OF SECTION

1 RELATED REQUIREMENTS

- .1 Section 01 10 10: General Instructions, including progressive site cleaning.
- .2 Section 01 33 00: Submittals.
- .3 Section 01 33 02: Green Building Information Submittal Forms.
- .4 Section 01 35 18: LEED® Requirements and Procedures.
- .5 Section 01 74 20: Waste Management and Disposal.

2 FINAL CLEAN - UP

- .1 The Contractor at completion of the Work shall remove all temporary storage sheds, offices, temporary protection and any signs provided by him.
- .2 When the Work is substantially performed, the Contractor shall remove from the site surplus products, tools, construction machinery and equipment not required for the performance of the remaining Work.
- .3 The Contractor shall remove from the site waste products and debris other than that caused by other Contractors or their employees, and leave the Work clean and suitable for occupancy by the Owner.
- .4 The Contractor shall arrange for removal and/or re-cycling of waste materials and debris from the site at regularly scheduled times. In accordance with Section 01 74 20 - Waste Management and Disposal.

3 DOCUMENTS

- .1 In accordance with Section 01 33 00 - Submittals, the Contractor shall:
 - .1 Collect reviewed submittals and assemble documents executed by Subcontractors, suppliers and manufacturers.
 - .2 Submit requested material to the Consultant within thirty (30) days of Substantial Performance of the Work. For equipment put into use with Owner's permission during construction, submit within ten (10) days after start-up. For items of Work delayed materially beyond date of Substantial Performance, provide updated submittals within ten (10) days after acceptance, listing date of acceptance as start of warranty period.
 - .3 Submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and monies remaining due.
 - .4 Provide LEED® documentation as required, including any additional documentation requested by the Consultant and the Project Sustainability Consultant, as applicable.

4 PROJECT COMMISSIONING

- .1 The Contractor shall:
 - .1 Expedite and complete deficiencies and defects identified by the Consultant.
 - .2 Submit required documentation such as statutory declarations, WorkSafe BC certificates, warranties, certificates of approval or acceptance from regulating bodies.
 - .3 Review field review reports and inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.

5 REVIEW AND TAKEOVER PROCEDURES

- .1 Prior to application for certificate of Substantial Performance, the Contractor shall give written notice to the Consultant that, in his opinion, the Work is substantially performed and upon the subsequent review by the Consultant, or its designated representative, a list of deficient work shall be issued by the Consultant. When these deficiencies have been rectified to the satisfaction of the Consultant, the Consultant shall recommend that the Work is substantially performed and ready for official inspection.
- .2 When the Consultant considers deficiencies and defects have been corrected and it appears requirements of the contract have been performed, make application for certificate of Substantial Performance.

6 CLOSEOUT PROCEDURES

- .1 Reference is made in two separate documents to terms Substantial Completion/Completion/ Substantial Performance.
 - .1 The Builders' Lien Act S.B.C. 1997c. 45, and
 - .2 The Definitions and General Conditions to the Contract.

7 BUILDERS' LIEN ACT

- .1 Completion under the Builders' Lien Act will not be contingent upon the work being ready for its intended use. These are issues which, when identified as a deficiency (system is not operating), is subject to a deficiency holdback. The total of all deficiency holdbacks under a contract will impact upon the ability to achieve completion.
- .2 Issuance of a Certificate of Completion triggers commencement of the lien period only. It does not trigger the commencement of warranties or any other Contract device.
- .3 The Consultant will determine completion and issue a Certificate if so applicable. The date of issuance of the Certificate will be the date of completion.

