

**SMCDSB ST. PETER'S SECONDARY SCHOOL  
ACCESSIBILITY UPGRADES & RTU REPLACEMENT**

**201 ASHFORD DRIVE, BARRIE, ONTARIO**

**salter pilon architecture inc.**

# Project Manual

Volume 1

Divisions 0-33

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CCDC2 -2020 STIPULATED PRICE CONTRACT**

**(the “Supplementary Conditions”)**

**AGREEMENT, DEFINITIONS, AND  
GENERAL CONDITIONS**

The Standard Construction Document CCDC 2 2020 for a Stipulated Price Contract, English version, consisting of the Agreement Between *Owner* and Contractor, Definitions and General Conditions of the Stipulated Price Contract, Parts 1 to 13 inclusive, governing same, together with the changes with the new *Construction Act* is hereby made part of these *Contract Documents*, with the following amendments, additions and modifications:

**AGREEMENT BETWEEN OWNER AND CONTRACTOR**

**SC1 ARTICLE A-1 – THE WORK**

SC1.1	A-1.3	<p><u>Amend</u> Article A-1.3 by <u>deleting</u> all of the words after “<i>Contract Documents</i>” and <u>replace</u> them with the following”</p> <p>“attain</p> <p>.1 <i>Substantial Performance of the Work</i> by the __ day of _____ in the year 20__.</p> <p>.2 (if applicable) <i>Occupancy</i> by the __ day of _____ in the year 20__, and</p> <p>.3 <i>Ready-for-Takeover</i> by the __ day of _____ in the year 20__.”</p>
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**SC2 ARTICLE A-3 – CONTRACT DOCUMENTS**

SC2.13	A-3.1	<p><u>Add</u> the following documents to the list of <i>Contract Documents</i> in Article A-3.1:</p> <ul style="list-style-type: none"> <li>• Simcoe Muskoka Catholic District School Board’s Supplementary Conditions &amp; Amendments to Standard Construction Document CCDC2-2020 Stipulated Price Subcontract, November 2020 Version, including any Special Supplementary Conditions listed in Appendix 2 thereto</li> <li>• <i>Drawings</i></li> <li>• <i>Specifications</i></li> <li>• Performance Bond (Form 32 -Performance Bond under Section 85.1 of the <i>Act</i>)</li> <li>• Labour and Material Payment Bond (Form 31 – Labour and Material Payment Bond under Section 85.1 of the <i>Act</i>)</li> </ul>
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**SC3 ARTICLE A-4 – CONTRACT PRICE**

SC3.1	A-4.4	<p><u>Delete</u> Article A-4.4 and <u>replace</u> it with the following:</p> <p>“4.4 The <i>Contract Price</i> shall remain fixed for the duration of the <i>Contract Time</i>, subject only to adjustments as provided for in the <i>Contract Documents</i>. For certainty, and without limiting the general application of the preceding sentence, the <i>Contractor</i> assumes all risks in connection with cost increases for overhead, <i>Products, Labour, and Construction Equipment</i> prescribed by the <i>Contract Documents</i> for the performance of the <i>Work</i>, and the <i>Contractor</i> assumes all responsibility for liabilities and additional costs that may arise as a result of the <i>Contractor’s</i> inclusion of any <i>Product, Construction Equipment, Supplier, or Subcontractor</i> in its calculation of the <i>Contract Price</i>.”</p>
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**SC4 ARTICLE A-5 – PAYMENT**

SC4.1	A-5.1	<p><u>Delete</u> Article A- 5.1 in its entirety including all subparagraphs and <u>replace</u> it with the following:</p>
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		<p>"5.1 Subject to the provisions of the <i>Contract Documents</i> and the <i>Construction Act</i>, the <i>Owner</i> shall:</p> <ol style="list-style-type: none"> <li>.1 make progress payments to the <i>Contractor</i> on account of the <i>Contract Price</i> when due together with such <i>Value Added Taxes</i> as may be applicable to such payments,</li> <li>.2 upon <i>Substantial Performance of the Work</i> as certified by the <i>Consultant</i>, and on the 61<sup>st</sup> day after the publication of the certificate of <i>Substantial Performance of the Work</i>, in accordance with the <i>Construction Act</i>, there being no claims for lien registered against the title to the <i>Place of the Work</i> and no written notices of lien delivered to the <i>Owner</i>, pay the <i>Contractor</i> the unpaid balance of the holdback, together with such <i>Value Added Taxes</i> as may be applicable to such payment, less any amount stated in the <i>Owner's Notice of Non-Payment</i>.</li> <li>.3 after <i>Ready-for-Takeover</i> has been achieved in accordance with the <i>Contract Documents</i> and the <i>Work</i> is complete, there being no claims for lien registered against the title to the <i>Place of the Work</i> and no written notices of lien delivered to the <i>Owner</i>, pay the <i>Contractor</i> any unpaid balance of the <i>Contract Price</i> in accordance with GC 5.5 – FINAL PAYMENT, together with such <i>Value Added Taxes</i> as may be applicable to such payment."</li> </ol>
SC 4.2	A-5.2.1	<p><u>Delete</u> subparagraph 5.2.1 in its entirety and <u>replace</u> it with the following:</p> <p>" .1 Should either party fail to make payments as they become due under the terms of the <i>Contract</i> or in an award by arbitration or court, interest shall also become due and payable on such unpaid amounts at the prejudgment interest rate prescribed by the <i>Courts of Justice Act</i> (Ontario), as it may change from time to time."</p>

**SC5 \*NEW\* ARTICLE A-9 – CONFLICT OF INTEREST**

SC5.1	A-9	<p><u>Add</u> new ARTICLE A-9 CONFLICT OF INTEREST as follows:</p> <p><b>"ARTICLE A-9 CONFLICT OF INTEREST</b></p> <ol style="list-style-type: none"> <li>9.1 The <i>Contractor</i>, <i>Subcontractors</i> and <i>Suppliers</i> and any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall not engage in any activity or provide any services where such activity or the provision of such services creates a conflict of interest (actually or potentially, in the sole opinion of the <i>Owner</i>) with the provision of the <i>Work</i> pursuant to the <i>Contract</i>. The <i>Contractor</i> acknowledges and agrees that a conflict of interest, as described in this Article A-9, includes, but is not limited to, the use of <i>Confidential Information</i> where the <i>Owner</i> has not specifically authorized such use.</li> <li>9.2 The <i>Contractor</i> shall disclose to the <i>Owner</i>, in writing, without delay, any actual or potential situation that may be reasonably interpreted as either a conflict of interest or a potential conflict of interest, including the retention of any <i>Subcontractor</i> or <i>Supplier</i> that is directly or indirectly affiliated with or related to the <i>Contractor</i>.</li> <li>9.3 The <i>Contractor</i> covenants and agrees that it will not hire or retain the services of any employee or previous employee of the <i>Owner</i> where to do so constitutes a breach by such employee or previous employee of the <i>Owner's</i> conflict of interest policy, as it may be amended from time to time, until after completion of the <i>Work</i> under the <i>Contract</i>.</li> <li>9.4 It is of the essence of the <i>Contract</i> that the <i>Owner</i> shall not have direct or indirect liability to any <i>Subcontractor</i> or <i>Supplier</i>, and that the <i>Owner</i> relies on the maintenance of an arm's-length relationship between the <i>Contractor</i> and its <i>Subcontractors</i> and <i>Suppliers</i>. Consistent with this fundamental term of the <i>Contract</i>, the <i>Contractor</i> will not enter into any agreement or understanding with any</li> </ol>
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		<p><i>Subcontractor or Supplier</i>, whether as part of any contract or any written or oral collateral agreement, pursuant to which the parties thereto agree to cooperate in the presentation of a claim for payment against the <i>Owner</i>, directly or through the <i>Contractor</i>, where such claim is, in whole or in part, in respect of a disputed claim by the <i>Subcontractor or Supplier</i> against the <i>Contractor</i>, where the payment to the <i>Subcontractor or Supplier</i> by the <i>Contractor</i> is agreed to be conditional or contingent on the ability to recover those amounts or a portion thereof from the <i>Owner</i>, failing which the <i>Contractor</i> shall be saved harmless from all or a portion of those claims. The <i>Contractor</i> acknowledges that any such agreement would undermine the required arm's-length relationship and constitute a conflict of interest. For greater certainty, the <i>Contractor</i> shall only be entitled to advance claims against the <i>Owner</i> for amounts pertaining to <i>Subcontractor or Supplier</i> claims where the <i>Contractor</i> has actually paid or unconditionally acknowledged liability for those claims or where those claims are the subject of litigation or binding arbitration between the <i>Subcontractor or Supplier</i> and the <i>Contractor</i> has been found liable for those claims.</p> <p>9.5 Notwithstanding paragraph 7.1.2 of GC 7.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT, a breach of this Article A-9 by the <i>Contractor</i>, any of the <i>Subcontractors</i>, or any of their respective advisors, partners, directors, officers, employees, agents, and volunteers shall entitle the <i>Owner</i> to terminate the <i>Contract</i>, in addition to any other rights and remedies that the <i>Owner</i> has in the <i>Contract</i>, in law, or in equity."</p>
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**SC6 \*NEW\* ARTICLE A-10 TIME OF THE ESSENCE**

SC6.13	Article A-10	<p><u>Add</u> the following new Article A-10 as follows:</p> <p><b>"ARTICLE A-10 TIME OF THE ESSENCE</b></p> <p>10.1 It is agreed that one of the reasons the <i>Contractor</i> was selected by the <i>Owner</i> for this <i>Contract</i> is the <i>Contractor's</i> representation and covenant that it will attain <i>Substantial Performance, Occupancy</i> (if applicable), and <i>Ready-for-Takeover</i> within the <i>Contract Time</i> stated in Article A-1 of this <i>Contract</i>.</p> <p>10.2 The <i>Contractor</i> acknowledges and agrees that it is responsible to marshal its resources and those of its <i>Subcontractors and Suppliers</i> in a manner which will permit timely attainment of <i>Substantial Performance, Occupancy</i> (if applicable), and <i>Ready-for-Takeover</i>. The <i>Contractor</i> agrees that time is of the essence of this <i>Contract</i>."</p>
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**SC7 DEFINITIONS**

<b>Revisions to Existing Definitions</b>		
SC7.1	Consultant	<p><u>Amend</u> the definition of "Consultant" by <u>adding</u> the following to the end of the definition:</p> <p>"For the purposes of the <i>Contract</i>, the terms "<i>Consultant</i>", "<i>Architect</i>" and "<i>Engineer</i>" shall be considered synonymous."</p>
SC7.2	Payment Legislation/Construction Act	<p><u>Delete</u> the Definition of <i>Payment Legislation</i> and replace it with "Construction Act" as follows:</p> <p><b>"Construction Act</b></p>



		<i>Construction Act</i> means the <i>Construction Act</i> , R.S.O. 1990, c. C.30, as amended, including all regulations passed under it that are enforceable as of the date of execution of this <i>Contract</i> . For certainty, the first procurement process for the <i>Project</i> (i.e., the “improvement” as that term is defined in the <i>Construction Act</i> ) was commenced on or after October 1, 2019.”
SC7.3	Ready-for-Takeover	Amend the Definition of <i>Ready-for-Takeover</i> by deleting all the words after “as verified” and replacing them with “and approved by the <i>Owner</i> .”
<b>New Definitions</b>		
SC7.4	Adjudication	<p>Add the following definition:</p> <p><b>“Adjudication</b></p> <p><i>Adjudication</i> means construction dispute interim adjudication as defined under the <i>Construction Act</i>.”</p>
SC7.5	Close-Out Documentation	<p>Add the following new definition:</p> <p><b>“Close-Out Documentation</b></p> <p><i>Close-Out Documentation</i> has the meaning given to it under GC 5.4.2.”</p>
SC7.6	Confidential Information	<p>Add the following definition:</p> <p><b>“Confidential Information</b></p> <p><i>Confidential Information</i> means all the information or material of the <i>Owner</i> that is of a proprietary or confidential nature, whether it is identified as proprietary or confidential or not, including but not limited to information and material of every kind and description (such as drawings and move-lists) which is communicated to or comes into the possession or control of the <i>Contractor</i> at any time, but <i>Confidential Information</i> shall not include information that:</p> <ol style="list-style-type: none"> <li>.1 is or becomes generally available to the public without fault or breach on the part of the <i>Contractor</i>, including without limitation breach of any duty of confidentiality owed by the <i>Contractor</i> to the <i>Owner</i> or to any third party, but only after that information becomes generally available to the public;</li> <li>.2 the <i>Contractor</i> can demonstrate to have been rightfully obtained by the <i>Contractor</i> from a third party who had the right to transfer or disclose it to the <i>Contractor</i> free of any obligation of confidence;</li> <li>.3 the <i>Contractor</i> can demonstrate to have been rightfully known to or in the possession of the <i>Contractor</i> at the time of disclosure, free of any obligation of confidence; or</li> <li>.4 is independently developed by the <i>Contractor</i> without use of any <i>Confidential Information</i>.”</li> </ol>
SC7.7	Construction Schedule	<p>Add the following definition:</p> <p><b>“Construction Schedule</b></p> <p><i>Construction Schedule</i> means the schedule for the performance of the <i>Work</i> provided by the <i>Contractor</i>, and approved by the <i>Owner</i>, pursuant to GC 3.4.1, including any amendments to the <i>Construction Schedule</i> made pursuant to the <i>Contract Documents</i>.”</p>
SC7.8	Construction Schedule Update	<p>Add the following definition:</p> <p><b>“Construction Schedule Update</b></p>

		<p><i>Construction Schedule Update</i> means an update to the <i>Construction Schedule</i> by the <i>Contractor</i> using Microsoft Project (or other approved scheduling software) that accurately depicts the progress of the <i>Work</i> relative to the critical path established in the <i>Construction Schedule</i> approved in GC 3.5.1 (or any approved successor <i>Construction Schedule</i>), aligns with the currently approved date for <i>Substantial Performance of the Work</i>, shows up-to-date projected major activity sequences and durations, and shows any changes or delays in anticipated completion dates of major activities in the <i>Work</i> relative to the last <i>Construction Schedule Update</i>, and includes the following minimum deliverables:</p> <p>(a) a record version of the updated <i>Construction Schedule</i> in .pdf format;</p> <p>(b) an editable copy of the updated original digital file of the <i>Construction Schedule</i> (e.g., .mpp format files for Microsoft Project)."</p>
SC7.9	Direct Costs	<p>Add the following definition:</p> <p><b>“Direct Costs</b></p> <p><i>Direct Costs</i> are the reasonable costs of performing the contract or subcontract including costs related to the additional supply of services or materials (including equipment rentals), insurance and surety bond premiums, and costs resulting from seasonal conditions, that would not have been incurred, but do not include indirect damages suffered, such as loss of profit, productivity or opportunity, or any head office overhead costs.”</p>
SC7.10	EFT	<p>Add the following definition:</p> <p><b>“EFT</b></p> <p><i>EFT</i> has the definition given to it under GC 5.3.2.”</p>
SC7.11	Excess Soil	<p>Add the following definition:</p> <p><b>“Excess Soil</b></p> <p><i>Excess Soil</i> means “excess soil” as that term is defined under section 3 of the <i>Excess Soil Regulation</i>.”</p>
SC7.12	Excess Soil Regulation	<p>Add the following Definition:</p> <p><b>“Excess Soil Regulation</b></p> <p><i>Excess Soil Regulation</i> means O. Reg. 406/19: On-Site and Excess Soil Management to the <i>Environmental Protection Act</i>, R.S.O. 1990, c. E.19.”</p>
SC7.13	Final Pre-Invoice Submission Meeting	<p>Add the following definition:</p> <p><b>“Final Pre-Invoice Submission Meeting</b></p> <p><i>Final Pre-Invoice Submission Meeting</i> has the meaning given to it in GC 5.5.1.”</p>
SC7.14	Force Majeure	<p>Add the following definition:</p> <p><b>“Force Majeure</b></p> <p><i>Force Majeure</i> means any cause, unknown at the effective date of the <i>Contract</i> and beyond either party’s control, other than financial difficulties, bankruptcy or insolvency, which prevents the performance by a party, or both, of any of their respective obligations under the <i>Contract</i> and the event of <i>Force Majeure</i> did not arise from a party’s default and could not be avoided or mitigated by the</p>

		exercise of reasonable effort or foresight. <i>Force Majeure</i> includes <i>Labour Disputes</i> ; fire; unusual delay by common carriers or unavoidable casualties; delays in obtaining third-party licences, permits, agreements, or approvals (excluding approvals of any <i>Subcontractors</i> or <i>Suppliers</i> of any tier); civil disturbance; emergency acts, orders, legislation, regulations or directives of any government or other public authority; acts of a public enemy; war; riot; sabotage; blockage; embargo; lightning; earthquake; adverse weather conditions but only if substantially beyond the weather norms of the <i>Place of the Work</i> ; acts of God; or declared epidemic or pandemic outbreak or other public health emergency (e.g. SARS, COVID-19).”
SC7.15	Install	<u>Add</u> the following definition:  <b>“Install</b>  <i>Install</i> means install and connect. <i>Install</i> has this meaning whether or not the first letter is capitalized.”
SC7.16	Labour Dispute	<u>Add</u> the following definition:  <b>“Labour Dispute</b>  <i>Labour Dispute</i> means any lawful or unlawful labour problems, work stoppage, labour disruption, strike, job action, slow down, lock-outs, picketing, refusal to work or continue to work, refusal to supply materials, cessation or work or other labour controversy which does, or might, affect the <i>Work</i> .”
SC7.17	Notice of Non-Payment	<u>Add</u> the following definition:  <b>“Notice of Non-Payment</b>  <i>Notice of Non-Payment</i> means a notice of non-payment of holdback (Form 6) or a notice of non-payment (Form 1.1) under the <i>Act</i> , as applicable to the circumstances.”
SC7.18	OHSA	<u>Add</u> the following definition:  <b>“OHSA</b>  <i>OHSA</i> means the <i>Occupational Health and Safety Act</i> , R.S.O. 1990, c. O.1, as amended, including all regulations thereto.”
SC7.19	Overhead	<u>Add</u> the following definition:  <b>“Overhead</b>  <i>Overhead</i> means all site and head office operations and facilities, all site and head office administration and supervision; all duties and taxes for permits and licenses required by the authorities having jurisdiction at the <i>Place of the Work</i> ; all requirements of Division 1, including but not limited to submittals, warranty, quality control, calculations, testing and inspections; meals and accommodations; and, tools, expendables and clean-up costs.”
SC7.20	Payment Period	<u>Add</u> the following definition:  <b>“Payment Period</b>  <i>Payment Period</i> has the definition given to it under GC 5.2.1.”
SC7.21	Pre-Invoice Submission Meeting	<u>Add</u> the following definition:  <b>“Pre-Invoice Submission Meeting</b>

		<i>Pre-Invoice Submission Meeting</i> has the definition given to it under GC 5.2.1.”
SC7.22	Proper Invoice	<p><u>Add</u> the following definition:</p> <p><b>“Proper Invoice</b></p> <p><i>Proper Invoice</i> means a “proper invoice” as that term is defined in Section 6.1 of the <i>Act</i>, including the minimum requirements set out in Appendix “1” of the Supplementary Conditions.”</p>
SC7.23	Proper Invoice Submission Date	<p><u>Add</u> the following definition:</p> <p><b>“Proper Invoice Submission Date</b></p> <p><i>Proper Invoice Submission Date</i> has the definition given to it under GC 5.2.2.1.”</p>
SC7.24	Request for Information (RFI)	<p><u>Add</u> the following definition:</p> <p><b>“Request for Information (RFI)</b></p> <p><i>Request for Information</i> or <i>RFI</i> means written documentation sent by the <i>Contractor</i> to the <i>Owner</i> or to the <i>Owner’s</i> representative or the <i>Consultant</i> requesting written clarification(s) and/or interpretation(s) of the <i>Drawings</i> and/or <i>Specifications</i>, <i>Contract</i> requirements and/or other pertinent information required to complete the <i>Work</i> of the <i>Contract</i> without applying for a change or changes to the <i>Work</i>.”</p>
SC7.25	Restricted Period	<p><u>Add</u> the following definition:</p> <p><b>“Restricted Period</b></p> <p><i>Restricted Period</i> means the (inclusive) period of time between December 1 to January 8 and August 15 to September 15 of any given year throughout the duration of the <i>Contract</i>.”</p>

**GENERAL CONDITIONS OF THE STIPULATED PRICE CONTRACT**

Where a General Condition or paragraph of the General Conditions of the *Contract* is deleted by these amendments, the numbering of the remaining General Conditions or paragraphs shall remain unchanged, unless stated otherwise herein, and the numbering of the deleted item will be retained, unused.

**PART 1 GENERAL PROVISIONS**

**SC8 GC 1.1 CONTRACT DOCUMENTS**

SC8.1	1.1.3	<p><u>Delete</u> GC 1.1.3 in its entirety and <u>replace</u> it with the following:</p> <p>“1.1.3 The <i>Contractor</i> shall review the <i>Contract Documents</i> and shall report promptly to the <i>Consultant</i> any error, inconsistency, or omission the <i>Contractor</i> may discover. Such review by the <i>Contractor</i> shall be undertaken with the standard of care described in GC 3.13.1. Except for its obligation to make such review and report the result, the <i>Contractor</i> does not assume any responsibility to the <i>Owner</i> or to the <i>Consultant</i> for the accuracy of the <i>Contract Documents</i>. Provided it has exercised the degree of care and skill described in this GC 1.1.3, the <i>Contractor</i> shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the <i>Contract Documents</i>, which the <i>Contractor</i> could not reasonably have discovered through the exercise of the required standard of care.”</p>
SC8.2	1.1.4	<p><u>Delete</u> GC 1.1.4 in its entirety and <u>replace</u> it with the following:</p> <p>“1.1.4 Except for the obligation to complete the review prescribed in GC 1.1.3, and report the results as set out in this GC 1.1.4, the <i>Contractor</i> is not responsible for errors, omissions or inconsistencies in the <i>Contract Documents</i>. If there are errors,</p>

		omissions or inconsistencies discovered by or made known to the <i>Contractor</i> as part of its review under GC 1.1.3 or at any time during the performance of the <i>Work</i> , the <i>Contractor</i> shall immediately notify the <i>Consultant</i> , and request instructions, a <i>Supplemental Instruction</i> , <i>Change Order</i> , or <i>Change Directive</i> , as the case may require, and shall not proceed with the <i>Work</i> affected until the <i>Contractor</i> has received corrected or additional information from the <i>Consultant</i> . The <i>Contractor</i> shall not be liable for damage or costs resulting from such errors, inconsistencies, or omissions in the <i>Contract Documents</i> , which the <i>Contractor</i> could not reasonably have discovered through the exercise of care and skill described in GC 3.13.”
SC8.3	1.1.5.1	<u>Delete</u> GC 1.1.5.1 and <u>replace</u> with the following: “.1 the order of priority of documents, from highest to lowest, shall be: .1 Supplementary Conditions; .2 the Agreement between the Owner and the Contractor; .3 the Definitions; .4 the General Conditions; .5 Division 01 of the <i>Specifications</i> .6 technical <i>Specifications</i> ; .7 material and finishing schedules; and .8 the <i>Drawings</i> .
SC8.4	1.1.5.5	<u>Delete</u> GC 1.1.5.5 and <u>replace</u> with the following: “.5 Noted materials and annotations on the <i>Drawings</i> shall govern over the graphic representation of the <i>Drawings</i> .”
SC8.5	1.1.5.6 to 1.1.5.8	<u>Add</u> the following new GC 1.1.5.6 to 1.1.5.8 as follows: “.6 Finishes in the room finish schedules shall govern over those shown on the <i>Drawings</i> . .7 Architectural drawings shall have precedence over structural, plumbing, mechanical, electrical and landscape drawings insofar as outlining, determining and interpreting conflicts over the required design intent of all architectural layouts and architectural elements of construction, it being understood that the integrity and installation of the systems designed by the <i>Consultant</i> or its sub- <i>Consultants</i> are to remain with each of the applicable drawing disciplines. .8 Should reference standards contained in the <i>Specifications</i> conflict with the <i>Specifications</i> , the <i>Specifications</i> shall govern. Should reference standards and <i>Specifications</i> conflict with each other or if certain requirements of the <i>Specifications</i> conflict with other requirements of the <i>Specifications</i> , the more stringent requirements shall govern.”
SC8.6	1.1.9	<u>Add</u> the following to the end of GC 1.1.9: “The <i>Specifications</i> are divided into divisions and sections for convenience but shall be read as a whole and neither such division nor anything else contained in the <i>Contract Documents</i> will be construed to place responsibility on the <i>Owner</i> or the <i>Consultant</i> to settle disputes among the <i>Subcontractors</i> and <i>Suppliers</i> with respect to such divisions. The <i>Drawings</i> are, in part, diagrammatic and are intended to convey the scope of the <i>Work</i> and indicate general and appropriate locations, arrangements and sizes of fixtures, equipment, outlets and other elements. The <i>Contractor</i> shall obtain more accurate information about the locations, arrangements and sizes from study and coordination of the <i>Drawings</i> , including <i>Shop Drawings</i> and shall become familiar with conditions and spaces affecting those matters before proceeding with the <i>Work</i> . Where site conditions require reasonable minor changes where the change requires only the additional labour two hours or less, the <i>Contractor</i> shall make such

		changes at no additional cost to the <i>Owner</i> . Similarly, where known conditions or existing conditions interfere with new installation and require relocation, the <i>Contractor</i> shall include such relocation in the <i>Work</i> . The <i>Contractor</i> shall arrange and install fixtures and equipment in such a way as to conserve as much headroom and space as possible. The schedules are those portions of the <i>Contract Documents</i> , wherever located and whenever issued, which compile information of similar content and may consist of drawings, tables and/or lists.”
SC8.7	1.1.12	<p><u>Add</u> new paragraphs 1.1.12 and 1.1.13 as follows:</p> <p>“1.1.12 The <i>Consultant</i>, on behalf of the <i>Owner</i> shall provide the <i>Contractor</i> without charge, twelve (12) copies of the <i>Contract Documents</i>, exclusive of those required by jurisdictional authorities and the executed <i>Contract Documents</i>. Additional copies can be purchased by the <i>Contractor</i> at the <i>Consultant’s</i> cost of reproduction, handling and sales tax.</p> <p>1.1.13 The <i>Contractor</i> shall keep one copy of the current <i>Contract Documents</i>, <i>Supplemental Instructions</i>, contemplated <i>Change Orders</i>, <i>Change Orders</i>, <i>Change Directives</i>, cash allowance disbursement authorizations, reviewed <i>Shop Drawings</i>, submittals, reports and records of meeting at the <i>Place of the Work</i>, in good order and available to the <i>Owner</i> and <i>Consultant</i>.”</p>

**SC9 GC 1.3 RIGHTS AND REMEDIES**

SC9.1	1.3.2	<p>In paragraph 1.3.2 <u>delete</u> the word “No” from the beginning of the paragraph and <u>replace</u> it with the words:</p> <p>“Except with respect to the requirements set out in paragraphs 6.4.1, 6.5.4, 6.6.1 and 8.3.2, no...”</p>
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**SC10 \*NEW\* GC 1.5 EXAMINATION OF DOCUMENTS AND SITE**

SC10.1	1.5	<p><u>Add</u> new GC 1.5 – EXAMINATION OF DOCUMENTS AND SITE as follows:</p> <p><b>“GC 1.5 EXAMINATION OF DOCUMENTS AND SITE</b></p> <p>1.5.1 The <i>Contractor</i> declares and represents that in tendering for the <i>Work</i>, and in entering into a <i>Contract</i> with the <i>Owner</i> for the performance of the <i>Work</i>, it has investigated for itself the character of the <i>Work</i> to be done, based on information generally available from a visit to the <i>Place of the Work</i> and to the standard set out under GC 3.14.1 and further represents and warrants and acknowledges that it considered and took into account in the <i>Contract Price</i> all reasonably known impacts and restrictions arising from the COVID-19 pandemic, including without limitation corresponding legislative changes that may impact performance of the <i>Project</i>, various weather conditions that may affect the <i>Work</i>, the availability of supplies and labour or other conditions or risks that the <i>Contractor</i> knew about or reasonably ought to have known about prior to the date of the <i>Contract</i>. The <i>Contractor</i> has assumed and does hereby assume all risk of known conditions now existing or arising in the course of the <i>Work</i> which might or could make the <i>Work</i>, or any items thereof more expensive in character, or more onerous to fulfil, than was contemplated or known when the tender was made or the <i>Contract</i> signed.</p> <p>1.5.2 The <i>Contractor</i> also declares that prior to commencement of the <i>Work</i>, where in tendering for the <i>Work</i> and in entering into this <i>Contract</i>, the <i>Contractor</i> relied upon information furnished by the <i>Owner</i> or any of its agents or servants respecting the nature or confirmation of the ground at the site of the <i>Work</i>, the <i>Contractor</i> shall review to the standard specified in GC 3.14.1, the accuracy of the information furnished by the <i>Owner</i>. If a condition is materially different than what is stated in the information furnished by the <i>Owner</i>, the <i>Contractor</i> shall, no later than five (5)</p>
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		<p><i>Working Days</i> after the first observation of such condition(s), deliver to the <i>Owner</i> and to the <i>Consultant</i> a <i>Notice in Writing</i> specifying the materially different condition and the <i>Contractor</i> shall not proceed with the affected part of the <i>Work</i> until receiving written direction from the <i>Owner</i> or the <i>Consultant</i>. Where the <i>Contractor</i> fails to provide prompt <i>Notice in Writing</i> in accordance with this GC 1.5.2, the <i>Contractor</i> expressly waives and releases the <i>Owner</i> from all claims with respect to the said information with respect to the <i>Work</i>.</p>
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**PART 2 ADMINISTRATION OF THE CONTRACT**

**SC11 GC 2.2 ROLE OF THE CONSULTANT**

SC11.13	2.2.5	<p><u>Delete</u> paragraph 2.2.4 and <u>replace</u> it with the following:</p> <p>“2.2.4 Upon receipt of an application for payment that satisfies the requirement of a <i>Proper Invoice</i>, based on the <i>Consultant’s</i> observations and evaluation of the <i>Contractor’s</i> application for payment, the <i>Consultant</i> will determine the amounts owing to the <i>Contractor</i> under the <i>Contract</i> and will issue certificates for payment as provided in Article A-5 - PAYMENT, GC 5.3 - PAYMENT, GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK, and GC 5.5 - FINAL PAYMENT. If the <i>Consultant</i> determines that the amount payable to the <i>Contractor</i> differs from the amount stated in a <i>Proper Invoice</i>, the <i>Consultant</i> shall notify the <i>Owner</i> as provided in GC 5.3.1.2 and prepare a draft of the applicable <i>Notice of Non-Payment</i> for the amount in dispute.”</p>
SC11.14	2.2.6	<p>In the first sentence of paragraph 2.2.6, <u>delete</u> the words “Except with respect to GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER”.</p>
SC11.15	2.2.12	<p>At paragraph 2.2.12, <u>insert</u> the following at end of that paragraph:</p> <p>“If, in the opinion of the <i>Contractor</i>, the <i>Supplemental Instruction</i> involves an adjustment in the <i>Contract Price</i> or in the <i>Contract Time</i>, it shall, within ten (10) <i>Working Days</i> of receipt of a <i>Supplemental Instruction</i>, provide the <i>Consultant</i> with a notice in writing to that effect. Failure to provide written notification within the time stipulated in this paragraph 2.2.12 shall be deemed an acceptance of the <i>Supplemental Instruction</i> by the <i>Contractor</i>, without any adjustment in the <i>Contract Price</i> or <i>Contract Time</i>.”</p>

**SC12 GC 2.3 REVIEW AND INSPECTION OF THE WORK**

SC12.1	2.3.2	<p><u>Amend</u> paragraph 2.3.2 by <u>adding</u> the words “and <i>Owner</i>” after the words “<i>Consultant</i>” in the second and third lines.</p>
SC12.2	2.3.3	<p><u>Delete</u> paragraph 2.3.3 in its entirety and <u>replace</u> it with the following:</p> <p>“2.3.3 The <i>Contractor</i> shall furnish promptly two copies to the <i>Consultant</i> and one copy to the <i>Owner</i> of all certificates and inspection reports relating to the <i>Work</i>.”</p>
SC12.3	2.3.4	<p>In paragraph 2.3.4 <u>add</u> the word “review” after the word “inspections” in the first and second lines of paragraph 2.3.4.</p>
SC12.4	2.3.5	<p>In paragraph 2.3.5 in the first line after the word “<i>Consultant</i>”, <u>add</u> “or the <i>Owner</i>”.</p>
SC12.5	2.3.8	<p><u>Add</u> a new paragraph 2.3.8 as follows:</p> <p>“2.3.8 The <i>Consultant</i> will conduct periodic reviews of the <i>Work</i> in progress, to determine general conformance with the requirements of the <i>Contract Documents</i>. Such reviews, or lack thereof, shall not give rise to any claims by the <i>Contractor</i> in connection with construction means, methods, techniques, sequences and</p>

		procedures, nor in connection with construction safety at the <i>Place of Work</i> , responsibility for which belongs exclusively to the <i>Contractor</i> .”
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**SC13 GC 2.4 DEFECTIVE WORK**

SC13.1	2.4.1	<u>Amend</u> GC 2.4.1 by inserting “, the <i>Owner</i> and/or its agent” in the first sentence following “rejected by the <i>Consultant</i> ”.
SC13.2	2.4.1.1 to 2.4.1.2	<u>Add</u> new paragraphs 2.4.1.1 and 2.4.1.2 as follows:  “2.4.1.1 The <i>Contractor</i> shall rectify, in a manner acceptable to the <i>Consultant</i> and to the <i>Owner through the Consultant</i> all defective work and deficiencies throughout the <i>Work</i> , whether or not they are specifically identified by the <i>Consultant</i> .  2.4.1.2 The <i>Contractor</i> shall prioritize the correction of any defective work, which, in the sole discretion of the <i>Owner through the Consultant</i> , adversely affects the day to day operations of the <i>Owner</i> or which, in the sole discretion of the <i>Consultant</i> , adversely affects the progress of the <i>Work</i> .”
SC13.3	2.4.2	<u>Delete</u> paragraph 2.4.2 in its entirety and <u>replace</u> it with the following:  “2.4.2 The <i>Contractor</i> shall promptly pay the <i>Owner</i> for costs incurred by the <i>Owner</i> , the <i>Owner’s</i> own forces or the <i>Owner’s</i> other contractors, for work destroyed or damaged or any alterations necessitated by the <i>Contractor’s</i> removal, replacement or re-execution of defective work.”
SC13.4	2.4.4	<u>Add</u> new paragraph 2.4.4 as follows:  “2.4.4 Neither acceptance of the <i>Work</i> by the <i>Consultant</i> or the <i>Owner</i> , nor any failure by the <i>Consultant</i> or the <i>Owner</i> to identify, observe or warn of defective <i>Work</i> or any deficiency in the <i>Work</i> shall relieve the <i>Contractor</i> from the sole responsibility for rectifying such defect or deficiency at the <i>Contractor’s</i> sole cost, even where such failure to identify, observe or warn is negligent.”

**PART 3 EXECUTION OF THE WORK**

**SC14 GC 3.1 CONTROL OF THE WORK**

SC14.1	3.1.2	Amend paragraph 3.1.2 by <u>inserting</u> the words “Construction Schedule” after the word “sequences”.
SC14.2	3.1.3 & 3.1.4	<u>Add</u> new paragraphs 3.1.3 and 3.1.4 as follows:  “3.1.3 Prior to commencing individual procurement, fabrication and construction activities, the <i>Contractor</i> shall verify at the <i>Place of the Work</i> , all relevant measurements and levels necessary for proper and complete fabrication, assembly and installation of the <i>Work</i> and shall further carefully compare such field measurements and conditions with the requirements of the <i>Contract Documents</i> . Where dimensions are not included or exact locations are not apparent, the <i>Contractor</i> shall immediately notify the <i>Consultant</i> in writing and obtain written instructions from the <i>Consultant</i> before proceedings with any part of the affected <i>Work</i> .  3.1.4 Notwithstanding the provisions of paragraphs 3.1.1 and 3.1.2, the <i>Owner</i> shall have access to the site at all times to monitor all aspects of construction. Such access shall in no circumstances affect the obligations of the <i>Contractor</i> to fulfill its contractual obligations.”



**SC15 GC 3.2 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS**

SC15.1	3.2.2.1	<u>Delete</u> subparagraph 3.2.2.1 and <u>replace</u> it with “[Intentionally left blank]”.
SC15.2	3.2.3.2	<u>Delete</u> subparagraph 3.2.3.2 and <u>replace</u> it with the following:  “.2 co-ordinate and schedule the activities and work of other contractors and the <i>Owner’s</i> own forces, including where other contractors or the <i>Owner’s</i> own forces are used after the <i>Owner</i> and the <i>Contractor</i> cannot reach agreement on the value of a change, with the <i>Work</i> of the <i>Contractor</i> and connect as specified or shown in the <i>Contract Documents</i> .”
SC15.3	3.2.3.4	<u>Delete</u> the period at the end of subparagraph 3.2.3.4 and <u>replace</u> it with a semi-colon.
SC15.4	3.2.3.5	<u>Add</u> new subparagraph 3.2.3.5 as follows:  “.5 Subject to GC 9.4 CONSTRUCTION SAFETY, for the <i>Owner’s</i> own forces and for other contractors, assume overall responsibility for compliance with all aspects of the applicable health and safety legislation in force at the <i>Place of the Work</i> , including all of the responsibilities of the “constructor”, pursuant to the <i>OHSA</i> .”

**SC16 GC 3.3 TEMPORARY WORK**

SC16.1	3.3.2	In paragraph 3.3.2, in the second line after the words “where required by law”, insert “or by the <i>Consultant</i> ”.
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**SC17 GC 3.4 CONSTRUCTION SCHEDULE**

SC17.1	3.4.1	<u>Delete</u> GC 3.4.1 in its entirety and <u>replace</u> it with the following:  “3.4.1 The <i>Contractor</i> shall:  1 within five (5) calendar days of receiving written confirmation of the award of the <i>Contract</i> , prepare and submit to the <i>Owner</i> and the <i>Consultant</i> for their review and approval, a construction schedule in the format indicated below that indicates the timing of the activities of the <i>Work</i> and provides sufficient detail of the critical events and their inter-relationship to demonstrate the <i>Work</i> will be performed in conformity with the <i>Contract Time</i> and in accordance with the <i>Contract Documents</i> . Such schedule is to include a delivery schedule for <i>Products</i> whose delivery is critical to the schedule for the <i>Work</i> or are required by the <i>Contract</i> to be included in a <i>Products</i> delivery schedule. The <i>Contractor</i> shall employ construction scheduling software, being the latest version of “Microsoft Project”, that permits the progress of the <i>Work</i> to be monitored in relation to the critical path established in the schedule. The <i>Contractor</i> shall provide such schedule and any successor or revised schedules in both original digital file format (e.g., .mpp format for Microsoft Project), portable data file (PDF) format, and hard copy. Once accepted by the <i>Owner</i> and the <i>Consultant</i> , the construction schedule submitted by the <i>Contractor</i> shall become the baseline “ <b>Construction Schedule</b> ”;  .2 provide the expertise and resources, such resources including manpower and equipment, as are necessary on a best efforts basis to maintain progress under the accepted baseline <i>Construction Schedule</i> or revised construction schedule accepted by the <i>Owner</i> pursuant to GC 3.4 CONSTRUCTION SCHEDULE, which includes without limitation, the <i>Contractor’s</i> use of all possible and, if necessary, extraordinary measures, to bring the progress of the <i>Work</i> into compliance with the <i>Construction Schedule</i> , such as (i) increasing the presence of its own forces at the <i>Place of the Work</i> ; (ii) directing any <i>Subcontractors</i> or <i>Suppliers</i> to increase their labour forces and equipment; (iii) working overtime and extra shifts; and (iv) providing any
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		<p>additional supervision and coordination of the <i>Project</i>, all at the <i>Contractor's</i> own cost and expense save and except where GC 6.5.1, 6.5.2, or 6.5.3 apply; and,</p> <p>.3 monitor the progress of the <i>Work</i> on a weekly basis relative to the baseline <i>Construction Schedule</i>, or any revised <i>Construction Schedule</i> accepted by the <i>Owner</i> pursuant to GC 3.4 CONSTRUCTION SCHEDULE, deliver a <i>Construction Schedule Update</i> to the <i>Consultant</i> and <i>Owner</i> with each application for payment, at a minimum, or as may be reasonably required by the <i>Consultant</i> and advise the <i>Consultant</i> and the <i>Owner</i> weekly in writing of any variation from the baseline or slippage in the schedule; and,</p> <p>.4 if after applying the expertise and resources required under paragraph 3.4.1.2, the <i>Contractor</i> forms the opinion that the slippage in schedule reported in paragraph 3.4.1.3 cannot be recovered by the <i>Contractor</i>, it shall, in the same notice provided under paragraph 3.4.1.3, indicate to the <i>Consultant</i> if the <i>Contractor</i> intends to apply for an extension of <i>Contract Time</i> as provided in PART 6 —CHANGES IN THE WORK; and,</p> <p>.5 ensure that the <i>Contract Price</i> shall include all costs required to phase or stage the <i>Work</i>.”</p>
SC17.2	3.4.2	<p><u>Add</u> new GC 3.4.2 and GC 3.4.3 as follows:</p> <p>“3.4.2 If, at any time, it should appear to the <i>Owner</i> or the <i>Consultant</i> that the actual progress of the <i>Work</i> is behind schedule or is likely to become behind schedule, or if the <i>Contractor</i> has given notice of such to the <i>Owner</i> or the <i>Consultant</i> pursuant to GC 3.4.1.3, the <i>Contractor</i> shall, either at the request of the <i>Owner</i> or the <i>Consultant</i>, or following giving notice pursuant to GC 3.4.1.3, take appropriate steps to cause the actual progress of the <i>Work</i> to conform to the schedule or minimize the resulting delay. Within 5 calendar days of the request by the <i>Owner</i> or the <i>Consultant</i> or the notice being given pursuant to GC 3.4.1.3, the <i>Contractor</i> shall produce and present to the <i>Owner</i> and the <i>Consultant</i> a plan demonstrating how the <i>Contractor</i> will recover the performance of the <i>Work</i> to align with the currently approved <i>Construction Schedule</i>.</p> <p>3.4.3 The <i>Contractor</i> shall not amend the <i>Construction Schedule</i> without the prior written consent of the <i>Owner</i>.. Any revisions to the <i>Construction Schedule</i> approved by the <i>Owner</i> shall not be deemed to be an extension of the <i>Contract Time</i>. All requests by the <i>Contractor</i> for a revision to the <i>Construction Schedule</i> that include an extension to the <i>Contract Time</i> must be approved by the <i>Owner</i> through an executed <i>Change Order</i>.”</p>

**SC18 GC 3.5 SUPERVISION**

SC18.1	3.5.1	<p><u>Delete</u> GC 3.5.1 and <u>replace</u> it with the following:</p> <p>“3.5.1 The <i>Contractor</i> shall employ a competent full-time superintendent, acceptable to the <i>Owner</i> and <i>Consultant</i>, who shall be in full time attendance at the <i>Place of the Work</i> while the <i>Work</i> is being performed. The superintendent shall not be changed by the <i>Contractor</i> without valid reason which shall be provided in writing and shall not be changed without prior consultation with and agreement by the <i>Owner</i> and the <i>Consultant</i>. The <i>Contractor</i> shall replace the superintendent within 7 <i>Working Days</i> of the <i>Owner's</i> written notification, if the superintendent's performance is not acceptable to the <i>Owner</i>. The <i>Contractor</i> shall provide the <i>Owner</i> and the <i>Consultant</i> with the names, addresses and telephone numbers of the superintendent referred to in this GC 3.5.1 and other responsible persons who may be contacted for emergency and other reasons during non-working hours. .”</p>
SC18.2	3.5.2	<p><u>Delete</u> GC 3.5.2 and <u>replace</u> it with the following:</p>

		<p>“3.5.2 The superintendent, and any project manager appointed by the <i>Contractor</i>, shall represent the <i>Contractor</i> at the <i>Place of the Work</i> and shall have full authority to act on written instructions given by the <i>Consultant</i> and/or the <i>Owner</i>. Instructions given to the superintendent or the project manager shall be deemed to have been given to the <i>Contractor</i> and both the superintendent and any project manager shall have full authority to act on behalf of the <i>Contractor</i> and bind the <i>Contractor</i> in matters related to the <i>Contract</i>.”</p>
SC18.3	3.5.3 to 3.5.6	<p><u>Add</u> new GC 3.5.3, 3.5.4, 3.5.5 and 3.5.6 as follows:</p> <p>“3.5.3 The <i>Owner</i> may, at any time during the course of the <i>Work</i>, request the replacement of the appointed representative(s). Immediately upon receipt of the request, the <i>Contractor</i> shall make arrangements to appoint an acceptable replacement, which is approved by the <i>Owner</i>.</p> <p>3.5.4 The supervisory staff assigned to the <i>Project</i> shall also be fully competent to implement efficiently all requirements for scheduling, coordination, field engineering, reviews, inspections and submittals defined in the <i>Specifications</i>, and have a minimum 5 years documented “Superintendent/Project Management” experience.</p> <p>3.5.5 The <i>Consultant and Owner</i> shall reserve the right to review the record of experience and credentials of supervisory staff assigned to the <i>Project</i> prior to commencement of the <i>Work</i>.</p> <p>3.5.6 A superintendent assigned to the <i>Work</i> shall be “Gold Seal Certified” as per the Canadian Construction Association; or a superintendent that can demonstrate the requisite experience and success related to the <i>Project</i> to the sole satisfaction of the <i>Owner</i>.”</p>

**SC19 GC 3.6 SUBCONTRACTORS AND SUPPLIERS**

SC19.1	3.6.1.1	In paragraph 3.6.1.1 <u>add</u> to the end of the second line the words “including any warranties and service agreements which extend beyond the term of the <i>Contract</i> .”
SC19.2	3.6.1.2	In subparagraph 3.6.1.2 after the words “the <i>Contract Documents</i> ” <u>add</u> the words “including any required surety bonding”.
SC19.3	3.6.2	<p><u>Delete</u> paragraph 3.6.2. in its entirety and <u>replace</u> it with the following:</p> <p>“3.6.2 The substitution of any <i>Subcontractor</i> and/or <i>Suppliers</i> after submission of the <i>Contractor’s</i> bid will not be accepted unless a valid reason is given in writing to and approved by the <i>Owner</i>, whose approval may be arbitrarily withheld. The reason for substitution must be provided to the <i>Owner</i> and to the original <i>Subcontractor</i> and/or <i>Supplier</i> and the <i>Subcontractor</i> and/or <i>Supplier</i> shall be given the opportunity to reply to the <i>Contractor</i> and <i>Owner</i>. The <i>Contractor</i> shall be fully aware of the capability of each <i>Subcontractor</i> and/or <i>Supplier</i> included in its bid, including but not limited to technical ability, financial stability and ability to maintain the proposed construction schedule.”</p>
SC19.4	3.6.7, 3.6.8, 3.6.9 & 3.6.10	<p><u>Add</u> new paragraphs 3.6.7, 3.6.8, 3.6.9, and 3.6.10 as follows:</p> <p>“3.6.7 The <i>Contractor</i> represents and warrants that it has confirmed the availability of its <i>Subcontractors</i> for the <i>Project</i> and, in particular, for the performance of their respective portions of the <i>Work</i> to ensure completion of the <i>Project</i> within the <i>Contract Price</i> and the <i>Contract Time</i>.</p> <p>3.6.8 The <i>Consultant</i> or the <i>Owner</i>, acting reasonably, may from time to time require the <i>Contractor</i> to remove from the <i>Project</i> any personnel of the <i>Contractor</i>, including project managers, superintendents or <i>Subcontractors</i>. Such persons shall be replaced by the <i>Contractor</i> in a timely fashion to the satisfaction of the <i>Consultant</i> or the <i>Owner</i>, as the case may be, at no cost to the <i>Owner</i>.</p>

		<p>3.6.9 Where provided in the <i>Contract</i>, the <i>Owner</i> may assign to the <i>Contractor</i>, and the <i>Contractor</i> agrees to accept, any contract procured by the <i>Owner</i> for <i>Work</i> or services required on the <i>Project</i> that has been pre-tendered or pre-negotiated by the <i>Owner</i>, and upon such assignment, the <i>Owner</i> shall have no further liability to any party for such contract.</p> <p>3.6.10 The <i>Contractor</i> covenants that each subcontract or supply contract which the <i>Contractor</i> enters into for the purpose of performing the <i>Work</i> shall expressly provide for the assignment thereof to the <i>Owner</i> (at the option of the <i>Owner</i>) and the assumption by the <i>Owner</i> of the obligations of the <i>Contractor</i> thereunder, upon the termination of the <i>Contract</i> and upon written notice by the <i>Owner</i> to the other parties to such subcontracts or supply contracts, without the imposition of further terms or conditions; provided, however, that until the <i>Owner</i> has given such notice, nothing herein contained shall be deemed to create any contractual or other liability upon the <i>Owner</i> for the performance of obligations under such subcontracts or supply contracts and the <i>Contractor</i> shall be fully responsible for all of its obligations and liabilities (if any) under such subcontracts and supply contracts."</p>
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**SC20 GC 3.7 LABOUR AND PRODUCTS**

SC20.1	3.7.1	<u>Amend</u> paragraph 3.7.1 by <u>adding</u> the words, "..., agents, <i>Subcontractors</i> and <i>Suppliers</i> ..." after the word "employees" in the first line.
SC20.2	3.7.2	<p><u>Delete</u> paragraph 3.7.2 and <u>substitute</u> with the following:</p> <p>"3.7.2 <i>Products</i> provided shall be new and shall conform to all current applicable specifications of the Canadian Standards Association, Canadian Standards Board or General Standards Board, ASTM, National Building Code, provincial and municipal building codes, fire safety standards, and all governmental authorities and regulatory agencies having jurisdiction at the <i>Place of the Work</i>, unless otherwise specified. <i>Products</i> which are not specified shall be of a quality consistent with those specified and their use acceptable to the <i>Consultant</i>. <i>Products</i> brought on to the <i>Place of the Work</i> by the <i>Contractor</i> shall be deemed to be the property of the <i>Owner</i>, but the <i>Owner</i> shall be under no liability for loss thereof or damage thereto arising from any cause whatsoever. The said <i>Products</i> shall be at the sole risk of the <i>Contractor</i>. Workmanship shall be, in every respect, first class and the <i>Work</i> shall be performed in accordance with the best modern industry practice."</p>
SC20.3	3.7.4 to 3.7.8	<p><u>Add</u> new paragraphs 3.7.4, 3.7.5, 3.7.6, 3.7.7, and 3.7.8 as follows:</p> <p>"3.7.4 Upon receipt of a <i>Notice in Writing</i> from the <i>Owner</i>, the <i>Contractor</i> shall immediately remove from the <i>Place of the Work</i>, tradesmen and labourers or anyone whose conduct jeopardizes the safety of the <i>Owner's</i> operations or who are considered by the <i>Owner</i> or the <i>Consultant</i> to be unskilled or otherwise objectionable. Immediately upon receipt of the request, the <i>Contractor</i> shall make arrangements to appoint an acceptable replacement.</p> <p>3.7.5 The <i>Contractor</i> shall cooperate with the <i>Owner</i> and its representatives and shall take all reasonable and necessary actions to maintain stable and harmonious labour relations with respect to the <i>Work</i> at the <i>Place of the Work</i>, including cooperation to attempt to avoid <i>Work</i> stoppages, trade union jurisdictional disputes and other <i>Labour Disputes</i>. Any costs arising from labour disputes shall be at the sole expense of the <i>Contractor</i>.</p> <p>3.7.6 The cost for overtime required beyond the normal <i>Working Day</i> to complete individual construction operations of a continuous nature, such as pouring or finishing of concrete or similar work, or <i>Work</i> that the <i>Contractor</i> elects to perform at overtime rates without the <i>Owner</i> requesting it, shall not be chargeable to the <i>Owner</i>.</p>

		<p>3.7.7 All manufactured <i>Products</i> which are identified by their proprietary names or by part or catalogue number in the <i>Specifications</i> shall be used by the <i>Contractor</i>. No substitutes for such specified <i>Products</i> shall be used without the written approval of the <i>Owner</i> and the <i>Consultant</i>. Substitutes will only be considered by the <i>Consultant</i> when submitted in sufficient time to permit proper review and investigation. When requesting approval for the use of substitutes, the <i>Contractor</i> shall include in its submission any proposed change in the <i>Contract Price</i>. The <i>Contractor</i> shall use all proprietary <i>Products</i> in strict accordance with the manufacturer's directions. Where there is a choice of proprietary <i>Products</i> specified for one use, the <i>Contractor</i> may select any one of the <i>Products</i> so specified for this use.</p> <p>3.7.8 Materials, appliances, equipment and other <i>Products</i> are sometimes specified by reference to brand names, proprietary names, trademarks or symbols. In such cases, the name of a manufacturer, distributor, <i>Supplier</i> or dealer is sometimes given to assist the <i>Contractor</i> to find a source <i>Supplier</i>. This shall not relieve the <i>Contractor</i> from its responsibility from finding its own source of supply even if the source names no longer supplies the <i>Product</i> specified. If the <i>Contractor</i> is unable to obtain the specified <i>Product</i>, the <i>Contractor</i> shall supply a substitute product equal to or better than the specified <i>Product</i>, as approved by the <i>Consultant</i> with no extra compensation. Should the <i>Contractor</i> be unable to obtain a substitute <i>Product</i> equal to or superior to the specified <i>Product</i> and the <i>Owner</i> accepts a different <i>Product</i>, the <i>Contract Price</i> shall be adjusted accordingly, as approved by the <i>Consultant</i>."</p>
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**SC21 GC 3.8 SHOP DRAWINGS**

SC21.1	3.8.1	<p><u>Delete</u> paragraph 3.8.1 in its entirety and <u>replace</u> with the following:</p> <p>"3.8.1 The <i>Contractor</i> shall provide shop drawings as described in the <i>Contract Documents</i> and as the <i>Consultant</i> may reasonably request."</p>
SC21.2	3.8.3	<p><u>Delete</u> paragraph 3.8.3 and <u>replace</u> it with the following:</p> <p>"3.8.3 The <i>Contractor</i> shall prepare a <i>Shop Drawings</i> schedule acceptable to the <i>Owner</i> and the <i>Consultant</i> prior to the first application for payment. A draft of the proposed <i>Shop Drawings</i> schedule shall be submitted by the <i>Contractor</i> to the <i>Consultant</i> and the <i>Owner</i> for approval. The draft <i>Shop Drawings</i> schedule shall clearly indicate the phasing of <i>Shop Drawings</i> submissions. The <i>Contractor</i> shall periodically re-submit the <i>Shop Drawings</i> schedule to correspond to changes in the <i>Construction Schedule</i>."</p>
SC21.3	3.8.5	<p><u>Delete</u> paragraph 3.8.5 in its entirety and <u>substitute</u> the following:</p> <p>"3.8.5 At the time of providing <i>Shop Drawings</i>, the <i>Contractor</i> shall advise the <i>Consultant</i> in writing of any deviations in <i>Shop Drawings</i> from the requirements of the <i>Contract Documents</i>. The <i>Consultant</i> shall indicate the acceptance of such deviation expressly in writing. Where manufacturers' literature is submitted in lieu of scaled drawings, it shall be clearly marked in ink, to indicate the specific items for which review is requested."</p>
SC21.4	3.8.8 to 3.8.12	<p><u>Add</u> new paragraphs 3.8.8, 3.8.9, 3.8.10, 3.8.11, and 3.8.12 as follows:</p> <p>"3.8.8 Reviewed <i>Shop Drawings</i> shall not authorize a change in the <i>Contract Price</i> and/or the <i>Contract Time</i>.</p> <p>3.8.9 Except where the parties have agreed to a different <i>Shop Drawings</i> schedule pursuant to paragraph 3.10.3, the <i>Contractor</i> shall comply with the requirements for <i>Shop Drawings</i> submissions stated in the <i>Specifications</i>.</p>

		<p>3.8.10 The <i>Contractor</i> shall not use the term “by others” on <i>Shop Drawings</i> or other submittals. The related trade, <i>Subcontractor</i> or <i>Supplier</i> shall be stated.</p> <p>3.8.11 Certain <i>Specifications</i> sections require the <i>Shop Drawings</i> to bear the seal and signature of a professional engineer. Such professional engineer must be registered in the jurisdiction of the <i>Place of the Work</i> and shall have expertise in the area of practice reflected in the <i>Shop Drawings</i>.</p> <p>3.8.12 The <i>Consultant</i> will review and return <i>Shop Drawings</i> and submittals in accordance with the schedule agreed upon in paragraph 3.10.3, The <i>Contractor</i> shall allow the <i>Consultant</i> a minimum of 10 <i>Working Days</i> to review <i>Shop Drawings</i> from the date of receipt. If resubmission of <i>Shop Drawings</i> is required, a further 10 <i>Working Day</i> period is required for the <i>Consultant’s</i> review.”</p>
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**SC22 \*NEW\* GC 3.9 USE OF THE WORK**

SC22.1	GC 3.9	<p><u>Add</u> new GC 3.9 – USE OF THE WORK as follows:</p> <p><b>“GC 3.9 USE OF THE WORK</b></p> <p>3.9.1 The <i>Contractor</i> shall confine <i>Construction Equipment, Temporary Work, storage of Products, waste products and debris, and operations of employees and Subcontractors</i> to limits indicated by laws, ordinances, permits, by the direction of the <i>Owner</i> or the <i>Consultant</i>, or the <i>Contract Documents</i> and shall not unreasonably encumber the <i>Place of the Work</i>.</p> <p>3.9.2 The <i>Contractor</i> shall not load or permit to be loaded any part of the <i>Work</i> with a weight or force that will endanger the safety of the <i>Work</i>.</p> <p>3.9.3 The <i>Owner</i> shall have the right to enter or occupy the <i>Place of the Work</i> in whole or in part for the purpose of placing fittings and equipment, or for other use before <i>Substantial Performance of the Work</i>, if, in the opinion of the <i>Consultant</i>, such entry and occupation does not prevent or substantially interfere with the <i>Contractor</i> in the performance of the <i>Contract</i> within the <i>Contract Time</i>. Such entry or occupation shall neither be considered as acceptance of the <i>Work</i> or in any way relieves the <i>Contractor</i> from its responsibility to complete the <i>Contract</i>.”</p>
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**SC23 \*NEW\* GC 3.10 CUTTING AND REMEDIAL WORK**

SC23.1	GC 3.10	<p><u>Add</u> new GC 3.10 – CUTTING AND REMEDIAL WORK as follows:</p> <p><b>“GC 3.10 CUTTING AND REMEDIAL WORK</b></p> <p>3.10.1 The <i>Contractor</i> shall perform the cutting and remedial work required to make the affected parts of the <i>Work</i> come together properly. Such cutting and remedial work shall be performed by specialists familiar with the <i>Products</i> affected and shall be performed in a manner to neither damage nor endanger the <i>Work</i>.</p> <p>3.10.2 The <i>Contractor</i> shall coordinate the <i>Work</i> to ensure all cutting and remedial work required is kept to a minimum.</p> <p>3.10.3 Unless specifically stated otherwise in the <i>Specifications</i>, the <i>Contractor</i> shall do all cutting and making good necessary for the proper installation and performance of the <i>Work</i>.</p>
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		<p>3.10.4 To avoid unnecessary cutting, the <i>Contractor</i> shall lay out its work and advise the <i>Subcontractors</i>, when necessary, where to leave holes for installation of pipes and other work."</p>
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**SC24 \*NEW\* GC 3.11 CLEAN UP**

<p>SC24.13</p>	<p>3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5 &amp; 3.11.6</p>	<p>Add new paragraphs 3.11.1, 3.11.2, 3.11.3, 3.11.4, 3.11.5, and 3.11.6 as follows:</p> <p>"3.11.1 The <i>Contractor</i> shall maintain the <i>Work</i> in a safe and tidy condition and free from the accumulation of waste products and debris, other than that caused by the <i>Owner</i>, other contractors or their employees. The <i>Contractor</i> shall remove accumulated waste and debris at least once a week as a minimum or as required by the nature of the <i>Work</i>.</p> <p>3.11.2 Before applying for <i>Substantial Performance of the Work</i>, the <i>Contractor</i> shall remove waste products and debris, other than that resulting from the work of the <i>Owner</i>, other contractors or their employees, and shall leave the <i>Place of the Work</i> clean and suitable for use or occupancy by the <i>Owner</i>. The <i>Contractor</i> shall remove products, tools, materials, <i>Construction Equipment</i>, and <i>Temporary Work</i> not required for the performance of the remaining work.</p> <p>3.11.3 As a condition precedent to submitting its application for final payment, the <i>Contractor</i> shall remove any remaining products, tools, materials, <i>Construction Equipment</i>, <i>Temporary Work</i>, and waste products and debris, other than those resulting from the work of the <i>Owner</i>, other contractors or their employees.</p> <p>3.11.4 The <i>Contractor</i> shall clean up garbage during and after construction and maintain the <i>Place of the Work</i> in a neat and orderly condition on a daily basis. Prior to leaving the <i>Place of the Work</i> and following completion of the <i>Work</i>, the <i>Contractor</i> shall make good all damage to the building and its components caused by the performance of the <i>Work</i> or by any <i>Subcontractor</i> or <i>Supplier</i>. The <i>Contractor</i> shall leave the <i>Place of the Work</i> in a clean and finished state; remove all <i>Construction Equipment</i> and materials; remove all paint, stains, labels, dirt, etc. from the <i>Place of the Work</i>; and touch up all damaged painted areas (if applicable). The <i>Contractor</i> shall be responsible for restoring those areas of the <i>Place of the Work</i>, impacted by the <i>Work</i>, to their original condition."</p> <p>3.11.5 Without limitation to or waiver of the <i>Owner's</i> other rights and remedies, the <i>Owner</i> shall have the right to back charge to the <i>Contractor</i> the cost of damage to the site caused by transportation in and out of the <i>Place of the Work</i> by the <i>Contractor</i>, <i>Subcontractors</i> or <i>Suppliers</i>, if not repaired before final payment.</p> <p>3.11.6 The <i>Contractor</i> shall dispose of debris at a location and in a manner acceptable to the <i>Owner</i> (and to the authorities having jurisdiction at the <i>Place of the Work</i> and at the disposal area) and the <i>Contractor</i> shall cover containers with tarpaulins."</p>
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**SC25 \*NEW\* GC 3.12 EXCESS SOIL MANAGEMENT**

<p>SC25.1</p>	<p>GC 3.12</p>	<p>Add new GC 3.12 – EXCESS SOIL MANAGEMENT as follows:</p> <p><b>"GC 3.12 EXCESS SOIL MANAGEMENT</b></p> <p>3.12.1 The <i>Contractor</i> shall be solely responsible for the proper management of all <i>Excess Soil</i> at the <i>Place of the Work</i> and for performance of the <i>Work</i> in compliance with the rules, regulations and practices required by the <i>Excess Soil Regulation</i> until such time as <i>Ready-for-Takeover</i> is achieved. Without restricting the generality of</p>
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		<p>the previous sentence, the <i>Contractor's</i> responsibility under this GC 3.12 includes the designation, transportation, tracking, temporary and/or final placement, record keeping, and reporting of all <i>Excess Soil</i> in connection with the Work all in compliance with the <i>Excess Soil Regulation</i>.</p> <p>3.12.3 The <i>Contractor</i> shall indemnify and save harmless the <i>Owner</i>, their agents, officers, directors, administrators, employees, consultants, successors and assigns from and against the consequences of any and all health and safety infractions committed directly by the <i>Contractor</i>, or those for whom it is responsible at law, under the <i>Excess Soil Regulation</i>, or any environmental protection legislation, including the payment of legal fees and disbursements on a substantial indemnity basis. Such indemnity shall apply to the extent to which the <i>Owner</i> is not covered by insurance."</p>
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**SC26 \*NEW\* GC 3.13 CONTRACTOR STANDARD OF CARE**

SC26.1	3.13	<p><u>Add</u> a new GC 3.13 – CONTRACTOR STANDARD OF CARE as follows:</p> <p><b>"GC 3.13 CONTRACTOR STANDARD OF CARE</b></p> <p>"3.13.1 In performing its services and obligations under the <i>Contract</i>, the <i>Contractor</i> shall exercise the standard of care, skill and diligence that would normally be provided by an experienced and prudent contractor supplying similar services for similar projects. The <i>Contractor</i> acknowledges and agrees that throughout the <i>Contract</i>, the performance of the <i>Contractor's</i> obligations, duties and responsibilities shall be interpreted in accordance with this standard. The <i>Contractor</i> shall exercise the same standard of care, skill and diligence in respect of any <i>Products</i>, personnel or procedures which it may recommend to the <i>Owner</i> or employ on the <i>Project</i>.</p> <p>3.13.2 The <i>Contractor</i> further represents, covenants and warrants to the <i>Owner</i> that:</p> <ol style="list-style-type: none"> <li>.1 the personnel it assigns to the <i>Project</i> are appropriately experienced;</li> <li>.2 it has a sufficient staff of qualified and competent personnel to replace any of its appointed representatives, subject to the <i>Owner's</i> approval, in the event of death, incapacity, removal or resignation; and</li> <li>.3 there are no pending, threatened or anticipated claims, liabilities or contingent liabilities that would have a material effect on the financial ability of the <i>Contractor</i> to perform its work under the <i>Contract</i>." </li></ol>
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**PART 4 ALLOWANCES**

**SC27 GC 4.1 CASH ALLOWANCES**

SC27.1	4.1.3	In GC 4.1.3 <u>delete</u> the words "through the <i>Consultant</i> " and <u>replace</u> them with "in writing."
SC27.2	4.1.4	<p><u>Delete</u> GC 4.1.4 in its entirety and <u>replace</u> it with the following:</p> <p>"4.1.4 Where the actual cost of the <i>Work</i> under any cash allowance exceeds the amount of the allowance, any unexpended amounts from other cash allowances shall be reallocated, by the <i>Consultant</i> at the <i>Owner's</i> direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the <i>Contract Price</i> for overhead and profit. Only where the actual cost of the <i>Work</i> under all cash allowances exceeds the total amount of all cash allowances shall the <i>Contractor</i> be compensated for the excess incurred and substantiated, plus an amount for overhead and profit on the excess only, as set out in the <i>Contract Documents</i>."</p>



SC27.3	4.1.5	<p><u>Delete</u> GC 4.1.5 in its entirety and <u>replace</u> it with the following:</p> <p>"4.1.5 The net amount of any unexpended cash allowances, after providing for any reallocations as contemplated in paragraph 4.1.4, shall be deducted from the <i>Contract Price</i> by <i>Change Order</i> without any adjustment for the <i>Contractor's</i> overhead and profit on such amount."</p>
SC27.4	4.1.8 and 4.1.9	<p><u>Add</u> new GC 4.1.8 and 4.1.9 as follows:</p> <p>4.1.8 The <i>Owner</i> reserves the right to call, or to have the <i>Contractor</i> call, for competitive bids for portions of the <i>Work</i> to be paid for from cash allowances.</p> <p>4.1.9 Cash allowances cover the net cost to the <i>Contractor</i> of services, <i>Products</i>, <i>Construction Equipment</i>, freight, unloading, handling, storage, installation, provincial sales tax, and other authorized expenses incurred in performing any <i>Work</i> stipulated under the cash allowances but does not include any <i>Value Added Taxes</i> payable by the <i>Owner</i> and the <i>Contractor</i>."</p>

**PART 5 PAYMENT**

**SC28 GC 5.1 FINANCING INFORMATION REQUIRED OF THE OWNER**

SC28.1	5.1	<p><u>Delete</u> GC 5.1 – FINANCING INFORMATION REQUIRED OF THE OWNER and all paragraphs thereunder, including any reference to GC 5.1 throughout the <i>Contract</i>.</p>
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**SC29 GC 5.2 APPLICATIONS FOR PAYMENT**

SC29.1	5.2.1	<p><u>Delete</u> GC 5.2.1 and <u>replace</u> it with the following:</p> <p>"5.2.1 Upon execution of the <i>Contract</i>, and in any event prior to the <i>Contractor</i> submitting its first application for payment, the <i>Owner</i> shall issue a purchase order to the <i>Contractor</i> for the performance of the <i>Contract</i>. The number indicated on such purchase order must be clearly identifiable on all applications for payment. Applications for payment shall be dated the last day of each month or an alternative day of each month agreed to in writing by the parties, with each month representing one payment period under the <i>Contract</i> (each a "<b>Payment Period</b>"). Within 3 calendar days of the end of each <i>Payment Period</i>, the <i>Contractor</i> will submit a draft application for payment to the <i>Owner</i> and the <i>Consultant</i>. Upon receipt of the draft application for payment, and within 7 calendar days, a representative of each of the <i>Contractor</i>, <i>Owner</i>, and the <i>Consultant</i> shall attend a meeting to discuss and review the work completed during the <i>Payment Period</i>, including quantities, if applicable (the "<b>Pre-Invoice Submission Meeting</b>"). In the event that the scheduled date for the <i>Pre-Invoice Submission Meeting</i> is not a <i>Working Day</i>, the <i>Pre-Invoice Submission Meeting</i> shall occur on the next <i>Working Day</i>. The <i>Contractor</i> shall bring with it to the <i>Pre-Invoice Submission Meeting</i> the following:</p> <ol style="list-style-type: none"> <li>.1 a copy of the draft application for payment;</li> <li>.2 any documents the <i>Contractor</i> is required to bring to the <i>Pre-Invoice Submission Meeting</i> as stipulated in the <i>Contract Documents</i> or as reasonably requested by the <i>Owner</i>; and</li> <li>.3 any other documents reasonably requested, in advance, by the <i>Owner</i> or the <i>Consultant</i>." </li></ol>
SC29.2	5.2.2	<p><u>Delete</u> GC 5.2.2 in its entirety and <u>replace</u> it with the following:</p>

		<p>"5.2.2 Applications for payment shall be given in accordance with the following requirements:</p> <p>.1 Within 5 calendar days following the <i>Pre-Invoice Submission Meeting</i>, the <i>Contractor</i> shall deliver its application for payment to the <i>Owner</i> and to the <i>Consultant</i> for <i>Work</i> performed during the <i>Payment Period</i> ("<b>Proper Invoice Submission Date</b>") subject to the following:</p> <p>.1 if the fifth calendar day following the <i>Pre-Invoice Submission Meeting</i>, to which an invoice relates falls on a day that is not a <i>Working Day</i>, the <i>Proper Invoice Submission Date</i> shall be deemed to fall on the next <i>Working Day</i>.</p> <p>.2 The application for payment must be delivered to the <i>Owner</i> and to the <i>Consultant</i> in the same manner as a <i>Notice in Writing</i> during the hours of 9:00 am to 4:00pm (EST) on the <i>Proper Invoice Submission Date</i>. Delivery to the <i>Owner</i> shall be to the following email address:</p> <p style="text-align: center;"><a href="mailto:accounting@smcdsb.on.ca">accounting@smcdsb.on.ca</a></p> <p>.3 If an application for payment is received after 4:00 p.m. (EST) on the applicable <i>Proper Invoice Submission Date</i>, the application for payment will not be considered or reviewed by the <i>Owner</i> and <i>Consultant</i> until the next <i>Proper Invoice Submission Date</i>. Notwithstanding the foregoing, the <i>Owner</i> in its sole and absolute discretion may elect to accept an application for payment submitted after 4:00 p.m. on the applicable <i>Proper Invoice Submission Date</i>; however, such acceptance shall not be construed as a waiver of any of its rights or waive or release the <i>Contractor's</i> obligations to strictly comply with the requirements prescribed in this subparagraph 5.2.2.3.</p> <p>.4 No applications for payment shall be accepted by the <i>Owner</i> prior to the <i>Proper Invoice Submission Date</i>.</p> <p>.5 All applications for payment shall include all of the requirements for a <i>Proper Invoice</i> prescribed by the <i>Construction Act</i> and this <i>Contract</i> and be dated the last day of the applicable <i>Payment Period</i>;"</p>
SC29.3	5.2.3	<p><u>Delete</u> GC 5.2.3 and <u>replace</u> it with the following:</p> <p>"5.2.3 The amount claimed shall be for the value, proportionate to the amount of the <i>Contract</i>, of <i>Work</i> performed and <i>Products</i> delivered and incorporated into the <i>Work</i> as of the last date of the applicable <i>Payment Period</i>. Materials may also be deemed to be supplied to an improvement, for payment purposes, when, in the <i>Owner's</i> opinion, they are placed and properly secured on the land on which the improvement is made, or placed upon land designated by the <i>Owner</i> or agent of the <i>Owner</i>, but placing the materials on the land so designated does not, of itself, make that land subject to a lien. No amount claimed shall include products delivered and incorporated into the work, unless the products are free and clear of all security interests, liens and other claims of third parties. No amount claimed shall include <i>Products</i> delivered to the <i>Place of the Work</i> unless the <i>Products</i> are free and clear of all security interests, liens, and other claims of third parties."</p>
SC29.4	5.2.4	<p>After the word "<i>Consultant</i>" in GC 5.2.4 <u>add</u> the words "and the <i>Owner</i>"</p>
SC29.5	5.2.5	<p>After the word "<i>Consultant</i>" in GC 5.2.5 <u>add</u> the words "or the <i>Owner</i>".</p>
SC29.6	5.2.6	<p>In GC 5.2.6, <u>delete</u> the word "<i>Consultant</i>" and <u>replace</u> it with "<i>Owner</i>".</p>
SC29.7	5.2.9	<p><u>Add</u> new 5.2.9 as follows:</p>

		<p>"5.2.9 The <i>Contractor</i> shall prepare and maintain current as-built drawings which shall consist of the <i>Drawings</i> and <i>Specifications</i> revised by the <i>Contractor</i> during the <i>Work</i>, showing changes to the <i>Drawings</i> and <i>Specifications</i>, which current as-built drawings shall be maintained by the <i>Contractor</i> and made available to the <i>Consultant</i> for review with each application for progress payment. The <i>Consultant</i> shall recommend to the <i>Owner</i> that the <i>Owner</i> retain a reasonable amount for the value of the as-built drawings not presented for review."</p>
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**SC30 GC 5.3 PAYMENT**

SC30.1	5.3.1	<p>Delete GC 5.3.1 in its entirety, including all subparagraphs thereunder, and <u>replace</u> it with the following:</p> <p>"5.3.1 After receipt by the <i>Owner</i> and the <i>Consultant</i> of an application for payment submitted by the <i>Contractor</i> in accordance with GC 5.2 - APPLICATIONS FOR PAYMENT:</p> <p>.1 the <i>Consultant</i> will either:</p> <p>(a) issue to the <i>Owner</i> with a copy to the <i>Contractor</i>, a progress payment certificate in the amount applied for by the <i>Contractor</i> in the <i>Proper Invoice</i>, or</p> <p>(b) issue to the <i>Owner</i>, with a copy to the <i>Contractor</i>, a certificate for payment for an amount determined by the <i>Consultant</i> to be properly due to the <i>Contractor</i> after applying any credits, withheld amounts, or other set-offs which the <i>Consultant</i> has determined that the <i>Owner</i> is entitled to notwithstanding any notice of dispute or disagreement that the <i>Contractor</i> may have served, along with the <i>Consultant's</i> reasons why an amount other than what is claimed in the <i>Proper Invoice</i> is properly due to the <i>Contractor</i>, which finding the <i>Owner</i> may accept or amend prior to the <i>Owner</i> issuing a <i>Notice of Non-Payment</i>, if any, in accordance with GC 5.3.2;</p> <p>.2 the <i>Owner</i> shall make payment to the <i>Contractor</i> on account as provided in Article A-5 PAYMENT,</p> <p>(a) in the amount stated in the certificate for payment, or</p> <p>(b) in the amount stated in the certificate for payment less such amount stated in the <i>Owner's Notice of Non-Payment</i> issued pursuant to GC 5.3.3,</p> <p>on the 28th calendar day after receipt of a <i>Proper Invoice</i>, unless such 28th calendar day lands on a day that is other than a <i>Working Day</i>, in which case payment shall be made on the next <i>Working Day</i> after such 28th day."</p>
SC30.2	5.3.2 to 5.3.7	<p><u>Add</u> new paragraphs 5.3.2, 5.3.3, 5.3.4, 5.3.4, 5.3.5, 5.3.6, and 5.3.7 as follows:</p> <p>5.3.2 All payments to the <i>Contractor</i> shall be processed using electronic funds transfer ("<b>EFT</b>") and deposited directly to the <i>Contractor's</i> bank account unless agreed to otherwise by the <i>Contractor</i> and the <i>Owner</i> in writing. Prior to the <i>Contractor</i> submitting its first application for payment, the <i>Owner</i> and the <i>Contractor</i> shall exchange such information as is necessary to facilitate <i>EFT</i> payments.</p> <p>5.3.3 In the event that the application for payment delivered by the <i>Contractor</i> pursuant to GC 5.2 - APPLICATIONS FOR PAYMENT does not include the requirements for a <i>Proper Invoice</i> or where the <i>Owner</i> disputes the amount claimed as payable in the <i>Proper Invoice</i>, then the <i>Owner</i> shall within 14 calendar days of receipt of the application for payment, issue a <i>Notice of Non-Payment</i> (Form 1.1).</p>

		<p>5.3.4 Where the <i>Owner</i> has delivered a <i>Notice of Non-Payment</i>, the <i>Owner</i> and the <i>Contractor</i> shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a <i>Notice of Non-Payment</i>, despite good faith efforts by both parties and the assistance of the <i>Consultant</i>, the <i>Owner</i> and the <i>Contractor</i> cannot resolve the dispute, either party may commence an <i>Adjudication</i> in accordance with the procedures set out in the <i>Construction Act</i>. Any portion of the <i>Proper Invoice</i> which is not the subject of the <i>Notice of Non-Payment</i> shall be payable within the time period set out in GC 5.3.1.2.</p> <p>5.3.5 Provided that the <i>Owner</i> complies with its obligations under the <i>Construction Act</i>, and subject to any interim determination of an adjudicator in accordance with any <i>Adjudication</i>, and where applicable, a final determination made in accordance with the dispute resolution processes prescribed by this <i>Contract</i>, the <i>Owner</i> shall be entitled to claim in a <i>Notice of Non-Payment</i> a right to deduct from or, set off against, any payment of the <i>Contract Price</i>:</p> <ul style="list-style-type: none"> <li>.1 any amount expended by the <i>Owner</i> in exercising the <i>Owner's</i> rights under this <i>Contract</i> to perform any of the <i>Contractor's</i> obligations that the <i>Contractor</i> has failed to perform;</li> <li>.2 any damages, costs or expenses (including, without limitation, reasonable legal fees and expenses) incurred by the <i>Owner</i> as a result of the failure of the <i>Contractor</i> to perform any of its obligations under the <i>Contract</i>;</li> <li>.3 any other amount owing from the <i>Contractor</i> to the <i>Owner</i> under this <i>Contract</i>.</li> </ul> <p>5.3.6 The amounts disputed and described under the <i>Notice of Non-Payment</i> shall be held by the <i>Owner</i> until all disputed amounts of the <i>Proper Invoice</i> have been resolved pursuant to PART 8 – DISPUTE RESOLUTION.</p> <p>5.3.7 The <i>Contractor</i> represents, warrants, and covenants to the <i>Owner</i> that it is familiar with its prompt payment and trust obligations under the <i>Construction Act</i> and will take all required steps and measures to ensure that it complies with the applicable prompt payment and trust provisions under the <i>Construction Act</i> including, without limitation, section 8.1 of the <i>Construction Act</i>. Evidence of the <i>Contractor's</i> compliance under this GC 5.3.7, including evidence demonstrating that all <i>EFTs</i> by the <i>Owner</i> to the <i>Contractor</i> are kept in a bank account in the <i>Contractor's</i> name will be made available to the <i>Owner</i> within 5 <i>Working Days</i> following receipt by the <i>Contractor</i> of a <i>Notice in Writing</i> making such request.”</p>
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**SC31 GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK- AND PAYMENT OF HOLDBACK**

SC31.1	GC 5.4	<p><u>Delete</u> GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK in its entirety and <u>replace</u> it with the following:</p> <p><b>“GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK</b></p> <p>5.4.1 When the <i>Contractor</i> considers that <i>Substantial Performance of the Work</i> has been achieved, the <i>Contractor</i> shall prepare and submit to the <i>Consultant</i> and the <i>Owner</i> a comprehensive deficiency list of items to be completed or corrected, including any incomplete <i>Close-Out Documentation</i>, and apply for a review by the <i>Consultant</i> and the <i>Owner</i> to establish <i>Substantial Performance of the Work</i>. Failure to include an item on the list does not alter the responsibility of the <i>Contractor</i> to complete the <i>Contract</i>.</p> <p>5.4.2 Prior to, or as part of its written application for <i>Substantial Performance of the Work</i> the <i>Contractor</i> shall submit to the <i>Consultant</i> submit to the <i>Consultant</i> all closeout</p>
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		<p>documentation required by the <i>Contract Documents</i>, including but not limited to, warranties, manuals, guarantees, as-built drawings and all other relevant literature from suppliers and manufacturers including, but not limited to, where applicable (the “<b>Close-Out Documentation</b>”):</p> <ul style="list-style-type: none"><li>.1 equipment, maintenance, and operations manuals;</li><li>.2 equipment specifications, data sheets and brochures, parts lists and assembly drawings, performance curves and other related data;</li><li>.3 line drawings, value charts and control sheets sequences with description of the sequence of operations;</li><li>.4 warranty documents;</li><li>.5 guarantees;</li><li>.6 certificates;</li><li>.7 service and maintenance reports;</li><li>.8 <i>Specifications</i>;</li><li>.9 <i>Shop Drawings</i>;</li><li>.10 coordination drawings;</li><li>.11 testing and balancing results and reports;</li><li>.12 <i>Commissioning</i> and quality assurance documentation;</li><li>.13 distribution system diagrams;</li><li>.14 spare parts;</li><li>.15 samples;</li><li>.16 existing reports and correspondence from authorities having jurisdiction in the <i>Place of the Work</i>;</li><li>.17 inspection certificates;</li><li>.18 red-lined record drawings from the construction trailer in two copies and</li><li>.19 other materials or documentation required to be submitted under the <i>Contract</i>.</li></ul> <p>5.4.3 The <i>Consultant</i> will review the <i>Work</i> to verify the validity of the application and shall promptly, and in any event, no later than 30 calendar days after receipt of the <i>Contractor’s</i> complete deficiency list and application:</p> <ul style="list-style-type: none"><li>.1 prepare a final deficiency list incorporating all items to be completed or corrected, including any incomplete or unsubmitted <i>Close-Out Documentation</i>. Each item shall have an indicated value for correction or completion and the determination of the total value of such items shall be determined pursuant to GC 5.8 – DEFICIENCY HOLDBACK. The final deficiency list complete with values is to be included with the <i>Consultant’s</i> draft verification and shall be reviewed with the <i>Owner</i> prior to the <i>Consultant</i> rendering a determination in accordance with GC 5.4.3.2</li><li>.2 having completed the requirements set out in GC 5.4.3.1,<ul style="list-style-type: none"><li>(a) the <i>Consultant</i> shall advise the <i>Contractor</i> in writing that the <i>Work</i> or the designated portion of the <i>Work</i> is not substantially performed and give reasons why, or</li><li>(b) the <i>Consultant</i> shall state the date of <i>Substantial Performance of the Work</i> in a certificate and issue a copy of that certificate to each the <i>Owner</i> and the <i>Contractor</i>.</li></ul></li></ul> <p>5.4.4 Following the issuance of the certificate of <i>Substantial Performance of the Work</i> referenced in subparagraph 5.4.3.2(b):</p> <ul style="list-style-type: none"><li>.1 The Contractor shall publish, in a construction trade newspaper in the area of the location of the <i>Work</i>, a copy of the certificate of <i>Substantial Performance of the Work</i> referred to in GC 5.4.2.2(b) within seven (7) calendar days of receiving a copy of the certificate signed by the <i>Consultant</i>, and the <i>Contractor</i> shall provide suitable evidence of the publication to the <i>Consultant</i> and the <i>Owner</i>. If the Contractor fails to publish such notice, the <i>Owner</i> shall be at</li></ul>
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		<p>liberty to publish said certificate and back-charge the Contractor its reasonable costs for doing so;</p> <p>.2 The <i>Contractor</i> shall complete the <i>Work</i> within forty (40) calendar days of the date certified as the date of <i>Substantial Performance of the Work</i>;</p> <p>.3 Notwithstanding any other provisions of the <i>Contract</i>, no payments will be processed between <i>Substantial Performance of the Work</i> and <i>Ready-for-Takeover</i>;</p> <p>.4 The <i>Owner</i> reserves the right to contract out any or all unfinished <i>Work</i> if it has not been completed within forty (40) days of <i>Substantial Performance of the Work</i> using, without limitation, the funds retained in accordance with GC 5.8 - DEFICIENCY HOLDBACK, without prejudice to any other right or remedy and without affecting the warranty period. The cost to the <i>Owner</i> of completing the <i>Work</i> including <i>Owner</i> and <i>Consultant</i> wages and materials shall be deducted from the <i>Contract Price</i>.</p> <p>5.4.5 After publication of the certificate of the <i>Substantial Performance of the Work</i>, and provided that the <i>Contractor</i> has completed performance of the <i>Work</i> within the 40 calendar days following certification of <i>Substantial Performance of the Work</i>, the <i>Contractor</i> may submit an application for payment of the outstanding <i>Construction Act</i> holdback amount, which application for payment shall:</p> <p>.1 include all of the requirements listed in EXHIBIT "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE, as applicable to the application for payment of the holdback amount; and</p> <p>.2 include a statement that the <i>Contractor</i> has not received any written notices of lien or any claims for liens from any <i>Subcontractor</i> or <i>Supplier</i>.</p> <p>5.4.6 The <i>Construction Act</i> holdback amount shall become due and payable the day immediately following the expiration of the holdback period prescribed by the <i>Construction Act</i> (in most cases being the 61st calendar day following the publication of the certificate of <i>Substantial Performance of the Work</i> referred to in GC 5.4.4.1), subject to the occurrence of any of the following:</p> <p>.1 the preservation of a lien in respect of the <i>Project</i> that has not been satisfied, discharged or otherwise provided for in accordance with the <i>Construction Act</i>;</p> <p>.2 receipt by the <i>Owner</i> of a written notice of lien that has not been satisfied, discharged or otherwise provided for in accordance with the <i>Construction Act</i>; or</p> <p>.3 prior to the expiry of 40 calendar days following the publication of the certificate of <i>Substantial Performance of the Work</i>, the <i>Owner</i> publishes a <i>Notice of Non-Payment</i> of holdback in accordance with the <i>Construction Act</i> (Form 6), setting out the amount of holdback that will not be paid, which may include non-payment to secure the correction of deficiencies and/or the completion of the <i>Work</i>.</p> <p>5.4.7 Notwithstanding the <i>Owner's</i> obligation to make payment of the holdback amount in accordance with GC 5.4.6, the processing of such payment remains subject to the <i>Owner's</i> internal <i>EFT</i> timing limitations. The <i>Owner</i> covenants, and the <i>Contractor</i> agrees, that payment of the holdback shall be made by <i>EFT</i> at the first opportunity during the <i>Owner's</i> normal processing of <i>EFTs</i> upon the holdback becoming due in accordance with GC 5.4.6..</p>
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SC32 GC 5.5 FINAL PAYMENT