END OF SECTION 01 77 00

1 GENERAL

1.1 GEOTECHNICAL INVESTIGATION REPORT

- .1 Geotechnical investigation of the site prepared by Geo Pacific Consultants Ltd. #215-1200 West 73rd Avenue Vancouver B.C. V6P 6G5 dated July 29, 2010 is issued with the Bid Documents for information only.
- .2 No representative or warranty is made by or on behalf of the City, the Consultant, or the Geotechnical Engineer as to the sufficiency, completeness or adequacy of the geotechnical investigation report. The Contractor and Subcontractors shall be fully responsible for satisfying themselves that the report, together with such physical examinations of the Place of the Work as it may undertake, are sufficient, complete and adequate for the purposes of enabling the Contractor or a Subcontractor to submit a bid.
- .3 Data indicated for subsurface conditions at test holes is not intended as representations or warrants of continuity of such conditions between test holes. Depths to various layers are known only at actual test hole locations. It is expressly understood that neither the City, Consultant, or Geotechnical Engineer will be responsible for interpretations or conclusion drawn therefrom by the Contractor or a Subcontractor.
- .4 Geotechnical investigation was were carried out by the Geotechnical Engineer for the sole purpose of designing the building foundations and may not be suitable or adequate for the Contractor's or Subcontractor's purpose.
- .5 Geotechnical investigation report shall be used for guidance only as no warranty is implied. The Contractor and Subcontractors shall become familiar with the information contained therein and act accordingly in the performance of the Work.
- .6 **The geotechnical investigation report is available for information only and is not part of the Bid Documents.**

END OF SECTION 02 32 00

1 GENERAL

1.1 REQUIREMENTS INCLUDED

- .1 Furnish all labour, material, services and equipment necessary to carry out and complete excavation work and shoring, as indicated on the drawings and as hereinafter specified.
- .2 The Work shall include, but shall not necessarily be limited to:
 - .1 Bulk excavation of Site to elevations indicated.
 - .2 Removal of any existing site services, foundations, footings, paving, curbs and any other appurtenances as indicated and as discovered.
 - .3 Removal of non-contaminated excavated materials and all debris, rubbish and vegetation from the Site and transportation to permitted disposal area(s) or dump sites.
 - .4 Removal, stockpiling on site, and loading into trucks of any contaminated soil discovered during excavations.
 - .5 Providing, maintaining, and removing temporary roads and access ramp within the excavation.
 - .6 Dewatering collection, including site grading, trenching and berming.
 - .7 Dewatering of excavations including temporary sediment control ponds including all pumping equipment and piping and maintenance of such sediment control pumping as required by the City and LEED® sedimentation control.
- .3 **The work under this section also includes supply and installation of bulk excavation shoring and underpinning an temporary sediment control facility, as indicated on the Excavation Shoring Drawings and as specified herein.**
- .4 Bulk excavation shall be carried out to comply with Excavation Shoring Drawings and shall be coordinated with the required excavation shoring installations.
- .5 **Bulk Excavation shoring and underpinning details and Shoring Notes and Specifications and temporary sediment control details and General Notes on the Excavation Shoring Drawings form an integral part of this specification section and shall be read in conjunction therewith.**

1.2 RELATED REQUIREMENTS

- .1 Section 01 33 02: Green Building Information Submittal Form.
- .2 Section 01 35 18: LEED® Requirements and Procedures.
- .3 Section 01 74 20: Waste Management and Disposal.
- .4 Section 02 32 00: Geotechnical Investigation Report.
- .5 Section 31 23 23: Backfill (Future Contract).

1.3 EROSION & SEDIMENTATION CONTROL - LEED® PREREQUISITE – SUSTAINABLE SITES

- .1 **The Contractor is reminded that requirements for erosion and sedimentations control as defined by LEED® and summarized in Section 01 35 18, form a Prerequisite for this project. Failure to comply will risk appropriate legal action by the City.**
- .2 **Prior to commencing work the Excavation and Shoring Subcontractor shall prepare and submit for review and approval by the Consultant and Geotechnical Engineer, a site plan and written procedures approach, outlining methods to minimize dust, controlling water run-off from the site, avoiding dirty water or silt entering the City storm waster system, and preventing all vehicles from tracking materials off site.**

1.4 SUBMISSION – PROPOSED PROCEDURES

- .1 Submit to the Geotechnical Engineer and the Consultant, a proposed bulk excavation and shoring schedule and procedures for review, prior to commencing work on the Site.
- .2 Do not proceed with any stage of the bulk excavation or shoring until written confirmation is provided by the Geotechnical Engineer that the proposed methods and sequencing for bulk excavation and shoring are in general agreement with the intent of the Geotechnical Engineer's design for excavation and shoring.

1.5 CODES AND STANDARDS

- .1 Perform excavating to B.C. Building Code 2006, City Regulations and WorkSafe BC regulations, as applicable.
- .2 During excavation and final clean up, observe all anti-dust, air pollution and noise regulations of the City of Vancouver and stage operations in accordance with these regulations.
- .3 Comply with City Noise/Construction By-Law regulations.
- .4 Comply with City regulations for cleaning of vehicle tires exiting the site and keeping City streets and sidewalks clean at all times.
- .5 Comply with Section 01 35 18 - LEED® Requirements and Procedures and Section.

1.6 EXAMINATION OF SITE

- .1 Visit and examine the site and note all visible characteristics and features affecting the work of this section.
- .2 Check all existing visible conditions. Report any unsatisfactory conditions to the Consultant prior to commencing excavation.
- .3 Before commencing bulk excavation check status of existing services still in operation with utilities "hot-line".

1.7 GEOTECHNICAL INVESTIGATION REPORT

- .1 A geotechnical investigation report of the site accompanies the Bid Documents, **for information only**.

1.8 VERIFY DIMENSIONS

- .1 Existing elevations, dimensions and existing features shall be verified before laying out work. Starting work shall be held to imply that the Contractor has verified them and found them to be correct. Any additional costs arising out of any rectifications due to the Contractor's failure to verify existing conditions shall be borne by the Contractor.

1.9 PERMITS AND DEPOSITS

- .1 The Contractor shall obtain and pay for Excavation and Shoring Permits and all Damage and Crossing deposits as required by the City, and shall also obtain and pay for a Temporary Encroachment Permit, if required, and other permits or licenses required for Excavation and Shoring.
- .2 The Contractor shall make a record and take digital photographs of any damage to adjoining streets, sidewalks, boulevards, etc. existing prior to commencement of the Work.
- .3 Damage deposits made to the City by the Contractor shall not relieve the Contractor of his responsibility to provide adequate protection to prevent damage to City property. Charges against the damage deposits as a result of the Contractor's activities will be deducted by the City from monies due to the Contractor.

1.10 ENVIRONMENTAL SITE ASSESSMENT REPORT

- .1 An environmental assessment of the site has been done. Copy of the report accompanies the Bid Documents. The report is for information only.
- .2 If any contaminated or hazardous materials present on the site are encountered (any soil containing any contaminated or hazardous materials is referred to collectively herein as "Hazardous Substances"), excavate, remove and dispose of such Hazardous Substances at such location and in such manner required by the applicable Provincial regulations. After prior approval of the Consultant, the Contractor will be entitled to a Change Order to adjust the schedule and the contract price in an amount as agreed between the Contractor and the City.

1.11 EXCAVATION AND SHORING REVIEWS

- .1 GeoPacific Consultants Ltd. has been retained by the Owner as the Geotechnical Engineer to review the bulk excavation and to design and review the shoring of the bulk excavation.
- .2 As such, the Geotechnical Engineer shall periodically observe the performance of the Work and the stability of the excavation faces as the work progresses, and shall confirm bearing capacity of the soils at footing locations, and review seepage conditions.
- .3 The Geotechnical Engineer has the authority in an emergency to stop the progress of the Work whenever, in his opinion, such stoppage may be necessary to ensure the safety of life, the Work or adjoining property. This includes authority to make changes in the Work.
- .4 Where actual soils conditions warrant addition, or deletion of excavation to that indicated, as determined by the Geotechnical Engineer, then such excavation shall be considered as an addition, or deletion as applicable to the contract, and the contract price shall be adjusted, utilizing unit prices stated in the tender.
- .5 The Geotechnical Engineer or his authorized representative shall be the sole judge to decide on questions arising on actual soils conditions encountered, on excavation procedures, on shoring, or protection to be provided and on any other matter concerning the excavation, or shoring, his decision shall be final.
- .6 Cooperate with the Geotechnical Engineer and allow free and unobstructed access to the site at all times.
- .7 The Geotechnical Engineer will sign a letter of assurance and hand the letter to the City for forwarding to the City Engineering Department together with two (2) sealed copies of a drawing showing a plan of the maximum extent of the excavation, (on the Site and on the City property) as well as complete details of proposed shoring and anchors.