SC32.1	GC 5.5	<p><u>Delete</u> GC 5.5 in its entirety, including all subparagraphs thereunder and <u>replace</u> it with the following:</p> <p>"5.5.1 When <i>Ready-for-Takeover</i> has been achieved in accordance with GC 12.1 – READY-FOR-TAKEOVER and the <i>Contractor</i> considers the <i>Work</i> is complete, and after the <i>Contractor</i>, the <i>Owner</i>, and the <i>Consultant</i> have attended a <i>Pre-Invoice Submission Meeting</i> analogous to the requirement in GC 5.2.1 (the "<b>Final Pre-Invoice Submission Meeting</b>"), the <i>Contractor</i> may submit an application for final payment to the <i>Owner</i> and to the <i>Consultant</i>, which application for payment shall:</p> <ul style="list-style-type: none"><li>.1 include all of the requirements set out in GC 5.2.2, including without limitation those requirements listed in APPENDIX "1" - PROJECT SPECIFIC REQUIREMENTS FOR A PROPER INVOICE that are specific to an application for final payment; and</li><li>.2 if applicable, (a) a certificate from the <i>Consultant</i> or written confirmation from the <i>Owner</i> that the deficiencies or incomplete <i>Work</i> waived by the <i>Owner</i> pursuant to GC 12.1.2 have been fully rectified as of the date of the <i>Contractor's</i> application for final payment, and/or (b) written confirmation, signed by the <i>Owner</i> and the <i>Contractor</i>, that the <i>Contract Price</i> has been reduced by a specified amount in exchange for the <i>Owner</i> releasing the <i>Contractor</i> of its obligation to rectify the certain outstanding deficiencies and/or incomplete <i>Work</i> waived by the <i>Owner</i> pursuant to GC 12.1.2, as detailed in such written confirmation.</li></ul> <p>5.5.2 No later than 5 calendar days prior to the <i>Final Pre-Invoice Submission Meeting</i>, the <i>Contractor</i> will, if not already provided, submit to the <i>Consultant</i> all <i>Close-Out Documentation</i>.</p> <p>5.5.3 Delivery of all <i>Close-Out Documentation</i> is a requirement for the <i>Proper Invoice</i> for final payment.</p> <p>5.5.4 After receipt by the <i>Owner</i> and the <i>Consultant</i> of an application for payment submitted by the <i>Contractor</i> that is a <i>Proper Invoice</i> and by no later than 10 calendar days after the receipt of the <i>Proper Invoice</i>:</p> <ul style="list-style-type: none"><li>.1 the <i>Consultant</i> will either:<ul style="list-style-type: none"><li>(a) issue to the <i>Owner</i> with a copy to the <i>Contractor</i>, a progress payment certificate in the amount applied for by the <i>Contractor</i> in the <i>Proper Invoice</i>, or</li><li>(b) deliver a finding to the <i>Owner</i> with reasons why an amount other than what is claimed in the <i>Proper Invoice</i> is properly due to the <i>Contractor</i>, which finding the <i>Owner</i> may accept or amend prior to issuing a <i>Notice of Non-Payment</i> (Form 1.1), if any, in accordance with GC 5.5.2;</li></ul></li><li>.2 the <i>Owner</i> shall make payment to the <i>Contractor</i> on account as provided in Article A-5 PAYMENT,<ul style="list-style-type: none"><li>(a) in the amount stated in the certificate for payment, or</li><li>(b) in the amount stated in the certificate for payment less such amount stated in the <i>Owner's Notice of Non-Payment</i> issued pursuant to GC 5.5.5,</li></ul></li></ul> <p>on the 28th calendar day after receipt of a <i>Proper Invoice</i>, unless such 28th calendar day lands on a day that is other than a <i>Working Day</i>, in which case payment shall be made on the next <i>Working Day</i> after such 28th day.</p>
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		<p>5.5.5 In the event that the application for final payment delivered by the <i>Contractor</i> does not include the requirements of GC 5.5.1 (including the requirements for a <i>Proper Invoice</i>) and GC 5.5.2 or where the <i>Owner</i> disputes the amount claimed as payable in the <i>Proper Invoice</i>, then the <i>Owner</i> shall within 14 calendar days of receipt of the application for payment, issue a <i>Notice of Non-Payment</i>. Where the <i>Owner</i> has delivered a <i>Notice of Non-Payment</i>, as specified under this GC 5.5.5, the <i>Owner</i> and the <i>Contractor</i> shall first engage in good faith negotiations to resolve the dispute. If within 5 calendar days following the issuance of a <i>Notice of Non-Payment</i>, despite good faith efforts by both parties with the assistance of the <i>Consultant</i>, the <i>Owner</i> and the <i>Contractor</i> cannot resolve the dispute, either party may commence an <i>Adjudication</i> in accordance with the procedures set out in the <i>Construction Act</i>. Any portion of the <i>Proper Invoice</i> which is not the subject of the <i>Notice of Non-Payment</i> shall be payable within the time period set out in GC 5.5.4.2.</p> <p>5.5.6 Subject to the provisions of the <i>Construction Act</i> and any other rights conferred on the <i>Owner</i> at law or under this <i>Contract</i> to withhold payment or backcharge or set-off against payment, the <i>Owner</i> shall pay the amount payable under a <i>Proper Invoice</i> for final payment in accordance with the <i>Construction Act</i>.</p> <p>5.5.7 When the <i>Consultant</i> issues certificate of completion in accordance with GC 5.5.4.1, the <i>Consultant</i> shall also issue a certificate for release of any holdback for finishing work amount. In accordance with the <i>Construction Act</i>, the <i>Owner</i> may retain any amounts which are required by law to satisfy any liens against the <i>Work</i>, in respect of any third party claims made to the <i>Owner</i> in respect of the <i>Contract</i> or the <i>Work</i>, and in respect of any claims the <i>Owner</i> may have against the <i>Contractor</i>. Subject to the foregoing, the <i>Owner</i> shall release the holdback in accordance with the <i>Construction Act</i>.”</p>
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**SC33 GC 5.6 DEFERRED WORK**

SC33.1	5.6.1	<p><u>Delete</u> paragraph 5.6.1 and <u>replace</u> with the following:</p> <p>“5.6.1 If because of conditions reasonably beyond the control of the <i>Contractor</i>, there are items of work that cannot be performed, payment in full for that portion of the <i>Work</i> which has been performed as certified by the <i>Consultant</i> shall not be withheld or delayed by the <i>Owner</i> on account thereof, but the <i>Owner</i> may withhold, subject to its requirement to issue a <i>Notice of Non-Payment</i> under the <i>Construction Act</i>, until the remaining portion of the <i>Work</i> is finished, only such an amount that the <i>Consultant</i> determines is sufficient and reasonable to cover the cost of performing such remaining work. The remaining work shall be valued as deficient work as defined in GC 5.8.1.”</p>
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**SC34 \*NEW\* GC 5.8 DEFICIENCY HOLDBACK**

SC34.13	5.8.1	<p><u>Add</u> new GC 5.8 – DEFICIENCY HOLDBACK as follows:</p> <p><b>“GC 5.8 DEFICIENCY HOLDBACK</b></p> <p>5.8.1 Notwithstanding any provisions contained in the <i>Contract Documents</i> concerning certification and release of monies to the <i>Contractor</i>, the <i>Owner</i> reserves the right to establish a deficiency holdback, at the time of the review for <i>Substantial Performance of the Work</i>, based on a 200% dollar value of the deficiencies listed by the <i>Consultant</i>.</p> <p>5.8.2 In performing the calculation under GC 5.8.1,</p>
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		<p>.1 no individual deficiency will be valued at less than two hundred dollars (\$200.00);</p> <p>.2 where two copies of the red-lined record drawings have not been submitted prior to or as part of the <i>Contractor's</i> application for <i>Substantial Performance of the Work</i>, an amount not to exceed one (1) percent of the <i>Contract Price</i>, and no less than one-half (1/2) percent of the <i>Contract Price</i>, shall be the amount retained by the <i>Owner</i> as part of the deficiency holdback until such time as the red-lined record drawings are submitted and approved.</p> <p>5.8.2 The deficiency holdback shall be due and payable to the <i>Contractor</i> on the 61<sup>st</sup> day following completion of all of the deficiencies listed by the <i>Consultant</i>, there being no claims for lien registered against the title to the <i>Place of the Work</i> issued in accordance with the <i>Construction Act</i>, and less any amounts disputed under an <i>Owner's Notice of Non-Payment</i> (Form 1.1)."</p>
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**PART 6 CHANGES IN THE WORK**

**SC35 GC 6.1 OWNER'S RIGHT TO MAKE CHANGES**

SC35.1	6.1.2	<p><u>Add</u> the following to the end of GC 6.1.2:</p> <p>"This requirement is of the essence and it is the express intention of the parties that any claims by the <i>Contractor</i> for a change in the <i>Contract Price</i> and/or <i>Contract Time</i> shall be barred unless there has been strict compliance with PART 6 - CHANGES IN THE WORK. No verbal dealings between the parties and no implied acceptance of alterations or additions to the <i>Work</i> and no claims that the <i>Owner</i> has been unjustly enriched by any alteration or addition to the <i>Work</i>, whether in fact there is any such unjust enrichment or not, shall be the basis of a claim for additional payment under this <i>Contract</i>, an increase to the <i>Contract Price</i>, or a claim for any extension of the <i>Contract Time</i>."</p>
SC35.2	6.1.3 to 6.1.8	<p><u>Add</u> new paragraphs 6.1.3, 6.1.4, 6.1.5, 6.1.6, 6.1.7 and 6.1.8 as follows:</p> <p>6.1.3 The <i>Contractor</i> agrees that changes resulting from construction coordination, including but not limited to, site surface conditions, site coordination, and <i>Subcontractor and Supplier</i> coordination are included in the <i>Contract Price</i> and the <i>Contractor</i> shall be precluded from making any claim for a change in the <i>Contract Price</i> as a result of such changes.</p> <p>6.1.4 Labour costs shall be actual, prevailing rates at the <i>Place of the Work</i> paid to workers, plus statutory charges on labour including WSIB, unemployment insurance, Canada pension, vacation pay, hospitalization and medical insurance. The <i>Contractor</i> shall provide these rates, when requested by the <i>Consultant</i>, for review and/or agreement.</p> <p>6.1.5 Quotations for changes to the <i>Work</i> shall only include <i>Direct Costs</i> and be accompanied by itemized breakdowns together with detailed, substantiating quotations or cost vouchers from <i>Subcontractors</i> and <i>Suppliers</i>, submitted in a format acceptable to the <i>Consultant</i> and shall include any <i>Direct Costs</i> associated with extensions in <i>Contract Time</i>.</p> <p>6.1.6 When both additions and deletions covering related <i>Work</i> or substitutions are involved in a change to the <i>Work</i>, payment, including <i>Overhead</i> and profit, shall be calculated on the basis of the net difference, if any, with respect to that change in the <i>Work</i>.</p> <p>6.1.7 No extension to the <i>Contract Time</i> shall be granted for changes in the <i>Work</i> unless the <i>Contractor</i> can clearly demonstrate that such changes significantly alter the</p>

		<p>overall construction schedule submitted at the commencement of the <i>Work</i>. Extensions of <i>Contract Time</i> and all associated costs, if approved, shall be included in the relevant <i>Change Order</i>.</p> <p>6.1.8 When a change in the <i>Work</i> is proposed or required, the <i>Contractor</i> shall within 10 calendar days submit to the <i>Consultant</i> for review a claim for a change in <i>Contract Price</i> and/or <i>Contract Time</i>. Should 10 calendar days be insufficient to prepare the submission, the <i>Contractor</i> shall within 5 calendar days, advise the <i>Consultant</i> in writing of the proposed date of submission of the claim. Claims submitted after the dates prescribed herein will not be considered."</p>
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**SC36 GC 6.2 CHANGE ORDER**

SC36.1	6.2.1	<p>In paragraph 6.2.1 after the last sentence in the paragraph <u>add</u> the following:</p> <p>"The adjustment in the <i>Contract Time</i> and the <i>Contract Price</i> shall include an adjustment, if any, for delay or for the impact that the change in the <i>Work</i> has on the <i>Work</i> of the <i>Contractor</i>, and once such adjustment is made, the <i>Contractor</i> shall be precluded from making any further claims for delay or impact with respect to the change in the <i>Work</i>."</p>
SC36.2	6.2.3 to 6.2.5	<p><u>Add</u> new paragraphs 6.2.3, 6.2.4, and 6.2.5 as follows:</p> <p>"6.2.3 The value of a change shall be determined in one or more of the following methods as directed by the <i>Consultant</i>:</p> <ul style="list-style-type: none"> <li>.1 by estimate and acceptance of a lump sum;</li> <li>.2 by negotiated unit prices which include the <i>Contractor's</i> overhead and profit, or;</li> <li>.3 by the actual <i>Direct Cost</i> to the <i>Owner</i>, such costs to be the actual cost after all credits included in the change have been deducted, plus the following ranges of mark-up on such costs: <ul style="list-style-type: none"> <li>.1 for <i>Change Orders</i> with a value of \$0 to \$15,000 the total <i>Subcontractor/Supplier</i> mark-up including <i>Overhead</i> and profit shall be 10% and the total <i>Contractor</i> mark-up including overhead and profit shall be 5%.</li> <li>.2 for <i>Change Orders</i> in excess of \$15,000, the total <i>Subcontractor/Supplier</i> mark-up including <i>Overhead</i> and profit shall be 5% and the total <i>Contractor</i> mark-up including <i>Overhead</i> and profit shall be 3%.</li> </ul> </li> </ul> <p>6.2.4 All quotations shall include <i>Direct Costs</i> and be submitted in a complete manner listing:</p> <ul style="list-style-type: none"> <li>.1 quantity of each material,</li> <li>.2 unit cost of each material,</li> <li>.3 man hours involved,</li> <li>.4 cost per hour,</li> <li>.5 <i>Subcontractor</i> quotations submitted listing items 1 to 4 above and item 6 below.</li> <li>.6 mark-up.</li> </ul> <p>6.2.5 The <i>Owner</i> and the <i>Consultant</i> will not be responsible for delays to the <i>Work</i> resulting from late, incomplete or inadequately broken-down valuations submitted by the <i>Contractor</i>."</p>

**SC37 GC 6.3 CHANGE DIRECTIVE**

SC37.1	6.3.6.1	<p><u>Amend</u> paragraph 6.3.6.1 by deleting the final period and adding the following:</p> <p>“.1 Ten percent (10%) for profit plus five percent (5%) for overhead on work by the <i>Contractor's</i> own forces up to the value of \$15,000 and five percent (5%) for profit plus three percent (3%) for <i>Overhead</i> on work by the <i>Contractor's</i> own forces in excess of \$15,000 and,</p> <p>.2 Ten percent (10%) fee on amounts paid to <i>Subcontractors</i> or <i>Suppliers</i> under subparagraph 6.3.7.9 for changes up to the value of \$15,000 and five percent (5%) on changes over \$15,000.</p> <p>Unless a <i>Subcontractor's</i> or <i>Supplier's</i> price has been approved by the <i>Owner</i>, the <i>Subcontractor</i> or <i>Supplier</i> shall be entitled to its actual net cost as determined in accordance with paragraph 6.3.7, plus ten percent (10%) for profit and five percent (5%) for <i>Overhead</i> on such actual net cost for changes in the <i>Work</i>, up to the value of \$15,000 and five percent (5%) for profit and three percent (3%) for overhead on such actual net cost changes in the <i>Work</i> in excess of \$15,000.”</p>
SC37.2	6.3.6.2	<p><u>Delete</u> paragraph 6.3.6.2 and <u>replace</u> it with the following:</p> <p>“.2 If a change in the <i>Work</i> results in a net decrease in the <i>Contract Price</i>, the amount of the credit shall be the net cost, without deduction for <i>Overhead</i> or profit.”</p>
SC37.3	6.3.7.1(4)	<u>Delete</u> GC 6.3.7.1(4).
SC37.4	6.3.7.7	Amend GC 6.3.7.7 by <u>deleting</u> the words “described in paragraph 6.3.7.1” and <u>replacing</u> them with “approved by the <i>Owner</i> in writing and in advance of any such expenses being incurred;”
SC37.5	6.3.7.9	Amend GC 6.3.7.9 by <u>adding</u> the following to the end of the paragraph: “...when specifically requested by the <i>Owner</i> or as directed by the <i>Consultant</i> ;”.
SC37.6	6.3.7.10	Amend GC 6.3.7.10 by <u>adding</u> the following to the end of the paragraph: “, provided that such amounts are not caused by negligent acts, omissions, or default of the <i>Contractor</i> or <i>Subcontractor</i> ;”.
SC37.7	6.3.7.13	<u>Delete</u> GC 6.3.7.13.
SC37.8	6.3.7.15	<u>Delete</u> GC 6.3.7.15.
SC37.9	6.3.7.17	<u>Delete</u> GC 6.3.7.17 in its entirety including all subparagraphs.
SC37.10	6.3.11	<p><u>Delete</u> GC 6.3.11 and <u>replace</u> it with the following:</p> <p>“6.3.11 The value of the <i>Work</i> performed as a result of a <i>Change Directive</i> shall not be eligible to be included in progress payments until the amount, including the method for determining the amount, of such <i>Change Directive</i> has been determined.”</p>

**SC38 GC 6.4 CONCEALED OR UNKNOWN CONDITIONS**

SC38.1	6.4.1	<p><u>Delete</u> paragraph 6.4.1 in its entirety and <u>replace</u> with the following:</p> <p>“6.4.1.1 Prior to the submission of the bid on which the Contract was awarded, the Contractor confirms that it carefully investigated the Place of the Work insofar as the Place of Work was available for investigation and, in doing so, applied to that investigation the degree of care and skill required by paragraph 3.14.1</p>
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		6.4.1.2 No claim by the <i>Contractor</i> will be considered by the <i>Owner</i> or the <i>Consultant</i> in connection with conditions which could reasonably have been ascertained by such investigation or other due diligence undertaken prior to the execution of the <i>Contract</i> .
SC38.2	6.4.2	<p><u>Amend</u> paragraph 6.4.2 by <u>adding</u> a new first sentence as follows:</p> <p>“Having regard to paragraph 6.4.1, if the <i>Contractor</i> believes that the conditions of the <i>Place of the Work</i> differ materially from those reasonably anticipated, differ materially from those indicated in the <i>Contract Documents</i> or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1, it shall provide the <i>Owner</i> and the <i>Consultant</i> with <i>Notice in Writing</i> no later than five (5) <i>Working Days</i> after the first observation of such conditions.”</p> <p>-and-</p> <p><u>amend</u> the existing second sentence of paragraph 6.4.2 in the second line, following the word “materially” by <u>adding</u> the words “or were concealed from discovery notwithstanding the conduct of the investigation described in paragraph 6.4.1,”.</p>
SC38.3	6.4.3	<p><u>Delete</u> paragraph 6.4.3 in its entirety and <u>substitute</u> the following:</p> <p>“6.4.3 If the <i>Consultant</i> makes a finding pursuant to paragraph 6.4.2 that no change in the <i>Contract Price</i> or the <i>Contract Time</i> is justified, the <i>Consultant</i> shall report in writing the reasons for this finding to the <i>Owner</i> and the <i>Contractor</i>.”</p>
SC38.4	6.4.5	<p><u>Add</u> new paragraph 6.4.5 as follows:</p> <p>“6.4.5 No claims for additional compensation or for an extension of <i>Contract Time</i> shall be allowed if the <i>Contractor</i> fails to give <i>Notice in Writing</i> to the <i>Owner</i> or <i>Consultant</i>, as required by paragraph 6.4.2.”</p>

**SC39 GC 6.5 DELAYS**

SC39.1	6.5.1	In paragraph 6.5.1 <u>delete</u> the words after the word “for” in the fourth line and <u>replace</u> them with the words “...reasonable <i>Direct Costs</i> directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity).”
SC39.2	6.5.2	<p><u>Delete</u> GC 6.5.2 in its entirety and <u>replace</u> it with the following:</p> <p>“6.5.2 If the <i>Contractor</i> is delayed in the performance of the <i>Work</i> by a stop work order issued by a court or other public authority and providing that such order was issued on account of a direct breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes by the <i>Owner</i>, <i>Other Contractor(s)</i>, or the <i>Consultant</i>, and relating to the <i>Work</i> or the <i>Place of the Work</i>, then the <i>Contract Time</i> shall be extended for such reasonable time as the <i>Consultant</i> may determine. The <i>Contractor</i> shall be reimbursed by the <i>Owner</i> for reasonable <i>Direct Costs</i> directly flowing from the delay, but excluding any consequential, indirect or special damages (including, without limitation, loss of profits, loss of opportunity or loss of productivity).”</p>
SC39.3	6.5.3	<p><u>Delete</u> paragraph 6.5.3 in its entirety and <u>replace</u> with the following:</p> <p>“6.5.3 If either party is delayed in the performance of their obligations under this <i>Contract</i> by <i>Force Majeure</i>, then the <i>Contract Time</i> shall be extended for such reasonable time as the <i>Owner</i> and the <i>Contractor</i> shall agree. The extension of time shall not be less than the time lost as a result of the event causing the delay, unless the parties agree to a shorter extension. Neither party shall be entitled to payment for costs</p>

		<p>incurred by such delays. Upon reaching agreement on the extension of the <i>Contract Time</i> attributable to the <i>Force Majeure</i> event, the <i>Owner</i> and the <i>Contractor</i> shall execute a <i>Change Order</i> indicating the length of the extension to the <i>Contract Time</i> and confirming that there are no costs payable by the either party for the extension of <i>Contract Time</i>. However, if at the time an event of <i>Force Majeure</i> arises a party is in default of its obligations under the <i>Contract</i> and has received a notice of default pursuant to PART 7 – DEFAULT NOTICE, this paragraph 6.5.3 shall not excuse a party from its obligation to cure the default(s). For greater certainty, the defaulting party, to the extent possible, must continue to address and cure the default notwithstanding an event of <i>Force Majeure</i>.”</p>
SC39.4	6.5.4	<p><u>Delete</u> paragraph 6.5.4 in its entirety and <u>replace</u> it with the following:</p> <p>“6.5.4 No extension or compensation shall be made for delay or impact on the <i>Work</i> unless notice in writing of a claim is given to the <i>Consultant</i> not later than ten (10) <i>Working Days</i> after the commencement of the delays or impact on the <i>Work</i>, provided however, that, in the case of a continuing cause of delay or impact on the <i>Work</i>, only one notice of claim shall be necessary.”</p>
SC39.5	6.5.6 to 6.5.8	<p><u>Add</u> new paragraphs 6.5.6, 6.5.7 and 6.5.8 as follows:</p> <p>“6.5.6 If the <i>Contractor</i> is delayed in the performance of the <i>Work</i> by an act or omission of the <i>Contractor</i> or anyone directly or indirectly employed or engaged by the <i>Contractor</i>, or by any cause within the <i>Contractor’s</i> control, then (i) firstly, at its expense, and to the extent possible, the <i>Contractor</i> shall accelerate the work and/or provide overtime work to recover time lost by a delay arising under this paragraph 6.5.6, and (ii) secondly, where it is not possible for the <i>Contractor</i> to recover the time lost by implementing acceleration measures and/or overtime work, the <i>Contract Time</i> may be extended for such reasonable time as the <i>Owner</i> may decide in consultation with the <i>Consultant</i> and the <i>Contractor</i>. The <i>Owner</i> shall be reimbursed by the <i>Contractor</i> for all reasonable costs incurred by the <i>Owner</i> as the result of such delay, including, but not limited to, <i>Owner’s</i> staff costs, the cost of all additional services required by the <i>Owner</i> from the <i>Consultant</i> or any sub-consultants, project managers, or others employed or engaged by the <i>Owner</i>, and in particular, the costs of the <i>Consultant’s</i> services during the period between the date of <i>Substantial Performance of the Work</i> stated in Article A-1 herein, as the same may be extended through the provision of these General Conditions, and any later or actual date of <i>Substantial Performance of the Work</i> achieved by the <i>Contractor</i>.</p> <p>6.5.7 Without limiting the obligations of the <i>Contractor</i> described in GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS or GC 9.4 – CONSTRUCTION SAFETY, the <i>Owner</i> or <i>Consultant</i> may, by <i>Notice in Writing</i>, direct the <i>Contractor</i> to stop the <i>Work</i> where the <i>Owner</i> or <i>Consultant</i> determines that there is an imminent risk to the safety of persons or property at the <i>Place of the Work</i>. In the event that the <i>Contractor</i> receives such notice, it shall immediately stop the <i>Work</i> and secure the site. The <i>Contractor</i> shall not be entitled to an extension of the <i>Contract Time</i> or to an increase in the <i>Contract Price</i> unless the resulting delay, if any, would entitle the <i>Contractor</i> to an extension of the <i>Contact Time</i> or the reimbursement of the <i>Contractor’s</i> costs as provided in paragraphs 6.5.1, 6.5.2 or 6.5.3.</p> <p>6.5.8 No claim for delay shall be made by the <i>Contractor</i> and the <i>Contract Time</i> shall not be extended due to climatic conditions or arising from the <i>Contractor’s</i> efforts to maintain the <i>Construction Schedule</i>.”</p>

**PART 7 DEFAULT NOTICE**

**SC40 GC 7.1**

**OWNER’S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR’S RIGHT TO CONTINUE WITH THE WORK OR TERMINATE THE CONTRACT**

SC40.1	7.1.2	In GC 7.1.2, <u>delete</u> the words “and if the <i>Consultant</i> has given a written statement to the <i>Owner</i> and <i>Contractor</i> which provides the detail of such neglect to perform the <i>Work</i> properly or such failure to comply with the requirements of the <i>Contract</i> to a substantial degree”.
SC40.2	7.1.3.4	<u>Add</u> a new subparagraph 7.1.3.4 as follows:  “.4 an “acceptable schedule” as referred to in subparagraph 7.1.3.2. means a schedule approved by the <i>Consultant</i> and the <i>Owner</i> wherein the default can be corrected within the balance of the <i>Contract Time</i> and shall not cause delay to any other aspect of the <i>Work</i> or the work of other contractors, and in no event shall it be deemed to give a right to extend the <i>Contract Time</i> .”
SC40.3	7.1.4.1	<u>Delete</u> subparagraph 7.1.4.1 and <u>replace</u> it with the following:  “.1 correct such default and deduct the cost, including <i>Owner’s</i> expenses, thereof from any payment then or thereafter due the <i>Contractor</i> .”
SC40.4	7.1.4.2	<u>Delete</u> subparagraph 7.1.4.2 and <u>replace</u> it with the following:  “.2 by providing <i>Notice in Writing</i> to the <i>Contractor</i> , terminate the <i>Contractor’s</i> right to continue with the <i>Work</i> in whole or in part or terminate the <i>Contract</i> , and publish a notice of termination (Form 8) in accordance with the <i>Act</i> .”
SC40.5	7.1.5.3	In subparagraph 7.1.5.3 <u>delete</u> the words: “however, if such cost of finishing the <i>Work</i> is less than the unpaid balance of the <i>Contract Price</i> , the <i>Owner</i> shall pay the <i>Contractor</i> the difference”
SC40.6	7.1.6 to 7.1.10	<u>Delete</u> GC 7.1.6 and <u>replace</u> it with new paragraphs 7.1.6, 7.1.7, 7.1.8, 7.1.9 and 7.1.10 as follows:  “7.1.6 In addition to its right to terminate the <i>Contract</i> set out herein, the <i>Owner</i> may terminate this <i>Contract</i> at any time for any other reason and without cause upon giving the <i>Contractor</i> fifteen (15) <i>Working Days Notice in Writing</i> to that effect. In such event, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed including reasonable profit, for loss sustained upon <i>Products</i> and <i>Construction Equipment</i> , and such other damages as the <i>Contractor</i> may have sustained as a result of the termination of the <i>Contract</i> , but in no event shall the <i>Contractor</i> be entitled to be compensated for any loss of profit on unperformed portions of the <i>Work</i> , or indirect, special, or consequential damages incurred.  7.1.7 The <i>Owner</i> may suspend <i>Work</i> under this <i>Contract</i> at any time for any reason and without cause upon giving the <i>Contractor Notice in Writing</i> to that effect. In such event, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed to the date of suspension and be compensated for all actual costs incurred arising from the suspension, including reasonable profit, for loss sustained upon <i>Products</i> and <i>Construction Equipment</i> , and such other damages as the <i>Contractor</i> may have sustained as a result of the suspension of the <i>Work</i> , but in no event shall the <i>Contractor</i> be entitled to be compensated for any indirect, special, or consequential damages incurred. In the event that the suspension continues for more than thirty (30) calendar days, the <i>Contract</i> shall be deemed to be terminated and the provisions of paragraph 7.1.6 shall apply.  7.1.8 In the case of either a termination of the <i>Contract</i> or a suspension of the <i>Work</i> under GC 7.1 - OWNER’S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR’S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 - CONTRACTOR’S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall use its best commercial efforts to mitigate the financial consequences to the <i>Owner</i> arising out of the termination or suspension, as the case may be.  7.1.9 Upon the resumption of the <i>Work</i> following a suspension under GC 7.1 - OWNER’S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR’S RIGHT TO CONTINUE WITH THE WORK, OR TERMINATE THE CONTRACT or GC 7.2 -

		<p>CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> will endeavour to minimize the delay and financial consequences arising out of the suspension.</p> <p>7.1.10 The <i>Contractor's</i> obligations under the <i>Contract</i> as to quality, correction, and warranty of the <i>Work</i> performed by the <i>Contractor</i> up to the time of termination or suspension shall continue after such termination of the <i>Contract</i> or suspension of the <i>Work</i>."</p>
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**SC41 GC 7.2 CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT**

SC41.1	7.2.2	<p><u>Delete</u> paragraph 7.2.2 and <u>replace</u> it with the following:</p> <p>"7.2.2 If the <i>Work</i> is suspended or otherwise delayed for a period of 40 consecutive <i>Working Days</i> or more under a stop work order issued by a court or other public authority on account of a breach, violation, contravention, or a failure to abide by any laws, ordinances, rules, regulations, or codes directly by the <i>Owner</i>, the <i>Owner's</i> other contractor(s), or the <i>Consultant</i>, and relating to the <i>Work</i> or the <i>Place of the Work</i>, the <i>Contractor</i> may, without prejudice to any other right or remedy the <i>Contractor</i> may have, terminate the <i>Contract</i> by giving the <i>Owner</i> Notice in <i>Writing</i> to that effect."</p>
SC41.2	7.2.3.1	<u>Delete</u> subparagraph 7.2.3.1 in its entirety.
SC41.3	7.2.3.2	<u>Delete</u> subparagraph 7.2.3.2 in its entirety.
SC41.4	7.2.3.4	In subparagraph 7.2.3.4, <u>delete</u> the words "except for GC 5.1 - FINANCING INFORMATION REQUIRED OF THE OWNER".
SC41.5	7.2.5	<p><u>Delete</u> paragraph 7.2.5 and <u>replace</u> it with the following:</p> <p>"7.2.5 If the default cannot be corrected within the 5 <i>Working Days</i> specified in paragraph 7.2.4, the <i>Owner</i> shall be deemed to have cured the default if it:</p> <ul style="list-style-type: none"> <li>.1 commences correction of the default within the specified time;</li> <li>.2 provides the <i>Contractor</i> with an acceptable schedule for such correction; and,</li> <li>.3 completes the correction in accordance with such schedule." </li></ul>
SC41.6	7.2.6 to 7.2.9	<p><u>Add</u> new paragraphs 7.2.6, 7.2.7, 7.2.8 and 7.2.9 as follows:</p> <p>"7.2.6 If the <i>Contractor</i> terminates the <i>Contract</i> under the conditions described in GC 7.2 – CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall be entitled to be paid for all <i>Work</i> performed to the date of termination, as determined by the <i>Consultant</i>. The <i>Contractor</i> shall also be entitled to recover the direct costs associated with termination, including the costs of demobilization and losses sustained on <i>Products</i> and <i>Construction Equipment</i>. The <i>Contractor</i> shall not be entitled to any recovery for any special, indirect or consequential losses, including loss of profit.</p> <p>7.2.7 The <i>Contractor</i> shall not be entitled to give notice of the <i>Owner's</i> default or terminate the <i>Contract</i> in the event the <i>Owner</i> withholds certificates or payment or both in accordance with the <i>Contract</i> because of:</p> <ul style="list-style-type: none"> <li>.1 the <i>Contractor's</i> failure to pay all legitimate claims promptly, or</li> </ul>

		<p>.2 the failure of the <i>Contractor</i> to discharge construction liens which are registered against the title to the <i>Place of the Work</i>.</p> <p>7.2.8 The <i>Contractor's</i> obligations under the <i>Contract</i> as to quality, correction and warranty of the <i>Work</i> performed by the <i>Contractor</i> up to the effective date of termination shall continue in force and shall survive termination of this <i>Contract</i> by the <i>Contractor</i>.</p> <p>7.2.9 If the <i>Contractor</i> suspends the <i>Work</i> or terminates the <i>Contract</i> as provided for in GC 7.2 – CONTRACTOR'S RIGHT TO SUSPEND THE WORK OR TERMINATE THE CONTRACT, the <i>Contractor</i> shall ensure the site and the <i>Work</i> are left in a safe, secure condition as required by authorities having jurisdiction at the <i>Place of the Work</i> and the <i>Contract Documents</i>."</p>
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**PART 8 DISPUTE RESOLUTION**

**SC42 GC 8.1 AUTHORITY OF THE CONSULTANT**

SC42.1	8.1.3	<p><u>Delete</u> paragraph 8.1.3 in its entirety and <u>substitute</u> as follows:</p> <p>"8.1.3 If a dispute is not resolved promptly, the <i>Consultant</i> will give such instruction as in the <i>Consultant's</i> opinion are necessary for the proper performance of the <i>Work</i> and to prevent delays pending settlement of the dispute. The parties shall act immediately according to such instructions, it being understood that by doing so neither party will jeopardize any claim the party may have."</p>
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**SC43 GC 8.2 ADJUDICATION**

SC43.13	8.2.2 to 8.2.7	<p><u>Add</u> new GC 8.2.2, 8.2.3, 8.2.4, 8.2.5, 8.2.6, and 8.2.7 as follows:</p> <p>"8.2.2 Save and except where the <i>Contractor</i> has given an undertaking, in accordance with the <i>Act</i>, to refer a dispute to <i>Adjudication</i>, prior to delivering a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the parties agree to first address all disputes with at least one in-person meeting with the <i>Owner's</i> representative, the <i>Consultant's</i> representative, and the <i>Contractor's</i> representative. The parties agree that such steps will be taken to resolve any disputes in a timely and cost-effective manner.</p> <p>8.2.3 Notwithstanding any other provisions in PART 8 DISPUTE RESOLUTION, the parties shall engage in <i>Adjudication</i> proceedings as required by, and in accordance with, the <i>Construction Act</i>.</p> <p>8.2.4 The following procedures shall apply to any <i>Adjudication</i> the parties engage in under the <i>Construction Act</i>:</p> <p>.1 any hearings shall be held at a venue within the jurisdiction of the <i>Place of the Work</i> or such other venue as the parties may agree and which is acceptable to the adjudicator;</p> <p>.2 the <i>Adjudication</i> shall be conducted in English;</p> <p>.3 each party may be represented by counsel throughout an <i>Adjudication</i>;</p> <p>.4 there shall not be any oral communications with respect to issues in dispute that are the subject of an <i>Adjudication</i> between a party and the adjudicator unless it is made in the presence of both parties or their legal representatives; and</p>
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	<p>.5 a copy of all written communications between the adjudicator and a party shall be given to the other party at the same time.</p> <p>8.2.5 Any documents or information disclosed by the parties during an <i>Adjudication</i> are confidential and the parties shall not use such documents or information for any purpose other than the <i>Adjudication</i> in which they are disclosed and shall not disclose such documents and information to any third party, unless otherwise required by law, save and except the for the adjudicator.</p> <p>8.2.6 If the <i>Contractor</i> fails to comply with any of the notice requirements set out in the <i>Contract</i>, including the time limits set out in any of the following:</p> <ul style="list-style-type: none"><li>.1 GC 6.4 – CONCEALED OR UNKNOWN CONDITIONS;</li><li>.2 GC 6.5 – DELAYS;</li><li>.3 GC 6.6 – CLAIMS FOR A CHANGE IN CONTRACT PRICE;</li><li>.4 PART 8 DISPUTE RESOLUTION</li><li>.5 GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES</li><li>.6 GC 9.3 – ARTIFACTS AND FOSSILS; or</li><li>.7 GC 9.5 - MOULD</li></ul> <p>in respect of any claim or dispute, the <i>Contractor</i> shall have no entitlement whatsoever (including to an increase in the <i>Contract Price</i>, or an extension of <i>Contract Time</i>) in the context of an <i>Adjudication</i> under the <i>Construction Act</i> and waives the right to make any such claims or disputes in an <i>Adjudication</i>. This GC 8.2.6 shall operate conclusively as an estoppel and bar in the event such claims or disputes are brought in an <i>Adjudication</i> and the <i>Owner</i> may rely on this GC 8.2.6 as a complete defence to any such claims or disputes.</p> <p>8.2.7 The parties hereby acknowledge and agree,</p> <ul style="list-style-type: none"><li>.1 that counterclaims, claims of set-off or the exercise or use of other contractual rights that permit the <i>Owner</i> to withhold, deduct or retain from monies otherwise owed to the <i>Contractor</i> under the <i>Contract</i> may be referred to, and included as part of, <i>Adjudications</i> under the <i>Construction Act</i>;</li><li>.2 that disputes related to the termination or abandonment of the <i>Contract</i>, as well as any disputes that arise or are advanced following the termination or abandonment of the <i>Contract</i>, shall not be referred to <i>Adjudication</i> under the <i>Construction Act</i>;</li><li>.3 that notice(s) of <i>Adjudication</i>, with respect to any dispute or claim relating to the <i>Project</i>, shall not be given, and no <i>Adjudication</i> shall be commenced following <i>Contract</i> completion, <i>Contract</i> abandonment, or termination of the <i>Contract</i>;</li><li>.4 that any <i>Adjudication</i> between the <i>Contractor</i> and a <i>Subcontractor</i> or a supplier that relates to an <i>Adjudication</i> between the <i>Owner</i> and the <i>Contractor</i> shall be joined together to be adjudicated by a single adjudicator, provided that the adjudicator agrees to do so, and the <i>Contractor</i> shall include a provision in each of its contracts that contain an equivalent obligation to this GC 8.2.7.4; and</li><li>.5 that, other than where the <i>Contractor</i> is obliged to commence an <i>Adjudication</i> pursuant to an undertaking under the <i>Construction Act</i>, neither the <i>Owner</i> nor the <i>Contractor</i> shall commence an <i>Adjudication</i> during the <i>Restricted Period</i>.</li></ul> <p>8.2.8 The parties acknowledge and agree that no <i>Adjudication</i>, arbitration, action, suit or other proceeding may be brought by the <i>Contractor</i> against the <i>Owner</i> in respect of a claim for an increase to the <i>Contract Price</i> as set out in GC 6.6, before the <i>Consultant</i> has issued its findings in respect of same, pursuant to GC 6.6.5. For greater clarity and without limiting the foregoing, the amount applied for in each <i>Proper Invoice</i> shall not include any amounts pertaining to the <i>Contractor's</i> claim for an increase in <i>Contract Price</i> unless and until the <i>Consultant</i> has issued a written notice to the <i>Contractor</i> regarding the validity of such claim, as provided for in GC 6.6.5. However, nothing in this GC 8.2.8 shall prevent a <i>Contractor</i> from commencing</p>
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		an <i>Adjudication</i> where, pursuant to the <i>Construction Act</i> , the <i>Contractor</i> is required to give an undertaking to a <i>Subcontractor</i> to commence an <i>Adjudication</i> following delivery of a <i>Notice of Non-Payment</i> .”
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**SC44 GC 8.3 NEGOTIATION, MEDIATION AND ARBITRATION**

SC44.1	8.3.1	<u>Amend</u> paragraph 8.3.1 by changing part of the second line from “shall appoint a <i>Project Mediator</i> ” to “may appoint a <i>Project Mediator</i> , except that such an appointment shall only be made if both the <i>Owner</i> and the <i>Contractor</i> agree.”
SC44.2	8.3.4	<u>Amend</u> paragraph 8.3.4 by changing part of the second line from “the parties shall request the <i>Project Mediator</i> ” to “and subject to paragraph 8.3.1 the parties may request the <i>Project Mediator</i> ”.
SC44.3	8.3.6 to 8.3.9	<p><u>Delete</u> paragraphs 8.3.6, 8.3.7 and 8.3.8 in their entirety and <u>replace</u> them with the following new GCs 8.3.6, 8.3.7, 8.3.8, and 8.3.9:</p> <p>8.3.6 The dispute may be finally resolved by arbitration under the Rules for Arbitration of Construction Disputes as provided in CCDC 40 in effect at the time of bid closing, provided that both the <i>Contractor</i> and the <i>Owner</i> agree. If the <i>Contractor</i> and the <i>Owner</i> agree to resolve the dispute by arbitration, the arbitration shall be conducted in the jurisdiction of the <i>Place of the Work</i>.</p> <p>8.3.7 Prior to delivering a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the parties agree to first address all disputes by attending at least one meeting with the <i>Owner</i>’s representative, the <i>Consultant</i>’s representative, and the <i>Contractor</i>’s representative, prior to commencing an <i>Adjudication</i>. The parties agree that such steps will be taken to resolve any disputes in a timely and cost effective manner. If a resolution to the dispute(s) is not made at such a meeting, any party who plans to commence an <i>Adjudication</i> shall provide the other party with 5 <i>Working Days</i>’ <i>Notice in Writing</i> of its intention to issue a notice of <i>Adjudication</i>.</p> <p>8.3.8 Other than where the <i>Contractor</i> is obliged to commence an <i>Adjudication</i> pursuant to an undertaking under the <i>Construction Act</i>, neither the <i>Owner</i> nor the <i>Contractor</i> shall commence an <i>Adjudication</i> during the <i>Restricted Period</i>.</p> <p>8.3.9 Where either party has delivered a notice of <i>Adjudication</i> in a form prescribed by the <i>Act</i>, the procedures and rules set out under the <i>Construction Act</i> and the regulations thereto shall govern the <i>Adjudication</i>.”</p>

**PART 9 PROTECTION OF PERSONS AND PROPERTY**

**SC45 GC 9.1 PROTECTION OF WORK AND PROPERTY**

SC45.1	9.1.1.1	<p><u>Delete</u> subparagraph 9.1.1.1 in its entirety and <u>substitute</u> the following:</p> <p>“.1 errors in the <i>Contract Documents</i> which the <i>Contractor</i> could not have discovered applying the standard of care described in paragraph 3.14.1;”</p>
SC45.2	9.1.2	<p><u>Delete</u> paragraph 9.1.2 in its entirety and <u>substitute</u> as follows:</p> <p>“9.1.2 Before commencing any <i>Work</i>, the <i>Contractor</i> shall determine the locations of all underground or hidden utilities and structures indicated in or inferable from the <i>Contract Documents</i>, or that are inferable from an inspection of the <i>Place of the Work</i> exercising the degree of care and skill described in paragraph 3.14.1.”</p>
SC45.3	9.1.5	<u>Add</u> new paragraph 9.1.5 as follows:

		<p>“9.1.5 With respect to any damage to which paragraphs 9.1.3 or 9.1.4 apply, the <i>Contractor</i> shall neither undertake to repair or replace any damage whatsoever to the work of other contractors, or to adjoining property, nor acknowledge that the same was caused or occasioned by the <i>Contractor</i>, without first consulting the <i>Owner</i> and receiving written instructions as to the course of action to be followed from either the <i>Owner</i> or the <i>Consultant</i>. Where, however, there is danger to life, the environment, or public safety, the <i>Contractor</i> shall take such emergency action as it deems necessary to remove the danger.”</p>
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**SC46 GC 9.2 TOXIC AND HAZARDOUS SUBSTANCES**

SC46.1	9.2.1	<p>Amend GC 9.2.1 by <u>inserting</u> the following to the end of the paragraph:</p> <p>“For the purposes of GC 9.2 – TOXIC AND HAZARDOUS SUBSTANCES, <i>Excess Soil</i> shall not be considered a ‘toxic and hazardous substance’.”</p>
SC46.2	9.2.5.5	<p>Add a new subparagraph 9.2.5.5 as follows:</p> <p>“.5 in addition to the steps described in subparagraph 9.2.5.3, take any further steps it deems necessary to mitigate or stabilize any conditions resulting from encountering toxic or hazardous substances or materials.”</p>
SC46.3	9.2.6	<p><u>Amend</u> GC 9.2.6 by <u>adding</u> the following words after the word “responsible” in the second line:</p> <p>“or whether any toxic or hazardous substances or materials already at the <i>Place of the Work</i> (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the <i>Contractor</i> or anyone for whom the <i>Contractor</i> is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damages to the property of the <i>Owner</i> or others,”.</p>
SC46.4	9.2.8	<p><u>Amend</u> GC 9.2.8 by <u>adding</u> the following words after the word “responsible” in the second line:</p> <p>“or whether any toxic or hazardous substances or materials already at the <i>Place of the Work</i> (and which were then harmless or stored, contained or otherwise dealt with in accordance with legal and regulatory requirements) were dealt with by the <i>Contractor</i> or anyone for whom the <i>Contractor</i> is responsible in a manner which does not comply with legal and regulatory requirements, or which threatens human health and safety or the environment, or material damages to the property of the <i>Owner</i> or others,”.</p>
SC46.5	9.2.10	<p><u>Add</u> new paragraph 9.2.10 as follows:</p> <p>“9.2.10 The <i>Contractor</i>, <i>Subcontractors</i> and <i>Suppliers</i> shall not bring on to the <i>Place of the Work</i> any toxic or hazardous substances and materials except as required in order to perform the <i>Work</i>. If such toxic or hazardous substances or materials are required, storage in quantities sufficient to allow work to proceed to the end of any current work week only shall be permitted. All such toxic and hazardous materials and substances shall be handled and disposed of only in accordance with all laws and regulations that are applicable at the <i>Place of the Work</i>.”</p>

**SC47 GC 9.4 CONSTRUCTION SAFETY**

SC47.1	9.4.1	<p><u>Delete</u> GC 9.4.1 in its entirety and <u>replace</u> it with the following:</p>
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		<p>"9.4.1 The <i>Contractor</i> shall be solely responsible for construction safety at the <i>Place of the Work</i> and for compliance with the rules, regulations, and practices required by the <i>OHSA</i>, including, but not limited to those of the "constructor", and shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the <i>Work</i>. The <i>Contractor's</i> health and safety program documentation shall be made available for review by the <i>Owner</i> or <i>Consultant</i> immediately upon request. Without limiting the foregoing, the <i>Contractor</i> shall be solely responsible for construction safety in respect of the <i>Consultant</i>, <i>Subcontractors</i> and <i>Suppliers</i>, the <i>Owner's</i> own forces, <i>Other Contractors</i>, and all persons attending the <i>Place of the Work</i> during the course of the <i>Project</i>."</p>
SC47.2	9.4.2	Amend GC 9.4.2 by <u>adding</u> the following words after "and the <i>Contractor</i> ": ", <i>Subcontractors</i> and <i>Suppliers</i> ".
SC47.3	9.4.3	Amend GC 9.4.3 by <u>adding</u> the following words after "and the <i>Contractor</i> ": ", <i>Subcontractors</i> and <i>Suppliers</i> ".
SC47.4	9.4.4	<p><u>Delete</u> GC 9.4.4 and replace it with the following:</p> <p>"9.4.4 The <i>Owner</i> undertakes to include in its contracts with other contractors and in its instructions to its own forces the requirement that the other contractor or its own forces, as the case may be, comply with the policies and procedures of and the directions and instructions from the <i>Contractor</i> with respect to occupational health and safety and related matters."</p>
SC47.5	9.4.5	<p><u>Delete</u> GC 9.4.5 in its entirety and <u>replace</u> it with the following:</p> <p>"9.4.5 Prior to the commencement of the <i>Work</i>, the <i>Contractor</i> shall submit to the <i>Owner</i>:</p> <ul style="list-style-type: none"> <li>.1 a current WSIB clearance certificate;</li> <li>.2 copies of the <i>Contractor's</i> insurance policies having application to the <i>Project</i> or certificates of insurance, at the option of the <i>Owner</i>;</li> <li>.3 documentation setting out the <i>Contractor's</i> in-house safety programs;</li> <li>.4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "constructor" under the <i>OHSA</i>; and</li> <li>.5 copies of any documentation or notices to be filed or delivered to the authorities having jurisdiction for the regulation of occupational health and safety at the <i>Place of the Work</i>;" </li></ul>
SC47.6	9.4.6 to 9.4.12	<p><u>Add</u> new GC 9.4.6, 9.4.7, 9.4.8, 9.4.9, 9.4.10, 9.4.11, and 9.4.12 as follows:</p> <p>"9.4.6 The <i>Contractor</i> shall indemnify and save harmless the <i>Owner</i>, its agents, trustees, officers, directors, employees, consultants, successors, appointees, and assigns from and against the consequences of any and all safety infractions committed by the <i>Contractor</i> under <i>OHSA</i> and any other occupational health and safety legislation in force at the <i>Place of the Work</i> including the payment of legal fees and disbursements on a solicitor and client basis. Such indemnity shall apply to the extent to which the <i>Owner</i> is not covered by insurance.</p> <p>9.4.7 If the <i>Owner</i> is of the reasonable opinion that the <i>Contractor</i> has not taken such precautions as are necessary to ensure compliance with the requirements of paragraph 9.4.1, the <i>Owner</i> may take any remedial measures which it deems necessary, including stopping the performance of all or any portion of the <i>Work</i>, and the <i>Owner</i> may use its employees, the <i>Contractor</i>, any <i>Subcontractor</i> or any other contractors to perform such remedial measures.</p>

		<p>9.4.8 The <i>Contractor</i> shall file any notices or any similar document required pursuant to the <i>Contract</i> or the safety regulations in force at the <i>Place of the Work</i>. This duty of the <i>Contractor</i> will be considered to be included in the <i>Work</i> and no separate payment therefore will be made to the <i>Contractor</i>.</p> <p>9.4.9 Unless otherwise provided in the <i>Contract Documents</i>, the <i>Contractor</i> shall develop, maintain and supervise for the duration of the <i>Work</i> a comprehensive safety program that will effectively incorporate and implement all required safety precautions. The program shall, at a minimum, respond fully to the applicable safety regulations and general construction practices for the safety of persons or property, including, without limitation, any general safety rules and regulations of the <i>Owner</i> and any workers' compensation or occupational health and safety statutes or regulations in force at the <i>Place of the Work</i>.</p> <p>9.4.10 The <i>Contractor</i> shall provide a copy of the safety program described in GC 9.4.9 hereof to the <i>Consultant</i> for delivery to the <i>Owner</i> prior to the commencement of the <i>Work</i>, and shall, ensure, as far as it is reasonably practical to do so, that every employer and worker performing work in respect of the <i>Project</i> complies with such program.</p> <p>9.4.11 The <i>Contractor</i> shall arrange regular safety meetings, and shall supply and maintain, at its own expense, at its office or other well-known place at the job site, safety equipment necessary to protect the workers and general public against accident or injury as prescribed by the authorities having jurisdiction at the <i>Place of the Work</i>, including, without limitation, articles necessary for administering first-aid to any person and an emergency procedure for the immediate removal of any injured person to a hospital or a doctor's care.</p> <p>9.4.12 The <i>Contractor</i> shall promptly report in writing to the <i>Owner</i> and the <i>Consultant</i> all accidents of any sort arising out of or in connection with the performance of the <i>Work</i>, whether on or adjacent to the job site, giving full details and statement of witnesses. If death or serious injuries or damages are caused, the accident shall be promptly reported by the <i>Contractor</i> to the <i>Owner</i> and the <i>Consultant</i> by telephone or messenger in addition to any reporting required under the applicable safety regulations."."</p>
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**PART 10 GOVERNING REGULATIONS**

**SC48 GC 10.1 TAXES AND DUTIES**

SC48.1	10.1.2	<p><u>Amend</u> paragraph 10.1.2 by <u>adding</u> the following sentence to the end of the paragraph:</p> <p>"For greater certainty, the <i>Contractor</i> shall not be entitled to any mark-up for overhead or profit on any increase in such taxes and duties and the <i>Owner</i> shall not be entitled to any credit relating to mark-up for overhead or profit on any decrease in such taxes. The <i>Contractor</i> shall provide a detailed breakdown of <u>Additional</u> taxes if requested by the <i>Owner</i> in a form satisfactory to the <i>Owner</i>."</p>
SC48.2	10.1.3	<p><u>Add</u> new paragraph 10.1.3 as follows:</p> <p>"10.1.3 Where the <i>Owner</i> is entitled to an exemption or a recovery of sales taxes, customs duties, excise taxes or <i>Value Added Taxes</i> applicable to the <i>Contract</i>, the <i>Contractor</i> shall, at the request of the <i>Owner</i>, assist with the application for any exemption, recovery or refund of all such taxes and duties and all amounts recovered or exemptions obtained shall be for the sole benefit of the <i>Owner</i>. The <i>Contractor</i> agrees to endorse over to the <i>Owner</i> any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this paragraph."</p>

**SC49 GC 10.2 LAWS, NOTICES, PERMITS, AND FEES**

SC49.1	10.2.5	<p><u>Amend</u> paragraph 10.2.5 by <u>adding</u> the words "Subject to paragraph 3.4" at the beginning of the paragraph.</p> <p>-and-</p> <p><u>Add</u> the following to the end of the second sentence:</p> <p>"...and no further <i>Work</i> on the affected components of the <i>Contract</i> shall proceed until these directives have been obtained by the <i>Contractor</i> from the <i>Consultant</i>."</p>
SC49.2	10.2.6	<p><u>Amend</u> paragraph 10.2.6 by <u>adding</u> the following sentence to the end of the paragraph:</p> <p>"In the event the <i>Owner</i> suffers loss or damage as a result of the <i>Contractor's</i> failure to comply with paragraph 10.2.5 and notwithstanding any limitations described in paragraph 12.1.1, the <i>Contractor</i> agrees to indemnify and to hold harmless the <i>Owner</i> and the <i>Consultant</i> from and against any claims, demands, losses, costs, damages, actions suits or proceedings resulting from such failure by the <i>Contractor</i>."</p>
SC49.3	10.2.7	<p><u>Amend</u> paragraph 10.2.7 by inserting the words "which changes were not, or could not have reasonably been known to the <i>Owner</i> or to the <i>Contractor</i>, as applicable, at the time of bid closing and which changes did not arise as a result of a public emergency or other <i>Force Majeure</i> event" to the second line, after the words "authorities having jurisdiction".</p>
SC49.4	10.2.8	<p><u>Add</u> new paragraph 10.2.8 as follows:</p> <p>"10.2.8 The <i>Contractor</i> shall furnish all certificates that are required or given by the appropriate governmental authorities as evidence that the <i>Work</i> as installed conforms with the laws and regulations of authorities having jurisdiction, including certificates of compliance for the <i>Owner's</i> occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the <i>Work</i>, in the event that such governmental authorities furnish such certificates."</p>

**SC50 GC 10.4 WORKERS' COMPENSATION**

SC50.1	10.4.1	<p><u>Delete</u> paragraph 10.4.1 and <u>replace</u> with the following:</p> <p>"10.4.1 Prior to commencing the <i>Work</i>, and with each and every application for payment thereafter, including the <i>Contractor's</i> application for payment of the holdback amount following <i>Substantial Performance of the Work</i> and again with the <i>Contractor's</i> application for final payment, the <i>Contractor</i> shall provide evidence of compliance with workers' compensation legislation in force at the <i>Place of the Work</i>, including payments due thereunder."</p>
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**SC51 GC 11.1 INSURANCE**

SC51.1	11.1	<p><u>Delete</u> entirety of GC 11.1 and <u>replace</u> with the following:</p> <p><b>"GC 11.1 INSURANCE</b></p>
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		<p>11.1.1 Without restricting the generality of GC 12 – INDEMNIFICATION, the <i>Contractor</i> shall provide, maintain, and pay for the insurance coverages specified in GC 11.1 – INSURANCE. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the <i>Work</i> until the expiration of the warranty periods set out in the <i>Contract Documents</i>. Prior to commencement of the <i>Work</i> and upon the placement, renewal, <u>amendment</u>, or extension of all or any part of the insurance, the <i>Contractor</i> shall promptly provide the <i>Owner</i> with confirmation of coverage and, if required, a certified true copy of the policies certified by an authorized representative of the insurer together with copies of any <u>amending</u> endorsements.</p> <p><b>.1 General Liability Insurance</b></p> <p>General liability insurance shall be in the name of the <i>Contractor</i>, with the <i>Owner</i> and the <i>Consultant</i> named as <u>Additional</u> insureds, with limits of not less than \$10,000,000.00 inclusive per occurrence for bodily injury, death, and damage to property, including loss of use thereof, for itself and each of its employees, <i>Subcontractors</i> and/or agents. The insurance coverage shall not be less than the insurance required by IBC Form 2100, or its equivalent <u>replacement</u>, provided that IBC Form 2100 shall contain the latest edition of the relevant CCDC endorsement form. To achieve the desired limit, umbrella, or excess liability insurance may be used. All liability coverage shall be maintained for completed operations hazards from the date of <i>Ready-for-Takeover</i>, as set out in the certificate of <i>Ready-for-Takeover</i>, on an ongoing basis for a period of 6 years following <i>Ready-for-Takeover</i>. Where the <i>Contractor</i> maintains a single, blanket policy, the <u>Addition</u> of the <i>Owner</i> and the <i>Consultant</i> is limited to liability arising out of the <i>Project</i> and all operations necessary or incidental thereto. The policy shall be endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of any cancellation and of change or <u>amendment</u> restricting coverage.</p> <p><b>.2 Automobile Liability Insurance</b></p> <p>Automobile liability insurance in respect of licensed vehicles shall limits of not less than \$5,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, covering all licensed vehicles <i>owned</i> or leased by the <i>Contractor</i>, and endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of any cancellation, change or <u>amendment</u> restricting coverage. Where the policy has been issued pursuant to a government-operated automobile insurance system, the <i>Contractor</i> shall provide the <i>Owner</i> with confirmation of automobile insurance coverage for all automobiles registered in the name of the <i>Contractor</i>.</p> <p><b>.3 Aircraft and Watercraft Liability Insurance</b></p> <p>Where determined necessary by the <i>Contractor</i>, acting reasonably, aircraft and watercraft liability insurance will be obtained in accordance with the provisions of paragraph 11.1.3. Aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft if used directly or indirectly in the performance of the <i>Work</i>, including use of <u>Additional</u> premises, shall be subject to limits of not less than \$2,000,000.00 inclusive per occurrence for bodily injury, death and damage to property, including loss of use thereof and limits of not less than \$2,000,000.00 for aircraft passenger hazard. Such insurance shall be in a form acceptable to the <i>Owner</i>. The policies shall be endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of cancellation, change or <u>amendment</u> restricting coverage.</p> <p><b>.4 Property and Boiler and Machinery Insurance</b></p> <p>(1) Builder's Risk property insurance shall be in the name of the <i>Contractor</i> with the <i>Owner</i> and the <i>Consultant</i> named as <u>Additional</u> insureds. The policy shall insure against all risks of direct physical loss or damage to the property insured which shall include all property included in the <i>Work</i>, whether owned by the</p>
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		<p><i>Contractor</i> or the owner or owned by others, so long as the property forms part of the <i>Work</i>. The property insured also includes all materials and supplies necessary to complete the work, whether installed in the work temporarily or permanently, in storage on the project site, or in transit to the project site, as well as temporary buildings, scaffolding, falsework forms, hoardings, excavation, site preparation and similar work. The insurance shall be for not less than the sum of the amount of the contract price and the full value of products that are specified to be provided by the owner for incorporation into the work, if applicable, with the deductible of \$10,000.00 payable by the contractor. The insurance shall include the foregoing and, otherwise, shall not be less than the insurance required by IBC Form 4042 or its equivalent <u>replacement</u> provided that the IBC Form 4042 shall include the latest <u>Addition</u> of the relevant CCDC endorsement form. The coverage shall be based on a completed value form and shall be maintained continuously until ten (10) days after the date of the final certificate of payment.</p> <p>(2) Boiler and machinery insurance shall be in the name of the <i>Contractor</i>, with the <i>Owner</i> and the <i>Consultant</i> named as <u>Additional</u> insureds, for not less than the <u>replacement</u> value of the boilers, pressure vessels and other insurable objects forming part of the <i>Work</i>. The insurance provided shall not be less than the insurance provided by the "Comprehensive Boiler and Machinery Form" and shall be maintained continuously from commencement of use or operation of the property insured and until 10 days after the date of the final certificate for payment.</p> <p>(3) The policies shall allow for partial or total use or occupancy of the <i>Work</i>.</p> <p>(4) The policies shall provide that, in the case of a loss or damage, payment shall be made to the <i>Owner</i> and the <i>Contractor</i> as their respective interests may appear. The <i>Contractor</i> shall act on behalf of the <i>Owner</i> for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the <i>Contractor</i> shall proceed to restore the <i>Work</i>. Loss or damage shall not affect the rights and obligations of either party under the <i>Contract</i> except that the <i>Contractor</i> shall be entitled to such reasonable extension of the <i>Contract Time</i>, relative to the extent of the loss or damage, as determined by the <i>Owner</i>, in its sole discretion.</p> <p>(5) The <i>Contractor</i> shall be entitled to receive from the <i>Owner</i>, in <u>Addition</u> to the amount due under the <i>Contract</i>, the amount at which the <i>Owner's</i> interest in restoration of the <i>Work</i> has been appraised, such amount to be paid as the restoration of the <i>Work</i> proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT. In <u>Addition</u>, the <i>Contractor</i> shall be entitled to receive from the payments made by the insurer the amount of the <i>Contractor's</i> interest in the restoration of the <i>Work</i>.</p> <p>(6) In the case of loss or damage to the <i>Work</i> arising from the work of other contractors, or the <i>Owner's</i> own forces, the <i>Owner</i>, in accordance with the <i>Owner's</i> obligations under paragraph 3.2.2.4 of GC 3.2 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS, shall pay the <i>Contractor</i> the cost of restoring the <i>Work</i> as the restoration of the <i>Work</i> proceeds and as provided in GC 5.2 – APPLICATIONS FOR PROGRESS PAYMENT and GC 5.3 – PROGRESS PAYMENT.</p> <p><b>.5 Contractors' Equipment Insurance</b></p> <p>"All risks" contractors' equipment insurance covering construction machinery and equipment used by the <i>Contractor</i> for the performance of the <i>Work</i>, excluding boiler insurance, shall be in a form acceptable to the <i>Owner</i> and shall not allow subrogation claims by the insurer against the <i>Owner</i>. The policies shall be endorsed to provide the <i>Owner</i> with not less than 30 days' notice, in writing, in advance of cancellation, change or <u>amendment</u> restricting coverage. Subject to satisfactory proof of financial capability by the <i>Contractor</i> for self-insurance of his equipment, the <i>Owner</i> agrees to waive the equipment insurance requirement.</p>
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		<p>11.1.2 The <i>Contractor</i> shall be responsible for deductible amounts under the policies except where such amounts may be excluded from the <i>Contractor's</i> responsibility by the terms of GC 9.1 - PROTECTION OF WORK AND PROPERTY and GC 9.2 - DAMAGES AND MUTUAL RESPONSIBILITY.</p> <p>11.1.3 Where the full insurable value of the <i>Work</i> is substantially less than the <i>Contract Price</i>, the <i>Owner</i> may reduce the amount of insurance required to waive the course of construction insurance requirement.</p> <p>11.1.4 If the <i>Contractor</i> fails to provide or maintain insurance as required by the <i>Contract Documents</i>, then the <i>Owner</i> shall have the right to provide and maintain such insurance and provide evidence of same to the <i>Contractor</i>. The <i>Contractor</i> shall pay the costs thereof to the <i>Owner</i> on demand, or the <i>Owner</i> may deduct the amount that is due or may become due to the <i>Contractor</i>.</p> <p>11.1.5 All required insurance policies shall be with insurers licensed to underwrite insurance in the jurisdiction of the <i>Place of the Work</i>."</p>
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**SC52 \*NEW\* GC 11.2 CONTRACT SECURITY**

SC52.13	GC 11.2	<p><u>Add</u> new GC 11.2 – CONTRACT SECURITY as follows:</p> <p><b>"GC 11.2 CONTRACT SECURITY</b></p> <p>11.2.1 The <i>Contractor</i> shall, prior to the execution of the <i>Contract</i>, furnish a performance bond and labour and material payment bond which meets the requirements under paragraph 11.2.2.</p> <p>11.2.2 The performance bond and labour and material payment bond shall:</p> <ol style="list-style-type: none"> <li>.1 be issued by a duly licensed surety company, which has been approved by the <i>Owner</i> and is permitted under the <i>Construction Act</i>,</li> <li>.2 be issued by an insurer licensed under the <i>Insurance Act</i> (Ontario) and authorized to transact a business of suretyship in the Province of Ontario;</li> <li>.3 shall be in the form prescribed by the <i>Construction Act</i>;</li> <li>.4 have a coverage limit of at least 50 per cent of the <i>Contract Price</i>, or such other percentage of the <i>Contract Price</i> as stated in the <i>Contract Documents</i>;</li> <li>.5 extends protection to <i>Subcontractors</i>, <i>Suppliers</i>, and any other persons supplying labour or materials to the <i>Project</i>; and</li> <li>.6 shall be maintained in good standing until the fulfillment of the <i>Contract</i>, including all warranty and maintenance periods set out in the <i>Contract Documents</i>..</li> </ol> <p>11.2.3 It is the intention of the parties that the performance bond shall be applicable to all of the <i>Contractor's</i> obligations in the <i>Contract Document</i> and, wherever a performance bond is provided with language which conflicts with this intention, it shall be deemed to be amended to comply. The <i>Contractor</i> represents and warrants to the <i>Owner</i> that it has provided its surety with a copy of the <i>Contract Documents</i> prior to the issuance of such bonds.</p> <p>11.2.4 Without limiting the foregoing in any way, the bonds shall indemnify and hold harmless the <i>Owner</i> for and against costs and expenses (including legal and <i>Consultant</i> services and court costs) arising out of or as a consequence of any default of the <i>Contractor</i> under this <i>Contract</i>.</p>
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		<p>11.2.4 The <i>Contractor</i> shall be responsible for notifying the surety company of any changes made to the <i>Contract</i> during the course of construction.</p> <p>11.2.5 The premiums for bonds required by the <i>Contract Documents</i> shall be included in the <i>Contract Price</i>.</p> <p>11.2.6 Should the <i>Owner</i> require additional bonds by the <i>Contractor</i> or any of his <i>Subcontractors</i>, after the receipt of bids for the <i>Work</i>, the <i>Contract Price</i> shall be increased by all direct costs attributable to providing such bonds. The <i>Contractor</i> shall promptly provide the <i>Owner</i>, through the <i>Consultant</i>, with any such bonds that may be required.”</p>
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**PART 12 OWNER TAKEOVER**

**SC53 GC 12.1 READY-FOR-TAKEOVER**

SC53.1	12.1.1	<p><u>Delete</u> GC 12.1.1 in its entirety and <u>replace</u> it with the following:</p> <p>“12.1.1 <i>Ready-for-Takeover</i> shall be achieved when all of the following has occurred, as verified and approved by the <i>Owner</i>:</p> <ul style="list-style-type: none"><li>.1 <i>Substantial Performance of the Work</i> has been achieved, as certified by the <i>Consultant</i>;</li><li>.2 a permit for occupancy of the <i>Place of the Work</i> has been obtained from the authorities having jurisdiction;</li><li>.3 the <i>Work</i> to be performed under the <i>Contract</i> has satisfied the requirements for deemed completion in accordance with Section 2(3) of the <i>Construction Act</i>;</li><li>.4 final cleaning and waste removal, as required by the <i>Contract Documents</i>;</li><li>.5 the <i>Contractor</i> has delivered to the <i>Consultant</i> and the <i>Owner</i> all inspection certificates from authorities having jurisdiction with respect to any component of the <i>Work</i> which has been completed;</li><li>.6 subject only to GC 12.1.2, the entire <i>Work</i> has been completed to the requirements of the <i>Contract Documents</i>, including completion of all items on the punch list prepared at the time of <i>Substantial Performance of the Work</i> and the <i>Work</i> is being used for its intended purpose, and is so certified by the <i>Consultant</i>;</li><li>.7 subject only to GC 12.1.2, the <i>Contractor</i> has submitted to the <i>Owner</i> and the <i>Consultant</i> in a collated and organized matter, all <i>Close-Out Documentation</i> and any other materials or documentation required by the <i>Contract Documents</i>;</li><li>.8 subject only to GC 12.1.2, all <i>Products</i>, systems and components of the <i>Project</i> have been commissioned and certified for operation and accepted by the <i>Owner</i> and <i>Consultant</i>, and</li></ul> <p>9 subject only to GC 12.1.2, the <i>Contractor</i> has submitted to the <i>Owner</i> and the <i>Consultant</i> full and complete as-built drawings and <i>Specifications</i> revised by the <i>Contractor</i> to reflect the as-built state of the <i>Work</i>, clearly showing changes to the <i>Drawings</i> and <i>Specifications</i> from the original <i>Contract Documents</i>, all of which have been approved by the <i>Owner</i> acting reasonably.”</p>
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SC53.2	12.1.2	<u>Delete</u> GC 12.1.2 in its entirety and <u>replace</u> it with the following:  "12.1.2 The <i>Owner</i> may, in its sole, absolute, and unfettered discretion, waive compliance with a requirement, or a part thereof, for achieving <i>Ready-for-Takeover</i> set out in GC 12.1.1.6 to 12.1.1.9 (inclusive). Where the <i>Owner</i> exercises the discretion afforded under this GC 12.1.2, the <i>Contractor</i> shall be required to comply with GC 5.5.1.2 as part of its application for final payment and the <i>Owner</i> and the <i>Contractor</i> , in consultation with the <i>Consultant</i> , shall establish a reasonable date for completing the <i>Work</i> ."
SC53.3	12.1.3	<u>Delete</u> GC 12.1.3 in its entirety and <u>replace</u> it with the following:  "12.1.3 When the <i>Contractor</i> considers the <i>Work Ready-for-Takeover</i> , it shall submit a written application to the <i>Owner</i> and the <i>Consultant</i> for review."
SC53.4	12.1.4	In GC 12.1.4, <u>delete</u> the words "list and" from the second line.
SC53.5	12.1.5	<u>Delete</u> GC 12.1.5 in its entirety and <u>replace</u> it with the following:  "12.1.5 Following the confirmation of the date of <i>Ready-for-Takeover</i> by the <i>Consultant</i> and as confirmed by the <i>Owner</i> , the <i>Contractor</i> may submit a final application for payment in accordance with GC 5.5 – FINAL PAYMENT."
SC53.6	12.1.6	<u>Delete</u> GC 12.1.6 in its entirety.

**SC54 GC 12.2 EARLY OCCUPANCY**

SC54.1	GC 12.2	<u>Delete</u> GC 12.2 – EARLY OCCUPANCY BY THE OWNER in its entirety, including all subparagraphs thereunder and <u>replace</u> it with the following:  "12.2.1 The Owner reserves the right to take possession of and use for any intended purpose any portion or all of the undelivered portion of the Project even though the Work may not have reached Substantial Performance of the Work, provided that such taking possession and use will not unduly interfere, in any material way, with the progress of the Work. The taking of possession or use of any such portion of the Project shall not be deemed to be the Owner's acknowledgement or acceptance of the Work or Project nor shall it relieve the Contractor of any of its obligations under the Contract.  12.2.2 Whether the Project contemplates Work by way of renovations in buildings which will be in use or be occupied during the course of the Work or where the Project involves Work that is adjacent to a structure which is in use or is occupied, the Contractor, without in any way limiting its responsibilities under this Contract, shall take all reasonable steps to avoid interference with fire exits, building access and egress, continuity of electric power and all other utilities, to suppress dust and noise and to avoid conditions likely to propagate mould or fungus of any kind and all other steps reasonably necessary to promote and maintain the safety and comfort of the users and occupants of such structures or adjacent structures."
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**SC55 GC 12.3 WARRANTY**

SC55.1	12.3.2	<u>Delete</u> from the first line of paragraph 12.3.2 the word "The" and <u>replace</u> it with the words "Subject to GC 1.1.3, the..."
SC55.2	12.3.7 to 12.3.12	<u>Add</u> new paragraphs 12.3.7 to 12.3.12 as follows:

		<p>"12.3.7 Where required by the <i>Contract Documents</i>, the <i>Contractor</i> shall provide a maintenance bond as security for the performance of the <i>Contractor's</i> obligations as set out in GC 12.3 WARRANTY.</p> <p>12.3.8 The <i>Contractor</i> shall provide fully and properly completed and signed copies of all warranties and guarantees required by the <i>Contract Documents</i>, containing:</p> <ul style="list-style-type: none"> <li>.1 the proper name of the <i>Owner</i>;</li> <li>.2 the proper name and address of the <i>Project</i>;</li> <li>.3 the date the warranty commences, which shall be at the "<i>Ready-for-Takeover</i>" unless otherwise agreed upon by the <i>Consultant</i> in writing.</li> <li>.4 a clear definition of what is being warranted and/or guaranteed as required by the <i>Contract Documents</i>; and</li> <li>.5 the signature and seal (if required by the governing law of the <i>Contract</i>) of the company issuing the warranty, countersigned by the <i>Contractor</i>.</li> </ul> <p>12.3.9 Should any <i>Work</i> be repaired or replaced during the time period for which it is covered by the specified warranty, a new warranty shall be provided under the same conditions and for the same period as specified herein before. The new warranty shall commence at the completion of the repair or replacement.</p> <p>12.3.10 The <i>Contractor</i> shall ensure that its <i>Subcontractors</i> are bound to the requirements of GC 12.3 – WARRANTY for the <i>Subcontractor's</i> portion of the <i>Work</i>.</p> <p>12.3.11 The <i>Contractor</i> shall ensure that all warranties, guarantees or other obligations for <i>Work</i>, services or <i>Products</i> performed or supplied by any <i>Subcontractor</i>, <i>Supplier</i> or other person in connection with the <i>Work</i> are obtained and available for the direct benefit of the <i>Owner</i>. In the alternative, the <i>Contractor</i> shall assign to the <i>Owner</i> all warranties, guarantees or other obligations for <i>Work</i>, services or <i>Products</i> performed or supplied by any <i>Subcontractor</i>, <i>Supplier</i> or other person in connection with the <i>Work</i> and such assignment shall be with the consent of the assigning party, where required by law, or by the terms of that party's contract. Such assignment shall be in addition to, and shall in no way limit, the warranty rights of the <i>Owner</i> under the <i>Contract Documents</i>.</p> <p>12.3.12 The <i>Contractor</i> shall commence or correct any deficiency within 2 <i>Working Days</i> after receiving a <i>Notice in Writing</i> from the <i>Owner</i> or the <i>Consultant</i>, and shall complete the <i>Work</i> as expeditiously as possible, except in the case where the deficiency prevents maintaining security or where basic systems essential to the ongoing business of the <i>Owner</i> and/or its tenants cannot be maintained operational as designed. In those circumstances all necessary corrections and/or installations of temporary replacements shall be carried out immediately as an emergency service. Should the <i>Contractor</i> fail to provide this emergency service within 8 hours of a request being made during the normal business hours of the <i>Contractor</i>, the <i>Owner</i> is authorized, notwithstanding GC 3.1, to carry out all necessary repairs or replacements at the <i>Contractor's</i> expense."</p>
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**PART 13 INDEMNIFICATION AND WAIVER**

**SC56 GC 13.1 INDEMNIFICATION**

SC56.1	GC 13.1	<p><u>Delete</u> GC 13.1 – INDEMNIFICATION in its entirety and <u>replace</u> it with the following:</p> <p>"13.1.1 The <i>Contractor</i> shall indemnify and hold harmless the <i>Owner</i>, its parent, subsidiaries and affiliates, their respective partners, trustees, officers, directors, agents and employees and the <i>Consultant</i> from and against any and all claims, liabilities, expenses, demands, losses, damages, actions, costs, suits, or proceedings (hereinafter called "claims"), whether in respect of claims suffered by the <i>Owner</i> or in respect of claims by third parties, that directly or indirectly arise out of, or are attributable to, the acts or omissions of the <i>Contractor</i>, its</p>
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		<p>employees, agents, <i>Subcontractors</i>, <i>Suppliers</i> or any other persons for whom it is in law responsible (including, without limitation, claims that directly or indirectly arise out of, or are attributable to, loss of use or damage to the <i>Work</i>, the <i>Owner's</i> property or equipment, the <i>Contractor's</i> property or equipment or equipment or property adjacent to the <i>Place of the Work</i> or death or injury to the <i>Contractor's</i> personnel).</p> <p>13.1.2 The <i>Owner</i> shall indemnify and hold the <i>Contractor</i>, its agents and employees harmless from and against claims, demands, losses, costs, damages, actions, suits or proceedings arising out of the <i>Contractor's</i> performance of the <i>Contract</i> which are attributable to a lack of or defect in title or an alleged lack of or defect in title to the <i>Place of the Work</i>.</p> <p>13.1.3 The provisions of GC 13.1 - INDEMNIFICATION shall survive the termination of the <i>Contract</i>, howsoever caused and no payment or partial payment, no issuance of a final certificate of payment and no occupancy in whole or in part of the <i>Work</i> shall constitute a waiver or release of any of the provisions of GC 13.1</p> <p>13.1.4 Notwithstanding the provisions of GC1.1 - CONTRACT DOCUMENTS, GC 1.1.6, GC13.1 - INDEMNIFICATION shall govern over the provisions of GC 1.3.1 of GC1.3 – RIGHTS AND REMEDIES.”</p>
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**SC57 GC 13.2 WAIVER OF CLAIMS**

SC57.1	13.2.1	<p>In paragraph 13.2.1 in the third line after the word “limitation” <u>add</u> the words “claims for delay pursuant to GC 6.5 DELAYS”</p> <p>-and-</p> <p><u>add</u> the words “(collectively “<b>Claims</b>”)” after “<i>Ready-for-Takeover</i>” in the fourth line.</p>
SC57.2	13.2.1.1	In subparagraph 13.2.1.1, in each instance change the word “claims” to “Claims” and change the word “claim” to “Claim”.
SC57.3	13.2.1.2	In subparagraph 13.2.1.2 change the word “claims” to “Claims”.
SC57.4	13.2.1.3	<u>Delete</u> subparagraph 13.2.1.3 in its entirety.
SC57.5	13.2.1.4	In paragraph 13.2.1.4 change the word “claims” to “Claims”.
SC57.6	13.2.2.1	<p>In paragraph 13.2.2.1 <u>delete</u> the words “in paragraphs 13.2.1.2 and 13.2.1.3” and <u>replace</u> them with “in paragraph 13.2.1.2”</p> <p>-and-</p> <p>change the word “claims” to “Claims” in both instances and change the word “claim” to “Claim”.</p>
SC57.7	13.2.3	<u>Delete</u> paragraph 13.2.3 in its entirety.
SC57.8	13.2.4	<u>Delete</u> paragraph 13.2.4 in its entirety.
SC57.9	13.2.5	<u>Delete</u> paragraph 13.2.5 in its entirety.
SC57.10	13.2.6	In paragraph 13.2.6 change the word “claim” to “Claim” in all instances in the paragraph.
SC57.11	13.2.8	<p>In paragraph 13.2.8 change “The party” to “The <i>Contractor</i>”</p> <p>-and-</p> <p>change the word “claim” to “Claim” in all instances in the paragraph.</p>

SC57.12	13.2.9	<p>In paragraph 13.2.9 <u>delete</u> the words “under paragraphs 13.2.1 or 13.2.3” and <u>replace</u> them with “under paragraph 13.2.1”</p> <p>-and-</p> <p>change both instances of the words “the party” to “the <i>Contractor</i>”. Change the word “claim” to “Claim” in all instances in the paragraph.</p>
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**SC58 \*NEW\* PART 14 OTHER PROVISIONS**

SC58.13	14.1	<p><u>Add</u> new PART 14 – OTHER PROVISIONS as follows:</p> <p><b>“PART 14 OTHER PROVISIONS</b></p> <p><b>GC 14.1 OWNERSHIP OF MATERIALS</b></p> <p>14.1.1 Unless otherwise specified, all materials existing at the <i>Place of the Work</i> at the time of execution of the <i>Contract</i> shall remain the property of the <i>Owner</i>. All <i>Work</i> and <i>Products</i> delivered to the <i>Place of the Work</i> by the <i>Contractor</i> shall be the property of the <i>Owner</i>. The <i>Contractor</i> shall remove all surplus or rejected materials as its property when notified in writing to do so by the <i>Consultant</i>.”</p>
SC58.14	14.2	<p><u>Add</u> new GC 14.2 – CONSTRUCTION LIENS as follows:</p> <p><b>“GC 14.2 LIENS</b></p> <p>14.2.1 Notwithstanding any other provision in the <i>Contract</i>, the <i>Consultant</i> shall not be obligated to issue a certificate, and the <i>Owner</i> shall not be obligated to make payment, subject to the <i>Owner’s</i> requirement to issue a <i>Notice of Non-Payment</i> (Form 1.1) to the <i>Contractor</i>, if at the time such certificate or payment was otherwise due:</p> <ul style="list-style-type: none"><li>.1 a claim for lien has been registered against the <i>Project</i> lands by a <i>Subcontractor</i> or a <i>Supplier</i> that has not been vacated or discharged by the <i>Contractor</i> in accordance with the requirements of this <i>Contract</i>, or</li><li>.2 if the <i>Owner</i> or a mortgagee of the <i>Project</i> lands has received a written notice of a lien that has not been resolved by the <i>Contractor</i> through the posting of security or otherwise.</li></ul> <p>14.2.2 In the event a construction lien arising from the performance of the <i>Work</i> is registered or preserved against the <i>Project</i> lands by a <i>Subcontractor</i> or a <i>Supplier</i>, or a written notice of a lien is given or a construction lien action is commenced against the <i>Owner</i> by a <i>Subcontractor</i> or a <i>Supplier</i>, then the <i>Contractor</i> shall, at its own expense:</p> <ul style="list-style-type: none"><li>.1 within 10 calendar days of registration of the construction lien, vacate or discharge the lien from title to the premises (i.e. the <i>Place of the Work</i>). If the lien is merely vacated, the <i>Contractor</i> shall, if requested, undertake the</li></ul>

		<p><i>Owner's</i> defence of any subsequent action commenced in respect of the lien, at the <i>Contractor's</i> sole expense;</p> <p>.2 within 10 calendar days of receiving notice of a written notice of a lien, post security with the Ontario Superior Court of Justice so that the written notice of a lien no longer binds the parties upon whom it was served; and</p> <p>.3 satisfy all judgments and pay all costs arising from such construction liens and actions and fully indemnify the <i>Owner</i> against all costs and expenses arising from same, including legal costs on a full indemnity basis.</p> <p>14.2.3 In the event that the <i>Contractor</i> fails or refuses to comply with its obligations pursuant to paragraph 14.2.2, the <i>Owner</i> shall, at its option, be entitled to take all steps necessary to address any such construction liens including, without limitation and in addition to the <i>Owner's</i> rights under paragraph 13.2.4, the posting of security with the Ontario Superior Court of Justice to vacate the claim for lien from title to the <i>Project</i> lands, and in so doing will be entitled to a full indemnity from the <i>Contractor</i> for all legal fees, security, disbursements and other costs incurred and will be entitled to deduct same from amounts otherwise owing to the <i>Contractor</i>.</p> <p>14.2.4 In the event that any <i>Subcontractor</i> or <i>Supplier</i> registers any claim for lien with respect to all or part of the <i>Place of Work</i>, the <i>Owner</i> shall have the right to withhold, in addition to the statutory holdback, the full amount of said claim for lien plus either: (a) \$250,000 if the claim for lien is in excess of \$1,000,000 or (b) 25% of the value of the claim for lien and to bring a motion to vacate the registration of said claim for lien and any associated certificate of action in respect of that lien, in accordance with Section 44 of the <i>Act</i>, by paying into court as security the amount withheld.</p> <p>14.2.5 Nothing in this GC 14.2 serves to preclude the <i>Contractor</i> from preserving and perfecting its lien in the event of non-payment by the <i>Owner</i>."</p>
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**APPENDIX 1  
to the Supplementary Conditions**

**Project-specific requirements for a “*Proper Invoice*”**

To satisfy the requirements for a *Proper Invoice*, the following criteria, as may be applicable in each case, must be included with the *Contractor's* application for payment:

- .1 the written bill or request for payment must be in writing;
- .2 the *Contractor's* name and current address;
- .3 the *Contractor's* HST registration number;
- .4 the date the application for payment was prepared by the *Contractor*;
- .5 the period of time in which the services or materials were supplied to the *Owner*;
- .6 the purchase order number provided by the *Owner*;
- .7 reference to the provisions of the *Contract* under which payment is being sought (e.g. GC 5.3 –PAYMENTS for progress payments, GC 5.4 – SUBSTANTIAL PERFORMANCE OF THE WORK AND PAYMENT OF HOLDBACK GC 5.5 – FINAL PAYMENT for final payment, etc.);
- .8 a description, including quantities where appropriate, of the services or materials, or a portion thereof, that were supplied and form the basis of the *Contractor's* request for payment;
- .9 the amount the *Contractor* is requesting to be paid by the *Owner*, set out in a statement based on the schedule of values approved under GC 5.2.4, separating out any statutory or other holdbacks, set-offs and HST;
- .10 a sworn Statutory Declaration in the form CCDC 9A-2018, only for second and subsequent progress payments;
- .11 a current Workplace Safety Insurance Board clearance certificate;
- .12 a pre-approved schedule of values, supplied by the *Contractor*, for Divisions 1 through 14 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;
- .13 a separate pre-approved schedule of values, supplied by each *Subcontractor*, for each of Division 15, 16, and 17 of the *Specifications* (or equivalent Construction Specifications Institute Masterformat) of the *Work*, aggregating the total amount of the *Contract Price*, including all supporting invoicing;
- .14 invoices and other supporting documentation for all claims against the cash allowance;
- .15 a current, acceptable, and up to date *Construction Schedule Update*;
- .16 if requested by the *Owner*, a current and valid certificate(s) of insurance as required under GC 11.1 – INSURANCE;
- .17 the name, title, telephone number and mailing address of the person at the place of business of the *Contractor* to whom payment is to be directed;
- .18 a current, up to date, and approved *Shop Drawing* log;
- .19 in the case of the *Contractor's* application for final payment, in addition to the foregoing requirements (as applicable):
  - (a) any *Close-Out Documentation*, together with complete and final as-built drawings;
  - (b) the *Contractor's* written request for release of the deficiency holdback, including a statement that no written notices of lien have been received by it;



- (c) the *Contractor's* written certification that there are no outstanding claims, pending claims or future claims from the *Contractor* or their *Subcontractors* or *Suppliers*; and
- (d) sufficient evidence of the *Contractor's* compliance with GC 3.11.

**END OF AMENDMENTS TO CCDC 2 - 2020**

1 SUMMARY OF WORK

- .1 The project is:
  - .1 Accessibility upgrades at St Peter's Catholic Secondary School, located Site located at 201 Ashford Drive, Barrie, Ontario.
- .2 Work by Owner comprises the following:
  - .1 Installation of Owner equipment and furnishings unless otherwise indicated on the drawings and specifications.
- .3 The words 'by others' when used in the Specifications or on the Drawings shall not mean by someone other than the Trade Contractor. The only means by which something shown or specified shall be indicated as not being in the Contract is by the use of the initials 'NIC' or the words 'Not In (the) Contract' or 'By Owner'.
- .4 Construction Schedule:
  - .1 It is anticipated the construction scope of work will commence by July 2, 2024 or earlier with the expectation that Substantial Performance and Occupancy will be achieved by August 30th, 2024. Academic activities at the school facility will commence August 26, 2024.

2 WORK RESTRICTIONS

- .1 Contractor's Use of Site
  - .1 Use of site is restricted to the areas designated on the drawings for execution of the Work. Do not unreasonably encumber site with materials or equipment. Move stored products or equipment which interfere with operations of Owner, or other contractors. Obtain and pay for use of off-site additional storage, or work areas as required by the Work.
  - .2 To minimize interruption of instructional activities, work on or after September 3, 2024, related to this Contract shall be coordinated with Capital Projects. Where access to the Work Area cannot be directly be from the exterior, the contractor shall schedule work to be executed in evenings with a start time no earlier than 4pm. In all instances, the school washrooms will not be available for trades use except in the event of a worker injury.
  - .3 The contractor shall ensure that the building heating systems are operational and ready for use no later than October 1st 2024.
  - .4 In order to minimize operational difficulties for building staff, trades must cooperate with Owner and Owner's Representatives throughout the construction period and particularly ensure that noise is minimized.
  - .5 Convenient suitable access must be maintained for staff and students and fire exiting from the building must also be maintained at all times.
  - .6 Minor inconveniences and interruption of services will be tolerated, provided advance notice is given, but the Contractor shall coordinate his Work, in consultation with Owner's Representatives, so the operation of the facility can be maintained as nearly normal as possible.

- .7 In addition to the above the contractor will need to abide by HEALTH & SAFETY GUIDELINES FOR WORK IN OCCUPIED BUILDINGS - Section 01 41 10
  
- .2 Hours of Work
  - .1 Hours of work for this Contract are generally confined to regular daily business hours of 7:00am to 5:00pm, Monday to Friday. Where required by sequencing of the Work, portions of the Work may be required to be performed outside of regular daily business hours, or on weekends, but shall be performed at such times at no additional cost to the Owner.
  
  - .2 Once the building is occupied, Contractor access to the building to perform Work to Correct deficiencies or to perform warranty is restricted and work must be done after hours. School day start time is 7:00AM and end of day time is 4:00PM.
  
- 3 OFF SITE WORK
  - .1 All work beyond property lines, adjacent to the site, is included in Contract unless noted otherwise.
  
- 4 EXISTING CONDITIONS
  - .1 Information on existing conditions in the following reports are included in the Bid Documents.
    - .1 Report Title: Hazardous Building Materials Assessment (Pre-construction)  
Prepared by: Pinchin  
Report Date: July 18, 2022
  
  - .2 The Contractor shall be responsible for conducting an on-site evaluation of conditions which can be observed and for correlation of these conditions with the information included under this section.
  
  - .3 Information contained in documents listed here may be used by the Contractor to assist in an assessment of existing conditions. Evaluation of the information shall remain the responsibility of the Contractor.

END OF SECTION

1 GENERAL

- .1 Refer **General Conditions of Contract (CCDC2 – 2020) – GC 4.1 CASH ALLOWANCES.**
- .2 Include all allowances listed below in the Bid Price.
- .3 Expend Cash Allowances as directed by the Consultant.
- .4 Each Cash Allowance will be adjusted to actual cost as defined hereunder and Contract Price will be amended accordingly by written order.
- .5 Prepare Cash Allowance schedule jointly with Consultant and Owner to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed.
- .6 Progress payments for work and material authorized under Cash Allowances will be made in accordance with GC 5.3 of the contract.
- .7 Only when the Total Value of the Cash Allowances is exceeded will the Contractor be compensated for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract Documents.
- .8 Include progress payments on accounts of Work authorized under Cash Allowances in Consultant's monthly certificate for payment in accordance with the Conditions of the Contract (CCDC 2 – 2020).
- .9 Prepare schedule jointly with Consultant and Contractor to show when items called for under cash allowances must be authorized by Consultant for ordering purposes so that progress of Work will not be delayed

2 MATERIAL ALLOWANCES (SUPPLY ONLY)

- .1 Material cash allowance shall include and provide payment for:
  - .1 Net cost of material.
  - .2 Applicable duties and taxes.
  - .3 Delivery to the Place of the Work.
  - .4 Handling at the Place of the Work, including unloading, uncrating, storage and hoisting.
  - .5 Protection from damage by elements or otherwise.
  - .6 Overhead and profit.
- .2 Include in the Bid Price, in addition to the material cash allowance, costs for the following:
  - .1 Labour for installation and finishing.
  - .2 Other expenses required to complete installation.
  - .3 Overhead and Profit.

3 ASSEMBLY ALLOWANCES (SUPPLY AND INSTALL)

- .1 Assembly cash allowance shall include and provide payment for:
  - .1 Net cost of material.
  - .2 Applicable duties and taxes.
  - .3 Delivery to the Place of the Work.
  - .4 Handling at the Place of Work, including unloading, uncrating, storage and hoisting.