1.12 STREET REPAIRS

- .1 Repair all streets, sidewalks, and curbs damaged during the Work by excavation equipment or activities to City standards.

1.13 STREET MAINTENANCE

- .1 Be responsible for the cleaning of vehicle tires exiting from the site and/or cost of street and sidewalk cleaning, for the duration of this contract in accordance with City regulations.
- .2 Refer also to Clause 3.12 – Erosion and Sedimentation Control.

1.14 DUST CONTROL

- .1 Be responsible for the adequate control of dust for the duration of the Work. Such control shall be to the approval of the City and shall be adequate to avoid inconvenience and complaints from the City, or from adjoining property holders.

1.15 SITE ACCESS AND TRAFFIC

- .1 If required obtain and pay for any permits and/or approvals from the City and other authorities having jurisdiction for proposed haul routes to the disposal or landfill sites. Comply with all requirements of the City and other authorities for such routing.
- .2 Be responsible for traffic control at the site to the satisfaction of the City and other regulatory authorities at the area of the Site and provide all necessary barricades and flagpersons.
- .3 Provide and maintain adequate warning signs, flashing lights, barricades, etc., at the Site, as required by the City.
- .4 Access to the site and egress for trucks and equipment shall be controlled by the Contractor.

1.16 EXISTING UNDERGROUND SERVICES

- .1 Prior to commencing the Work, establish in coordination with the Geotechnical Engineer, the Consultant, the City and other applicable authorities and/or utility companies the location and state of use of existing buried utility or service lines shown on the Contract Documents within the area of the Site, including service entry points. Mark these locations clearly on Site and prevent accidental disturbance during the work.
- .2 Costs and damages incurred by the Contractor causing disturbance of existing utilities and service lines required to remain in operation shall be borne by the Excavation and Shoring Subcontractor.
- .3 Any utility or service discovered during excavation and not indicated on the Contract Documents, which is presently in use, or not definitely established as abandoned but which must be moved or otherwise disturbed, shall be referred to the City and the applicable utility owner so that they can carry out necessary removal.
- .4 Any damage done, settlement or collapse to services caused by inadequate measures being taken by the Contractor to prevent same, shall be made good immediately, at no additional cost to the Owner.

2 PRODUCTS

2.1 MATERIALS

- .1 Materials for the temporary roads within excavation and temporary ramp access shall be as required to adequately carry intended equipment and truck loads and minimize ramp maintenance and street cleaning.
- .2 Provide suitable road mulch or other granular material for ramp(s) and road surface within the excavation.
- .3 Lean Mix Concrete – 5 MPa at 28 days.
- .5 Shot crete, soil anchors and grout – Refer to Excavation Shoring Drawings.

3 EXECUTION

3.1 SEQUENCE OF BULK EXCAVATION AND SHORING

- .1 Carry out bulk excavation progressively to allow for installation of excavation shoring and underpinning. Provide stable excavation faces during all excavation work.
- .2 Phase bulk excavation to allow for progressive construction of shoring and underpinning.

3.2 SITE CLEARING

- .1 Clear site of all remaining surface debris.
- .2 Remove existing foundation walls, retaining walls and footings.
- .3 Break-up and remove any existing asphalt paving, concrete slabs on grade, concrete paving, concrete sidewalks and curbs within the site.
- .4 Remove any abandoned power poles, concrete bases and other concrete appurtenances within the site.
- .5 Recycle existing bricks left on site and all asphalt surfacing and concrete materials in accordance with Section 01 74 20 – Waste Management and Disposal.