- .5 Protection from damage by elements or otherwise.
  - .6 Labour installation and finishing.
  - .7 Other expenses to complete installation.
  - .8 Overhead and profit.
- .2 Include in the Bid Price any overhead and profit or related General Contractor costs.
- 4 ALLOWANCE AMOUNTS
- .1 The Total Cash Allowance to be included in the Stipulated Price is One Hundred and Twelve Thousand Dollars (\$112,000.00) in Canadian funds.
  - .2 The Cash Allowance shall cover the following (in general):
    - .1 Finish Hardware – supply and installation of all finish hardware for wood and hollow metal doors. Supply of finish hardware for aluminum doors - installation by others. Supply of finish hardware for teacher's closet doors - installation by others.
    - .2 Supply and install of all components required to tie new RTU into existing BAS.
    - .3 Unexpended amounts of Cash Allowances may be reallocated to other work at the sole discretion of the Consultant and Owner.

END OF SECTION

- 1 CHANGES IN THE WORK
  - .1 Change to the work not involving an adjustment in Contract Price or Contract Time and Cash Allowance authorizations will be done through a Supplemental (Site) Instruction: as issued by the Consultant, consistent with the intent of the Contract Documents.
  - .2 Changes to the work involving an adjustment in Contract Price or Contract Time shall be in accordance with **the General Conditions of the Contract (CCDC 2 - 2020) GC 6.1 - OWNER'S RIGHT TO MAKE CHANGES**

END OF SECTION

- 1 APPLICATIONS FOR PAYMENT
  - .1 Applications for payment on account shall be made in accordance with the **General Conditions of the Contract (CCDC 2 - 2020) PART 5 PAYMENT.**
  - .2 The second and all subsequent applications for payment shall include a statement based on the Schedule of Values and a standard Workers Compensation Certificate of Clearance.
- 2 SCHEDULE OF VALUES
  - .1 Submit Schedule of Values in spreadsheet form acceptable to the Consultant.
  - .2 Identify on each Schedule of Values, the following information:
    - .1 Date of Issue
    - .2 Project name
    - .3 Owner's name
    - .4 Contractor's name
    - .5 Payment period
    - .6 Payment certificate number
  - .3 Items of work listed shall include, but not be limited to, separate line items for the following:
    - .1 General Accounts
    - .2 Mobilization
    - .3 Supervision
    - .4 Bonds and Insurance
    - .5 Permits and Licenses
    - .6 Operations and Maintenance Manuals/As-Built Drawings
    - .7 All trades or portions of the Work, generally in chronological order
    - .8 Provision of other Products and/or services
    - .9 Cash Allowance expenditures
    - .10 Changes in the Work
  - .4 The total Contract amount for each trade or portion of the Work shall be listed beside each item.
  - .5 For the purposes of monthly payments, the following values shall be assigned for Operation and Maintenance Manuals and Contractor created Redline and Final electronic As-Built Drawings.
    - .1 Architectural Maintenance Manuals: \$2500.00
    - .2 Architectural Redline As-Built Drawings: \$2500.00
    - .3 Structural Redline As-Built Drawings: \$2500.00
    - .4 Mechanical Maintenance Manuals: \$2500.00
    - .5 Mechanical Redline and Electronic As-Built Drawings: \$2500.00
    - .6 Electrical Maintenance Manuals: \$2500.00
    - .7 Electrical Redline and Electronic As-Built Drawings: \$2500.00
    - .8 Civil Redline As-Built Drawings: \$2500.00
  - .6 The Values of the Work shall be listed as to the aggregate percentage and dollar value completed, under the following major headings:
    - .1 Initial Contract Amounts for each line item
    - .2 Progress to Date,
    - .3 Percent Complete,

- .4 Current Holdback Applied,
  - .5 Current Invoice less Holdback
  - .6 Current Invoice,
  - .7 Previous Billings,
  - .8 Contract Balance
- .7 Work shall be sub-totaled under original Contract amounts, Cash Allowance expenditures, and Changes to the Work.
- .8 Final totals shall identify:
- .1 Total amount
  - .2 Holdback deducted
  - .3 Holdback released
  - .4 Amount invoiced to date
  - .5 Net amount
  - .6 HST
  - .7 Amount due this Certificate

END OF SECTION



1 PROJECT MANAGEMENT & COORDINATION

.1 Project Coordination

- .1 The Contractor is responsible for the overall coordination of the Work. Coordinate the work of all subcontractors, and provide such assistance as is necessary, including but not limited to;
- .1 Providing site dimensions and layout,
  - .2 Providing temporary facilities and controls,
  - .3 Scheduling subcontractors work to prevent conflicts,
  - .4 Scheduling and administering regular sub-trade scheduling and coordination meetings throughout progress of the Work.
  - .5 Scheduling and administering regular sub-trade safety meetings throughout progress of the Work.
  - .6 Coordinate construction sequences and schedules including all components of the Work, including all Divisions with interdependent responsibilities.
- .2 The Contractor shall provide and facilitate production of interference drawings for coordination of the Work. Provide such interference drawings to the Consultant for review.

.2 Project Supervision

- .1 Provide full time supervision in accordance with **General Conditions of Contract (CCDC 2 - 2020) GC 3.5 SUPERVISION.**
- .2 Supervision shall be provided until Total Completion is achieved and the deficiencies have been completed or otherwise agreed with the Owner.
- .3 The supervisor shall be responsible for the overall day-to-day coordination on site between all subcontractors, and provide such assistance as is necessary, including but not limited to;
- .1 Layout,
  - .2 Rough carpentry work for blocking, strapping, nailers, etc.

.3 Project Meetings

- .1 Attend all regular bi-weekly project progress meetings throughout progress of work.
- .2 Consultant shall chair regular bi-weekly project progress meetings and shall record and distribute same to Owner, Contractor and Sub-consultants. Contractor shall forward to appropriate subcontractors.
- .3 The Contractor shall be called upon to report on progress of the work at each bi-weekly progress meeting. At a minimum, they shall submit within 2 day prior to the meeting, written documentation with status of the following:
- .1 2 week review of work completed
  - .2 2 week look ahead schedule for work upcoming
  - .3 Shop Drawings and Submittals Log
  - .4 RFI and RFCO status logs
  - .5 PCN and CO status logs

- .4 The Contractor shall chair separate Sub-Trade bi-weekly project progress

meetings between the Contractor and all Sub-trades, and shall record and distribute same to Owner, and Consultants.

- .4 Project Site Administration
  - .1 Maintain at job site, one copy each of the following:
    - .1 Contract drawings.
    - .2 Project manual.
    - .3 Addenda and Bid Revisions.
    - .4 Reviewed shop drawings.
    - .5 Change orders and other Contract modifications.
    - .6 Field test and inspection reports.
    - .7 Approved schedules.
    - .8 Manufacturer's installation and application instructions.

1 SCHEDULES

- .1 Construction Progress Schedule.
  - .1 Provide construction schedule in accordance with the **General Conditions of the Contract (CCDC 2 - 2020) GC 3.4 – CONSTRUCTION SCHEDULE**. Schedule must utilize "critical path" method.
  - .2 Indicate separate line for each trade or operation of the Work. Arrange trades in chronological order for commencement of that part of the Work. Critical Path work to be clearly identified.
  - .3 Identify projected major milestones in the course of the Work such as:
    - .1 Completion of Exterior Works
    - .2 Completion of Electrical Installation
    - .3 Completion of each major finish item
    - .4 Required testing
    - .5 Substantial Performance
    - .6 Final Cleaning
    - .7 Deficiency Correction, etc.
    - .8 Completion of each major portion work not listed above that impacts critical path.
- .2 Submittal Schedule
  - .1 Provide schedule for submittal of all Shop Drawings, Product Data and Samples.
  - .2 Provide complete list of all manufactured products to be used in the course of the Work, including those amended by addenda.
- .3 Submission of Schedules
  - .1 Submit one copy of each schedule to the Consultant for review, prior to first progress billing. Amend schedule as required.
  - .2 Submit 4 copies of each subsequent issue of schedules to the Consultant.
  - .3 Update schedule on a regular basis or as requested by the Consultant.

2 SUBMITTAL PROCEDURES

- .1 Submit to Consultant, all items specified for review, with reasonable promptness and in orderly sequence so as to not cause delay in the Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 The Contractor shall schedule a minimum of 10 working days in order for the Consultants to review each submission. This shall also apply to subsequent resubmissions.
- .3 Do not proceed with work affected by the submittal until review is complete.
- .4 Review all submittals prior to submission to the Consultant. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with the requirements of the Work and the Contract Documents. Submittals not stamped, signed, and dated by the Contractor will be returned without review.
- .5 Verify field measurements and affected adjacent work are coordinated.
- .6 Contractor's responsibility for errors and omissions in submission, or deviations from requirements of Contract Documents, is not relieved by Consultant's review of submittals.
- .7 Keep one reviewed copy of each submission on site.
- .8 Shop Drawings
  - .1 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 3.8 SHOP DRAWINGS**.
  - .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of the Section under which the adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
  - .3 Adjustments made on shop drawings by the Consultant are not intended to change the Contract Price. If adjustments affect the value of the Work, the Contractor shall state such in writing to the Consultant within five (5) business days of receipt of the reviewed shop drawings. The Contractor shall not proceed with the Work requiring adjustment in price without prior approval by the Consultant. The Owner will not be responsible for any resulting delays in construction because of delayed notice.
  - .4 Make changes to shop drawings as the Consultant may require, consistent with Contract Documents. When resubmitting, notify the Consultant in writing of any revisions other than those requested. Any work completed for adjustments without Consultant prior approval is at the Contractor's expense and as such, the Owner will not be subject to increased costs to the contract.

- .5 Shop drawings shall be submitted electronically wherever possible. Files shall be in PDF format only.
- .6 Shop drawings submitted by FAX, or as copies of FAX transmissions are not acceptable as shop drawings, and will not be reviewed.
- .7 Reproductions of Consultants' drawings are not acceptable for the purpose of creating Shop Drawings. Any drawings submitted for review which contain drawings or any parts of drawings produced by the Consultant, will be rejected. The Owner will not take responsibility for any resulting delays in construction as a result of the above.
- .8 Shop drawings not submitted in the scale type of the contract documents (ie; metric for metric drawings) will not be reviewed.
- .9 **Product Data Sheets**
  - .1 Manufacturer's standard schematics, catalogue sheets, diagrams, schedules, performance charts, illustrations and other descriptive data are acceptable in lieu of shop drawings, where specified.
  - .2 Product Data Sheets are acceptable provided they conform to the following:
    - .1 Information not applicable to project has been deleted.
    - .2 Supplement standard information to provide additional information applicable to project.
    - .3 Show dimensions and clearances required.
    - .4 Show performance characteristics and capacities.
    - .5 Show wiring diagrams, when requested, and controls.
  - .3 Submit product data sheets or brochures for requirements requested in specification Sections and as the Consultant may reasonably request where shop drawings will not be prepared due to standardized manufacture of product.
  - .4 Submit Product Data Sheets.
  - .5 Product data sheets submitted by FAX, or as copies of FAX transmissions will not be accepted.
- .10 **Return of Submissions**
  - .1 If shop drawings or data sheets are rejected, noted copy will be returned and resubmission of corrected shop drawings or data sheets through the same procedure indicated above, shall be performed before fabrication and installation of Work may proceed.
- .11 **Samples**
  - .1 Submit samples for review, in duplicate, in sizes requested in respective specification sections. Label samples as to origin and intended use in the Work.
  - .2 Where colour, pattern or texture is criteria, submit full range of samples.

- .3 Deliver samples prepaid to Consultant's office.
  - .4 Notify the Consultant in writing, at the time of submission of deviations in samples from requirements of Contract Documents.
  - .5 Adjustments made on samples by the Consultant are not intended to change the Contract Price. If adjustments affect the value of the Work, the Contractor shall state such in writing to the Consultant within five (5) business days of receipt of the reviewed shop drawings. The Contractor shall not proceed with the Work requiring adjustment in price without prior approval by the Consultant. The Owner will not be responsible for any resulting delays in construction because of delayed notice. Any work completed for adjustments without Consultant prior approval is at the Contractor's expense and as such, the Owner will not be subject to increased costs to the contract.
  - .6 Make changes in samples, which the Consultant may require, consistent with Contract Documents.
  - .7 Reviewed samples or mock-ups will become standards of workmanship and material against which installed work will be checked on project.
- .12 Submission Requirements
- .1 Accompany submissions with transmittal letter containing:
    - .1 Date,
    - .2 Project title and number,
    - .3 Contractor's name and address,
    - .4 Drawing/page numbers of each shop drawing or data sheet,
    - .5 Identification (ie. "Structural Steel Shop Dwgs."), and
    - .6 Number of copies submitted.
  - .2 Submissions shall include (where applicable) :
    - .1 Date and revision date,
    - .2 Project title and number,
    - .3 Name of Contractor, Subcontractor(s), Supplier/Manufacturer,
    - .4 Identification of product or material,
    - .5 Relation to adjacent structure or materials,
    - .6 Field dimensions, clearly identified as such,
    - .7 Reference standards (CSA, CGSB, ASTM, etc.), and
    - .8 Contractor's stamp, initialed or signed, certifying review of submission, and verification of field measurements.
- .13 Distribution of Submittals after Review
- .1 Distribute copies of shop drawings and product data which carry Consultant's stamp as follows (where applicable):
    - .1 Job site file (Record documents),
    - .2 General Contractor's office,
    - .3 Subcontractors, and
    - .4 Suppliers or Fabricators.

END OF SECTION

1 GENERAL

- .1 Provide construction photographs in accordance with procedures and submission requirements specified in this section.
- .2 Photographs shall be taken using a digital camera.
- .3 Photographs shall be named and grouped by date using the following file name format: **St Peter's Catholic\_School\_P00692** - YYYY\_MM\_DD (##).jpeg

2 PROGRESS PHOTOGRAPHS

- .1 Provide 1 digital set of construction photographs, documenting progress of the Work. Submit one digital set with each monthly progress draw.
- .2 Submit progress photographs with each monthly progress draw, and at the following milestones;
  - .1 Completion of excavation and pouring of footings, including founding elevation of underside of footing excavation.
  - .2 Completion of foundations prior to backfilling.
  - .3 Completion of structural frame.
  - .4 Completion of rough-in of mechanical and electrical services before concealment.
  - .5 Completion of roofing membrane.
  - .6 Completion of each major portion of Work.
  - .7 Completion of each major finish item.
- .3 Orientation of Photographs: provide photos from a minimum of 4 general viewpoints, as well as specific views as required by milestones specified above, and as determined by Consultant prior to first Progress Draw.

3 FINAL PHOTOGRAPHS

- .1 Submit full digital set of construction photographs taken during course of Work with Operations & Maintenance Manuals at the completion of the project.
- .2 Orientation of Photographs: provide final photos as follows:
  - .1 General viewpoints as defined above,
  - .2 Views of all exterior elevations,
  - .3 One view from each street,
  - .4 Views of site showing parking areas and play surfaces,
  - .5 Interior views of all major spaces,
  - .6 One set of views of a typical room,
  - .7 Specific views as determined by Consultant (Max. 48 views).

END OF SECTION

## **1 GENERAL**

### **1.1 SECTION INCLUDES**

- .1 Requirements for quality of work.
- .2 Requirements for material inspection and testing.
- .3 Requirements for determination of defective materials and work.

### **1.2 REFERENCE STANDARDS**

- .1 CSA A23.1; Concrete Materials and Methods of Concrete Construction.
- .2 CSA A23.2; Methods of Test for Concrete.
- .3 CSA S16.1; Limit States Design of Steel Structures.
- .4 CSA W47.1; Certification of Companies for Fusion Welding of Steel Structures.
- .5 CSA W59; Welded Steel Construction (Metal Arc Welding).
- .6 CISC; Code of Standard Practice for Structural Steel.
- .7 OPSS; Ontario Provincial Standard Specifications.

### **1.3 REGULATORY REQUIREMENTS**

- .1 Products and services provided to complete the Work shall meet or exceed requirements of specified standards, municipal by-laws, building codes and referenced documents.

### **1.4 INDEPENDENT INSPECTION AND TESTING**

- .1 Independent Inspection and Testing Consultants will be engaged by the Owner for the purpose of inspecting and/or testing individual portions of the Work. The initial cost of such services will be borne by the Owner.

### **1.5 RESPONSIBILITIES**

- .1 Inspection and Testing Consultants
  - .1 Inspection and Testing Consultants shall;
    - .1 Provide inspection and testing specified,
    - .2 Inform the Contractor, Consultant and Owner upon observance of materials, systems, or procedures not in compliance with the specifications, and
    - .3 Submit complete reports to the Contractor, Consultant and Owner in a timely manner.
- .2 Contractor
  - .1 Contractor shall:
    - .1 Provide access to the Work for Inspection/Testing Consultants, and
    - .2 Inform the Inspection/Testing Consultants in advance of day and time required for inspection and tests.
  - .2 It is the responsibility of the General Contractor to ensure the quality control requirements of the Contract are implemented.
  - .3 Costs for any additional inspections resulting from contractor's failure to correct deficient work in previous inspections will be borne by the General Contractor.
- .4 Consultant
  - .1 The Consultant will make final decisions on changes to the scope of work of inspection and testing that may affect the Contract Price.

- .2 When informed of any material procedure or test result that does not meet or exceed the specifications, the Consultant will respond to resolve the issue.

**1.6 ACCESS TO WORK**

- .1 Allow inspection & testing company's access to the Work, as well as off-site manufacturing and fabrication plants.

**1.7 REPORTS**

- .1 Submit three copies of inspection and test reports to the Consultant.
- .2 Provide copies to Subcontractor of work being inspected or tested, manufacturer or fabricator of material being inspected or tested.
- .3 Submit one copy of inspection and test reports to the Building Official having jurisdiction, where required by that official.
- .4 The cost of tests beyond those called for in the Contract Documents or beyond those required by the law of the Place of Work shall be appraised by the Consultant and may be authorized as recoverable at the discretion of the Consultant and agreed by the Owner.

**1.8 EARTHWORK**

- .1 All earthwork shall be subject to inspection and testing as specified herein. Inspection and Testing shall include:
  - .1 Inspection of subgrade and granular fill materials.

**1.9 CAST-IN-PLACE CONCRETE**

- .1 All cast-in-place concrete shall be subject to inspection and testing as specified herein. Inspection and Testing shall include:
  - .1 Verification of materials delivered to site.
  - .2 Slump tests.
  - .3 Sampling of cylinders, and compressive strength tests.

**1.10 ASPHALT PAVING**

- .1 All asphalt paving shall be subject to inspection and testing as specified herein. Inspection and Testing shall include:
  - .1 Inspection and compaction testing of all granular base courses.
  - .2 Marshal Density testing of asphalt material.
  - .3 Compaction testing of all courses of asphalt paving.

**2 PRODUCTS**

(RESERVED)

**3 EXECUTION**

**3.1 INSPECTION AND TESTING - GENERAL**

- .1 Furnish test results and mix designs as may be requested.

**3.2 INSPECTION AND TESTING - PROCEDURES**



- .1 Notify the appropriate agency and Consultant in advance of the requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
- .3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store, cure and inspect test samples.

3.3 QUALITY OF THE WORK

- .1 Quality of the Work shall be first class, executed by workers experienced and skilled in the respective duties for which they are employed. Immediately notify the Consultant if required work is such as to make it impractical to produce required results.
- .2 Do not employ any unfit person or anyone unskilled in their required duties. The Consultant reserves the right to require the dismissal from the site, of workers deemed incompetent, careless, insubordinate or otherwise objectionable.

3.4 DEFECTIVE MATERIALS AND WORK

- .1 **Refer to General Conditions of Contract GC 2.4 of CCDC 2-2020.**
- .2 Where evidence exists that defective work has occurred, or that work has been carried out incorporating defective products, the Consultant may have independent tests, inspections, or surveys performed in order to determine if work is defective. Tests, inspections, or surveys carried out under these circumstances will be provided at the Contractor's expense in the event of defective work. Where tests incorporate a number of samples, payment will be assessed, by the Consultant, based on the ratio of conforming to non-conforming results. This does not include re-testing of soil compaction during placement, unless where evidence exists that failure to meet required compaction is because of non-conformance with the Contract documents or by negligence of the contractor.

END OF SECTION

**1 GENERAL**

**1 SECTION INCLUDES**

- .1 Codes and Standards.
- .2 Authority Having Jurisdiction.
- .3 Health and Safety Guidelines for Work in Occupied Buildings.
- .4 Permits and Fees.
- .5 Relics, Antiquities and Human Remains.

**2 CODES AND STANDARDS**

- .1 Codes
  - .1 All construction shall conform to the Ontario Building Code, the National Building Code (NBC) and the National Fire Code (NFC) latest editions including all supplements and amendments.
  - .2 Conform to all other codes, by-laws and regulations as specified within individual sections of the specifications.
- .2 Industry Standards
  - .1 Industry Standards are specified within individual sections as applicable to those portions of the Work. The latest editions of all industry standards shall be the standards for which quality of work shall be assessed.
  - .2 Comply with all relevant codes, standards and industry-accepted practices, as specified herein, or as applicable to the Work.

**3 AUTHORITIES HAVING JURISDICTION**

- .1 The Chief Building Official of the Municipality of the Place of the Work, is the primary Authority Having Jurisdiction for compliance with all codes, by-laws and regulations as they apply to all construction.
- .2 Other Authorities Having Jurisdiction may be required to review and approve certain portions of the Work. The Chief Building Official of the Municipality of the Place of the Work, will determine the requirements for such involvement.

**4 HEALTH AND SAFETY GUIDELINES FOR WORK IN OCCUPIED BUILDINGS**

- .1 In addition to all Occupational Health and Safety Act and Regulations for Construction Projects (2000) (Ontario Regulation 213/91, amended by Reg. 631/94, & Reg. 145/00) and by all authorities having jurisdiction, when applicable the Contractor shall conform with requirements of Section 01 41 10 - SMCDSB Health and Safety Guidelines for Work in Occupied Buildings.

**5 PERMITS AND FEES**

- .1 No construction work may commence without a valid, posted Building Permit unless authorization otherwise is granted by the Authority Having Jurisdiction.
- .2 The Owner is responsible for obtaining all necessary information and applying for the Building Permit, including payment of associated fees. Contractor is responsible for obtaining the building permit.
- .3 The Contractor is responsible for applying for, and obtaining all necessary permits, licenses, or certificates required by the Work.

- .4 Authorities Having Jurisdiction may levy fees for issuing permits, licenses, or certificates under their jurisdiction. The Contractor shall pay all such fees as required, and shall include the cost of such fees in their Contract Price.
  - .5 Furnish certificates and permits from other Authorities Having Jurisdiction when so requested by the Consultant.
  - .6 Prior to commencement of construction, post the Building Permit at the Place of the Work.
- 6 RELICS, ANTIQUITIES AND HUMAN REMAINS
- .1 Comply with the General Conditions of the Contract with respect to relics, antiquities, and human remains.
  - .2 Isolate and protect human remains, relics, antiquities, items of historical, archeological or scientific interest such as cornerstones, commemorative plaques, inscribed tablets and other similar objects found during the course of the Work.
  - .3 If such items are discovered in the course of construction, stop work in the immediate vicinity and give immediate notice to the Consultant as to the nature of the discovery, and await written instructions before proceeding with work in the area.
  - .4 Resume work only after the conclusion of any inspection and evaluation by experts engaged by the Owner, and only after being given permission to do so.
  - .5 Relics, antiquities and items of historical or specific interest remain the Owner's property.

END OF SECTION

Note: the health and safety guidelines in this section are applicable additional requirements of the contract when construction is occurring in school building during the occupied time of the full week preceding Labour Day weekend to the end of the first full week in July.

**1 WORK SITE LOCATION**

- .1 Hours of operations for the construction in unoccupied areas may occur during the regular work week hours with the following exception, odor based construction activities such as; painting, rubber base, carpet, epoxy flooring etc shall be limited to Fridays from 4pm to Saturday at 12 midnight. (This allows for a 36-hour time period for off gassing.)
- .2 Hours of operations for occupied areas requiring access through the occupied areas may only occur from 4pm to 7am Monday to Friday and 4pm Friday to 7am Monday with the following exception, odor based construction activities such as; painting, rubber base, carpet, epoxy flooring etc shall be limited to Fridays from 4pm to Saturday at 12 midnight. (This allows for a 36-hour time period for off gassing.)
- .3 Work during school hours must be approved by the appropriate Board Authority and the School Principal / designate. All construction and maintenance activities shall be confined to the areas of the school under construction. Fire exits shall be maintained at all times and physical barriers will be used to isolate the construction work from school staff and students.
- .4 The contractor must co-operate and co-ordinate all construction activities, which may interfere with the school, with the school Principal / designate. All noise related construction activities that would affect the staff and students' abilities to properly concentrate on school related activities is to be limited to 4pm to 8am daily.
- .5 It is the responsibility of the Contractor to clearly demark the work site borders and areas not to be used by usual occupants of the building or grounds. The Contractor must at all times erect and maintain adequate fencing or barriers around all excavations, pits, and in other places of danger.
- .6 The Contractor must be responsible for all sub-trades, including payment of the same, necessary to produce a complete installation.
- .7 Power and water may be available from the site where approved, but these facilities shall not be altered for the Contractor's use.
- .8 The Contractor shall obtain approval from the Capital Projects Officer for location of temporary buildings, temporary office, storage sheds and workshops as required by the work throughout the period of construction. The contractor must remove temporary buildings upon completion of the work and restore the property to the condition as found on commencement of the work.
- .9 The Contractor and their employee(s) must be aware of the location of the school's Health & Safety Board containing the following information: Designated Substance Reports, MSDS Sheets and general Health & Safety information. The contractor must provide a First Aid Kit and the name of the Safety Representative and stretcher for use by contractor employees.

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- .10 The Contractor must not use school property as an office, for the purpose of hiring staff or conducting business or personal affairs on any project.
2. COMMUNICATION
- .1 The Site Supervisor and Principal / designate shall have communication meetings at the start of each day for the purpose to review the construction activities planned for that day.
- .2 The Board's Capital Projects Officer will follow-up with the Principal / designate regularly to review the communication between the Site Supervisor and the Principal / designate and to review construction activities.
- .3 The Principal / designate will communicate work activities to the school staff and students as required.
- .4 The Principal / designate is the single point of contact for reporting of Health and Safety incidences from staff. Upon receipt of notification of an incidence the Principal / designate shall perform an investigation with the School Health & Safety Representative. Following the investigation, the Principal / designate and the School Health and Safety Representative will decide either to evacuate or relocate staff and students from the area of concern. Following this, the Principal / designate will report the findings to the contractor's site supervisor and the Board's Capital Projects Officer. If the belief is that, there is an immediate danger to the Health and Safety of staff and students the Principal / designate may direct the contractor's site supervisor to terminate construction activities until such time that all parties believe the workplace is safe. The reporting structure to the Board is as follows, the Principal / designate shall report directly to the Board's Capital Projects Officer who will in turn report the incidence to the Board's Health and Safety Officer. If the Board's Capital Projects Officer is not reachable the Principal / designate is to contact the Assistant to the Controller of Planning & Facilities at extension 351. From this point the Board's Capital Projects Officer or the Assistant Manager of Facilities Services will be notified of the incidence.
3. SCHOOL USE OF FACILITIES
- .1 The school regular hours of operations are from 7am to 4pm Monday to Friday.
- .2 The school is encouraged to hold off any after-hours use of facilities adjacent to the area of work until completion of the construction contract. That said it is understood that the school needs to continue to provide activities beyond the regular school day and thus after-hours school use of facilities in the building will be permitted from Monday to Thursday. The school must be aware and accept that after-hours use may be interrupted by construction activities.
- .3 The Principal / designate will communicate after hours use of facilities activities to the Contractor's site supervisor at the communication meetings described in 2.1 of 2. COMMUNICATION. It is anticipated that the Contractor will co-operate with the school to make the facilities available and safe for the use of extra-curricular activities such as sports tournaments, school dances, school productions etc.
- .4 Staff are encouraged to work from home for after-hours work until completion of the construction contract.

- .5 External Groups are not permitted to use the facilities after hours until completion of the construction contract.
- 4. OPERATION OF VEHICLES ON BOARD PROPERTY
  - .1 Prior written approval must be obtained from the School Principal / designate when bringing vehicles on to school property during schools hours. Trucks and all other vehicles shall proceed with caution with a maximum 10 km/h on school property. All trucks must be equipped with automatic back-up alarms. If a back-up alarm is not available than a Flag person must be provided.
  - .2 Trades persons vehicles must be parked in designated parking areas with signage to indicate "Contractor Parking Only". All trades personnel are to back their vehicles into the spaces.
- 5. TOOLS AND EQUIPMENT
  - .1 The Contractor's equipment/tools must be in safe working condition, including required guards on tools and equipment and grounding devices. Operating manuals and maintenance records shall be available on request for all powered equipment.
- 6. MATERIAL STORAGE
  - .1 Contractor material and equipment must be stored in a safe manner in designated materials storage areas. These areas shall be protected at minimum with snow fencing sufficiently secured by metal posts.
  - .2 Oxygen and acetylene cylinders must be chained in the vertical position or be secured on a welding cart designed for this purpose. If not on a cart, the cylinder regulator must be removed and the cylinder cap on. Full and empty tanks are to be stored in separate fenced areas and signage provided to indicate their presence.
  - .3 Propane tanks that are not in use must not to be stored in school buildings. Propane cylinders shall not be changed indoors. Workers using propane must have Technical Standards Safety Authority (T.S.S.A.) Certification and provide proof to the Board upon request.
  - .4 Open cans of varsol, thinners and other volatile products are not permitted in the building. For storage and dispensing restrictions, refer to Item 8. "FLAMMABLE LIQUIDS".
  - .5 Paint cans must be sealed when not in use and stored in construction areas.
- 7. NATURAL GAS PIPING
  - .1 All work related to natural gas systems must be completed by a licensed gas fitter. This work may not occur while the building is occupied.
- 8. FLAMMABLE LIQUIDS
  - .1 Flammable liquids must be stored in appropriate ULC approved metal safety containers with a flame arrestor and spring-loaded cap. The contractor is responsible for the provision of proper storage containers and/or steel cabinet designed for that purpose. One day's supply of flammable liquid may be used without a steel flammable storage cabinet. However, dispensing containers for flammable liquids must be as described above and containers and dispensing

equipment must be bonded and grounded. Dispensing must be done using mechanical ventilation or be done outdoors. Equipment and dispensing methods must conform to CSA B376-M1980 and Ontario Regulation 213/851.

9 CONTROLLED PRODUCTS (WHMIS)

.1 All controlled products must be WHMIS labeled before being brought onto Board property. Material Safety Data Sheets for all controlled products must be available on site. The contractors are responsible for training their employees in the safe use and handling of all controlled products and proof of training must be provided as part of the Pre-Qualification.

10 SAFETY EQUIPMENT

.1 The contractors are responsible to ensure that all employees wear safety equipment, as required, to work in a safe manner. Contractors must ensure that their employees are trained in the use of this equipment.

11 FIRE SAFETY

1 The contractor is responsible for providing fire extinguishers in the repair / renovation / construction areas and for ensuring that employees are trained in the use of extinguishers.

.2 The following persons contact numbers shall be added to the school's Fire Plan – Emergency Contacts list; the Board's Capital Projects Officer, the contractor's Site Supervisor and the contractor's emergency line.

12 CIGARETTES, ALCOHOL AND ILLEGAL DRUGS

.1 Smoking is not permitted on Board property. Consuming alcohol or illegal drugs on Board property is strictly prohibited. Persons appearing to be under the influence of alcohol or illegal drugs will be asked to leave the work site. The contractor must ensure that employees asked to leave are provided transportation home.

13 HOUSEKEEPING

.1 Contractors must keep work site areas clean and tidy. Nails in lumber must be removed. Materials must be laid down and piled safely and garbage must be placed in proper waste containers.

.2 The contractor must survey the site at the end of each day and remove any garbage that has not been removed as described in 13.1.

14 LADDERS, SCAFFOLDS, SWING STAGES, VERTICAL MAN-LIFTS

.1 The contractors are responsible for training their employees in inspecting, erecting, and using scaffolds, ladders, swing stages and vertical man-lifts. Ladders must extend 3 feet beyond the upper support. Ladders must be held by a worker on the ground or tied off if over 10 feet high. Formal training must be given to workers on the proper use of scaffolds, swing stages and vertical man-lifts if used on the job. Equipment operating manuals and the required Professional Engineering documents must be available on site and produced upon request.

15 ASBESTOS

.1 Prior to commencement of any work affecting the structure of the building, the Contractor shall review the asbestos report for the building (available through the Board's Capital Projects Officer.) The Contractor shall evaluate the potential

presence of asbestos in the specific work zone. If asbestos is present, the Board's Capital Projects Officer shall be notified immediately, and no work is to proceed until any materials containing asbestos have been dealt with in accordance with the Occupational Health and Safety Act and the Board's Asbestos Management Program.

16 PERMITS AND REGULATIONS

- .1 The Contractor shall obtain any required permits and conform to any existing applicable codes, such as the Canadian Standards Association, Underwriter's Laboratories of Canada, Ontario Fire Code, Ontario Building Code, Ontario Electrical Code, Ministry of Labour, and all local Bylaws and any other applicable regulatory requirements.
- .2 The Contractor shall record all electrical work performed on a daily basis.

17 INJURIES

- .1 Each Contractor or sub-contractor is responsible for responding to, providing treatment and transporting to medical services their injured employees. Response must include first aid to the injured person, hospital aid, securing the site and notification as required under the Occupational Health and Safety Act. Emergency Response Plans should be in place for all emergencies and pull stations used to clear the building if required. Someone on site must be certified in Standard Care First Aid. The School Principal / designate or the Board's Capital Projects Officer shall be notified of any emergency or worker injury.

18 SUPERVISION AND RESPONSIBILITY

- .1 The Contractor shall supervise and direct the work of all persons engaged in the work, including sub-contractors and those who supply materials and the contractor will be fully responsible for full compliance with the terms of the contract by all such persons. All construction shall be performed as specified and in a manner conforming to the best trade practices.

19 DEFECTIVE MATERIAL AND WORKMANSHIP

- .1 The Contractor shall promptly remove from the building all used materials and materials condemned by the Board, as failing to conform to the contract, whether incorporated in the work or not.

20 CUTTING, PATCHING, DIGGING AND FITTING

- .1 The Contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit to it, receive or be received by work of other contractors, shown upon or reasonably implied by the contract documents and he shall make good after them. Any costs or expenses caused by poorly coordinated or ill-timed work shall be borne by the party responsible therefore.
- .2 The Contractor shall not endanger any existing work or building by cutting, digging or otherwise.
- .3 Any work requiring the use of welders, torches etc. requires a Hot Work Permit issued by the Board's Plant Services Dept. This permit shall be coordinated through the Board's Capital Projects Officer.



- 21 VENTILATION
- .1 Contractor to ensure that HVAC systems are run in occupied mode 24hrs per day 7 days a week until completion of the construction contract. Contractor to make all necessary arrangements for running of the HVAC systems through the Board's Capital Projects Officer.
  - .2 Filter changes to the HVAC systems must be increased in frequency to bi-weekly changes until the work of the contract is complete.
  - .3 The Board will provide the filter changes in 21.2 to occupied areas of the school. The contractor is responsible for the filter changes in 21.2 in all unoccupied areas.
- 22 DUST CONTROL
- .1 The contractor shall provide appropriate polyethylene plastic curtains between new construction and corridors to prevent dust penetration and provide doormats and take other appropriate precautions in these rooms to prevent dirt being tracked into the school. These areas must be sealed tight with tape or other suitable material to provide a dust and vapor tight enclosure.
  - .2 Fresh air returns from construction areas shall be sealed tight or temporary filter system provided while dust-causing work is being performed.
  - .3 The contractor shall provide suitable dust control for all exterior construction activities.
  - .4 Dust control measures must be used when sweeping of floors in construction areas.
- 23 SIGNAGE
- .1 Signage shall be provided by the contractor on the occupied side of every door and entry into construction areas. Signage shall indicate "Construction Zone – Authorized Personnel Access Only" or similar wording.
  - .2 Construction signage shall also be provided by the contractor for any exterior site work activities. The signage shall indicate "Construction Zone – Authorized Personnel Access Only" or similar wording.
  - .3 In addition to items 23.1 and 23.2, the contractor shall also provide for and maintain all required construction signage by the Ministry of Labour.
- 24 BUSSING AND TRANSPORTATION ROUTES
- .1 No construction activity may occur during student drop-off and pick-up times. The Site supervisor shall obtain the bussing schedule from the school Principal / designate.
  - .2 All fire and emergency access routes shall be maintained free and clear of any obstructions 24hrs per day 7 days a week. These access routes shall also be maintained and accessible to allow for snow removal by Board retained snow removal contractors.
  - .3 The school is responsible for ensuring that the routes (described in 24.2) are clear is limited to ensuring that they are kept clear of staff, student, visitor and school

delivery vehicles.

- .4 The Board shall arrange for normal snow clearing of the parking areas and the fire and emergency access routes. The Contractor is responsible for controlling dust mud build-up of these routes.

## 25 SECURITY

- .1 The school must be left in a safe and secure condition at the end of every day. The Contractor is responsible for arming the building at the end of each day if school staff are not present.
- .2 The Contractor shall be solely responsible for loss or damage of his/her tools, equipment or any materials on Board property.
- .3 The Contractor shall ensure the work zone is clearly delineated with appropriate barricades to prevent unauthorized access.
- .4 The Contractor shall key all door cylinders in door entries to construction areas with a construction key different than that of any keying dedicated to the building. One key shall be provided to the following Board personnel; Principal / designate, Vice-Principal / designate, Board's Capital Projects Officer and the Custodian-in-Charge. Duplication of the construction keys is not permitted by Board personnel unless consent is provided jointly by the contractor and Board's Capital Projects Officer.
- .5 All doors and entries into construction zones shall remain locked at all times to prevent unauthorized entry into these spaces.
- .6 The Principal / designate, Vice-Principal / designate and Custodian in Charge shall access construction areas for emergency purposes only. The Board's Capital Projects Officer is entitled access to these areas to perform site review and inspection activities.
- .7 Access to all construction areas shall be made directly from the exterior only unless it is agreed to with the Principal / designate / designate and/or the Board's Capital Projects Officer that access is required through the occupied spaces.

## 26 WASHROOMS/TOILETS

- .1 The Contractor shall provide and maintain in a sanitary condition, washrooms and toilets for the use of all persons at the work site, and upon completion of the work, remove it and contents, and leave its site in a neat, clean and sanitary condition. Workers shall use designated washrooms as designated by their employer.
- .2 School washrooms/toilets are not to be used by any trades persons.

## 27 SAFE EXCAVATION/DRILLING PRACTICES

- .1 Prior to work commencing the Contractor shall adhere to the following the procedures;
  - .1.1 Obtain ground locates of the following utilities, but not limited to, water, electrical, gas, Bell, fiber optics, ground source heating lines. Locates are to be physically identified on the ground with paint or flags and the Contractor shall obtain a certificate by the Locate Contractor with a sketch

map identifying these locates. A copy of such is to be provided to the School Board and it is obligatory that the School Board's Capital Projects Officer review the site to confirm the presence of the paint identification markings, flags etc. prior to the work commencing.

- .1.2 The Locate/certificate shall not go beyond the expiry date. In the event that the certificate expires the contractor shall obtain new locates and follow the procedures described in 27.1.1
- .1.3 The contractor shall provide minimum 48hrs notice of the work activities to the School Board's Capital Projects Officer and the contractor shall provide a schedule of the work.
- .2 The Contractor shall be knowledgeable of all Safe Digging regulations for each Utility Company.

END OF SECTION

Abbreviations listed, when used in the Contract Documents, shall have the following meanings:

<b>ABBREVIATION</b>	<b>MEANING</b>
AA	ALUMINUM ASSOCIATION
AAMA	ARCHITECTURAL ALUMINUM MANUFACTURERS' ASSOCIATION
AASHO	AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
AGA	AMERICAN GAS ASSOCIATION
AIA	AMERICAN INSTITUTE OF ARCHITECTS
AIMA	ACOUSTICAL & INSULATING MATERIALS ASSOCIATION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
AMCA	AIR MOVING AND CONDITIONING ASSOCIATION INC.
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING & AIR CONDITIONING ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWI	ARCHITECTURAL WOODWORK INSTITUTE (USA)
AWMAC	ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA
AWS	AMERICAN WELDING SOCIETY
CCA	CANADIAN CONSTRUCTION ASSOCIATION
CCRC	CANADIAN CODE FOR RESIDENTIAL CONSTRUCTION
CEC	CANADIAN ELECTRICAL CODE
CFUA	CANADIAN FIRE UNDERWRITERS ASSOCIATION
CGA	CANADIAN GAS ASSOCIATION
CGSB	CANADIAN GENERAL STANDARDS BOARD
CIQS	CANADIAN INSTITUTE OF QUANTITY SURVEYORS
CISC	CANADIAN INSTITUTE OF STEEL CONSTRUCTION
CITC	CANADIAN INSTITUTE OF TIMBER CONSTRUCTION
CLA	CANADIAN LUMBERMEN'S ASSOCIATION
CMHC	CANADA MORTGAGE & HOUSING CORPORATION
COFI	COUNCIL OF FOREST INDUSTRIES OF BRITISH COLUMBIA
CPCI	CANADIAN PRESTRESSED CONCRETE INSTITUTE
CRCA	CANADIAN ROOFING CONTRACTORS ASSOCIATION
CSA	CANADIAN STANDARDS ASSOCIATION
CSC	CONSTRUCTION SPECIFICATIONS CANADA
CSI	CONSTRUCTION SPECIFICATIONS INSTITUTE (USA)
CSPI	CORRUGATED STEEL PIPE INSTITUTE
CSSBI	CANADIAN SHEET STEEL BUILDING INSTITUTE
CUA	CANADIAN UNDERWRITERS' ASSOCIATION
CWB	CANADIAN WELDING BUREAU
CWC	CANADIAN WOOD COUNCIL
DND	DEPARTMENT OF NATIONAL DEFENCE, CANADA
FM	FACILITY MUTUAL ENGINEERING CORPORATION
FS	FEDERAL SPECIFICATION (USA)
IES	ILLUMINATING ENGINEERING SOCIETY
IGMAC	INSULATED GLASS MANUFACTURERS ASSOCIATION OF CANADA
LTIC	LAMINATED TIMBER INSTITUTE OF CANADA
MIA	MARBLE INSTITUTE OF AMERICA
MPMDD	MODIFIED PROCTOR MAXIMUM DRY DENSITY
NAAMM	NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS (USA)
NBFU	NATIONAL BOARD OF FIRE UNDERWRITERS

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NBC	NATIONAL BUILDING CODE OF CANADA
NBS	NATIONAL BUREAU OF STANDARDS (USDC)
NEMA	NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NHLA	NATIONAL HARDWOOD LUMBER ASSOCIATION (USA)
NLGA	NATIONAL LUMBER GRADES AUTHORITY
NRC	NATIONAL RESEARCH COUNCIL
OBC	ONTARIO BUILDING CODE
OHSA	OCCUPATIONAL HEALTH AND SAFETY ACT
OPSS	ONTARIO PROVINCIAL STANDARD SPECIFICATIONS
PCA	PORTLAND CEMENT ASSOCIATION
PCI	PRESTRESSED CONCRETE INSTITUTE
SDI	STEEL DECK INSTITUTE
SPMDD	STANDARD PROCTOR MAXIMUM DRY DENSITY
SSPC	STEEL STRUCTURES PAINTING COUNCIL
TTMAC	TERRAZZO, TILE & MARBLE ASSOCIATION OF CANADA
ULC	UNDERWRITERS LABORATORIES CANADA
UL	UNDERWRITERS LABORATORIES (USA)
USAS	UNITED STATES OF AMERICA STANDARDS INSTITUTE
WSIB	WORKPLACE SAFETY AND INSURANCE BOARD

END OF SECTION

1 REFERENCES

- .1 Occupational Health and Safety Act and Regulations for Construction Projects (2000) (Ontario Regulation 213/91, amended by Reg. 631/94, & Reg. 145/00).
- .2 National Fire Code of Canada (2005)
- .3 Ontario Fire Code (2005)
- .4 Ontario Building Code (2006)

2 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities, facilities and controls in order to execute the work expeditiously. Remove from site all such work after use.

3 VEHICULAR ACCESS & PARKING

- .1 Provide and maintain adequate access to project site.
- .2 Build and maintain temporary access roads where indicated or required, and provide snow removal during period of work.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads. Maintenance shall include regular snow removal if not provided under separate contract, and regular power washing to remove mud and dirt.
- .4 Where site access for construction vehicles necessitates use of public roads, remove mud and dirt from such roads where contaminated by construction vehicles.
- .5 Traffic Control: Provide and maintain flag persons, traffic signals, barricades and flares, lights, or lanterns as required to perform the work and protect the public.
- .6 Construction Parking
  - .1 Parking for construction equipment vehicles will be limited to the site or immediate areas of work.
  - .2 Parking for Contractors' and Sub-contractors' personal vehicles will be limited to Construction Site provided it does not constitute a safety hazard nor disrupt the performance of Work.

4 TEMPORARY UTILITIES

- .1 Temporary Electricity and Lighting
  - .1 Arrange, pay for and maintain temporary electrical power supply in accordance with governing regulations and ordinances.
  - .2 Install temporary facilities for power such as pole line and underground cables to approval of local power supply authority.
  - .3 Electrical power and lighting systems installed under this contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage. Replace lamps which have been used more than a period of 3 months.

- .4 Provide temporary lighting in all areas of construction, to the minimum requirements of the Occupational Health and Safety Act, and minimum requirements specified herein.
- .2 Temporary Water Supply
  - .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.
  - .2 Permanent water supply system installed under this contract can be used for construction requirements provided that guarantees are not affected thereby. Make good damage.
- .3 Temporary Heating and Ventilating
  - .1 Provide and maintain all temporary heat and ventilation necessary during construction, including cost of installation, fuel, operation, attendance and maintenance. Use of direct-fired heaters discharging waste products into work areas will not be permitted unless prior approval is given by Consultant.
  - .2 Provide temporary heat and ventilation in enclosed areas as required to:
    - .1 Facilitate progress of work.
    - .2 Protect work and products against dampness and cold.
    - .3 Prevent moisture condensation on surfaces.
    - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
    - .5 Provide adequate ventilation to meet health regulations for safe working environment.
  - .3 Maintain minimum temperature of 10°C or higher where construction is in progress and maintain until acceptance of structure by Consultant.
  - .4 Ventilating
    - .1 Prevent hazardous accumulation of dust, fumes, mists, vapours or gases in areas occupied during construction.
    - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
    - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
    - .4 Ventilate storage spaces containing hazardous or volatile materials.
    - .5 Ventilate temporary sanitary facilities.
    - .6 Continue operation of ventilation and exhaust system for a time after cessation of work process, to assure removal of harmful elements.
  - .5 Maintain strict supervision or operation of temporary heating and ventilating equipment.
    - .1 Conform with applicable codes and standards.
    - .2 Enforce safe practices.
    - .3 Prevent abuse of services.

- .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
  
  - .6 The permanent HVAC systems of the building, or portions thereof, may not be used during construction.
- 5 CONSTRUCTION FACILITIES
- .1 Field Office
    - .1 Provide minimum 3000mm x 10,000mm field office and furnish with desk, drawing layout table, filing cabinet, and coat hooks.
    - .2 Provide minimum 750 Lx lighting level.
    - .3 Heat and cool to maintain 22°C inside temperature.
    - .4 Provide 2 operable windows for cross ventilation, or air condition.
    - .5 Provide meeting table and seating for minimum 12 persons.
  - .2 Temporary Communication
    - .1 Provide and pay for temporary communication systems to be installed in Field Office.
    - .2 Provide hard wire and wireless internet access.
    - .3 Cellular telephones are acceptable. Pay telephone is not acceptable.
  - .3 Equipment, Tools and Materials Storage
    - .1 Provide adequate weather tight enclosures with raised floors, for storage of materials, tools, and equipment, which are subject to damage by weather.
    - .2 Temporary enclosures required by sub-trades as workshops shall be provided by those trades.
  - .4 Site Storage and Overloading
    - .1 Confine the Work and the operations of employees to limits indicated by the Contract Documents. Do not unreasonably encumber the premises with products.
    - .2 Do not load or permit to be loaded any part of the Work with a weight or force that will endanger the Work.
  - .5 Sanitary Facilities
    - .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances. Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition. Where portable toilet facilities are provided, empty and sanitize such facilities on a weekly basis, or more frequently if required.
    - .2 Permanent new facilities shall not be used by the Contractor.



**6 CONSTRUCTION SAFETY MEASURES**

- .1 The Contractor agrees that the Board is not to be understood as the employer to any Contractor nor to such Contractor's personnel or staff for any work, services, or supply of any products or materials that may be awarded as a result of this Call for Bid document. The Contractor herewith agrees to be the "Constructor" as defined in the Occupational Health and Safety Act.
- .2 Observe all construction safety measures as required by the General Conditions of the Contract, Act and Regulations for Construction Projects (2000) (Ontario Regulation 213/91, amended by Reg. 631/94, & Reg. 145/00) and by all authorities having jurisdiction, provided that in case of conflict or discrepancy, the more stringent requirements shall apply.
- .3 Provide applicable spare safety equipment such as helmets, safety glasses, and harnesses, and enforce their use by Consultants, the Owner, their representatives and any authorized visitors to the site.
- .4 Provide and maintain fences, gates and locks, covered walkways, guard rails, barriers, night lights, and appropriate warning signage as required for the protection of the public, and of public and private property; as required by the General Conditions of the Contract, the Occupational Health and Safety Act and Regulations for Construction Projects, and by all authorities having jurisdiction. Erect and maintain sturdy railings around shafts, and the like, to protect workers and the public from injury.
- .5 Workplace Hazardous Materials Information System
  - .1 Comply with all requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets.
  - .2 Include copies of all WHMIS data sheets in Operations and Maintenance Manuals.

**7 CONSTRUCTION AIDS**

- .1 Falsework
  - .1 Design and construct falsework in accordance with CSA S269.1.
- .2 Scaffolding
  - .1 Design, construct and maintain scaffolding in accordance with CSA S269.2.
  - .2 Erect scaffolding independent of walls. Remove promptly when no longer required.
- .3 Hoisting
  - .1 Provide, operate and maintain hoists or cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for use thereof.
  - .2 Hoists or cranes shall be operated by qualified operator.

8 TEMPORARY BARRIERS & ENCLOSURES

- .1 Construction Isolation Fencing
  - .1 Erect isolation fencing around perimeter of construction areas to protect the public, workers, and the public from injury.
  - .2 Construction Isolation Fencing shall consist of:
    - .1 Temporary modular welded wire mesh fencing, minimum 1828 x 2440mm high, by CanFence Rentals Ltd., or equivalent.
- .2 Provide lockable gates within hoarding / fencing for access to site by workers and vehicles.
- .3 Provide barriers around trees and planting beds designated to remain. Protect from damage.
- .4 Enclosure of Structure
  - .1 Provide temporary weather tight enclosures and protection for exterior openings until permanently enclosed.
  - .2 Erect enclosures to allow access for installation of materials and working inside enclosure.
  - .3 Erect enclosures to withstand wind pressure and snow loading.
  - .4 Close off floor areas where walls are not finished; seal off other openings; enclose building interior work area for temporary heat.
- .5 Dust Control
  - .1 Provide dust tight screens or partitions to localize dust generating activities, and for the protection of workers, or finished areas of Work.
  - .2 Dust screens shall consist of, as a minimum, 0.15mm thick fire retardant polyethylene sheets secured to appropriate framing and sealed at all joints and at perimeter to prevent migration of dust
    - .1 Poly sheet: Polytarp, Super Six by Polytarp Products or approved alternative.
  - .3 Maintain and relocate protection until such work is complete.
  - .4 Provide dust catching walk-off matting, at all construction entrances.
- .6 Security Measures
  - .1 Where progress of construction reaches point where building exterior is fully enclosed, provide construction cylinders for doors, and secure building against intrusion. Where installation of fixtures and equipment, or storage of materials and equipment, inside the building has begun prior to installation of exterior windows and doors, provide temporary plywood enclosures for window and door openings to prevent intrusion until permanent closures are in place.
  - .2 Extent of security services shall be at the sole discretion of the Contractor (except as noted in item .3 below) and all costs incurred shall be paid for by

the Contractor. Note that the fit, finish and new appearance of the finished building will not be compromised to accommodate temporary security provisions. Materials, products, finishes, etc. damaged due to vandalism are to be restored and/or replaced to an as-new condition.

- .3 Commencing at a date which is four (4) months prior to the scheduled date for Substantial Performance, Contractor shall arrange and pay for the provision of "after hours" manned security at the project site. Security shall provide surveillance and oversight of the building and site areas, during all times when the Contractor's construction personnel are not in attendance. Continue services until time of substantial completion.

.7 Site Signs and Notices

- .1 Maintain approved signs and notices in good condition for duration of project, and dispose of off-site on completion of project or earlier if directed by Consultant.
- .2 No other signs or advertisements of any description except notices regarding safety and instruction, shall be put up around the building, or site, without the approval of the Consultant.

9 TEMPORARY CONTROLS

.1 Drainage

- .1 Refer to Section 01 57 19 – Temporary Environmental Controls and Site Grading and Servicing Drawings.

.2 Tree and Plant Protection

- .1 Refer to Section 01 57 19 – Temporary Environmental Controls and Landscape Drawings.

END OF SECTION

- 1 REFERENCES
  - .1 National Building Code of Canada (2005)
  - .2 National Fire Code of Canada (2005)
  - .3 Ontario Fire Code (2007)
  - .4 Guidelines for Maintaining Fire Safety during Construction in Existing Buildings, (10/31/88) Ontario Ministry of the Solicitor General, Office of the Fire Marshal.
  - .5 Ontario Building Code (Regulation 350/06)
  
- 2 FIRE SAFETY
  - .1 Fire Fighting Equipment
    - .1 Provide and maintain in working order, ULC labelled, 9kg 4A 60BC type fire extinguishers, and locate in prominent positions to approval of authorities having jurisdiction.
  
  - .2 Fire Department Access
    - .1 Provide and maintain fire access routes as designed, as soon as construction sequence will allow. Access routes must have compacted granular subbase, and base in place before superstructure of building may proceed.
  
    - .2 Construction activities must not obstruct access routes designated for fire department equipment. If necessary that existing access be obstructed or deleted, alternative access, acceptable to the fire department, must be provided prior to commencement of construction, in accordance with Ontario Building Code location and design criteria for required access routes.
  
  - .3 Control of Combustible Materials
    - .1 The stockpiling of construction materials adjacent to the existing building must be carefully controlled in accordance with the Ontario Fire Code. Materials stored, and their proximity to, equipment used in construction may create a fire hazard. Control of combustibles on a construction site is regulated under the Occupational Health and Safety Act.
  
  - .4 Hot Work
    - .1 Conform to the requirements of the Occupational Health and Safety Act – Regulations for Construction Projects.
  
    - .2 Provide all necessary guards and barriers to protect workers, property, and the public when performing hot work such as torching, cutting or coring. Protect all adjacent combustible materials.
  
    - .3 Provide a "Fire Watch" for a minimum of 3 hours after each instance of discontinuing hot work.

END OF SECTION

1 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

2 SUBMITTALS

- .1 Submittals: in accordance with Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to Site, submit Environmental Protection Plan for review and approval by Consultant  
Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan: include:
  - .1 Name(s) of person(s) responsible for ensuring adherence to Environmental Protection Plan;
  - .2 Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from Site;
  - .3 Name(s) and qualifications of person(s) responsible for training site personnel;
  - .4 Descriptions of environmental protection personnel training program;
  - .5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial and Municipal laws and regulations;
  - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on Site;

- .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff;
- .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas;
- .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance;
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris;
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off-site;
- .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on Site; identifies intended actions to prevent introduction of such materials into air, water or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials;
- .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water and water used in flushing of lines;
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands;
- .15 Pesticide treatment plan: to be included and updated, as required.

**3 FIRES**

- .1 Fires and burning of rubbish on Site is strictly prohibited.

**4 DISPOSAL OF WASTES**

- .1 Burying of rubbish and waste materials on Site is strictly prohibited.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

5 DRAINAGE & EROSION CONTROL

- .1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan: include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .2 Storm Water Pollution Prevention Plan (SWPPP) may be substituted for erosion and sedimentations control plan.
- .3 Provide temporary drainage and pumping as necessary to keep excavations and Site, free from water.
- .4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .6 Provide and maintain temporary drainage and pumping as necessary to keep excavations and site free from excess water.
- .7 Provide silt fencing at site perimeters and where required by local authorities to prevent contamination of adjoining properties from silt and water drainage.

6 TREE AND PLANT PROTECTION

- .1 Protect existing trees and plants on all adjacent properties, where in close proximity to construction activities, or where construction access passes within 3m of trees or plants, whether indicated on drawings or not.
- .2 Conform to all local By-Laws regarding tree preservation and protection.
- .3 Protect existing trees and plants on site as indicated.
- .4 Restrict tree removal to those designated by Consultant. Wrap in burlap trees and shrubs adjacent to construction work, storage areas and trucking lanes. Encase trees and shrubs with protective wood framework from grade level to height of 2134mm.
- .5 Protect roots to minimum 1m beyond dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones of protected trees. Minimize stripping of topsoil and vegetation.

- .6 The Minimum Tree Protection Zone will be the drip line. Within this tree protection zone there will also be no construction activity including but not limited to no root cutting, no alteration or disturbance to existing grades of any kind, no changes to the grade by adding fill, excavating or scraping, no storage of construction materials or equipment, no stockpiling of soil, debris or construction waste, & no movement or storage of heavy vehicles or equipment. Tree protection barriers must be included and priced as part of the project. For short term project (up to 2 months), standard T-bars and plastic safety fence can be used. For a longer term project, use 10 gauge chain link fence and standard T-bars. In all cases, standard T-bars should not be spaced more than 6 to 7 feet apart. These protection barriers must be erected before the project starts, must be maintained throughout the project, and taken down when final inspection and signoffs are completed.
- 7 **WORK ADJACENT TO WATERWAYS/DRAINAGE DITCHES**
    - .1 Do not operate construction equipment in waterways.
    - .2 Do not use waterway beds for borrow material.
    - .3 Do not dump excavated fill, waste material or debris in waterways.
    - .4 Design and construct temporary crossings to minimize erosion to waterways.
    - .5 Do not skid construction materials across waterways.
    - .6 Avoid indicated spawning beds constructing temporary crossings of waterways.
- 8 **POLLUTION CONTROL**
    - .1 Maintain temporary erosion and pollution control features installed under this Contract.
    - .2 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.
    - .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.
- 9 **HISTORICAL / ARCHAEOLOGICAL ARTIFACTS**
    - .1 In the event that buried archaeological remains are encountered on the property during construction activities, the Heritage Operations Unit of the Ministry of Tourism and Culture be notified immediately.
    - .2 In the event that human remains are encountered during construction, the proponent should immediately contact both the Ministry of Tourism and Culture, and the Registrar or Deputy Registrar of Cemeteries at the Cemeteries Regulation Unit, Ministry of Government Services, (416) 326-8404.



10 NOTIFICATION

- .1 Consultant will notify Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan. Contractor shall, after receipt of such notice, inform Consultant of proposed corrective action and take such action for approval by Consultant.
- .2 Consultant will issue stop order of Work until satisfactory corrective action has been taken.
- .3 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

END OF SECTION

1 PRODUCT OPTIONS

- .1 Provide products specified under individual specification sections. Where Specification lists two or more products, or two or more manufacturers of the same product, the Contractor may select one of the listed products or manufacturers. Confirm selection of products and manufacturers when requested by the Consultant.
- .2 When only one product or manufacturer is listed in the specifications, it is intended that only that product or manufacturer is acceptable.

2 PRODUCT SUBSTITUTION PROCEDURES

- .1 Substitution Procedures During Construction
  - .1 Products may only be substituted during the Construction period for one or more of the following reasons:
    - .1 Insolvency of the product manufacturer.
    - .2 Inability of the manufacturer to provide the product(s) in the timeframe required to maintain the construction schedule.
    - .3 Product specified has been discontinued.
    - .4 Substitution proposed offers better performance than that specified, at no additional cost.
    - .5 Substitution offers equivalent performance to that specified, at a reduced cost to the Owner (reduction in Contract Price).
  - .2 Items 2.1.1.2, and 2.1.1.3 will require a letter from the manufacturer, confirming their inability to provide the products specified, or inability to meet the schedule.
  - .3 Items 2.1.1.4, and 2.1.1.5 will be at the discretion of the Owner.

3 AVAILABILITY

- .1 Immediately upon signing Contract, review Product delivery requirements, and identify lead times for supply of all Products. If lead times in supply of Products may affect the Construction Schedule, notify the Consultant in order that appropriate action may be authorized in ample time to prevent delay in performance of the Work.
- .2 The Contractor shall order Products and materials in a timely fashion so as to ensure that delivery of such Products and materials shall coincide with the Construction Schedule. Failure of the Contractor or their Subcontractors to order Products and materials in a timely fashion, shall not be cause for substitution in accordance with the criteria set out under Article 2 – Product Substitution Procedures.
- .3 In the event of failure to notify the Consultant of Product delivery problems at the commencement of the Work, and should it appear that the Work may be delayed for such reason, the Consultant reserves the right to substitute more readily available Products of similar character of their choosing, at no increase in Contract Price.

4 REFERENCE STANDARDS

- .1 Within the specifications, reference standards are identified. Conform to these standards, in whole or part, as specifically requested.

- .2 If there is question as to whether any product or system is in conformance with applicable standards, the Consultant reserves the right to have such products or systems tested to prove or disprove conformance.
  - .3 The cost for such testing will be borne by the Contractor in the event of non-conformance.
  - .4 Conform to latest date of issue of referenced standards in effect on date of submission of bids, except where a specific date of issue is specifically noted.
- 5 **PRODUCT TRANSPORTATION & DELIVERY**
- .1 Transportation and delivery costs of Products required in the performance of the Work, are included in the Contract Price.
  - .2 Transportation and delivery costs of Products supplied by the Owner will be paid for by the Owner. Unload, handle, and store such Products on site.
  - .3 Products must be appropriately crated, skidded, boxed, shrink-wrapped, or otherwise packaged to protect such products from damage during shipment. Products which arrive at the site in a damaged condition must be rejected and returned to the supplier/manufacturer for immediate replacement.
  - .4 Advise the Owner 30 days in advance of anticipated delivery dates for materials and equipment supplied by the Owner.
- 6 **PRODUCT STORAGE, HANDLING AND PROTECTION**
- .1 Handle and store Products in a manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions.
  - .2 Store packaged or bundled Products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in the Work.
  - .3 Store products subject to damage from weather in weatherproof enclosures.
  - .4 Store cementitious products clear of earth or concrete floors, and away from walls.
  - .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
  - .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
  - .7 Store paints in a heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
  - .8 Remove and replace damaged Products at own expense and to the satisfaction of the Consultant.

**7 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in the specifications, install or erect Products in accordance with manufacturer's printed instructions. Do not rely on labels or enclosures provided with Products. Obtain written instructions directly from manufacturers.
- .2 Notify Consultant in writing, of conflicts between the specifications and manufacturer's instructions, so that Consultant may establish correct course of action.
- .3 Improper installation or erection of Products, due to failure in complying with these requirements, authorizes the Consultant to require removal, replacement where necessary, and re-installation at no increase in Contract Price.

**8 FASTENINGS**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in the affected specification Section.
- .4 Space anchors within limits of load limit or shear capacity and ensure that they provide positive permanent anchorage. Wood or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.
- .7 Obtain Consultant's approval before using explosive actuated fastening devices.

**9 QUALITY OF MATERIALS**

- .1 Products, materials, equipment and articles (referred to as Products throughout the specifications) incorporated in the Work shall be new, not damaged or defective, and of the best quality (compatible with specifications) for the purpose intended. If requested, furnish evidence as to type, source and quality of Products provided.
- .2 Products relying on uniformity of colour and pattern for appearance, such as resilient flooring, carpeting, fabrics, and vinyl wallcovering, shall be from one dye lot for the project. All products delivered to the site must be labeled as to dye lot, or production run number, as well as production date.
- .3 Defective products, whenever identified prior to the completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is a precaution against oversight or error. Remove and replace defective Products at own expense and be responsible for delays and expenses caused by rejection.

- .4 Should any dispute arise as to the quality or fitness of Products, the Consultant may request additional testing based upon the requirements of the Contract Documents, to confirm acceptability of products or materials. Refer to Article 10 - Defective Materials and Work, and Section 01 40 00.
  - .5 Unless otherwise indicated in the specifications, maintain uniformity of manufacture for any particular or like item throughout the building.
  - .6 Permanent labels, trademarks and nameplates on Products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.
- 10 DEFECTIVE MATERIALS AND WORK
- .1 Where evidence exists that defective work has occurred, or that work has been carried out incorporating defective products, the Consultant may have independent tests, inspections, or surveys performed in order to determine if work is defective.
  - .2 Tests, inspections, or surveys carried out under these circumstances will be made at the Contractor's expense in the event of defective work, or at the Owner's expense where work is in conformance. Where tests incorporate a number of samples, payment will be assessed, by the Consultant, based on the ratio of conforming to non-conforming results. This does not include re-testing of soil compaction during placement, where evidence exists of non-conformance with the Contract documents, but rather only if re-testing is called for after completion of compaction.
- 12 WARRANTIES & GUARANTEES
- .1 Guarantee and warrant all products and labour forming part of the Work for minimum one year unless extended warranties are otherwise specified herein.
  - .2 Guarantee and warrant products and assemblies for the specified periods of time where in excess of the Contract Warranty, as specified within their respective sections. The following list of extended warranties shown here are for information. All extended warranties must be supplied whether listed below or not. Refer to Specifications inclusive for requirements.
    - .1 Carpet – Section 09 68 00 – 10 years
    - .2 Painting – Section 09 91 00 – 2 years
    - .3 Concrete Walks and Curbs – Section 32 16 15 – 2 years
  - .3 Warranties and Guarantees shall commence at Date of Substantial Performance of the Contract as certified by the Consultant.
  - .4 Warranties and Guarantees shall be original copies, printed on company letterhead, or on a standard company warranty certificate, bearing the name of the company.
  - .5 Warranties and Guarantees shall indicate:
    - .1 Name of the Principal (the Manufacturer/Subcontractor),
    - .2 Name of the Obligee (the Owner),
    - .3 Name and address of Project,

- .4 Commencement date (Date of Substantial Performance),
- .5 Duration of warranty or guarantee,
- .6 Clear statement of what is included, and what if any exclusions there are,  
and
- .7 Signature of Principal's representative having signing authority.

END OF SECTION

- 1 EXAMINATION
  - .1 Acceptance of Conditions
    - .1 The General Contractor shall examine all existing or pre-determined conditions, prior to commencing work in that area, and report to the Consultant all conditions unacceptable for work to proceed. Commencement of work shall imply acceptance of conditions as is.
    - .2 Subcontractors shall examine all existing or pre-determined conditions affecting their portion of the Work, prior to commencing such work, and report to the Contractor all conditions unacceptable for work to proceed. Commencement of work shall imply acceptance of conditions as is.
- 2 PREPARATION
  - .1 Field Engineering
    - .1 Locate, confirm and protect control points prior to starting the Work. Preserve permanent reference points during construction.
    - .2 Establish reference lines and elevations. Locate and lay out by instrumentation.
  - .2 Records
    - .1 Maintain a complete, accurate log of control points and survey work as work progresses.
- 3 CUTTING AND PATCHING
  - .1 Submit a written request in advance, for approval of cutting or alteration which affects:
    - .1 Structural integrity of any element of Project.
    - .2 Integrity of weather-exposed or moisture-resistant elements.
    - .3 Efficiency, maintenance, or safety of any operational element.
    - .4 Visual qualities of sight-exposed elements.
    - .5 Work of Owner or separate contractor.
  - .2 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
  - .3 After uncovering, inspect conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.
  - .4 Perform cutting, fitting and patching, including excavation and fill, to complete the Work. Perform work to avoid damage to other work.
  - .5 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
  - .6 Cut rigid materials using power saw or core drill. Pneumatic or impact tools not allowed.
  - .7 Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetration of fire-rated wall, ceiling, or floor construction, completely seal voids with fire stopping material, full thickness of construction element.

- .8 Refinish surfaces to match adjacent finishes; for continuous surfaces refinish to nearest intersection; for an assembly, refinish entire unit.
  - .9 Provide all openings greater than 200mm in non-structural elements of work for penetrations of mechanical and electrical work. Mechanical and Electrical Subcontractors shall provide all sleeves and locations for sleeves. The cost of all cutting and patching required by Mechanical and Electrical Subcontractors shall be paid for by those trades.
  - .10 Ensure that all cutting and patching work, including that by Mechanical and Electrical Subcontractors, is properly performed by the respective trades skilled in that line of work. Restore work with new products in accordance with Contract Documents.
- 4 LOCATION OF EQUIPMENT AND FIXTURES
- .1 Location of mechanical and electrical equipment, fixtures and devices indicated or specified, are to be considered as approximate. Final location of such items will be determined on site, based on integration with structural and architectural elements, and as required by coordination with other trades. In the event of a conflict, final determination of location of these items rests with the Consultant.
  - .2 Prepare and submit for review by the Consultant, interference field drawings, to indicate relative position of various services and equipment, at the following locations as a minimum:
    - .1 Under all rooftop mechanical units.
    - .2 At locations of all major ductwork, piping, and conduit crossovers.
    - .3 Where ductwork passes under major structural elements.
  - .3 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.
  - .4 Request a review of items by Consultant once rough-in is underway, prior to final installation, and obtain approval for actual locations.
- 5 CONCEALMENT
- .1 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas, except where indicated otherwise.
  - .2 In existing building, all pipes shall be enclosed in shafts. All conduit shall be placed in accordance with approved conduit shop drawings.
- 6 LIGHTING FIXTURES AT SUSPENDED CEILINGS
- .1 Ensure that secure support is provided for lighting fixtures by suspended ceilings, or by separate hangers, or by both.
  - .2 Coordinate the ceiling system and lighting fixture installations to provide adequate support.
  - .3 Submit affidavits with acceptable design information confirming that the installation of the suspended ceiling system and/or separate fixture hangers will provide adequate support for the lighting fixtures without exceeding specified deflection tolerances for the ceiling system.



- .4 Conform to current requirements of the Electrical Safety Authority (ESA).
- 7 EXISTING SERVICES
- .1 Where work involves the interruption of, or connection to existing services, carry out such work as directed by governing authorities, with minimum of disturbance to pedestrian and vehicular traffic.
  - .2 Before commencing work, establish location and extent of service lines in area of work and notify Consultant of findings.
  - .3 Submit schedule to, and obtain approval from Consultant for any shutdown or closure of active service or facility. Adhere to approved schedule and provide notice to affected parties.
  - .4 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
  - .5 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
  - .6 Remove abandoned service lines to distance of 1821mm from foundations. Cap or otherwise seal lines at cut-off points as directed by Consultant.
  - .7 Record locations of maintained, re-routed and abandoned service lines.
- 8 PROTECTION OF WORK IN PROGRESS
- .1 Adequately protect Work completed or in progress. Work damaged or defaced due to failure in providing such protection is to be removed and replaced, or repaired, as directed by the Consultant, at no increase in Contract Price.
  - .2 Prevent overloading of any part of the building. Do not cut, drill or sleeve any load bearing structural member, unless specifically indicated, without written approval of Consultant.
  - .3 Protect finished surfaces with overlays of protective materials such as Kraft paper, cardboard, or plywood, as required for individual applications to provide adequate protection.

END OF SECTION

1 GENERAL

- .1 Conduct cleaning and disposal operations to comply with local ordinances and environmental protection legislation.
- .2 Store volatile wastes in covered metal containers, and remove from premises at end of each working day.
- .3 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

2 CLEANING DURING CONSTRUCTION

- .1 Maintain the Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste material and debris from the work areas and deposit in waste container at the end of each working day.
- .3 Vacuum clean interior areas prior to start of finishing work. Maintain areas free of dust and other contaminants during finishing operations.
- .4 Individual Subcontractors are responsible for the daily clean-up and removal of debris related to, or generated by, their own work. The overall responsibility for project cleanliness rests with the Contractor.

3 WASTE MANAGEMENT

- .1 Audit, separate and dispose of construction waste generated by new construction or by demolition of existing structures in whole or in part, in accordance with Ontario Regulations 102/94 and 103/94 made under the Environmental Protection Act.
- .2 Fires, and burning of rubbish or waste on site is prohibited.
- .3 Burying of rubbish or waste materials, except as specified herein, is prohibited.
- .4 Disposal of waste or volatile materials such as mineral spirits, oil, gasoline or paint thinner into ground, waterways, or sewer systems is prohibited.
- .5 Empty waste containers on a regular basis to prevent contamination of site and adjacent properties by wind-blown dust or debris.

4 FINAL CLEANING OPERATIONS

- .1 Immediately following Date of Substantial Performance, and prior to Owner occupancy of the building or portion of the building affected by the Work, conduct full and complete final cleaning operations.
- .2 Final cleaning operations shall be performed by an experienced professional cleaning company, possessing equipment and personnel sufficient to perform full building cleaning operations.
- .3 Remove all surplus products, tools, construction machinery and equipment not required for the performance of remaining work, and thereafter remove any remaining materials, equipment, waste and debris.

- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .6 Cleaning operations shall include the removal of all stains, spots, scuff marks, dirt, dust, remaining labels, adhesives or other surface imperfections.
- .7 Remove all paint spots or overspray from all affected surfaces.
- .8 Clean and polish all glass and mirrors. Replace broken, scratched or disfigured glazing. Remove remaining manufacturer's and safety "X" labels.
- .9 Clean and polish all finished metal surfaces such as enameled or stainless steel, chrome, aluminum, brass, and bronze.
- .10 Clean and polish all vitreous surfaces such as plumbing fixtures, ceramic tile, porcelain enamel, or other such materials.
- .11 Clean all ceramic tile surfaces in accordance with the manufacturer's instructions, and apply final coat of sealer where specified.
- .12 Clean inside of all millwork and cabinetry.
- .13 Vacuum, clean and dust behind grilles, louvres and screens.
- .14 Sealing and waxing of resilient floor surfaces shall be done by Contractor in accordance with manufacturer's written instructions. Coordinate final cleaning and scheduling of sealing and waxing.
- .15 Broom clean and spray wash all exterior paved surfaces.
- .16 Remove dirt and other disfiguration from exterior surfaces.
- .17 Clean all roofs, gutters, downspouts, areaways, drywells, and drainage systems.
- .18 Clean all equipment and fixtures to a sanitary condition, clean or replace filters of mechanical equipment.

END OF SECTION

- 1 INSPECTION AND DECLARATION PROCEDURES
  - .1 Arrange for, conduct and document final inspections, close-out and commissioning at the completion of the Work in accordance with the Conditions of the Contract (CCDC 2 - 2020), Divisions 00 & 01, Specifications, and as described herein this Section.
  
- 2 SUBSTANTIAL PERFORMANCE
  - .1 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK**
  
  - .2 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 5.8 DEFICIENCY HOLDBACK**
  
- 3 DEFICIENCY REVIEWS POST SUBSTANTIAL PERFORMANCE
  - .1 Following the issuance of the Certificate of Substantial Performance and prior to the Contractor's application for Final Payment and release of any monies retained as "Finishing Holdback", the Contractor shall continue to complete unfinished work and correct deficiencies. At the request of the Contractor, the Consultants shall conduct up to two general deficiency reviews during this period.
  
  - .2 The Final Deficiency Review will be undertaken only if the Contractor has inspected the Work, and states in writing that the unfinished work noted in their application for Substantial Performance has been 100% completed.
  
  - .3 Should further review by Consultants be required due to failure of the Work to comply with Contract Documents or the criteria set out herein, the Owner will deduct amount of Consultant's compensation for re-inspection services from monies owed to the Contractor.
  
- 4 DEFICIENCY HOLDBACK
  - .1 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 5.8 DEFICIENCY HOLDBACK**
  
- 5 LIEN PERIOD AND RELEASE OF BASIC HOLDBACK
  - .1 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 5.4 SUBSTANTIAL PERFORMANCE OF THE WORK - PAYMENT OF HOLDBACK**
  
  - .2 Commencement of Lien Periods
    - .1 The day following the date of publication of Certificate of Substantial Performance shall be the date of commencement of the Construction Lien Period prior to release of basic holdback, unless required otherwise by lien statute of the Place of the Work.
  
    - .2 At the expiry of the Construction Lien period, the Contractor shall make application for Release of Basic Holdback.
  
    - .3 The Consultant shall prepare the Certificate for Payment for release of basic holdback, and promptly upon receipt of the necessary documentation, issue the Certificate for Payment to the Owner.

- 6 FINAL INSPECTION AND PAYMENT
- .1 Refer **General Conditions of the Contract (CCDC 2 - 2020) GC 5.5 FINAL PAYMENT**
  - .2 Submit a signed statement stating following have been performed:
    - .1 Work has been reviewed for compliance with Contract Documents,
    - .2 All deficiencies have been corrected,
    - .3 All unfinished work has been completed, and
    - .4 Work is complete and ready for Final Inspection.
  - .3 When items noted above are completed, the Owner, the Consultants, and the Contractor will perform a final inspection of the Work.
  - .4 If the Work is deemed incomplete, complete outstanding items and request a re-inspection.
  - .5 If the Work is deemed to be complete, the Consultant will issue a Final Certificate for Payment.

END OF SECTION

- 1 OPERATION AND MAINTENANCE MANUALS
  - .1 General
    - .1 Prepare Operation and Maintenance Manual during the course of construction and have completed prior to Date of Substantial Performance.
  - .2 Submission
    - .1 Maintain one copy of the Operation and Maintenance Manual volume(s) for periodic review and comment, as requested by the Consultant during the course of construction.
    - .2 Submit two (2) final hard copies and one (1) USB device with PDF version of all documents of the final completed volume(s) with the application for Substantial Performance.
  - .3 Format
    - .1 Bind data in commercial quality, 219 x 279mm, "D" ring binders, having clear cover and spline pockets.
    - .2 Identify each binder on the cover and spline with the following:  
OPERATION & MAINTENANCE MANUALS  
School Name and Project  
VOLUME \_\_\_\_ OF \_\_\_\_
    - .3 Provide table of contents and index tab sheets for each volume. Itemize and tabulate contents.
    - .4 Provide drawings with reinforced punched binder tab, or insert into clear sleeves in folded format. Group drawings as to content, and index for quick reference.
  - .4 Contents - Each Volume
    - .1 Table of Contents: provide title of Project, Date of submission and names:
      - .1 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;
      - .2 Schedule of products and systems, indexed to content of volume.
    - .2 For each product or system: List names, addresses and telephone numbers of sub-contractors and suppliers, including local source of supplies and replacement parts.
    - .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

- .4 Operation and Maintenance Manuals shall contain, as a minimum, the following information:
    - .1 List of Contents; cross-referenced to each Volume.
    - .2 Contact information for maintenance and repairs
    - .3 Warranty and guarantee certificates
    - .4 Equipment start-up and troubleshooting instructions
    - .5 Equipment schematics & diagrams
    - .6 Catalogue of all maintenance materials and quantities
    - .7 Complete list of Contractor, Subcontractors and suppliers, indicating name, address, telephone & fax numbers, email addresses, name of contact person and description of work done.
    - .8 Complete list of products used in the work, indicating product name and manufacturer for each listing.
    - .9 Copy of Finish Hardware List, complete with all amendments and revisions, if applicable.
    - .10 Schedule of paints and coatings. Include sufficient explanation to fully identify each surface with the applicable paint or coating used. Enclose copy of Colour Schedule.
    - .11 All "reviewed" shop drawings.
    - .12 Maintenance instructions for all finished surfaces.
    - .13 Brochures and cuts of all equipment and fixtures.
    - .14 Operating and maintenance instructions for all equipment.
    - .15 All Warranties and Guarantees required by the Specifications for this Work.
  - .5 Refer to Electrical Specifications for more specific electrical data required beyond the description of this paragraph.
  - .6 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
  - .7 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
- 2 AS-BUILT DRAWINGS
- .1 Record information on a clean set of black line opaque drawings. Consultant will provide two (2) complete sets of printed project drawings, (one complete CADD set on disc) and two (2) complete sets of specifications for the purpose of recording as-built conditions.
  - .2 Maintain as-built drawings on site and update as construction progresses. Allow periodic review by Consultant as requested.
  - .3 Record information concurrently with construction progress. Do not conceal work until required information is recorded.

- .4 Contract drawings and shop drawings: legibly mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.
  - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
  
- 3 **EQUIPMENT AND SYSTEMS**
  - .1 Each Item of Equipment and Each System: include description of unit or system, and component parts. Give function, normal operation characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
  - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
  - .3 Include installed colour coded wiring diagrams.
  - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and any special operating instructions.
  - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
  - .6 Provide servicing and lubrication schedule, and list of lubricants required.
  - .7 Include manufacturer's printed operation and maintenance instructions.
  - .8 Include sequence of operation by controls manufacturer.
  - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
  - .10 Provide installed control diagrams by controls manufacturer.
  - .11 Provide Contractor's coordination drawings, with installed colour coded piping diagrams.
  - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.



- .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
  - .14 Include all test and balancing reports
  - .15 Additional requirements: As specified in individual specification sections.
- 4 MATERIALS AND FINISHES
- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
  - .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
  - .3 Moisture-protection and Weather-exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
  - .4 Additional Requirements: as specified in individual specifications sections.
- 5 MAINTENANCE MATERIALS, SPARE PARTS & TOOLS
- .1 Provide spare parts in quantities specified in individual specification sections. Provide identical items to those installed in the Work.
  - .2 Provide maintenance materials in quantities specified in individual specification sections. Provide identical items of same manufacturer, dye lot or production run as items in the Work.
  - .3 Provide special tools in quantities specified in individual specification sections, and tag items identifying their function and equipment or products to which they are associated.
  - .4 Receive and catalogue all items. Check inventory and include approved listings in Operations and Maintenance Manual.
  - .5 Obtain receipts for delivered products and submit prior to Substantial Performance.
  - .6 Quality
    - .1 Spare parts, maintenance materials and special tools provided shall be new, not damaged or defective, and of the same quality and manufacture as products provided in the Work.
    - .2 If requested, furnish evidence as to type, source and quality of Products provided.
    - .3 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

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- .7 Delivery, Storage, And Handling
    - .1 Deliver all materials required as maintenance materials, spare parts or special tools, to the site, include shipping costs, and store as directed.
    - .2 Store spare parts, maintenance materials and special tools in a manner to prevent damage, or deterioration.
    - .3 Store in original and undamaged containers with manufacturer's seals or labels intact.
    - .4 Store materials subject to damage from severe climatic changes in a climate-controlled, weatherproof enclosure.
    - .5 Store paints and freezable materials in a moderately heated and ventilated room.
  
  - 6 WARRANTIES AND BONDS
    - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
    - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
    - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
    - .4 Start date for all warranties are to be the Date of Substantial Performance, regardless if put into use.
    - .5 Verify that documents are in proper form, contain full information, and are notarized. Co-execute submittals when required.
    - .6 Retain warranties and bonds until time specified for submittal.

END OF SECTION

1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for demolition and removals Work in accordance with the Contract Documents.
- .2 Work included: Requirements for demolishing, salvaging and removing wholly or in part the various items designated on the drawings or required to be removed or partially removed for the receipt of the Work of this Contract, including not necessarily limited to:
  - .1 Alteration and renovations to existing building.
  - .2 Cutting and removing of walls, floors, ceilings, doors and frames, in the existing buildings as indicated on Drawings.
  - .3 Patching, making good openings and chases in walls, floors, ceilings, including the supply and installation of lintels, channels and finishes.
  - .4 Removal of rubbish, debris, demolished fixtures, fitments and items not scheduled to remain the Owner's property, resulting from the demolition and preparatory work.
  - .5 Remove abandoned services such as conduits, pipes, wiring, ducts, fixtures, equipment, etc. where required for the work or indicated on the drawings.
  - .6 Removal of all mechanical items including plumbing fixtures, services etc. where required for the work or indicated on drawings and or where not required to be relocated.
  - .7 Removal of existing electrical items including fixtures, etc. where required for the work or indicated on the drawings and not required to be relocated.
  - .8 Dust control during the operations of the work of this Section.
  - .9 Removal shall mean removal from site and safe disposal in a legal manner.

1.2 **REFERENCES**

- .1 CSA S350-M, Code of Practice for Safety in Demolition of Structures.
- .2 OPSS, Ontario Provincial Standard Specification.

1.3 **SUBMITTALS**

- .1 Where required by Authorities having jurisdiction, submit a Fire Plan to local fire department for review and approval.
- .2 Submit shop drawings, diagrams and details in accordance with the Conditions of the Contract.
- .3 30 calendar days prior to start of demolition and removals Work, submit for review, drawings, diagrams or details showing sequence of disassembly Work and shoring of supporting structures in accordance with authorities having jurisdiction.
- .4 Submit for approval, a plan showing impacts, interruptions and delays to Owners operations.

- .5 Submit to Consultant, details of where rubble, debris and other materials are to be disposed or reused. Include each disposal/reuse site location, operator's name and business address, type of license under which site operates, and criteria used by site to assess suitability of rubble, debris and other materials for disposal.

#### 1.4 **QUALITY ASSURANCE**

- .1 Prepare waste audits, waste reduction workplans, source separation programs and recycling programs as required by jurisdictional authorities and update programs and implement such programs as required.
- .2 Perform the work of this section in accordance with the 'Environmental Protection Act' including Ontario Regulation 102 and the 'Environmental Assessment Act' including Ontario Regulation 103.
- .3 Conform to Fire Code, Regulation under the Fire Marshals Act.
- .4 The demolition contractor must engage a registered professional engineer who holds a certificate of authorization and an appropriate level of liability insurance to prepare demolition procedures.
- .5 As part of the contract requirements, the engineer for the demolition contractor should be required to sign the general review commitment required by city building departments.

#### 1.5 **SITE CONDITIONS**

- .1 Interruptions to Owners operations will not be permitted.
- .2 Perform operations, machine and equipment movements, deliveries and removals at time or times that will permit uninterrupted operations in and around structures, including parking, deliveries, and Site access and egress.

#### 2 **Products**

##### 2.1 **MATERIALS**

- .1 All materials requiring removal shall become the Contractor's property and shall be removed and disposed of from the site, as the work progresses, unless indicated otherwise.
- .2 Salvaged material:
  - .1 Salvage and stockpile Products, materials, and equipment as specified herein, indicated on Site or indicated on drawings.
  - .2 Coordinate items to be salvaged with Consultant.
  - .3 Salvaged materials shall not be chipped, cracked, split, stained or damaged.
  - .4 Store items off of moist surfaces.

3 Execution

3.1 **GENERAL**

- .1 Clean up rubble and debris, resulting from Work promptly and dispose at end of day or place in waste disposal bins. Empty bins on regular basis.
- .2 Stockpiling of rubble, debris, and surplus Products on Site will not be permitted.
- .3 Remove, handle and transport Products indicated to be salvaged and stored for future use. Transport Products to storage area(s) designated by Consultant. Perform Work to prevent any damage to Products during removal and in storage. Products damaged during removal, will be inspected by Consultant. Consultant will determine extent of damage and accept or refuse Products.
- .4 List and description of items to be removed and stored or reused:
  - .1 Items as indicated on the drawings or by the Consultant.
- .5 Communicate Dust Control Plan procedures to all appropriate personnel on site and their head offices and due diligence measures to be maintained to control all fugitive emissions.

3.2 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.3 **PRESERVATION OF REFERENCES**

- .1 Record location and designation of survey markers and monuments located within demolition area, prior to removal. Store and restore markers and monuments upon completion of Work or relocate as directed by Consultant.

3.4 **PROTECTION**

- .1 Prevent movement or damage of adjacent structures, services, walks, paving, trees, landscaping, and parts of existing structure to remain. Supply and install bracing, and shoring as required. Make good damage caused by demolition to acceptance of Consultant.
- .2 Protect adjacent structures and property against damage which might occur from falling debris or other causes. Repair or replace damage caused from Work of this Section to acceptance of Consultant.
- .3 Do not interfere with use of adjacent structures and Work areas. Maintain free, safe passage to and from adjacent structures and Work areas.

- .4 Take precautions to support affected structures. If safety of structure being demolished, adjacent structures or services are endangered, cease demolition operations and take necessary action to support endangered item. Immediately inform Consultant. Do not resume demolition until reasons for endangering have been determined and corrected and action taken to prevent further endangering.
- .5 If movement or settlement occurs, install additional bracing and shoring as necessary and make good damage to acceptance of Consultant.
- .6 Hang tarpaulins where debris and other materials are lowered. Build in around openings with wood and plywood at locations used for removal of debris and materials.
- .7 Prevent debris from blocking surface drainage system, elevators, mechanical, and electrical systems which are required to remain in operation.
- .8 Pay particular attention to prevention of fire and elimination of fire hazards which would endanger Work or adjacent structures and premises.
- .9 Supply and install adequate protection for materials to be re-used, set on ground and prevent moisture pick-up. Cover stockpiles of materials with tarpaulins.
- .10 Close off access to areas where demolition is proceeding by barricades and post warning signs.
- .11 Supply, install and maintain legal and necessary barricades, guards, railings, lights, warning signs, security personnel and other safety measures, and fully protect persons and property.
- .12 Dust partitions:
  - .1 Prior to demolition Work proceeding in existing structures, temporarily enclose Work areas, access and supply and install dustproof partitions. Design partitions to prevent dust and dirt infiltration into adjoining areas, prevent ingress of water, and to resist loads due to wind.
  - .2 Prevent dust, dirt and water from demolition operations entering operational areas.
  - .3 Adjust and relocate partitions as required for various operations of Work.
  - .4 Upon completion of Work, remove and dispose of partitions from Site.
- .13 Blasting is not permitted.