3.3 BULK EXCAVATION

- .1 Refer to Excavation Shoring Drawings and carry out bulk excavation progressively as required by such drawings to allow for installation of shoring.
- .2 Prior to commencing excavation:
 - Ensure all existing services to the site have been disconnected.
 - Verify documented permission has been obtained by the City from adjacent property Owners prior to conducting any work on such properties.
 - Notify the Geotechnical Engineer and the Consultant two (2) working days before commencing bulk excavation.
- .3 Coordinate bulk excavation with the excavation shoring installations.
- .4 Excavate to elevations, cross-sections and dimensions indicated on the drawings.
- .5 Unless noted otherwise final elevations of bottom of bulk excavations shall be to underside of new building concrete slabs on grade as indicated. Final elevations shall be to within plus 1" or minus 1" of required elevations for bulk excavation.
- .6 Remove any existing abandoned underground service lines encountered on site during excavation, as indicated and/or as discovered. Preserve and protect any water, sewer or electrical services encountered at the perimeter of the site.

3.3 BULK EXCAVATION (Continued)

- .7 Remove existing concrete, footings, foundation walls, bases, slabs, and other obstructions below grade encountered during excavation.
- .8 At the cut face, phase operations so that a stable slope is maintained as the bulk excavation progresses. The Geotechnical Engineer will examine the excavation as it progresses and will design any additional support work that may be required to maintain a stable excavation.
- .9 Where excavation to final grade is to be carried out during wet weather conditions or left open for a period of several days or more place a lean mix concrete of unconfined compressive strength of at least 5 MPa at 28 days and at least 2" thick over exposed subgrade area for footings. Remove any loosened, softened, or otherwise disturbed portion of the subgrade and replace with lean mix concrete.
- .10 Where over excavation of post glacial soils is required fill with 5 MPa lean mix concrete.
- .11 Remove all boulders encountered during excavation. Boulders one (1) cubic yard and under in size shall be included as part of this contract. Removal of boulders over one (1) cubic yard in size shall be defined as rock excavation and will be paid for at unit price stated in the Bid. (Refer to clause 3.5.2 and 3.6.)
- .12 Be totally responsible for safety during excavation work and meet the requirements of all regulatory bodies.
- .13 No additional compensation will be paid by the City for any changes due to deterioration or over-excavation of excavations caused by activities or neglect of the Contractor.
- .14 Level and clean excavation bottoms free from loose material and debris on completion of the Work.
- .15 Protect excavations against freezing. If frozen material occurs, it shall be removed and backfilled by the Contractor with mass concrete of strength approved by the Structural Engineer at no additional cost to the Owner.

3.4 BULK EXCAVATION SHORING AND UNDERPINNING

- .1 Install excavation shoring systems and underpinning in accordance with Excavation Shoring Drawings.
- .2 Carry out installation of shoring and underpinning progressively as required by Excavation Shoring Drawings and to accommodate bulk excavation.
- .3 Unless noted otherwise shoring faces shall be to within plus 1" or minus 1" of the vertical.

3.5 ROCK EXCAVATION

- .1 Excavate all rock to produce clean undisturbed surfaces.
- .2 Rock excavation shall be defined as material exceeding one (1) cubic yard in volume including sandstone, shale or conglomerate that cannot be ripped by a D-9 tractor with a single shank ripper in open excavation or that cannot be removed by a Cat 345 B/C hydraulic backhoe with ripper in detailed excavation. Glacial till, hardpan, frozen material and any material that can be loosened with a jack hammer and/or the above equipment shall not be defined as rock. This classification does not include materials that can be removed by means other than drilling and blasting or drilling and wedging, but which for reasons of economy, the Excavation and Shoring Subcontractor chooses to remove by drilling and blasting.
- .3 Rock excavation as defined in 3.5.2 will be paid for at unit prices stated in the bid.
- .4 Rock will be stripped for measurement before excavating and no rock excavated or loosened before measurement will be allowed or paid for as rock. Measurement, and payment therefore, will be the number of cubic yards required to bring the excavations to the required elevations.
- .5 Mass excavation in rock shall be "bank measure", i.e. the volume as it exists in the ground, not the truck volume. The face of the excavation shall be measured vertically, with no slope allowance.
- .6 A land surveyor licensed to practice in B.C. will be employed by the City to measure volume of rock as defined before excavation in rock is started.

3.6 MEASUREMENT AND PAYMENT FOR ROCK

- .1 State in the tender a unit cost per cubic yard for excavating in and removing rock as defined above under clause 3.5.2, inclusive of all profit, overhead, taxes, supervision, loading, transportation costs and dumping. Rock as defined above and encountered in the excavation will be paid for at the unit rate stated in the tender. Unit prices stated shall exclude HST.
- .2 Rock excavation shall be measured in accordance with Canadian Institute of Quantity Surveyors Method of Measurement.

3.7 BLASTING

- .1 **Blasting shall only be permitted where approved in writing by the Geotechnical Engineer.**
- .2 **Provide a blasting plan to the Consultant and Geotechnical Engineer for review prior to commencing any blasting.**
- .3 **Prior to blasting, submit to the Consultant and Geotechnical Engineer a written proposal of operations for rock removal indicating types and quantities of explosives to be used; loading charts and drill hole patterns; type of blasting caps / method of detonation;**

3.7 BLASTING (Continued)

blasting techniques; blast protection measures for items such as fly rock; vibration and dust and noise control; schedule time for blasting; and other pertinent details.

- .4 **Notify the Consultant, and Geotechnical Engineer 24 hours prior to commencement of any blasting. Drilling, blasting and the use, hauling and storage of explosives and accessory equipment shall be done strictly by bonded operators.**
- .5 Conform with blasting requirements of Canadian Construction Safety Code, City and WorkSafe BC applicable regulations.
- .6 Be totally responsible for safety on the Site and meet the requirements of all regulatory bodies, with respect to blasting.
- .7 Retain qualified, licensed explosives expert to supervise and program Work, to determine precautions, preparation and blasting techniques, and to supervise and report on drilling of blast holes and line drilling operations. Pay all costs for such services.
- .8 Assume full responsibility and pay all costs for claims arising from the handling and use of explosives related to this project, notwithstanding approval to proceed.
- .9 Ensure the safety of the public and property at all times during blasting operation.
- .10 When blasting operations are required, it will be necessary to perform these operations under controlled techniques so as to limit the intensity of the ground vibrations at the nearby buildings to prevent any possibility of damage to the buildings and to minimize adverse affects upon people and equipment within the buildings.
- .11 Post guards, sound warnings and display signs when blasting is scheduled to take place in accordance with applicable regulations.
- .12 Any floaters or layers of rock extending across the property line shall be cut by drilling and wedging or by carefully controlled blasting procedures.
- .13 Be responsible for and take all necessary precautions, and pay all costs to prevent blasting activities from causing damage to adjoining buildings, sidewalks, streets, lanes, surroundings, and services; including temporary removal and replacement of utilities.
- .14 Where pockets are formed by blasting below the required bottom elevations, and where such pockets will not drain, provide ditching to a free outlet, and at fill pockets to required elevation with concrete of strength approved by the Structural Consultant.
- .15 It will be necessary to perform blasting operations under controlled techniques so as to limit the intensity of the ground vibrations at nearby buildings to prevent any possibility of damage to the buildings and to minimize adverse affects upon people and equipment within the adjacent buildings.