### 3.5 **PREPARATION**

- .1 Disconnect and/or re-route electrical data, communication and telephone service lines entering structures to be demolished. Remove abandoned lines as indicated on Contract Drawings. Post warning signs on electrical lines and equipment which is required to remain energized.
- .2 Disconnect and cap designated mechanical services:

- .1 Natural gas supply lines: As indicated on drawings, to be removed by qualified workers in accordance with gas company instructions.
- .2 Sewer and water lines: Remove and dispose of as indicated on Contract Drawings.
- .3 Other underground services: Remove and dispose of as indicated on Contract Drawings.
- .3 Disassemble and remove mechanical equipment, ductwork and piping complete with supports and associated components.
- .4 Do not disrupt active or energized utilities traversing premises.
- .5 Perform rodent and vermin control to comply with health regulations.

### 3.6 **CONCRETE CUTTING AND CORING**

- .1 Prior to cutting or coring any concrete slab, suspended or on grade, or any concrete beam, investigate by telemetrically scanning the element for presence of embedded services (piping, cabling, conduit, etc.), and for locations of reinforcing steel in suspended concrete slabs and beams.
- .2 Acceptable telemetric scanning systems include:
  - .1 X-Ray scanning of suspended slabs and for concrete beams.
  - .2 (Ground-penetrating) radar for slab on grade, for suspended slabs and for concrete beams.
- .3 Magnetic radio scanners not acceptable for telemetric scanning.
- .4 The term x-rays include gamma ray methods, and procedures that use electrically generated x-rays.
- .5 Where x-rays employed:
  - .1 Provide Owner minimum 5 working days advance notice of scanning time in order to provide sufficient advance notice to personal that may be affected by the x-ray work.
  - .2 Conform to Owner's radiation protection requirements prior to start of any x-ray work.
- .6 Provide Owner and Consultant with inspection agency's written report, summarizing investigations and conclusions.
- .7 Obtain Consultant's direction where investigations reveal that cutting or coring required in Contract would cut or damage embedded services, or cut or damage reinforcing steel in suspended concrete slabs or beams.
- .8 Execute cutting and coring to prevent damage to all embedded services. Make good all damage arising from cutting embedded services.
- .9 Execute cutting and coring to prevent damage (cutting in whole or in part) reinforcing steel in suspended concrete slabs with Consultant's prior authorization.

- .10 Make good all damage arising from cutting reinforcing steel in suspended concrete slabs and beams.

### 3.7 **DEMOLITION**

- .1 Perform demolition with extreme care. Confine effects of demolition to those parts which are to be demolished.
- .2 Perform Work and prevent inconvenience to persons outside those parts which are to be demolished.
- .3 Carry out demolition in accordance with the requirements of CSA S350-M.
- .4 Demolish parts of structure to permit construction of addition and remedial Work as indicated.
- .5 Demolition shall proceed safely in systematic manner from roof to grade and as necessary to accommodate remedial work indicated. Work on each floor level shall be complete before commencing work on supporting structure and safety of its supports are impaired. Parts of building which would otherwise collapse prematurely shall be securely shored. Walls and piers shall not be undermined.
- .6 Do not overload floor or wall with accumulations of material or debris or by other loads.
- .7 Perform Work to minimize dusting. Keep Work area wetted down with fog sprays to prevent dust and dirt rising. Supply and install temporary water lines and connections that may be required. Upon completion, remove installed temporary water lines. Use covered chutes, water down.
- .8 Do not sell or burn materials on Site.
- .9 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as Work progresses.
- .10 At end of day's Work, leave Work in safe condition with no part in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements.
- .11 Drainage and sewer system protection:
  - .1 Ensure that no dust, debris or slurry enters drainage and sewer system on Site.
  - .2 Remove and dispose of debris and slurry promptly from Site.
  - .3 Comply with City of Barrie Sewer Use By-Law.
- .12 Concrete:
  - .1 Demolish concrete by methods which avoid impact loads on items which are not to be demolished.



- .2 Where only part or parts of a concrete floor, wall, roof, foundation or other items are to be demolished, use saw cuts to isolate areas which are to be demolished except where existing reinforcing steel is to be left in place. Prior to such isolating, install suitable support to prevent premature movement of area(s) being isolated and undesirable transfer of loads as cutting progresses. If necessary remove area(s) to be demolished by successively isolating small sections.
- .3 Where reinforcing steel is to be left in place, use saw cuts from surface of concrete around perimeter(s) of area(s) to be demolished, chip concrete without damaging reinforcing steel. Retouch damaged epoxy coating of existing reinforcing steel.
- .13 **Masonry:**
  - .1 Demolish block or brick walls in small sections of not more than 2 m<sup>2</sup>. Do not permit masonry to fall in mass from one level to another.
  - .2 Where only part of a wall is to be demolished, install adequate support for adjacent parts.
  - .3 After removal of masonry walls, grind smooth floors ready for new floor finish.
- .14 Cut openings through existing walls, partitions, roofs and floors. Establish exact location of steel reinforcing in existing concrete slabs or walls before cutting. Be responsible for damage to existing steel reinforcing and be liable for structural failure. Make good surfaces disturbed with materials to match existing.
- .15 Where doors are scheduled to be removed, include removal of door frames and door hardware.
- .16 Remove interior partitions, fittings, fixtures and accessories as indicated on drawings. Partitions and walls shall be removed full height to structure above.
- .17 Remove interior finishes, such as ceiling and floor finishes, where new finishes are indicated on Contract Drawings.
  1. Removal of adhesive applied finishes shall include complete removal to substrate including adhesive. Take adequate care to prevent damage to substrate.

### 3.8 **RECYCLING**

- .1 Whenever possible, all materials shall be recycled. Pay all costs for this work.
- .2 Deliver to nearest appropriate recycling depot all materials accepted for recycling by Authorities having jurisdiction over the Place of Work, including but not limited to cardboard, paper, plastic, aluminum, steel, and glass.
- .3 Deliver to nearest appropriate depot all scrap and excess gypsum wallboard for recycling of this material.
- .4 Ceiling tiles to be stacked on skids and wrapped for recycling and delivered to nearest appropriate recycling depot.

- .5 Base building light fixture lamps to be placed on skids and wrapped for recycling and delivered to nearest appropriate recycling depot.

3.9 **DISPOSAL OF MATERIALS**

- .1 Remove from Site, rubble, debris, and other materials resulting from demolition and removals Work in accordance with Authorities having Jurisdiction, except where specified or indicated on Contract Drawings to be reused.
- .2 Conform to requirements of municipality's Works Department regarding disposal of waste materials.
- .3 Materials prohibited from municipality waste management facilities shall be removed from Site and dispose of at recycling companies specializing in recyclable materials.

END OF SECTION

**Part 1            General**

**1.1                REFERENCES**

- .1    Abbreviations and Acronyms:
  - .1    Portland Cement: hydraulic cement, blended hydraulic cement (XXb - b denotes blended) and Portland-limestone cement.
    - .1    Type GU, GUb and GUL - General use cement.
    - .2    Type MS and MSb - Moderate sulphate-resistant cement.
    - .3    Type MH, MHb and MHL - Moderate heat of hydration cement.
    - .4    Type HE, HEb and HEL - High early-strength cement.
    - .5    Type LH, LHb and LHL - Low heat of hydration cement.
    - .6    Type HS and HSb - High sulphate-resistant cement.
  - .2    Fly ash:
    - .1    Type F - with CaO content less than 15%.
    - .2    Type CI - with CaO content ranging from 15 to 20%.
    - .3    Type CH - with CaO greater than 20%.
  - .3    GGBFS - Ground, granulated blast-furnace slag.
- .2    Reference Standards:
  - .1    CSA International
    - .1    CSA A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
    - .2    CSA A283, Qualification Code for Concrete Testing Laboratories.

**1.2                ADMINISTRATIVE REQUIREMENTS**

- .1    Pre-installation Meetings: convene pre-installation meeting one week prior to beginning concrete works.
  - .1    Ensure key personnel, site supervisor, Consultant, speciality contractor finishing, forming, concrete producer, and testing laboratories attend.
    - .1    Verify project requirements.

**1.3                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2    Provide testing and inspection results for review by Consultant and do not proceed without written approval when deviations from mix design or parameters are found.
- .3    Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.

#### **1.4 QUALITY ASSURANCE**

- .1 Provide Consultant, minimum 4 weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.
  - .1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- .1 Delivery and Acceptance Requirements:
  - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
    - .1 Do not modify maximum time limit without receipt of prior written agreement from Consultant and concrete producer as described in CSA A23.1/A23.2.
    - .2 Deviations to be submitted for review by Consultant.
  - .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

### **Part 2 Products**

#### **2.1 DESIGN CRITERIA**

- .1 Concrete shall be Exposure Class C2, 32 MPa concrete, with 75mm+/- 25mm slump and 5-8% air

### **Part 3 Execution**

#### **3.1 PREPARATION**

- .1 Obtain Consultant's written approval before placing concrete.
- .2 During concreting operations:
  - .1 Development of cold joints not allowed.
  - .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.
- .3 Pumping of concrete is permitted only after approval of equipment and mix.
- .4 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .5 Prior to placing of concrete, obtain Consultant's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .6 Protect previous Work from staining.
- .7 Clean and remove stains prior to application for concrete finishes.

- .8 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.
- .9 In locations where new concrete is dowelled to existing work, drill holes in existing concrete.
  - .1 Place steel dowels of deformed steel reinforcing bars and pack solidly with shrinkage compensating grout to anchor and hold dowels in positions as indicated.
- .10 Do not place load upon new concrete until authorized by Consultant.

### **3.2 INSTALLATION/APPLICATION**

- .1 Do cast-in-place concrete work to CSA A23.1/A23.2.
- .2 Sleeves and inserts:
  - .1 Do not permit penetrations, sleeves, ducts, pipes or other openings to pass through joists, beams, column capitals or columns, except where indicated or approved by Consultant.
  - .2 Where approved by Consultant, set sleeves, ties, pipe hangers and other inserts and openings as indicated or specified elsewhere.
  - .3 Sleeves and openings greater than 100 x 100 mm not indicated, must be reviewed by Consultant.
  - .4 Do not eliminate or displace reinforcement to accommodate hardware. If inserts cannot be located as specified, obtain written approval of modifications from Consultant before placing of concrete.
  - .5 Confirm locations and sizes of sleeves and openings shown on drawings.
  - .6 Set special inserts for strength testing as indicated and as required by non-destructive method of testing concrete.
- .3 Anchor bolts:
  - .1 Set anchor bolts to templates in co-ordination with appropriate trade prior to placing concrete.
  - .2 Protect anchor bolt holes from water accumulations, snow and ice build-ups.
- .4 Grout under base plates and equipment using procedures in accordance with manufacturer's recommendations which result in 100% contact over grouted area.
- .5 Finishing and curing:
  - .1 Finish concrete to CSA A23.1/A23.2.
  - .2 Finish concrete sidewalks to architectural requirements.
  - .3 Rub exposed sharp edges of concrete with carborundum to produce 3 mm minimum radius edges unless otherwise indicated.

### **3.3 FIELD QUALITY CONTROL**

- .1 Site tests: conduct tests as follows in accordance with Section 01 45 00 - Quality Control and submit report as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

- .1 Concrete pours.
- .2 Slump.
- .3 Air content.
- .4 Compressive strength at 7 and 28 days.
- .5 Air and concrete temperature.
- .2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Consultant for review to CSA A23.1/A23.2.
  - .1 Ensure testing laboratory is certified to CSA A283.
- .3 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing laboratory and Consultant.
- .4 Non-Destructive Methods for Testing Concrete: to CSA A23.1/A23.2.
- .5 Inspection or testing by Consultant will not augment or replace Contractor quality control nor relieve Contractor of his contractual responsibility.

**END OF SECTION**

1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for restoration and topping work in accordance with the Contract Documents.

1.2 **REFERENCES**

- .1 ASTM C109M, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).

1.3 **SUBMITTALS**

.1 Product data:

- .1 Submit duplicate copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
  - .1 Performance criteria, compliance with appropriate reference standard(s), characteristics, and limitations.
  - .2 Product transportation, storage, handling and installation requirements.

.2 Shop drawings:

- .1 Submit shop drawings in accordance with the Conditions of the Contract indicating:
  - .1 Sections, details, materials, dimensions, thicknesses of each layer, maximum and minimum thicknesses, 3, 7, and 28 day load characteristics, and surface finishes

- .3 Certificates: Submit certification from manufacturer, stating that materials proposed for use are compatible with specified floor finishes.

1.4 **QUALITY ASSURANCE**

- .1 Installers qualifications: Perform work of this Section by a company that has a minimum of five years proven experience in installations of a similar size and nature and that is approved by manufacturer. Submit to Consultant, applicator's current certificate of approval by the material manufacturer as proof of compliance.

.2 Mock-up:

- .1 Construct one room mock-up of topping in location acceptable to Consultant.
- .2 Arrange for Consultant's review and acceptance, allow 48 hours after acceptance before proceeding with work.
- .3 Mock-up may remain as part of Work if accepted by Consultant. Remove and dispose of mock-ups which do not form part of Work.
- .4 Upon acceptance, mock-up shall serve as a minimum standard of quality for the balance of the work of this Section.

1.5 **SITE CONDITIONS**

- .1 Do not install work of this Section outside of following environmental ranges without Consultant's and Product manufacturer's written acceptance:
  - .1 Concrete temperature: 10°C minimum.
  - .2 Ambient air temperature: 16°C to 30°C
  - .3 Precipitation: None.
- .2 Supply and install temporary protection and facilities to maintain Product manufacturer's, and above specified environmental requirements for 48 hours before, during, and 48 hours after installation.

2 Products

2.1 **MATERIALS**

- .1 Concrete based levelling compound:
  - .1 Compressive strength to ASTM C109: 28 day min. 6200 psi.
  - .2 Tensile strength to ASTM C348: 28 day min. 720 psi.
  - .3 Flexural strength to ASTM C190: 28 day min. 1440 psi.
  - .4 Acceptable material: 'Level-Right WearTop' by Maxxon Corporation or approved alternative by Sika Canada.
- .2 Water: potable.

2.2 **MIXES**

- .1 Mix toppings in accordance with manufacturer's written instructions.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.2 **PREPARATION**

- .1 Verify substrate surfaces are solid, free from surface water, frozen matter, dust, oil, grease, scaling or laitance, projections and any other foreign matter detrimental to performance.
- .2 Prohibit traffic on prepared areas until work of this Section is completed.
- .3 Supply and install temporary protection to adjacent surfaces, floor drains, and steel angles to prevent damage resulting from work of this Section.
- .4 Prior to application of topping, remove all debris by vacuuming.



**3.3 INSTALLATION**

- .1 Install topping in accordance with reviewed shop drawings and manufacturer's written instructions.
- .2 Levelling topping:
  - .1 Install levelling material in accordance with manufacturer's instructions.
  - .2 Let cure in accordance with manufacturer's, recommendations.
- .3 Epoxy concrete topping: Mix, apply and finish epoxy concrete topping to manufacturer's instructions.

**3.4 PROTECTION**

- .1 Provide temporary protection for surfaces subjected to concentrated loads before they have cured sufficiently to carry them without damage.
- .2 Prevent traffic over completed areas, and protect work of this Section from precipitation, freezing, and debris after final installation.

END OF SECTION

1 General

1.1 **SECTION INCLUDES**

.1 Design, labour, Products, equipment and services necessary for the miscellaneous and metal fabrication work in accordance with the Contract Documents.

1.2 **REFERENCES**

.1 ASTM A123, Specification for Zinc (Hot Dip Galvanized) Coatings on Iron & Steel Products.

.2 ASTM A153, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.3 ASTM A480/A480M-15, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip.

.4 ASTM A276, Specification for Stainless and Heat-Resisting Steel Bars and Shapes.

.5 ASTM A307, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

.6 ASTM A653/A653M, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.

.7 CISC/CPMA 1.73a, A Quick-Drying One-Coat Paint for Use on Structural Steel.

.8 CAN/CSA-G40.20/G40.21-M, General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steels.

.9 CAN/CSA S16.1-M, Limit States Design of Steel Structures.

.10 CSA S136.1-M, Commentary on CAN/CSA S136-M, Cold Formed Steel Structural Members.

.11 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.

.12 CSA W48, Filler Metal and Allied Materials for Metal Arc Welding.

.13 CSA W59-M, Welded Steel Construction (Metal Arc Welding).

.14 CAN/CSA W117.2-M, Safety in Welding, Cutting and Allied Processes.

.15 CAN/CGSB 1.40-M, Primer, Structural Steel, Oil Alkyd Type.

.16 CGSB 85-GP-16M, Painting Galvanized Steel.

.17 NAAMM, The National Association of Architectural Metal Manufacturers.

.18 Steel Structures Painting Council (SSPC), Steel Structures Painting Manual, Vol. 2.

1.3 **DESIGN REQUIREMENTS**

- .1 Design details and connections, where not shown on Drawings, in accordance with CAN/CSA-S16.1 and CSA S136.1.

1.4 **SUBMITTALS**

- .1 Shop drawings:
  - .1 Submit shop drawings for fabrication and erection of miscellaneous and metal items in accordance with the Conditions of the Contract indicating:
    - .1 Materials, core thicknesses, class of finish (AMP 555), connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
    - .2 Ensure shop drawings are of one uniform size and based on field measurements.

1.5 **QUALITY ASSURANCE**

- .1 Retain a Professional Engineer, licensed in the Province of Ontario, with experience in work of comparable complexity and scope, to perform the following services as part of the work of this Section:
  - .1 Design metal fabrication items that are required to resist live, dead, lateral, wind, or seismic loads.
  - .2 Review, stamp, date and sign shop drawings.
- .2 Workmanship: Fabricate work of this Section to meet the required class of workmanship indicated below in accordance with NAAMM's AMP 555, Section 8.
  - .1 Class 1: for use on direct exposed to view fabricated items:
    - .1 Exposed surfaces are finished smooth without pits, mill marks, nicks, burrs, sharp edges, and scratches filled or ground off. Defects should not show when painted, polished, or finished.
    - .2 Welds should be concealed where possible. Exposed welds are ground to small radius with uniform sized cove unless otherwise noted.
    - .3 Distortions should not be visible to the eye.
    - .4 Exposed joints are fitted to a hairline finish.
- .3 Execute welding by firms certified in accordance with CSA W47.1 Division 1 or 2.1. Ensure welding operators are licensed per CSA W47.1 for types of welding required by Work.
- .4 Perform stainless steel work in accordance with NAAMM, Code of Standard Practice for the Metal Industry, Workmanship, Class 1.

2 Products

2.1 **MATERIALS**

.1 General:

- .1 All materials under work of this Section, including but not limited to, primers and paints are to have low VOC content limits.
  - .2 Unless detailed or specified herein, standard products will be acceptable if construction details and installation meet intent of Drawings and Specifications.
  - .3 Include all materials, products, accessories, and supplementary parts necessary to complete assembly and installation of work of this Section.
  - .4 Incorporate only metals that are free from defects which impair strength or durability, or which are visible. Install only new metals of best quality, and free from rust or waves and buckles, and that are clean, straight, and with sharp defined profiles.
- .2 Structural shapes, plates, and similar items: CAN/CSA-G40.20/G40.21-M, Grade 350W. Hollow structural sections: CAN/CSA-G40.20/G40.21-M, Grade 350W, Class H.
  - .3 Galvanized sheet steel: ASTM A653/A653M Grade A, Z275 Commercial Quality zinc coating, size and shape as shown.
  - .4 Stainless steel sheet and plate: ASTM A480/A480M, Type 304, finish to AISI No. 4. Size as shown..
  - .5 Stainless steel shapes: ASTM A276, Type 304, finish to AISI No. 4 or X-L Blend S as indicated. Sizes and shapes as shown.
  - .6 Checkered plate:
  - .7 Welding materials: CSA W48 and CSA W59-M.
  - .8 Fasteners: Conforming to ASTM A307, Grade A, in areas not exposed to view, use unfinished bolts with hexagon heads and nuts. In areas exposed to view, use bolts, nuts, washers, rivets, lock washers, anchor bolts, machine screws, machine bolts and through bolts complete with steel plate on interior face of existing concrete block wall. Z275 zinc coated in accordance with ASTM A653/A653M. Supply bolts of lengths required to suit thickness of material being joined, but not projecting more than 6 mm beyond nut, without the use of washers.
  - .9 Primer paint: CAN/CGSB-1.40-M or CPMA 1.73a.
  - .10 Galvanized primer paint: Inorganic zinc rich primer. For use on galvanized fabrications where touch up is to remain unpainted in finished work; Carbozinc 11WB by Carboline Company, Catha-Coat 305 by Devoe Coatings or Zinc Clad XI by Sherwin Williams.
  - .11 Drilled inserts: "HSL-3" by Hilti Inc. or "Dynabolt Sleeve Anchors" by ITW Construction Products, heavy-duty anchors, sizes as shown.

- .12 Adhesive anchor system: 'HIT HY 200 Injectable Mortar with Hilti HAS Stainless Steel Anchor Rod System' by Hilti Ltd. or approved alternative by ITW Construction Products, complete with all components required for a complete installation.

## 2.2 **FABRICATION**

- .1 Verify dimensions of existing Work before commencing fabrications and report any discrepancies to the Consultant.
- .2 Fit and assemble work in shop where possible. Execute work in accordance with details and reviewed shop drawings.
- .3 Use self-tapping shake-proof screws on items requiring assembly by screws or as indicated. Use screws for interior metal work. Use welded connections for exterior metal work unless otherwise found acceptable by the Consultant.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush. Seal exterior steel fabrications against corrosion in accordance with CAN/CSA S16.1-M.
- .5 Execute shop welding to requirements specified .
- .6 Carefully make and fit details. Take special care with exposed finished work to produce a neat and correct appearance to the Consultant's acceptance.
- .7 Assemble members without twists or open joints.
- .8 Correctly size holes for connecting work of other trades where such can be determined prior to fabrication. Where possible, show holes on shop drawings. Place holes not to cause appreciable reduction in strength of member.
- .9 Draw mechanical joints to hairline tightness and seal countersunk screw and access holes for locking screws with metal filler where these occur on exposed surfaces.

## 2.3 **FABRICATED ITEMS**

- .1 Refer to Drawings for details of metal fabrication work and related items not specifically listed in this Section.
- .2 Where work is required to be built into work of other Sections supply such members to respective Sections.
- .3 Provide miscellaneous and metal fabrications indicated on the drawings, listed below, and not indicated to be supplied under other Sections. Provide miscellaneous and metal fabrications including but not limited to the following:

- .4 Miscellaneous steel brackets, supports and angles
  - .1 Supply and install or supply for installation by trades responsible, all loose steel brackets, supports and angles where indicated, except where such brackets, supports and angles are specified under work of other Sections. Drill for countersunk screws, expansion anchors and anchor bolts.
  - .2 Unless otherwise specified, prime paint for interior installation; galvanized finish for exterior installation.

## 2.4 **STAINLESS STEEL WORK**

- .1 Take all necessary precautions to safeguard against latent surface discolouration due to disturbance of the natural protective oxide coating of the material or to contamination from other sources.
- .2 Workmanship shall be the best standard practice for this type of work. Execute stainless steel work in accordance with the applicable instructions set forth in Atlas Stainless Steels' "Technical Data" handbook on stainless steel.
- .3 Do all stainless steel fabrication in clean shops, located away from areas where carbon steel is burnt, ground, or cut with abrasive wheels to ensure that carbon steel dust will not be embedded into the stainless steel, and as follows:
  - .1 In fabrication of stainless steel do not use tools and dies which have been used on carbon steels.
  - .2 Ensure tools and dies use for forming and cutting stainless steel are free of nicks and other damage.
  - .3 Do not use carbon grits and grinding wheels which will imbed foreign particles into stainless steel surfaces. Use only stainless steel wool when wool polishing is required.
  - .4 Stainless steel items, on which rust stains appear, shall be replaced with new fabricated material.

## 2.5 **ANCHORS AND FASTENING**

- .1 Use weld studs of size not larger than 10 mm for attaching miscellaneous materials and equipment to building steel. If weight of item requires larger fasteners use clips or brackets and secure by welding or through bolting.
- .2 Use self drilling expansion type concrete anchors for attaching to masonry and concrete
- .3 Do not secure items to steel deck.
- .4 Use steel beam clamps of two bolt design to transmit load to beam web. Do not use C and I clamps.

## 2.6 **WELDING**

- .1 Perform welding by electric arc process.
- .2 Execute welding to avoid damage or distortion to Work. Execute welding in accordance with following standards:

- .1 CSA W48 - for Electrodes. If rods are used, only coated rods are allowed.
- .2 CSA W59-M and CSA W59S1-M for design of connections and workmanship.
- .3 CAN/CSA W117.2-M - for safety.

- .3 Thoroughly clean welded joints and expose steel for a sufficient distance to perform welding operations. Finish welds smooth. Supply continuous and ground welds which will be exposed to view and finish paint.
- .4 Test welds for conformance and remove work not meeting specified standards and replace to Consultant's acceptance.

## 2.7 **SHOP PAINTING**

- .1 Clean steel to SSPC SP6 and remove loose mill scale, weld flux and splatter.
- .2 Shop prime steel with one coat of primer paint to dry film thickness of 0.07 mm. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 deg C. Paint items under cover and leave under cover until primer is dry. Follow paint manufacturer's recommendations regarding application methods, equipment, temperature, and humidity conditions.
- .3 Shop prime galvanized steel in accordance with CGSB 85-GP-16M.
- .4 Clean but do not paint surfaces being welded in field.
- .5 Do not paint surfaces embedded in concrete, but clean as if they were to be primed.
- .6 Do not prime steel to be fireproofed or to receive intumescent paint coating.
- .7 Do not prime machine finished surfaces, but apply an effective anti-rust compound.
- .8 Take precautions to avoid damage to adjacent surfaces.

## 2.8 **HOT DIP GALVANIZING**

- .1 After fabrication, hot dip galvanize specific miscellaneous steel items as indicated. After galvanizing, plug relief vents air tight with appropriate aluminum plugs as suitable and required for intended metal fabricated item. Straighten shapes and assemblies true to line and plane after galvanizing. Repair damaged galvanized surfaces with zinc rich primer in accordance with manufacturer's printed directions.
- .2 Hot-dip galvanize members in accordance with requirements of the following ASTM, with minimum coating weights or thicknesses as follows:
  - .1 Rolled, pressed and forged steel shapes, plates, bars and strips: ASTM A123; average weight of zinc coating per square/metre of actual surface, for 4.8 mm and less thickness members 600 g/m<sup>2</sup> for 6 mm and heavier members 640 g/m<sup>2</sup>.
  - .2 Iron and steel hardware: ASTM A153; minimum weight of zinc coating, in ounces per square foot of surface, in accordance with ASTM A153, Table 1 for the various classes of materials used in the Work.

3 Execution

3.1 **EXAMINATION**

- .1 Examine previously installed Work, upon which this Section depends, verify dimensions and condition of existing Work, and coordinate repairs, alterations, and rectification if necessary. Commencement of work of this Section is deemed to signify acceptance of existing, prior conditions.
- .2 Obtain Consultant's written approval prior to field cutting or altering of structural members.

3.2 **ERECTION**

- .1 Install metal fabrications in accordance with reviewed shop drawings and manufacturer's written instructions.
- .2 Fit joints and intersecting members accurately. Make work in true planes with adequate fastenings. Build and erect work plumb, true, square, straight, level and accurate to sizes detailed, free from distortion or defects detrimental to appearance or performance.
- .3 Perform drilling of concrete and steel as required to fasten work of this Section.

3.3 **TOUCH UPS**

- .1 Paint bolt heads, washers, nuts, field welds and previously unpainted items. Touch up shop primer damaged during transit and installation, with primer to match shop primer.

END OF SECTION



1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for firestopping and smoke seals work in accordance with the Contract Documents.

1.2 **REFERENCES**

- .1 ASTM C303, Standard Test Method for Dimensions and Density of Preformed Block and Board-Type Thermal Insulation.
- .2 ASTM C920, Standard Specification for Elastomeric Joint Sealants.
- .3 ASTM C1104, Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
- .4 ASTM E814, Test Method for Fire Tests of Through-Penetration Fire Stops.
- .5 ASTM E2174, Standard Practice for On-Site Inspection of Installed Fire Stops.
- .6 CAN/ULC S102, Surface Burning Characteristics of Building Materials and Assemblies.
- .7 CAN/ULC S114, Standard Method of Test for Determination of Non-Combustibility in Building Materials.
- .8 CAN/ULC S115, Standard Method of Fire Tests of Firestop Systems.
- .9 CAN/ULC S129, Standard Method Of Test For Smoulder Resistance Of Insulation (Basket Method).
- .10 CAN/ULC S702, Thermal Insulation, Mineral Fibre for Buildings.

1.3 **DEFINITIONS**

- .1 Fire Separation: A construction assembly, plane or device, either vertical or horizontal, which is required to prevent the passage of fire and smoke for a prescribed period of time. Proof of compliance to required time rating shall be by ULC, Warnock Hersey (or similar approved) certification or shall be as listed in the Ontario Building Code Supplementary Standard SB-2.
- .2 Smoke Separation: A construction assembly, plane or device, either vertical or horizontal, which is not required to prevent the passage of fire for a prescribed period of time but is required to prevent the passage of smoke. A "Smoke Separation" is also known as a "Fire Separation with No Rating" or a "Zero Hour Rated Separation".
- .3 Non-Rated Separation: A construction assembly, plane or device, either vertical or horizontal, which is not required to prevent the passage of fire for a prescribed period of time and is not required to prevent the passage of smoke.

**1.4 SYSTEM DESCRIPTION**

- .1 Firestopping and smoke seals: ULC or Intertek Testing Services listed Products and systems in accordance with CAN/ULC S115 suitable to actual application and installation conditions.
- .2 Firestop applications that exist for which no ULC or cUL tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar ULC or cUL system designs or other tests will be submitted to local authorities having jurisdiction for their review and approval prior to installation. Engineer judgment drawings must follow requirements set forth by the International Firestop Council.
- .3 Firestop and smoke seal system shall achieve a fire resistance rating and smoke seal rating equal to that of assemblies into which they are installed.
- .4 Provide smoke sealants over firestopping materials or combination smoke seal/firestop seal material to form air tight barriers to retard the passage of gas and smoke.
- .5 Firestopping and smoke seals located at movement joints shall be designed with movement capability.
- .6 Firestopping and smoke seals within mechanical and electrical assemblies shall be provided as part of the work of Divisions 21, 22, 23, 26, 27, and 28 respectively.

**1.5 SUBMITTALS**

- .1 Product data:
  - .1 Submit copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
    - .1 Performance criteria, compliance with appropriate cUL or ULC reference standard, characteristics, limitations.
    - .2 Product transportation, storage, handling and installation requirements.
    - .3 Submit firestop and smoke seal manufacturer's Product data for materials and prefabricated devices, including manufacturer's printed installation instructions.
  - .2 Shop drawings:
    - .1 Submit shop drawings in accordance with the Conditions of the Contract indicating:
      - .1 Fire rated and smoke sealed systems for each typical application.
      - .2 Construction details, accurately reflecting actual job conditions.
      - .3 ULC or Intertek Testing assembly listing.
      - .4 Each floor and wall assembly requiring firestop system with each corresponding ULC firestop system.
  - .3 Certification:
    - .1 Submit certified documentation from manufacturer for each worker performing work of this Section.

- .2 Submit installer's and Product manufacturer's certification verifying compliance with the Contract Documents and conformance with ASTM E814 and CAN/ULC S115.

## 1.6 **QUALITY ASSURANCE**

- .1 Installers qualifications: Perform work of this Section by a company that has a minimum of five years proven experience in the installation of firestopping and smoke seal work of a similar size and nature and that is approved by manufacturer. Submit to Consultant, applicator's current certificate of approval by the material manufacturer as proof of compliance.
- .2 Manufacturer's direct representative and/or fire protection specialist shall be on-site during initial installation of firestop systems to train appropriate contractor personnel in proper selection and installation procedures conforming to manufacturer's written recommendations published in their literature and drawing details.
- .3 Pre-construction meetings: Arrange with manufacturer's representative, Contractor, Consultant and Field Engineer to determine responsibility for handling such issues as FT rated partitions, firestop custom details, compatibility, mixed penetrations, and to review installation procedures 48 hours in advance of installation.

## 1.7 **DELIVERY STORAGE AND HANDLING**

- .1 Deliver materials to Place of Work in manufacturer's unopened containers, containing classification label with labels intact and legible at time of use.
- .2 Do not use damaged or adulterated materials exceeding their expiry date.

## 1.8 **SITE CONDITIONS**

- .1 Conform to manufacturer's requirements and maintain a minimum temperature of 5<sup>0</sup> C for a minimum period of 24 h before application, during, and until application is fully cured.
- .2 Maintain sealant at a minimum 18° C for best workability.

## 2 Products

### 2.1 **ACCEPTABLE MANUFACTURERS**

- .1 Acceptable manufacturers of rated systems include:
  - .1 3M
  - .2 Hilti Canada Corporation.
  - .3 Specified Technologies Inc. (STI Firestop)
  - .4 Tremco Ltd.

## 2.2 GENERAL SYSTEM REQUIREMENTS

- .1 All materials under work of this Section, including but not limited to, primers and sealants are to have low VOC content limits.
- .2 Do not use Products containing asbestos.
- .3 Firestopping components shall not contain volatile solvents or require special application to protect plastic pipe from firestopping compound.
- .4 Provide smoke seal sealant in following colours:
  - .1 Grey or white in finished areas.
  - .2 Red in unfinished areas.
- .5 Smoke sealant for overhead and vertical joints for floor to be self-levelling and non-sagging sealant.
- .6 Smoke sealant at vertical through penetrations in areas with floor drains shall be waterproof type.

## 2.3 MATERIALS

- .1 Following materials have been provided for convenience. Contractor shall provide complete system with all components and accessories as required for fire resistant and smoke seal installation.
- .2 Firestop sealant: single component, low modulus, silicone rubber, moisture curing sealant to ASTM C920, ULC labelled to CAN/ULC S115.
- .3 Pre-Installed firestop devices for use with non-combustible and combustible pipes, conduit and/or cable bundles penetrating concrete floors and walls.
  - .1 Cast-in place firestop device complete with aerator adaptor when used in conjunction with aerator system. Model CP 680-P by Hilti or approved alternative.
  - .2 Cast-in place firestop device for use with noncombustible penetrants. Model CP 680-M by Hilti or approved alternative.
  - .3 Speed sleeve for use with cable penetrations. Model CP 653 by Hilti or approved alternative.
  - .4 Firestop block. Model CFS-BL by Hilti or approved alternative.
- .4 Re-penetrable, round cable management devices for use with new or existing cable bundles penetrating walls:
  - .1 Speed sleeve with integrated smoke seal fabric membrane. Model CP 653 by Hilti or approved alternative.
  - .2 Firestop Sleeve. Model CFS-SL SK by Hilti or approved alternative.
  - .3 Retrofit sleeve for use with existing cable bundles. Model CFS-SL RK by Hilti or approved alternative.
  - .4 Gangplate for use with multiple cable management devices. Model CFS-SL GP by Hilti or approved alternative.
  - .5 Gangplate Cap for use at blank openings in gangplate for future penetrations. Model CFS-SL GP CAP by Hilti or approved alternative.

- .5 Firestop insulation: to CAN/ULC S702, Type 2; mineral fibre manufactured from rock or slag, suitable for manual application.
  - .1 Density: Minimum 64 kg/m<sup>3</sup> when tested to ASTM C303.
  - .2 Combustibility: Noncombustible to CAN/ULC S114.
  - .3 Melt temperature: >1175 degrees C.
  - .4 Surface burning characteristics: to CAN/ULC S102, maximum flame spread of 0, smoke developed of 0.
  - .5 Moisture Absorption: 0.04 percent when tested to ASTM C1104.
  - .6 Smoulder Resistance: 0.01 percent when tested to CAN/ULC S129.
- .6 Damming, back-up, supports, and anchorage: In accordance with manufacturer's fire rated systems and to acceptance of authorities having jurisdiction.
- .7 Primer: As recommended by firestopping sealant manufacturer.

### 3 Execution

#### 3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.
- .2 Verify that substrates and surfaces to receive firestopping and smoke seals are clean, dry, and frost free.

#### 3.2 **PREPARATION**

- .1 Prepare, modify, and adjust void sizes, proportions, and conditions to conform to fire rated and smoke sealed assembly requirements such as assembly opening size and dimensional restrictions.
- .2 Clean surfaces to remove material detrimental to bond including dust, paint, rust, oil, grease, moisture, frost and other foreign matter to manufacturers recommendations.
- .3 Mask adjacent surfaces to avoid spillage and over-coating of adjacent surfaces. Remove stains from adjacent surfaces.

#### 3.3 **INSTALLATION**

- .1 Install firestopping and smoke seal systems in accordance with reviewed Shop Drawings, manufacturer's instructions and fire rated assembly to establish continuity and integrity of fire separations.
- .2 Install firestop insulation in compacted thicknesses required by ULC design. Compress insulation approximately 50 percent.
- .3 Install primers as recommended by firestop and smoke seal Product manufacturers.

- .4 Install temporary forming, damming, back-up as required, remove after materials have achieved initial cure and will resist displacement.
- .5 Install firestop and smoke seal filler in horizontal joints providing 25% compression fit.
- .6 Use resilient, elastomeric firestopping and smoke seal systems in following locations:
  - .1 Openings and sleeves for future use.
  - .2 Penetration systems subject to vibration or thermal movement.
  - .3 Penetration systems in acoustical containment enclosures.
- .7 Trowel and tool exposed firestop and smoke seal. Product surfaces to uniform, smooth finish.
- .8 Seal joints to ensure an air and water resistant seal capable of withstanding compressions and extensions due to thermal wind or seismic joint movement.
- .9 Taped joints will not be acceptable.
- .10 Repair damaged firestopped and smoke sealed surfaces to acceptance of Consultant.
- .11 Identify each firestop and smoke seal penetration assembly with permanent label listing following:
  - .1 Assembly and rating in hours.
  - .2 Date of installation.
  - .3 Installing company's name and telephone number.
- .12 Do not cover materials until full cure has taken place.

### 3.4 **INSPECTION AND TESTING**

- .1 Inspection of through-penetration firestopping shall be performed in accordance with ASTM E2174 to ensure that firestopping and smoke seals have been installed in accordance with Contract documents and to tested and listed firestop system.

### 3.5 **CLEAN-UP**

- .1 Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.
- .2 Remove excess materials and debris immediately after application.

### 3.6 **SCHEDULE OF FIRESTOP AND SMOKE SEAL LOCATIONS**

- .1 Following firestop and smoke seal location schedule is included for convenience and may not be complete. Examine Contract Drawings and other specification sections and determine entire extent of work of this Section. Generally provide systems with required fire and smoke ratings at following locations:
  - .1 Gaps at intersections of fire-resistance rated walls and partitions.
  - .2 Control and sway joints in fire-resistance rated walls and partitions.
  - .3 Gaps at top of fire-resistance rated partitions and walls.

- .4 Penetrations through fire-resistance rated walls and partitions including but not limited to mechanical and electrical services and openings and sleeves for future use.
- .5 Penetrations through fire-resistance rated floor slabs, ceilings, and roofs.
- .6 Gaps at edge of floor slabs at exterior walls.
- .7 Perimeter of retaining angles on rigid ducts greater than  $0.012 \text{ m}^2$ , firestopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.
- .8 Where indicated on drawings.
- .9 At non-rated assemblies that require a smoke seal.
- .10 Where required by Ontario Building Code.

END OF SECTION

1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for sealant Work in accordance with the Contract Documents.
- .2 Work of this Section does not include sealants in firestopping and smoke sealed assemblies.
- .3 Work of this Section does not include sealant work identified in individual specification sections.

1.2 **REFERENCES**

- .1 ASTM C834, Specification for Latex Sealants.
- .2 ASTM C920, Specification for Elastomeric Joint Sealants.
- .3 ASTM C1330, Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.

1.3 **SUBMITTALS**

- .1 Product data: Submit copies of Product data in accordance with the Conditions of the Contract describing type, composition and recommendations or directions for surface preparation, material preparation and material installation.
- .2 Samples:
  - .1 Submit following samples in accordance with the Conditions of the Contract.
    - .1 Two samples of sealant/caulking, for colour selection.
    - .2 Two samples of back-up material and primer for physical characteristics.
- .3 Extended warranty: Submit extended warranty signed and registered by the manufacturer providing the warranty in the name of the Owner for the timeframe and coverage specified in this Section.

1.4 **QUALITY ASSURANCE**

- .1 Qualifications: Work of this Section shall be executed by trained applicators approved by sealant manufacturer and having a minimum of 5 years proven experience.

1.5 **SITE CONDITIONS**

- .1 Do not install materials when ambient air temperature is less than 5 °C, when recesses are wet or damp, or to manufacturer's recommendations.



1.6 **DELIVERY, STORAGE AND HANDLING**

- .1 Arrange delivery of materials in original, unopened packages with labels intact, including batch number, and ensure that on-site storage is kept to a minimum. Do not store materials on site where there exists any danger of damage from moisture, direct sunlight, freezing and other contaminants.

1.7 **EXTENDED WARRANTY**

- .1 Submit an extended warranty for Sealant work in accordance with General Conditions, except that warranty period is extended to 3 years from date of Substantial Performance of the Work.
  - .1 Warrant against leakage, cracking, crumbling, melting, shrinkage, running, loss of adhesion and staining adjacent surfaces.
  - .2 Coverage: Complete replacement including affected adjacent work.

2 Products

2.1 **MATERIALS**

- .1 General:
  - .1 All materials under work of this Section, including but not limited to, primers and sealants are to have low VOC content limits.
  - .2 Use materials as received from manufacturers, without additives or adulterations. Use one manufacturer's Product for each kind of Product specified.
- .2 Sealant **Type 1**: ASTM C920, Type M, Grade NS, Class 50; Multi-Component, polyurethane sealant, in standard colours selected.
  - .1 'DC CWS' by Dow Consumer Solutions.
  - .2 'Dymeric 240' by Tremco.
- .3 Sealant **Type 2**: ASTM C920, Type S, Grade NS, Class 25; One-Component, polyurethane sealant, in standard colours selected.
  - .1 'DC CWS' by Dow Consumer Solutions.
  - .2 'Dymonic' by Tremco.
- .4 Sealant **Type 3**: ASTM C834; Pure acrylic siliconized sealant; in standard white colour (paintable).
  - .1 'Tremflex 834 Siliconized Sealant' by Tremco Ltd.
- .5 Sealant **Type 4**: ASTM C920, Type S, Grade NS; One-part mildew-resistant silicone, in standard colours selected.
  - .1 '786 Mildew Resistant Silicone Sealant' by Dow Consumer Solutions.
  - .2 'Tremsil 200 Silicone Sealant' by Tremco Ltd.
- .6 Sealant **Type 5**: Acoustical sealant in accordance with Section 09 21 16.

## 2.2 ACCESSORIES

- .1 Primers: Type recommended by material manufacturers for various substrates, primers to prevent staining of adjacent surfaces encountered on project.
- .2 Joint backing: ASTM C1330; Round, solid section, closed cell, skinned surface, soft polyethylene foam gasket stock, compatible with primer and sealant materials, 30 to 50% oversized, Shore A hardness of 20, tensile strength 140 to 200 kPa. Bond breaker type surface.
- .3 Bond breaker: Type recommended by material manufacturers.
- .4 Void filler around the window frames to be one part expanding polyurethane foam.
- .5 Cleaning agents: As recommended by material manufacturer, non-staining, harmless to substrates and adjacent finished surfaces.

## 2.3 MIXING

- .1 Follow manufacturers instructions on mixing, shelf and pot life.

## 3 Execution

### 3.1 EXAMINATION

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

### 3.2 PREPARATION

- .1 Prepare joints to receive sealants to manufacturer's instructions. Ensure that joints are clean and dry and ferrous surfaces are free from rust and oil.
- .2 Clean recesses to receive sealant, to be free of dirt, dust, loose material, oil, grease, form release agents and other substances detrimental to sealant's performance.
  - .1 Remove lacquer or other protective coatings from metal surfaces, without damaging metal finish, using oil-free solvents. Remove rust, mill scale and coatings from ferrous metals by wire brush, grinding or sand blasting.
  - .2 Ensure recess is dry.
  - .3 Do not apply sealants to joint surfaces treated with sealer, curing compound, water repellent, or other coatings. Remove incompatible coatings as required.
- .3 Ensure that all materials in contact with sealant are compatible. Test substrate for adhesion.

- .4 Depth of recess: Maintain depth to ½ joint width up to a maximum of 13 mm and not less than 6 mm at centre of joint. For greater depth, use joint backing under. Where recess is less than specified depth, cut back surface of recess to specified recess depth.
- .5 Install polyethylene backing rod in joints 6 mm or more in width. Roll backing rod into joint. Do not stretch or bend backing rod. Install bond breaker to back of recess.
- .6 Prime sides of recess, in accordance with sealant manufacturer's instructions.
- .7 Condition products for use in accordance with manufacturer's recommendations.

### 3.3 **INSTALLATION**

- .1 Apply sealant immediately after adjoining work is in condition to receive such work. Apply sealant in continuous bead using gun with correctly sized nozzle. Use sufficient pressure to evenly fill joint.
- .2 Ensure sealant has full uniform contact with, and adhesion to, side surfaces of recess. Superficial painting with skin bead is not acceptable. Tool sealant to smooth surface, free from ridges, wrinkles, sags, air pockets, embedded impurities, dirt, stains or other defects.
  - .1 At recesses in angular surfaces, finish sealant with flat profile, flush with face of material at each side.
  - .2 At recesses in flush surfaces, finish compound with concave face, flush with face of material at each side.
- .3 Make sealant bead uniform in colour.
- .4 Cure sealants in accordance with sealant manufacturer's instructions. Do not cover up sealants until proper curing has taken place.
- .5 Immediately remove excess compound or droppings which would set up or become difficult to remove from adjacent finished surfaces, using recommended cleaners, as work progresses. Do not use scrapers, chemicals or other tools which could damage finished surfaces. Remove defective sealant.
- .6 Clean recesses and re-apply sealant.
- .7 Remove masking tape immediately after joints have been sealed and tooled.

### 3.4 **CLEANING**

- .1 Clean surfaces adjacent to joints, remove sealant smears or other soiling resulting from application of sealants. At metal surfaces, remove residue. Do not mar or damage finishes on materials adjacent to joints. Repair or replace marred or damaged materials.

### 3.5 SCHEDULE OF LOCATIONS

- .1 Following sealant location schedule is included for convenience and may not be complete. Examine Contract Drawings and other specification sections and determine entire extent of work of this Section. Generally seal following locations:
  - .1 Concrete, masonry, wood and stone to metal.
  - .2 Wood to masonry, concrete and stone.
  - .3 Metal to metal.
  - .4 All dissimilar materials.
  
- .2 Sealant **Type 1 or Type 2:**
  - .1 Interior joints between dissimilar materials.
  - .2 Interior joints at perimeter of all built-in equipment.
  - .3 Interior joints at perimeter of metal door and window frames.
  
- .3 Sealant **Type 3:**
  - .1 Interior non-movement joints 6mm or less for painting (painter's caulk).
  
- .4 Sealant **Type 4:**
  - .1 Interior joints where mildew resistance is required.
  - .2 Interior joints at perimeter of all plumbing fixtures.
  - .3 Interior joints between counter backsplash and wall surfaces.
  
- .5 Sealant **Type 5:**
  - .1 Perimeter of all gypsum board partitions where sound insulation is indicated.
  - .2 All vapour barrier seams and seals.

END OF SECTION

- 1 General
- 1.1 **SECTION INCLUDES**
  - .1 Design, labour, Products, tool, equipment and services necessary for automatic door equipment work in accordance with the Contract Documents.
- 1.2 **REFERENCES**
  - .1 ANSI/BHMA A156.19, Power Assist and Low-Energy Power-Operated Doors.
- 1.3 **DESIGN REQUIREMENTS**
  - .1 Design handicap door system comprising of low energy power operator with optional push and go door system as defined in ANSI/BHMA A156.19.
  - .2 Design system operator to activate if one push button from either side of door is pushed. Actuated door shall open slowly to back check (80°) in 3 to 6 seconds and to full open position in 4 to 7 seconds. Door shall remain open for period set to suit requirements (period of 5 to 30 seconds). After time delay door shall close by spring in door operator from 90° to 10° in 3 to 6 seconds from 10° to fully closed in 1-1/2 to 2 seconds.
- 1.4 **SUBMITTALS**
  - .1 Product data: Submit duplicate copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating performance criteria, compliance with appropriate reference standard(s), characteristics, limitations, trouble-shooting protocol, transportation, storage, handling and installation requirements.
  - .2 Shop drawings: Submit shop drawings in accordance with the Conditions of the Contract indicating all connections, attachments, reinforcing, anchorage and location of exposed fastenings.
  - .3 Extended warranty: Submit extended warranty signed and registered by the manufacturer providing the warranty in the name of the Owner for the timeframe and coverage specified in this Section.
- 1.5 **EXTENDED WARRANTY**
  - .1 Submit a extended warranty for automatic door equipment in accordance with General Conditions, except that warranty period is extended to 2 years.
    - .1 Warrant against failure to meet design criteria and requirements.
    - .2 Coverage: Complete replacement including affected adjacent Work.

2 Products

2.1 **ACCEPTABLE MANUFACTURER(S) AND SYSTEM(S)**

- .1 Heavy Duty Door Operator: Design is based on self contained, low pressure electro-hydraulic power. Operator to be as manufactured by one of the following:
  - .1 PowerSwing by Assa Abloy Entrance Systems Canada (Besam).
  - .2 Magic Force by Stanley Canada Inc.
  - .3 Or approved alternative by Allegion.
- .2 Regular Duty, Interior Operator: Design is based on low energy, electro-mechanical operator. Operator to be as manufactured by one of the following:
  - .1 SW100 by Assa Abloy Entrance Systems Canada (Besam).
  - .2 Magic Access by Stanley Canada Inc.
  - .3 Or approved alternative by Allegion.
- .3 Door operating equipment shall be complete with electro mechanical motor gear box. Provide 3 position (off-on) switch. System shall operate between -30 deg C and 50 deg C.

2.2 **REQUIREMENTS**

- .1 Functional Requirements:
  - .1 Equipment shall be designed to operate swing doors up to weight of 100 kg.
  - .2 Opening Speed:
    - .1 Door shall be field adjusted to back check as required in Table 1 of ANSI/BHMA A156.19.
    - .2 Opening speed to fully open shall be 4 seconds or longer.
- .2 Hold Open: Door shall be field adjusted to remain fully open for not less then 5 seconds or more than 30 seconds.
- .3 Closing Speed:
  - .1 Doors shall be field adjusted to close 90° to 10° in 3 seconds or longer as required in Table 1 of ANSI/BHMA A156.19.
  - .2 Doors shall close from 10° to fully closed in not less than 1.5 seconds.
  - .3 Force required to prevent door from opening or closing shall not exceed 7 kg applied 25 mm from latch edge of door at any point in opening or closing cycle.
  - .4 During power failure, doors shall open with manual pressure not exceeding 11.3 kg at point 25 mm from latch edge of door.
  - .5 Doors shall be equipped with signs visible from either side, instructing user as to operation and function of door.
- .4 Requirements:
  - .1 Provide header complete with full housing, finish shall match door frame finish.
  - .2 Locations of automatic door operators to conform to requirements of the Ontario Building Code (OBC).

- .3 Operator shall be activated by 150 mm diameter stainless steel push button switches on either sides as indicated.
- .4 Switches shall bear universal handicap logo visible to all types of traffic.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of Work means acceptance of existing conditions.

3.2 **INSTALLATION**

- .1 Install automatic door operators, controls and accessories for doors indicated in accordance with reviewed shop drawings and manufacturer written instructions.
- .2 Installation of automatic door operators to be in accordance with requirements of the Ontario Building Code (OBC).
- .3 Doors shall operate manually as though equipped with manual door closers, without damage to automatic door components, in event of power failure or in event of power termination.
- .4 Power supply to each door operator and wiring shall be provided by Division 26 - Electrical. Make connections at operators and at control panel and supply and install each electrical work between operators and activating controls. Comply with requirements of Division 26 - Electrical. All wiring shall be concealed and where exposed shall be run in conduit. Location of exposed wiring shall be subject to Consultant's approval.

3.3 **ADJUSTMENT AND CLEANING**

- .1 Test and adjust operators and controls smooth and proper operation.
- .2 Upon completion of Work of this Section, remove from Site all debris, equipment and excess material resulting from Work of this Section.

END OF SECTION

1 General

1.1 **SECTION INCLUDES**

- .1 Design, labour, Products, equipment and services necessary for gypsum board work.

1.2 **REFERENCES**

- .1 ASTM A653/A653M, Specification for Steel Sheet, Zinc-coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot-Dip Process.
- .2 ASTM C475, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.
- .3 ASTM C645, Specification for Nonstructural Steel Framing Members.
- .4 ASTM C754, Specification for Steel Framing Members to Receive Screw-Attached Gypsum Board.
- .5 ASTM C834, Standard Specification for Latex Sealants.
- .6 ASTM C840, Specification for Application and Finishing of Gypsum Board.
- .7 ASTM C1002, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
- .8 ASTM C1396, Specification for Gypsum Board.
- .9 ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 **DESIGN REQUIREMENTS**

- .1 Design gypsum board wall systems with a maximum deflection of  $l/360$ .
- .2 Design subframing as necessary to accommodate, and to circumvent, conflicts and interferences where ducts or other equipment prevent the regular spacing of hangers.
- .3 Design wall framing system and reinforce as necessary to accommodate and support items attached to and supported by wall framing system.
- .4 Design wall framing system for wall assemblies with a height greater than 3000 mm and those assemblies incorporating non-standard gypsum board assemblies including, but not limited to, abuse resistant gypsum board.



#### 1.4 REGULATORY REQUIREMENTS

- .1 Provide fire separations and fire protection exactly as specified in test design specification that validates the specified rating. Verify that work specified in other Sections, as a part of the entire assembly, meets applicable validating test design specification.

#### 1.5 SUBMITTALS

- .1 Product data:
  - .1 Submit copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
    - .1 Performance criteria, compliance with appropriate reference standard, characteristics, and limitations.
    - .2 Product transportation, storage, handling and installation requirements.
  - .2 Shop Drawings:
    - .1 Submit Shop Drawings in accordance with the Conditions of the Contract indicating:
      - .1 Wall assemblies, adjacent construction, elevations, sections and details, dimensions, thickness, finishes and relationship to adjacent construction.
      - .2 Framing and blocking for items being supported of wall systems.
      - .3 Fire rated designs.

#### 1.6 QUALITY ASSURANCE

- .1 Qualifications: Execute the work of this Section by skilled, qualified, and experienced workers trained in the installation of the work of this Section.
- .2 Retain a Professional Engineer, licensed in Province of Ontario, with experience in work of comparable complexity and scope, to perform following services as part of work of this Section:
  - .1 Design of wall systems with height greater than 3000 mm and at non-standard gypsum board assemblies including, but not limited to, assemblies incorporating abuse resistant gypsum board.
  - .2 Design of suspended gypsum board assemblies.
  - .3 Review, stamp, and sign Shop Drawings and design calculations.
  - .4 Conduct shop and on-site inspections, prepare and submit written inspection reports verifying that this part of Work is in accordance with Contract Documents and reviewed Shop Drawings.

#### 1.7 SITE CONDITIONS

- .1 Do not begin work of this Section until:
  - .1 Mechanical and electrical work above the ceiling is complete.
  - .2 Substrate and ambient temperature is above 15°C.
  - .3 Relative humidity is below 80 %.
  - .4 Ventilation is adequate to remove excess moisture.

- .2 Install temporary protection and facilities to maintain Product manufacturer's, and above specification, environmental requirements 24 h before, during, and 24 h after installation.

## 2 Products

### 2.1 **MATERIALS**

- .1 General: All materials under work of this Section, including but not limited to, sealants, adhesives, and primers are to have low VOC content limits.
- .2 Steel framing: ASTM C754; ASTM A653/A653-M, Z275; cold rolled, galvanized steel sheet.
  - .1 Bailey Metal Products Limited
  - .2 Corus Metal Profiles
- .3 Steel studs and track runners: ASTM C645; Galvanized steel studs and runners, 32 mm wide x depth as indicated on Contract Drawings. Formed from galvanized steel sheet, thicknesses as follows:
  - .1 Studs less than 3000 mm: Minimum 0.53 mm (25 ga.).
  - .2 Studs greater than 3000 mm and non-standard assemblies: Minimum 0.91 mm (20 ga.), unless stud thickness of greater thickness is required to accommodate intended loading, spans, or conditions.
  - .3 Track runners and ancillary components to match stud thickness.
- .4 Main carrying channels: ASTM C645; Formed from galvanized steel sheet, 38 x 19 mm cold rolled, channels.
- .5 Furring channels: ASTM C645; Formed from galvanized steel sheet, 22 mm winged flange type, cold rolled.
- .6 Furring channels (hat type): ASTM C645; 0.5 mm base steel thickness, galvanized. 70 mm wide x 22 mm deep hat shaped channel.
- .7 Heavy duty furring channels: ASTM C645; 0.9 mm steel thickness, galvanized hat shaped channel with a wider and deeper size as required by manufacturers.
- .8 Hanger wires: 4.1 mm minimum diameter galvanized pencil rod.
- .9 Tie wire: 1.6 mm thick minimum diameter, soft annealed, galvanized steel wire.
- .10 Corner bead, casing bead, and special shapes: Formed from 0.6 mm thick minimum, galvanized steel sheet, designed to be concealed by joint compound.
- .11 Deflection track: ASTM C 645 top runner with 50.8-mm- deep flanges, in thickness indicated for studs and in width to accommodate depth of studs.
- .12 Deflection track (fire rated): Provide 25 mm deep leg deflection track where indicated on rated walls. 'Fire Trak Shadowline' by Fire Trak Corporation or approved alternative.

- .13 Gaskets (acoustic partitions): Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 3.2 mm thick, in width to suit steel stud size.
- .14 Control joint strip: Roll formed from galvanized steel sheet, with a tape protected recess, 6 mm wide x 11 mm deep.
- .15 Screw fasteners: ASTM C1002 Type S; Corrosion resistant.
- .16 Concrete anchors: tie wire sleeve anchors, 'Redi-Drive Anchors' by ITW Red Head or approved alternative.
- .17 Standard and Fire-rated sealants:
  - .1 Acoustic sealant (non-rated): Non-hardening acoustic sealant for use at non-rated assemblies, ASTM C834; Acrylic, mould resistant sealant, paintable. 'Smoke and Acoustic Sealant CP506' by Hilti or approved alternative.
  - .2 Fire-rated sealant: Non-hardening sealant for use at fire-rated assemblies: ASTM E84; Acrylic based firestop sealant, colour: red or white as selected by Consultant. 'Flexible Firestop Sealant CP606' by Hilti or approved alternative.
  - .3 Fire-rated seal: Non-hardening seal for use at fire-rated assemblies: ASTM E84; Flexible seal for installation between top track and substrate. 'Firestop Top Track Seal CFS-TTS' by Hilti or approved alternative.
- .18 Gypsum board: ASTM C1396; gypsum board 12.7 mm thick of maximum practical lengths to minimize end joints, unless indicated otherwise. Furnish Board by Certainteed Gypsum Canada, CGC Inc., or Georgia-Pacific Canada LP.
- .19 Fire rated gypsum board: ASTM C1396; gypsum board 15.9 mm thick of maximum practical lengths to minimize end joints, unless indicated otherwise. Furnish Type X Board by Certainteed Gypsum Canada, CGC Inc., or Georgia-Pacific Canada LP.
- .20 Primer: Where indicated by board manufacturer, provide primer as required to achieve finishes as defined in ASTM C840.
- .21 Joint reinforcing tape: Standard gypsum board: ASTM C475; 50 mm wide x 0.25 mm thick, perforated paper, with chamfered edges.
- .22 Joint and patching compound: ASTM C475; Asbestos-free, supplied by manufacturer of gypsum board used.
- .23 Fast setting patching compound: ASTM C475; Asbestos-free, Sheetrock or Durabond by CGC Inc., 'Moisture and Mold Resistant Setting Compound with M2Tech' by Certainteed Gypsum Canada or approved alternative.
- .24 Access doors: Supplied by other Sections for installation as part of the work of this Section.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.2 **STEEL STUDS AND FURRING**

- .1 Install steel studs and furring in accordance with reviewed Shop Drawings and manufacturer's written instructions.
- .2 Install steel stud partitions to underside of structure unless indicated otherwise.
- .3 Install track runners at floors, ceilings, and underside of structure; align track runners accurately and secure to structure at 600 mm centres maximum.
- .4 Install double top track runner assembly to prevent the transmission of structural loads to steel studs.
- .5 Install steel studs vertically at 400 mm o.c., unless otherwise indicated, and not more than 50 mm from abutting walls, at openings, and at each side of corners. Install studs securely to track runners.
- .6 Schedule and coordinate steel framing installation with mechanical and electrical services installation.
- .7 Install full height, double studs at door and service openings, fastened together and stiffened back to the structure to prevent vibration when doors close.
- .8 Provide double studs boxed together at all openings, sill, head and jambs and at door jambs, fastened together and stiffened back to the structure to prevent vibration. At each opening exceeding 900 mm in width double studs shall be 20 ga. extending to structure above, and adequately anchored at each end. Provide steel studs above and below openings spaced at 400 mm oc maximum. All metal stud partitions above doors and screens over 1220 mm wide shall be secured to structure over and reinforced with sway bracing to stabilize walls to prevent lateral movement.
- .9 Erect three studs at corner and intermediate intersections of partitions. Space 50 mm apart and brace together with wired 19 mm channels.
- .10 Stiffen partitions over 2440 mm high or 3000 mm long, or both, with horizontal bracing extended for full length of partitions. Provide one line of bracing in partitions. Space lines to provide equal unbraced panels. Provide bracing for portions of partitions over door openings in partitions over 3000 mm high, and bracing both above and below openings in partitions located no greater than 150 mm from top and bottom of opening, and extending two stud spaces beyond each edge of opening for both doors and windows. Wire tie or weld bracing to studs.

- .11 Frame control joints using back to back double studs at abutting structural elements, at dissimilar backup interface, at dissimilar walls and ceilings, at structural expansion and control joints, at door and other openings, and at 9000 mm maximum spacing in continuous runs. Install control joint strips and secure in place.
- .12 Install additional support framing at openings and cutouts for built-in equipment, upper cabinet support, access panels and similar items.
- .13 Attach to framing adequate steel reinforcing members or an 1.2 mm (18 ga.) steel stud mounted horizontally and notched around furring members to support the load of, and to withstand the withdrawal and shear forces imposed by, items installed upon the work of this Section. Such items include, but are not restricted to, miscellaneous metals, miscellaneous specialties; Owner supplied equipment; and minor mechanical and electrical work. Heavy mechanical and electrical equipment shall be self-supporting in Divisions 21, 22, 23 and 26.
- .14 Provide for support and incorporation of flush-mounted and recessed mechanical and electrical equipment and fixtures only after consultation and verification of methods with those performing the work of Divisions 21, 22, 23 and 26.
- .15 Install cross bracing in accordance with the steel stud manufacturer's recommendations.

### 3.3 **FIRE RATED ASSEMBLIES**

- .1 Install Products in fire rated assemblies in strict accordance with reviewed Shop Drawings and applicable tested and approved designs required by Authorities Having Jurisdiction.
- .2 Install firestop fill material behind fire rated acoustical sealant and provide firestop identification tag.
- .3 Stiffen fire rated walls over 3.66 m high, where linear length of wall is greater than 2.44 m between perpendicular wall supports, with diagonal bracing above the ceiling extending perpendicular to wall at a 45° angle to structure above. Locate diagonal bracing at maximum 2.44 m o.c.
- .4 Where double layers of gypsum board are shown, and required for fire rating, screw first layer to studs and furring and laminate the second layer to the first using joint filler as an adhesive. Stagger joints between first and second layers.

### 3.4 **ACOUSTICAL SEALANT**

- .1 Install acoustical sealant to acoustically insulated partitions in accordance with the manufacturer's instructions and Contract Drawings.
- .2 Install acoustical sealant under floor runner track, at partition perimeter both sides and at openings, cut-outs, and penetrations, concealed from view in the final installation.
- .3 Smooth acoustical sealant with trowel prior to skin forming.

### 3.5 **GYPSUM BOARD**

- .1 Comply with ASTM C840. Install gypsum board in accordance with reviewed Shop Drawings and manufacturer's written instructions.
- .2 Install gypsum board vertically or horizontally, whichever results in fewer end joints. Locate end joints over supporting members.
- .3 Install gypsum board in lightly butted contact at edges and ends and with 1.6 mm maximum open space between boards; do not force gypsum board into place. Do not install imperfect, damaged or damp boards.
- .4 Install gypsum board butting paired tapered edge joints, and mill-cut or field-cut end joints; do not place tapered edges against cut edges or ends.
- .5 Install vertical joints minimum 300 mm from the jamb lines of openings and stagger vertical joints over different studs on opposite sides of partitions.
- .6 Do not locate joints within 200 mm of corners or openings, except where control joints occur at jamb lines or where openings occur adjacent to corners. Where necessary, place a single vertical joint over the centre of wide openings.
- .7 Cut, drill and patch gypsum board as may be necessary to accommodate the work of other trades.
8. Fire Separations:
  - .1 Construct gypsum board assemblies, where located, in accordance with tested assemblies to obtain required or indicated fire rated assemblies. As a minimum fire separations shall consist of metal framing covered on both sides by fire-rated gypsum board.
  - .2 Install assemblies tightly to enclosing constructions to maintain integrity of the separations. Install casing beads at all perimeter edges.

### 3.6 **CORNER, CASING BEADS AND TRIM**

- .1 Corner reinforcing bead: Install along all external angles, erect plumb, level and with a minimum of joints. Secure with screws at 225 mm o.c. apply filler over flanges flush with nose of the bead and extending at least 75 mm onto surface of board each side of corner. When filler dries, apply a thin coat of topping cement and blend onto adjoining surfaces.
- .2 Casing bead: Install where wallboard butts against a surface having no trim concealing the juncture and where shown on drawings. Erect casing beads plumb or level, with minimum joints, and secure with screws at 300 mm o.c. apply filler over flange flush with bead and extending at least 75 mm onto surface of board. When dry, apply a thin coat of topping cement and blend onto adjoining surfaces.
- .3 Recess channels and trim: Install recess channels and special metal trim where shown. Secure to substrate. Provide casing beads full height on wallboard edges at recess channels and metal trim.

### 3.7 **JOINT TAPING AND FINISHING**

- .1 Install reinforcing tape and a minimum of 3 coats of joint compound over gypsum board joints, metal trim and accessories, and screw fasteners in accordance with the gypsum board manufacturer's instructions.
- .2 Fill gaps between ,and any imperfections in, gypsum boards with joint compound, allow to dry, and sand smooth ready for painting.
- .3 Install finished gypsum board work smooth, seamless, plumb, true, flush, and with square, plumb, and neat corners.
- .4 Finish gypsum board in accordance with ASTM C840 to the following grades:
  - .1 Level 0: No taping, finishing, or accessories required. Use above suspended ceilings and within other concealed spaces, unless the assembly is fire rated, sound rated, sound or smoke controlled, or unless the space serves as an air plenum.
  - .2 Level 1: At joints and interior angles embed tape in joint compound. Leave surface free of excess joint compound. Tool marks and ridges are acceptable. Use above suspended ceilings and within other concealed spaces if the gypsum board assembly is fire rated, sound rated, sound or smoke controlled, or the space serves as an air plenum.
  - .3 Level 2: At joints and interior angles embed tape in joint compound with one separate coat of joint compound applied over joints, angles, fastener heads, and accessories. Use for water resistant gypsum board indicated for use as a substrate for ceramic tile.
  - .4 Level 3: At joints and interior angles embed tape in joint compound with two separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. Apply joint compound smooth and free of tool marks and ridges. Use where heavy grade wall coverings are the final decoration.
  - .5 Level 4: At joints and interior angles embed tape in joint compound with three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. Apply joint compound smooth and free of tool marks and ridges. Use for all locations except those indicated for other finish levels.
  - .6 Level 5: At joints and interior angles embed tape in joint compound with three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. Apply a thin skim coat of joint compound, or a material manufactured especially for this purpose, to the entire surface. Leave surface smooth and free of tool marks and ridges. Use where semi-gloss or gloss finish coatings are the final decoration.

### 3.8 **ACCESS DOORS**

- .1 Install access doors, supplied as part of other parts of the work, in accordance with manufacturer's written instructions.

3.9 **SITE TOLERANCES**

- .1 Install metal support systems to ensure that, within a tolerance of +3 mm and -1.5 mm for plaster thickness, finish surfaces will be flat within 3 mm under a 3 m straightedge, and with no variation greater than 1.5 mm in any running 300 mm, and that surface planes shall be within 3 mm of dimensioned location.

3.10 **WORK IN EXISTING AREAS**

- .1 In existing areas, where existing gypsum board work has been demolished and/or damaged and repair work is required, provide new gypsum board finish.
- .2 Thoroughly prepare areas to be repaired. Provide neat, clean and straight cuts.
- .3 Finish all repair work as specified for new work.
- .4 In existing areas where existing openings are to be filled in with gypsum board, provide new gypsum board wall and ceiling construction. Ensure new board faces are flush with faces of abutting existing walls and ceilings.

3.11 **REPAIR**

- .1 Make good cut-outs for services and other work, fill in defective joints, holes and other depressions with joint compound.
- .2 Make good defective work, and ensure that surfaces are smooth, evenly textured and within specified tolerances to receive finish treatments.

END OF SECTION



1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment and services necessary for detectable/tactile tiles work in accordance with the Contract Documents.

1.2 **REFERENCES**

- .1 CAN/ULC C572, Standard For Photoluminescent And Selfluminous Exit Signs And Path Marking Systems
- .2 ISO 23599, Assistive Products for Blind and Vision-Impaired Persons - Tactile Walking Surface Indicators.

1.3 **DESIGN REQUIREMENTS**

- .1 Design detectable tile system conforming to ISO 23599 and AODA requirements.

1.4 **SUBMITTALS**

- .1 Product data:
  - .1 Submit copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
    - .1 Performance criteria, compliance with appropriate reference standard, characteristics, limitations and warranties.
    - .2 Product transportation, storage, handling and installation requirements.
  - .2 Shop drawings:
    - .1 Submit shop drawings in accordance with the Conditions of the Contract indicating:
      - .1 Perimeter conditions, junctions with dissimilar materials.
      - .2 Setting details.
- .3 Samples: Submit two 300 x 300 mm samples of each type of detectable/tactile warning surfaces in accordance with the Conditions of the Contract.
- .4 Closeout submittals: Submit recommended maintenance instructions and listing of recommended maintenance Products for incorporation into Operations and Maintenance Manuals in accordance with the Conditions of the Contract.

1.5 **DELIVERY, STORAGE AND HANDLING**

- .1 Deliver materials in adequate crates or containers with manufacturer's name and product description clearly marked.
- .2 Handle and store tiles in a manner to avoid chipping or breakage. Take precautions to protect the adhesives from freezing or from excessive heat.

1.6 **SITE CONDITIONS**

- .1 Do not install work of this Section outside of the following environmental ranges without the Consultant's and Product manufacturer's written acceptance:
  - .1 Ambient air and surface temperature: Minimum 40°F.
  - .2 Precipitation: None.
- .2 Install temporary protection and facilities to maintain the Product manufacturer's, and specified, environmental requirements for 7 Days before, during, and 7 Days after installation.

1.7 **MAINTENANCE**

- .1 Submit extra tile amounting to 3% of gross area covered, allowing proportionately for each pattern and type specified and which are part of the same Production run as installed Products. Store maintenance Products as directed by the Consultant.

2 Products

2.1 **MATERIALS**

- .1 All materials under work of this Section, including but not limited to, sealants and adhesives are to have low VOC content limits.
- .2 Vitrified Polymer Composite (VPC) Tile: 5 mm thick epoxy polymer tiles with ultra violet stabilized coating employing aluminum oxide particles in truncated domes providing a slip resistance of not less than 0.80 to ASTM C1028. Tile shall incorporate an in-line pattern of truncated domes measuring nominal 5 mm high x 23 mm base diameter x 11 mm top diameter, spaced 60 mm o.c. diagonally and 42 mm side by side; "VPC Surface Applied Armor-Tile" as manufactured by Engineered Plastics Inc. or approved alternative in colour to be selected.
  - .1 Adhesive: Bonding adhesive 'Armor-Bond' by Engineered Plastics Inc. or approved alternative.
  - .2 Perimeter caulking sealant: 'Armor-Seal' by Engineered Plastics Inc. or approved alternative.
- .3 Tactile indicator tile (top of stair): Fire rated composite material conforming to ULC S102.2. Tiles shall incorporate an in-line pattern of truncated domes measuring nominal 5 mm high x 23 mm base diameter x 13 mm top diameter, spaced 61 mm o.c. apart; "Access Tile FR" as manufactured by Kinesik or approved alternative in colour and size to be selected. Adhesive: Bonding adhesive as approved by tactile tile manufacturer.
- .4 Visual Indicator Strips (ramps): 51 mm wide, photo-luminescent step edge strips, non slip surface and conforming to ULC572 and AODA requirements. Ecoglo E3071 as manufactured by Kinesik or approved alternative in colour finish Black. Adhesive; bonding adhesive as recommended by visual indicator manufacturer.

- .5 Contrasting indicator: Contrasting nosing base to be type 6063-T5 extruded aluminum; epoxy/abrasive filler to have minimum 60% aluminum oxide content; Treads to have raised non-slip continuous parallel ridges 50 mm wide near nosing. Raised portions to be 2.0 mm high, 2.0 mm wide and spaced 4.0 mm apart. Manufacture by Wooster Products Inc. or approved alternative. Colour to be Black. Bonding as recommended by visual indicator manufacturer.
- .6 Fasteners: Corrosion resistant inserts with heavy duty steel bolts and washers as recommended by tile Manufacturer.

### 3 Execution

#### 3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

#### 3.2 **PREPARATION**

- .1 Prepare substrate using steel aggregate blast method and vacuum substrate free of debris and dust.
- .2 Fill minor cracks and voids and prime surfaces in accordance with manufacturer's recommendations.
- .3 Protect adjacent surfaces from damage resulting from this work. Mask and/or cover adjacent surfaces, fixtures, and equipment as necessary.
- .4 Clean, prime and seal surfaces as recommended by detectable tile manufacturer.

#### 3.3 **SURFACE APPLIED INSTALLATION**

- .1 Apply adhesive to backside of tile, following perimeter and internal cross pattern established by tile manufacturer. Ensure sufficient adhesive has been placed on prescribed areas to have full coverage across width of adhesive locator and shall be applied to within 6 mm continuously around perimeter edge of tile.
- .2 Set tile true and square to areas as detailed on drawings.
- .3 Working from centre of tile outwards, proceed to drill and install all fasteners in tile's moulded recesses.
- .4 Drill hole while standing with both feet applying pressure around moulded recess in tile, drill through tile without hammer option until tile has been penetrated, then with hammer option to drill into concrete. Maintain foot pressure on both sides of hole while drilling to prevent concrete dust from accumulating between tile and concrete.

- .5 Immediately after drilling each hole, mechanically fasten tile to concrete substrate while still applying foot pressure. Ensure fastener has been placed to full depth in dome, straight, and flush to the top of dome and drive pin of fastener with mallet.
- .6 Apply perimeter caulking sealant in accordance with sealant manufacturer's recommendations and Section 07 92 00.

**3.4 TOP OF STAIR AND RAMPS INSTALLATION**

- .1 Install tactile indicator tiles at top of stair and top and bottom of ramps in accordance with manufacturers written instructions using adhesive and fasteners and to conform to standards.
- .2 Set tile true and square to areas as detailed on drawings.

**3.5 CLEANING AND PROTECTION**

- .1 Clean tiles in accordance with manufacturer's written instructions.
- .2 Prevent traffic over new installed detectable tiles, and protect from weather, freezing, and water immersion, for 24 hours minimum, after final installation.
- .3 Cover work temporarily with plywood until work has been approved by Consultant.

END OF SECTION

- 1 General
- 1.1 **SECTION INCLUDES**
  - .1 Labour, Products, equipment and services necessary for resilient tile flooring work and accessories in accordance with the Contract Documents.
- 1.2 **REFERENCES**
  - .1 ASTM F710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
  - .2 ASTM F1344, Standard Specification for Rubber Floor Tile.
  - .3 ASTM F1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
  - .4 ASTM F2169, Standard Specification for Resilient Stair Treads
  - .5 ASTM F 2170, Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes.
- 1.3 **SUBMITTALS**
  - .1 Product data:
    - .1 Submit copies of manufacturer's Product data in accordance with the Conditions of the Contract:
      - .1 Performance criteria, compliance with appropriate reference standard, characteristics, limitations.
      - .2 Product transportation, storage, handling and installation requirements.
  - .2 Samples:
    - .1 Submit following samples in accordance with the Conditions of the Contract:
      - .1 Two 250 x 200 mm samples of each type of tile material and colour.
      - .2 Two 250 mm long samples of each accessory and colour.
  - .3 Extended warranty: Submit extended warranty signed and registered by the manufacturer providing the warranty in the name of the Owner for the timeframe and coverage specified in this Section.
  - .4 Closeout submittals: Submit maintenance and cleaning data for incorporation into Operations and Maintenance Manuals in accordance with the Conditions of the Contract.
- 1.4 **SITE CONDITIONS**
  - .1 Maintain air temperature and structural base temperature at flooring installation area above 20°C for 48 hr before, during and 48 hr after installation.

- .2 Store materials for 2 days prior to installation in area of Work to achieve temperature stability.
- .3 Do not lay flooring in conditions of high humidity or where exposed to cold drafts. In hot weather, protect from direct sunlight.
- .4 Provide adequate ventilation during installation.

## 1.5 **MAINTENANCE**

- .1 Submit extra 5% or to nearest full carton of each colour, pattern and type of flooring material and base required for maintenance use. Identify each carton. Store where directed.

## 2 Products

### 2.1 **MATERIALS**

- .1 All materials under work of this Section, including but not limited to, primers, adhesives, sealers, and waxes are to have low VOC content limits.
- .2 Stair treads (RT-1): homogeneous composition of 100% synthetic rubber, high quality additives, and colorants to meet the performance requirements of ASTM F2169. Rubber treads with a raised round profile complete with a 50 mm wide contrasting wide strip of contrasting color to comply with A.D.A., Visually-Impaired, and California Title 24 requirements. Standard formulation exceeds ASTM E 648 Class 1 Flammability requirements. Tread shall have a tapered thickness of 5.33 mm to 2.87 mm complete with a 50 mm hinged square nose, colour to be Black; 'Rubber Tread with Integrated Riser For the visually Impaired' by Tarkett or approved alternative.
- .3 Stair treads (alternative): Rubber treads with a low profile raised round profile complete with a 50 mm wide contrasting solid rubber colour insert strip at nose of tread. Tread shall have a tapered thickness of 5.33 mm to 2.87 mm complete with a 50 mm hinged square nose, colour to later selection of Consultant from manufacturer's full colour range; '#92 Low Profile Raised Circular Design ' by Roppe or approved alternative.
- .4 Primers and adhesives: Low VOC, waterproof, recommended by flooring manufacturer for specific material on applicable substrate, above, at or below grade.
- .5 Concrete skim coat compound: High-performance, rapid-setting cement based skim coating compound. 'Planiprep SC' by Mapei or approved alternative for filling minor voids and leveling existing substrate.
- .6 Sealer and wax: Type recommended by flooring manufacturer.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.
- .2 Ensure concrete floors meet the following minimum requirements and requirements of the flooring manufacturer. If there is a conflict between these requirements and those of the flooring manufacturer, the more stringent shall apply.
  - .1 Internal Relative Humidity Test: Perform internal relative humidity testing in accordance with ASTM F2170. Results shall not exceed 80% RH.
  - .2 Moisture Test: Moisture emissions from concrete subfloors (cured for a minimum of 28 days) must not exceed 3 lbs per 1000sf per 24 hours (1.4 kg H<sub>2</sub>O/24 hr/93 m<sup>2</sup>) for acrylic adhesive and 5lbs for polyurethane adhesive via the Calcium Chloride Test Method (ASTM F1869).
  - .3 The pH level of the subfloor surface shall not be higher than 9.9. If higher, subfloor must be neutralized.
- .3 Ensure that sub-floors have been provided as specified without holes, protrusions, cracks, depressions or other major defects.
- .4 Ensure that control joints have been filled and levelled.
- .5 Defective work resulting from application to unsatisfactory surfaces will be considered the responsibility of those performing the work of this Section.

3.2 **SUBFLOOR TREATMENT**

- .1 Flooring shall be installed over subfloors conforming to ASTM F710 for concrete.
- .2 Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- .3 Apply sub-floor filler to low spots and cracks to achieve floor level to a tolerance of 1:1000, allow to cure.
- .4 Meet ASTM F710 Standard for Concrete or other monolithic floors.
- .5 Clean and remove all deleterious materials from surfaces to receive this work in accordance with the adhesive manufacturer's recommendations.
- .6 Prime concrete to flooring manufacturer's printed instructions.

3.3 **STAIR TREADS, AND STAIR NOSING**

- .1 Prepare adhesive and install materials in accordance with manufacturer's written instructions.

- .2 Pre-cut and fit treads prior to spreading adhesive. Fill back side of tread nose with a caulking bead; brush on adhesive on understeps and back of treads, as well as back of risers, and on receiving substrate. Allow to become tacky to touch before installing. Treads shall be fully bonded to substrate, with tread nosing butted tight against stair tread nosing. Roll with hand roller after installation.
- .3 Remove adhesive seepage at seams or surface while adhesive is still wet, in accordance with manufacturer's recommendations.

### 3.4 **CLEANING AND WAXING**

- .1 Forty-eight hours after installation, clean vinyl tile surfaces with a mild soap solution approved by finish manufacturer. Rinse clean, dry and apply 2 coats of wax. Polish thoroughly.

### 3.5 **PROTECTION OF FINISHED WORK**

- .1 Protect floors from time of final set of adhesive until final waxing.
- .2 Prohibit traffic on floor for 48 hours after installation.
- .3 Cover waxed and polished surfaces with fibre reinforced, clean, non-staining kraft paper. Secure in position with gummed tape to prevent drifting. Remove covering when directed by Consultant.

END OF SECTION



- 1 General
- 1.1 **SECTION INCLUDES**
  - .1 Labour, Products, equipment and services necessary for painting work in accordance with the Contract Documents.
- 1.2 **REFERENCES**
  - .1 Master Painters Institute (MPI), Painting Specification Manual.
  - .2 SSPC Steel Structures Painting Council, Standards.
- 1.3 **SUBMITTALS**
  - .1 Product data:
    - .1 Submit copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
      - .1 Performance criteria, compliance with appropriate reference standard, characteristics, limitations.
      - .2 Product transportation, storage, handling and installation requirements.
    - .2 Submit listing of manufacturer's Product types, Product codes, and Product names, number of coats, and dry film thicknesses, corresponding to each Painting Schedule code; submit listing minimum of 8 weeks before materials are required.
  - .2 Samples:
    - .1 Submit following samples in accordance with the Conditions of the Contract
      - .1 Three 300 x 150 mm draw downs of each colour minimum 4 weeks before paints are required.
      - .2 Identify each sample with Contract number and title, colour reference, sheen, date, and name of applicator.
  - .3 Certificates:
    - .1 Submit certification from paint manufacturer, on company letterhead, indicating each product proposed for use is Manufacture's premium grade, first line Product.
    - .2 Submit certified documentation to confirm each airless spray painter has minimum of 5 years experience on applications of similar complexity and scope.
    - .3 Submit certified documentation to confirm each worker has Provincial Tradesman Qualification certificate of proficiency.
  - .4 Reports:
    - .1 Submit written field inspection and test report results after each inspection.
    - .2 Submit Field Quality Control test result reports for alkali content, substrate moisture, and dry film thickness.
    - .3 Submit electronic moisture meter manufacturer's specifications including tolerances. Submit record of latest meter calibration to meet manufacturer's recommendations.
- 1.4 **QUALITY ASSURANCE**
  - .1 Finishing work: Perform work to MPI requirements for premium grade.

- .2 Supervision: Have work supervised by a full-time qualified foreperson who has 10 years minimum experience on Contracts of similar complexity and scope.
- .3 Mock-up:
  - .1 Construct three 3 m<sup>2</sup> mock-ups of different Paint Schedule code systems, selected by Consultant, in locations acceptable to Consultant to demonstrate installation workmanship, colour, and hiding power of Products.
  - .2 Obtain Consultant's acceptance in writing before proceeding with the work of this Section.
  - .3 Mock-ups may remain as part of the Work if acceptable to Consultant and will serve as a standard for similar code systems.
  - .4 Repaint over mock-ups which do not form part of the Work.

### 1.5 **DELIVERY, STORAGE, AND HANDLING**

- .1 Install correct, safe temporary storage for paint, thinner, solvents, and other volatile, corrosive, hazardous, and explosive materials in accordance with requirements of authorities having jurisdiction.
- .2 Post hazard warning signage in areas of storage and mixing. Install and maintain sufficient CO<sub>2</sub> fire extinguishers of minimum 9 kg capacity, accessible in each storage mixing and storage areas.
- .3 Maintain storage enclosures at minimum 10°C ambient temperature and to manufacturer's instructions.

### 1.6 **SITE CONDITIONS**

- .1 Apply coatings under the following conditions:
  - .1 Exterior coatings (except Latex): 5° C minimum.
  - .2 Exterior latex coatings: 10°C minimum.
  - .3 24 hours minimum after rain, frost, condensation, or dew.
  - .4 When no condensation is possible (unless specifically formulated against condensation).
  - .5 Interior coatings: 7°C minimum.
  - .6 Relative humidity: 85% maximum.
  - .7 Not in direct exposure to sun light.
- .2 Maintain temperature conditions indicated above for 24 hours before, during and 24 hours after painting.
- .3 Install clean plywood sheets to protect floors and walls in storage and mixing areas, from paint drips, spatters, and spills.
- .4 Apply sufficient masking, clean drop cloths, and protective coverings for full protection of work not being painted including, but not limited to, the following:
  - .1 Light fixtures, fire and smoke detectors.
  - .2 Data cabling and data infrastructure.
  - .3 Sprinkler heads.
  - .4 Prepainted diffusers and registers.

- .5 Prepainted equipment.
- .6 Fire rating labels and equipment specification plates.
- .7 Finished surfaces.

## 1.7 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

1. Provide paint products meeting MPI "Green Performance Standard GPS-1-12.

## 1.8 MAINTENANCE

1. Deliver to Owner's place of storage on completion of work, sealed containers of each finish painting material applied, and in each colour. Label each container as for original, including mixing formula. Provide the following:
  - .1 1 L of extra materials when less than 50 L are used for Project;
  - .2 3.78 L of extra stock when 50 to 200 L are used;
  - .3 7.57 L of extra stock when over 200 L are used.

## 2 Products

### 2.1 MATERIALS

- .1 Paint:
  - .1 All materials under work of this Section, including but not limited to, primers, stains, and paints are to have low VOC content limits.
  - .2 Products in accordance with the MPI Painting Specification Manual, Exterior and Interior Systems;
    - .1 For each MPI paint code, manufacture's premium grade, first line Products is to be use.
    - .2 Uniform dispersion of pigment in a homogeneous mixture.
    - .3 Ready-mixed and tinted whenever possible.
  - .3 Products within each MPI paint system code: From single manufacturer.
  - .4 Acceptable manufacturers:
    - .1 AkzoNobel.
    - .2 Benjamin Moore.
    - .3 PPG Industries Inc.
    - .4 Sherwin Williams.

### 2.2 COLOUR SCHEDULE

- .1 Consultant will select choice of colours and gloss when compiling a Colour Schedule after award of Contract; allow for colour selection beyond paint manufacturer's standard colour range.
- .2 Refer to Colour Schedule for selected colour references.
- .3 Conform to gloss reflectance definitions listed in MPI Specification Manual.

**2.3 PAINTING AND FINISHING SCHEDULE**

- .1 Refer to Table 1, MPI Painting and Finishing Schedule coded systems, comply with MPI Painting Specification Manual.

Table 1: Painting and Finishing Schedule				
<b>SUBSTRATES</b>	Typical substrates (Including but not limited to)	MPI Manual Ref.	MPI Finish System Code	Topcoat
Concrete floors		INT 3.2	INT 3.2C	Epoxy
Concrete block masonry	Existing	INT 4.2	INT 4.2J	Epoxy-modified latex
Galvanized steel		INT 5.3	INT 5.3A	Latex
Galvanized metal		INT 5.3	INT 5.3M	High Performance Latex
Gypsum board,	Drywall, walls, ceilings	INT 9.2	INT 9.2A	Latex

**3 Execution**

**3.1 EXAMINATION**

- .1 Verify condition of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

**3.2 PREPARATION**

- .1 General:
  - .1 Clean substrate surfaces free from, dust, grease, soiling, or extraneous matter, which are detrimental to finish.
  - .2 Patch, repair, and smoothen minor substrate defects and deficiencies e.g. machine, tool and sand paper marks, shallow gouges, marks, and nibs.
  - .3 Clean, sweep, and vacuum floors and surfaces to be painted, debris and dust-free prior to painting.
  - .4 Refer to MPI Painting Specification Manual for surface preparation requirements of substrates not listed here.

- .2 Where finish hardware has been installed remove, store, re-install finish hardware, to accommodate painting. Do not clean hardware with solvent that will remove permanent lacquer finishes.
- .3 Alkali Content tests and neutralization:
  - .1 Test for ph level using litmus paper on dampened substrate.
  - .2 Neutralize surfaces over 8.5 ph with 4% solution of Zinc Sulphate for solvent based systems and tetrapotassium pyrophosphate for latex based systems, to below 8.0 ph, and allow to dry.
  - .3 Brush-off any residual Zinc Sulphate crystals.
  - .4 Coordinate paint system primer / sealer to be alkali-resistant.
- .4 Substrate moisture tests:
  - .1 Test for moisture content over entire surface to be painted, minimum one test/ 2 m<sup>2</sup> in field areas and one test/600 mm along inside corners including at ceiling to wall juncture.
  - .2 If any test registers above 10% allow entire substrate surfaces, within the plane, to dry further before paint system application. Install temporary drying fans if necessary.
  - .3 Re-test employing same criteria.
- .5 Mildew removal: Scrub with solution of trisodium phosphate and sodium hypochlorite (Javex) bleach, rinse with water, and allow to dry completely.
- .6 Cementitious and masonry (existing): Clean existing surfaces by pressure washing where indicated on drawings with a TSP solution and pressure range of 1500 - 4000 PSI at 6 - 12". Rinse areas with clean water and allow to thoroughly dry. Provide for collection and disposal of water.
- .7 Concrete floors (existing): Clean existing surfaces by pressure washing where indicated on drawings with a TSP solution and pressure range of 1500 - 4000 PSI at 6 - 12". Rinse areas with clean water and allow to thoroughly dry. Provide for collection and disposal of water.
- .8 Concrete floors (new):
  - .1 Allow 28 days cure before painting.
  - .2 Remove contamination, acid etch, rinse with water, and allow to dry completely. Test and adjust for neutral ph.
- .9 Galvanized steel sheet:
  - .1 Z275 (Satin & Spangled Sheet): SSPC SP7 brush blast.
  - .2 ZF075 (Wiped Coat): Remove contamination, wash with Xylene solvent.
  - .3 Touch-up damaged galvanized areas with organic zinc rich primer.
- .10 Galvanized iron and steel: Prepare galvanized and ungalvanized metal surfaces as follows:
  - .1 Unpassivated, unweathered and weathered: Remove contamination, wash with Xylene or Toluol solvent, allow to dry thoroughly. Make paint system primer/sealer an etching type primer.
  - .2 Manufacturer pre-treated (including passivated): SSPC SP7.
  - .3 Touch-up damaged galvanized areas with organic zinc rich primer.

- .11 Structural steel and miscellaneous metal fabrications:
  - .1 Coordinate the following with the responsible trades:
    - .1 Rust, mars, mill scale, and weld-burn touch-ups.
    - .2 Oil, grease, weld flux and other residue removal.
  - .2 Prime paint items, not otherwise indicated to be primed as part of another Section.
  - .3 Touch-up damaged galvanized areas with organic zinc rich primer.
- .12 Wood (existing):
  - .1 Rough woods: brush surface free of all dirt, dust and foreign matter with a wire brush.
  - .2 Smooth woods: brush surfaces with a stiff fibre brush to remove dirt, dust etc.
- .13 Gypsum board (existing):
  - .1 Remove dust, dirt, oil, grease, glue and all foreign material. Clean with stiff fibre brush prior to applying primer coat.
  - .2 Coordinate repairs and touch-ups with the responsible trade.
  - .3 Lightly sand surface to smooth out ridges and provide neat smooth surface.
- .14 Gypsum board:
  - .1 Apply primer/sealer paint to reveal defects and deficiencies and to equalize absorption areas.
  - .2 Coordinate repairs and touch-ups with the responsible trade.
  - .3 Re-prime repairs.
- .15 Coordinate with other trades to prevent:
  - .1 Damage, and inadvertent activation of fire and smoke detectors.
  - .2 Odour and dust distribution by permanent HVAC systems including fouling of ducts and filters.
- .16 Field-mix Products in accordance with manufacturer's written instructions.

### 3.3 **APPLICATION**

- .1 Apply painting systems in accordance with the MPI Painting Specification Manual. Apply each Product to manufacturer's recommended dry film thickness.
- .2 Painting systems listed are required minima, apply additional coats if necessary to obtain substrate hiding acceptable to the Consultant.
- .3 Tint intermediate coats lighter than final top coats for identification of each succeeding coat and to facilitate inspections. Include only manufacturer's recommended reducing and tinting accessories. Do not add adulterants.
- .4 Primer to be specialized primer coating system as required by manufacturer for selected colour. Standard primer being tinted shall be tinted to a maximum of 1.5% by volume.
- .5 Sand lightly between coats to achieve a tooth or anchor for subsequent coats.

- .6 Apply paint uniformly in thickness, colour, texture, and gloss, as determined by the Consultant under adequate illumination and viewed at a distance of 1500 mm. Apply finishes free of defects in materials and application which, in the opinion of the Consultant, affect appearance and performance. Defects include, but are not limited to:
  - .1 Improper cleaning and preparation of surfaces.
  - .2 Entrapped dust, dirt, rust.
  - .3 Alligatoring, blisters, peeling.
  - .4 Scratches, blemishes.
  - .5 Uneven coverage, misses, drips, runs, and poor cutting in.
- .7 Do not apply coatings on substrates which are not sufficiently dry. Unless indicated otherwise, allow each painting system coat to cure dry and hard before following coats are applied.
- .8 Repaint entire areas of damaged or incompletely covered surfaces, to the nearest inside or outside corner; patching will not be permitted.
- .9 Miscellaneous painting requirements:
  - .1 Paint projecting ledges, and tops, bottoms and sides of doors both above and below sight lines to match adjacent surfaces.
  - .2 Paint door frames, access doors and frames, door grilles, prime coated butts, and prime coated door closers to match surface in which they occur.
  - .3 Finish closets and alcoves as specified for adjoining rooms.
  - .4 Paint light coves white whether a light lense is installed or not, unless otherwise indicated.
  - .5 Paint interior columns to match walls of room.
  - .6 Allow for:
    - .1 2 wall colours per room, one ceiling colour per room.
    - .2 Different door colours in each functionally different area.
    - .3 Different colours on both sides of same door.
- .10 Mechanical, electrical and other painting coordination:
  - .1 Paint following items unless specified or indicated on drawings not to be painted.
  - .2 Paint mechanical services in accordance with Mechanical Identification Division 21, 22 and 23.
  - .3 Coordinate painting of pipes, ducts, and coverings with the work of Division 21, 22 and 23 to precede pipe colour banding, flow arrows, and other pipe identification labeling installation.
  - .4 Paint exposed conduit, pipes, hangers, ductwork, grilles, gratings, louvres, access panels, fire hose cabinets, registers, convactor and radiator covers, enclosures, and other mechanical and electrical equipment including services concealed inside cupboard and cabinet work; apply colour and sheen to match adjacent surfaces, except as noted otherwise.
  - .5 Paint portions of surfaces such as duct interiors, piping, ductwork, hangers, insulation, walls, and similar items, visible through grilles, louvres, convactor covers etc., matte black in colour.
  - .6 Remove the following to accommodate painting, carefully store, clean, then re-install on completion of each area and when dry:
    - .1 Switch and receptacle plates, fittings and fastenings, grilles, gratings, louvres, access panels, convactor covers, and enclosures .

**3.4 FIELD QUALITY CONTROL**

- .1 Dry film thickness tests:
- .1 Test for film thickness over entire surface to be painted, minimum one test/2 m<sup>2</sup> in field areas and one test/600 mm along inside corners including at ceiling to wall juncture.
  - .2 If any test registers below specified thickness, re-apply paint to entire surface to nearest inside and outside corners.
  - .3 If test registers more than 50% above specified thickness, consult with paint manufacturer, determine if problem exists, offer solutions to Consultant, and repair as directed.
  - .4 Re-test employing same criteria after repair.

**3.5 CLEANING**

- .1 Remove spilled, splashed, and spattered paint promptly as work proceeds and on completion of work. Clean surfaces soiled by paint spillage and paint spatters. Repair or replace damaged work, as directed by Consultant.

**3.6 PROTECTION**

- .1 Post Wet Paint signs during drying and restrict or prevent traffic where necessary.
- .2 Post sign, after Consultant's inspection and acceptance of each room, reading: **PAINTING COMPLETE - NO ADMITTANCE WITHOUT CONTRACTOR'S PERMISSION.**

END OF SECTION



- 1 General
  - 1.1 **SECTION INCLUDES**
    - .1 Design, labour, products, equipment and services necessary for signage work in accordance with the Contract Documents.
  - 1.2 **SUBMITTALS**
    - .1 Product data:
      - .1 Submit duplicate copies of manufacturer's Product data in accordance with the Conditions of the Contract indicating:
        - .1 Product transportation, storage, handling and installation requirements.
    - .2 Samples: Submit two 300 x 300 mm samples of each finish specified in accordance with the Conditions of the Contract.
    - .3 Submit templates to Contractor for use by installers and fabricators as required for proper location and installation of hardware.
  - 1.3 **DELIVERY, STORAGE AND HANDLING**
    - .1 Deliver products to location at building site designated by Contractor.
- 2 Products
  - 2.1 **GENERAL**
    - .1 Incorporate fastenings and anchorage required for building in of products.
  - 2.2 **MISCELLANEOUS PARKING LOT SIGNS**
    - .1 Provide mounted prefinished metal 'No Parking', 'Fire Route', 'Handicap Parking' and other signage as needed to City of Barrie By-laws for Parking Standards.
  - 2.3 **STAIR SIGNAGE**
    - .1 Indicate assigned floor numbers with Arabic numerals mounted permanently on the stair side of the wall at the latch side of doors to exit stair shafts.
    - .2 Indicate designation assigned to each exit stair shaft with Upper case letters mounted permanently on each side of doors to the exit stair shafts.
    - .3 Number dimensions: 60 mm high and raised 0.7 mm above wall surface.
    - .4 Locate 1500 mm above finished floor and 300 mm maximum from the door.
    - .5 Colour: to contrast with wall surface, as selected from standard range by Consultant.

3 Execution

3.1 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of work of this Section means acceptance of existing conditions.

3.2 **INSTALLATION**

- .1 Provide manufacturer's information and templates required for installation of work of this Section.

3.3 **ADJUSTMENTS AND CLEANING**

- .1 Refinish damaged or defective work so that no variation in surface appearance is discernible. Refinish work at site only if acceptable.

END OF SECTION

- 1 General
- 1.1 **SECTION INCLUDES**
  - .1 Labour, Products, equipment and services necessary for miscellaneous site furnishings work in accordance with the Contract Documents.
- 1.2 **SUBMITTALS**
  - .1 Product data:
    - .1 Submit duplicate copies of manufacturer's Product data for each Product specified in accordance with the Conditions of the Contract indicating:
      - .1 Performance criteria, compliance with appropriate reference standard(s), characteristics, and limitations.
      - .2 Product transportation, storage, handling and installation requirements.
    - .2 Shop drawings:
      - .1 Submit shop drawings in accordance with the Conditions of the Contract indicating elevations, sections, details, dimensions, materials, gauges, and finishes.
    - .3 Closeout submittals: Submit cleaning and maintenance instructions for miscellaneous specialties for incorporation into Operations and Maintenance Manuals in accordance with the Conditions of the Contract.
- 1.3 **DELIVERY, STORAGE, AND HANDLING**
  - .1 Package or crate, and brace products to prevent distortion in shipment and handling. Label packages and crates, and protect finish surfaces by sturdy wrappings.
- 2 Products
- 2.1 **MANUFACTURED UNITS**
  - .1 Wheelchair Accessible Picnic Table :
    - .1 8 Table - 2 Wheelchair access , plastic coated steel rectangular table. Seat dimensions; 1828.8 mm L x 254 mm W x 470 mm H, able dimension;; 2438.4 mm L x 762 mm W x 774.7 mm H.Colour to be selected by Consultant. 'Supersaver Commercial Rectangular Wheelchair Accessible Picnic Table - 2 Chair' as manufacturer by Barco Products Canada or approve alternative.
- 3 Execution
- 3.1 **INSTALLATION**
  - .1 Install miscellaneous site furnishings level and securely and rigidly anchored in accordance with reviewed shop drawings, and manufacturer's written instructions.

- .2 After installation, adjust miscellaneous site furnishings in accordance with manufacturer's written instructions.

3.2 **TOUCH UP**

- .1 Touch up material finish damaged during transit and installation, with paint to match existing.

END OF SECTION

## **Division 20 Common Requirements for Mechanical**

- 20 00 01 Mechanical Specification Index
- Common Contract Requirements for Mechanical**
- 20 02 51 Mechanical Contract General Requirements
- Common Work Results for Mechanical**
- 20 05 11 Mechanical General Work Requirements
- 20 05 21 Demolition and Renovation
- 20 05 53 Identification of Mechanical Services
- Testing, Adjusting, and Balancing**
- 20 06 11 Testing, Adjusting, and Balancing (TAB) of Mechanical Systems

## **Division 23 Heating, Ventilating, and Air Conditioning (HVAC)**

- Facility Fuel Piping**
- 23 11 23 Facility Natural-Gas & Propane Piping
- HVAC Ducts and Casings**
- 23 31 13 Metal Ducts
- Packaged Outdoor HVAC Equipment**
- 23 74 43 Packaged Rooftop HVAC Units

**END OF SECTION**

**Part 1            General**

**1.1            GENERAL PROVISIONS**

- .1    This section covers items common to all sections of Mechanical Division.
- .2    Conform to Division 1 General Conditions.
- .3    Furnish labour, materials, and equipment necessary for completion of work as described in contract documents.
- .4    Unless specifically indicated, all materials and equipment provided under this contract shall be new and shall be manufactured in the project year.

**1.2            INTENT**

- .1    Mention herein or indication on Drawings of articles, materials, operations or methods requires: supply of each item mentioned or indicated, of quality, or subject to qualifications noted; installation according to conditions stated: and, performance of each operation prescribed with furnishing of necessary labour, equipment, and incidentals for mechanical work.
- .2    Where used, words "Section" and "Division" shall also include other Subcontractors engaged on site to perform work to make building and site complete in all respects.
- .3    Where used, word "supply" shall mean furnishing to site in location required or directed complete with accessory parts.
- .4    Where used, word "install" shall mean secured in place and connected up for operation as noted or directed.
- .5    Where used, word "provide" shall mean supply and install as each is described above.

**1.3            REGULATIONS, PERMITS AND FEES**

- .1    All materials and quality of work shall meet all current and latest Provincial, Municipal and Fire Marshall requirements, regulations, codes, and by-laws in force in the area of the project.
- .2    Each contractor shall give all necessary notices, obtain all necessary permits, and pay all fees in order that the work shown or specified may be carried out. Each contractor shall furnish any certificates necessary as evidence that the work installed conforms with the laws and regulations of all authorities having jurisdiction.
- .3    In the event that changes, or alterations are required on completed work by authorized inspectors, these changes shall be made at the contractor's expense.
- .4    Special equipment which does not have a standard CSA label shall be inspected by the local electrical authority having jurisdiction and the Approval Certificate shall be submitted to the Consultant as soon as possible. All costs and fees for inspections shall be borne by this contractor.

**1.4 DRAWINGS**

- .1 Mechanical Drawings do not show structural and related details. Take information involving accurate measurement of building from building drawings, or at building. Make, without additional charge, any necessary changes, or additions to runs of piping, conduits, and ducts to accommodate structural conditions. Location of pipes, ducts, conduits and other equipment may be altered by Consultant without extra charge provided change is made before installation and does not necessitate major additional material.
- .2 As work progresses and before installing piping, ductwork, heating units, registers, diffusers, fixtures and any other fittings and equipment which may interfere with interior treatment and use of building, provide detail drawings, or obtain directions for exact location of such equipment and fittings.
- .3 Mechanical Drawings indicate general location and route of pipes, ducts and conduits which are to be installed. Where required work is not shown or only shown diagrammatically, install same at maximum height in space to conserve head room (minimum 2200 mm (88") clear) and interfere as little as possible with free use of space through which they can pass. Follow building lines, conceal piping, conduits and ducts in furred spaces, ceilings and walls unless specifically shown otherwise. Install work close to structure so furring will be small as practical.
- .4 Install piping and ductwork to clear structural members and any fireproofing. Locate mechanical work to permit installation of specified insulation. Do not remove or damage structural fireproofing. Leave space to permit fireproofing and insulation to be inspected and repaired.
- .5 Before commencing work, check and verify all sizes, locations, grade and invert elevations, levels, and dimensions to ensure proper and correct installation. Verify existing/municipal services.
- .6 Locate all mechanical and electrical equipment in such a manner as to facilitate easy and safe access to and maintenance and replacement of any part.
- .7 In every place where there is indicated space reserved for future or other equipment, leave such space clear, and install piping and other work so that necessary installation and connections can be made for any such apparatus. Obtain instructions whenever necessary for this purpose.
- .8 Relocate equipment and/or material installed but not coordinated with work of other Sections and/or installed incorrectly as directed, without extra charge.
- .9 Where drawings are done in metric and product not available in metric, the corresponding imperial trade size shall be utilized.

**1.5 INTERFERENCE AND COORDINATION DRAWINGS**

- .1 Prepare interference and equipment placing drawings to ensure that all components will be properly accommodated within the constructed spaces provided.
- .2 Prepare drawings to indicate co-ordination and methods of installation of a system with other systems where their relationship is critical. Ensure that all details of equipment apparatus, and connections are coordinated.

- .3 Ensure that clearances required by jurisdictional authorities and clearances for proper maintenance are indicated on drawings.
- .4 Upon consultant's request submit copies of interference drawings to consultant.
- .5 Due to the nature of the building and the complexity of the building systems provide the following:
  - .1 Interference drawings, showing coordination of architectural, structural, mechanical, and electrical systems for the consultant's review prior to fabrication.
  - .2 Detailed layout drawings, clearly showing fasteners and hangers.
- .6 Provide CAD drawings (minimum file version AutoCAD 2013) in addition to hard copies.

#### **1.6 QUALITY ASSURANCE**

- .1 Perform work in accordance with applicable provisions of local Plumbing Code, Gas Ordinances, and adoptions thereof for all mechanical systems. Provide materials and labor necessary to comply with rules, regulations, and ordinances.
- .2 In case of differences between building codes, provincial laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Consultant in writing of such differences.

#### **1.7 ALTERNATES AND SUBSTITUTIONS**

- .1 Throughout Mechanical Division are lists of "Alternate Equipment" manufacturers acceptable to Consultant if their product meets characteristics of specified described equipment. Submitted Bids shall be based on the supply of named articles and or products as specified in the Bid Documents.
- .2 Each bidder may elect to use "Alternate Equipment" from lists of Alternates where listed. Include for any additional costs including all costs for revisions to electrical contract to suit Alternate used. Prices are not required in Tender for Alternates listed except where specifically noted as "Separate Price". Complete the Supplementary Tender Form.
- .3 When two or more suppliers/manufacturers are named in the Bid Documents, only one supplier/manufacturer of the products named will be acceptable; however, it is the responsibility of this Division to ensure "Alternate Equipment" fits space allocated and gives performance specified. If an "Alternate Equipment" nor "equal" specified product unit is proposed and does not fit space allotted in Consultant's opinion, supply of specified described equipment will be required without change in Contract amount. Should electrical characteristics for "alternate" or "equal" equipment differ from equipment specified it shall be the responsibility of the equipment manufacturer to pay all costs associated with the revisions to the electrical contract. Only manufacturers listed will be accepted for their product listing. All other manufacturers shall be quoted as substitution stating conditions and credit amount.
- .4 If item of material specified is unobtainable, state in Tender proposed substitute and amount added or deducted for its use. Extra monies will not be paid for substitutions after Contract has been awarded.
- .5 If pipe or item, of size or weight indicated, is unobtainable, supply next larger size or heavier weight without additional charge.



**1.8 EXAMINATION**

- .1 Site Reviews
  - .1 Examine premises to understand conditions, which may affect performance of work of this Division before submitting proposals for this work.
  - .2 No subsequent allowance for time or money will be considered for any consequence related to failure to examine site conditions.
- .2 Drawings:
  - .1 Mechanical Drawings show general arrangement of piping, ductwork, equipment, etc. Follow as closely as actual building construction and work of other trades will permit.
  - .2 Consider Architectural and Structural Drawings part of this work insofar as these drawings furnish information relating to design and construction of building. These drawings take precedence over Plumbing, Mechanical, and Fire Protection Drawings.
  - .3 Because of small scale of Drawings, it is not possible to indicate all offsets, fittings, and accessories, which may be required. Investigate structural and finish conditions affecting this work and arrange work accordingly, providing such fittings, valves, and accessories required to meet conditions.
- .3 Ensure that items to be furnished fit space available. Make necessary field measurements to ascertain space requirements including those for connections and furnish and install equipment of size and shape so final installation shall suit true intent and meaning of Contract Documents. If approval is received by Addendum or Change Order to use other than originally specified items, be responsible for specified capacities and for ensuring that items to be furnished will fit space available.

**1.9 SEQUENCING SCHEDULING AND COORDINATION**

- .1 It is understood that while Drawings are to be followed as closely as circumstances permit, this Division will be held responsible for installation of systems according to the true intent and meaning of Contract Documents. Anything not clear or in conflict will be explained by making application to Consultant. Should conditions arise where certain changes would be advisable, secure Consultant's approval of these changes before proceeding with work.
- .2 Coordinate work of various trades in installing interrelated work. Before installation of mechanical items, make proper provision to avoid interferences in a manner approved by Consultant. Each Contractor shall refer to all sections of the specification for their responsibilities with other trades. Changes required in work specified in Mechanical Division caused by neglect to do so shall be made at no cost to Owner.
- .3 Arrange pipes, ducts, and equipment to permit ready access to valves, unions, traps, starters, motors, control components, and to clear openings of doors and access panels.
- .4 Furnish and install inserts and supports required by Mechanical Division unless otherwise noted. Furnish sleeves, inserts, supports, and equipment that are an integral part of other Divisions of the Work to Sections involved in sufficient time to be built into construction as the Work proceeds. Locate these items and see that they are properly installed. Expense resulting from improper location or installation of items above shall be borne by Mechanical Division.

- .5 Be responsible for required excavation, backfilling, cutting, and patching incident to work of this Division and make required repairs afterwards to satisfaction of Consultant. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses.
  - .1 Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.
  - .2 Each Section of this Division shall bear expense of cutting, patching, repairing, and replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.
  - .3 Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.
- .6 Adjust locations of pipes, ducts, equipment, fixtures, etc., to accommodate work from interferences anticipated and encountered. Determine exact route and location of each pipe and duct prior to fabrication.
  - .1 Make offsets, transitions, and changes in direction of pipes, ducts, and electrical raceways as required to maintain proper head room and pitch of sloping lines whether or not indicated on Drawings.
  - .2 Furnish and install traps, air vents, sanitary vents, pull boxes, etc., as required to effect these offsets, transitions, and changes in direction.
- .7 Slots and openings through floors, walls, ceilings, and roofs shall be provided by this contractor but performed by a trade specializing in this type of work. This Division shall see that they are properly located and do any cutting and patching caused by its neglect to do so.

**1.10 REQUEST FOR INFORMATION (RFI) PROCEDURES**

- .1 RFIs shall be submitted to the consultant minimum two (2) weeks prior to answer being required. Failure to submit an RFI in a timely manner will forfeit delay claims and schedule extension requests by the contractor.
- .2 All RFIs will be submitted with the following information:
  - .1 RFI number
  - .2 Name of project
  - .3 Date of initiation
  - .4 Date response required by (minimum two (2) weeks)
  - .5 Subject
  - .6 Submitter's name
  - .7 Drawing/specification reference
  - .8 Photograph of the issue (if applicable)
  - .9 Description of the issue
  - .10 Contractor's proposed resolution

**1.11 CONTRACT BREAKDOWN**

- .1 Provide breakdown of contract exclusive of HST to acceptance of consultants prior to first draw submission.
- .2 Provide labour and material cost for each item.
- .3 Breakdown shall indicate total contract amount.
- .4 Contract breakdown shall be as follows as a minimum.  
Mobilization and shop drawings (max. \$2,000.00)  
Demolition  
Building Automation Systems  
Testing Adjusting and Balancing  
HVAC Equipment  
Mechanical contractor closeout requirements (min. of 3% for the first \$500,000.00, 1% from \$500,000.00 to \$5,000,000.00, and 0.5% beyond. Shall not be less than \$5,000.00)
- .5 Progress claims, when submitted are to be itemized against each item of the contract breakdown, this shall be done in table form showing contract amount, work complete to date, previous draw, amount this draw and balance.
- .6 **Mobilization amount may only be drawn when all required shop drawings have been reviewed by the consultant.**

**1.12 COMMISSIONING CONTRACT BREAKDOWN**

- .1 This contractor shall work with the HVAC system commissioning contractor as specified elsewhere. The following commissioning breakdown shall be indicated on the contract breakdown draw.

**1.13 SHOP DRAWINGS AND PRODUCT DATA**

- .1 Furnish complete catalog data for manufactured items of equipment to be used in the Work to Consultant for review within 14 days after award of Contract.
- .2 Upon receipt of reviewed shop drawing, product is to be ordered immediately.
- .3 Provide a complete list of shop drawings to be submitted prior to first submission.
- .4 Before submitting to the Consultant, review all shop drawings to verify that the products illustrated therein conform to the Contract Documents. By this review, the Contractor agrees that it has determined and verified all field dimensions, field construction criteria, materials, catalogue numbers, and similar data and that it has checked and coordinated each shop drawing with the requirements of the work and of the Contract Documents. The Contractor's review of each shop drawings shall be indicated by stamp, date and signature of a qualified and responsible person possessing by the appropriate authorization.
- .5 If material or equipment is not as specified or submittal is not complete, it will be rejected by Consultant.
- .6 Additional shop drawings required by the contractor for maintenance manuals, site copies etc., shall be photocopies of the "reviewed" shop drawings. All costs to provide additional copies of shop drawings shall be borne by the contractor.

- .7 Submit all shop drawings for the project as a package. Partial submittals will not be accepted.**
- .8 Catalog data or shop drawings for equipment, which are noted as being reviewed by Consultant or their Engineer shall not supersede Contract Documents.
- .9 Review comments of Consultant shall not relieve this Division from responsibility for deviations from Contract Documents unless Consultant's attention has been called to such deviations in writing at time of submission, nor shall they relieve this Division from responsibility for errors in items submitted.
- .10 Check work described by catalog data with Contract Documents for deviations and errors.
- .11 Shop drawings and product data shall show:
  - .1 Mounting arrangements.
  - .2 Operating and maintenance clearances. e.g., access door swing spaces.
- .12 Shop drawings and product data shall be accompanied by:
  - .1 Detailed drawings of bases, supports, and anchor bolts.
  - .2 Acoustical sound power data, where applicable.
  - .3 Points of operation on performance curves.
  - .4 Manufacturer to certify as to current model production.
  - .5 Certification of compliance to applicable codes.
- .13 State sizes, capacities, brand names, motor HP, accessories, materials, gauges, dimensions, and other pertinent information. List on catalog covers page numbers of submitted items. Underline applicable data.
- .14 Shop drawings shall be submitted electronically as per the following directions:
  - .1 Electronic Submissions:
    - .1 Electronically submitted shop drawings shall be prepared as follows:
      - .1 Use latest software to generate PDF files of submission sheets.
      - .2 Scanned legible PDF sheets are acceptable. Image files are not acceptable.
      - .3 PDF format shall be of sufficient resolution to clearly show the finest detail.
      - .4 PDF page size shall be standardized for printing to letter size (8.5"x11"), portrait with no additional formatting required by the consultant. Submissions requiring larger detail sheets shall not exceed 11"x17".
      - .5 Submissions shall contain multiple files according to section names as they appear in Specification.
      - .6 File names shall include consultant project number and description of shop drawing section submitted.
      - .7 Each submission shall contain an index sheet listing the products submitted, indexed in the same order as they appear in the Specification. Include associated PDF file name for each section.

- .8 On the shop drawing use an "electronic mark" to indicate what is being provided.
- .9 **Each file shall bear an electronic representation of the "company stamp" of the contractor. If not stamped the file submission will not be reviewed.**
- .2 Email submissions shall include subject line to clearly identify the consultants project number and the description of the shop drawings submitted.
- .3 Electronic attachments via email shall not exceed 10MB. For submissions larger than 10MB, multiple email messages shall be used. Denote related email messages by indicating "1 of 2" and "2 of 2" in email subject line for the case of two messages.
- .4 Electronic attachments via web links (URL) shall directly reference PDF files. Provide necessary access credentials within link or as username/password clearly identified within body of email message.
- .5 On site provide one copy of the "reviewed" shop drawings in a binder as noted above.
- .6 Contractor to print copies of "reviewed" shop drawings and compile into maintenance manuals in accordance with requirements detailed in this section.

**1.14 OPERATION AND MAINTENANCE MANUAL**

- .1 Provide operation and maintenance data for incorporation into manual as in submittals' requirements.
- .2 Operation and maintenance manual to be approved by, and final copies deposited with, Consultant before final inspection.
  - .1 Submit 1 copy of Operation and Maintenance Manual to Consultant for approval. Submission of individual data will not be accepted unless so directed by Consultant.
    - .1 Manual(s) shall be in a three ring binder (minimum 50 mm (2") ring) labelled:
      - .1 Operation and Maintenance Manual.
      - .2 Project Name.
      - .3 Location.
  - .2 Make changes as required and re-submit as directed by Consultant.

- .3 Operation data to include:
  - .1 Control schematics for each system including environmental controls.
  - .2 Description of each system and its controls.
  - .3 Description of operation of each system at various loads together with reset schedules and seasonal variances.
  - .4 Operation instruction for each system and each component.
  - .5 Description of actions to be taken in event of equipment failure.
  - .6 Valves schedule and flow diagram.
  - .7 Colour coding chart.
  - .8 Spare parts equipment list.
  - .9 Manufacturers standard or extended warranty information.
- .4 Maintenance data shall include:
  - .1 Servicing, maintenance, operation, and trouble-shooting instructions for each item of equipment.
  - .2 Data to include schedules of tasks, frequency, tools required and task time.
- .5 Performance data to include:
  - .1 Equipment manufacturer's performance data sheets with point of operation as left after commissioning is complete.
  - .2 Equipment performance verification test results.
  - .3 Special performance data as specified elsewhere.
  - .4 Testing, adjusting and balancing reports as specified in Testing, Adjusting and Balancing Section.
  - .5 Copy of all substantial performance final certificates.
- .6 Miscellaneous data to include:
  - .1 Letter of contractor's warranty and guarantee.
  - .2 Index sheet.
  - .3 Tabbed format for each section.
  - .4 Manufacturers approved shop drawings.
  - .5 Spare parts list and source.
  - .6 List of Manufacturers and suppliers address for each piece of equipment.
- .7 Final Submittals:
  - .1 Upon acceptance of Operation and Maintenance Manual by the Consultant provide the following:
    - .1 Provide two (2) copies of final operation maintenance manuals, as well as a PDF file of the entire approved manual on a USB stick. Only one USB stick is to be provided containing both the approved manual and as-built drawings.

**1.15 AS-BUILT DRAWINGS**

- .1 Site records:
  - .1 Contractor shall provide 2 sets of reproducible mechanical drawings. Provide sets of white prints as required for each phase of the work. Mark thereon all changes as work progresses and as changes occur. This shall include changes to existing mechanical systems, control systems and low voltage control wiring.
  - .2 On a weekly basis, transfer information to reproducibles, revising reproducibles to show all work as actually installed.
  - .3 Use different colour waterproof ink for each service.
  - .4 Make available for reference purposes and inspection at all times.
- .2 As-Built drawings:
  - .1 Prior to start of Testing, Adjusting and Balancing (TAB), finalize production of as-built drawings.
  - .2 Identify each drawing in lower right hand corner in letters at least 3 mm (1/8") high as follows: - "AS-BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (date).
  - .3 TAB to be performed using as-built drawings.
    - .1 Submit hard copy to Consultant for approval. When returned, make corrections as directed.
    - .2 Once approved, submit completed reproducible paper as-built drawings as well as a scanned pdf file copy on USB stick with Operating and Maintenance Manuals.

**1.16 WARRANTIES**

- .1 In addition to guarantee specified in General Conditions, guarantee heating, cooling, and plumbing systems to be free from noise in operation that may develop from failure to construct system in accordance with Contract Documents.
- .2 Provide certificates of warranty for each piece of equipment made out in favor of Owner. Clearly record "start-up" date of each piece of equipment on certificate. Include certificates as part of Operation & Maintenance Manual.
- .3 If mechanical sub-contractor with offices located more than 80 km (50 miles) from Project site is used, provide service/warranty work agreement for warranty period with local mechanical sub-contractor approved by Consultant. Include copy of service/warranty agreement in warranty section of Operation & Maintenance Manual.
- .4 Contractor shall rectify any installation deficiencies in the boiler or pressurized other systems identified by a TSSA Inspector for a period of three (3) years from ready for takeover.
- .5 Warranty period shall start from date of ready for takeover.

**1.17 READY FOR TAKEOVER**

- .1 Complete the following to the satisfaction of the consultant prior to request for ready for takeover.
  - .1 As-Built Drawings.
  - .2 Maintenance Manuals
  - .3 System Start up
  - .4 TAB Reports
  - .5 Instructions to Owners
  - .6 Final Certificates (required prior to consultant's release of conformance letter).
    - .1 Mandatory TSSA Gas Pressure Test (CSA B149.1)

**1.18 OCCUPANCY REQUIREMENTS**

- .1 The contractor shall provide the following documentation to the consultant prior to receiving occupancy. Failure to provide the proper documentation will result in the occupancy not being granted. List of required documentation:
  - .1 Final Certificates (required prior to consultant's release of conformance letter).
    - .1 Gas detection system commissioning (Refer to spec section 25 05 21 Part 3).
    - .2 Balancing report for all enclosed parking garage exhaust fans.
    - .3 Balancing report for all central make-up air units serving garage vestibule pressurization.

**1.19 REVISION TO CONTRACT**

- .1 Provide the following:
  - .1 Itemized list of material with associated costs.
  - .2 Labour rate and itemized list of labour for each item.
  - .3 Copy of manufacturers/supplier's invoice if requested.

**1.20 DELIVERY, STORAGE, AND HANDLING**

- .1 Follow Manufacturer's directions in delivery, storage, and protection, of equipment and materials. Contractor to include all costs associated with delivery storage and handling in tender price.
- .2 Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage (such as controls) in dry, heated space.

**1.21 DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS**

- .1 **If designated substances and/or hazardous materials are suspected or identified cease all work in the immediate area in accordance with OHSA and notify consultant.**
- .2 **Each contractor and on site employee of the contractor shall have "asbestos awareness training".**



- .3 The Contractor shall ensure that employees who may come into contact with designated substances and/or hazardous materials due to the nature of the work that they perform, have received training that enables them to recognize designated substances and/or hazardous materials and that enables them to react in accordance with the Occupational Health and Safety Act and regulations thereto should contact with designated substances and/or hazardous materials occur during the course of their work.
- .4 It is the responsibility of the contractor to review the designated substances and/or hazardous materials book in the building prior to starting any work.**
- .5 Existing occupied buildings (depending upon their age) may contain designated substances and/or hazardous materials in thermal insulating materials and some manufactured products, such as vinyl asbestos floor tile. Any insulating materials, on pipes, fittings, boilers, tanks, ductwork, etc. may contain designated substances and/or hazardous materials and shall not be disturbed.**
- .6 A survey of each building documenting the location and condition of designated substances and/or hazardous materials -containing materials is available for your mandatory review prior to commencing any work on premises.**

#### **1.22 PHASING OF WORK**

- .1 This work for this project shall be constructed in phases. Refer to the architectural drawings for phasing information and details. Misinterpretation of the drawings with respect to the extent of the phasing of the work shall not relieve the contractor of the work required to complete the entire contract.
- .2 Provide all necessary services or temporary services to suit phasing of construction with respect to all mechanical services and fire protection.
- .3 Life safety systems in the building are to remain fully operational in occupied areas for building staff and occupants during renovations.
- .4 Provide all necessary tests and certificates at completion of each phase to suit requirements of local authorities and consultants for occupancy of completed areas.

#### **1.23 TSSA INSPECTION**

- .1 Prior to final completion of the project, this contractor shall make application, arrange, and pay for a TSSA inspection of all piping systems and equipment installations, including, but not limited to medical gasses, refrigeration, fuel piping, compressed air, heating plant, cooling plant, and associated equipment installed under the contract.
- .2 Provide a copy of the TSSA report in the maintenance manuals for each system.

#### **1.24 CONFINED SPACES**

- .1 Certain areas of the building may be defined as a "Confined Space". Any personnel working in these areas must have confined space training, appropriate equipment and undertake all work in conformance with appropriate codes and standards.
- .2 Refer to building documentation for any spaces deemed "Confined Space".

**1.25 ENERGY EFFICIENCY**

- .1 The mechanical systems of this building must achieve the energy efficiency levels by conforming to ANSI/ASHRAE/IESNA 90.1 "Energy Standard for Buildings Except Low-Rise Residential Buildings" and Chapter 2 of Division 3 of SB-10 prescriptive method from the Ontario Building Code.
- .2 All equipment, products, and installations must conform to the Codes and Standards.

**END OF SECTION**

**Part 1            General**

**1.1            TESTS**

- .1 Give 48 hours written notice of date for tests.
- .2 Insulate or conceal work only after testing and approval by Consultant.
- .3 Conduct tests in presence of Consultant.
- .4 Bear costs including retesting and making good.
- .5 Piping:
  - .1 General: maintain test pressure without loss for 4 h unless otherwise specified.
  - .2 Hydraulically test steam and hydronic piping systems at 1-1/2 times system operating pressure or minimum 860 kPa, whichever is greater.
  - .3 Test natural gas systems to CSA-B149.1-00, TSSA requirements and requirements of authorities having jurisdiction.
  - .4 Test fuel oil systems to CSA B139 1976, CSA B139S1-1982 and authorities having jurisdiction.
  - .5 Test drainage, waste and vent piping to Ontario Building Code and authorities having jurisdiction.
  - .6 Test domestic hot, cold and recirculation water piping at 1-1/2 times system operating pressure or minimum 860 kPa (124.8 psi), whichever is greater.
  - .7 Test fire systems in accordance with authorities having jurisdiction and as specified elsewhere.
- .6 Equipment: test as specified in relevant sections.
- .7 Prior to tests, isolate all equipment or other parts which are not designed to withstand test pressures or test medium.

**1.2            SYSTEM START UP**

- .1 **Provide adjusting testing and start up of all equipment prior to testing and balancing (TAB) specified elsewhere.**
- .2 **Provide consultant with written notice verifying all equipment operation and installation is complete.**
- .3 **Start up shall be in presence of the following: owner or representative, contractor, building automation systems (BAS) contractor, and manufacturer's representative. Each person shall witness and sign off each piece of equipment. Consultant's attendance will be determined by consultant.**
- .4 Simulate system start up and shut down and verify operation of each piece of equipment.
- .5 Arrange with all parties and provide 72 hours notice for start up procedure.
- .6 Arrange with building automation systems contractor to sequence all components and ensure system operation.

**1.3 DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTION**

- .1 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.
- .2 Mechanical contractor to schedule and coordinate the demonstration all on the same day, starting at a pre-approved time and continuing consequently until complete.
- .3 Where specified elsewhere in Mechanical Division, qualified manufacturers' representatives who are knowledgeable about the project to provide demonstrations and instructions.
- .4 Use operation and maintenance manual, as-built drawings, audio visual aids, etc. as part of instruction materials.
- .5 Instruction duration time requirements as specified in appropriate sections.
- .6 Where deemed necessary, Consultants may record these demonstrations on video tape for future reference.

**1.4 TRIAL USAGE**

- .1 Consultant or owner may use equipment and systems for test purposes prior to acceptance. Supply labour, material, and instruments required for testing.
- .2 Trial usage to apply to following equipment and systems:
  - .1 HVAC
  - .2 Exhaust air
  - .3 Domestic water
  - .4 Plumbing and drainage.

**1.5 DEFICIENCIES**

- .1 During the course of construction, the consultants will monitor construction and provide written reports of work progress, discussions, and instruction to correct work.
- .2 Instruction to correct work shall be done within the work period before the next review.
- .3 The contractor shall not conceal any work until inspected.
- .4 The contractor shall expedite 100% complete rough-in work and have inspected prior to concealing services and equipment especially above ceiling.
- .5 Upon completion of the project the consultant will do a final review. Upon receiving the final inspection report, the contractor must correct and sign back the inspection report indicating the deficiencies are completed. A re-inspection will only be done once consultant receives this in writing.

**1.6 EQUIPMENT INSTALLATIONS**

- .1 Unions or flanges: provide for ease of maintenance and disassembly.
- .2 Space for servicing, disassembly and removal of equipment and components: provide as recommended by manufacturer or as indicated.
- .3 Equipment drains: pipe to floor drains.
- .4 Install equipment, rectangular cleanouts and similar items parallel to or perpendicular to building lines.

**1.7 PROTECTION OF OPENINGS**

- .1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

**1.8 ELECTRICAL**

- .1 Electrical work to conform to Electrical Division including the following:
  - .1 Supplier and installer responsibility and related mechanical responsibility is indicated in Equipment Schedule on mechanical and/or electrical drawings
  - .2 Power wiring and conduit is specified in Electrical Division except for conduit, wiring and connections below 50 V which are related to control systems specified in Mechanical Division. Follow Electrical Division for quality of materials and workmanship.
  - .3 Electrically operated equipment shall be C.S.A. approved label. Special Inspection Label of Provincial Authority having jurisdiction will be accepted in lieu of C.S.A. approval. Each motor shall have an approved starter. Starter will be supplied and installed by Electrical Division unless otherwise indicated.
  - .4 **All starters for mechanical equipment to be provided by this contractor. Wired by Electrical Division.**

**1.9 CONTROL WIRING**

- .1 Furnish and install all components, devices, and control wiring for all plumbing, fire protection, HVAC equipment, HVAC systems, lighting, and other electrical loads to make all equipment operable to satisfaction of owner and consultant and to manufacturer's requirements and recommendations.
- .2 All electrical wiring, mechanical wiring and installations shall comply with local and national electrical and mechanical codes.
- .3 Supply and install wiring as required for all devices and systems. Install wiring in EMT conduit and otherwise comply with all requirements of the Electrical Division. Approved plenum wire may be used for sensor and network communication wiring where it complies with appropriate building codes and regulatory authorities.
- .4 All wiring concealed in walls and chases, and all exposed wiring shall be run in conduit.

- .5 Provide recessed conduit and backer boxes where controls are wall mounted. Surface mounted boxes and conduit are acceptable in mechanical or service rooms.
- .6 Free-run plenum rated cable shall be run in cable hangers where provided by electrical division or tied neatly to pipe and duct hangers in the ceiling. Avoid wiring that droops. Follow building lines and do not run wiring "as the crow flies".

**1.10 MOTORS**

- .1 Provide high efficiency motors for mechanical equipment as specified.
- .2 If delivery of specified motor will delay delivery or installation of any equipment, install motor approved by Consultant for temporary use. Final acceptance of equipment will not occur until specified motor is installed.
- .3 Motors under 373 W, (1/2 hp): speed as indicated, continuous duty, built-in overload protection, resilient mount, single phase, voltage as indicated.
- .4 Motors 373 W, (1/2 hp) and larger: EEMAC Class B, squirrel cage induction, speed as indicated, continuous duty, drip proof, ball bearing, maximum temperature rise 40°C (72°F), 3 phase, voltage as indicated.

**1.11 BELT DRIVES**

- .1 Fit reinforced belts in sheave matched to drive. Multiple belts to be matched sets.
- .2 Use cast iron or steel sheaves secured to shafts with removable keys unless otherwise specified.
- .3 For motors under 7.5 kW 10 hp: standard adjustable pitch drive sheaves, having plus or minus 10% range. Use mid-position of range for specified r/min.
- .4 For motors 7.5 kW 10 hp and over: sheave with split tapered bushing and keyway having fixed pitch unless specifically required for item concerned. Provide sheave of correct size to suit balancing.
- .5 Minimum drive rating: 1.5 times nameplate rating on motor. Keep overhung loads within manufacturer's design requirements on prime mover shafts.
- .6 Motor slide rail adjustment plates to allow for centre line adjustment.
- .7 Provide sheave changes as required for final air balancing.

**1.12 GUARDS**

- .1 Provide guards for unprotected devices.
- .2 Guards for belt drives:
  - .1 Expanded metal screen welded to steel frame.
  - .2 Minimum 1.2 mm (18 gauge) thick sheet metal tops and bottoms.
  - .3 40 mm (1 1/2") diameter holes on both shaft centres for insertion of tachometer.
  - .4 Removable for servicing.
- .3 Provide means to permit lubrication and use of test instruments with guards in place.

- .4 Install belt guards to allow movement of motors for adjusting belt tension.
- .5 Guard for flexible coupling:
  - .1 "U" shaped, minimum 1.6 mm (16 gauge) thick galvanized mild steel.
  - .2 Securely fasten in place.
  - .3 Removable for servicing.
- .6 Unprotected fan inlets or outlets:
  - .1 Wire or expanded metal screen, galvanized, 20 mm (3/4") mesh.
  - .2 Net free area of guard: not less than 80% of fan openings.
  - .3 Securely fasten in place.
  - .4 Removable for servicing.
- .7 Duct Openings in Floor
  - .1 Provide reinforced expanded mesh grating, style 3 (3 lbs/sq.ft.) cover on accessible unprotected duct openings over 300 mm (12") wide and as indicated. This includes all ductwork terminating in air handling units and plenums.
  - .2 Securely Fasten in place.
  - .3 Removable for servicing.

#### **1.13 PIPING AND EQUIPMENT SUPPORTS**

- .1 Equipment supports supplied by equipment manufacturer: specified elsewhere in Mechanical Division.
- .2 Piping and equipment supports not supplied by equipment manufacturer: fabricate from structural grade steel meeting requirements of - Structural Steel Section. Submit structural calculations with shop drawings.
- .3 Mount base mounted equipment on chamfered edge housekeeping pads, minimum of 100 mm (4") high and 150 mm (6") larger than equipment dimensions all around. Concrete specified elsewhere.
- .4 Where housekeeping pads incorporate existing pads provide 10 mm dowels into existing pads. New pad height shall match existing.

#### **1.14 SPARE PARTS**

- .1 Furnish spare parts in accordance with general requirements and as follows:
  - .1 One set of packing/mechanical seals for each pump.
  - .2 One casing joint gasket for each size pump.
  - .3 One head gasket set for each heat exchanger.
  - .4 One glass for each gauge glass.
  - .5 One set of belts for each type or each size of machinery.
  - .6 One filter cartridge or set of filter media for each filter or filter bank in addition to final operating set.
- .2 Provide list of equipment in maintenance manuals indicating corresponding spare parts required. List of spare parts to be signed off by receiving personnel.

**1.15 SPECIAL TOOLS**

- .1 Provide one set of special tools required to service equipment as recommended by manufacturers and in accordance with Maintenance Materials Special Tools and Spare Parts.

**1.16 REPAIRS, CUTTING, AND RESTORATION**

- .1 Patch and repair walls, floors, ceilings, and roofs with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials.
- .2 Each Section of this Division shall bear expense of cutting, patching, and repairing to install their work and/or replacing of work of other Sections required because of its fault, error, tardiness, or because of damage done by it.
- .3 Cutting, patching, repairing, and replacing pavements, sidewalks, roads, and curbs to permit installation of work of this Division is responsibility of Section installing work.
- .4 All patching, painting and making good of the existing walls, floors, ceilings, partitions and roof will be at the expense of this Contractor, but performed by the Contractor specializing in the type of work involved unless otherwise noted.

**1.17 EXISTING SYSTEMS**

- .1 Connections into existing systems to be made at time approved by Consultant. Request written approval of time when connections can be made.
- .2 Be responsible for damage to existing plant by this work.

**1.18 CLEANING**

- .1 Clean interior and exterior of all systems including strainers. Vacuum interior of ductwork and air handling units prior to turn over to owner.
- .2 In preparation for final acceptance, clean and refurbish all equipment and leave in operating condition including replacement of all filters in all air and piping systems.

**1.19 DISCONNECTION AND REMOVAL**

- .1 Disconnect and/or remove equipment, piping, ductwork, etc. as indicated.
- .2 Cap and conceal all redundant and obsolete connections.
- .3 Provide a list of equipment to be removed to the owner, for his acceptance of same. Remove all equipment from site, which the owner does not retain.
- .4 Store equipment to be retained by owner on site where directed by consultant.

**1.20 OWNER SUPPLIED EQUIPMENT**

- .1 Connect to equipment supplied by the owner and make operable.



**1.21 DEMOLITION**

- .1 The general requirements are indicated on the drawings and on the outline specification in Division 1.**
- .2 The general execution of the demolition is to be carried out in a clean and efficient manner.**
- .3 Demolition of existing ceiling, walls etc., to facilitate removal of existing services or equipment or installation of new to be kept to a minimum and then restored to match existing.**
- .4 All openings or holes created by removal of existing mechanical systems which are not being reused are to be patched with the same material surrounding surfaces.
- .5 All new holes and openings to facilitate mechanical systems are to be patched to match surrounding surfaces.
- .6 Protect all existing furnishings materials and equipment. Any damage occurring as a result of the work of this Division shall be repaired or replaced at the expense of this Division.
- .7 Where work involves breaking into or connecting to existing services, carry out work at times directed by the Owners in an expedient manner with minimum disruption to the facility and systems downtime.
- .8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .9 Where the location of any services has been shown on the plans, such information is not guaranteed. It is this Division's responsibility to verify locations, invert elevations, etc., immediately after moving on site. Should for any reason the information obtained necessitates changes in procedure or design, advise the Consultant at once. If verification of existing conditions is not done at the outset and any problems arise, the responsibility for same is entirely this Division's.

**1.22 CONFINED SPACES**

- .1 Certain areas of the building may be defined as a "Confined Space". Any personnel working in these areas must have confined space training, appropriate equipment and undertake all work in conformance with appropriate codes and standards.
- .2 Refer to building documentation for any spaces deemed "Confined Space".

**1.23 TSSA INSPECTION**

- .1 Prior to final completion of the project, this contractor shall make application, arrange, and pay for a TSSA inspection of all piping systems and equipment installations, including, but not limited to medical gasses, refrigeration, fuel piping, compressed air, heating plant, cooling plant, and associated equipment installed under the contract.
- .2 Provide a copy of the TSSA report in the maintenance manuals for each system.

**END OF SECTION**

**Part 1            General**

**1.1                GENERAL PROVISIONS**

- .1      Conform to the General Provisions of General Requirements Section.
- .2      This project is one of a retrofit nature in part, and which will require some demolition.
- .3      Allow for all remedial work in areas indicated on the drawings and as generally defined in the relevant sections of the specifications.

**1.2                RELATED WORK SPECIFIED ELSEWHERE**

- .1      Electrical Division.

**1.3                SCOPE OF WORK**

- .1      The scope of work is essentially the selected disconnection and/or removal of services and/or equipment, piping ductwork etc. as indicated or required to complete the work.

**Part 2            Products**

**2.1                GENERAL**

- .1      This Division is to liaise with the Owners or Consultant for equipment being removed that may be suitable for reuse to that specified or handed over to the owner.
- .2      This Division to take full responsibility for any special tools or equipment required to disassemble or remove material from building.

**Part 3            Execution**

**3.1                GENERAL**

- .1      The general requirements are indicated on the drawings and on the outline specification in Division 1.
- .2      The general execution of the demolition is to be carried out in a clean and efficient manner.
- .3      Demolition of existing ceiling, walls etc., to facilitate removal of existing services or equipment or installation of new to be kept to a minimum and then restored to match existing.
- .4      All openings or holes created by removal of existing mechanical systems which are not being reused are to be patched with the same material surrounding surfaces.
- .5      All new holes and openings to facilitate mechanical systems are to be patched to match surrounding surfaces.
- .6      Protect all existing furnishings materials and equipment. Any damage occurring as a result of the work of this Division shall be repaired or replaced at the expense of this Division.

- .7 Where work involves breaking into or connecting to existing services, carry out work at times directed by the Owners in an expedient manner with minimum disruption to the facility and systems downtime.
- .8 Where unknown services are encountered, immediately advise Consultant and confirm findings in writing.
- .9 Where the location of any services has been shown on the plans, such information is not guaranteed. It is this Division's responsibility to verify locations, invert elevations, etc., immediately after moving on site. Should for any reason the information obtained necessitates changes in procedure or design, advise the Consultant at once. If verification of existing conditions is not done at the outset and any problems arise, the responsibility for same is entirely this Division's.
- .10 Disconnect and/or remove equipment piping, ductwork, etc. as indicated.
- .11 Cap and conceal all redundant and obsolete connections.
- .12 Provide a list of equipment to be removed to the owner, for his acceptance of same. Remove all equipment from site which the owner does not retain.
- .13 Maintain equipment to be retained by owner on site where directed by consultant.
- .14 Demolition of all parts of the work must be completed within the confines of the work area and in such a way as the dust produced and risk to injury of will not adversely affect the building users.
- .15 Demolished areas of the existing building will remain in their current use in some cases. Demolition in these areas must be kept to the minimum required to complete the work.
- .16 Demolition shall take place within areas isolated from all other areas with appropriate hoarding, scaffolding, netting, fencing or other means of security between building users and the work.
- .17 Co-ordinate making safe electrical devices, capping plumbing, and removal of fixtures prior to commencement of demolition.
- .18 All piping and equipment to be removed and/or abandoned shall be drained prior to capping and/or abandoning. Disposal of all liquids shall be to the approval of authority of having jurisdiction and/or provincial regulations.

**END OF SECTION**

**Part 1 General**

**1.1 REFERENCES**

- .1 All codes, standards, etc. as referenced shall be the latest edition.
- .2 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-1.60, Interior Alkyd Gloss Enamel.
  - .2 CAN/CGSB-24.3, Identification of Piping Systems.
- .3 Canadian Standards Association (CSA).
  - .1 Natural Gas and Propane Installation Code CSA B149.1.
- .4 National Fire Protection Association
  - .1 NFPA 13, Installation of Sprinkler Systems.
  - .2 NFPA 14, Standpipe and Systems.

**1.2 PRODUCT DATA**

- .1 Submit product data in accordance with General Requirements.
- .2 Product data to include paint colour chips, all other products specified in this section.

**1.3 PRODUCT LITERATURE**

- .1 Submit product literature in accordance with General Requirements.
- .2 Product literature to include nameplates, labels, tags, lists of proposed legends.

**Part 2 Products**

**2.1 MANUFACTURER'S EQUIPMENT NAMEPLATES**

- .1 Metal or plastic lamicaid nameplate mechanically fastened to each piece of equipment by manufacturer.
- .2 Lettering and numbers to be raised or recessed.
- .3 Information to include, as appropriate:
  - .1 Equipment: Manufacturer's name, model, size, serial number, capacity.
  - .2 Motor: voltage, Hz, phase, power factor, duty, frame size.

**2.2 SYSTEM NAMEPLATES**

- .1 Colours:
  - .1 Hazardous: red letters, white background.
  - .2 Elsewhere: black letters, white background (except where required otherwise by applicable codes).

- .2 Construction:
- .1 3 mm (1/8") thick laminated plastic, matte finish, with square corners, letters accurately aligned, and machine engraved into core.
- .3 Sizes:
- .1 Conform to following table:
- | Size | No. of<br>Sizes mm (") | Height of<br>Line mm (") | Letters mm (") |
|------|------------------------|--------------------------|----------------|
| 1    | 10 x 50 (3/8" x 2")    | 1 (3/64")                | 3 (1/8")       |
| 2    | 15 x 75 (1/2" x 3")    | 1 (3/64")                | 6 (1/4")       |
| 3    | 15 x 75 (1/2" x 3")    | 2 (5/64")                | 3 (1/8")       |
| 4    | 20 x 100 (3/4" x 4")   | 1 (3/64")                | 10 (3/8")      |
| 5    | 20 x 100 (3/4" x 4")   | 2 (6/64")                | 6 (1/4")       |
| 6    | 20 x 200 (3/4" x 8")   | 1 (3/64")                | 10 (3/8")      |
| 7    | 25 x 125 (1" x 5")     | 1 (3/64")                | 15 (1/2")      |
| 8    | 25 x 125 (1" x 5")     | 2 (5/64")                | 10 (3/8")      |
| 9    | 32 x 200 (1 1/4" x 8") | 1 (3/64")                | 20 (3/4")      |
- .2 Use maximum of 25 letters/numbers per line.
- .4 Locations:
- .1 Terminal cabinets, control panels: Use size #5.
- .2 Equipment in Mechanical Rooms: Use size #9.
- .3 Roof top equipment: use size #9.
- .4 Equipment above ceiling: use size #1 riveted to ceiling suspension system.

### **2.3 IDENTIFICATION OF PIPING SYSTEMS**

- .1 Identify contents by background colour marking, pictogram (as necessary), legend; direction of flow by arrows. To CAN/CGSB 24.3 except where specified otherwise.
- .2 Legend:
- .1 Block capitals to sizes and colours listed in CAN/CGSB-24.3.
- .3 Arrows showing direction of flow:
- .1 Outside diameter of pipe or insulation less than 75 mm (3"): 100 mm (4") long x 50 mm (2") high.
- .2 Outside diameter of pipe or insulation 75 mm (3") and greater: 150 mm (6") long x 50 mm (2") high.
- .3 Use double-headed arrows where flow is reversible.
- .4 Extent of background colour marking:
- .1 To full circumference of pipe or insulation.
- .2 Length to accommodate pictogram, full length of legend and arrows.

- .5 Materials for background colour marking, legend, arrows:
  - .1 Pipes and tubing 20 mm (3/4") and smaller: Waterproof and heat-resistant pressure sensitive plastic marker tags.
  - .2 All other pipes: Pressure sensitive vinyl with protective overcoating, waterproof contact adhesive undercoating, suitable for ambient of 100% RH and continuous operating temperature of 150°C (300°F) and intermittent temperature of 200°C (395°F).
- .6 Colours and Legends:
  - .1 Where not listed, obtain direction from Consultant.
  - .2 Colours for legends, arrows: To following table:
 

Background colour:	Legend:	Arrows:
Yellow	White	Black
Green	White	Black
Red	White	Black
- .7 **Pictograms:**
  - .1 **Where required, to Workplace Hazardous Materials Information System (WHMIS) regulations.**
- .8 Background colour marking and legends for piping systems:

<b>CONTENTS</b>	<b>BACKGROUND COLOUR MARKING</b>	<b>LEGEND</b>
Natural gas	Yellow	NATURAL GAS
Gas regulator vents		to Codes
Control wiring	White	CONTROL WIRING___VOLTS

**2.4 CONTROLS COMPONENTS IDENTIFICATION**

- .1 Identify all systems, equipment, components, controls, sensors with system nameplates specified in this section.
- .2 Inscriptions to include function and (where appropriate) fail-safe position.
- .3 Provide equipment identification and/or indication on ceiling to locate devices/equipment above ceiling. Install identification on grid. Colours to be approved by consultant.

**2.5 LANGUAGE**

- .1 Identification to be in English.

**Part 3 Execution**

**3.1 TIMING**

- .1 Provide identification only after all painting specified has been completed.

**3.2 INSTALLATION**

- .1 Perform work in accordance with CAN/CGSB-24.3 except as specified otherwise.
- .2 Provide ULC and/or CSA registration plates as required by respective agency.

**3.3 NAMEPLATES**

- .1 Locations:
  - .1 In conspicuous location to facilitate easy reading and identification from operating floor.
- .2 Standoffs:
  - .1 Provide for nameplates on hot and/or insulated surfaces.
- .3 Protection
  - .1 Do not paint, insulate or cover in any way.

**END OF SECTION**

**Part 1            General**

**1.1                GENERAL**

- .1      TAB means to test, adjust and balance to perform in accordance with requirements of Contract Documents and to do all other work as specified in this section including all air handling systems and equipment, all plumbing systems and equipment and all temperature controls system, building automation systems and equipment.
- .2      This contractor must co-ordinate their work with that of the TAB contractor.

**1.2                QUALIFICATIONS OF TAB AGENCIES**

- .1      Names of all personnel it is proposed to perform TAB to be submitted to and approved by Consultant within 30 days of start of work.
- .2      Provide documentation confirming qualifications, successful experience.
- .3      Only the following NEBB (National Environmental Balancing Bureau) TAB contractors may quote:
  - .1      Air Audit Inc.  
110 Turnbull Court, Unit 11  
Cambridge, Ontario  
N1T 1K6  
(519) 740-0871
  - .2      Air Velocities Control Ltd.  
100 Premium Way  
Mississauga, Ontario  
L5B 1A2  
(905) 279-4433
  - .3      Flowset Balancing Ltd.  
431 Willis Dr.  
Oakville, Ontario  
L6L 4V6  
(416) 410-9793
  - .4      Air Adjustments & Balancing Inc.  
P.O. Box 176,  
Schomberg, Ontario  
LOG 1T0  
(416) 254-3004

**1.3                PURPOSE OF TAB**

- .1      Test to verify proper and safe operation, determine actual point of performance, evaluate qualitative and quantitative performance of equipment, systems and controls at design, average (95% design) and low (75% of design) loads using actual or simulated loads. TAB contractor to perform equipment evaluation upon start up and once during each season in the first year of operation.



- .2 Adjust and regulate equipment and systems so as to meet specified performance requirements and to achieve specified interaction with all other related systems under all normal and emergency loads and operating conditions. Confirm all equipment interlocks and functions of associated systems.
- .3 Balance systems and equipment to regulate flow rates to match load requirements over full operating ranges and temperatures. Refer to BAS for system operating functions.

#### **1.4 EXCEPTIONS**

- .1 TAB of systems and equipment regulated by codes, standards to be to satisfaction of authority having jurisdiction.

#### **1.5 CO-ORDINATION**

- .1 Schedule time required for TAB (including repairs, re-testing) into project construction and completion schedule so as to ensure completion before acceptance of project.
- .2 Do TAB of each system independently and subsequently, where interlocked with other systems, in unison with those systems. Co-ordinate with other trades to ensure all systems are interlocked as indicated elsewhere prior to TAB.

#### **1.6 PRE-TAB REVIEW**

- .1 Review contract documents before project construction is started and confirm in writing to Consultant adequacy of provisions for TAB and all other aspects of design and installation pertinent to success of TAB.
- .2 Review specified standards and report to Consultant in writing all proposed procedures which vary from standard.
- .3 During construction, co-ordinate location and installation of all TAB devices, equipment, accessories, measurement ports and fittings.
- .4 During construction indicate all tolerances of piping, ductwork etc conforms to specifications.

#### **1.7 START-UP**

- .1 Follow start-up procedures as recommended by equipment manufacturer unless specified otherwise.
- .2 Follow special start-up procedures specified elsewhere in the Mechanical Division.

#### **1.8 OPERATION OF SYSTEMS DURING TAB**

- .1 Operate systems for length of time required for TAB and as required by Consultant for verification of TAB reports.

**1.9 START OF TAB**

- .1 Notify Consultant in writing 3 days prior to start of TAB.
- .2 Start TAB only when building is essentially completed, including:
  - .1 Installation of ceilings, doors, windows, other construction affecting TAB.
  - .2 Application of weather-stripping, sealing, caulking.
  - .3 All pressure, leakage, other tests specified elsewhere in the Mechanical Division.
  - .4 All provisions for TAB installed and operational.
  - .5 Start-up, verification for proper, normal and safe operation of all mechanical and associated electrical and control systems affecting TAB including but not limited to:
    - .1 Proper thermal overload protection in place for electrical equipment.
    - .2 Air systems:
      - .1 Filters in place, clean.
      - .2 Duct systems clean.
      - .3 Ducts, air shafts, ceiling plenums are airtight to within specified tolerances.
      - .4 Correct fan rotation.
      - .5 Fire, smoke, volume control dampers installed and open.
      - .6 Coil fins combed, clean.
      - .7 Access doors, installed, closed.
      - .8 All outlets installed, volume control dampers open.

**1.10 APPLICATION TOLERANCES**

- .1 Do TAB to following tolerances of design values:
  - .1 HVAC systems: plus 10%, minus 5%.

**ACCURACY TOLERANCES**

- .2 Measured values to be accurate to within plus or minus 2% of actual values.

**1.11 INSTRUMENTS**

- .1 Prior to TAB, submit to Consultant list of instruments to be used together with serial numbers.
- .2 Calibrate in accordance with requirements of most stringent of referenced standard for either applicable system or HVAC system.
- .3 Calibrate within 3 months of TAB. Provide certificate of calibration to Consultant.

**1.12 SUBMITTALS**

- .1 Submit, prior to commencement of TAB:
  - .1 Proposed methodology and procedures for performing TAB if different from referenced standard.

**1.13 PRELIMINARY TAB REPORT**

- .1 Submit for checking and approval of Consultant, prior to submission of formal TAB report, sample of rough TAB sheets. Include:
  - .1 Details of instruments used.
  - .2 Details of TAB procedures employed.
  - .3 Calculations procedures.
  - .4 Summaries.

**1.14 TAB REPORT**

- .1 Format to be in accordance with NEBB, AABC, or SMACNA.
- .2 TAB report to show all results in SI or imperial units as indicated on plans and to include:
  - .1 Project as-built drawings.
  - .2 System schematics.

**1.15 VERIFICATION**

- .1 All reported results subject to verification by Consultant.
- .2 Provide manpower and instrumentation to verify up to 30% of all reported results.
- .3 Number and location of verified results to be at discretion of Consultant.
- .4 Bear costs to repeat TAB as required to satisfaction of Consultant.

**1.16 SETTINGS**

- .1 After TAB is completed to satisfaction of Consultant, replace drive guards, close all access doors, lock all devices in set positions, ensure sensors are at required settings. Replace all ceiling tile etc.
- .2 Permanently mark all settings to allow restoration at any time during life of facility. Markings not to be eradicated or covered in any way.

**1.17 COMPLETION OF TAB**

- .1 TAB to be considered complete only when final TAB Report received and approved by Consultant.

**1.18 AIR SYSTEMS**

- .1 Standard: TAB to be to most stringent of TAB standards of NEBB, AABC, SMACNA, ASHRAE.
- .2 Do TAB of all systems, equipment, components, controls specified in the Mechanical Division including but not limited to following:
  - .1 Air handling systems and equipment
- .3 Qualifications: personnel performing TAB to be current member in good standing of NEBB.

.4 Quality assurance: Perform TAB under direction of qualified supervisor.

.5 Measurements: to include, total system airflow of RTU.

**1.19 OTHER TAB REQUIREMENTS**

.1 General requirements applicable to all work specified this paragraph:

.1 Qualifications of TAB personnel: as for air systems specified this section.

.2 Quality assurance: as for air systems specified this section.

.3 Provide AHU testing as specified.

.4 Changing of air handling equipment sheave and belts as required for specified air flow sheaves and belts supplied by unit manufacturer. Retest equipment after sheave change.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 All codes, standards, etc. as referenced shall be the latest edition.
- .2 ANSI/ASME B16.5, Pipe Flanges and Flanged Fittings: NPS ½ through NPS 24 Metric/Inch.
- .3 ANSI B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
- .4 ANSI/ASME B16.22, Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings.
- .5 ANSI B18.2.1, Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series).
- .6 ASTM A47/A47M, Specification for Ferritic Malleable Iron Castings.
- .7 ASTM A53/A53M, and A106, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc Coated, Welded ERW and Seamless.
- .8 ASTM B32, Specification for Solder Metal.
- .9 ASTM B75M, Specification for Seamless Copper Tube [Metric].
- .10 CSA B149.1, Natural Gas and Propane Installation Code.
- .11 CSA W47.1, Certification of Companies for Fusion Welding of Steel.

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1 Submit shop drawings product data in accordance with general requirements.
- .2 Indicate on manufacturers catalogue literature.

**1.3                CLOSEOUT SUBMITTALS**

- .1 Provide maintenance data for incorporation into manual specified in general requirements.

**Part 2            Products**

**2.1                GAS SERVICE**

- .1 Arrange with the local utility to have the gas service provided from the street to the gas meter where indicated.
- .2 Fees and charges requested by the local utility to provide the gas service and meter.
- .3 Submit all plans as requested by the local utility.
- .4 Utility supplied gas meter shall be complete with pulse signal for connection to BAS system (co-ordinate pulse representation in m<sup>3</sup> of gas used on meter specifications).
- .5 Provide approved pulse gas meter in all locations where indicated on the drawings.

## **2.2 PIPE**

- .1 Steel pipe: to ASTM A106, Schedule 40, seamless as follows:
  - .1 NPS 15 mm to 50 mm (1/2" to 2"), screwed.
  - .2 NPS 65 mm (2 1/2") and over, plain end.
- .2 Copper tube: to ASTM B75M.

## **2.3 JOINTING MATERIAL**

- .1 Screwed fittings: pulverized lead paste.
- .2 Welded fittings: to CSA W47.1.
- .3 Flange gaskets: nonmetallic flat.
- .4 Soldered: to ASTM B32, tin antimony 95/5.
- .5 Screwed brass fittings: Teflon Tape.

## **2.4 FITTINGS**

- .1 Steel pipe fittings, screwed, flanged or welded:
  - .1 Malleable iron: screwed, banded, Class 150.
  - .2 Steel pipe flanges and flanged fittings: to ANSI/ASME B16.5.
  - .3 Welding: butt-welding fittings.
  - .4 Unions: malleable iron, brass to iron, ground seat, to ASTM A47/A47M.
  - .5 Bolts and nuts: to ANSI B18.2.1.
  - .6 Nipples: schedule 40, to ASTM A53/A53M/A106.
- .2 Copper pipe fittings, screwed, flanged or soldered:
  - .1 Cast copper fittings: to ANSI B16.18.
- .3 Brass fittings: To ASTM B16.

## **2.5 BALL VALVES**

- .1 NPS 50 mm (2") and under:
  - .1 Body and cap: cast high tensile bronze to ASTM B62.
  - .2 Pressure rating: Class 125, 860 kPa (125 psi) steam, WP = 1.4 MPa (203 psi) WOG.
  - .3 Connections: Screwed ends to ANSI B1.20.1 and with hex. shoulders.
  - .4 Stem: tamperproof ball drive.
  - .5 Stem packing nut: external to body.
  - .6 Ball and seat: replaceable stainless steel solid ball and teflon seats.
  - .7 Stem seal: TFE with external packing nut.
  - .8 Operator: removable lever handle.

## **2.6 LUBRICATED PLUG VALVES**

- .1 All sizes
  - .1 Provincial Code approved, lubricated plug type.
  - .2 Body: cast iron to ASTM A 126 Class B semi-steel.
    - .1 Rating: Class 125 psig.
  - .3 Plug: tapered, with regular pattern port – 90 from full open to fully closed.
  - .4 Ends: 50 mm (2") and smaller with hexagon shoulders, ends screwed to ANSI B1.20.1. Flanged to ANSI B16.1.
  - .5 Lubrication system, nickel-plated.
  - .6 Lubricant: to suit type, temperature and pressure of contained fluid.
  - .7 Feeding system: lubricant forced into lubrication grooves between seating surfaces of plug and body to form positive seal, leakproof operation, and corrosion preventing film.
  - .8 Lubricant screw for lubrication.
  - .9 O-rings between body and plug.
  - .10 Operator: removable manual lever handle.
  - .11 Acceptable materials:
    - Newman Hattersley
    - Crane
    - Jenkins
    - Milwaukee
    - Toya

## **2.7 MANUFACTURED ROOF SUPPORTS**

- .1 Single piece injection moulded polypropylene support.
- .2 Type 3-20 psi extruded polystyrene UV protected base glued to the support.
- .3 Minimum base dimension of 300 x 225 (12" x 9") and be 140 mm (5.5") high.
- .4 Pull test of 1.4 KN (315 lbs) using two #14-10 screws on pipe strap.
- .5 Acceptable materials:
  - Quick Block
  - Erico

## **Part 3 Execution**

### **3.1 PIPING**

- .1 Install in accordance with applicable Provincial/Territorial Codes.
- .2 Install in accordance with CAN/CSA B149.
- .3 Assemble piping using fittings manufactured to ANSI standards.
- .4 Connect to equipment in accordance with manufacturer's instruction unless otherwise indicated.

- .5 Slope piping down in direction of flow to low points.
- .6 Install drip points:
  - .1 At low points in piping system.
  - .2 At each connection to equipment.
- .7 Use eccentric reducers at pipe size change installed to provide positive drainage.
- .8 Provide clearance for access and for maintenance.
- .9 Ream pipes, clean scale and dirt, inside and out.
- .10 Install piping to minimize pipe dismantling for equipment removal.
- .11 Install regulator vents to code. Terminate in open air with Gooseneck fitting complete with stainless steel screen.
- .12 Paint gas piping with two (2) coats yellow paint. Banding of gas will not be accepted.

### **3.2 PIPING ON ROOF**

- .1 Support piping as follows or as per seismic requirements (1.8 M (6' - 0") O.C.) whichever is more stringent:
  - ≤ 40 mm (1½") 2.4 M (8' - 0") O.C.
  - ≥ 50 mm (2") 3.0 M (10' - 0") O.C.
- .2 Provide support at each elbow and fitting.
- .3 Provide support at each regular and/or isolating valve.
- .4 Provide support within 600 mm (24") of each piece of equipment.

### **3.3 VALVES**

- .1 Install valves with stems upright or horizontal unless otherwise approved by Consultant.
- .2 Install valves at branch take-offs to isolate each piece of equipment, and as indicated.
- .3 Provide lubricated plug type when gas line is exterior of building or 65 mm (2½") and larger.
- .4 Provide ball valve when gas line is interior of building and 50 mm (2") or smaller.

### **3.4 FIELD QUALITY CONTROL**

- .1 Test system in accordance with CAN/CSA B149. Requirements of authorities having jurisdiction.
- .2 Provide copy of TSSA tag to the consultant.

### **3.5 PURGING**

- .1 Purge after pressure test in accordance with CAN/CSA B149.



**3.6 GAS SERVICE**

- .1 Arrange with local gas distributor to install gas service and gas meter. Pay all fees and charges to provide the gas service and gas meter.
- .2 Install all the gas meters where indicated.

**3.7 GAS FIRED EQUIPMENT START-UP**

- .1 Start-up of all new and existing gas fired equipment shall be by this contractor to the requirements of the equipment manufacturer.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 All codes, standards, etc. as referenced shall be the latest edition.
- .2 SMACNA HVAC Duct Construction Standards, Metal and Flexible.
- .3 SMACNA HVAC Duct Leakage Test Manual.
- .4 ASTM A480/A480M, Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip.
- .5 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process. (Metric).
- .6 ANSI/NFPA 90A, Installation of Air Conditioning and Ventilating Systems.
- .7 ANSI/NFPA 90B, Installation of Warm Air Heating and Air Conditioning Systems.
- .8 ANSI/NFPA 96, Ventilation Control and Fire Protection of Commercial Cooking Operations.**
- .9 CSA B228.1, Pipe Ducts and Fittings for Residential Type Air Conditioning Systems.**

**1.2                SHOP DRAWINGS AND PRODUCT DATA**

- .1 Submit shop drawings and product data in accordance with Section general requirements.
- .2 Indicate following:
  - .1 Sealants
  - .2 Tape
  - .3 Proprietary Joints
  - .4 Fittings

**1.3                CERTIFICATION OF RATINGS**

- .1 Catalogue or published ratings shall be those obtained from tests carried out by manufacturer or independent testing agency signifying adherence to codes and standards.

**Part 2            Products**

**2.1                DUCTWORK**

- .1 Galvanized Steel:
  - .1 Galvanized steel with Z90 designation zinc coating lock forming quality: to ASTM A653/A653M.

.2 Thickness:

Size Type	Class A Gauge	Class B Gauge	Class C Gauge
<b>Square and Rectangular</b>			
Up to 600 mm (24")	22	24	24
625 mm to 1000 mm (25" to 40")	20	22	24
1025 mm to 1800 mm (41" to 72")	18	20	22
1825 mm to 2400 mm (73" to 96")	16	18	20
2450 mm and over (97")	16	16	16
<b>Round and Oval</b>			
Up to 300 mm (12")	24	24	24
325 mm to 600 mm (13" to 24")	22	24	24
625 mm to 900 mm (25" to 36")	20	22	24
925 mm to 1200 mm (37" to 48")	18	20	22
1225 mm (49") and over	18	18	20

.3 All ductwork between HVAC unit connections and 3.0 m (10'-0") downstream or to silencers shall be 1.4 mm (18 gauge).

**2.2 DUCT CONSTRUCTION**

- .1 Square and rectangular:
  - .1 Ducts: to SMACNA.
  - .2 Transverse joints, longest side:
    - up to and including 750 mm (30"): SMACNA proprietary duct joints.
- .2 Ducts with sides over 750 mm (30") to 1200 mm (48"), transverse duct joint system by Ductmate/25, Nexus, or WDCI (Lite) (SMACNA "E" or "G" Type connection). Weld all corners.
  - .1 Acceptable materials:
    - .1 Ductmate Canada Ltd.
    - .2 Nexus, Exanno Corp.
    - .3 WDCI
- .3 Ducts 1200 mm (48") and larger, Ductmate/35, Nexus, or WDCI (heavy) (SMACNA "J" Type connection). Weld all corners.
  - .1 Acceptable materials:
    - .1 Ductmate Canada Ltd.
    - .2 Nexus, Exanno Corp.
    - .3 WDCII

**2.3 FITTINGS**

- .1 Fabrication: to SMACNA.
- .2 Radiused elbows:
  - .1 Rectangular: standard radius and or short radius with single thickness turning vanes Centreline radius: 1.5 times width of duct.
  - .2 Round:
    - .1 In exposed areas one-piece smooth radius, 1.5 times diameter.
    - .2 In concealed areas 3-piece adjustable, 1.5 times diameter.
- .3 Mitred elbows, rectangular:
  - .1 To 400 mm (16"): with double thickness turning vanes.
  - .2 Over 400 mm (16"): with double thickness turning vanes.
- .4 Branches:
  - .1 Rectangular main and branch: with 45° entry on branch.
  - .2 Round main and branch: enter main duct at 45° with conical connection.
  - .3 Provide volume control damper in branch duct near connection to main duct.
  - .4 Main duct branches: with splitter damper.
- .5 Diffuser connection to main:
  - .1 90° round spin in collars with balancing damper and locking quadrant.
- .6 Transitions:
  - .1 Diverging: 20° maximum included angle.
  - .2 Converging: 30° maximum included angle.
- .7 Offsets:
  - .1 Full short radiused elbows.
- .8 Obstruction deflectors: maintain full cross-sectional area.

**2.4 SEAL CLASSIFICATION**

- .1 Classification as follows:

Maximum Pressure Pa (" w.c.)	SMACNA Seal Class	Acceptable Leakage Classification (Rectangular)	Acceptable Leakage Classification (Round)
2500 (10")	A	4	2
1500 (6")	A	4	2
1000 (4")	A	4	2
750 (3")	A	8	4
500 (2")	B	16	8
250 (1")	B	16	8
125 (0.5")	C	16	8

- .2 Seal classification:
  - .1 Class A: longitudinal seams, transverse joints, duct wall penetrations and connections made airtight with sealant and tape.
  - .2 Class B: longitudinal seams, transverse joints and connections made airtight with sealant.
  - .3 Class C: transverse joints and connections made air tight with gaskets, or sealant or combination thereof. Longitudinal seams sealed with foil tape or sealant.

**2.5 SEALANT**

- .1 Sealant: oil resistant, polymer type flame resistant duct sealant. Temperature range of -30°C (-22°F) to plus 93°C (199°F).
  - .1 Acceptable materials:
    - .1 Duro Dyne S-2
    - .2 Foster

**2.6 TAPE**

- .1 Tape: polyvinyl treated, open weave fiberglass tape, 50 mm (2") wide.
  - .1 Acceptable material:
    - .1 Duro Dyne FT-2

**2.7 DUCT LEAKAGE**

- .1 In accordance with SMACNA HVAC Duct Leakage Test Manual.

**2.8 WATERTIGHT DUCT**

- .1 Provide watertight duct for:
  - .1 Dishwasher exhaust.
  - .2 Fresh air intake.
  - .3 Minimum 3000 mm (120") from duct mounted humidifier in all directions.
  - .4 As indicated.
- .2 Form bottom of horizontal duct without longitudinal seams. Solder or weld joints of bottom and side sheets. Seal all other joints with duct sealer.

**Part 3 Execution**

**3.1 GENERAL**

- .1 The following systems shall conform to these requirements:

System	Class	Material
HVAC Supply and Return	B	Galvanized steel

- .2 Do work in accordance with ASHRAE and SMACNA.

- .3 Do not break continuity of insulation vapour barrier with hangers or rods.
- .4 Support risers in accordance with ASHRAE and SMACNA.
- .5 Install breakaway joints in ductwork on each side of fire separation.
- .6 Install proprietary manufactured flanged duct joints in accordance with manufacturer's instructions.
- .7 Manufacture duct in lengths to accommodate installation of acoustic duct lining.

### **3.2 WATERTIGHT DUCT**

- .1 Slope horizontal branch ductwork down towards hoods served. Slope header ducts down toward risers.
- .2 Fit base of riser with 150 mm (6") deep drain sump and 25 mm (1") drain connected, with deep seal trap and valve and discharging to open funnel drain.

### **3.3 SEALING**

- .1 Apply sealant to outside of joint to manufacturer's recommendations.
- .2 Bed tape in sealant and recoat with minimum of 1 coat of sealant to manufacturers recommendations.

### **3.4 CLEANING**

- .1 Keep ducts clear from dust and debris
- .2 Keep duct liner clean from dust, debris, and moisture.
- .3 At completion of project vacuum ducts if dirt or dust is present.
- .4 Where new systems connect into existing systems the existing systems shall be cleaned and vacuumed prior to reconnection. **The extent of the cleaning shall be limited to the area immediately surrounding the new connection point.**
- .5 Ensure all systems are clean prior to start up.

### **3.5 INSTALLATION REQUIREMENTS**

- .1 All ductwork is to be protected from the weather and precipitation. The top and sides of all ductwork are to be completely covered with 6mil poly to the satisfaction of the consultant. Maintain protection of the ductwork until the building is made watertight and hollow cores drained. Tape all joints.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1 All codes, standards, etc. as referenced shall be the latest edition.
- .2 ANSI/ARI 210/240, Unitary Air-Conditioning and Air-Source Heat Pump Equipment.
- .3 ARI 270, Standard for Sound Rating of Outdoor Unitary Equipment.
- .4 CSA B52, Mechanical Refrigeration Code.
- .5 CSA C22.1, Canadian Electrical Code, Part 1.
- .6 ANSI/NFPA 90A, Installation of Air Conditioning and Ventilating Systems.
- .7 ANSI/UL 1995, Central Cooling Air Conditioning.

**1.2                SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with general requirements.
- .2 Indicate:
  - .1 Equipment, and connections, together with control assemblies, auxiliaries and hardware, and recommended ancillaries which are mounted, wired and piped ready for final connection to building system, its size and recommended bypass connections.
  - .2 Piping, valves, fitting shipped loose showing final location in assembly.
  - .3 Control equipment shipped loose, showing final location in assembly.
  - .4 Dimensions, internal and external construction details, recommended method of installation with proposed structural steel support, mounting curb details, sizes and location of mounting bolt holes; include mass distribution drawings showing point loads.
  - .5 Detailed composite wiring diagrams for control systems showing factory installed wiring and equipment on packaged equipment or required for controlling devices or ancillaries, accessories, controllers.
  - .6 Details of vibration isolation.
  - .7 Estimate of sound levels to be expected across each individual octave band in dB referred to A rating.
  - .8 Type of refrigerant used.

**1.3                MAINTENANCE DATA**

- .1 Provide maintenance data for incorporation into manual specified in general requirements.
- .2 Indicate:
  - .1 Brief description of unit, indexed, with details of function, operation, control, and service for each component.

- .3 Manufacturer's installation instructions shall govern and unless otherwise noted, operation, maintenance, and service of items. Include names and addresses of spare part suppliers.
- .4 Include following:
  - .1 Provide for each unit, manufacturer's name, type, year, number of units, and capacity.

#### **1.4 WARRANTY**

- .1 Manufacturer hereby warrants refrigeration compressors in accordance with GC 24, but for 5 years.
- .2 Manufacturer hereby warrants the gas heat sections for a minimum of 10 years.

### **Part 2 Products**

#### **2.1 STANDARD EFFICIENCY HVAC EQUIPMENT (15 TONS AND LESS)**

- .1 General:
  - .1 Roof mounted, self-contained single zone unit with gas burner and DX refrigeration and bear label of CSA, CGA, and ULC.
  - .2 Units to consist of cabinet and frame, supply fan, heat exchanger, burner control, air filter, refrigerant cooling coil, compressor, condenser coil and fans, motorized opposed blade outside air damper, return damper, gravity exhaust damper or power exhaust as indicated.
  - .3 Prefabricated roof curb complete with isolation rails (where indicated) to conform to requirements of National Roofing Contractors Association (NRCA), minimum height as indicated.
  - .4 Conform to ANSI/ARI 210/240, rating for unit larger than 40 kW (136 MBH) nominal.
  - .5 All units shall be of the same manufacture.
- .2 Cabinet:
  - .1 Cabinets: weatherproofing tested and certified to AGA and soundproofing tested to ARI 270.
  - .2 Framing and supports: 2 mm (14 gauge) thick welded steel, galvanized after manufacture, with lifting lugs.
  - .3 Outer casing: weathertight galvanized steel, bonderized with baked enamel finish, complete with flashing.
  - .4 Access: removable gasketed panels with screwdriver operated flush cam type fasteners.
  - .5 Insulation: neoprene coated glass fiber on all surfaces where conditioned air is handled, 1.6 mm (16 gauge) thick, 2.2 kg/m (1.5 lb/ft) density.



- .3 Fans:
  - .1 Centrifugal, forward curved impellers, statically and dynamically balanced. V-belt drive with adjustable variable pitch motor pulley, isolated hinge mounted motor. Vibration isolators: 95% efficiency.
- .4 Air Filters:
  - .1 50 mm (2") thick, 30% efficiency, permanent metal framed, replaceable media standard to unit manufacturer.
  - .2 To meet ANSI/NFPA 90A, air filter requirements.
- .5 Heat Exchangers and Burners:
  - .1 Gas fired, multiple flue passes, with primary heating surface of stainless steel; secondary heating surface, stainless steel tubes.
  - .2 Gas burner: factory mounted, wired and fire tested complete with operating and safety controls.
    - .1 Forced type.
    - .2 Spark ignited pilot with pilot flame safety shut-off.
- .6 Refrigeration:
  - .1 Conform to CSA B52 and ANSI/UL 1995 requirements.
  - .2 Compressor/condenser section:
    - .1 Compressors:
      - .1 Unit shall use one fully hermetic, scroll compressor for each independent refrigerant circuit.
      - .2 Provide two (2) stages on units 7.5 tons and larger.
      - .3 Resiliently mount compressors on rubber mounts for vibration isolation.
      - .4 Compressor motors to be cooled by refrigerant gas passing through motor windings.
      - .5 Compressors shall be internally protected from high discharge temperature conditions.
      - .6 Compressors shall have internal current and temperature protection.
      - .7 Compressors shall be isolated from condenser and evaporator air streams.
      - .8 Crank case heaters shall be used on all models to protect compressors with specific refrigerant charges.
    - .2 Fans: propeller type with single piece spun venturi outlets and zinc plated guards. Motors shall be sequenced for head pressure control.
    - .3 Electrical system shall have operating controls, oil and refrigerant pressure protection, motor overload protection, weatherproof electrical wiring with weatherproof, rain tight disconnect.

- .4 Include refrigerant piping with sight glass, filter, and valves.
- .5 Condenser: staggered copper tube aluminum fin coil assembly with sub-cooling rows.
- .6 Capacity reduction: staged scroll compressor.
- .7 Refrigerant: R410A.
- .3 Evaporator:
  - .1 Rated to ANSI/ARI 210/240.
  - .2 Thermostatic expansion valve, with adjustable super heat and external equalizer.
  - .3 Coil: staggered seamless copper tubes expanded into aluminum fins, and insulated condensation pan.
  - .4 Cooling coil condensate drain pans: designed to avoid any standing water, to be easily cleaned or removable for cleaning. Drain connection to have deep seal trap and be complete with trap seal primer.
- .7 Unit Controls:
  - .1 In addition to combustion safety controls, provide low limit on supply.
  - .2 Zone cooling control:
    - .1 Room thermostat to activate cooling relay in control circuit cycling compressor. Provide safeties and pressure controls. Condenser fans to operate in sequence.
    - .2 When call for cooling is satisfied, relay is de-energized. On two compressor units provide separate circuits to evaporator and condenser and manual double pole double throw switch for lead-lag unit choice.
  - .3 Zone heating control:
    - .1 Room thermostat controls burner operation, to maintain room temperature setting.
  - .4 Mixed air control:
    - .1 Motorized outside, return and gravity relief dampers with spring return damper operator and control package to automatically vary outside air quantity. Outside air and exhaust air dampers, normally closed.
    - .2 Tight fitting opposed blade dampers with neoprene or suitable gaskets, synthetic bushings and 1% maximum leakage.
    - .3 Damper operation: 24 V, spring return motor with gear train sealed in oil.
    - .4 Mixed air controls: maintain 14°F (57°F) mixed air temperature, lock out compressor below 10°C (50°F) ambient, restart 15°C (59°F), revert dampers to provide 25% fresh air above 21°C (70°F) adjustable.
  - .5 **All control components shall utilize industry standard input/outputs. (i.e. 0-10vDC). Proprietary voltages, communication languages etc. between components is not acceptable.**

**2.2 SYSTEM CONTROL**

- .1 Equipment control will be by the unit manufacturer and integral economizer controls.
- .2 System controls will be by Building Automation System Contractor.

**2.3 CAPACITY**

- .1 As indicated.

**2.4 ACCESSORIES**

- .1 Adapter curb.
- .2 Vibration rail.
- .3 Opposed blade economizer dampers.
- .4 Condenser coil hail guard.
- .5 Power exhaust on units nominal 10 tons and larger (with field installed wiring).
- .6 Stainless steel vertical extension on flue gas discharge.
- .7 Stainless steel heat exchanger.

**2.5 ELECTRICAL REQUIREMENTS**

- .1 As indicated.
- .2 Field installed devices.
  - .1 Provide all field installed wiring required for all units that are equipped with power exhaust. Provide transformers as required.
- .3 Mount all accessories shipped loose onto the units.