3.7 BLASTING (Continued)

- .16 Blasting procedures shall be followed which will protect personnel and property from any possible damage. Extreme care shall be exercised with the use of mats and other safeguards as required so as not to scatter loose rock that would cause damage to adjacent property. Take every precaution to protect the public and workers from any injury or harm which might arise from the use of explosives. Only workers thoroughly experienced in handling explosives shall be permitted to supervise, handle, haul, load and shoot explosives.
- .17 In addition to the general requirements set out above, appropriate blasting procedures shall be followed when blasting rock within the excavation to limit the peak ground motion velocities at adjacent structures to 1" per second.
- .18 All blasts shall be monitored by the Contractor. During the initial stages of blasting and in conjunction with the Geotechnical Engineer, a monitoring relationship formula shall be developed between peak particle velocity, distance and maximum explosive charge per delay. The work shall be so organized that blasts more distant from the adjacent structures of concern are to be initially monitored.
- .19 All vibration / seismographic monitoring records obtained during the course of blasting shall be provided to the Geotechnical Engineer in a timely fashion.

3.8 RAMP(S) AND ROAD SURFACES

- .1 Provide and maintain temporary ramp(s) and road surfaces within the excavations. Use suitable gravel road base material for ramp travel surfaces. Maintain ramp surface until completion of the bulk excavation.
- .2 Leave temporary ramp in place on completion of excavation.
- .3 State in the Bid the amount of monies to be added to the tender price for the removal of the temporary ramp at the direction of the Contractor.**

3.9 EROSION AND SEDIMENTATION CONTROL

- .1 The Contractor is reminded that the requirements for erosion and sedimentation control as defined by LEED® and summarized in Section 01 35 18, form a Prerequisite for this project. Failure to comply will risk appropriate legal action by the City.
- .2 An Erosion and Sedimentation Control Plan shall be prepared by the Contractor to meet LEED® Prerequisite requirement and the requirements of the City of Vancouver. Submit the Plan to the Geotechnical Engineer, and the Consultant for review prior to proceeding.
- .3 Provide the temporary sediment control facility on site as required by City guidelines and in strict accordance with plans, details and general notes for such facility as indicated on the Excavation Shoring drawings.

3.9 EROSION AND SEDIMENTATION CONTROL (Continued)

- .4 Provide all necessary pumping equipment and piping and pump out or otherwise remove continuously all water that may accumulate in excavations during the progress of the work into the sediment control pond. Do not divert water onto adjacent property or directly into existing storm drains.
- .5 Maintain existing storm drains and water from any source which hinders the satisfactory prosecution of the work or which otherwise adversely affects the quality of the Work shall be diverted or removed by temporary drains and pumping into the control pond.
- .6 Comply also with the guidelines of the City for erosion control as specified on Excavation Shoring Drawing No. G-SP3.

3.10 DISPOSAL OF EXCAVATED MATERIALS

- .1 Refer to Section 01 74 20 –Waste Management and Disposal and comply with requirements for waste management and disposal.
- .2 Remove all non-contaminated excavated materials from the site and the property. Remove all debris and all rubbish from the site. Transport all such excavated materials and debris to permitted dump or disposal areas. Excavated materials or debris shall not be left on the site or adjoining property.
- .3 Remove any contaminated soil discovered during excavations in accordance with B.C. Environmental Management Act and BC Hazardous Waste Regulations.

3.11 CLEAN UP

- .1 Promptly, as the work proceeds and on completion, clean up and remove from the Site any debris or rubbish resulting from the Work in accordance with Section 01 74 20.
- .2 On completion of the excavation work subgrade level(s) shall be left clean for later operations.

3.12 UNIT PRICES

- .1 Submit unit prices as listed in the Bid Form for excavation and shoring.
- .2 Each unit price will be used for payment of work additional to the contract and work deleted from the contract. Unit prices quoted shall remain in force until date of Substantial Performance of the Work.

3.12 UNIT PRICES (Continued)

- .3 Unit prices shall include supply, conveyance and delivery to the project site, unloading, installation and all overhead, profit and taxes, excluding HST.
- .4 Work will be measured by the City appointed land surveyor, whose decision shall be final.
- .5 Excavation and fill quantities will be measured as bank measure and unit prices shall include loading, removal from site, transportation and dumping at permitted landfill or disposal area as required.

END OF SECTION 31 23 00