**2.6 ACCEPTABLE MATERIALS**

- .1 Lennox
- .2 Carrier
- .3 Trane
- .4 York

**Part 3 Execution**

**3.1 INSTALLATION**

- .1 Install as per manufacturers' instructions on roof curbs provided by manufacturer as indicated. Provide all necessary continuous wolmanized wood blocking to install roof curb level complete with 20 gauge liner to ensure combustible wood blocking is not exposed in the building.
- .2 Manufacturer to certify installation, supervise start-up and commission unit.
- .3 Run drain line from cooling coil condensate drain pan to discharge over roof drain.

**3.2 START-UP/COMMISSIONING**

- .1 Unit manufacturer shall perform start-up and commissioning.

**3.3 SPARE PARTS**

- .1 Two (2) complete sets of filters.
- .2 One (1) set of spare belts.

**3.4 WARRANTY**

- .1 One (1) year on parts and labour on all components.
- .2 Five (5) years on compressor.
- .3 Ten (10) years on stainless steel heat exchanger.

**END OF SECTION**

## 1 GENERAL

### 1 SECTION INCLUDES

- .1 Common requirements for electrical work.
- .2 Mounting heights for electrical equipment and devices.

### 2 INTENT

- .1 Include all material, labour, equipment, and plant construction as necessary to make a complete installation as shown and specified hereinafter.
- .2 Leave complete systems ready for continuous and efficient satisfactory operation.
- .3 Discipline and trade jurisdiction
  - .1 In accordance with CCDC 2-2008 GC 1.1.7: Neither the organization of the specifications nor the arrangement of drawings shall control the contractor in dividing the work among subcontractors and suppliers.

### 3 DRAWINGS AND SPECIFICATIONS

- .1 The drawings and specifications are complementary each to the other and what is called for by one to be binding as if called for by both. Should any discrepancy appear between the drawings and specifications, which leaves the contractor in doubt as to the true intent and meaning of plans and specifications, a ruling is to be obtained from the consultant in writing before submitting bid. If this is not done, the maximum, the most expensive alternate or option will be provided in base tender bid.
- .2 All drawings and all divisions of these specifications shall be considered as a whole, and work of this division shown anywhere therein shall be furnished under this division.
- .3 Drawings are diagrammatic and indicate the general arrangement of equipment and pathways. Most direct routing of conductors and wiring is not assured. Exact requirements are governed by architectural conditions of the job. Consult all other drawings in preparation of the bid. Extra lengths of wiring or addition of pull and junction boxes, etc. necessitated by such conditions are to be included in the bid. Check all information and report and apparent discrepancies before submitting the bid.
- .4 Contractor shall determine the exact locations of equipment and rough-ins, and the exact routing of pathways so as to best fit the layout of the job.
- .5 Scaling off the drawings will not be sufficient or accurate for determining these locations. Where job conditions require reasonable changes in indicated arrangement and locations, such changes shall be made at no additional cost to the owner.
- .6 Because of the scale of the drawings, certain basic items, such as junction boxes, pull boxes, conduit fittings, etc. may not be shown, but where such items are required by other sections of the specifications of where there are required for proper installation of the work, such items are to be furnished and installed.

- .7 Before ordering any conduit, cable tray, conductors, wireways, raceway bus duct, fittings, etc., verify all pertinent dimensions at the job site and be responsible for their accuracy.
- .8 If obvious ambiguities or omissions are noticed when tendering refer same to the consultant for a ruling and obtain the ruling in writing in the form of an addendum. Claims for extras for ambiguities or omission of items brought to the attention of the consultant after the award of a contract which, due to the nature of the ambiguity or omission, should have been brought to the attention of the consultant during the tendering period, will not be allowed.
- .9 The drawings are performance drawings, diagrammatic, and show locations for apparatus and materials. The drawings are intended to convey the scope of work and do not intend to show architectural and structural details. The locations shown are approximate, and may be altered, when approved by the consultant, to meet requirements of the material and/or apparatus, other equipment and systems being installed, and of the building. Do not scale drawings.
- .10 Provide any fitting, offset, transformation, etc., required to suit architectural details but not shown.

#### 4 WORK RESTRICTIONS

- .1 Existing buildings:
  - .1 Examine the existing building, the site and surrounding areas and be fully informed as to the conditions and limitations under which the work has to be executed. Claims for additional costs will not be entertained with respect to conditions which could reasonably be ascertained by an inspection prior to Tender closing.
  - .2 All work in the existing building, other than minor works required to permit construction of the new addition, is to be performed in such a manner as to not disrupt the building operations.
  - .3 All systems are to be kept in full operation during normal building hours.
  - .4 Note that any noise generating works that disrupt the building operation shall be coordinated accordingly and carried out after/before normal operating hours.
  - .5 Cut, modify, or extend as necessary or as directed by the consultant, the existing material or equipment to be reused or relocated to suit work under this contract.
  - .6 Existing materials and equipment which are to be used in new work shall be repaired and refinished as necessary. Provide additional new materials and components as required to facilitate reinstallation of such existing materials and equipment.
  - .7 Co-ordinate with the owner and refer to general conditions.
  - .8 Do work in existing areas to best suit available space and not interfere with or obstruct use of existing facilities.
  - .9 Where disruptions of existing services are required, coordinate shut down with the owner's operating staff and do the work at a time and in a manner mutually acceptable. Carefully schedule disruptions to keep "down time" to a minimum.

- .2 Do all cutting, patching and making good to leave in a finished condition and to make the several parts of the work come together properly. Co-ordinate work to keep cutting and patching to a minimum.
- .3 Quality of workmanship and materials used in patching, making good and refinishing of existing construction and/or compartments shall be of a standard equal to that specified for new construction and if not specified, equal to or exceeding that of original existing work.
- .4 Prior to cutting openings, examine wall, floor and ceiling construction for buried electrical cables and pipes; and take adequate protection. Conduct cable locating tests to locate buried cables in existing work.

## 5 COORDINATION

- .1 Coordinate work with other trades to avoid conflict and to provide correct rough-in and connection for equipment furnished under other trades that require electrical connection. Inform contractors of other trades of the required access to and clearances around electrical equipment to maintain serviceability and code compliance.
- .2 Verify equipment dimensions and requirements with provision specified under this section. Check actual job conditions before fabricating work. Report necessary changes in time to prevent needless work. Changes or additions subject to additional compensation, which are made without written authorization and an agreed price, shall be at contractor's risk and expense.
- .3 Read specifications and drawings of other trades and conform with their requirements before proceeding with any work specified in this division related to other trades. Co-operate with all other trades on the job, so that all equipment can be satisfactorily installed, and so that no delay is caused to any other trades.
- .4 Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.
- .5 Co-ordinate work with all trades to ensure a proper and complete installation. Notify all trades concerned of the requirement for openings, sleeves, insets and other hardware necessary for the installation and, where work is to be integrated with the work of other trades or is to be installed in close proximity with the work of other trades, carefully co-ordinate the work prior to installation.
- .6 Working Detail Drawings
  - .1 The contractor is to prepare working detail drawings supplementary to the contract drawings, when deemed necessary by the consultant, for all areas where a multiplicity of materials and or apparatus occur, or where the work due to architectural and structural considerations involves special study and treatment. Such drawings may be prepared jointly by all trades affected, or by the one trade most affected with due regard for and approval of the other trades, all as the consultant will direct in each instance. Such drawings must be reviewed by the consultant before the affected work is installed.

- .2 Carry out all alterations in the arrangement of work which has been installed without proper study and approval, even if in accordance with the contract documents, in order to make such work come within the finished lines of walls, floors and ceilings, or to allow the installation of other work, without additional cost. In addition, make any alterations necessary in other work required by such alterations, without additional cost.

## 6 SUBMITTAL PROCEDURES

- .1 Before delivery to site of any item of equipment, submit shop drawings complete with all data, pre-checked and stamped accordingly, for review by the Consultant. Indicate project name on each brochure or sheet, make reference to the number and title of the appropriate specification section, type identifier such panelboard ID or luminaire type as indicated on appropriate schedule, and provide adequate space to accommodate the Consultant's review stamp(s).
- .2 Verify field measurements and affected adjacent Work are coordinated, including passageway clearances for movement of equipment into location.
- .3 Submit shop drawings to the Consultant in electronic (PDF) format, as coordinated after award of contract. Where submittals are derived from digital originals, do not print and rescan documents; submittals made as such will be immediately rejected.
- .4 Submit a schedule of shop drawings within one week after award of contract. Group submittals by specification division as appropriate.
- .5 Shop Drawings
  - .1 Submit for review, properly identified shop drawings showing in detail the design and construction of all equipment and materials as requested in sections of the specification governed by this Section.
  - .2 Obtain and comply with the manufacturer's installation instructions.
  - .3 Endorse each shop drawing copy "CERTIFIED TO BE IN ACCORDANCE WITH ALL REQUIREMENTS", stamp each copy with contractor's company name, date each copy with the submittal date, and sign each copy. Shop drawings which are received and are not endorsed, dated and signed will be returned for re-submittal.
  - .4 This review by the consultant is for the sole purpose of ascertaining conformance with the general design concept. This review shall not mean that the consultant approved the detail design inherent in the shop drawings, responsibility for which shall remain with the contractor, and such review shall not relieve the contractor of responsibility for errors or omissions in the shop drawings or of responsibility for meeting all requirements of the contract documents. Be responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation, and for co-ordination of the work as well as compliance with codes and inspection authorities such as CSA, etc.



## 7 SAFETY REQUIREMENTS

- .1 Be responsible for the safety of workers and the equipment on the project in accordance with all applicable safety legislation passed by Federal, Provincial, and local authorities governing construction safety. The more stringent regulations prevail.

## 8 REGULATORY REQUIREMENTS

- .1 Permits and Fees
  - .1 Obtain and pay for all permits and fees required for the execution and inspection of the electrical work and pay all charges incidental to such permits. Submit to Electrical Inspection Department and Supply authority necessary number of drawings and specifications for examination and approval prior to commencement of work. Arrange and pay for any special inspection of equipment specified if and when required.
  - .2 Apply, pay and obtain all permits as required for the electrical work.
  - .3 Upon substantial performance of the work, supply and turn over to the consultant all required inspection certificates from governing authorities to certify that the work as installed conforms to the rules and regulations of the governing authorities.

## 9 QUALITY ASSURANCE

- .1 The specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the contractor from executing other quality assurance measures to obtain a complete operating system within the scope of this project.
- .2 Ensure that all workmanship, all materials employed, all required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in satisfactory working condition to satisfactorily perform its functional operation.
- .3 Provide quality assurance tests and operational check on all components of the electrical distribution system, all lighting fixtures, and communication systems.
- .4 Only first class workmanship will be accepted, not only in regards to durability, efficiency and safety, but also in regards to neatness of detail. Present a neat and clean appearance on completion to the satisfaction of the consultant. Any unsatisfactory workmanship will be replaced at no extra cost.
- .5 Conform to the best practices applicable to this type of work. Install all equipment and systems in accordance with the manufacturer's recommendations, but consistent with the general requirements of this specification. Electrical contractor will be held responsible for all damage to the work of his own or any other trade, resulting from the execution of his work. Store all electrical equipment and materials in dry locations.
- .6 Provide foreman in charge of this work at all times.
- .7 Governing Federal, Provincial and Municipal codes and regulations will be considered minimum standards for the work and where these are at variance with the drawings and specification, the more stringent ruling will apply.

- .8 Where any code, regulation, bylaw, or standard is quoted it shall mean the current edition including all revisions or amendments at the time of the tender.
- .9 In case of conflict, the codes and regulations take precedence over the Contract Documents. In no instance reduce the standard or scope of work or intent established by the drawings and specifications by applying any of the codes referred to herein.

## 10 QUALITY CONTROL

- .1 Provide a full-time superintendent to oversee and coordinate all sub-trades in these divisions.

## 11 TEMPORARY UTILITIES

- .1 Do not use any of the permanent facility systems during construction except as may be specified, or unless written approval is obtained from the consultant.
- .2 The use of permanent facilities for temporary construction service will not affect in any way the commencement day of the warranty period.

## 12 TEMPORARY FACILITIES AND CONTROLS

- .1 Prior to start of each work period in occupied area, install temporary protection to prevent damage to any personal property or furnishing. Coordinate with Owner's representative if any furniture must be relocated to facilitate work.
- .2 Submit temporary protection plan to Owner's Representative for approval prior to use.
- .3 Take necessary steps to ensure that required firefighting apparatus is accessible at all times. Flammable materials shall be kept in suitable places outside the building.

## 13 PRODUCT REQUIREMENTS

- .1 The design, manufacture and testing of electrical equipment and materials shall conform to or exceed the latest applicable CSA, IEEE, and ANSI standards.
- .2 All materials must be new and be ULC or CSA listed. Any materials not covered by the aforementioned listing standards shall be tested and approved by an independent testing laboratory, Technical inspection Services, or other government agency.
- .3 Materials and equipment are specifically described and named in this Specification in order to establish a standard of material and workmanship.
- .4 Materials required for performance of work shall be new and the best of their respective kinds and of uniform pattern throughout work.
- .5 Materials shall be of Canadian manufacture where obtainable. Materials of foreign manufacture, unless specified, shall be approved before being used.
- .6 Equipment items shall be standard products of approved manufacture. Identical units of equipment shall be of same manufacture. In any unit of equipment, identical component parts shall be of same manufacture, but the various component parts comprising the unit need not be of one manufacture.

- .7 Chemical and physical properties of materials and design performance characteristics and methods of construction and installation of items of equipment, specified herein, shall be in accordance with latest issue of applicable Standards or Authorities when such are either mentioned herein, or have jurisdiction over such materials or items of equipment.
- .8 Materials shall bear approval labels as required by code and/or inspection authorities.
- .9 Install materials in strict accordance with manufacturer's recommendations.
- .10 Include items of material and equipment not specifically noted on drawings or mentioned in specification but which are necessary to make a complete and operating installation.
- .11 Remove materials, condemned as not approved for use, from job site and deliver and install suitable approved materials in their place.
- .12 Unless otherwise noted, equipment and material specifications in sections of the specification governed by this section are based on products of a manufacturer selected by the consultant for the purpose of setting a standard of quality, size, performance, capacity, appearance and serviceability.
- .13 If materials or equipment manufactured and/or supplied by a manufacturer named as equivalent are used in lieu of products of the manufacturer specified, be responsible for ensuring that the substituted material or equipment is equivalent in size, performance and operating characteristics to the specified materials or equipment, and it shall be understood that all costs for larger starters, additional space, larger power feeders, and changes to associated or adjacent work required as a result of providing materials and equipment named as equivalent in lieu of the specified product will be borne by Contractor.
- .14 In addition to the manufacturers specified or named as equivalent, the Contractor may propose alternative manufacturers of equipment and/or apparatus to the Consultant for acceptance, listing in each case a corresponding credit for each alternative proposed, however, the tender price must be based on apparatus or materials specified or named as equivalent. Certify in writing to the Consultant that the alternative meets all space, power, design, and all other required of the specified or equivalent material or apparatus. In addition, it shall be understood that all costs for larger starters, space, power feeders, and changes to associated equipment, mechanical and/or electrical, required by acceptance of proposed equivalents, will be borne by the party making the proposal. Alternative equipment requiring greater than specified energy requirements or unduly limiting service space requirements will not be accepted.

#### 14 EXAMINATION AND PREPARATION

- .1 Examine the existing equipment, the site and surrounding areas and be fully informed as to the conditions and limitations under which the work has to be executed. Claims for additional costs will not be entertained with respect to conditions which could reasonably have been ascertained by an inspection prior to Tender closing.
- .2 Drawings are, in part, diagrammatic and are intended to convey scope of work and indicate general and approximate location, arrangement and sizes of equipment, piping, and similar items. Obtain more accurate information about locations, arrangement and sizes from study and coordination of drawings, including shop drawings and manufacturers' literature and become familiar with conditions and spaces affecting these matters before proceeding with work.

- .3 Where job conditions require reasonable changes in indicated locations and arrangements, make such changes with approval of the Consultant at no additional cost to the Owner. Similarly, where existing conditions interfere with new installation and require relocation, such relocation is included in work.

## 15 CUTTING AND PATCHING

- .1 The Electrical Contractor will be responsible for all cutting and patching required for the electrical installation. Structural members are not to be cut without the consent of the Consultant.
- .2 Cutting shall be kept to an absolute minimum and performed in a neat and workmanlike manner using the proper tools and equipment. Caution shall be exercised in all cutting and procedures to ensure that concealed services are not affected. Do not cut if in doubt. Request Consultant's presence to determine if concealed services exist.
- .3 Assume responsibility for prompt installation of Work in advance of concrete pouring or similar Work. Should any cutting or repairing of finished/unfinished Work be required because such installation was not done, employ the particular trade, whose Work is involved, to do such cutting and patching. Pay for any resulting costs. Layout such Work for approval before undertaking same.

## 16 CLEANING AND WASTE MANAGEMENT

- .1 The contractor and associated sub trades, at all times during construction, to keep the site free of all debris, boxes, packing, etc., resulting from work of this trade. At the completion of this work, the electrical installation is to be left in a clean and finished condition to the satisfaction of the consultant.
- .2 Clean and repair existing materials and equipment which remain or are to be reused.
- .3 Assume responsibility for removing tools and waste materials on completion of work, and leave work in clean and perfect condition.

## 17 STARTING AND ADJUSTING

- .1 Conduct performance tests to demonstrate that the equipment and systems actually meet the specified requirements. Tests may be conducted as soon as conditions permit, and consequently make all changes, adjustments, or replacements required as the preliminary tests may indicate prior to the final tests. Tests shall be as specified in various sections of this division. Carry out tests in the presence of the consultant. Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project. The electrical contractor shall be in charge of the plant during tests. He shall assume responsibility for damages in the event of injury to the personnel, building, equipment, and shall bear all costs for liability, repairs, and restoration in this connection. Submit test results.
- .2 Make tests of equipment and wiring at times requested.
- .3 Tests shall include meggered insulation values, voltage and current readings to determine balance of panels and feeders under full load, and operation of each piece of equipment for correct operation.

- .4 Supply meters, materials and personnel as required to carry out these tests.
- .5 Test electrical work to standards and function of specification and applicable codes in an approved manner. Replace defective equipment and wiring with new material and leave entire system in complete first class operating condition.
- .6 Connect single phase loads so that there is the least possible unbalance of the supply phases.
- .7 Submit all test results in report format.
- .8 Trial Usage
  - .1 The Consultant reserves the right to use any system, piece of equipment, device, or material for such reasonable lengths of time and at such times as may be required to make a complete and thorough test of the same, or for the purpose of learning operational procedures, before the final completion and acceptance of the work. Such tests shall not be construed as evidence of acceptance of the work, and it is agreed and understood that no claim for damage will be made for injury or breakage to any part or parts of the above due to the aforementioned tests, where such injuries or breakage are caused by a weakness or inaccuracy of parts, or by defective materials or workmanship of any kind. Supply all labour and equipment required for such tests.
  - .2 Perform and pay for all costs associated with any testing required on the system components where, in the opinion of the consultant the equipment manufacturer's ratings or specified performance is not being achieved.

## 18 CLOSEOUT PROCEDURES

- .1 The consultant will carry out inspections and prepare deficiency list for action by the contractor, during and on completion of project.
- .2 Furnish a certificate of acceptance from inspection department on completion of work.

## 19 CLOSEOUT SUBMITTALS

- .1 Project Record Documents
  - .1 Extra sets of white prints will be provided on which to make, as the job progresses, all approved changes and deviations from the original drawings. Complete record drawings accurately marked up in red ink must be submitted for approval before the contract is considered to be completed.
  - .2 Changes and deviations include those made by addenda, change orders, and supplemental instructions, and changes and deviations to be marked on the white print record drawings indicated on supplemental drawings issued with addenda, change orders, and supplemental instructions. Maintain the "as-built" white prints at the site for periodic inspection by the consultant throughout the duration of the work.
  - .3 Upon substantial performance of the work, obtain a set of reproducible white prints of the drawings and neatly amend the print in accordance with the marked-up white prints to produce a true "as-built" set of drawings.

- .4 As-built drawings are to indicate all circuiting as installed and all distribution junction box locations as well as conduit routes.
- .5 As-Built AutoCAD Drawings
  - .1 Request CAD release form from consultant, and submit back to consultant.
  - .2 Transfer the information from the “as-built” white prints to the files, and submit to the consultant for review.
  - .3 Employ a competent computer draftsman to indicate changes on the electronic set of record drawings.
  - .4 Submit as-built drawings in AutoCAD format.
- .2 Operations and Maintenance (O&M) Data
  - .1 Submit two complete sets of Operation and Maintenance instruction manuals in hard copy, and one in electronic format. Include in each copy of the manual:
    - .1 A copy of "reviewed" shop drawings.
    - .2 Recommended maintenance practices and precautions.
    - .3 Complete wiring and connection diagrams.
    - .4 Certificates of guarantees.
  - .2 Ensure that operating and maintenance instructions are specific and apply to the model and types of equipment provided.
- .3 Warranties
  - .1 Submit a written guarantee to the owner for one year from the date of substantial performance. This guarantee shall bind the contractor to correct, replace or repair promptly any defective equipment workmanship without cost to the owner.
  - .2 All equipment, materials and workmanship shall be unconditionally guaranteed for a minimum period of one year from the date of substantial performance.
  - .3 Provide warranty certificates, wherever given or required, in excess of the normal warranty period showing the name of the firm giving the warranty, dated and acknowledged, on specific equipment and systems.
  - .4 Warranties for temperature controls and building automation systems will start on the date of verification of acceptance by the consultant.
  - .5 Include these certificates with the maintenance and operating manuals in the appropriate sections.

## **2 PRODUCTS – NOT USED**

## **3 EXECUTION**

### **1 DEMOLITION**

- .1 Remove all electrical equipment and devices on redundant structures. Make safe all circuits, and provide continuity of remaining circuits.
- .2 To make safe: withdraw redundant wiring and remove unwanted conduit/wiring and accessories. Position breakers to off position and update panel schedules.
- .3 Maintain continuity of existing services for other circuits/devices serving areas outside the work area. Provide additional wiring/conduits/boxes etc. To suit existing services to be maintained and also implement new work as detailed.
- .4 Allow for this work in tender price.
- .5 Turn over designated equipment to the Owner. Dispose of unwanted materials and equipment.

### **2 FLASHING AND SHEET METAL**

- .1 Flash all conduits and systems passing through built into an outside wall, or a waterproof floor.
- .2 Provide copper flashing for sleeves passing through exterior walls.

### **3 FIRESTOPPING**

- .1 Ensure that fire ratings of floors and walls are maintained.
- .2 Provide ULC classified firestopping products by 3M or Hilti which have been tested in accordance with CAN4-S115.
- .3 Pack clearance spaces, fill all spaces between openings, pipes and ducts passing through fire separations and install firestopping systems in accordance with the appropriate ULC system number for the products and type of penetration.
- .4 Install firestopping systems using personnel trained or instructed by the product manufacturer.

### **4 ACCESS DOORS**

- .1 Group conduit work to ensure the minimum number of access doors is required.
- .2 Access doors are to be installed by the trade responsible for the particular type of construction in which the doors are required.

### **5 PAINTING AND FINISHES**

- .1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.
- .2 Repair and finish factory finished equipment, damaged or scratched during installation, in an approved manner.

- .3 All structural steel including hangers, brackets, supports and other ferrous metals shall be shop or factory prime painted wherever practicable. Wherever structural steel including hangers, brackets, supports, and other ferrous metals cannot be shop or factory prime painted, wire brush to remove all traces of rust, clean of all traces of dirt, oil, and grease, and apply one coat of an approved rust inhibiting primer in accordance with CGSB-GB-40d, and leave ready to receive finish paint.
- .4 All electrical fittings, supports, hanger rods, pull boxes, channel frames, conduit racks, outlet boxes, brackets, clamps etc., to have galvanized finish or paint finish over corrosion-resistant primer.
- .5 Touch up minor damage to finish on factory finished equipment. Items suffering major damage to finish shall be replaced at the direction of the consultant.
- .6 Protect work so that finishes will not be damaged or marred during construction. Maintain the necessary protection until completion of the work.
- .7 Provide all exposed ferrous metal work on equipment with at least one factory prime coat, or paint one prime coat on job. Clean up or wire brush all equipment, etc., before painting.
- .8 For factory applied finishes, repaint or refinish surfaces damaged during shipment, erection or construction work.

## 6 MOUNTING HEIGHTS AND DEVICE LOCATIONS

- .1 Refer to architectural drawings for exact location of electrical equipment and devices.
- .2 Architectural elevations take precedence over electrical elevations. If there are conflicts between architectural and electrical, adjust locations of electrical equipment at no additional cost to the owner.
- .3 Prior to roughing-in, the contractor is to mark locations of electrical equipment and devices for conflicts with architectural, studs, etc. If conflicts are noted, inform the consultant for a decision prior to commencing the rough-in.
- .4 Mounting heights of equipment and devices listed below is from finished floor to centreline of equipment, unless specified or indicated otherwise.
- .5 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.
- .6 Install electrical equipment at following heights above finished floor (AFF). Dimensions are to centre of device unless indicated otherwise.
  - .1 Power door operator push buttons: 1000 mm.

## 7 MANUFACTURER'S INSTRUCTIONS

- .1 Where the specifications call for an installation to be made in accordance with manufacturer's recommendations, a copy of such recommendations shall be at all times be kept on the job site and be available to the owner's representative.



- .2 Follow manufacturer's instructions where they cover points now specifically indicated on the drawings and specifications. If they are in conflict with the drawings and specifications obtain clarification from the consultant before starting work.

## 8 TESTS AND ACCEPTANCE

- .1 The operation of the equipment and electrical system does not constitute an acceptance of the work by the owner. The final acceptance is to be made after the contractor has adjusted his equipment and demonstrated that it fulfills the requirements of the drawings and the specifications.
- .2 Testing of all systems shall be performed in the presence of the owner's designated representative. The contractor shall give 72 hours advance notice to the owner before beginning the tests.
- .3 Upon completion of the installation, the contractor shall furnish certificates of approval from all authorities having jurisdiction, as applicable. Contractor shall demonstrate that work is complete and in perfect operating condition, with raceway and conduit systems properly grounded, wiring free from grounds, shorts, and that the entire installation is free for any physical defects.

End of Section

## **1 GENERAL**

### **1 SECTION INCLUDES**

- .1 Building wire and cable.
  - .1 Armoured cable.
  - .2 Metal clad cable.
  - .3 Wiring connectors and connections.
- .2 Permitted voltage drop for feeder and branch circuits.

### **2 COORDINATION**

- .1 Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

### **3 QUALIFICATIONS**

- .1 Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' experience.

### **4 SITE CONDITIONS**

- .1 Verify that field measurements are as indicated.
- .2 Wire and cable routing indicated is approximate unless dimensioned.

## **2 PRODUCTS**

### **1 BUILDING WIRE**

- .1 RW90:
  - .1 Single copper conductor.
  - .2 Minimum #12 AWG for branch circuit wiring.
  - .3 Minimum #14 AWG for 120V control wiring.
  - .4 Chemically cross-linked polyethylene insulation.
  - .5 Rated for 90 degrees C, 600V
  - .6 Suitable for handling to minus 40 degrees C.
  - .7 For interior installations in conduit.

### **2 ARMOURED CABLE**

- .1 Description: Type AC.
- .2 Two, three or four copper conductors rated RW90, 1000 V.

- .3 Bare copper ground wire.
- .4 Insulation Voltage Rating: 600 volts.
- .5 Insulation Temperature Rating: 90 degrees C (194 degrees F).
- .6 Insulation Material: Thermoplastic.
- .7 Runs to be limited to fixture drops and in walls, maximum exposed run 1.5 m.
- .8 Do not daisy chain (leap frog) luminaires with armoured cable.

### 3 WIRING TERMINATION

- .1 Lugs, terminals, or screws used for termination of wiring to be suitable for copper conductors. Identify wiring with permanent indelible identifying markings, either numbered or coloured plastic tapes, on both ends of phase conductors of feeders and branch circuit wiring. Maintain phase sequence and colour coding throughout.
- .2 Splice wire, up to and including No. 6 gauge, with nylon insulated expandable spring type connectors.

### 4 CONDUCTORS, WIRES, AND CABLES

- .1 Indoor wiring installed in conduit, unless otherwise noted: 600 volt "RW90 XLPE".
- .2 Lighting and power branch circuit wiring:
  - .1 Copper, minimum No. 12 gauge.
  - .2 Home runs to lighting and receptacle panels, which exceed 22 m (75 feet) in length: minimum No. 10 gauge.
- .3 Size wires for 2 per cent maximum voltage drop to farthest outlet on a maximum 80 per cent loaded circuit.
- .4 Outdoor wiring: "RWU90 XLPE".
- .5 Conductors shall be colour coded. Conductors No. 10 gauge and smaller shall have colour impregnated into insulation at time of manufacture. Conductors size No. 8 gauge and larger may be colour coded with adhesive colour coding tape but only black insulated conductors shall be employed in this case, except for neutrals which shall be white wherever possible.
- .6 Colour coding as follows:
  - .1 Phase "A" - Red
  - .2 Phase "B" - Black
  - .3 Phase "C" - Blue
  - .4 Control - Orange
  - .5 Ground - Green

.6 Neutral - White

.7 Neatly train circuit wiring in cabinets, panels, pull boxes and junction boxes and hold with nylon cable ties.

### **3 EXECUTION**

#### **1 EXAMINATION**

.1 Voltage Drop

.1 Ensure voltage drop in power and control conductors is in accordance with the requirements of the Electrical Code.

.2 Branch circuit conductors: maximum voltage drop of 3 per cent.

.2 Verify that mechanical work likely to damage wire and cable has been completed.

.3 Verify that raceway installation is complete and supported.

#### **2 PREPARATION**

.1 Completely and thoroughly swab raceway before installing wire.

#### **3 INSTALLATION**

.1 Route wire and cable as required to meet project conditions.

.2 Install cable to CSA C22.1.

.3 Conduit and cable supports

.1 All wiring to be installed in EMT at all exposed areas and in partitions unless otherwise specified.

.2 Support cables above accessible ceiling, using spring metal clips to support cables from structure. Do not rest cable on ceiling panels.

.4 Conductors

.1 Provide separate neutral for each circuit. Common neutrals not permitted.

.2 Use solid conductor for feeders and branch circuits 10 AWG and smaller.

.3 Use stranded conductors for control circuits.

.4 Use conductor not smaller than 12 AWG for wiring device circuits.

.5 Armoured cable (commonly referred to as BX) is only to be used for final connections and limited to maximum 1830 mm in length.

.5 Pulling conductors

.1 Pull all conductors into raceway at same time.

.2 Neatly train and lace wiring inside boxes, equipment, and panelboards.

.3 Protect exposed cable from damage.

.6 Connectors

.1 Use suitable cable fittings and connectors.

.2 Clean conductor surfaces before installing lugs and connectors.

.3 Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

.4 Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

.5 Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

4 IDENTIFICATION

.1 Identify and colour code wire and cables. Identify each conductor with its circuit number or other designation indicated.

.2 Where colour-coded tape is utilized, apply a minimum of 50 mm (2 inches) at terminations, junction and pull boxes and conduit fittings. Do not paint conductors under any condition.

End of Section

## 1 GENERAL

### 1 SECTION INCLUDES

- .1 Metal conduit.
- .2 Flexible metal conduit.
- .3 Electrical metallic tubing.
- .4 Fittings and conduit bodies.

### 2 REFERENCES

- .1 Canadian Standards Association
  - .1 CSA C22.1 – Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
  - .2 Ontario Electrical Safety Code.
  - .3 CAN/CSA-C22.2 No. 18 – Outlet Boxes, Conduit Boxes, Fittings and Associated Hardware.
  - .4 CSA C22.2 No. 45 – Rigid Metal Conduit.
  - .5 CSA C22.2 No. 45.1 – Rigid Metal Conduit - Steel.
  - .6 CSA C22.2 No. 56 – Flexible Metal Conduit and Liquid - Tight Flexible Metal Conduit.
  - .7 CSA C22.2 No. 83.1 – Electrical Metallic Tubing - Steel.

### 3 PROJECT RECORD DOCUMENTS

- .1 Accurately record actual routing of all conduit.

### 4 REGULATORY REQUIREMENTS

- .1 Provide products listed and classified by CSA (Canadian Standards Association) as suitable for purpose specified and shown.

### 5 DELIVERY, STORAGE, AND HANDLING

- .1 Accept conduit on site. Inspect for damage.
- .2 Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

### 6 PROJECT CONDITIONS

- .1 Verify that field measurements are as shown on drawings.
- .2 Verify routing and termination locations of conduit prior to rough-in.

- .3 Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

## **2 PRODUCTS**

### **1 CONDUIT REQUIREMENTS**

- .1 Minimum size: 21 mm (3/4 inch) unless otherwise specified.
- .2 Outdoor locations, above grade: use rigid steel.
- .3 Wet and damp locations: use rigid steel.
- .4 Dry locations:
  - .1 Concealed: Flexible metal conduit.
  - .2 Exposed: Use electrical metallic tubing.

### **2 METAL CONDUIT**

- .1 Rigid Steel Conduit: C22.2 No. 45.1.
- .2 Intermediate Metal Conduit (IMC): Rigid steel.
- .3 Fittings and Conduit Bodies: Material to match conduit.

### **3 FLEXIBLE METAL CONDUIT**

- .1 Description: Interlocked steel construction.
- .2 Fittings: CSA C22.2 No. 56.

### **4 ELECTRICAL METALLIC TUBING (EMT)**

- .1 Description: CSA C22.2 No. 83.1; galvanized tubing.
- .2 Fittings and Conduit Bodies: CSA C22.2 No. 83.1; steel type.

## **3 EXECUTION**

### **1 INSTALLATION**

- .1 Install conduit to CSA C22.1.
- .2 Arrangement and supports
  - .1 Arrange supports to prevent misalignment during wiring installation.
  - .2 Arrange conduit to maintain headroom and present neat appearance.
  - .3 Support conduit using coated steel or malleable iron straps, lay-in adjustable hangers, clevis hangers, and split hangers.

- .4 Group related conduits; support using conduit rack.
- .5 Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
- .6 Do not attach conduit to ceiling support wires.
- .7 Route exposed conduit parallel and perpendicular to walls.
- .8 Route conduit installed above accessible ceilings parallel and perpendicular to walls.
- .9 Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- .10 Provide suitable fittings to accommodate expansion and deflection where conduit crosses expansion joints.
- .3 Clearances
  - .1 Maintain adequate clearance between conduit and piping.
  - .2 Maintain 300 mm (12 inch) clearance between conduit and surfaces with temperatures exceeding 40 degrees C.
- .4 Conduit bends
  - .1 Install no more than equivalent of three 90 degree bends between boxes.
    - .1 Use conduit bodies to make sharp changes in direction, as around beams.
- .5 Install wall entrance seals where conduits pass through exterior walls below grade.
- .6 Provide expansion coupling in conduit runs at building expansion joints and in long runs subject to thermal expansion, all in accordance with manufacturer recommendations.
- .7 Cut conduit square using saw or pipe cutter; de-burr cut ends.
- .8 Bring conduit to shoulder of fittings; fasten securely.
- .9 Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- .10 Use conduit hubs or sealing locknuts to fasten conduit and to cast boxes.
- .11 Provide suitable pull string in each empty conduit except sleeves and nipples.
- .12 Ground and bond conduit.
- .13 Identify conduit.
- .14 Wiring Methods
  - .1 Install wiring in conduit unless otherwise specified.
  - .2 Install wiring and conduit work in a concealed manner where possible.



- .3 Conduit manufacturer's touch-up enamel shall be used to repair all scratches and gouges on epoxy-coated conduit.

End of Section

## **1 GENERAL**

### **1 SECTION INCLUDES**

- .1 Materials for Molded-Case Circuit Breakers (MCCB).
- .2 Accessories

### **2 SUBMITTALS**

- .1 Include termination temperature rating in degrees C.
- .2 Certificate of Origin
  - .1 Prior to any installation of circuit breakers in either a new or existing installation, Contractor must submit three (3) copies of a certificate of origin, from the manufacturer, duly signed by the factory and the local manufacturer's representative, certifying that all circuit breakers come from this manufacturer, they are new and they meet standards and regulations. These certificates must be submitted to the Engineer for approval.
  - .2 A delay in the production of the certificate of origin won't justify any extension of the contract and additional compensation.
  - .3 Any work of manufacturing, assembly or installation should begin only after acceptance of the certificate of origin by Engineer. Unless complying with this requirement, Engineer reserves the right to mandate the manufacturer listed on circuit breakers to authenticate all new circuit breakers under the contract, and that, to Contractor's expense.
  - .4 In general, the certificate of origin must contain:
    - .1 The name and address of the manufacturer, and the person responsible for authentication. The responsible person must sign and date the certificate;
    - .2 The name and address of the licensed dealer, and the person of the distributor responsible for the Contractor's account.
    - .3 The name and address of the Contractor, and the person responsible for the project.
    - .4 The name and address of the local manufacturer's representative. The local representative must sign and date the certificate.

## **2 PRODUCTS**

### **1 GENERAL**

- .1 Molded-case circuit breakers, Circuit breakers to CSA C22.2 No. 5
- .2 Plug-in Molded case circuit breakers: quick-make, quick-break type, for manual and automatic operation with temperature compensation for 40 degrees C ambient.

## 2 MOLDED CASE CIRCUIT BREAKERS – GENERAL

- .1 Molded case circuit breaker to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.
- .2 NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole.
- .3 1-, 2-, or 3-pole bolt on, single-handle common trip voltage as indicated on drawings.
- .4 Overcentre toggle-type mechanism, quick-make, quick-break action. Trip indication is by handle position.
- .5 Calibrate for operation in 40 degree C ambient temperature.
- .6 Permanent trip unit containing individual thermal and magnetic trip elements in each pole, unless noted otherwise on drawings.

## 3 EXECUTION

### 1 INSTALLATION

- .1 Install circuit breakers as per manufacturers instructions and recommendation.

End of Section

**Part 1 General**

**1.1 REFERENCES**

- .1 ASTM International
  - .1 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft<sup>3</sup>) (600kN-m/m<sup>3</sup>).
- .2 Ontario Provincial Standards for Roads and Public Works (OPSS)
  - .1 OPSS 1010 Material Specification for Aggregates – Base, Subbase, Select Subbase, and Backfill Material.

**Part 2 Products**

**2.1 MATERIALS**

- .1 Aggregate materials to be in accordance with OPSS 1010.
- .2 Granular A to OPSS 1010
- .3 Sand to OPSS 1004
- .4 Limestone Screening: Hard, durable, crushed stone particles, free from clay lumps, cementation, organic materials, frozen materials or other deleterious materials. Gradations within limits specified when tested to current ASTM C 136 and ASTM C 117

Sieve Designation (mm)	% Passing
9.5	100
4.75	50-100
2.00	30-65
0.425	10-30
0.075	10-20

- .5 Crushed granular to CCDG 14.02
- .6 Unshrinkable fill - proportioned and mixed to provide:
  - .1 Maximum compressive strength of 0.4 MPa at 28 days.
  - .2 Maximum Portland cement content of 25 kg/m<sup>3</sup>.
  - .3 Minimum strength of 0.07 MPa at 24 h.
  - .4 Concrete aggregates: to CAN/CSA-A23.1-M90.
  - .5 Portland cement: Type 10.
  - .6 Slump: 160 to 200 mm.
- .7 General fill material: clean, free from debris, organic matter and other deleterious material.

**Part 3            General**

**3.1                TESTS AND INSPECTIONS**

- .1        Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the Work.
- .2        Before commencing work, conduct survey of existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey benchmarks and monuments which may be affected by work.

**Part 4            Execution**

**4.1                PREPARATION**

- .1        Temporary Erosion and Sedimentation Control:
  - .1        Use temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, in accordance with the Erosion and Sediment Control Plan.
  - .2        Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3        Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- .2        Protection of in-place conditions:
  - .1        Protect excavations from freezing.
  - .2        Keep excavations clean, free of standing water, and loose soil.
  - .3        Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
  - .4        Protect buried services that are to remain undisturbed.
  - .5        Where soil is subject to significant volume change due to change in moisture content, cover and protect to Consultant's approval.
- .3        Removal:
  - .1        Remove obsolete buried services within 2 m of foundations. Cap cut-offs.
  - .2        Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.
  - .3        Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

- .4 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders and debris within areas designated on drawings.
- .5 Remove stumps and tree roots below footings, slabs, and paving, and to 600 mm below finished grade elsewhere.

#### **4.2 SITE CLEARING AND GRUBBING**

- .1 Dispose of cleared and grubbed material off site daily to disposal areas acceptable to authority having jurisdiction.
- .2 Temporarily remove existing fences, as required, to facilitate new construction work. Re-install at the completion of construction to as-new condition.

#### **4.3 ROUGH GRADING**

- .1 Strip topsoil over areas where grade changes are required and stockpile in approved location.
- .2 Cut back areas that are to be lowered to the grades shown on the drawings, allowing for the placement of topsoil. Obtain approval of the Consultant before using excavated material as fill.
- .3 Where existing grade is to be raised, supply and place fill material, approved by the Consultant, in progressive 150 mm lifts (loose material depth). Prior to placing fill material, scarify the existing grade to a minimum depth of 75 mm. Compact each lift to 98% Standard Proctor Dry Density before placing subsequent layers.
- .4 Provide finished rough grade parallel to finished grade, allowing for the placing of the specified surface material and base and to a tolerance of plus or minus 50 mm, and compacted to 98% Standard Proctor Dry Density under areas to be sodded or planted.

#### **4.4 EXCAVATION**

- .1 Stake out the locations of all items requiring excavation and obtain the approval of the Consultant before commencing work.
- .2 Shore and brace excavations, protect slopes and banks and perform work in accordance with Provincial and Municipal regulations.
- .3 Topsoil stripping:
  - .1 Do not handle topsoil while in wet or frozen condition or in any manner in which soil structure is adversely affected.
  - .2 Strip topsoil to depths as indicated. Avoid mixing topsoil with subsoil.
  - .3 Strip topsoil over areas to be covered by new construction and so that excavated material may be stockpiled without covering topsoil. As appropriate, remove or stockpile topsoil on site for later use in area approved by the Consultant.
- .4 Excavate as required to carry out work, in all materials met.
  - .1 Do not disturb soil or rock below bearing surfaces. Notify Consultant when excavations are complete.

- .2 If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.
- .3 Fill excavation taken below depths shown without Consultant's written authorization with concrete of same strength as for footings.
- .5 Excavate trenches to provide uniform continuous bearing and support for 150 mm thickness of pipe bedding material on solid and undisturbed ground. Trench widths below point 150mm above pipe not to exceed diameter of pipe plus 600 mm.
- .6 Excavate for slabs and paving to subgrade levels.
  - .1 Excavate to lines, grades, elevations and dimensions as indicated and required for completion of work.
  - .2 Excavate areas under concrete slabs on grade and where pavement and sidewalks will occur to depth required as noted in the drawings and to Consultant's satisfaction during construction.
  - .3 Do not disturb soil within branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with sharp axe or saw. Where excavation results in the loss of more than 20% of the root system of any tree, have the plant material top pruned by a qualified arboriculturalist to compensate for root loss. Pay all costs incurred. Backfill area without delay with appropriate material to prevent desiccation.
  - .4 Obtain Consultant approval of completed excavation.
  - .5 Notify Consultant when soil at bottom of excavation at design elevation as appears unsuitable and proceed as directed by Consultant and as follows:
    - .1 General Contractor to arrange for the Testing and Inspection Company to be on site full time to document the excavation on the site, the presence of unacceptable subsurface conditions and to confirm that excavation is at the design depth.
    - .2 The Testing and Inspection Company will oversee any and all required additional excavations.
    - .3 The Testing and Inspection Company is to ensure that any additional excavation work is minimized. When an acceptable founding elevation has been achieved, the revised founding elevation is to be confirmed and documented by the Testing and Inspection Company.
    - .4 The General Contractor shall remove unsuitable material from bottom of excavation to extent and depth as directed by the Testing and Inspection Company.
    - .5 The Testing and Inspection Company is to document all site information necessary for verification of all additional costs as submitted by the General Contractor. All Change Orders submitted for additional subsurface work shall include verification documentation from the Testing and Inspection Company.
  - .6 Where required due to unauthorized over- excavation, correct as follows:
    - .1 Fill under bearing surfaces and footings with Type 2 fill Standard Proctor Maximum Dry Density.

- .7 Excavate post holes with a power auger or hand auger as required, to the depth and diameter indicated. Ensure adequate allowance is provided in the bid for hand digging of holes as no extra to the contract will be allowed.
- .8 Shape the bottom of excavations for areas that include subsurface drainage to drain to the pipe at 2% minimum slope.

#### **4.5 SITE QUALITY CONTROL**

- .1 Fill material and spaces to be filled to be inspected and approved by Consultant.

#### **4.6 BACKFILLING**

- .1 Start backfilling only after inspection and receipt of written approval of fill material and spaces to be filled from Consultant.
- .2 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.
- .3 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.
- .4 Compaction of subgrade: compact existing subgrade under walks, paving, and slabs on grade, to same compaction as specified for fill. Fill excavated areas with selected subgrade material compacted as specified for fill.
- .5 Placing:
  - .1 Place backfill, fill and basecourse material in 150 mm lifts. Add water as required to achieve specified density.
  - .2 Place unshrinkable fill in areas as indicated. Consolidate and level unshrinkable fill with internal vibrators.
- .6 Compaction: compact each layer of material to following densities for material to ASTM D698:
  - .1 To underside of basecourses: 98%.
  - .2 Basecourses: 100%
  - .3 Elsewhere: 95%
- .7 In trenches:
  - .1 Rigid pipe bedding, cover, and backfill to OPSD 802.030
  - .2 Flexible pipe embedment and backfill as per OPSD 802.010
- .8 Under seeded and sodded areas: use site excavated material to bottom of topsoil except in trenches and within 600 mm of foundations.
- .9 Blown rock material, not capable of fine grading, is not acceptable, imported material must be placed on this type of material.
- .10 Against foundations (except as applicable to trenches and under slabs and paving): excavated material or imported material with no stones larger than 200 mm diameter within 600 mm of structures.



- .11 Underground tanks: use sand to bottom of granular base courses or to bottom of topsoil, as applicable.
- .12 Make good any settlement or subsequent damage to adjacent structures or to other work under this contract caused by improper or inadequate compaction.

**4.7 GRADING**

- .1 Grade to ensure that water will drain away from buildings, walls and paved areas, to catch basins and other disposal areas approved by Consultant. Grade to be gradual between finished spot elevations as indicated.

**4.8 SHORTAGE AND SURPLUS**

- .1 Supply all necessary fill to meet backfilling and grading requirements. Cost to do this, if required, is considered to be included in the lump sum rough grading item in the schedule of contract prices.
- .2 Dispose of surplus material off site. Cost to do this, if required, is considered to be included in the lump sum rough grading item in the schedule of contract prices.

**END OF SECTION**

**Part 1            General**

**1.1                DELIVERY, STORAGE AND HANDLING**

- .1        Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2        Transportation and Handling: handle and transport aggregates to avoid segregation, contamination and degradation.

**Part 2            Products**

**2.1                MATERIALS**

- .1        Aggregate materials in accordance with OPSS 1010.

**Part 3            Execution**

**3.1                PREPARATION**

- .1        Topsoil stripping:
  - .1        Begin topsoil stripping of areas as indicated after area has been cleared of brush, weeds, and grasses and removed from site.
  - .2        Strip topsoil to depths as indicated. Avoid mixing topsoil with subsoil.
  - .3        Stockpile height not to exceed 30m.
- .2        Aggregate source
  - .1        Aggregates are to be supplied by the contractor.
- .3        Stockpiling:
  - .1        Stockpile aggregates on site in locations as indicated unless directed otherwise by Consultant. Do not stockpile on completed pavement surfaces.
  - .2        Stockpile aggregates in sufficient quantities to meet project schedules.
  - .3        Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
  - .4        Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than [300] mm in depth to prevent contamination of aggregate. Stockpile aggregates on ground but do not incorporate bottom [300] mm of pile into Work.
  - .5        Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
  - .6        Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Consultant within 48 hours of rejection.
  - .7        During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1            Ontario Provincial Standards for Roads and Public Works (OPSS)
  - .1            OPSS 805 Construction specification for Temporary Erosion and Sediment Control Measures.

**Part 2            Products**

**2.1                NOT USED**

- .1            Not Used.

**Part 3            Execution**

**3.1                TEMPORARY EROSION AND SEDIMENTATION CONTROL**

- .1            Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the Erosion and Sediment Control Plan and as per OPSS 805.
- .2            Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3            Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**3.2                STRIPPING OF TOPSOIL**

- .1            Ensure that procedures are conducted in accordance with applicable Municipal or Provincial requirements (Note: Municipal requirements take precedence).
- .2            Remove topsoil before construction procedures commence to avoid compaction of topsoil.
- .3            Handle topsoil only when it is dry and warm.
- .4            Remove vegetation and brush from targeted areas by non-chemical means and dispose of stripped vegetation by alternative disposal.
- .5            Strip topsoil to depths as indicated.
  - .1            Avoid mixing topsoil with subsoil.
- .6            Dispose of unused topsoil off-site.
- .7            Protect stockpiles from contamination and compaction.
- .8            Cover topsoil that has been piled for long term storage, with trefoil or grass to maintain agricultural potential of soil.

**3.3 PREPARATION OF GRADE**

- .1 Verify that grades are correct and notify Consultant; if discrepancies occur do not begin work until instructed by Consultant.
  - .1 Grade area only when soil is dry to lessen soil compaction.
  - .2 Grade soil establishing natural contours and eliminating uneven areas and low spots, ensuring positive drainage.

**3.4 PLACING OF TOPSOIL**

- .1 Place topsoil only after Consultant has accepted subgrade.
- .2 Spread topsoil during dry conditions in uniform layers not exceeding 150mm, over unfrozen subgrade free of standing water.
- .3 Establish traffic patterns for equipment to prevent driving on topsoil after it has been spread to avoid compaction.
- .4 Cultivate soil following spreading procedures.

**END OF SECTION**

**Part 1            General**

**1.1                REFERENCES**

- .1    ASTM International
  - .1    ASTM C117, Standard Test Methods for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.
  - .2    ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
  - .3    ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft<sup>3</sup>) (600kN-m/m<sup>3</sup>).

**1.2                ACTION AND INFORMATIONAL SUBMITTALS**

- .1    Submit in accordance with Section 01 33 00 - Submittal Procedures.

**Part 2            Products**

**2.1                MATERIALS**

- .1    Granular Subbase to be in accordance with OPSS 1010.

**Part 3            Execution**

**3.1                PREPARATION**

- .1    Temporary Erosion and Sedimentation Control:
  - .1    Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the Erosion and Sedimentation Control Plan.
  - .2    Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3    Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

**3.2                PLACEMENT AND INSTALLATION**

- .1    Place granular base after subgrade surface is inspected and approved in writing by Consultant.
- .2    Placing:
  - .1    Construct granular base to depth and grade in areas indicated.
  - .2    Ensure no frozen material is placed.
  - .3    Place material only on clean unfrozen surface, free from snow and ice.

- .4 Begin spreading base material on crown line or on high side of one-way slope.
- .5 Place material using methods which do not lead to segregation or degradation of aggregate.
- .6 Place material to full width in uniform layers not exceeding 150 mm compacted thickness.
  - .1 Geotechnical Engineer may authorize thicker lifts (layers) if specified compaction can be achieved.
- .7 Shape each layer to smooth contour and compact to specified density before succeeding layer is placed.
- .8 Remove and replace that portion of layer in which material becomes segregated during spreading.
- .3 Compaction Equipment:
  - .1 Ensure compaction equipment is capable of obtaining required material densities.
  - .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from [Consultant] before use.
  - .3 Equipped with device that records hours of actual work, not motor running hours.
- .4 Compacting:
  - .1 Compact to density not less than 100% corrected maximum dry density.
  - .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
  - .3 Apply water as necessary during compacting to obtain specified density.
  - .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved in writing by Consultant.
  - .5 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.
- .5 Proof rolling:
  - .1 Obtain written approval from Geotechnical Engineer to use non standard proof rolling equipment.
  - .2 Proof roll at level in granular base as indicated.
    - .1 If use of non standard proof rolling equipment is approved, Consultant to determine level of proof rolling.
  - .3 Make sufficient passes with proof roller to subject every point on surface to three separate passes of loaded tire.
  - .4 Where proof rolling reveals areas of defective subgrade:
    - .1 Remove base, sub-base and subgrade material to depth and extent as directed by the Geotechnical Engineer.
    - .2 Replace sub-base material and compact.
    - .3 Replace base material and compact in accordance with this Section.
  - .5 Where proof rolling reveals defective base or sub-base, remove defective materials to depth and extent as directed by the Geotechnical Engineer and replace with new materials at no extra cost.

**3.3 SITE TOLERANCES**

- .1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.

**3.4 PROTECTION**

- .1 Maintain finished base in condition conforming to this Section until succeeding material is applied or until acceptance by Consultant.

**END OF SECTION**

**Part 1           General**

**1.1               REFERENCES**

- .1 American Association of State Highway and Transportation Officials (AASHTO)
  - .1 AASHTO T245, Standard Method of Test for Resistance to Plastic flow of Bituminous Mixtures Using Marshall Apparatus.
- .2 ASTM International
  - .1 ASTM D995, Standard Specification for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.
- .3 Ontario Provincial Standards for Roads and Public Works (OPSS)
  - .1 OPSS 308 Construction Specification for Tack Coating and Joint Painting
  - .2 OPSS 310 Construction Specification for Hot Mix Asphalt

**1.2               ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Test and Evaluation Reports:
  - .1 Submit asphalt mix design to Geotechnical Engineer for review at least 4 weeks prior to beginning work.

**Part 2           Products**

**2.1               MATERIALS**

- .1 As specified in the approved mix design.

**2.2               MIX DESIGN**

- .1 Mix design to be approved by Geotechnical Engineer.

**Part 3           Execution**

**3.1               PLANT AND MIXING REQUIREMENTS**

- .1 Batch and continuous mixing plants:
  - .1 To ASTM D995.
  - .2 Feed aggregates from individual stockpiles through separate bins to cold elevator feeders.
    - .1 Do not load frozen materials into bins.
  - .3 Feed cold aggregates to plant in proportions to ensure continuous operations.
  - .4 Calibrate bin gate openings and conveyor speeds to ensure mix proportions are achieved.



- .5 Before mixing, dry aggregates to moisture content not greater than 1% by mass or to lesser moisture content if required to meet mix design requirements. Heat to temperature required to meet mixing temperature as directed by Geotechnical Engineer after combining with RAP.
- .6 Immediately after drying, screen aggregates into hot storage bins in sizes to permit recombining into gradation meeting job-mix requirements.
- .7 Store hot screened aggregates in manner to minimize segregation and temperature loss.
- .8 Heat asphalt cement and aggregate to mixing temperature directed by Geotechnical Engineer. Do not heat asphalt cement above maximum temperature indicated on temperature-viscosity chart.
- .9 Make available current asphalt cement viscosity data at plant. With information relative to viscosity of asphalt being used, Geotechnical Engineer to approve temperature of completed mix at plant and at paver after considering hauling and placing conditions.
- .10 Maintain temperature of materials within 5degrees C of specified mix temperature during mixing.
- .11 Mixing time:
  - .1 In batch plants, both dry and wet mixing times as directed by Geotechnical Engineer.
  - .2 Continue wet mixing as long as necessary to obtain thoroughly blended mix but not less than 30s or more than 75s.
  - .3 In continuous mixing plants, mixing time as directed by Geotechnical Engineer but not less than 45s.
  - .4 Mixing time as directed by Geotechnical Engineer.
- .2 Dryer drum mixing plant:
  - .1 To ASTM D995.
  - .2 Load aggregates from individual stockpiles to separate cold feed bins. Do not load frozen materials into bins.
  - .3 Feed aggregates to burner end of dryer drum by means of multi-bin cold feed unit and blend to meet job-mix requirements by adjustments of variable speed feed belts and gates on each bin.
  - .4 Meter total flow of aggregate using electronic weigh belt system with indicator that can be monitored by plant operator and which is interlocked with asphalt pump to ensure proportions of aggregate and asphalt entering mixer remain constant.
  - .5 Allow for easy calibration of weighing systems for aggregates without having material enter mixer.
  - .6 Calibrate bin gate openings and conveyor speeds to ensure mix proportions are achieved.
    - .1 Calibrate weigh bridge on charging conveyor by weighing amount of aggregate passing over weigh bridge in set amount of time.
    - .2 Difference between this value and amount shown by plant computer system to differ by not more than plus or minus 2%.

- .7 Make provision for conveniently sampling full flow of materials from cold feed.
- .8 Provide screens or other suitable devices to reject oversize particles or lumps of aggregate from cold feed prior to entering drum.
- .9 Provide system interlock stop on feed components if either asphalt or aggregate from bin stops flowing.
- .10 Accomplish heating and mixing of asphalt mix in approved parallel flow dryer-mixer in which aggregate enters drum at burner end and travels parallel to flame and exhaust gas stream.
  - .1 Control heating to prevent fracture of aggregate or excessive oxidation of asphalt.
  - .2 Equip system with automatic burner controls and provide for continuous temperature sensing of asphalt mixture at discharge, with printing recorder that can be monitored by plant operator.
  - .3 Submit printed record of mix temperatures at end of each week.
- .11 Ensure mixing period and temperature to produce uniform mixture in which particles are thoroughly coated, and moisture content of material as it leaves mixer is 2% maximum.
- .3 Temporary storage of hot mix:
  - .1 Provide mix storage of sufficient capacity to permit continuous operation and designed to prevent segregation.
  - .2 Do not store asphalt mix in storage bins in excess of 3hour.
- .4 While producing asphalt mix for this Project, do not produce mix for other users unless separate storage and pumping facilities are provided for materials supplied to this project.
- .5 Mixing tolerances:
  - .1 Permissible variation of asphalt cement from job mix: 0.25%
  - .2 Permissible variation of mix temperature at discharge from plant: 5 degrees C.
- .6 Addition of anti-stripping agent:
  - .1 Plant to be equipped with pug mill to thoroughly mix aggregates and lime prior to entering the plant.
  - .2 Plant to be equipped with suitable conveyor systems capable of supplying aggregates and lime at constant rate.
  - .3 Plant and equipment used for addition of lime to be equipped with covers to control loss of lime.
  - .4 Plant to be equipped to control rate of lime incorporation to within 1/4%.
  - .5 Add water to aggregate prior to entering pug mill.
  - .6 Add water to lime sufficiently in advance to permit time to slake prior to entering pug mill.

### **3.2 PREPARATION**

- .1 Temporary Erosion and Sedimentation Control:

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to the Erosion & Sediment Control Plan.
  - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
  - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- .2 Prior to laying mix, clean surfaces of loose and foreign material.
    - .1 Apply tack coat in accordance with OPSS 308 prior to paving if necessary.

### **3.3 TRANSPORTATION OF MIX**

- .1 Transport mix to job site in vehicles cleaned of foreign material.
- .2 Paint or spray truck beds with limewater, soap or detergent solution, or non petroleum based commercial product, at least daily or as required.
  - .1 Raise truck bed and thoroughly drain, and ensure no excess solution remains in truck bed.
- .3 Schedule delivery of material for placing in daylight, unless Consultant approves artificial light for night placing.
- .4 Deposit mix from surge or storage silo to trucks in multiple drops to reduce segregation.
  - .1 Do not dribble mix into trucks.
- .5 Deliver material to paver at uniform rate and in an amount within capacity of paving and compacting equipment.
- .6 Deliver loads continuously in covered vehicles and immediately spread and compact.

### **3.4 PLACING**

- .1 Obtain Geotechnical Engineer's approval of base prior to placing asphalt.
- .2 Place asphalt concrete to thicknesses, grades and lines as indicated.
- .3 Placing conditions:
  - .1 Place asphalt mixtures only when air temperature is 7 degrees C minimum.
  - .2 When temperature of surface on which material is to be placed falls below 10 degrees C, provide extra rollers as necessary to obtain required compaction before cooling.
  - .3 Do not place hot-mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.
- .4 Place asphalt concrete in compacted lifts of thickness as indicated.
- .5 Where possible do tapering and levelling where required in lower lifts. Overlap joints by not less than 0.5m.
- .6 Spread and strike off mixture with self propelled mechanical finisher.
  - .1 Construct longitudinal joints and edges true to line markings.

- .2 Maintain constant head of mix in auger chamber of paver during placing.
- .3 If segregation occurs, immediately suspend spreading operation until cause is determined and corrected.
- .4 Correct irregularities in alignment left by paver by trimming directly behind machine.
- .5 Correct irregularities in surface of pavement course directly behind paver.
  - .1 Remove excess material forming high spots using shovel or lute.
    - .1 Fill and smooth indented areas with hot mix.
    - .2 Do not broadcast material over such areas.
- .6 Do not throw surplus material on freshly screeded surfaces.
- .7 When hand spreading is used:
  - .1 Use approved wood or steel forms, rigidly supported to assure correct grade and cross section.
    - .1 Use measuring blocks and intermediate strips to aid in obtaining required cross-section.
  - .2 Distribute material uniformly without broad casting material.
  - .3 During spreading operation, thoroughly loosen and uniformly distribute material by lutes or covered rakes.
    - .1 Reject material that has formed into lumps and does not break down readily.
  - .4 After placing and before rolling, check surface with templates and straightedges and correct irregularities.
  - .5 Provide heating equipment to keep hand tools free from asphalt.
    - .1 Control temperature to avoid burning material.
    - .2 Do not use tools at higher temperature than temperature of mix being placed.

### **3.5 COMPACTING**

- .1 Compaction Requirements shall adhere to OPSS 310.08.04.
- .2 Do not change rolling pattern unless mix changes or lift thickness changes.
- .3 General:
  - .1 Provide at least 2 rollers and as many additional rollers as necessary to achieve specified pavement density. When more than 2 rollers are required, 1 roller must be pneumatic tired type.
  - .2 Start rolling operations as soon as placed mix can bear weight of roller without excess displacement of material or cracking of surface.
  - .3 Operate roller slowly initially to avoid displacement of material. Do not exceed 5km/h for breakdown and intermediate rolling for static steel-wheeled and pneumatic tired rollers. Do not exceed 9km/h for finish rolling.
  - .4 Use static compaction for levelling coarse less than 25mm thick.

- .5 For lifts 50 mm thick and greater, adjust speed and vibration frequency of vibratory rollers to produce minimum of 25 impacts per metre of travel. For lifts less than 50 mm thick, impact spacing not to exceed compacted lift thickness.
- .6 Overlap successive passes of roller by minimum of [200] mm and vary pass lengths.
- .7 Keep wheels of roller slightly moistened with water to prevent pick-up of material but do not over-water.
- .8 Do not stop vibratory rollers on pavement that is being compacted with vibratory mechanism operating.
- .9 Do not permit heavy equipment or rollers to stand on finished surface before it has been compacted and has thoroughly cooled.
- .10 After traverse and longitudinal joints and outside edge have been compacted, start rolling longitudinally at low side and progress to high side.
  - .1 Ensure that all points across width of pavement receive essentially equal numbers of passes of compactors.
- .11 Where rolling causes displacement of material, loosen affected areas at once with lutes or shovels and restore to original grade of loose material before re-rolling.
- .4 Breakdown rolling:
  - .1 Begin breakdown rolling with vibratory roller immediately following rolling of transverse and longitudinal joint and edges.
  - .2 Operate rollers as close to paver as necessary to obtain adequate density without causing undue displacement.
  - .3 Operate breakdown roller with drive roll or wheel nearest finishing machine. When working on steep slopes or super-elevated sections use operation approved by Geotechnical Engineer.
  - .4 Use only experienced roller operators.
- .5 Intermediate rolling:
  - .1 Use pneumatic-tired, steel wheel or vibratory rollers and follow breakdown rolling as closely as possible and while paving mix temperature allows maximum density from this operation.
  - .2 Rolling to be continuous after initial rolling until mix placed has been thoroughly compacted.
- .6 Finish rolling:
  - .1 Accomplish finish rolling with two-axle or three-axle tandem steel wheeled rollers while material is still warm enough for removal of roller marks.
  - .2 Conduct rolling operations in close sequence.

### **3.6 JOINTS**

- .1 General:
  - .1 Remove surplus material from surface of previously laid strip.
    - .1 Do not deposit on surface of freshly laid strip.

- .2 Construct joints between asphalt concrete pavement and Portland cement concrete pavement as indicated.
- .3 Paint contact surfaces of existing structures such as manholes, curbs or gutters with bituminous material prior to placing adjacent pavement.
- .2 Transverse joints:
  - .1 Offset transverse joint in succeeding lifts by at least 600 mm.
  - .2 Cut back to full depth vertical face and tack face with thin coat of hot asphalt prior to continuing paving.
  - .3 Compact transverse joints to provide smooth riding surface. Use methods to prevent rounding of compacted surface at joints.
- .3 Longitudinal joints:
  - .1 Offset longitudinal joints in succeeding lifts by at least 150 mm.
  - .2 Cold joint is defined as joint where asphalt mix is placed, compacted and left to cool below 100 degrees C prior to paving of adjacent lane.
    - .1 Cold joints shall be avoided.
    - .2 If cold joint can not be avoided, cut back by saw cutting previously laid lane, by at least 150 mm, to full depth vertical face, and tack face with thin coat of hot asphalt of adjacent lane.
  - .3 Overlap previously laid strip with spreader by 25 to 50 mm.
  - .4 Before rolling, carefully remove and discard coarse aggregate in material overlapping joint with lute or rake.
  - .5 Roll longitudinal joints directly behind paving operation.
  - .6 When rolling with static or vibratory rollers, have most of drum width ride on newly placed lane with remaining 150 mm extending onto previously placed and compacted lane.
- .4 Butt joints shall be implemented as specified.

### **3.7 FINISH TOLERANCES**

- .1 Finished asphalt surface to be within 5 mm of design elevation but not uniformly high or low.
- .2 Finished asphalt surface not to have irregularities exceeding 5 mm when checked with 4.5 m straight edge placed in any direction.

### **3.8 DEFECTIVE WORK**

- .1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required.
  - .1 If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form true and even surface and compact immediately to specified density.
- .2 Repair areas showing checking, rippling, or segregation.

- .3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

**END OF SECTION**

1 General

1.1 **SECTION INCLUDES**

- .1 Labour, Products, equipment, tools, and services necessary for painted traffic lines Work in accordance with the Contract Documents.

1.2 **REFERENCES**

- .1 CAN/CGSB-1.5M, Low Flash Petroleum Spirits Thinner.
- .2 CGSB1-GP-71, Method, of Testing Paints and Pigments.
- .3 CAN/CGSB 1.74, Alkyd Traffic Paint.

1.3 **SUBMITTALS**

- .1 Samples: Submit samples in accordance with the Conditions of the Contract for the following:
  - .1 Two 1L samples of each type of paint.
  - .2 Sampling to CGSB1-GP-71.
  - .3 Mark samples with name of project and its location, paint manufacturer's name and address, name of paint, CGSB specification number and formulation number and batch number.

1.4 **SITE CONDITIONS**

- .1 Do not install Work of this Section outside of following environmental ranges without Consultant's and Product manufacturer's written acceptance:
  - .1 Ambient air and surface temperature: 10° C.
  - .2 Precipitation: None within 4 hours.
  - .3 Wind speed: less than 60 km/h.

2 Products

2.1 **MATERIALS**

- .1 Traffic paint: CAN/CGSB 1.74, new pavement markings, white or yellow as selected by Consultant.
- .2 Thinner: to CAN/CGSB 1.5-M.



3 Execution

3.1 **EQUIPMENT REQUIREMENTS**

- .1 Paint applicator to be an approved pressure type mobile distributor capable of applying paint in single, double and dashed lines. Applicator to be capable of applying marking components uniformly and to dimensions as indicated, and to have positive shut-off.

3.2 **EXAMINATION**

- .1 Verify condition and dimensions of previously installed Work upon which this Section depends. Report defects to Consultant. Commencement of Work means acceptance of existing conditions.
- .2 Pavement surface to be dry, free from ponded water, frost, ice, dust, oil, grease and other foreign materials.

3.3 **APPLICATION**

- .1 Spray paint parking zone lines and other pavement markings indicated, included, but not limited to, hash marks for no parking areas, direction arrows and handicap parking symbols.
- .2 Apply paint evenly at rate of 3m<sup>2</sup>/L.
- .3 Do not thin paint.
- .4 Symbols and letters to conform to dimensions indicated and be applied with template.
- .5 Unless otherwise indicated, paint lines 125 mm wide. Paint lines to be of uniform colour and density with sharp edges.
- .6 Paint lines straight, or uniformly curved, with well defined edges and full paint coverage in all locations.

3.4 **TOLERANCE**

- .1 Paint markings to be within plus or minus 12mm of dimensions indicated.

3.5 **PROTECTION**

- .1 Protect pavement markings until dry.

END OF SECTION

**Part 1            General**

**1.1                ADMINISTRATIVE REQUIREMENTS**

- .1            Scheduling:
  - .1            Schedule sod laying to coincide with preparation of soil surface.
  - .2            Schedule sod installation when frost is not present in ground.

**1.2                QUALITY ASSURANCE**

- .1            Qualifications:
  - .1            Landscape Contractor: to be a Member in Good Standing of Horticultural Trades Association.

**1.3                DELIVERY, STORAGE AND HANDLING**

- .1            Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2            Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3            Storage and Handling Requirements:
  - .1            Store materials in accordance with supplier's recommendations.
  - .2            Replace defective or damaged materials with new.

**Part 2            Products**

**2.1                MATERIALS**

- .1            Number One Turf Grass Nursery Sod: sod that has been especially sown and cultivated in nursery fields as turf grass crop.
  - .1            Turf Grass Nursery Sod types:
    - .1            Number One Kentucky Bluegrass Sod: Nursery Sod grown solely from seed of cultivars of Kentucky Bluegrass, containing not less than 50% Kentucky Bluegrass cultivars.
    - .2            Number One Kentucky Bluegrass Sod - Fescue Sod: Nursery Sod grown solely from seed mixture of cultivars of Kentucky Bluegrass and Chewing Fescue or Creeping Red Fescue, containing not less than 40% Kentucky Bluegrass cultivars and 30% Chewing Fescue or Creeping Red Fescue cultivars.
    - .3            Number One Named Cultivars: Nursery Sod grown from certified seed.
  - .2            Turf Grass Nursery Sod quality:
    - .1            Not more than 1 broadleaf weed and up to 1% native grasses per 40 square metres.

- .2 Density of sod sufficient so that no soil is visible from height of 1500 mm when mown to height of 50 mm.
  - .3 Mowing height limit: 35 to 65 mm.
  - .4 Soil portion of sod: 6 to 15 mm in thickness.
- .2 Water:
- .1 Supplied by Contractor.
- .3 Fertilizer:
- .1 To Canada "Fertilizers Act" and Fertilizers Regulations.
  - .2 Complete, synthetic, slow release with 65% of nitrogen content in water-insoluble form.

### **Part 3 Execution**

#### **3.1 INSTALLERS**

- .1 Use installers who are Member in Good Standing of Horticultural Trades Association.

#### **3.2 PREPARATION**

- .1 Verify that grades are correct and prepared in accordance with Section 32 91 19.13 - Topsoil Placement and Grading.
- .2 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
- .3 Fine grade surface free of humps and hollows to smooth, even grade, to elevations indicated, to tolerance of plus or minus 8mm, for Turf Grass Nursery Sod surface to drain naturally.
- .4 Remove and dispose of weeds; debris; stones 50 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site.

#### **3.3 SOD PLACEMENT**

- .1 Ensure sod placement is done under supervision of certified Landscape Planting Supervisor.
- .2 Lay sod within 24 hours of being lifted if air temperature exceeds 20 degrees C.
- .3 Lay sod sections in rows, joints staggered. Butt sections closely without overlapping or leaving gaps between sections. Cut out irregular or thin sections with sharp implements.
- .4 Roll sod. Provide close contact between sod and soil by light rolling. Use of heavy roller to correct irregularities in grade is not permitted.

#### **3.4 SOD PLACEMENT ON SLOPES AND PEGGING**

- .1 Install and secure geotextile fabric in areas indicated, in accordance with manufacturer's instructions.
- .2 Start laying sod at bottom of slopes.

- .3 Peg sod on slopes steeper than 3 horizontal to 1 vertical, within 1m of catch basins and within 1 m of drainage channels and ditches to following pattern:
  - .1 100 mm below top edge at 200 mm on centre for first sod sections along contours of slopes.
  - .2 Not less than 3-6 pegs per square metre.
  - .3 Not less than 6-9 pegs per square metre in drainage structures.
  - .4 Drive pegs to 20 mm above soil surface of sod sections.

### **3.5 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
  - .2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
  - .1 Clean and reinstate areas affected by Work.

### **3.6 PROTECTION BARRIERS**

- .1 Protect newly sodded areas from deterioration.
- .2 Remove protection 2 weeks after installation.

### **3.7 MAINTENANCE DURING ESTABLISHMENT PERIOD**

- .1 Perform following operations from time of installation until acceptance.
  - .1 Water sodded areas in sufficient quantities and at frequency required to maintain optimum soil moisture condition to depth of 75 to 100mm.
  - .2 Cut grass to 50mm when or prior to it reaching height of 75mm.
  - .3 Maintain sodded areas weed free 95%.
  - .4 Temporary barriers or signage to be maintained where required to protect newly established sod.

### **3.8 ACCEPTANCE**

- .1 Turf Grass Nursery Sod areas will be accepted provided that:
  - .1 Sodded areas are properly established.
  - .2 Sod is free of bare and dead spots.
  - .3 No surface soil is visible from height of 1500mm when grass has been cut to height of 50mm.
  - .4 Sodded areas have been cut minimum 2 times prior to acceptance.
- .2 Sodded Commercial Grade Turf Grass Nursery Sod areas will be accepted provided that:
  - .1 Sodded areas are properly established.

- .2 Extent of surface soil visible when grass has been cut to height of 60mm is acceptable.
  - .3 Sod is free of bare or dead spots and extent of weeds apparent in grass is acceptable.
  - .4 Sodded areas have been cut minimum 2 times prior to acceptance.
  - .5 Fertilizing in accordance with fertilizer program has been carried out at least once.
- .3 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.
  - .4 When environmental conditions allow, all sodded areas showing shrinkage cracks shall be top-dressed and seeded with a seed mix matching the original.
  - .5 Areas sodded in fall will be accepted in following spring one month after start of growing season provided acceptance conditions are fulfilled.

**3.9 MAINTENANCE DURING WARRANTY PERIOD**

- .1 Perform following operations from time of acceptance until end of warranty period:
  - .1 Water sodded Turf Grass Nursery Sod at weekly intervals to obtain optimum soil moisture conditions.
- .2 Repair and resod dead or bare spots.
- .3 Cut grass and remove clippings that will smother grass.
- .4 Cut grass at 2week intervals.

END OF SECTION



**FINAL**  
**Hazardous Building**  
**Materials Assessment**  
**(Pre-construction)**

Accessibility Upgrades Project  
St. Peter's Catholic High School  
201 Ashford Drive, Barrie, Ontario

Prepared for:

**Simcoe Muskoka Catholic**  
**District School Board**

46 Alliance Boulevard  
Barrie, Ontario L4M 5K3

July 18, 2022

Pinchin File: 305470.008



**Issued to:** Simcoe Muskoka Catholic District School Board  
**Issued on:** July 18, 2022  
**Pinchin File:** 305470.008  
**Issuing Office:** Barrie, ON

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## EXECUTIVE SUMMARY

Simcoe Muskoka Catholic District School Board (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at St. Peter's Catholic High School located at 201 Ashford Drive, Barrie, Ontario. Pinchin performed the assessment on June 14, 2022.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities. The proposed work as identified by the Client includes the renovations as outlined in the documents provided by the Client entitled "Accessibility Upgrades – Various, at St. Peter's High School, Barrie" dated May 25, 2022, prepared by Paradigm Engineering Group Ltd.

The results of this assessment are intended for use with a properly developed scope of work or performance specifications and safe work procedures.

The assessed area was limited to the parts of the building to be renovated, as described by the Client, and identified on the drawings in Appendix I.

## SUMMARY OF FINDINGS

The following is a summary of significant findings; refer to the body of the report for detailed findings:

### Asbestos:

- Grey firestopping (presumed)
- Terrazzo (presumed)
- All asbestos-containing materials were observed to be in good condition.

### Lead:

- Lead within batteries of emergency lights.

Silica: Crystalline silica is present in concrete, mortar, masonry, drywall terrazzo, and ceiling tiles.

Mercury: Mercury vapour is present in lamp tubes and liquid mercury is presumed present in thermostat ampules.

Polychlorinated Biphenyls (PCBs): PCBs are not present.

Mould and Water Damage: Visible mould and water damage was not observed.

Ozone Depleting Substances: ODS are not present.





## SUMMARY OF RECOMMENDATIONS

The following is a summary of significant recommendations; refer to the body of the report for detailed recommendations.

1. Conduct further investigation of the following items, which was not completed during this assessment:
  - a. Sample excluded or presumed materials prior to disturbance, if impacted by the planned renovations.
2. Prepare a scope of work or specifications and safe work procedures for the hazardous materials removal required for the planned work.
3. Do not disturb suspected hazardous building materials discovered during the planned work, which have not been identified in this report and arrange for further evaluation and testing.
4. Remove and properly dispose of asbestos-containing materials prior to renovation activities.
5. Recycle mercury-containing lamp tubes and thermostats when removed from service.
6. Follow appropriate safe work procedures when handling or disturbing asbestos, lead, and silica.

*This Executive Summary is subject to the same standard limitations as contained in the report and must be read in conjunction with the entire report.*



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## APPENDICES

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APPENDIX V	Hazardous Materials Summary Report / Sample Log
APPENDIX VI	HMIS All Data Report



## 1.0 INTRODUCTION AND SCOPE

Simcoe Muskoka Catholic District School Board (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at St. Peter's Catholic High School located at 201 Ashford Drive, Barrie, Ontario.

Pinchin performed the assessment on June 14, 2022. The surveyor was unaccompanied during the assessment. The assessed area was unoccupied at the time of the assessment.

The objective of the assessment was to identify specified hazardous building materials in preparation for building renovation activities.

The proposed work as identified by the Client includes the renovations as outlined in the documents provided by the Client entitled "*Accessibility Upgrades – Various, at St. Peter's High School, Barrie*" dated May 25, 2022, prepared by Paradigm Engineering Group Ltd.

The results of this assessment are intended for use with a properly developed scope of work or performance specification.

### 1.1 Scope of Assessment

The **assessed area** is limited to the portions of the building to be renovated, as described by the Client and identified in the drawings in Appendix I.

The assessment was performed to establish the type of specified hazardous building materials, locations and approximate quantities incorporated in the structure(s) and its finishes.

For the purpose of the assessment and this report, hazardous building materials are defined as follows:

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Mould
- Ozone Depleting Substances (ODS)

The following Designated Substances are not typically found in building materials in a composition/state that is hazardous and were not included in this assessment:

- Arsenic
- Acrylonitrile



- Benzene
- Coke oven emissions
- Ethylene oxide
- Isocyanates
- Vinyl chloride monomer

## 2.0 METHODOLOGY

Pinchin conducted a room-by-room assessment (rooms, corridors, service areas, etc.) to identify the hazardous building materials as defined in the scope.

The surveyor inspected concealed conditions via existing access panels or by lifting lay in ceiling tiles at representative areas.

Demolition of exterior building finishes, masonry walls (chases, shafts etc.), and structural surrounds was not conducted.

Limited demolition of masonry block walls (core holes) was conducted to investigate for loose fill vermiculite insulation. Sampling of roofing materials was not conducted.

For further details on the methodology including test methods, refer to Appendix III.

## 3.0 BACKGROUND INFORMATION

### 3.1 Building Description

Description Item	Details
Use	Secondary School.
Number of Floors	The building is two storeys.
Total Area	The total area of the building is ~163,703 square feet. The assessed area is ~35,475 square feet.
Year of Construction	The building was constructed in 1996 with additions in 2000 and 2011.
Structure	Concrete and steel.
Exterior Cladding	Not assessed.
HVAC	Not assessed.
Roof	Not assessed.
Flooring	Vinyl floor tile, rubber sheet flooring, carpet, and terrazzo.
Interior Walls	Drywall, brick, and concrete block.
Ceilings	Exposed structure, drywall, and lay-in ceiling tiles.



### **3.2 Existing Reports**

No existing reports were provided for reference.

## **4.0 FINDINGS**

The following section summarizes the findings of the assessment and provides a general description of the hazardous materials identified and their locations. For details on approximate quantities, condition, friability, accessibility and locations of hazardous materials; refer to the Hazardous Material Summary / Sample Log and All Data Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

### **4.1 Asbestos**

#### *4.1.1 Spray-Applied Insulation*

Spray-applied grey fireproofing and overspray is present on structural steel beams and joists, and on pipes, ducts, conduit, cabling, hangers, etc., in various locations of the 2011 construction phase of the building. The fireproofing is presumed to be non-asbestos based on the historical knowledge of application date (2011).

#### *4.1.2 Pipe Insulation*

Pipes are either uninsulated or insulated with fibreglass insulations.

#### *4.1.3 Duct Insulation and Mastic*

Ducts are either uninsulated or insulated with non-asbestos fibreglass (foil-faced or canvas jacketing).

Mastic was not observed on sections of ducts observed.

#### *4.1.4 Mechanical Equipment Insulation*

Mechanical equipment (radiators) is uninsulated.

#### *4.1.5 Vermiculite*

Pinchin observed the cavities within masonry block walls through existing access hatches in various locations. Destructive testing was conducted of a representative selection of masonry block walls where existing access hatches were not present. The locations of destructive testing have been indicated on the drawings in Appendix I.

Loose fill vermiculite was not observed within the cavities.



#### 4.1.6 Acoustic Ceiling Tiles

Acoustic ceiling tiles are present in the assessed area, as follows:

Size, Type, Pattern	Locations	Installation Date	Asbestos Type
24"x24", lay-in, random fleck and pinhole	Corridor CR03-1 (Location 10) & Corridor CR06-01 (Location 12)	1996 & 2000	N/A
24"x48", lay-in, random fleck and pinhole	Various Locations	1996, 2000, & 2011	N/A

Ceiling tiles are presumed to be non-asbestos based on the age of the materials determined from the age of the building construction. The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

#### 4.1.7 Drywall Joint Compound

Asbestos in drywall joint compound was banned in Canada in 1980. Drywall joint compound present throughout the assessed area was installed on or after 1996, 2000, or 2011, and is presumed to contain no asbestos.

#### 4.1.8 Vinyl Floor Tiles, Baseboard, and Stair Flooring

Vinyl floor tiles were presumed to be non-asbestos based on historical knowledge of the date of installation (1996, 2000, & 2011).

#### 4.1.9 Firestopping

Red firestopping mastic present at pipe and conduit penetrations in Electrical Room 107 (Location 107) does not contain asbestos (samples S0001A-C).

Grey firestopping mastic present at conduit penetrations in Electrical Room 107 (Location 107) could not be sampled due to height restrictions and is presumed to contain asbestos until further sampling proves otherwise (Photo 4.1.9 -1).



Photo 4.1.9 - 1

#### 4.1.10 Other Building Materials

Terrazzo presumed to contain asbestos is present as a floor finish throughout the assessed are however, it is not anticipated to be disturbed by the planned renovations.

#### 4.1.11 Excluded Materials

The following is a list of materials which may contain asbestos and was excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven by sampling and analysis:

- Roofing felts and tar, mastics
- Elevator and lift brakes
- Electrical components
- Mechanical packing, ropes and gaskets
- Caulking and putties
- Fire resistant doors
- Sealants on pipe threads

## 4.2 Lead

### 4.2.1 Paints and Surface Coatings

The following table summarizes the analytical results of paints sampled.

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)
L0001	Cream on brick wall	Entrance Vestibule V-01 (Location 1)	0.0011
L0002	Orange on drywall ceiling	Entrance Vestibule V-01 (Location 1)	0.00014
L0003	Grey on brick wall	Foyer L-01 (Location 2)	0.0057

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)
L0005	Light grey and pink on brick wall	Corridor CR01-1	0.00018
L0006	Light pink on concrete block wall	Electrical Room 107 (Location 107)	0.00028
L0007	White on drywall ceiling	Corridor CR09-1 (Location 6)	<0.00010
L0010	Dark purple on drywall bulkhead	Music Room 146 (Location 146)	<0.00028
L0011	Light purple on drywall bulkhead	Expanded Cafeteria (Location 142)	<0.00038

All paints sampled were below the threshold of 0.009% (90 mg/kg).

Paint containing less than 0.009% (90 mg/kg) lead is assumed to be insignificant.

#### 4.2.2 Lead Products and Applications

Lead-containing batteries are present in emergency lighting (Photo 4.2.2-1).

Low levels of lead are present in mortar at masonry walls throughout the 1996 construction phase at a concentration of 0.00050% (sample L0004).

Low levels of lead are present in mortar at masonry walls throughout the 2011 construction phase at a concentration of 0.00030% (sample L0008).

Low levels of lead are present in mortar at masonry walls throughout the 2000 construction phase at a concentration of 0.00024% (sample L0009).

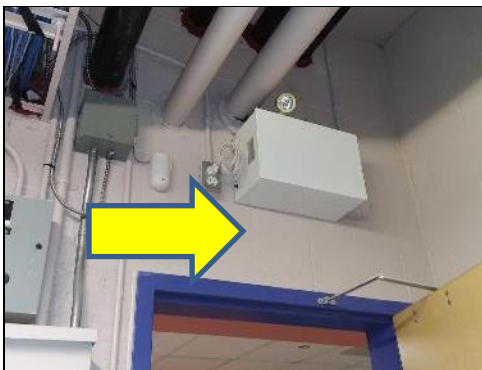


Photo 4.2.2-1

#### 4.2.3 Excluded Lead Materials

Lead is known to be present in a number of materials which were not assessed or sampled. The following materials, where found, should be presumed to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections



### 4.3 Silica

Crystalline silica is known to be a component of the following materials:

- Poured or pre-cast concrete
- Masonry and mortar
- Drywall
- Ceiling tiles

### 4.4 Mercury

#### 4.4.1 Lamps

Mercury vapour is present in fluorescent lamp tubes.

#### 4.4.2 Mercury-Containing Devices

Mercury is presumed present as a liquid in thermostats ampules (Photo 4.4.2-1).



Photo 4.4.2-1

### 4.5 Polychlorinated Biphenyls

#### 4.5.1 Caulking and Sealants

PCBs were banned in 1980; however, are found to be present in caulking and sealants until 1985. Caulking in the assessed area was installed in 1996, 2000, or 2011 and is not suspected to contain PCBs.

#### 4.5.2 Lighting Ballasts

Based on date of construction and confirmed by visual observations (evidence of T-5 or T-8 fixtures with magnetic ballasts) the building will not contain PCB ballasts.



#### 4.5.3 Transformers

All transformers observed within the assessed area are dry type transformers and do not contain PCB-containing dielectric fluids; however, may contain capacitors, which could not be assessed for PCBs as the equipment was in service.

#### 4.6 Mould and Water Damage

Visible mould growth and water damage was not found during the assessment.

#### 4.7 Ozone Depleting Substances

Ozone depleting substances (ODS) are not present. ODS were banned in 1996 as such they will not be found in the HVAC equipment

### 5.0 RECOMMENDATIONS

#### 5.1 General

1. Prepare scope of work or performance specifications for hazardous material removal required for the planned work. The specifications should include, safe work practices, personal protective equipment, respiratory protection, and disposal of waste materials.
2. If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb and arrange for further testing and evaluation.
3. Conduct further investigation of the following items, areas or locations, which were not completed during this assessment:
  - a. Sample excluded or presumed materials prior to disturbance, if impacted by the planned renovations.
4. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.
5. Retain a qualified consultant to specify, observe and document the successful removal of hazardous materials.
6. Update the asbestos inventory upon completion of the abatement and removal of asbestos-containing materials and any other relevant findings.

#### 5.2 Building Renovation Work

The following recommendations are made regarding renovation involving the hazardous materials identified.



### 5.2.1 *Asbestos*

Remove asbestos-containing materials (ACM) prior to renovation, alteration, or maintenance if ACM may be disturbed by the work.

If the identified ACM will not be removed prior to commencement of the work, any potential disturbance of ACM must follow asbestos precautions appropriate for the type of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

### 5.2.2 *Lead*

Exposure from construction disturbance of paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

Lead-containing items should be recycled when taken out of service.

### 5.2.3 *Silica*

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with per applicable regulations and guidelines.

### 5.2.4 *Mercury*

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps and thermostats when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with applicable regulations.

## 6.0 **TERMS AND LIMITATIONS**

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

## 7.0 **REFERENCES**

The following legislation and documents were referenced in completing the assessment and this report:



1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 362 as amended.
7. Silica on Construction Projects, Ministry of Labour Guidance Document.
8. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.
9. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
10. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
11. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.
12. Ozone-depleting Substances and Halocarbon Alternatives Regulations, SOR/2016-137.

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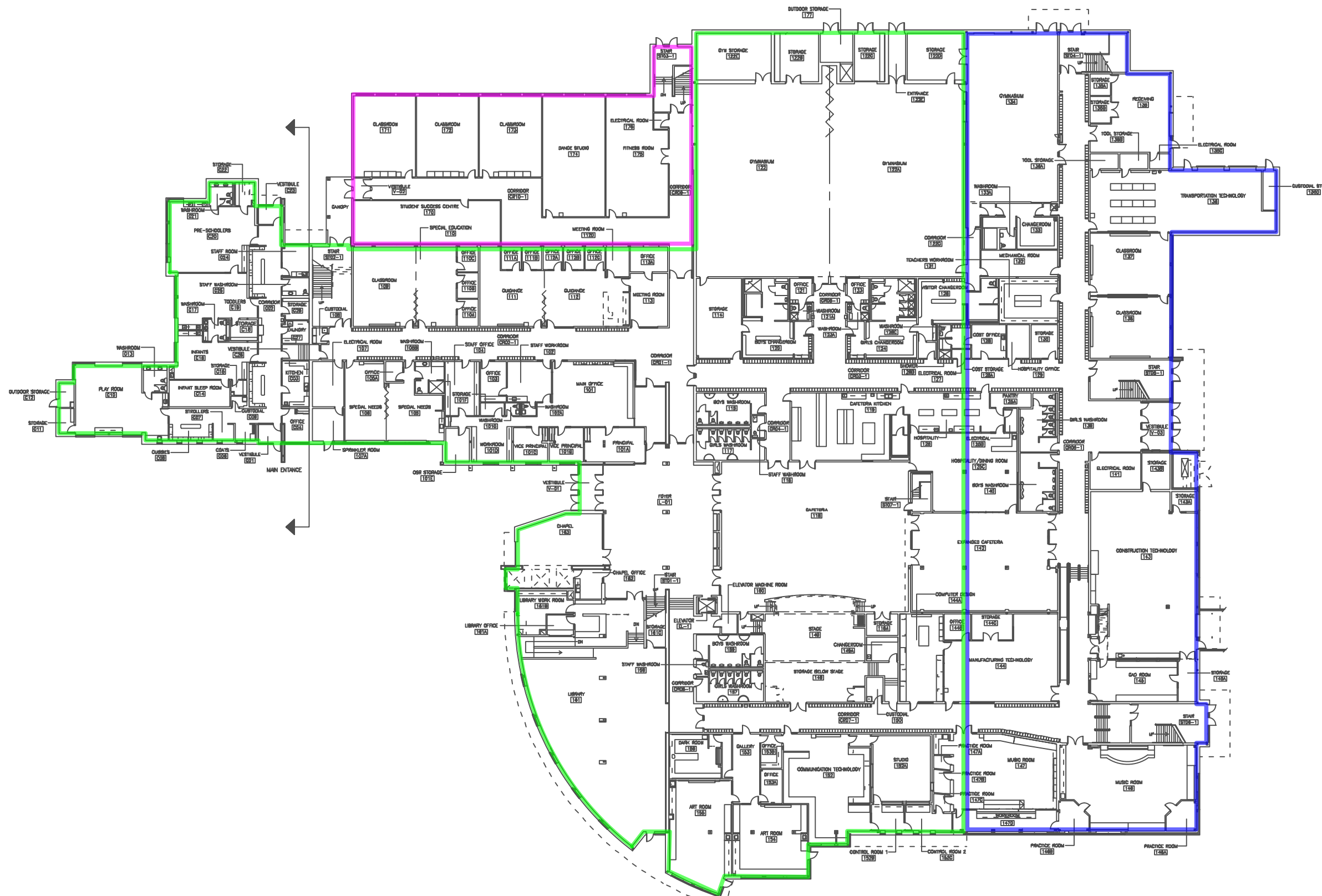
Template: Master Report for Hazardous Materials Assessment (Pre-Construction), HAZ, July 29, 2021

**APPENDIX I**  
**Drawings**



**LEGEND**

- CONSTRUCTION PHASE A (1996)
- CONSTRUCTION PHASE B (2000)
- CONSTRUCTION PHASE C (2011)



NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:

**HAZARDOUS BUILDING MATERIALS ASSESSMENT**

CLIENT NAME:

**SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD**

PROJECT LOCATION:

**ST. PETER'S CATHOLIC H.S.  
201 ASHFORD DRIVE,  
BARRIE, ON**

FIGURE NAME:

**CONSTRUCTION PHASE  
GROUND FLOOR**

PROJECT NUMBER:  
**305470.008**

SCALE:  
**NOT TO SCALE**

DRAWN BY:  
**SR**

REVIEWED BY:  
**APS**

DATE:

**JUNE 2022**

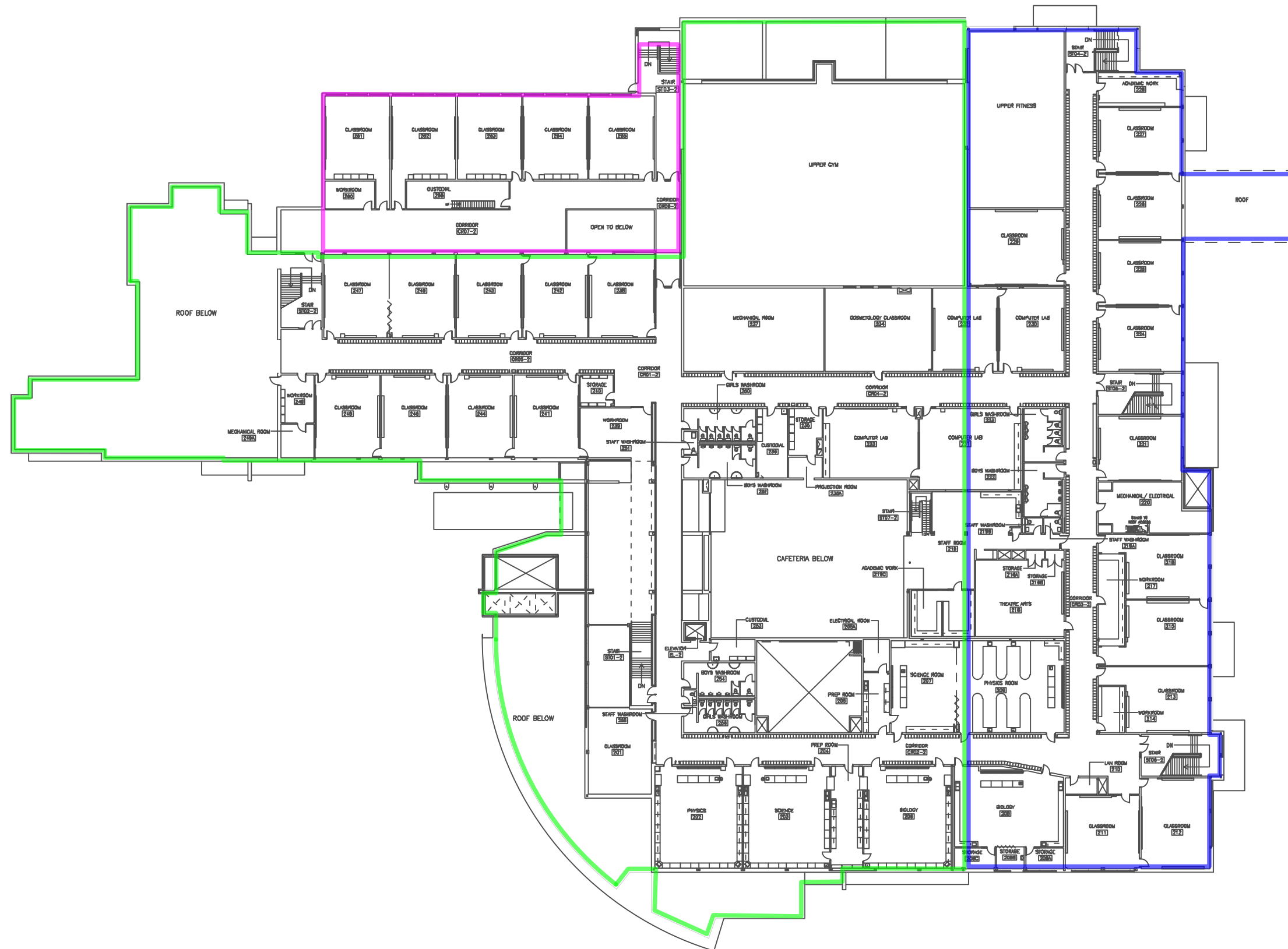
FIGURE NUMBER:

**1 OF 4**



**LEGEND**

- CONSTRUCTION PHASE A (1996)
- CONSTRUCTION PHASE B (2000)
- CONSTRUCTION PHASE C (2011)



NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:  
**HAZARDOUS BUILDING MATERIALS ASSESSMENT**

CLIENT NAME:  
**SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD**

PROJECT LOCATION:  
**ST. PETER'S CATHOLIC H.S.  
201 ASHFORD DRIVE,  
BARRIE, ON**

FIGURE NAME:  
**CONSTRUCTION PHASE  
SECOND FLOOR**

PROJECT NUMBER: 305470.008	SCALE: NOT TO SCALE
DRAWN BY: SR	REVIEWED BY: APS
DATE: JUNE 2022	FIGURE NUMBER: 2 OF 4



**LEGEND**

- X PINCHIN LOCATION NUMBER
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE
- ASBESTOS BULK SAMPLE
- ▲ LEAD BULK SAMPLE
- INTRUSIVE INSPECTION

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:

**HAZARDOUS BUILDING MATERIALS ASSESSMENT**

CLIENT NAME:

**SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD**

PROJECT LOCATION:

**ST. PETER'S CATHOLIC H.S.  
201 ASHFORD DRIVE,  
BARRIE, ON**

FIGURE NAME:

**GROUND FLOOR**

PROJECT NUMBER:  
**305470.008**

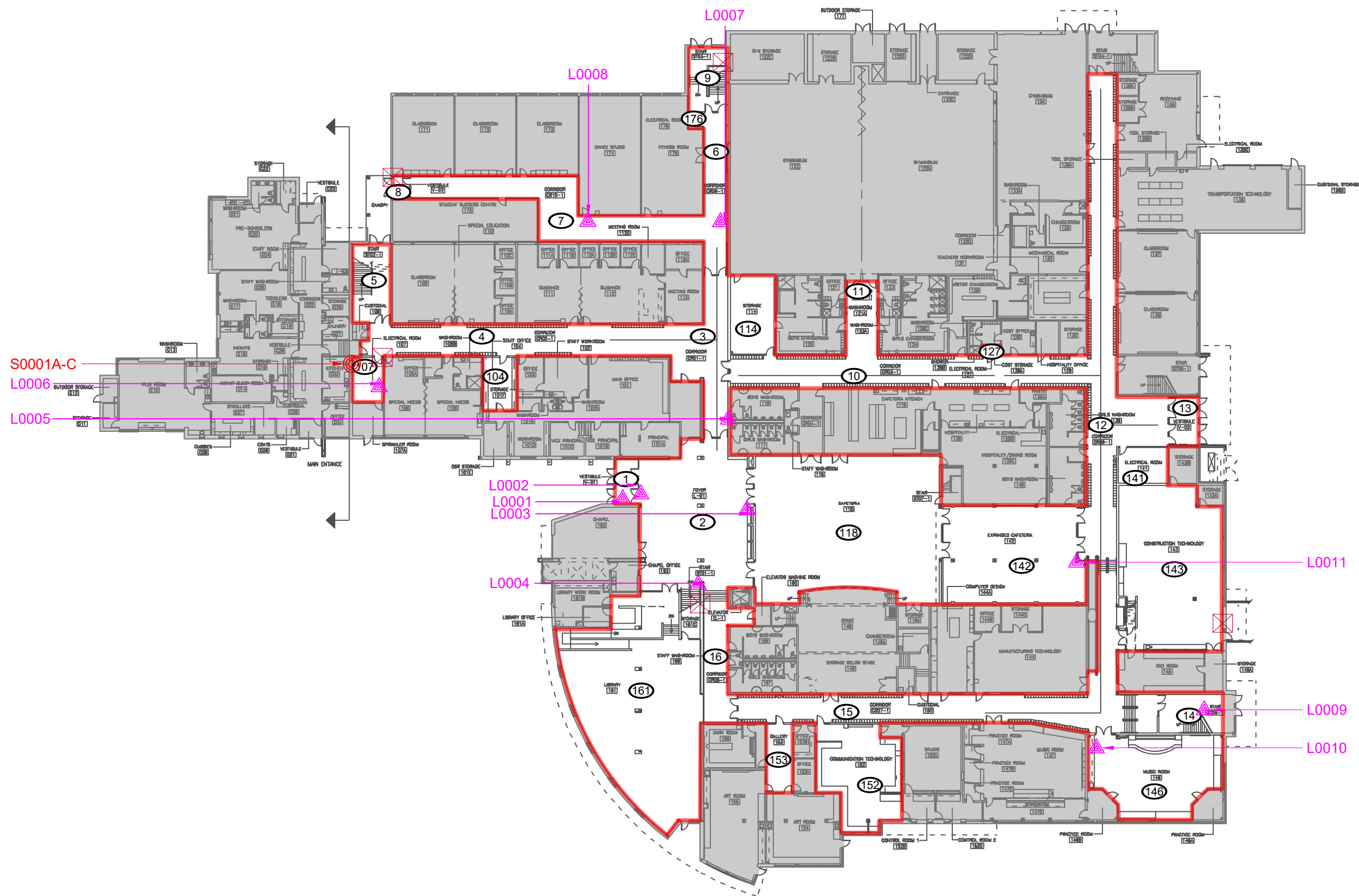
SCALE:  
**NOT TO SCALE**

DRAWN BY:  
**SR**

REVIEWED BY:  
**APS**

DATE:  
**JUNE 2022**

FIGURE NUMBER:  
**3 OF 4**







**LEGEND**

- PINCHIN LOCATION NUMBER
- SURVEY BOUNDARY/ASSESSED AREA
- OUTSIDE ASSESSMENT SCOPE
- ASBESTOS BULK SAMPLE
- LEAD BULK SAMPLE
- INTRUSIVE INSPECTION

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:  
**HAZARDOUS BUILDING MATERIALS ASSESSMENT**

CLIENT NAME:  
**SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD**

PROJECT LOCATION:  
**ST. PETER'S CATHOLIC H.S.  
201 ASHFORD DRIVE,  
BARRIE, ON**

FIGURE NAME:  
**2ND FLOOR**

PROJECT NUMBER:  
**305470.008**

SCALE:  
**NOT TO SCALE**

DRAWN BY:  
**SR**

REVIEWED BY:  
**APS**

DATE:  
**JUNE 2022**

FIGURE NUMBER:  
**4 OF 4**

**APPENDIX II-A**  
**Asbestos Analytical Certificates**



Your Project #: 305470.008  
Your C.O.C. #: n/a

**Attention: Michelle Salt**

Pinchin Ltd  
2360 Meadowpine Blvd  
Unit # 2  
Mississauga, ON  
CANADA L5N 6S2

**Report Date: 2022/06/21**  
Report #: R7179597  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2G6650**

**Received: 2022/06/16, 09:14**

Sample Matrix: Solid  
# Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Asbestos by PLM - 0.5 RDL (1)	3	N/A	N/A	COR3SOP-00002	EPA 600R-93/116

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested. This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Bureau Veritas' Asbestos Laboratory is accredited by NVLAP for bulk asbestos analysis by polarized light microscopy, NVLAP Code 600136-0.

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Bureau Veritas' scope of accreditation includes EPA-600/M4-82-020: "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" and EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials".

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) P.O.B. - Percent of Bulk



Your Project #: 305470.008  
Your C.O.C. #: n/a

**Attention: Michelle Salt**

Pinchin Ltd  
2360 Meadowpine Blvd  
Unit # 2  
Mississauga, ON  
CANADA L5N 6S2

**Report Date: 2022/06/21**  
Report #: R7179597  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2G6650**

**Received: 2022/06/16, 09:14**

When Asbestos data is reported with other data, this report contains data that are not covered by the NVLAP accreditation.

Encryption Key



**AUTHORIZED REPORT  
RAPPORT AUTORISÉ**

Bureau Veritas

21 Jun 2022 14:25:53

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager  
Email: Antonella.Brasil@bureauveritas.com  
Phone# (905)817-5817

=====

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For Service Group specific validation please refer to the Validation Signature Page.



### Asbestos Analytical Results

EPA/600R-93/116 by Polarized Light Microscopy

<b>S0001A FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, ELECTRICAL ROOM 107</b>					
Bureau Veritas ID: SXP327		Date Analyzed: 2022/06/20			
	<u>P.O.B</u>	<u>Sample Morphology</u>	<u>Asbestos</u>	<u>Other Fibres</u>	<u>Particulate</u>
Layer 1	100	Homogeneous red firestop	Not Detected		Non-Fibrous

<b>S0001B FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, ELECTRICAL ROOM 107</b>					
Bureau Veritas ID: SXP328		Date Analyzed: 2022/06/20			
	<u>P.O.B</u>	<u>Sample Morphology</u>	<u>Asbestos</u>	<u>Other Fibres</u>	<u>Particulate</u>
Layer 1	100	Homogeneous red firestop	Not Detected		Non-Fibrous

<b>S0001C FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, ELECTRICAL ROOM 107</b>					
Bureau Veritas ID: SXP329		Date Analyzed: 2022/06/20			
	<u>P.O.B</u>	<u>Sample Morphology</u>	<u>Asbestos</u>	<u>Other Fibres</u>	<u>Particulate</u>
Layer 1	100	Homogeneous red firestop	Not Detected		Non-Fibrous

The limit of quantitation is 0.50%, although asbestos may be qualitatively detected at concentrations less than 0.50%. Samples for which asbestos is detected at <0.50% are reported as trace, "<0.50%". "Not Detected" indicates that no asbestos fibres were observed.

Calibrated Visual Estimate (%)  
 Date Format : yyyy/mm/dd



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6650  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### TEST SUMMARY

**Bureau Veritas ID:** SXP327  
**Sample ID:** S0001A FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, EL  
**Matrix:** Solid  
**Collected:** 2022/06/16  
**Shipped:** ROOM 107  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Asbestos by PLM - 0.5 RDL	MIC	8062811	N/A		Haseeb Ahmad

**Bureau Veritas ID:** SXP328  
**Sample ID:** S0001B FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, EL  
**Matrix:** Solid  
**Collected:** 2022/06/16  
**Shipped:** ROOM 107  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Asbestos by PLM - 0.5 RDL	MIC	8062811	N/A		Haseeb Ahmad

**Bureau Veritas ID:** SXP329  
**Sample ID:** S0001C FIRESTOPPING (MASTIC), RED ON PIPE AND CONDUIT PENETRATIONS, LOC:107, EL  
**Matrix:** Solid  
**Collected:** 2022/06/16  
**Shipped:** ROOM 107  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Asbestos by PLM - 0.5 RDL	MIC	8062811	N/A		Haseeb Ahmad



**BUREAU  
VERITAS**

Bureau Veritas Job #: C2G6650  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### GENERAL COMMENTS

Results relate only to the items tested.



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6650  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

A handwritten signature in black ink that reads "J. Santos".

---

Jon Delos Santos, Laboratory Supervisor

---

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**Pinchin Ltd. - Asbestos Laboratory**  
**Internal Asbestos Bulk Sample Chain of Custody**

<b>Client Name:</b>		<b>Project Address:</b>	
<b>Portfolio/Building No:</b>		<b>Pinchin File:</b>	305470.008
<b>Submitted by:</b>	Adrienne Prescott-Simis	<b>Email:</b>	aprescottsimis@pinchin.com
<b>CC Results to:</b>	Michelle Salt	<b>CC Email:</b>	msalt@pinchin.com
<b>Date Submitted:</b>	June 16 2022	<b>Required by:</b>	June 23 2022
<b># of Samples:</b>	3	<b>Priority:</b>	5 day Turnaround
<b>Year of Building Construction (Mandatory, Years ONLY):</b>		1996	
<b>Do NOT Stop on Positive (Sample Numbers):</b>			
<b>Pinchin Group Company (Mandatory Field):</b>		Pinchin	
<b>HMIS2 Building Reference #:</b>			
<b>To be Completed by Lab Personnel Only:</b>			
<b>Lab Reference #:</b>		<b>Time:</b> 09:44	24 hour clock
<b>Received by:</b>		<b>Date:</b> 2022/06/16	Month Day Year
<b>Name(s) of Analyst(s):</b>			
<b>Sample Prefix</b>	<b>Sample No.</b>	<b>Sample Suffix</b>	<b>Sample Description/Location (Mandatory)</b>
S	0001	A	Firestopping (mastic), Red On Pipe And Conduit Penetrations, Loc: 107, Electrical Room 107
S	0001	B	Firestopping (mastic), Red On Pipe And Conduit Penetrations, Loc: 107, Electrical Room 107
S	0001	C	Firestopping (mastic), Red On Pipe And Conduit Penetrations, Loc: 107, Electrical Room 107

16-Jun-22 09:14  
 Antonella Brasil  
  
**C2G6650**  
 URE ENV-1715

**APPENDIX II-B**  
**Lead Analytical Certificates**



Your Project #: 305470.008  
Your C.O.C. #: N/A

**Attention: Michelle Salt**

Pinchin Ltd  
2360 Meadowpine Blvd  
Unit # 2  
Mississauga, ON  
CANADA L5N 6S2

**Report Date: 2022/06/21**  
Report #: R7179725  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2G6634**

**Received: 2022/06/16, 09:13**

Sample Matrix: Solid  
# Samples Received: 11

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Metals in Paint	8	2022/06/20	2022/06/21	CAM SOP-00408	EPA 6010D m
Acid Extractable Metals by ICPMS	2	2022/06/20	2022/06/20	CAM SOP-00447	EPA 6020B m
Acid Extractable Metals by ICPMS	1	2022/06/20	2022/06/21	CAM SOP-00447	EPA 6020B m

**Remarks:**

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 305470.008  
Your C.O.C. #: N/A

**Attention: Michelle Salt**

Pinchin Ltd  
2360 Meadowpine Blvd  
Unit # 2  
Mississauga, ON  
CANADA L5N 6S2

**Report Date: 2022/06/21**  
Report #: R7179725  
Version: 1 - Final

**CERTIFICATE OF ANALYSIS**

**BUREAU VERITAS JOB #: C2G6634**

**Received: 2022/06/16, 09:13**

Encryption Key



**AUTHORIZED REPORT  
RAPPORT AUTORISÉ**

Bureau Veritas  
21 Jun 2022 15:12:58

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Antonella Brasil, Senior Project Manager  
Email: Antonella.Brasil@bureauveritas.com  
Phone# (905)817-5817

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BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634

Report Date: 2022/06/21

Pinchin Ltd

Client Project #: 305470.008

Sampler Initials: APS

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

<b>Bureau Veritas ID</b>		SXP249	SXP250	SXP251			
<b>Sampling Date</b>		2022/06/14	2022/06/14	2022/06/14			
<b>COC Number</b>		N/A	N/A	N/A			
	<b>UNITS</b>	<b>L0001, CREAM ON BRICK WALL, LOC:1, ENTRANCE VESTIBULE V-01</b>	<b>L0002, ORANGE, LOC:1, ENTRANCE VESTIBULE V-01</b>	<b>L0003, GREY ON BRICK AND BLOCK WALL, LOC:2, FOYER L-01</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>

<b>Metals</b>							
Lead (Pb)	%	0.0011	0.00014	0.0057	0.00010	0.000030	8063017
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							

<b>Bureau Veritas ID</b>		SXP252				SXP253			
<b>Sampling Date</b>		2022/06/14				2022/06/14			
<b>COC Number</b>		N/A				N/A			
	<b>UNITS</b>	<b>L0004, MORTAR, LOC:2, FOYER L-01</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>	<b>L0005, LIGHT GREY AND PINK ON BRICK, LOC:3, CORRIDOR CR01-1</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>

<b>Metals</b>									
Lead (Pb)	%					0.00018	0.00011	0.000033	8063017
Acid Extractable Lead (Pb)	%	0.00050	0.00010	0.000010	8062989				
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									

<b>Bureau Veritas ID</b>		SXP254	SXP255			
<b>Sampling Date</b>		2022/06/14	2022/06/14			
<b>COC Number</b>		N/A	N/A			
	<b>UNITS</b>	<b>L0006, LIGHT PINK ON BLOCK, LOC:107, ELECTRICAL ROOM 107</b>	<b>L0007, WHITE, LOC:6, CORRIDOR CR09-1</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>

<b>Metals</b>						
Lead (Pb)	%	0.00028	<0.00010	0.00010	0.000030	8063017
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

<b>Bureau Veritas ID</b>		SXP256	SXP257			
<b>Sampling Date</b>		2022/06/14	2022/06/14			
<b>COC Number</b>		N/A	N/A			
	<b>UNITS</b>	<b>L0008, MORTAR, LOC:7, CORRIDOR CR10-1</b>	<b>L0009, MORTAR, LOC:14, STAIRWELL ST06-1</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>

<b>Metals</b>						
Acid Extractable Lead (Pb)	%	0.00030	0.00024	0.00010	0.000010	8062989
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

<b>Bureau Veritas ID</b>		SXP258			SXP259			
<b>Sampling Date</b>		2022/06/14			2022/06/14			
<b>COC Number</b>		N/A			N/A			
	<b>UNITS</b>	<b>L0010, DARK PURPLE ON BULKHEAD, LOC:146, MUSIC ROOM 146</b>	<b>RDL</b>	<b>MDL</b>	<b>L0011, LIGHT PURPLE ON BULKHEAD, LOC:142, EXPANDED CAFETERIA</b>	<b>RDL</b>	<b>MDL</b>	<b>QC Batch</b>

<b>Metals</b>								
Lead (Pb)	%	<0.00028	0.00028	0.000084	<0.00038	0.00038	0.00011	8063017
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### TEST SUMMARY

**Bureau Veritas ID:** SXP249  
**Sample ID:** L0001, CREAM ON BRICK WALL, LOC:1,ENTRANCE VESTIBULE V-01  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP250  
**Sample ID:** L0002, ORANGE, LOC:1, ENTRANCE VESTIBULE V-01  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP251  
**Sample ID:** L0003, GREY ON BRICK AND BLOCK WALL, LOC:2, FOYER L-01  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP252  
**Sample ID:** L0004, MORTAR, LOC:2, FOYER L-01  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8062989	2022/06/20	2022/06/20	Daniel Teclu

**Bureau Veritas ID:** SXP253  
**Sample ID:** L0005, LIGHT GREY AND PINK ON BRICK, LOC:3, CORRIDOR CR01-1  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP254  
**Sample ID:** L0006, LIGHT PINK ON BLOCK,LOC:107, ELECTRICAL ROOM 107  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP255  
**Sample ID:** L0007, WHITE, LOC:6, CORRIDOR CR09-1  
**Matrix:** Solid  
**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### TEST SUMMARY

**Bureau Veritas ID:** SXP256  
**Sample ID:** L0008, MORTAR, LOC:7, CORRIDOR CR10-1  
**Matrix:** Solid

**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8062989	2022/06/20	2022/06/20	Daniel Teclu

**Bureau Veritas ID:** SXP257  
**Sample ID:** L0009, MORTAR, LOC:14, STAIRWELL ST06-1  
**Matrix:** Solid

**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8062989	2022/06/20	2022/06/21	Daniel Teclu

**Bureau Veritas ID:** SXP258  
**Sample ID:** L0010, DARK PURPLE ON BULKHEAD, LOC:146, MUSIC ROOM 146  
**Matrix:** Solid

**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai

**Bureau Veritas ID:** SXP259  
**Sample ID:** L0011, LIGHT PURPLE ON BULKHEAD, LOC:142, EXPANDED CAFETERIA  
**Matrix:** Solid

**Collected:** 2022/06/14  
**Shipped:**  
**Received:** 2022/06/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	8063017	2022/06/20	2022/06/21	Gagandeep Rai





BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### GENERAL COMMENTS

Sample SXP253 [L0005, LIGHT GREY AND PINK ON BRICK, LOC:3, CORRIDOR CR01-1] : Metals: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample SXP258 [L0010, DARK PURPLE ON BULKHEAD, LOC:146,MUSIC ROOM 146] : Metals: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample SXP259 [L0011, LIGHT PURPLE ON BULKHEAD, LOC:142, EXPANDED CAFETERIA] : Metals: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

**Results relate only to the items tested.**



BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634

Report Date: 2022/06/21

### QUALITY ASSURANCE REPORT

Pinchin Ltd

Client Project #: 305470.008

Sampler Initials: APS

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
8062989	Acid Extractable Lead (Pb)	2022/06/20	94	75 - 125	98	80 - 120	<0.00010	%	7.0	30		
8063017	Lead (Pb)	2022/06/21	93	75 - 125			<0.00010	%	8.5	35	107	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.




BUREAU  
VERITAS

Bureau Veritas Job #: C2G6634  
Report Date: 2022/06/21

Pinchin Ltd  
Client Project #: 305470.008  
Sampler Initials: APS

### VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

*Eva Pranjic*  


\_\_\_\_\_  
Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

---

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6740 Campobello Road, Mississauga, Ontario L5N 2L8  
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266  
 CAM FCD-01191/6

**CHAIN OF CUSTODY RECORD**

Page \_\_\_ of \_\_\_

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: <b>Pinchin Ltd.</b>	Company Name:	Quotation #:	<input checked="" type="checkbox"/> Regular TAT (5-7 days) Most analyses
Contact Name: <b>Adrienne Prescott-Simis; Michelle Salt</b>	Contact Name:	P.O. #/ AFE#:	<b>PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS</b>
Address: <b>2360 Meadowpine Blvd Unit 2</b>	Address:	Project #: <b>305470.008</b>	<b>Rush TAT (Surcharges will be applied)</b>
<b>Mississauga, ON</b>		Site Location:	<input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Days <input type="checkbox"/> 3-4 Days
Phone: <b>249.288.1672</b> Fax:	Phone: Fax:	Site #:	<b>Date Required: 6/23/2022</b>
Email: <b>aprescottsimis@pinchin.com; msalt@pinchin.com</b>	Email:	Site Location Province: <b>ON</b>	<b>Rush Confirmation #:</b>

MCE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153	Other Regulations	Analysis Requested	LABORATORY USE ONLY
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/ Fine <input type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse <input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/ Other <input type="checkbox"/> Table _____ <b>FOR RSC (PLEASE CIRCLE) Y / N</b>	<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw <input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw <input type="checkbox"/> PWQO Region _____ <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> REG 558 (MIN. 3 DAY TAT REQUIRED) <input type="checkbox"/> REG 406 Table _____	# OF CONTAINERS SUBMITTED FIELD FILTERED (CIRCLE) Metals / Hg / CrVI BTEX / PHC F1 PHCs F2 - F4 VOCE REG 153 METALS & INORGANICS REG 153 ICPMS METALS REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B) Lead (Pb) in Paints PCBs HOLD - DO NOT ANALYZE	<b>CUSTOMER SEAL</b> Y / <input checked="" type="checkbox"/> N <b>COOLER TEMPERATURES</b> Present Intact COOLING MEDIA PRESENT: Y / <input checked="" type="checkbox"/> N COMMENTS

**Include Criteria on Certificate of Analysis: Y / N**  
**SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS**

SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX / PHC F1	PHCs F2 - F4	VOCE	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD - DO NOT ANALYZE	COMMENTS
L0001, Cream On Brick Wall,Loc:1,Entrance Vestibule V-01	6/14/2022		BULK											X	
L0002, Orange,Loc:1,Entrance Vestibule V-01	6/14/2022		BULK											X	
L0003, Grey On Brick And Block Wall,Loc:2,Foyer L-01	6/14/2022		BULK											X	
L0004, Mortar,Loc:2,Foyer L-01	6/14/2022		BULK											X	
L0005, Light Grey And Pink On Brick,Loc:3,Corridor CR01-1	6/14/2022		BULK											X	
L0006, Light Pink On Block,Loc:107,Electrical Room 107	6/14/2022		BULK											X	
L0007, White,Loc:6,Corridor CR09-1	6/14/2022		BULK											X	
L0008, Mortar,Loc:7,Corridor CR10-1	6/14/2022		BULK											X	
L0009, Mortar,Loc:14,Stairwell ST06-1	6/14/2022		BULK											X	
L0010, Dark Purple On Bulkhead,Loc:146,Music Room 146	6/14/2022		BULK											X	
L0011, Light Purple On Bulkhead,Loc:142,Expanded Cafeteria	6/14/2022		BULK											X	

16-Jun-22 09:13  
 Antonella Brasil  
  
 C2G6634  
 URE ENV-1728

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #
Adrienne Prescott-Simis	6/14/2022		<i>Antonella Brasil</i>	2022/06/16	09:13	

**APPENDIX III**  
**Methodology**



## **1.0 GENERAL**

An inspection was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

### **1.1 Asbestos**

The inspection for asbestos included friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure.

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

The asbestos analysis was completed using a stop-positive approach. Only one result meeting the regulated criteria was required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stopped analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria.

<b>Jurisdiction</b>	<b>Friable</b>	<b>Non-Friable</b>
Ontario	0.5%	0.5%

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

## **1.2 Lead**

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible was collected. The samples were collected by scraping the painted finish to include base and covering applications.

Analysis for lead in paints or surface coatings was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption.

Analytical results were compared to the following criteria.

<b>Jurisdiction</b>	<b>Units (%)</b>	<b>Units (ppm) / (mg/kg)</b>
Ontario	0.1	1000

Other lead building products (e.g. batteries, lead sheeting, flashing) were identified by visual observation only.

## **1.3 Silica**

Building materials known to contain crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) were identified by visual inspection only. Pinchin did not perform sampling of these materials for laboratory analysis of crystalline silica content.

## **1.4 Mercury**

Building materials, products or equipment (e.g. thermostats, barometers, pressure gauges, lamp tubes), suspected to contain mercury was identified by visually inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

### **1.5 Polychlorinated Biphenyls**

The potential for light ballast and oil filled transformers to contain PCBs was based on the age of the building, a review of maintenance records and examination of labels or nameplates on equipment, where present and accessible. The information was compared to known ban dates of PCBs and Environment Canada publications.

Dry type transformers were presumed to be free of dielectric fluids and hence non-PCB.

Fluids (mineral oil, hydraulic, Aroclor or Askarel) in transformers or other equipment were not sampled for PCB content.

### **1.6 Visible Mould**

The presence of mould or water damage was determined by visual inspection of exposed building surfaces. If any mould growth or water damage was concealed within building cavities it was not addressed in this assessment.

### **1.7 ODS Ozone Depleting Substances (ODS)**

The potential for ODS (chlorofluorocarbon, hydrochlorofluorocarbon, hydrofluorocarbon, halon, etc.) in air conditioning units, chillers, commercial coolers and fire suppression systems was determined by visual inspection of manufactures' labels or plates, maintenance records, or log books, etc.

Domestic type equipment such as window mounted and small central air conditioners, refrigerators, and freezers were not evaluated for the presence of ODS.

Template: Methodology for Hazardous Building Materials Assessment, HAZ, November 23, 2021



**APPENDIX IV**  
**Location Summary Report**

Client:SMCDSB

Site: 201 Ashford Dr., Barrie, ON

Building Name: St. Peter's Catholic H.S.

Survey Date: 2022-06-14

Last Re-Assessment:

Location No.	Name or Description	Area ft <sup>2</sup>	Floor No.	Bldg. Phase	Notes
1	Entrance Vestibule V-01	170	1	A	
2	Foyer L-01	2610	1	A	
3	Corridor CR01-1	920	1	A	
4	Corridor CR02-1	1490	1	A	
5	Stairwell ST02-1	920	1	A	
6	Corridor CR09-1	555	1	C	
7	Corridor CR10-1	1300	1	C	
8	Entrance Vestibule V-02	80	1	C	
9	Stairwell ST03-1	830	1	C	
10	Corridor CR03-1	640	1	A	
11	Corridor CR05-1	320	1	A	
12	Corridor CR06-01	3465	1	B	
13	Entrance Vestibule V03	205	1	B	
14	Stairwell ST06-1	840	1	B	2000 date code on windows
15	Corridor CR07-1	1375		A	
16	Corridor CR08-1	780	1	A	
104	Staff Office 104	270	1	A	
107	Electrical Room 107	200	1	A	
114	Storage 114	540	1	A	
118	Cafeteria 118	4100	1	A	Excluding stage area
127	Electrical Room 127	25	1	A	
141	Electrical Room 141	270	1	B	
142	Expanded Cafeteria 142	2050	1	B	Partially Phase A
143	Construction Technology 143	2380	1	B	
146	Music Room 146	2100	1	B	
152	Communication Technology 152	1410	1	A	
153	Gallery 153	290	1	A	
161	Library 161	5300	1	A	
176	Electrical Room	40	1	C	

**APPENDIX V**

**Hazardous Materials Summary Report / Sample Log**

Client:SMCDSB

Site: 201 Ashford Dr., Barrie, ON

Building Name: St. Peter's Catholic H.S.

Survey Date: 2022-06-14

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	S0001 ABC	Other     Firestopping (mastic)   Red On Pipe And Conduit Penetrations	107	A	15	0	0	0	None Detected	No	
Asbestos	V9500	Floor   All   Terrazzo	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	A,B,C	0	16080	0	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other     Firestopping (mastic)   Grey On Conduit Penetrations	107	A	5	0	0	0	Presumed Asbestos	Yes	NF
Asbestos	V0000	Ceiling   All   Ceiling Tiles (lay-in)   24x48 Random Fleck And Pinhole, 24x24 Random Fleck And Pinhole	3,10,12	A,B	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling     Ceiling Tiles (lay-in)   24x48 Random Fleck And Pinhole	4,5,6,7,8,9,11,12,14,15,16,104,142,146,152,153	A,B,C	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling   All, Bulkhead   Drywall And Joint Compound	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,104,142,146,152,153,161	A,B,C	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor   All   Vinyl Floor Tile And Mastic   12x12 Off-white With Grey Streaks	176	C	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor   All   Vinyl Floor Tile And Mastic   12x12 Beige Mottled	114	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor   All   Vinyl Floor Tile And Mastic   12x12 Beige, Blue, And Grey Mottled	118,142	A,B	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor   All   Vinyl Floor Tile And Mastic   12x12 Blue Mottled	104,152	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor   All   Vinyl Floor Tile And Mastic   12x12 Grey Mottled	153	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Structure   Beam And Joist   Fireproofing (fibrous)	6,7,8	C	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Wall     Drywall And Joint Compound	2	A	0	0	0	0	Non Asbestos	No	
Paint	L0001	Wall   Masonry   Cream On Brick Wall	1,2,104,161,176	A,C	0	9450	0	0		No	-
Paint	L0002	Ceiling   Drywall And Joint Compound   Orange	1,2,161	A	0	5060	0	0		No	-
Paint	L0003	Wall   Masonry   Grey On Brick Wall	2	A	0	90	0	0		No	-
Paint	L0004	Wall   Masonry   Mortar	1,2,3,4,5,10,11,15,16,104,114,118,127,142,152,153,161	A,B	0	51460	0	0		No	-
Paint	L0005	Wall   Masonry   Light Grey And Pink On Brick	3,4,5,10,11,12,15,16	A,B	0	13815	0	0		No	-
Paint	L0006	Wall   Concrete (poured)   Light Pink On Block	12,13,14,15,107,114,118,127,141,142,143,146,152,153,176	A,B,C	0	54965	0	0		No	-
Paint	L0007	Ceiling   Drywall And Joint Compound   White	6,7,8,9,13,14,141	B,C	0	8720	0	0		No	-
Paint	L0008	Wall   Masonry   Mortar	6,7,8,9,176	C	0	8180	0	0		No	-
Paint	L0009	Wall   Masonry   Mortar	12,13,14,141,142,143,146	B	0	27275	0	0		No	-
Paint	L0010	Ceiling   Drywall And Joint Compound   Dark Purple On Bulkhead	142,146	B	0	940	0	0		No	-
Paint	L0011	Ceiling   Drywall And Joint Compound   Light Purple On Bulkhead	142	B	0	420	0	0		No	-

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Lead Product	V9000	Batteries In Emer. Lights	107,141	A,B	0	0	2	0	Lead Product	Yes	-
PCB	V0000	Transformer	107,141,176	A,B,C	0	0	0	0	-	No	-
Hg	V9000	Fluorescent Light Tube	1,4,5,6,7,8,9,10,11,12,13,14,15 16,104,107,114,141,142,143,146,152,153,161,176	A,B,C	0	0	919	0	Hg	Yes	-
Hg	V9500	Thermostat	4,10,107,114,141,143	A,B	0	0	6	0	Presumed Hg	Yes	-

## Legend:

Sample number		Units		
S####	Asbestos sample collected	SF	Square feet	NF Non Friable material.
L####	Paint sample collected	LF	Linear feet	F Friable material
P####	PCB sample collected	EA	Each	PF Potentially Friable material
M####	Mould sample collected	%	Percentage	
V####	Material visually similar to numbered sample collected			
V0000	Known non Hazardous Material			
V9000	Material is visually identified as Hazardous Material			
V9500	Material is presumed to be Hazardous Material			
[Loc. No.]	Abated Material			

**APPENDIX VI**  
**HMIS All Data Report**

**Client: SMCD SB**  
**Location: #1 : Entrance Vestibule V-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 170**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>	All	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	None Found														
Floor	All	Terrazzo			A	Y		170			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass		Foil Face												
Piping		Not Insulated														
Structure	All	Metal		Paint												
Wall		Masonry, Brick														
Wall		Masonry, Brick		Paint												
Wall <sup>2</sup>		Masonry, Block		Paint												
Wall		Glass														

1 - 1996 build  
2 - Above doors

**Client: SMCD SB**  
**Location: #1 : Entrance Vestibule V-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 170**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	80		SF	L0001	Cream on brick wall	Pb: 0.0011 %	No	
Ceiling	Drywall and joint compound	170		SF	L0002	Orange	Pb: 0.00014 %	No	
Wall <sup>1</sup>	Masonry	170		SF	V0004	Mortar	Pb: 0.00050 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #1 : Entrance Vestibule V-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 170**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube	4	EA	V9000	Yes



**Client: SMCD SB**  
**Location: #2 : Foyer L-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2610**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Not Insulated														
Floor	All	Terrazzo			A	Y		2610			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping	Rain Water Leader	Fibreglass		Canvas												
Piping	Sprinkler	Not Insulated														
Structure	All	Metal		Paint												
Wall <sup>3</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Wall		Masonry, Brick														
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												
Wall		Glass														

- 1 - 1996 build
- 2 - 1996 build
- 3 - 1996 build

**Client: SMCD SB**  
**Location: #2 : Foyer L-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2610**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	750		SF	V0001	Cream on brick wall	Pb: 0.0011 %	No	
Ceiling	Drywall and joint compound	740		SF	V0002	Orange	Pb: 0.00014 %	No	
Wall	Masonry	450		SF	V0002	Orange on block wall	Pb: 0.00014 %	No	
Wall	Masonry	90		SF	L0003	Grey on brick wall	Pb: 0.0057 %	No	
Wall <sup>1</sup>	Masonry	3600		SF	L0004	Mortar	Pb: 0.00050 %	No	
Wall	Drywall and joint compound	75		SF	V0002	Orange	Pb: 0.00014 %	No	

- 1 - Composite

**Client: SMCDSB**  
**Location: #3 : Corridor CR01-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 920**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x24 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		920			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

1 - 1996 build  
2 - 1996 build

**Client: SMCDSB**  
**Location: #3 : Corridor CR01-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 920**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall <sup>1</sup>	Masonry	2300		SF	L0005	Light grey and pink on brick	Pb: 0.00018 %	No	
Wall <sup>2</sup>	Masonry	2300		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Drywall and joint compound	220		SF	V0005	Light grey and pink on bulkhead	Pb: 0.00018 %	No	

1 - Composite of layers  
2 - Composite

**Client: SMCD SB**  
**Location: #4 : Corridor CR02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1490**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		1490			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping		Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

1 - 1996 build  
2 - 1996 build

**Client: SMCD SB**  
**Location: #4 : Corridor CR02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1490**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall <sup>1</sup>	Masonry	3000		SF	V0005	Light grey and pink on brick	Pb: 0.00018 %	No
Wall <sup>2</sup>	Masonry	3000		SF	V0004	Mortar	Pb: 0.00050 %	No
Ceiling	Drywall and joint compound	460		SF	V0005	Light grey and pink on bulkhead	Pb: 0.00018 %	No

1 - Composite of layers  
2 - Composite

**Client: SMCD SB**  
**Location: #4 : Corridor CR02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1490**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	24	EA	V9000	Yes
Thermostat	1	EA	V9500	Presumed

1 - T8

**Client: SMCD SB**  
**Location: #5 : Stairwell ST02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 920**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Ceiling <sup>3</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		920			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass		Paper												
Piping		Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

- 1 - 1996 build
- 2 - 1996 build
- 3 - 1996 build

**Client: SMCD SB**  
**Location: #5 : Stairwell ST02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 920**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall <sup>1</sup>	Masonry	2760		SF	V0005	Pink on brick and block	Pb: 0.00018 %	No	
Wall <sup>2</sup>	Masonry	3000		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Drywall and joint compound	460		SF	V0005	Pink on bulkhead and ceiling	Pb: 0.00018 %	No	

- 1 - Composite of layers
- 2 - Composite

**Client: SMCD SB**  
**Location: #5 : Stairwell ST02-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 920**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	20	EA	V9000	Yes

- 1 - T8

**Client: SMCD SB**  
**Location: #6 : Corridor CR09-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 555**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		555			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass		Paper												
Piping		Not Insulated														
Structure <sup>3</sup>	Beam And Joist	Fireproofing (Fibrous)										V0000	Non-Asbestos		None	
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

- 1 - 2011 build
- 2 - 2011 build
- 3 - 2011 build

**Client: SMCD SB**  
**Location: #6 : Corridor CR09-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 555**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall <sup>1</sup>	Masonry	1500		SF	V0007	White on brick	Pb: <0.00010 %	No	
Wall <sup>2</sup>	Masonry	1500		SF	V0008	Mortar	Pb: 0.00030 %	No	
Ceiling	Drywall and joint compound	210		SF	L0007	White	Pb: <0.00010 %	No	

- 1 - Pink layer underneath
- 2 - Composite

**Client: SMCD SB**  
**Location: #6 : Corridor CR09-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 555**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	24	EA	V9000	Yes

1 - T8



**Client: SMCDSD**  
**Location: #7 : Corridor CR10-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1300**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		1300			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping	All	Not Insulated														
Structure <sup>3</sup>	Beam And Joist	Fireproofing (Fibrous)										V0000	Non-Asbestos		None	
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Structure	Deck	Metal		Paint												
Wall		Masonry, Brick		Paint												
Wall		Masonry, Brick														
Wall		Glass														

- 1 - 2011 build
- 2 - 2011 build
- 3 - 2011 build

**Client: SMCDSD**  
**Location: #7 : Corridor CR10-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1300**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Masonry	2600		SF	V0007	White on brick	Pb: <0.00010 %	No
Wall <sup>1</sup>	Masonry	3900		SF	L0008	Mortar	Pb: 0.00030 %	No
Ceiling	Drywall and joint compound	340		SF	V0007	White on bulkheads	Pb: <0.00010 %	No

- 1 - Composite

**Client: SMCDSD**  
**Location: #7 : Corridor CR10-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1300**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	30	EA	V9000	Yes

- 1 - T8





**Client: SMCDSB**  
**Location: #8 : Entrance Vestibule V-02**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 80**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	None Found														
Floor	All	Terrazzo			A	Y		80			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping	All	Not Insulated														
Structure <sup>3</sup>	Beam And Joist	Fireproofing (Fibrous)										V0000	Non-Asbestos		None	
Structure	Deck	Concrete (precast)														
Wall		Masonry, Block		Paint												
Wall		Masonry, Brick														
Wall		Glass														

- 1 - 2011 build
- 2 - 2011 build
- 3 - 2011 build

**Client: SMCDSB**  
**Location: #8 : Entrance Vestibule V-02**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 80**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	160		SF	V0007	White on block	Pb: <0.00010 %	No	
Wall <sup>1</sup>	Masonry	160		SF	V0008	Mortar	Pb: 0.00030 %	No	

- 1 - Composite

**Client: SMCDSB**  
**Location: #8 : Entrance Vestibule V-02**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 80**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	2	EA	V9000	Yes
Fluorescent Light Tube	4	EA	V9000	Yes

- 1 - T8

**Client: SMCD SB**  
**Location: #9 : Stairwell ST03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 830**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Ceiling <sup>3</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor	All	Terrazzo			A	Y		830			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping	Rain Water Leader	Fibreglass		Foil Face												
Piping	Sprinkler	Not Insulated														
Structure	All	Metal		Paint												
Structure	Beam And Joist	Metal		Paint												
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												
Wall		Glass														

- 1 - 2011 build
- 2 - 2011 build
- 3 - 2011 build

**Client: SMCD SB**  
**Location: #9 : Stairwell ST03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 830**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	2600		SF	V0007	White on brick	Pb: <0.00010 %	No	
Wall <sup>1</sup>	Masonry	2500		SF	V0008	Mortar	Pb: 0.00030 %	No	
Ceiling	Drywall and joint compound	415		SF	V0007	White on bulkhead and ceiling	Pb: <0.00010 %	No	

- 1 - Composite

**Client: SMCD SB**  
**Location: #9 : Stairwell ST03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 830**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	40	EA	V9000	Yes

- 1 - T8



**Client: SMCD SB**  
**Location: #10 : Corridor CR03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 640**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x24 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		640			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

1 - 1996 build  
2 - 1996 build

**Client: SMCD SB**  
**Location: #10 : Corridor CR03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 640**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Ceiling	Drywall and joint compound	220		SF	V0005	Light grey on bulkhead	Pb: 0.00018 %	No	
Wall <sup>1</sup>	Masonry	1600		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall	Masonry	1600		SF	V0005	Light grey on brick	Pb: 0.00018 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #10 : Corridor CR03-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 640**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Thermostat	1	EA	V9500	Presumed
Fluorescent Light Tube <sup>1</sup>	20	EA	V9000	Yes

1 - T8

**Client: SMCD SB**  
**Location: #11 : Corridor CR05-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 320**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Terrazzo			A	Y		320			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												

1 - 1996 build  
2 - 1996 build

**Client: SMCD SB**  
**Location: #11 : Corridor CR05-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 320**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall <sup>1</sup>	Masonry	800		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall	Masonry	800		SF	V0005	Light grey on brick and block	Pb: 0.00018 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #11 : Corridor CR05-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 320**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	6	EA	V9000	Yes

1 - T8

**Client: SMCD SB**  
**Location: #12 : Corridor CR06-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 3465**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x24 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>3</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor	All	Terrazzo			A	Y		3465			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Glass														

- 1 - 2000 build
- 2 - 2000 build
- 3 - 2000 build

**Client: SMCD SB**  
**Location: #12 : Corridor CR06-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 3465**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Masonry	6930		SF	V0006	Light pink on brick	Pb: 0.00028 %	No
Wall <sup>1</sup>	Masonry	6930		SF	V0009	Mortar	Pb: 0.00024 %	No
Ceiling	Drywall and joint compound	460		SF	V0005	Pink on bulkhead	Pb: 0.00018 %	No

- 1 - Composite

**Client: SMCD SB**  
**Location: #12 : Corridor CR06-01**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 3465**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	78	EA	V9000	Yes

- 1 - T8



**Client: SMCD SB**  
**Location: #13 : Entrance Vestibule V03**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 205**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	None Found														
Floor	All	Terrazzo			A	Y		205			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												
Wall		Glass														

1 - 2000 build

**Client: SMCD SB**  
**Location: #13 : Entrance Vestibule V03**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 205**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Masonry	500		SF	V0006	Light pink on brick and block	Pb: 0.00028 %	No
Wall <sup>1</sup>	Masonry	500		SF	V0009	Mortar	Pb: 0.00024 %	No
Ceiling	Drywall and joint compound	205		SF	V0007	White	Pb: <0.00010 %	No

1 - Composite

**Client: SMCD SB**  
**Location: #13 : Entrance Vestibule V03**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 205**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube	3	EA	V9000	Yes



**Client: SMCD SB**  
**Location: #14 : Stairwell ST06-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 840**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>		Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor		Terrazzo			A	Y		420			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Floor		Rubber														
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass														
Piping		Not Insulated														
Structure	Deck	Concrete (precast)														
Wall	All	Masonry, Block		Paint												

2000 date code on windows  
1 - 2000 build  
2 - 2000 build

**Client: SMCD SB**  
**Location: #14 : Stairwell ST06-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 840**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	2520		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	2520		SF	L0009	Mortar	Pb: 0.00024 %	No	
Ceiling	Drywall and joint compound	420		SF	V0007	White	Pb: <0.00010 %	No	

2000 date code on windows  
1 - Composite

**Client: SMCD SB**  
**Location: #14 : Stairwell ST06-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 840**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	10	EA	V9000	Yes

2000 date code on windows  
1 - T8

**Client: SMCD SB**  
**Location: #15 : Corridor CR07-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor:**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1375**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor	All	Terrazzo			A	Y		1375			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												

1 - 1996 build  
2 - 1996 build

**Client: SMCD SB**  
**Location: #15 : Corridor CR07-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor:**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1375**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	3400		SF	V0006	Light pink on brick	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	3400		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Drywall and joint compound	325		SF	V0005	Pink on bulkhead	Pb: 0.00018 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #15 : Corridor CR07-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor:**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1375**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	24	EA	V9000	Yes

1 - T8

**Client: SMCD SB**  
**Location: #16 : Corridor CR08-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 780**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor	All	Terrazzo			A	Y		780			SF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												
Wall		Masonry, Brick														

1 - 1996 build  
2 - 1996 build

**Client: SMCD SB**  
**Location: #16 : Corridor CR08-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 780**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	1170		SF	V0005	Pink on brick and block	Pb: 0.00018 %	No	
Wall <sup>1</sup>	Masonry	1170		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Drywall and joint compound	40		SF	V0005	Pink on bulkhead	Pb: 0.00018 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #16 : Corridor CR08-1**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 780**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	14	EA	V9000	Yes

1 - T8

**Client: SMCD SB**  
**Location: #104 : Staff Office 104**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 270**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor <sup>3</sup>	All	Vinyl Floor Tile and Mastic, 12x12 blue mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping		Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Block		Paint												

- 1 - 1996 build
- 2 - 1996 build
- 3 - 1996 build

**Client: SMCD SB**  
**Location: #104 : Staff Office 104**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 270**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	675		SF	V0001	Cream on block	Pb: 0.0011 %	No	
Wall <sup>1</sup>	Masonry	675		SF	V0004	Mortar	Pb: 0.00050 %	No	

- 1 - Composite

**Client: SMCD SB**  
**Location: #104 : Staff Office 104**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 270**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	12	EA	V9000	Yes

- 1 - T8

**Client: SMCD SB**  
**Location: #107 : Electrical Room 107**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 200**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	Concrete (poured)		Paint												
Duct	All	Not Insulated														
Floor	All	Concrete (poured)		Paint												
Mechanical Equipment	All	None Found														
Other		Firestopping (mastic), Red on pipe and conduit penetrations			B	Y		15			LF	S0001ABC	None Detected	N.D.	None	
Other <sup>1</sup>		Firestopping (mastic), Grey on conduit penetrations			B	Y		5			LF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Piping	All	Not Insulated														
Structure	All				C	N		200			SF					
Wall	All	Masonry		Paint												

1 - Inaccessible due to height and proximity to electrical panels

**Client: SMCD SB**  
**Location: #107 : Electrical Room 107**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 200**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Concrete (poured)	600		SF	L0006	Light pink on block	Pb: 0.00028 %	No	
Ceiling	Concrete (poured)	200		SF	V0006	Light pink	Pb: 0.00028 %	No	

**Client: SMCD SB**  
**Location: #107 : Electrical Room 107**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 200**

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9000	Yes

**Client: SMCD SB**  
**Location: #107 : Electrical Room 107**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 200**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	6	EA	V9000	Yes
Thermostat	1	EA	V9500	Presumed

1 - T8

**Client: SMCD SB**  
**Location: #107 : Electrical Room 107**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**

**Area (sqft): 200**

Survey Date: 2022-06-14

Last Re-Assessment: 0000-00-00

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Transformer			V0000	Dry type		No

**Client: SMCD SB**  
**Location: #114 : Storage 114**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 540**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor <sup>1</sup>	All	Vinyl Floor Tile and Mastic, 12x12 beige mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Fibreglass														
Piping		Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall	All	Masonry, Block		Paint												

1 - 1996 build

**Client: SMCD SB**  
**Location: #114 : Storage 114**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 540**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	1620		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	1620		SF	V0004	Mortar	Pb: 0.00050 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #114 : Storage 114**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 540**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	28	EA	V9000	Yes
Thermostat	1	EA	V9500	Presumed

1 - T8

**Client: SMCD SB**  
**Location: #118 : Cafeteria 118**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 4100**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	None Found														
Duct		Not Insulated														
Floor <sup>1</sup>	All	Vinyl Floor Tile and Mastic, 12x12 beige, blue, and grey mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Not Insulated														
Structure	All	Metal		Paint												
Wall		Masonry, Block		Paint												
Wall		Masonry, Brick		Paint												

Excluding stage area  
1 - 1996 build

**Client: SMCD SB**  
**Location: #118 : Cafeteria 118**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 4100**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	5850		SF	V0006	Light pink on brick and block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	3075		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall <sup>2</sup>	Masonry	6400		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall	Masonry	3200		SF	V0006	Light pink on brick	Pb: 0.00028 %	No	
Wall	Masonry	3200		SF	V0006	Pink on block	Pb: 0.00028 %	No	

Excluding stage area  
1 - Composite  
2 - Composite



**Client:** SMCD SB  
**Location:** #127 : Electrical Room 127  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 25

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	None Found														
Duct		Fibreglass		Paper												
Floor	All	Concrete (poured)		Paint												
Mechanical Equipment	All	None Found														
Piping		Not Insulated														
Structure	Beam	Metal		Paint												
Structure	Deck	Concrete (precast)		Paint												
Wall	All	Masonry, Block		Paint												

**Client:** SMCD SB  
**Location:** #127 : Electrical Room 127  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 25

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	75		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	75		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Concrete (precast)	25		SF	V0006	Light pink on block	Pb: 0.00028 %	No	

1 - Composite

**Client:** SMCDSB  
**Location:** #141 : Electrical Room 141  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 270

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	None Found														
Duct	All	Not Insulated														
Floor	All	Concrete (poured)		Paint												
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Plastic												
Piping		Not Insulated														
Structure	Deck	Concrete (precast)		Paint												

**Client:** SMCDSB  
**Location:** #141 : Electrical Room 141  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 270

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	810		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	810		SF	V0009	Mortar	Pb: 0.00024 %	No	
Structure	Concrete (precast)	270		SF	V0007	White on deck	Pb: <0.00010 %	No	

1 - Composite

**Client:** SMCDSB  
**Location:** #141 : Electrical Room 141  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 270

PB PRODUCTS				
Component	Quantity	Unit	Sample	Hazard
Batteries In Emer. Lights	1	EA	V9000	Yes

**Client:** SMCDSB  
**Location:** #141 : Electrical Room 141  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 270

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	8	EA	V9000	Yes
Thermostat	1	EA	V9500	Presumed

1 - T8

**Client:** SMCDSB  
**Location:** #141 : Electrical Room 141  
**Survey Date:** 2022-06-14

**Site:** 201 Ashford Dr., Barrie, ON  
**Floor:** 1

**Building Name:** St. Peter's Catholic H.S.  
**Room #:**  
**Last Re-Assessment:** 0000-00-00

**Area (sqft):** 270

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Transformer			V0000	Dry type		No

**Client: SMCD SB**  
**Location: #142 : Expanded Cafeteria 142**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2050**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor <sup>3</sup>	All	Vinyl Floor Tile and Mastic, 12x12 beige, blue, and grey mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Block		Paint												
Wall		Masonry, Brick		Paint												

Partially Phase A  
1 - 2000 and 1996 build  
2 - 2000 and 1996 build  
3 - 2000 and 1996 build

**Client: SMCD SB**  
**Location: #142 : Expanded Cafeteria 142**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2050**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	5850		SF	V0006	Light pink on brick and block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	3075		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall <sup>2</sup>	Masonry	3075		SF	V0009	Mortar	Pb: 0.00024 %	No	
Structure	Masonry	300		SF	V0010	Dark purple on brick columns	Pb: <0.00028 %	No	
Ceiling	Drywall and joint compound	420		SF	L0011	Light purple on bulkhead	Pb: <0.00038 %	No	

Partially Phase A  
1 - Composite  
2 - Composite

**Client: SMCD SB**  
**Location: #142 : Expanded Cafeteria 142**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2050**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube	130	EA	V9000	Yes

Partially Phase A

**Client: SMCD SB**  
**Location: #143 : Construction Technology 143**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2380**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	None Found														
Duct		Fibreglass		Canvas												
Duct		Not Insulated														
Floor	All	Concrete (poured)		Paint												
Mechanical Equipment	Radiator	Not Insulated														
Piping		Fibreglass		Paper												
Piping		Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)		Paint												
Wall	All	Masonry, Block		Paint												

**Client: SMCD SB**  
**Location: #143 : Construction Technology 143**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2380**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	7140		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	7140		SF	V0009	Mortar	Pb: 0.00024 %	No	
Structure	Concrete (precast)	2380		SF	V0006	Light pink on deck	Pb: 0.00028 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #143 : Construction Technology 143**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2380**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	84	EA	V9000	Yes
Thermostat	1	EA	V9500	Presumed

1 - T8

**Client: SMCD SB**  
**Location: #146 : Music Room 146**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2100**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Carpet														
Mechanical Equipment	All	None Found														
Piping		Fibreglass														
Piping		Not Insulated														
Structure	Deck	Concrete (precast)														
Wall	All	Masonry, Block		Paint												

1 - 2000 build  
2 - 2000 build

**Client: SMCD SB**  
**Location: #146 : Music Room 146**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2100**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	6300		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	6300		SF	V0009	Mortar	Pb: 0.00024 %	No	
Ceiling	Drywall and joint compound	640		SF	L0010	Dark purple on bulkhead	Pb: <0.00028 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #146 : Music Room 146**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 2100**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube	54	EA	V9000	Yes

**Client: SMCD SB**  
**Location: #152 : Communication Technology 152**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1410**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor <sup>3</sup>	All	Vinyl Floor Tile and Mastic, 12x12 blue mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Block		Paint												

- 1 - 1996 build
- 2 - 1996 build
- 3 - 1996 build

**Client: SMCD SB**  
**Location: #152 : Communication Technology 152**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1410**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	3525		SF	V0006	Light pink on block	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	3525		SF	V0004	Mortar	Pb: 0.00050 %	No	
Ceiling	Drywall and joint compound	55		SF	V0006	Light pink on bulkhead	Pb: 0.00028 %	No	

- 1 - Composite

**Client: SMCD SB**  
**Location: #152 : Communication Technology 152**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 1410**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	80	EA	V9000	Yes

- 1 - T8



**Client: SMCD SB**  
**Location: #153 : Gallery 153**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 290**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>		Ceiling Tiles (lay-in), 24x48 random fleck and pinhole										V0000	Non-Asbestos		None	
Ceiling <sup>2</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct		Fibreglass		Foil Face												
Duct		Not Insulated														
Floor <sup>3</sup>	All	Vinyl Floor Tile and Mastic, 12x12 grey mottled										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping		Fibreglass		Paper												
Piping	Sprinkler	Not Insulated														
Structure	Beam And Joist	Metal		Paint												
Structure	Deck	Concrete (precast)														
Wall		Masonry, Block		Paint												

- 1 - 1996 build
- 2 - 1996 build
- 3 - 1996 build

**Client: SMCD SB**  
**Location: #153 : Gallery 153**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 290**

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall	Masonry	725		SF	V0006	Light pink on block	Pb: 0.00028 %	No
Wall <sup>1</sup>	Masonry	725		SF	V0004	Mortar	Pb: 0.00050 %	No
Ceiling	Drywall and joint compound	20		SF	V0006	Light pink on bulkhead	Pb: 0.00028 %	No

- 1 - Composite

**Client: SMCD SB**  
**Location: #153 : Gallery 153**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 290**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	16	EA	V9000	Yes

- 1 - T8

**Client: SMCD SB**  
**Location: #161 : Library 161**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 5300**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling <sup>1</sup>	Bulkhead	Drywall and joint compound		Paint								V0000	Non-Asbestos		None	
Duct	All	Not Insulated														
Floor	All	Carpet														
Mechanical Equipment	All	None Found														
Piping		Not Insulated														
Piping	Rain Water Leader	Fibreglass		Canvas												
Structure	All	Metal		Paint												
Wall		Masonry, Brick														
Wall		Masonry, Brick		Paint												
Wall		Masonry, Block		Paint												
Wall		Glass														

1 - 1996 build

**Client: SMCD SB**  
**Location: #161 : Library 161**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 5300**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	6625		SF	V0001	Cream on brick and block	Pb: 0.0011 %	No	
Ceiling	Drywall and joint compound	1200		SF	V0001	Cream on bulkhead	Pb: 0.0011 %	No	
Wall <sup>1</sup>	Masonry	13250		SF	V0004	Mortar	Pb: 0.00050 %	No	
Wall	Masonry	3625		SF	V0002	Orange on block	Pb: 0.00014 %	No	

1 - Composite

**Client: SMCD SB**  
**Location: #161 : Library 161**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 5300**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	196	EA	V9000	Yes

1 - T8

**Client: SMCDSB**  
**Location: #176 : Electrical Room**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 40**

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	None Found														
Duct	All	None Found														
Floor <sup>1</sup>	All	Vinyl Floor Tile and Mastic, 12x12 Off-white with grey streaks										V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping	All	Not Insulated														
Structure	Deck	Concrete (poured)		Paint	C	N		40			SF					
Wall	All	Masonry, Block		Paint												

1 - 2011 build

**Client: SMCDSB**  
**Location: #176 : Electrical Room**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 40**

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Masonry	120		SF	V0001	Cream on block	Pb: 0.0011 %	No	
Structure	Concrete (poured)	40		SF	V0006	Cream	Pb: 0.00028 %	No	
Wall <sup>1</sup>	Masonry	120		SF	V0008	Mortar	Pb: 0.00030 %	No	

1 - Composite

**Client: SMCDSB**  
**Location: #176 : Electrical Room**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 40**

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Fluorescent Light Tube <sup>1</sup>	2	EA	V9000	Yes

1 - T5

**Client: SMCDSB**  
**Location: #176 : Electrical Room**  
**Survey Date: 2022-06-14**

**Site: 201 Ashford Dr., Barrie, ON**  
**Floor: 1**

**Building Name: St. Peter's Catholic H.S.**  
**Room #:**  
**Last Re-Assessment: 0000-00-00**

**Area (sqft): 40**

PCB						
Component	Quantity	Unit	Sample	Sample Description	Amount	PCB
Transformer			V0000	Dry type		No

## Legend:



Sample number		Units		Other	
S####	Asbestos sample collected	SF	Square feet	A	Access
L####	Paint sample collected	LF	Linear feet	V	Visible
P####	PCB sample collected	EA	Each	AP	Air Plenum
M####	Mould sample collected	%	Percentage	F	Friable material
V####	Material is visually identified to be identical to S####	LF	Linear feet	NF	Non Friable material
V0000	Known non hazardous material			PF	Potentially Friable material
V9000	Material visually identified as a Hazardous Material			Pb	Lead
V9500	Material is presumed to be a hazardous material			Hg	Mercury
				As	Arsenic
				Cr	Chromium

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is known to contain regulated concentrations of asbestos; either by analytical results or visible identification (use of the V9000 code).
	The material is presumed to contain asbestos; based on visual appearances; typically a material known to historically contain asbestos; however, not sampled due to limited access or the destructive nature of the sampling.

# ST. PETER'S CATHOLIC SECONDARY SCHOOL - ACCESSIBILITY UPGRADES & RTU REPLACEMENT

201 Ashford Drive, Barrie, Ontario L4N 6A3

ISSUED FOR TENDER - April 22<sup>nd</sup>, 2024

## CONSULTING TEAM

### ARCHITECTURAL

SALTER PILON ARCHITECTURE INC.  
151 FERRIS LANE, SUITE 400  
BARRIE, ONTARIO  
L4M 6C1  
T: 705-737-3530  
F: 705-737-3539

Drawing List - Architectural	
Sheet Number	Sheet Name
A000	Title Sheet
A101	Site Plan
A102	Site Plan Demolition
A201	Ground Floor Plan
A202	Second Floor Plan

### CIVIL / ELECTRICAL

GERRITS ENGINEERING  
222 MAPLEVIEW DRIVE  
BARRIE, ONTARIO  
L4B 9E7  
T: 705-737-3303

Drawing List - Civil	
Sheet Number	Sheet Name
ESS-1	Erosion & Sediment Control Plan
GS-1	General Servicing Plan

### MECHANICAL/ELECTRICAL

DEI CONSULTING ENGINEERS  
55 NORTHLAND RD.  
WATERLOO, ONTARIO  
N2V 1Y8  
T: 519-725-3555

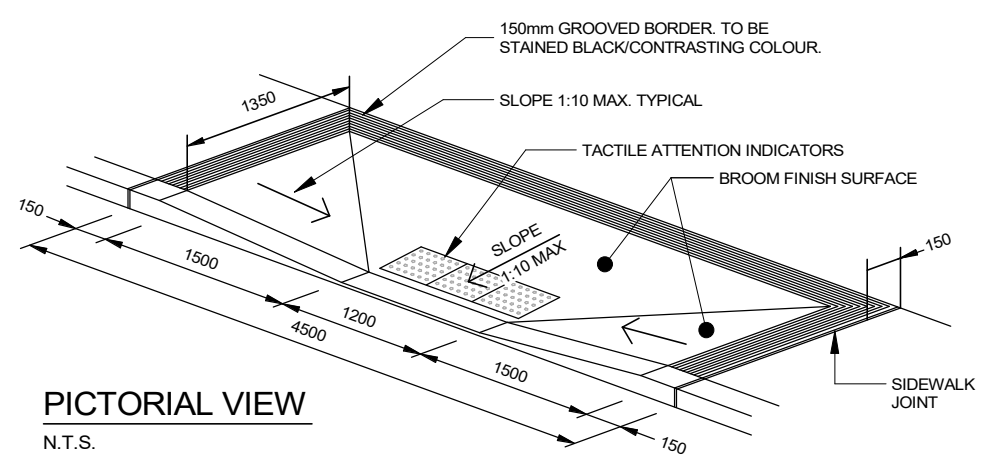
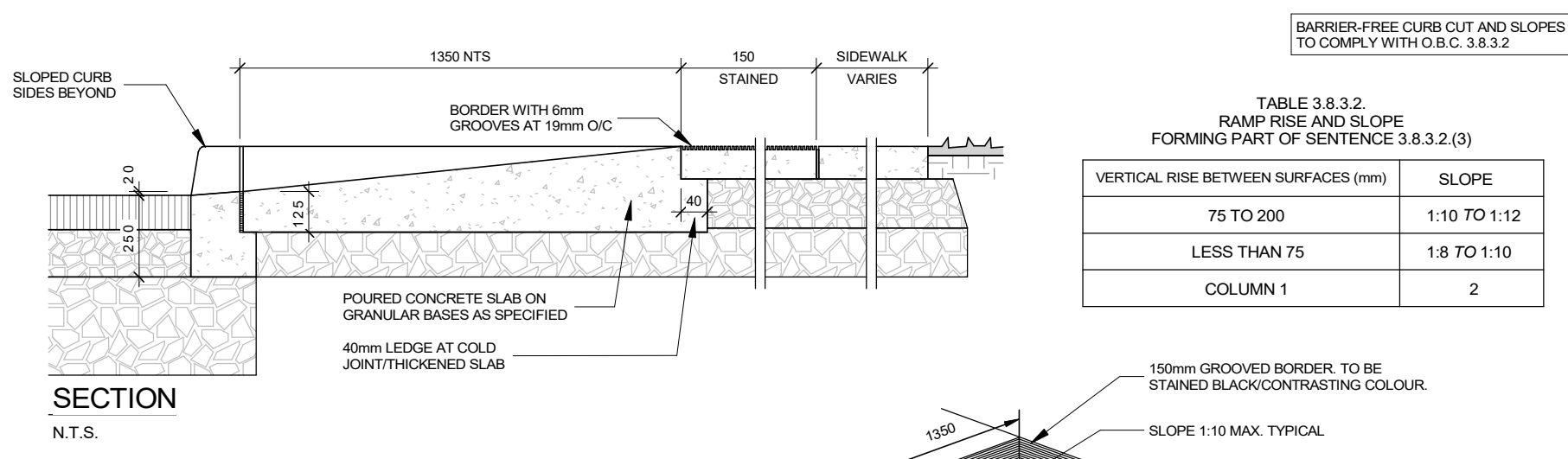
Drawing List - Mechanical	
Sheet Number	Sheet Name
M1	Legend, Schedules, Roof Part Plan, & Details

Drawing List - Electrical	
Sheet Number	Sheet Name
E-101	Power & Data Plan
E-600	Schedules

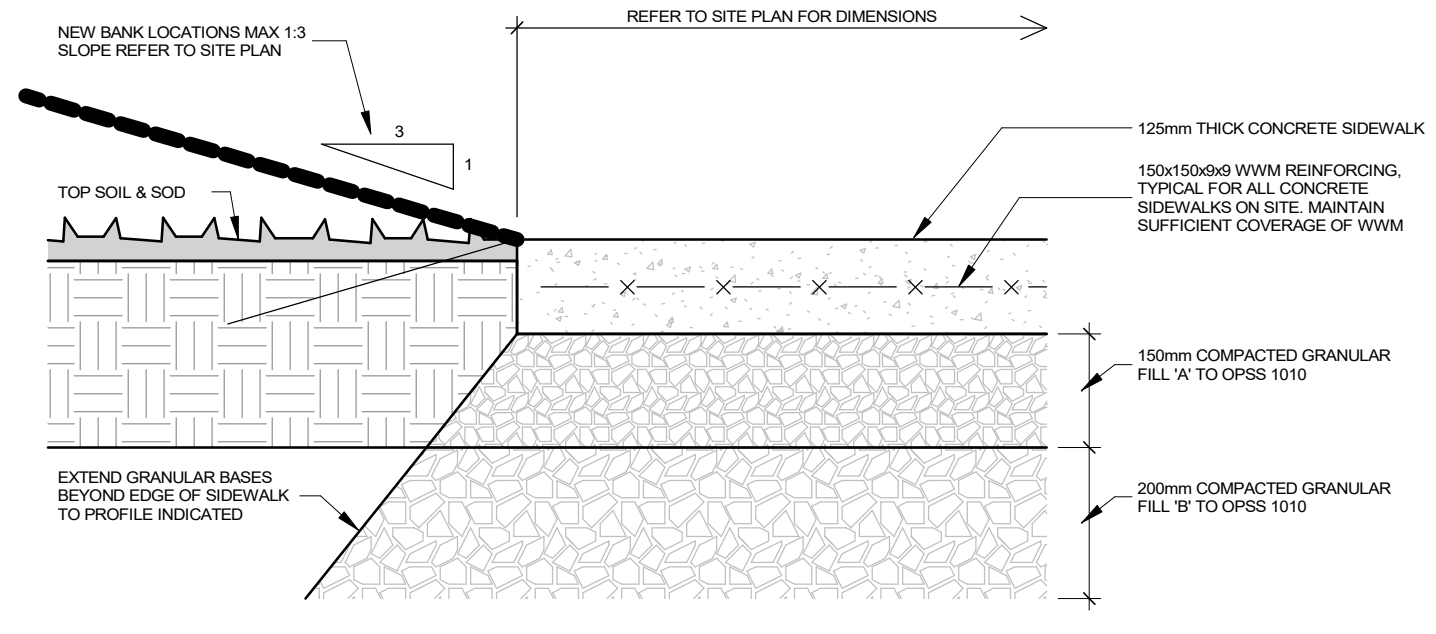
### STRUCTURAL

TACOMA ENGINEERS  
570 BRYNE DR., UNIT L  
BARRIE, ONTARIO  
L4N 9P6  
T: 705-735-1875

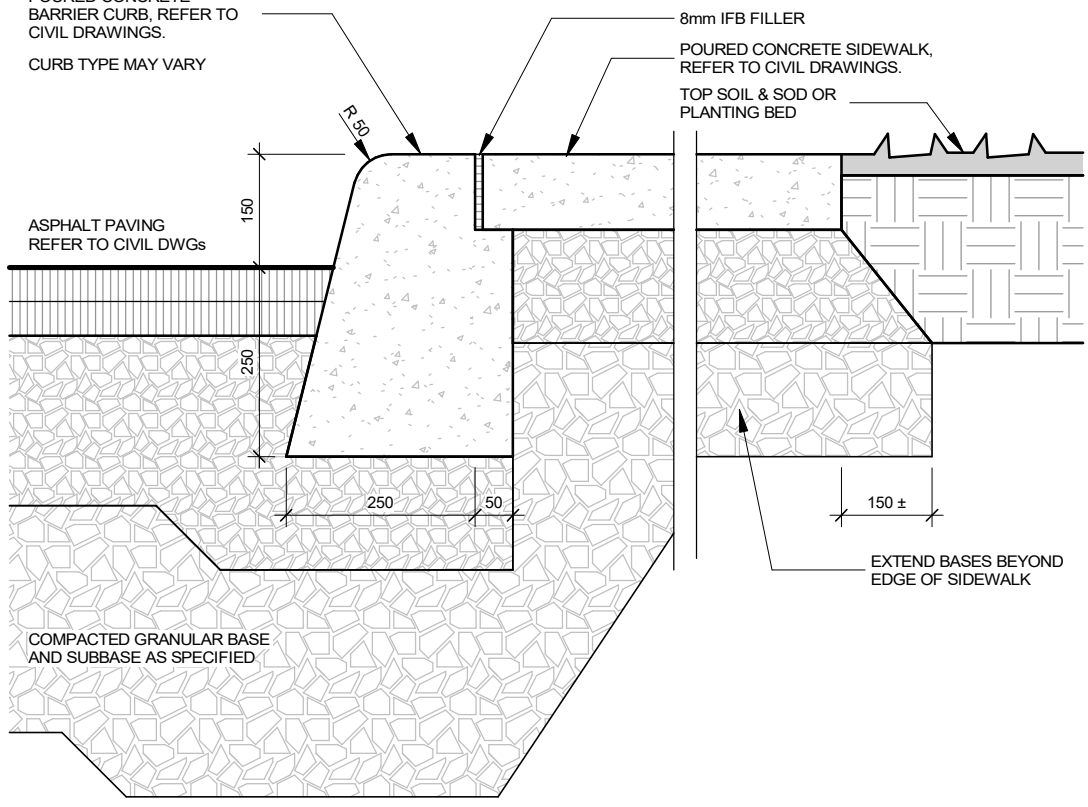
Drawing List - Structural	
Sheet Number	Sheet Name
S1.0	Structural Notes & Framing Plans
S2.0	OW/SJ Elevations and Details



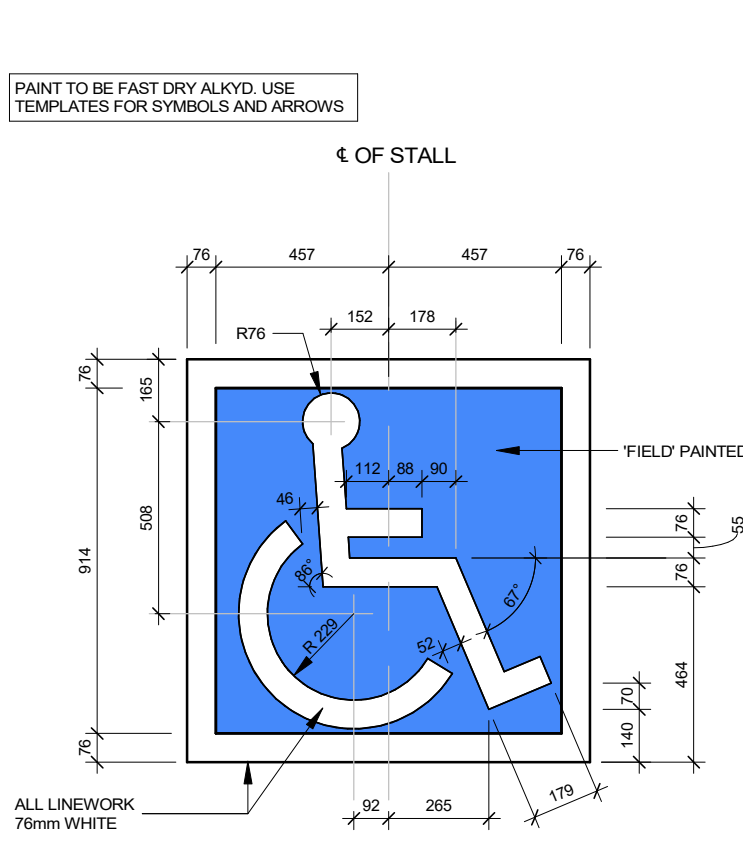
2 B.F. Curb Cut Detail  
Scale as Noted



5 Concrete Sidewalk Edge  
1:10

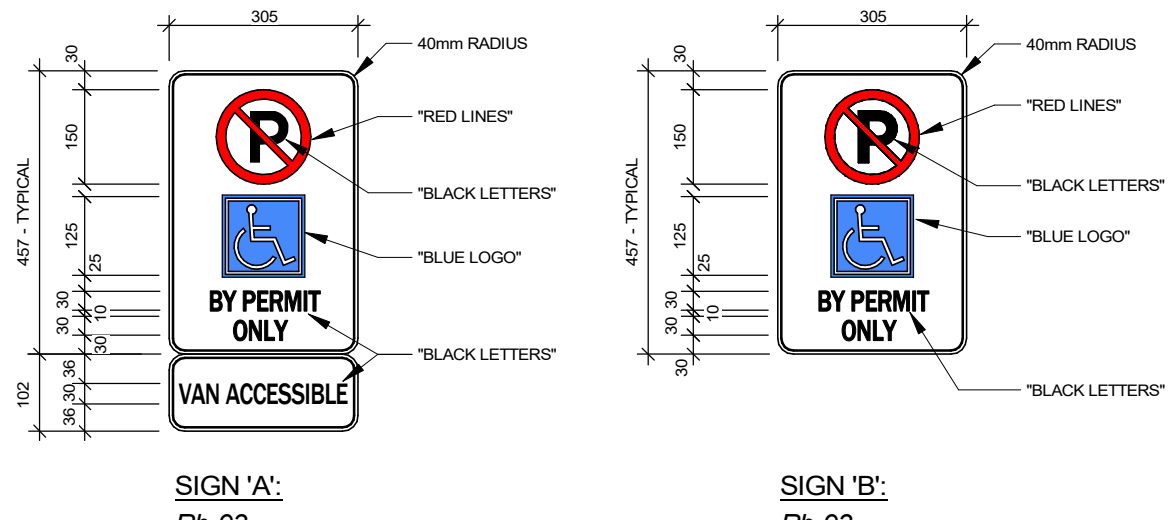


4 Barrier Curb At Sidewalk  
1:10



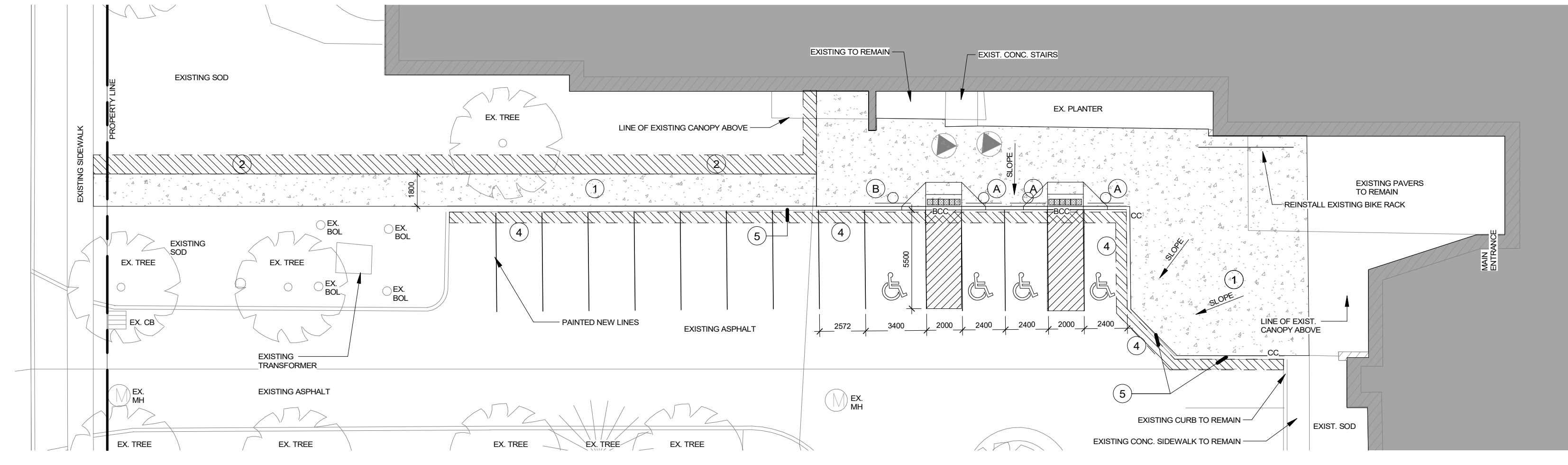
3 B.F. Pavement Logo  
1:20

**GENERAL SIGNAGE NOTES**  
 FINISHED SIGNS AND SYMBOLS SHALL BE APPLIED TO 150mm UTILITY GRADE ALL-MAN-MATERIAL WITH BROWN WHITE PAINT. LETTERS ON BOTH SIDES. ALL SIGNS SHALL BE GLOSSY.  
 ALL LETTERING AND COLOURS TO MEET M.T.O. STANDARDS.  
 ALL SIGNAGE TO CONTAIN TRAFFIC MANUAL, MANUAL STANDARDS AND DETAILS MUST BE VERIFIED & APPROVED PRIOR TO INSTALLATION.  
 REFER TO SITE PLAN FOR NUMBERS & LOCATIONS OF SIGNS REQUIRED.

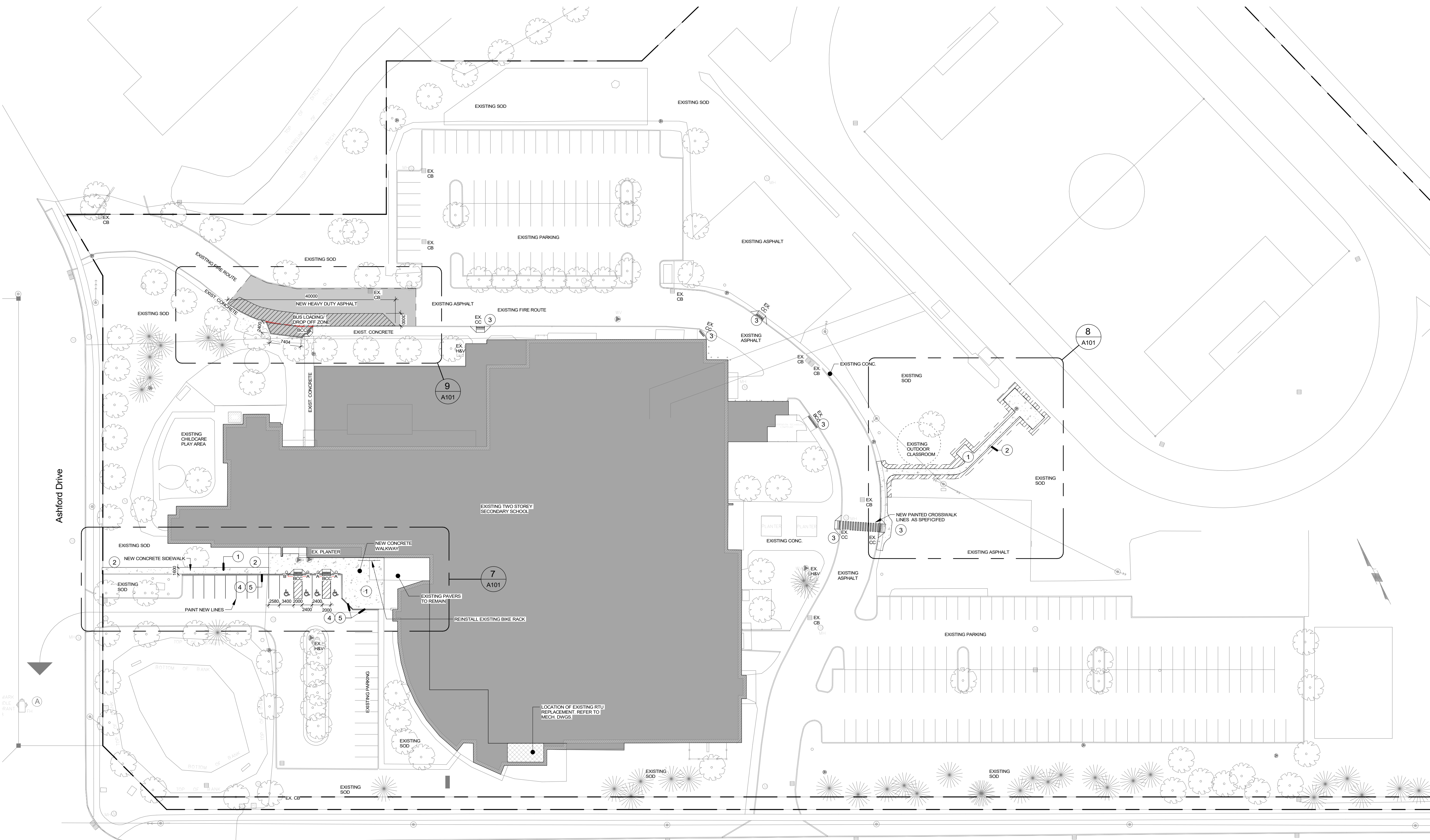


6 Exterior Site Signage BF  
1:10

9 Site Plan - Bus Loading  
1:200

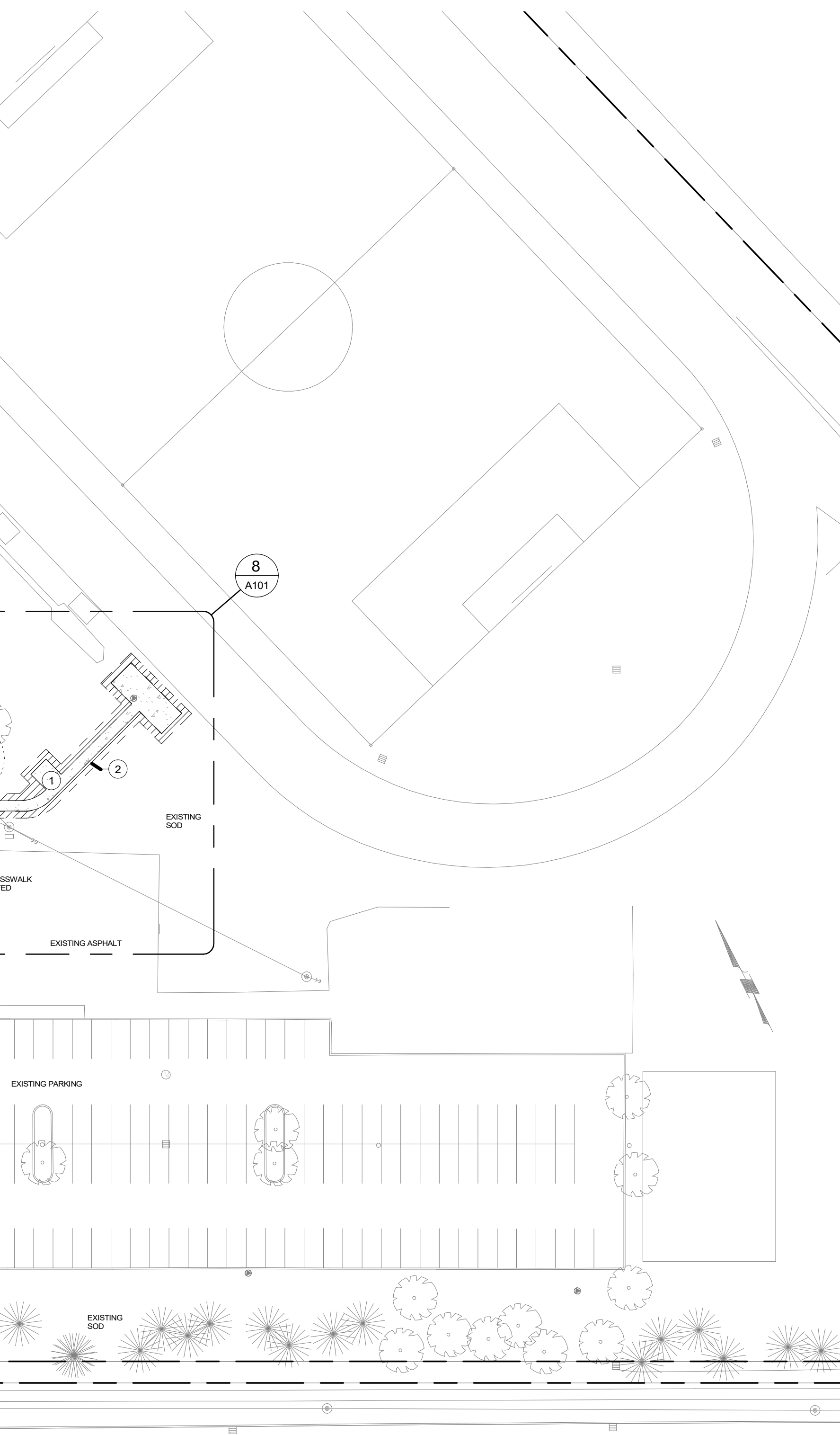


7 Site Plan - BF Parking  
1:200



1 Site Plan  
1:500

8 Site Plan - Access to Track  
1:200



**SITE PLAN GENERAL NOTES:**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EXTENT OF CONTRACT LINE INDICATED ON THE SITE PLAN PLUS ANY WORK SPECIFICALLY NOTED AS BEING OUTSIDE THE CONTRACT LINE. ALL WORK DONE OUTSIDE THE CONTRACT LINE SHALL BE AT THE CONTRACTOR'S RISK AND SHALL BE AT THE CONTRACTOR'S COST TO THE OWNER OF MUNICIPALITY ANY DAMAGE CAUSED BY THE CONSTRUCTION TO MATERIALS OR FINISHES BEYOND THE EXTENT OF CONTRACT LINE.
- CONTRACTOR IS TO RESTRICT ALL WORK EQUIPMENT AND MATERIALS STORAGE TO BE WITHIN EXTENT OF CONTRACT LINE EXCEPT WHERE NOTED OTHERWISE. PRIMARY SITE ACCESS FROM A CONSTRUCTION PAVEMENT IS TO BE MAINTAINED AT ALL TIMES TO PREVENT BLOCKING OF TRAFFIC.
- LOCATE INDICATED MATERIALS & TOPSOIL PILES AS DIRECTED AT COMPLETION OF PROJECT EXCESS MATERIAL IS TO BE REMOVED AND AREA MADE GOOD TO MATCH EXISTING SURFACE.
- FOR TRENCHING & BACKFILLING OF ALL SERVICE LINES AND DIVISION OF RESPONSIBILITY REFER TO APPROPRIATE SECTIONS IN SPECIFICATIONS.
- SURVEY AND PLACE TOPSOIL TO THICKNESS SPECIFIED OVER ALL SLOPED AND PLANTER AREAS INDICATED ON DRAWINGS. PROVIDE ADDITIONAL TOPSOIL AS REQUIRED OVER AND ABOVE TOPSOIL FROM SITE. PROVIDE SOFTENING AND FIRMING AS REQUIRED TO MATCH EXISTING CONTRACT LINE. EXTEND ACCORDING TO PROPERTY LINES TO NEARBY PROPERTY LINES.
- NOTE THAT ALL MECHANICAL AND ELECTRICAL UNDERGROUND SERVICE LINES INDICATED ON DRAWINGS ARE APPROXIMATE ONLY AND ARE INDICATED AS ACCURATELY AS POSSIBLE FROM INFORMATION SUPPLIED BY CONTRACTOR. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING TRACK TYPE, LOCATIONS AND DEPTHS OF ALL UNDERGROUND SERVICES IN AREA OF NEW CONSTRUCTION INCLUDING GAS LINES, TELEPHONE, CABLE TV, ETC. AND VERIFY THEIR LOCATION WITH THE APPROPRIATE AUTHORITIES BEFORE CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE RECORDS OF CONSTRUCTION TO FACILITATE INSPECTIONS.
- REFER TO CIVIL DRAWINGS FOR SITE SERVICES AND GRADING, EROSION AND SEDIMENT CONTROL, STORM WATER MANAGEMENT AND DRAINAGE, AND ANY OTHER RELATED WORKS.
- REFER TO ELECTRICAL DRAWINGS FOR SITE LIGHTING, POWER, CISTERN, AND ANY OTHER RELATED WORKS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL DRAWINGS FROM ALL DISCIPLINES. ALL DIMENSIONS ARE TO BE CHECKED AND VERIFIED ON THE JOB. DISCREPANCIES ARE TO BE REPORTED TO THE CONSULTANT. ALL DRAWINGS REMAIN THE PROPERTY OF THE CONSULTANT. ONLY THE LATEST APPROVED DRAWINGS ARE TO BE USED FOR CONSTRUCTION.

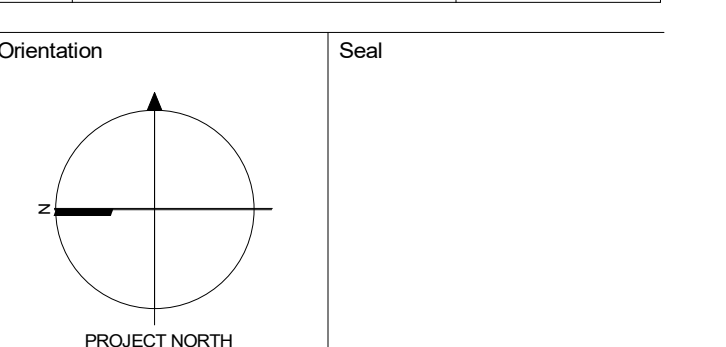
**SITE PLAN LEGEND:**

- PROPERTY LINE / EXTENT OF CONTRACT
- FIRE ACCESS ROUTE
- EXISTING CATCH BASIN
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING BOLLARD
- POST MOUNTED SIGN
- BARRIER FREE CUT CURB
- ASPHALT PAVEMENT
- CONCRETE PAVING / SIDEWALK
- HEAVY-DUTY ASPHALT
- GRASS / SOD

**GENERAL NOTES:**

- PROVIDE NEW CONCRETE SIDEWALK WITH BRUSH FINISHED. REFER TO CIVIL DWGS.
  - PROVIDE NEW SOD AT DISTURBED AREAS. REFER TO SPECIFICATIONS.
  - PROVIDE NEW TACTILE INSET AT EXISTING BARRIER FREE CURBS. REFER TO DETAIL DWG.
  - PATCH AND MAKE GOOD DISTURBED ASPHALT TO MATCH EXISTING ELEVATIONS.
  - NEW CONCRETE CURB TO MATCH EXISTING ELEVATION AS PER CIVIL DWGS. PROVIDE BARRIER FREE CURB CURBS AS INDICATED ON SITE PLAN.
- NOTE:**  
REFER TO CIVIL DRAWINGS FOR ALL GRADING WORK.

No.	Revision	Date
1	Issued for Tender	April 22, 2024



All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.  
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151 Ferris Lane, Suite 400 Barrie, Ontario L4M 6C1  
 salterpilon.com t: 705-737-3530

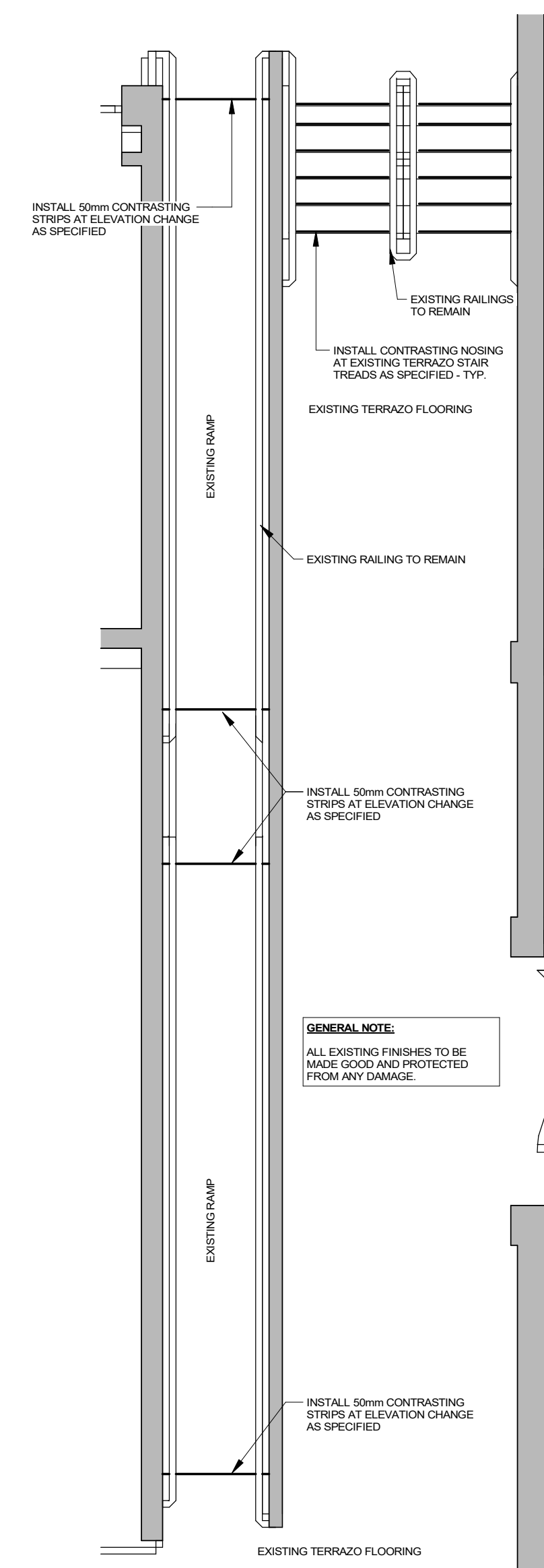
Project Information  
**St. Peter's CSS - Accessibility Upgrades & RTu Replacement**  
 201 Ashford Drive, Barrie, ON L4N 6A3

For  
 Simcoe Muskoka Catholic District School Board

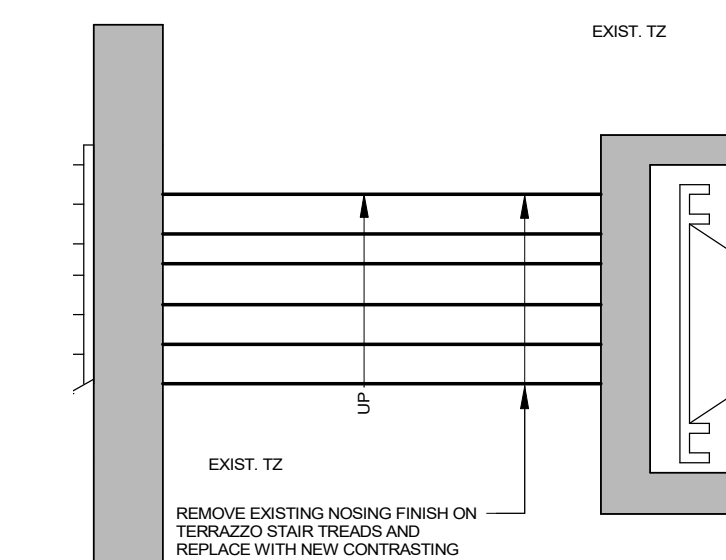
Drawing Title  
**Site Plan**

Date	Project No	Drawing No
April 22, 2024	23009	A101
Drawn by	Author	
As indicated		

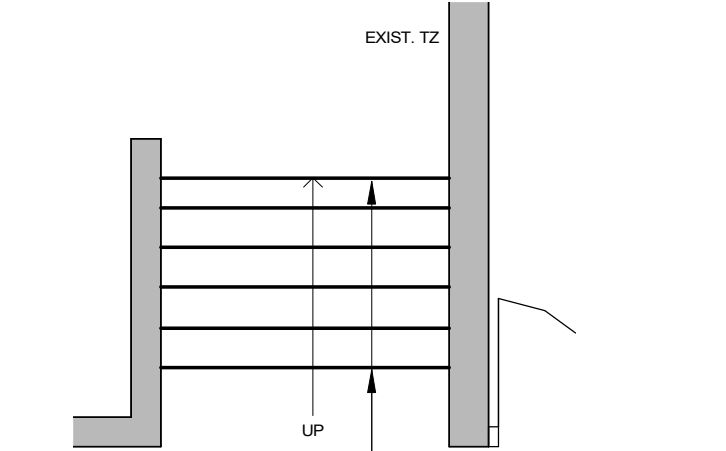




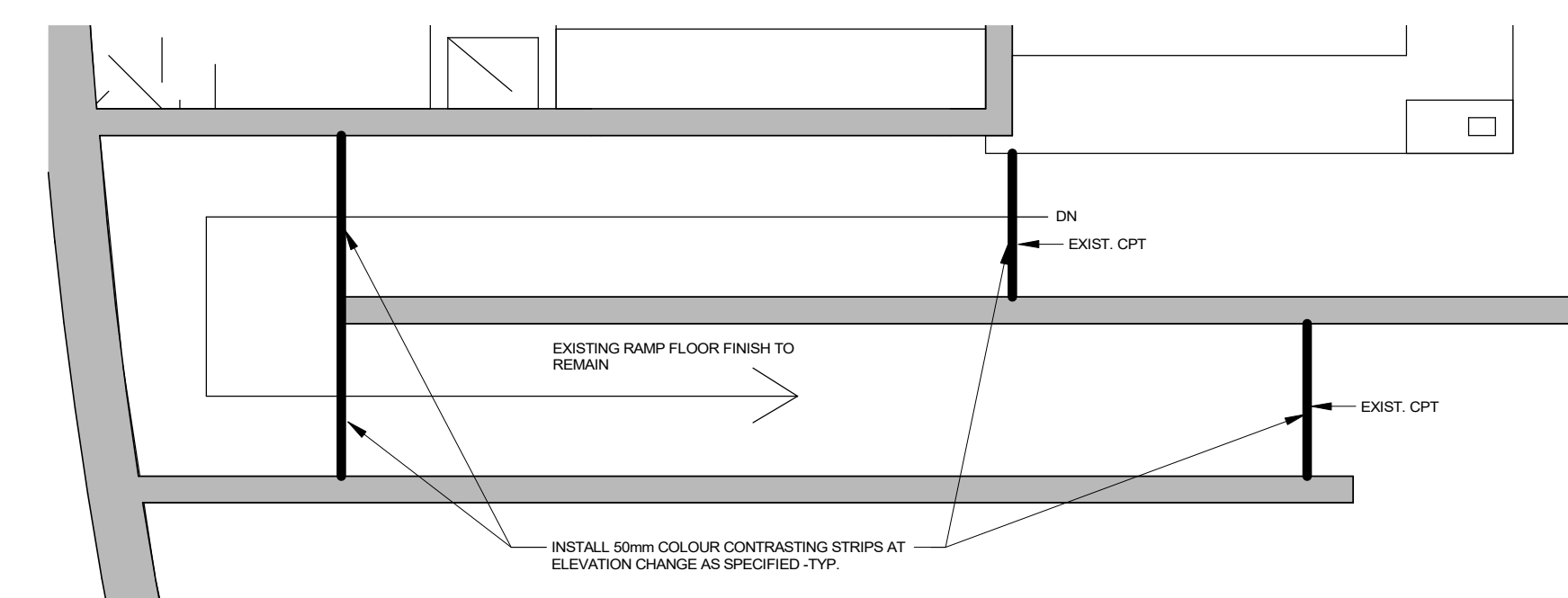
8 Level 1 Stair/Ramp  
A201 1:50



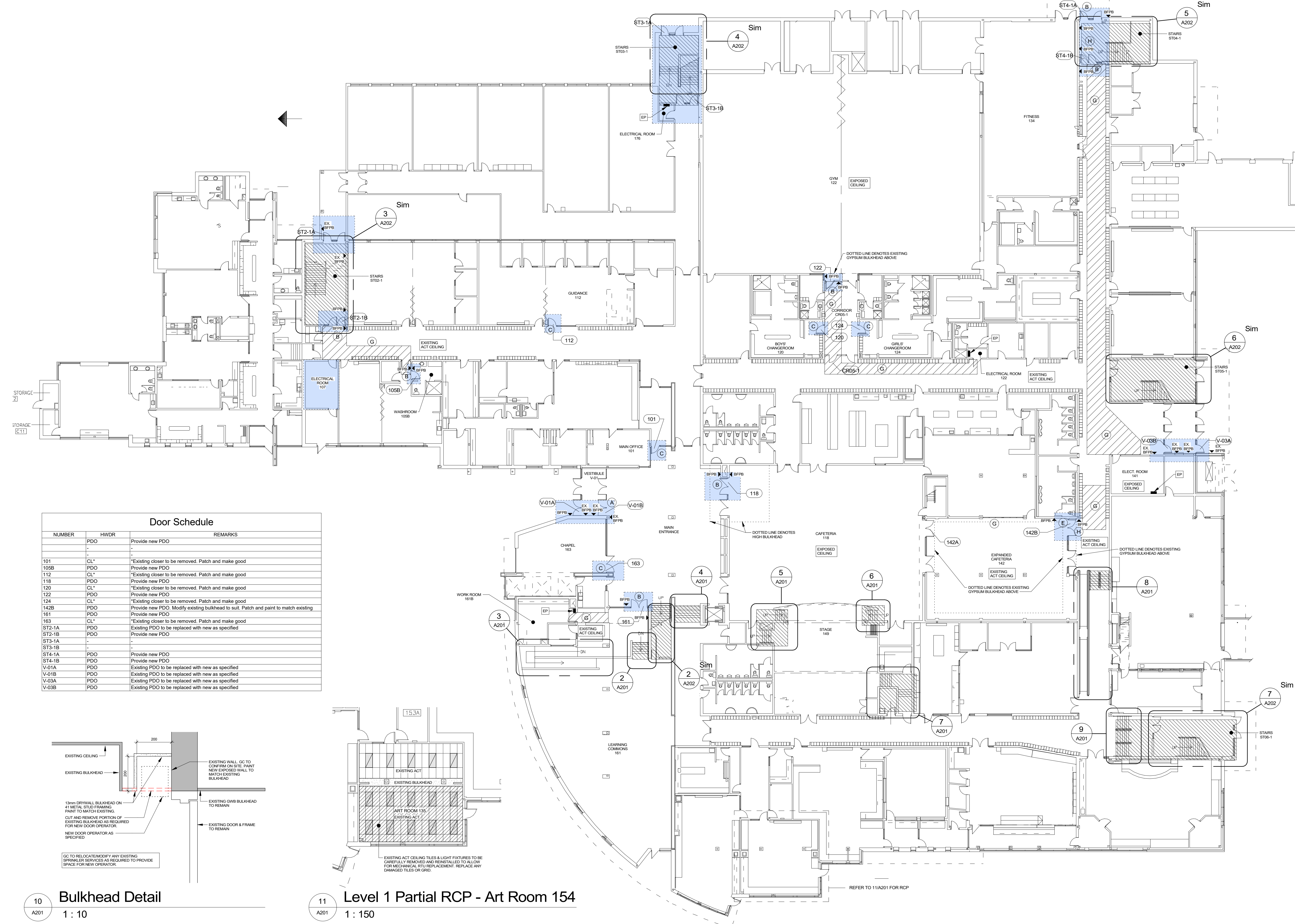
4 Level 1 Stair - Foyer 01  
A201 1:50



2 Level 1 Stair - LC 161  
A201 1:50



3 Level 1 Ramp - LC 161  
A201 1:50

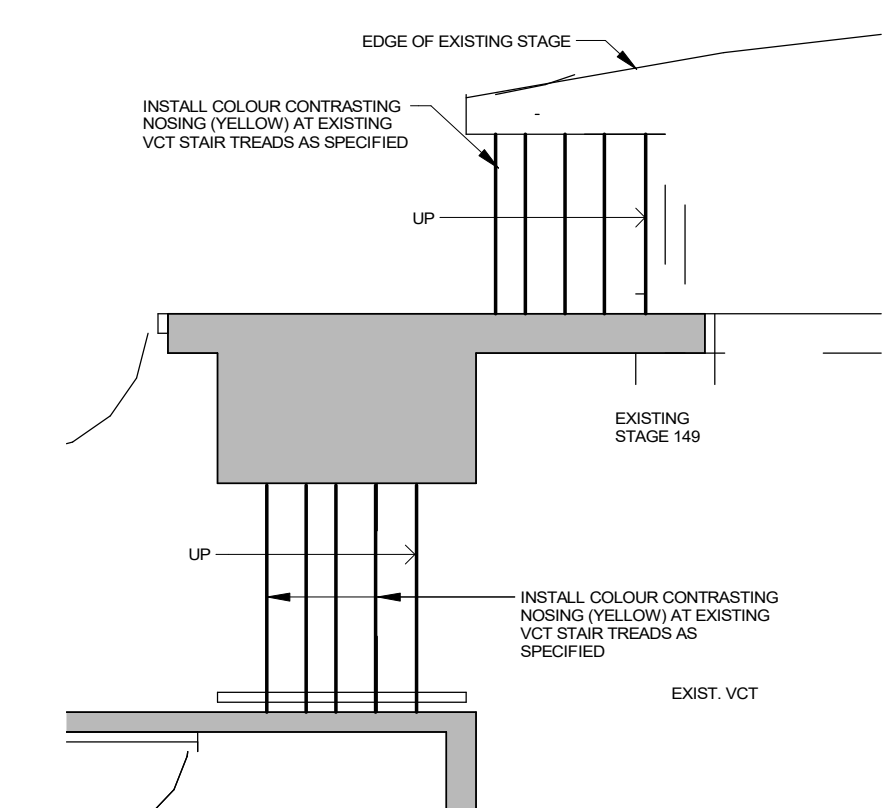


NUMBER	HWDR	REMARKS
101	CL	Existing closer to be removed. Patch and make good
106B	PDO	Provide new PDO
112	CL	Existing closer to be removed. Patch and make good
118	PDO	Provide new PDO
120	CL	Existing closer to be removed. Patch and make good
122	PDO	Provide new PDO
124	CL	Existing closer to be removed. Patch and make good
142B	PDO	Provide new PDO. Modify existing bulkhead to suit. Patch and paint to match existing
161	PDO	Provide new PDO
163	CL	Existing closer to be removed. Patch and make good
ST2-1A	PDO	Existing PDO to be replaced with new as specified
ST2-1B	PDO	Provide new PDO
ST3-1A	-	-
ST3-1B	-	-
ST4-1A	PDO	Provide new PDO
ST4-1B	PDO	Provide new PDO
V-01A	PDO	Existing PDO to be replaced with new as specified
V-01B	PDO	Existing PDO to be replaced with new as specified
V-03A	PDO	Existing PDO to be replaced with new as specified
V-03B	PDO	Existing PDO to be replaced with new as specified

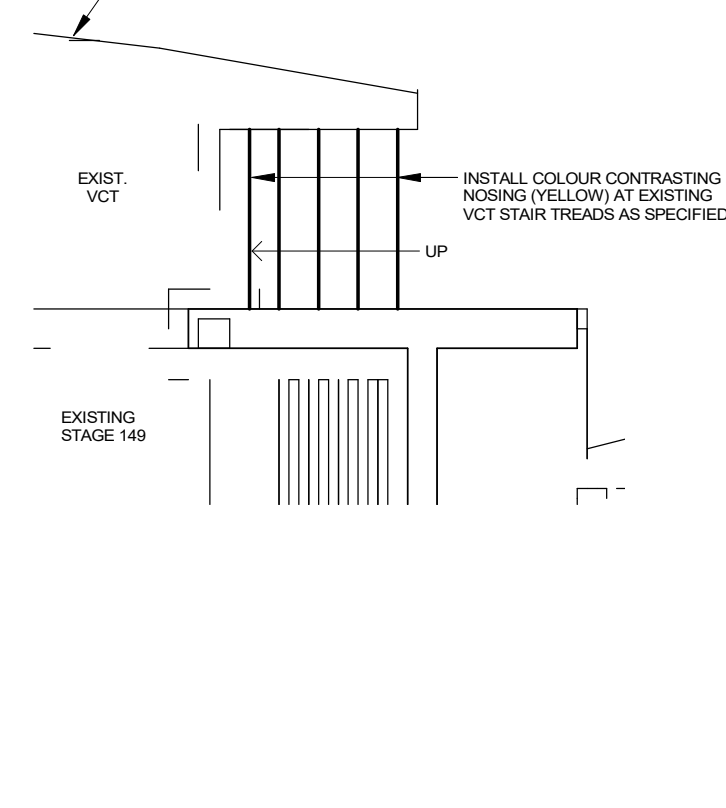
10 Bulkhead Detail  
A201 1:10

11 Level 1 Partial RCP - Art Room 154  
A201 1:150

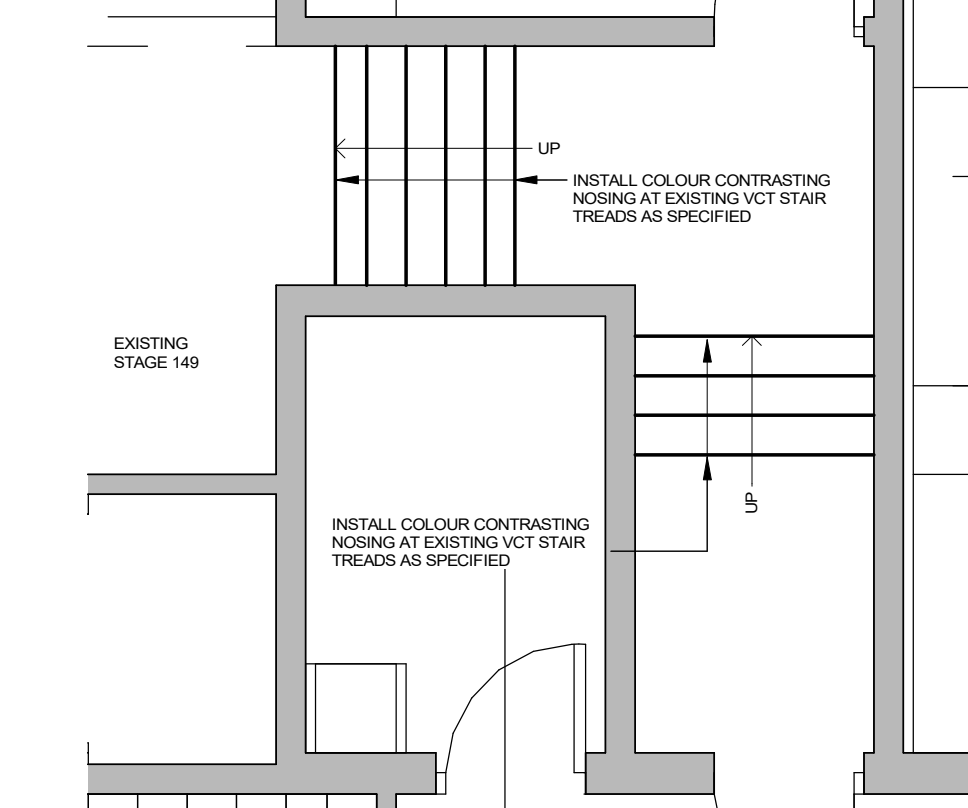
1 Level 1 Floor Plan  
A201 1:200



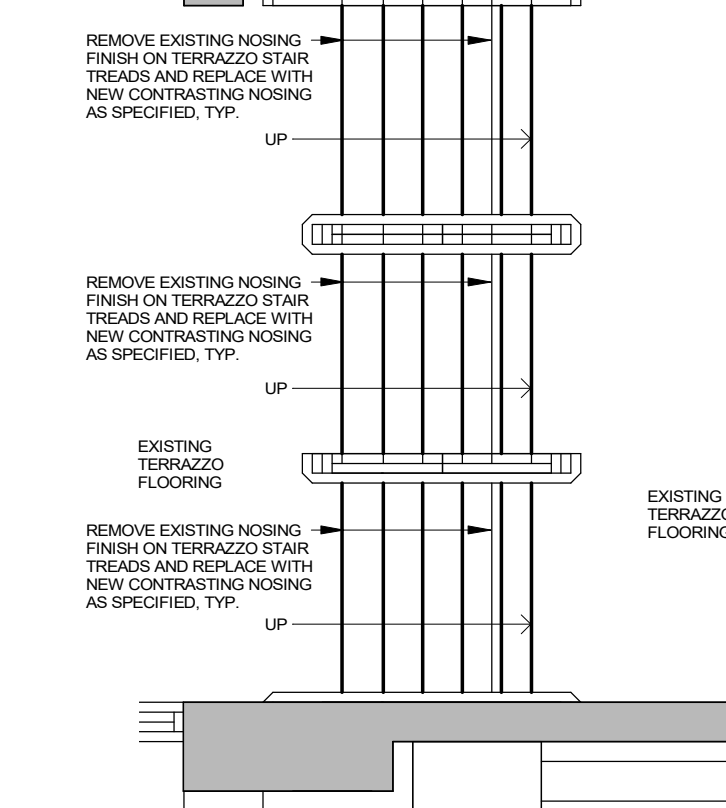
5 Level 1 Stair A - Stage 149  
A201 1:50



6 Level 1 Stair B - Stage 149  
A201 1:50



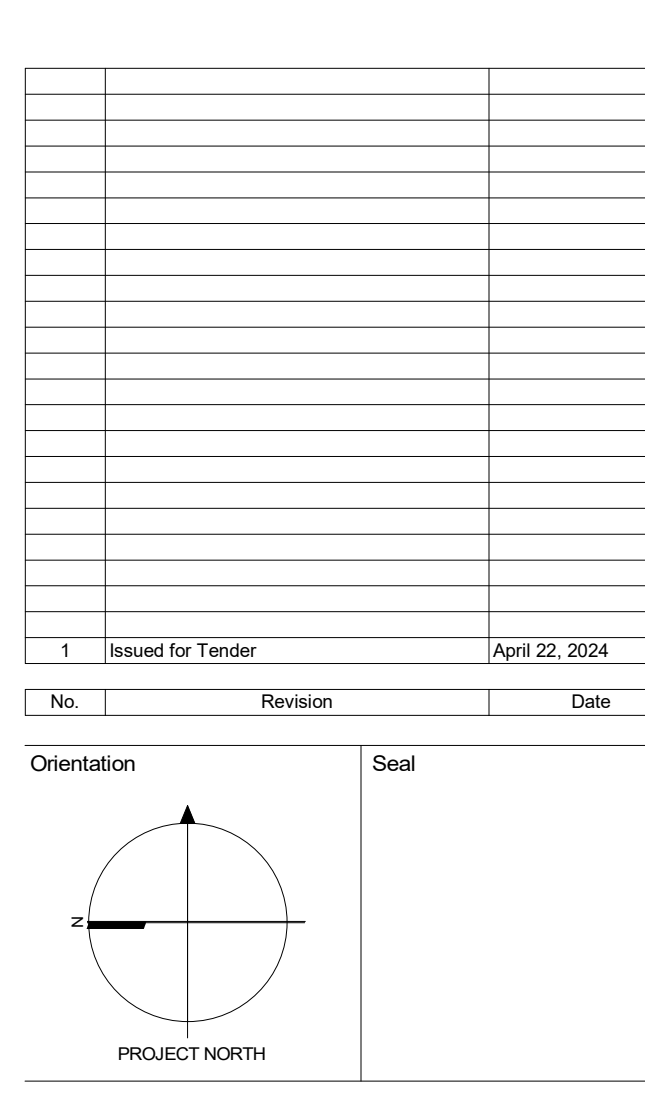
7 Level 1 Stair C - Stage 149  
A201 1:50



9 Level 1 Stair #6  
A201 1:50

- GENERAL DEMOLITION NOTES:**
- (A) PROVIDE NEW POWER DOOR OPERATOR AT EXISTING EXTERIOR DOOR
  - (B) SUPPLY AND INSTALL NEW POO AS PER ELECTRICAL DWGS.
  - (C) EXISTING CLOSER TO BE REMOVED AND TURNED OVER TO OWNER. PATCH AND MAKE GOOD SURFACES.
  - (D) SUPPLY AND INSTALL NEW POO AS PER ELECTRICAL DWGS. CREATE TO BULKHEAD ON FITNESS ROOM SIDE.
  - (E) SUPPLY AND INSTALL NEW POO AS PER ELECTRICAL DWGS. MODIFY EXISTING BULKHEAD ON EXPANDED CAFETERIA SIDE AS PER DETAIL. PATCH AND MAKE GOOD SURFACES TO MATCH EXISTING. GC TO RELOCATE ANY EXISTING SPRINKLER SERVICES AS REQUIRED. EXISTING SPRINKLER HEADS TO REMAIN.
  - (F) PATCH EXISTING EXISTING CEILING TILES TO BE CAREFULLY REMOVED AND REINSTALLED TO ALLOW FOR NEW ELECTRICAL WORK. REFER TO ELECTRICAL DRAWINGS FOR FULL EXTENT.
  - (G) EXISTING DYPHRA BOARD CEILING. PATCH AND MAKE GOOD ALL DISTURBED AREAS TO MATCH EXISTING.
  - (H) REFER TO ELECTRICAL DRAWINGS FOR EXTENT OF WORK. MAKE GOOD ALL EXISTING SURFACES.

- GENERAL ABBREVIATION LIST:**
- (NOTE: NOT ALL ABBREVIATIONS ARE USED ON THIS PROJECT)
- AFI ACIAL FINISHED FLOOR
  - ALUM ARCH ALUMINUM ARCHITECTURAL
  - BF BARRIER FREE
  - BFR BARRIER FREE RECESSED
  - BLK BLOCK
  - BOL BOLLARD
  - BOC BOLLARD
  - CONC CONCRETE
  - CONSTR CONSTRUCTION
  - COMP COMPLETE WITH
  - CW CHANGING ROOM
  - DM DIMENSIONS
  - DN DOWN
  - DR DOWN DRAWINGS
  - DWG DRAWING
  - ECS EMERGENCY CALL STATION
  - ELC ELECTRICAL HOLD OPEN
  - ELECT ELECTRICAL
  - EQ EQUALIZER
  - EXT EXTERIOR
  - FE FIRE EXTINGUISHER CABINET
  - FIN FINISH
  - FLR FLOOR
  - FR FIRE RESISTANCE RATING
  - GWB GYPSUM WALL BOARD
  - HM HOLDING METAL
  - HRZ HORIZONTAL
  - HP HIGH POINT
  - HT HAND RAIL HEIGHT
  - IT JOINT
  - LP LOW POINT
  - MAL MECHANICAL
  - MCH MECHANICAL
  - MEM MEMBER
  - MM METAL MESH
  - MS METAL STUD
  - MTL METAL
  - N/C NOT IN CONTRACT
  - N/T.S. NOT TO SCALE
  - O.C. ON CENTRE OVERHEAD
  - U.H. UNDERHEAD
  - PREFIN PREFABRICATED
  - PT PAINT
  - R RELOCATED
  - REQ REQUIRED
  - SPEC'D SPECIFIED
  - S.S. STAINLESS STEEL
  - TYP TYPICAL
  - UNLESS NOTED OTHERWISE
  - U/S UNDERSIDE
  - VERT VERTICAL
  - VEST VESTIBULE
  - WT WITH
  - WR WORKROOM



All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in accordance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.

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salterpilon.com t: 705-737-3530

Project Information  
St. Peter's CSS - Accessibility Upgrades & RTU Replacement  
201 Ashford Drive, Barrie, ON L4N 6A3

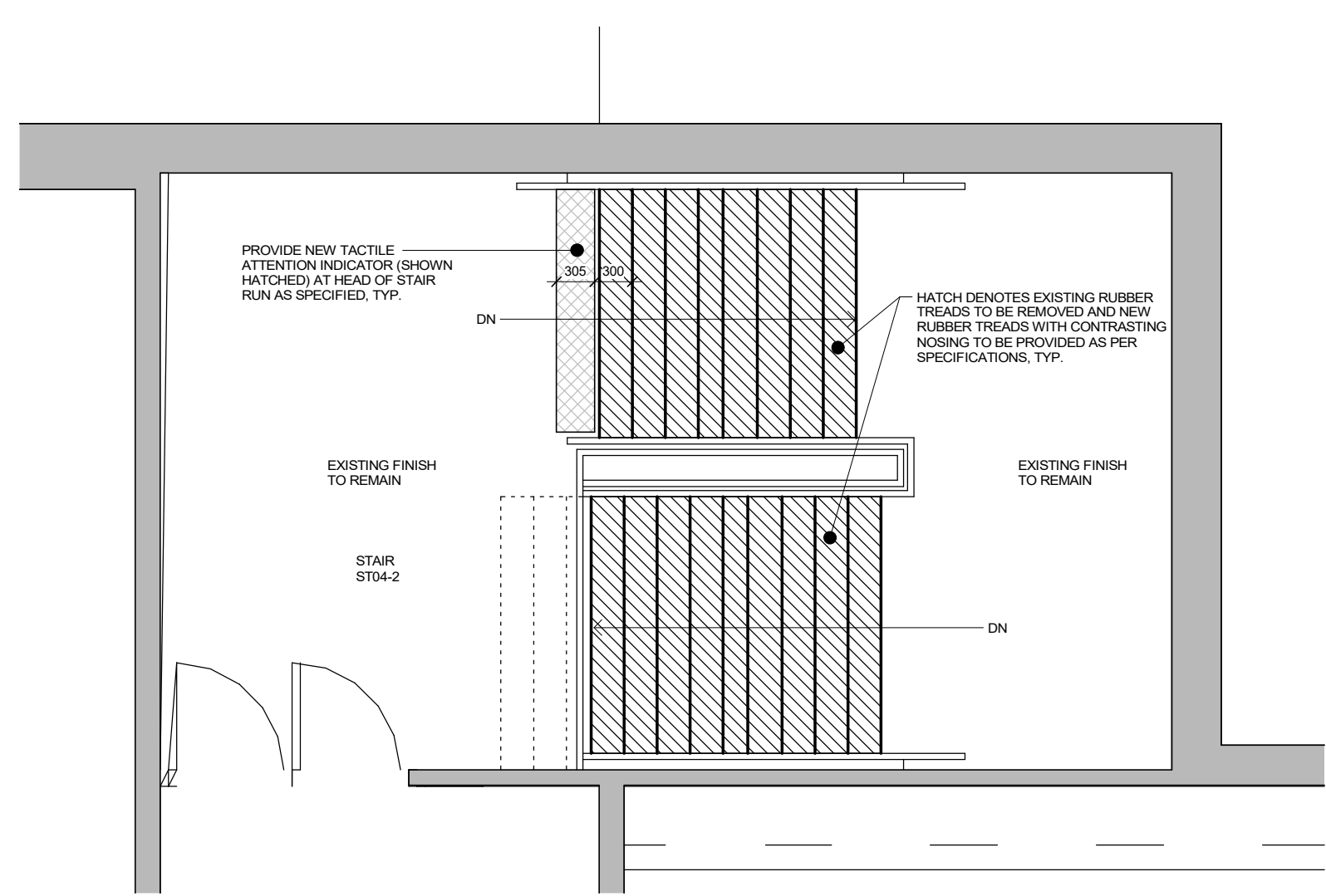
For: Simcoe Muskoka Catholic District School Board

Date	April 22, 2024	Project No	23009	Drawing No	A201
Drawn by	Author				
Scale	As indicated				

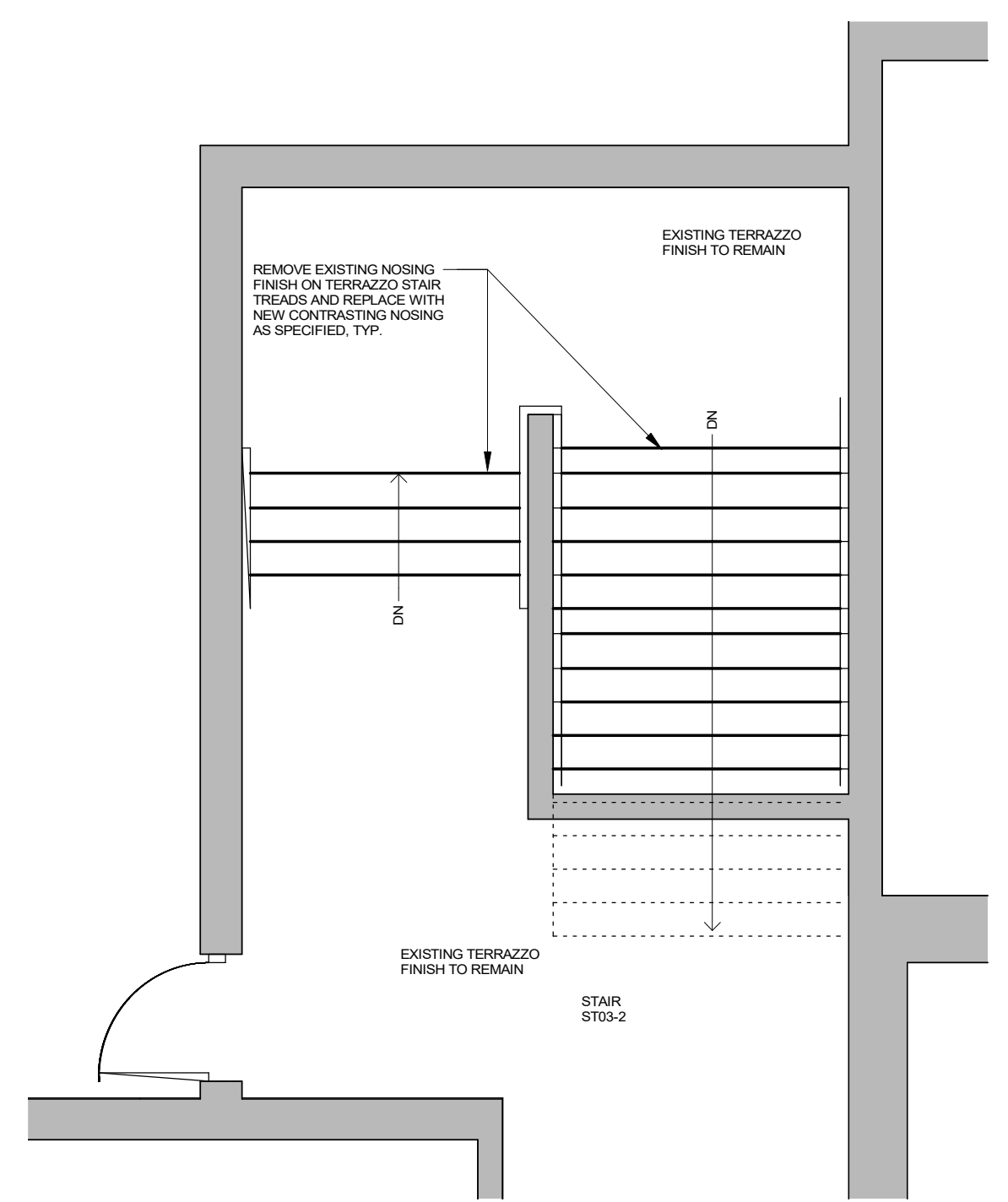
Ground Floor Plan

Z:\Projects\23009 - St. Peter's CSS - Accessibility Upgrades & RTU Replacement\23009 St. Peter's Accessibility\_R201.rvt

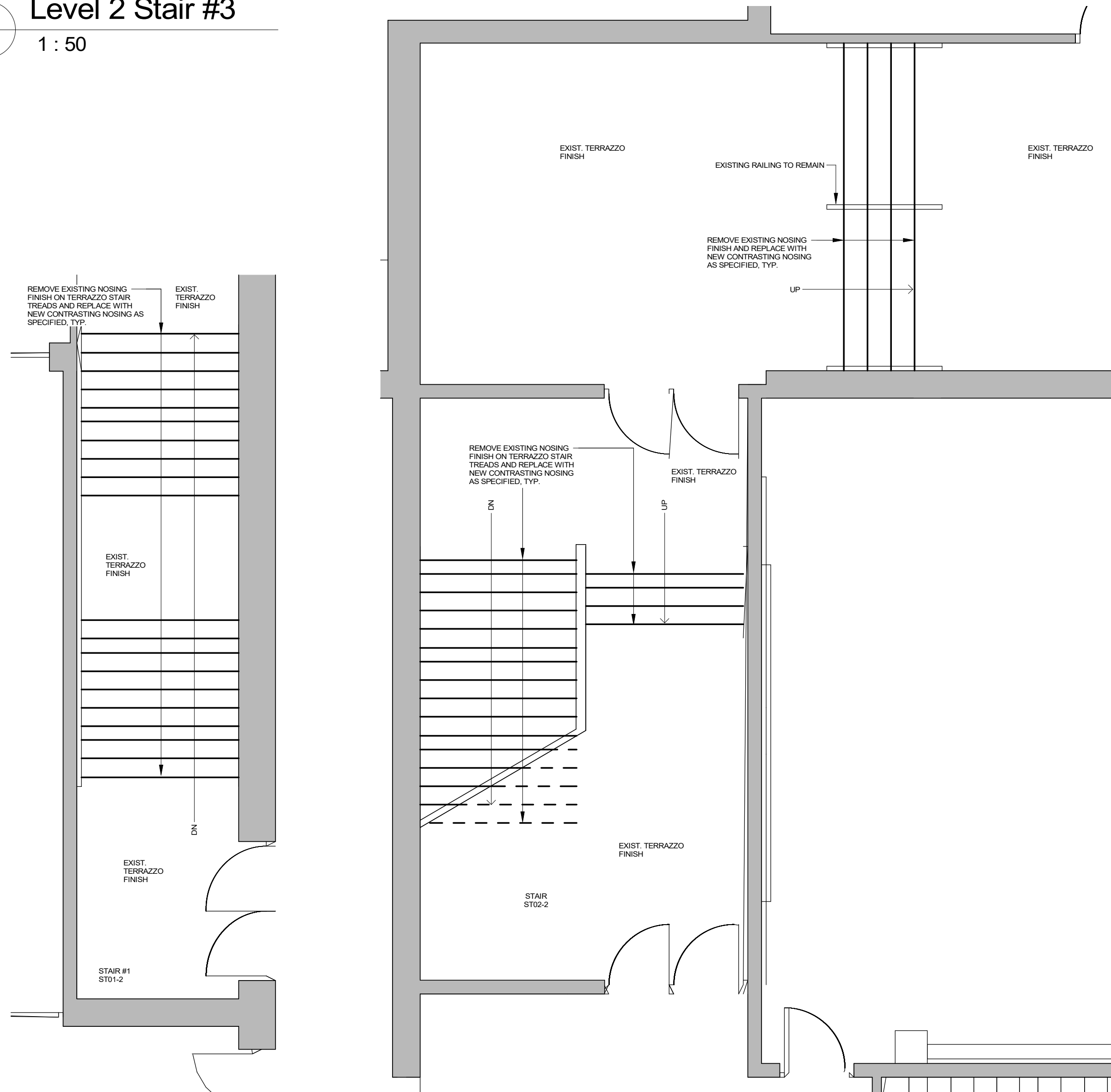




5 Level 2 Stair #4  
A202 1:50

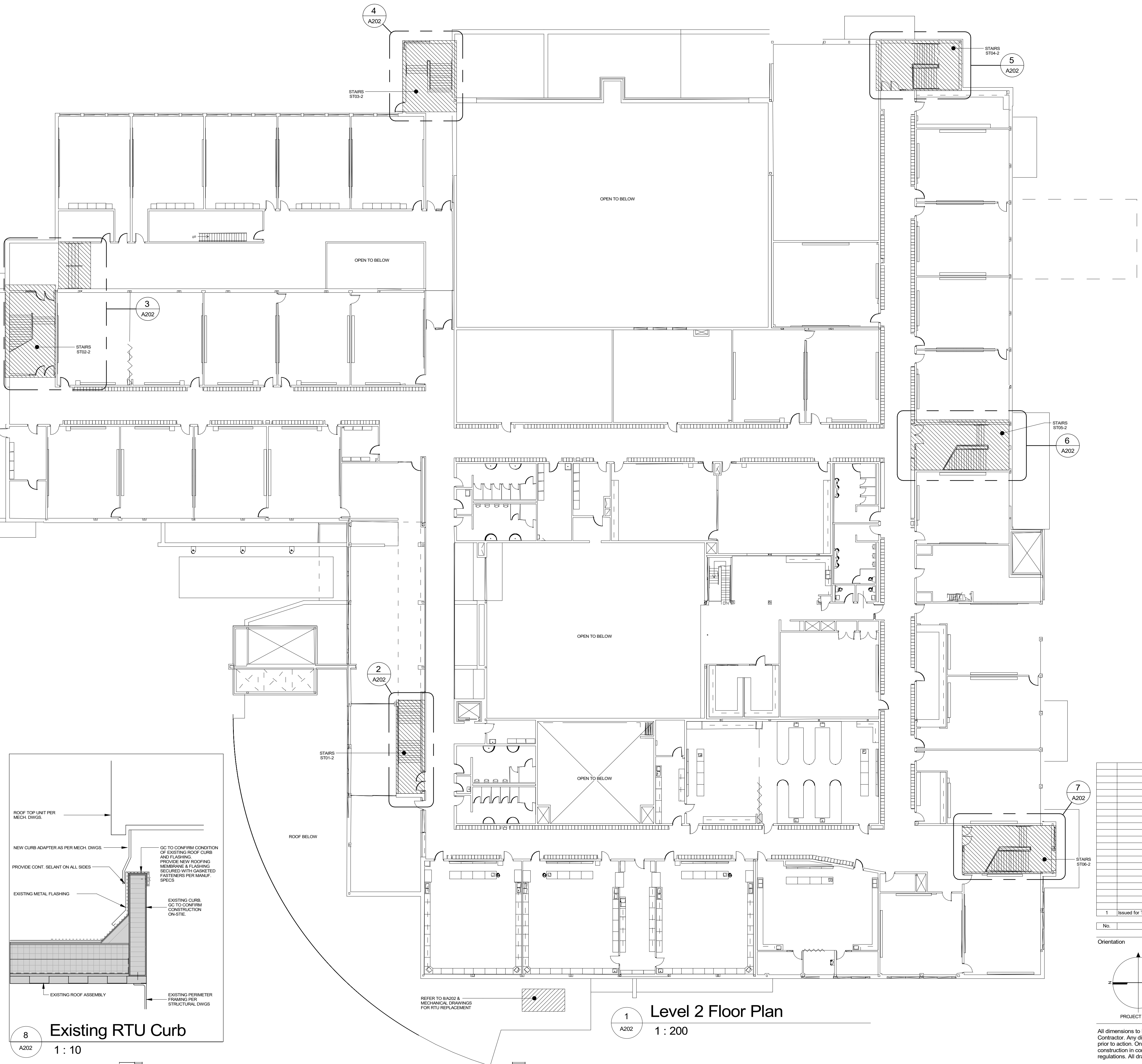


4 Level 2 Stair #3  
A202 1:50

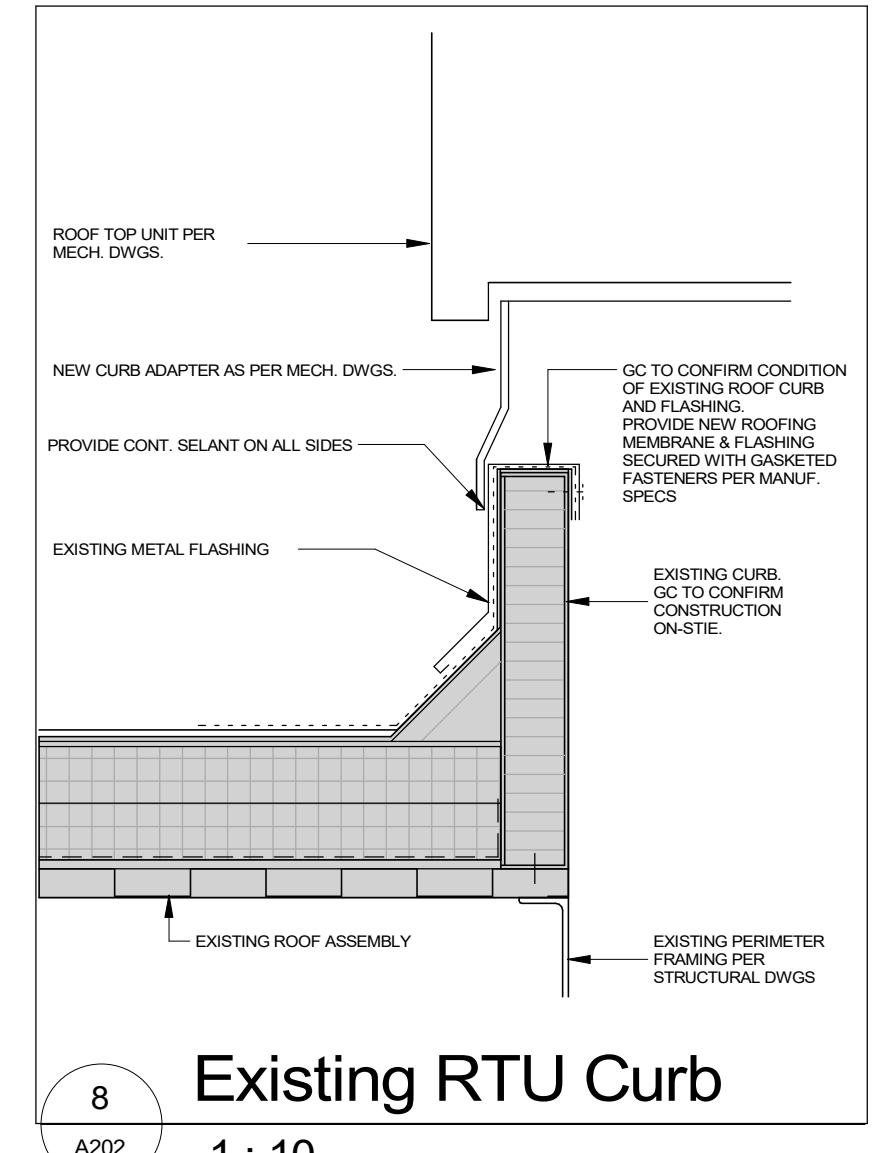


3 Level 2 Stair #2  
A202 1:50

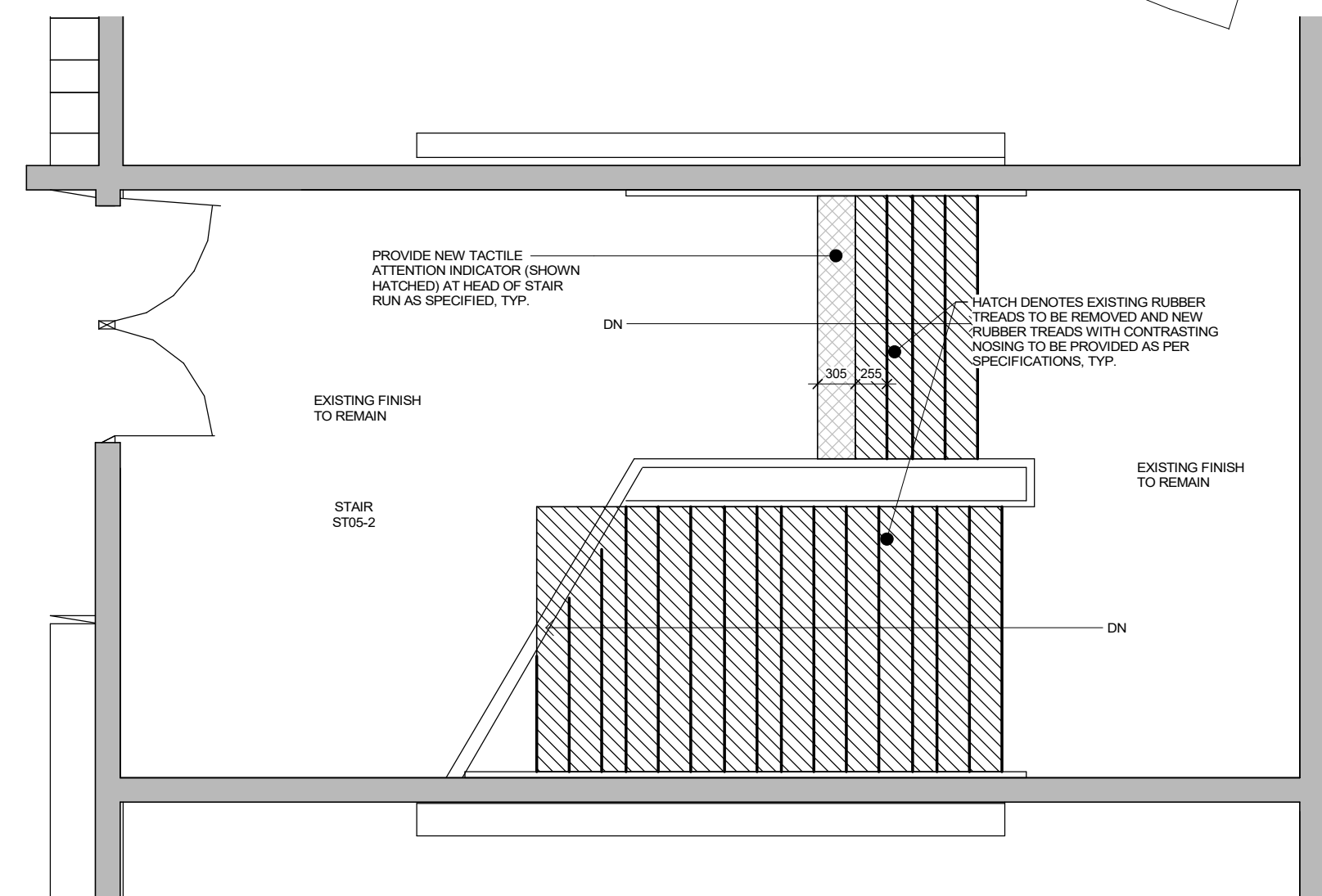
2 Level 2 Stair #1  
A202 1:50



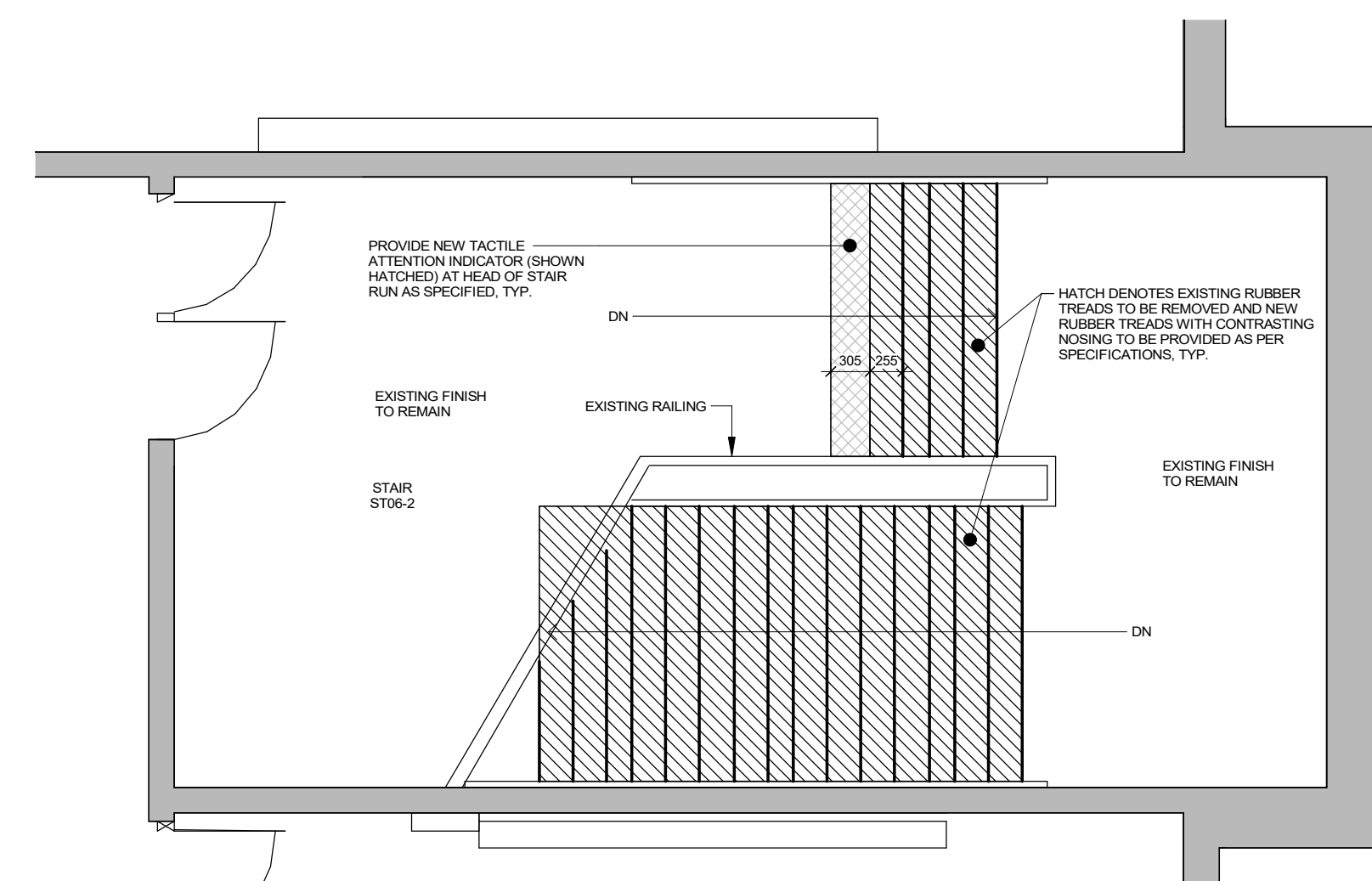
1 Level 2 Floor Plan  
A202 1:200



8 Existing RTU Curb  
A202 1:10

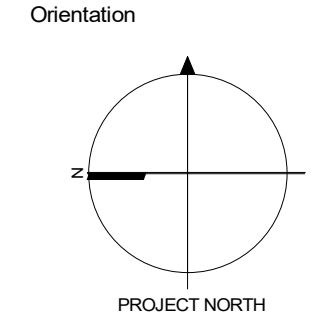


6 Level 2 Stair #5  
A202 1:50



7 Level 2 Stair #6  
A202 1:50

No.	Revision	Date
1	Issued for Tender	April 22, 2024



All dimensions to be checked and verified on the job by the Contractor. Any discrepancies are to be reported to the Consultant prior to action. Only the latest approved drawings to be used for construction in conformance with all applicable codes, by-laws and regulations. All drawings remain the property of the Consultant.  
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architecture

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Project Information  
**St. Peter's CSS - Accessibility Upgrades & RTu Replacement**  
201 Ashford Drive, Barrie, ON L4N 6A3

For  
Simcoe Muskoka Catholic District School Board

Drawing Title  
**Second Floor Plan**

Date	April 22, 2024	Project No	23009	Drawing No	A202
Drawn by	AB, JJ	Scale	As indicated		

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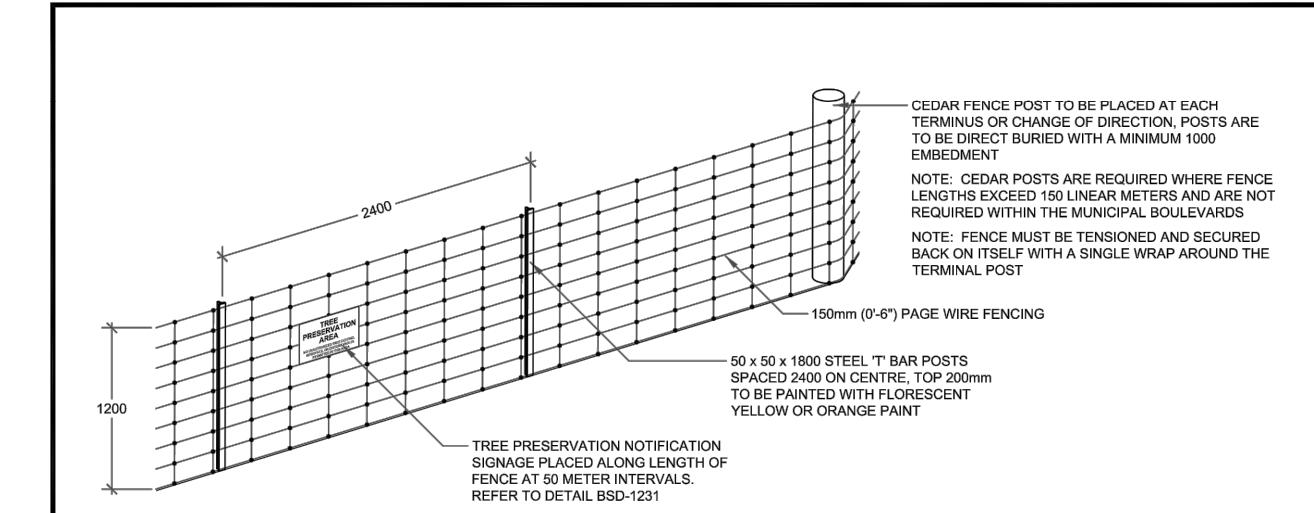
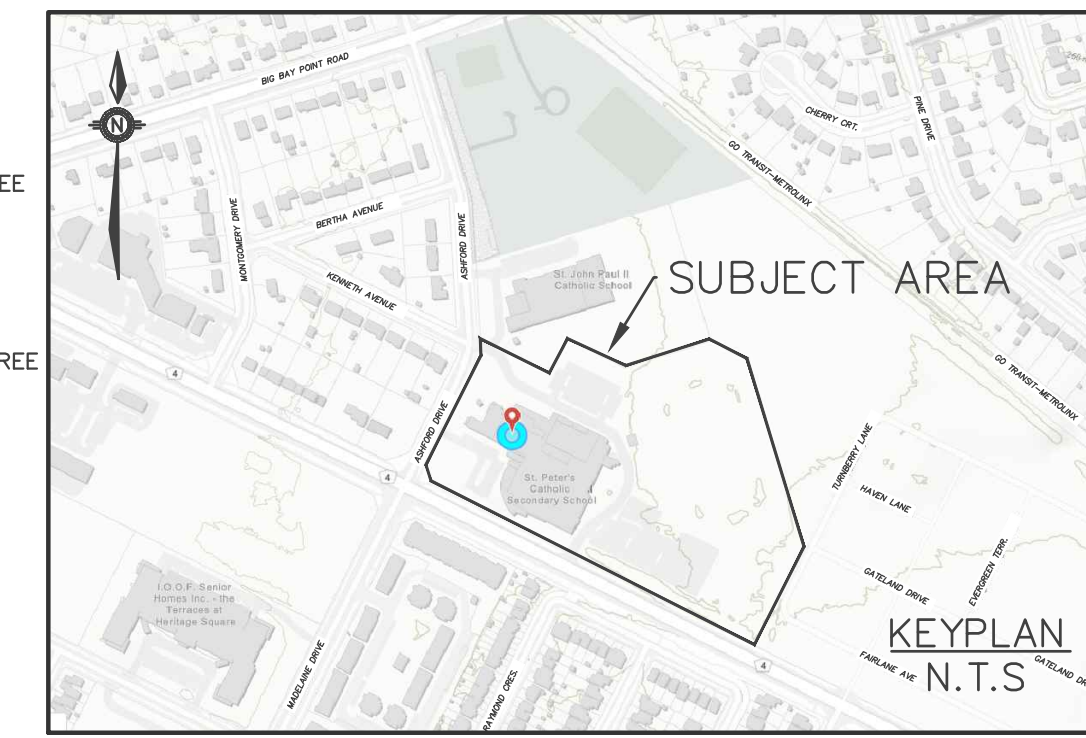
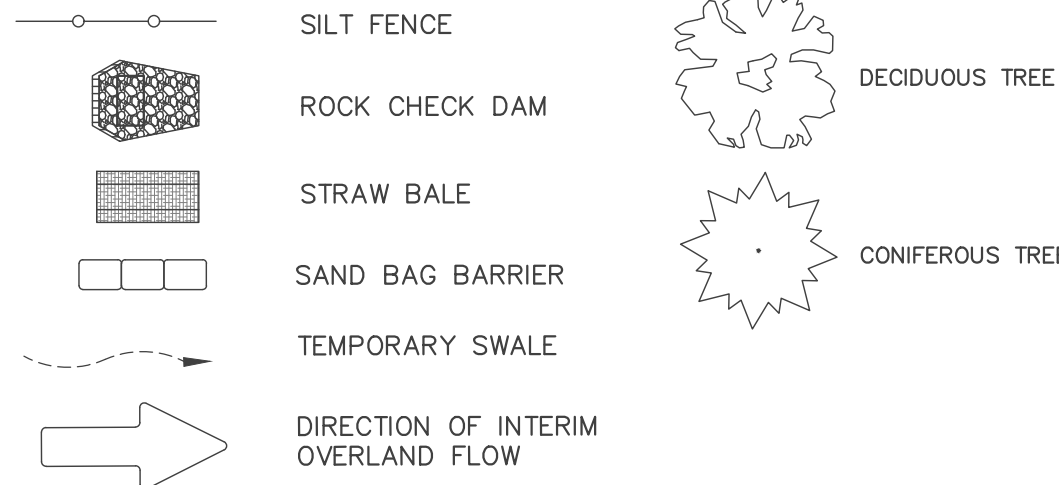
**NOTES FOR SEDIMENT & EROSION CONTROL**

- DISTURBED AREAS THAT HAVE FAILED TO HAVE STABLE GROUND COVER ESTABLISHED BY OCTOBER 30TH SHALL BE PROTECTED WITH A SILTATION CONTROL FENCE OR STRAW MULCH ETC. AND MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION BECOMES ESTABLISHED IN THE SUBSEQUENT GROWING SEASON.
- ANY DEWATERING WASTE SHALL BE DISCHARGED TO A VEGETATED AREA AT LEAST 30 M FROM ANY WATERCOURSE AND FILTERED. FILTERING METHODS MUST BE APPROVED BY THE SITE ADMINISTRATOR.
- SILT FENCE SHALL BE PUT IN PLACE PRIOR TO AND MAINTAINED DURING ALL GRADING. SILT FENCE SHALL COMPLY WITH OPSD 219.110 FOR LIGHT DUTY AND / OR OPSD 219.130 FOR HEAVY DUTY; UNLESS NOTED OTHERWISE. SILT FENCE TO BE INSPECTED PRIOR TO COMMENCEMENT OF EARTH GRADING ACTIVITIES. SILT FENCE TO BE INSPECTED AND REPAIRED OR REPLACED IF DAMAGED AS DIRECTED BY THE SITE ADMINISTRATOR. SILT CONTROLS TO BE INSPECTED ON A REGULAR BASIS AND AFTER EVERY RAIN EVENT. INSTALLATION SHALL BE TO THE MANUFACTURER'S SUGGESTED SPECIFICATIONS.
- THE CONTRACTOR SHALL BE PREPARED FOR UNEXPECTED CONDITIONS AND ACCORDINGLY HAVE STOCKPILED MATERIALS ON SITE FOR NECESSARY REPAIRS AS A RESULT OF FAILED OR INADEQUATE CONTROL MEASURES. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE A WEEK, AND AFTER EVERY RAINFALL EVENT.
- MUD MATS WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES THE SITE SHALL BE USED. MUD MATS TO BE 300mm IN DEPTH, 6.0m WIDE BY 20.0m LONG, FIRST 10.0m TO 150mm CLEAR STONE WITH THE REMAINING 10.0m CONSISTING OF 50mm CLEAR STONE; OR MEET MUNICIPAL STANDARDS WHERE IDENTIFIED.
- CONTRACTOR SHALL OBTAIN A CURRENT COPY AND BECOME FAMILIAR WITH OPSD 805, CONSTRUCTION SPECIFICATION FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS ALL APPLICABLE MUNICIPAL STANDARDS.
- THE CONTRACTOR MAY CONSIDER ALTERNATIVE SEDIMENT AND EROSION CONTROL MEASURES. SUCH MEASURES SHOULD BE PRESENTED IN WRITING FOR APPROVAL OF THE SITE ADMINISTRATOR AND MUST BE APPROVED IN WRITING BY THE CONSERVATION AUTHORITY.
- THE TOPS OF ALL FILTER FABRIC MUST BE A MINIMUM OF 1.0 METRES ABOVE THE GROUND LEVEL AND ATTACHED TO THE FENCE WITH A CONTINUOUS STEEL WIRE. ALTERNATIVELY, THE FILTER FABRIC MUST BE FOLDED OVER THE TOP OF THE FENCE AND ATTACHED TO THE FENCE WITH WIRE LOOPED THROUGH THE FABRIC ON BOTH SIDES OF THE FENCE. FILTER FABRIC IS TO BE TERRAFIX 270R OR EQUIVALENT.
- ALL DISTURBED GROUND LEFT INACTIVE SHALL BE STABILIZED BY SEEDING, SODDING, MULCHING, OR COVERING OR OTHER EQUIVALENT CONTROL MEASURES. THIS PERIOD OF INACTIVITY SHALL BE AT THE DISCRETION OF THE MUNICIPAL DIRECTOR OF ENGINEERING BUT SHALL NOT EXCEED (30) DAYS OR SUCH LONGER PERIOD DEEMED ADVISABLE BY THE MUNICIPAL DIRECTOR OF ENGINEERING.
- CONTRACTOR SHALL INSTALL AND MAINTAIN CATCHBASIN SEDIMENT BARRIERS THROUGHOUT THE SITE DURING ALL CONSTRUCTION ACTIVITIES IN ORDER TO MITIGATE SEDIMENT ENTERING THE STORM STORM SEWERS.
- NO FUEL TO BE STORED ON SITE. IN CASE OF A SPILL PLEASE CONTACT: MOECC SPILLS ACTION CENTER 1-800-268-6060.
- SEDIMENT CONTROLS ARE TO REMAIN IN PLACE UNTIL WRITTEN DIRECTION IS RECEIVED FROM THE ENGINEER REGARDING THEIR REMOVAL.
- EROSION AND SEDIMENT CONTROLS WILL BE INSPECTED ON AS PER MUNICIPAL REQUIREMENTS OR AFTER SIGNIFICANT RAINFALL EVENTS.

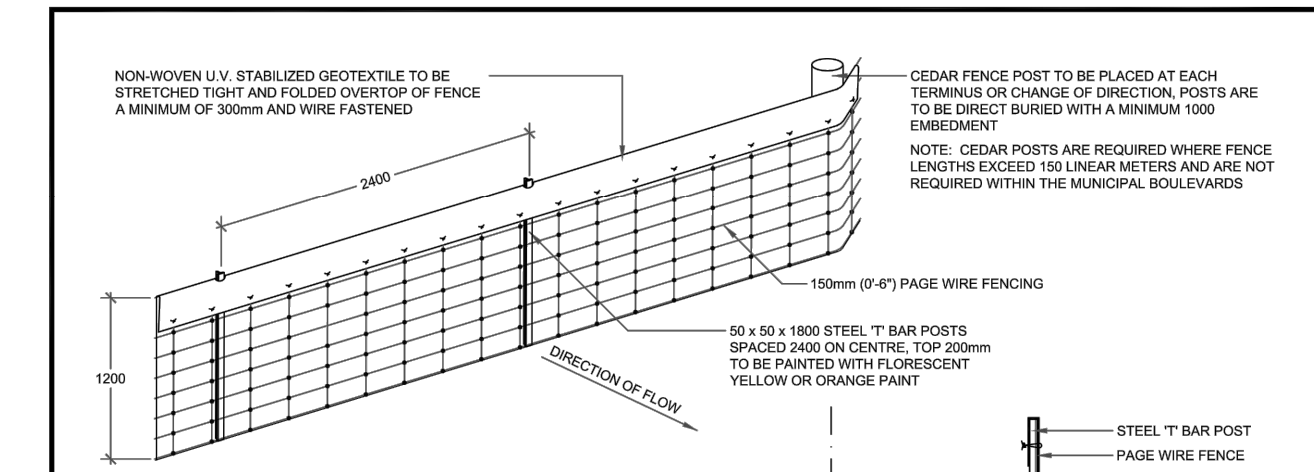
**SEQUENCE OF CONSTRUCTION**

- ENGINEER AND MUNICIPALITY TO BE NOTIFIED PRIOR TO INITIATION OF ANY ON SITE WORKS.
- SILT FENCE AND CONSTRUCTION ACCESS MATS TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORKS ON SITE.
- VEGETATION REMOVAL MAY COMMENCE AFTER ALL SILT FENCE IS INSTALLED AND APPROVED BY THE ENGINEER.
- COMMENCE WITH EARTH EXCAVATION AND SITE SERVICING (TO BE REMOVED FROM SITE - NO STOCKPILE).
- EROSION CONTROL MEASURES TO BE MAINTAINED AS DIRECTED BY THE ENGINEER DURING THE CONSTRUCTION PERIOD. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER.
- ALL DISTURBED GROUND LEFT INACTIVE FOR MORE THAN 30 DAYS SHALL BE STABILIZED WITH SEED, SOD, MULCH OR OTHER ADEQUATE COVERING, AS INSTRUCTED BY THE ENGINEER.
- ALL CONSTRUCTION VEHICLES TO ACCESS THE SITE VIA THE DESIGNATED CONSTRUCTION ENTRANCES AS SHOWN.

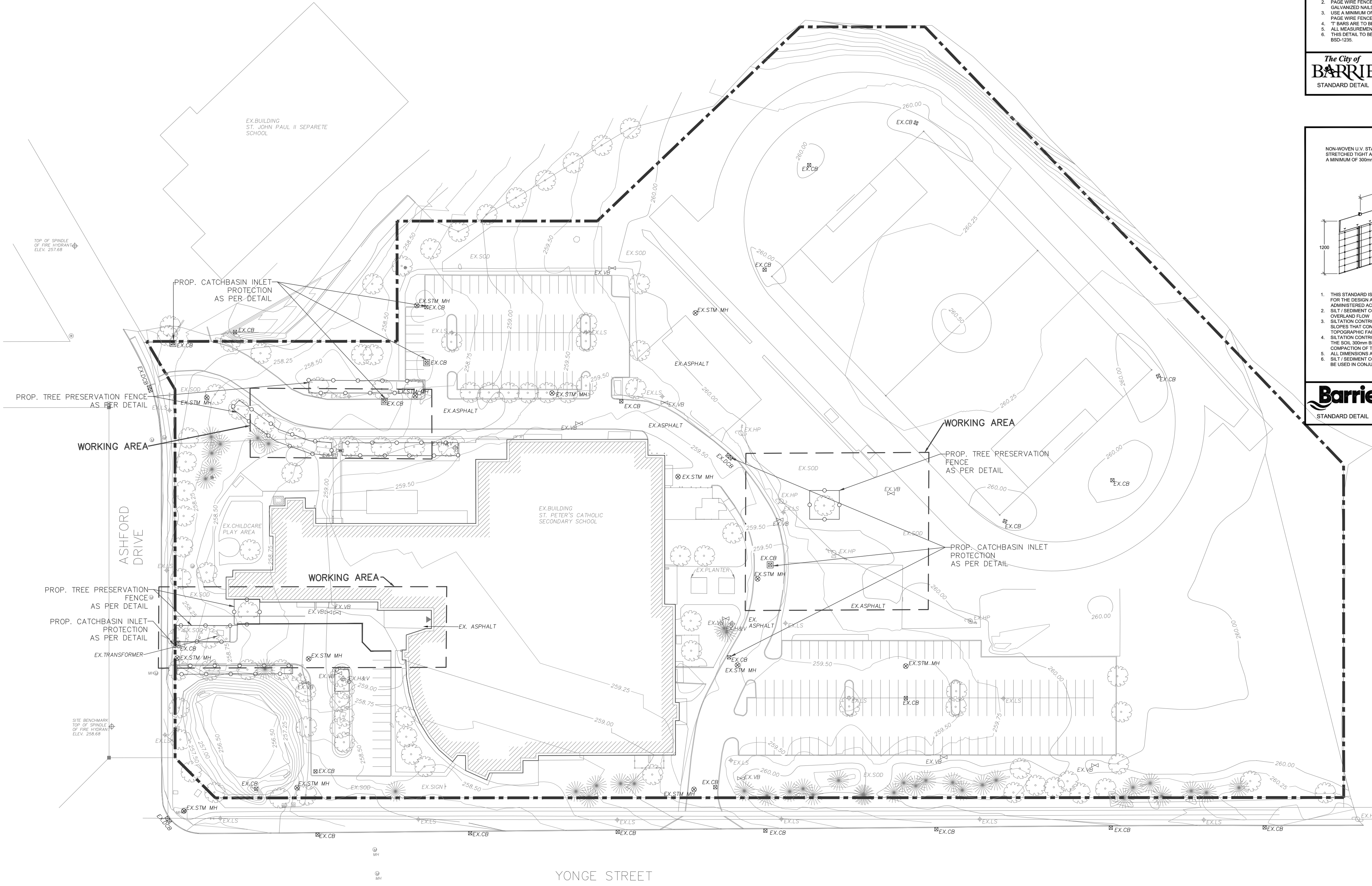
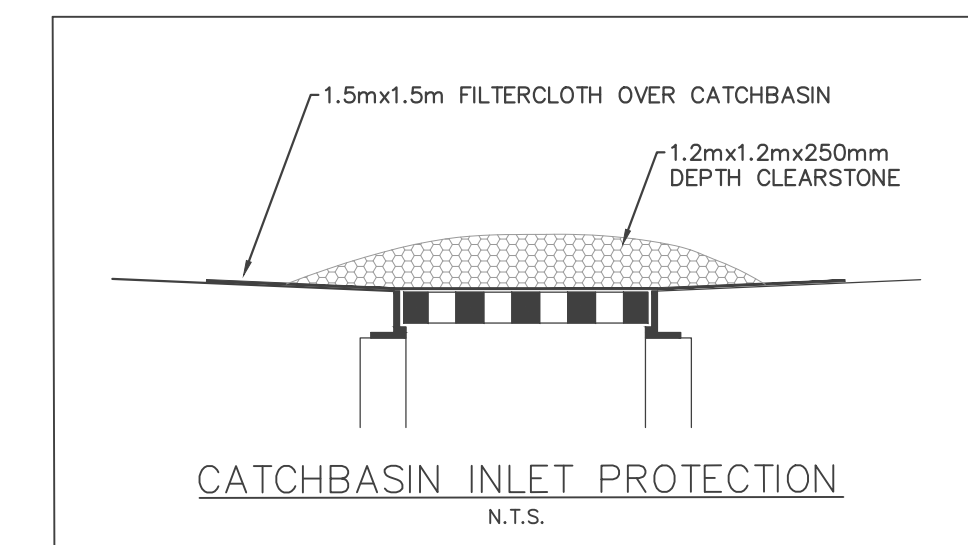
**LEGEND**



The City of <b>BARRIE</b> STANDARD DETAIL	TREE PRESERVATION FENCING	REV: 1	DATE: JUNE 2019	APPROVED
		SCALE: N.T.S.	DATE: .....	DIRECTOR OF ENGINEERING
		BSD-1232		



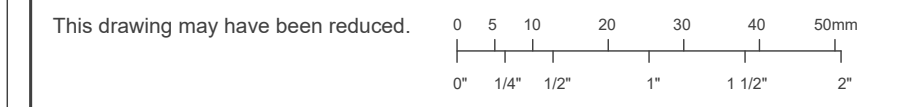
Barrie STANDARD DETAIL	SILTATION CONTROL FENCING	REV: 2	DATE: OCT 2017	APPROVED
		SCALE: N.T.S.	DATE: Oct 10/17	Original Signed By
		BSD-1233		DIRECTOR OF ENGINEERING



222 Mapleview Drive West, Suite 300  
Barrie, ON L4N 9E7 Canada  
Tel: 705.737.3303  
Fax: 705.737.1772  
www.gerritseng.com

This drawing has been created electronically.  
Handwritten or manual revisions to the drawing are only valid when accompanied by the design engineer's initials.

Do not scale drawings.  
Check and verify all dimensions and information on the drawings and report all errors or omissions to the Consultant before proceeding with the work.  
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No.	Issuance Description	YYMMDD
1.	ISSUED FOR TENDER	23/06/06
2.		

Issued For:  
**ISSUED FOR TENDER**



Client  
**ST. PETER'S ACESIBILITY**  
201 ASHFORD DR.  
BARRIE, ON L4N 6A3

Drawing:  
**EROSION & SEDIMENT CONTROL PLAN**

Project No.	110-040-23	Designed by:	IO	Checked by:	KF
Scale:	1:750	Drawn by:	IO	Approved by:	JDM
Orientation:		Stamp:			



Drawing No. **ESC-1**



**GENERAL NOTES:**

- Unless noted otherwise on the drawings, the following notes shall govern.
- All work on this project shall conform to the current version of the 2012 Ontario Building Code (OBC 2012), any local regulations and bylaws, and the current Occupational Health and Safety Act (OHSA) and current regulations for construction projects. All codes and standards shall be those referenced in OBC 2012.
- All standards are to be the year, editions, document numbers, etc. as per OBC 2012 Division B, T.1.3.1.2. Where discrepancies exist between our drawings and T.1.3.1.2, the table shall govern unless noted otherwise.
- This set of drawings supersedes and replaces all previous drawings.
- Read these drawings in conjunction with all related contract documents and architectural, mechanical, electrical, and civil drawings.
- The contractor shall verify all conditions and measurements at the site and verify all dimensions given on the structural drawings with the architectural drawings. Report to the engineer any discrepancies or unsatisfactory conditions which may adversely affect the proper completion of the project before proceeding with the work.
- If any structural discrepancies on the drawings exist, the most stringent shall apply.
- Drawings are not to be scaled.
- Construction and shop drawing review must be completed as per code.
- Submit shop drawings as per Table 1. Shop drawings shall be certified by a professional engineer where required and reviewed by the contractor for dimensional correlation with the drawings and field conditions prior to submitting to Tacoma Engineers. Fabrication of elements on shop drawings may not proceed until shop drawings have been reviewed and approved by Tacoma Engineers.
- Construction loadings shall not exceed the specified design loads indicated on the drawings. The contractor shall make adequate provision for construction loads and temporary bracing to keep structure plumb and in true alignment at all phases of construction. Any bracing members shown on the drawings are required for the finished structure and may not be sufficient for erection purposes.
- OBC 2012 Division C, Subsection 1.2.2, requires general review of the construction by the design professional. Tacoma Engineers shall be given a minimum of 48 hours notice at (519) 753-2000 (Quebec) or (705) 726-1675 (Barrie) or (226) 647-0109 (Waterloo) by the Contractor for the following required construction reviews:
  - Structural Framing (structural steel - after joist reinforcing is completed)
  - Final Framing - Upon completion of all structural elements
- Retain a certified independent testing or inspection company for testing & inspection for the items in Table 2.
- The design and review of secondary building elements (those elements not specifically included in these drawings) is the responsibility of the project architect. Elements include but are not limited to architectural features, non-loadbearing interior walls, interior partitions, windows, doors, masonry veneers, cladding, and supports for mechanical systems.
- All non-loadbearing interior walls and partitions (steel stud, concrete block, wood stud) shall be constructed to allow for 25mm (1") vertical independent deflection below all floor and roof members, while still providing lateral support to the top of the partition, through the use of deflection tracks, clips, or other methods.

**TABLE 1: SHOP DRAWING SUBMITTALS**

ITEM	REQUIRED SUBMITTAL?	ENGINEER'S STAMP REQ'D?	NOTES
STRUCTURAL STEEL	YES	YES	JOIST REINFORCING CONNECTIONS

**TABLE 2: REQUIRED TESTING & INSPECTION**

RESULTS SHALL BE SUBMITTED DIRECTLY TO TACOMA ENGINEERS FROM THE TESTING COMPANY, FOR REVIEW

ITEM	REQ'D	NOTES
STRUCTURAL STEEL INSPECTION	YES	WELDING INSPECTION - PRIOR TO PAINTING

**STRUCTURAL DESIGN LOADS:**

- Design loads are unfactored unless noted otherwise.
  - Climatic design (Barrie, ON):
 

Ss	=	2.5 kPa
Sr	=	0.4 kPa
  - Building importance category = High
- Roof
 

Roof dead load	DL	=	0.75 kPa (15.7 psf)
Snow Importance Factor	I <sub>s</sub> ULS	=	1.15
	I <sub>s</sub> SLS	=	0.9
Roof snow load	S	=	I <sub>s</sub> [S <sub>w</sub> (C <sub>bx</sub> C <sub>ca</sub> C <sub>ce</sub> )+S <sub>r</sub> ]
	S	=	1.15(2.5)(0.8)(1.0)(1.0)+0.4
	S	=	2.76 kPa (58 psf) Basic case

Refer to plans for areas and magnitude of built-up snow loads.

**STRUCTURAL STEEL:**

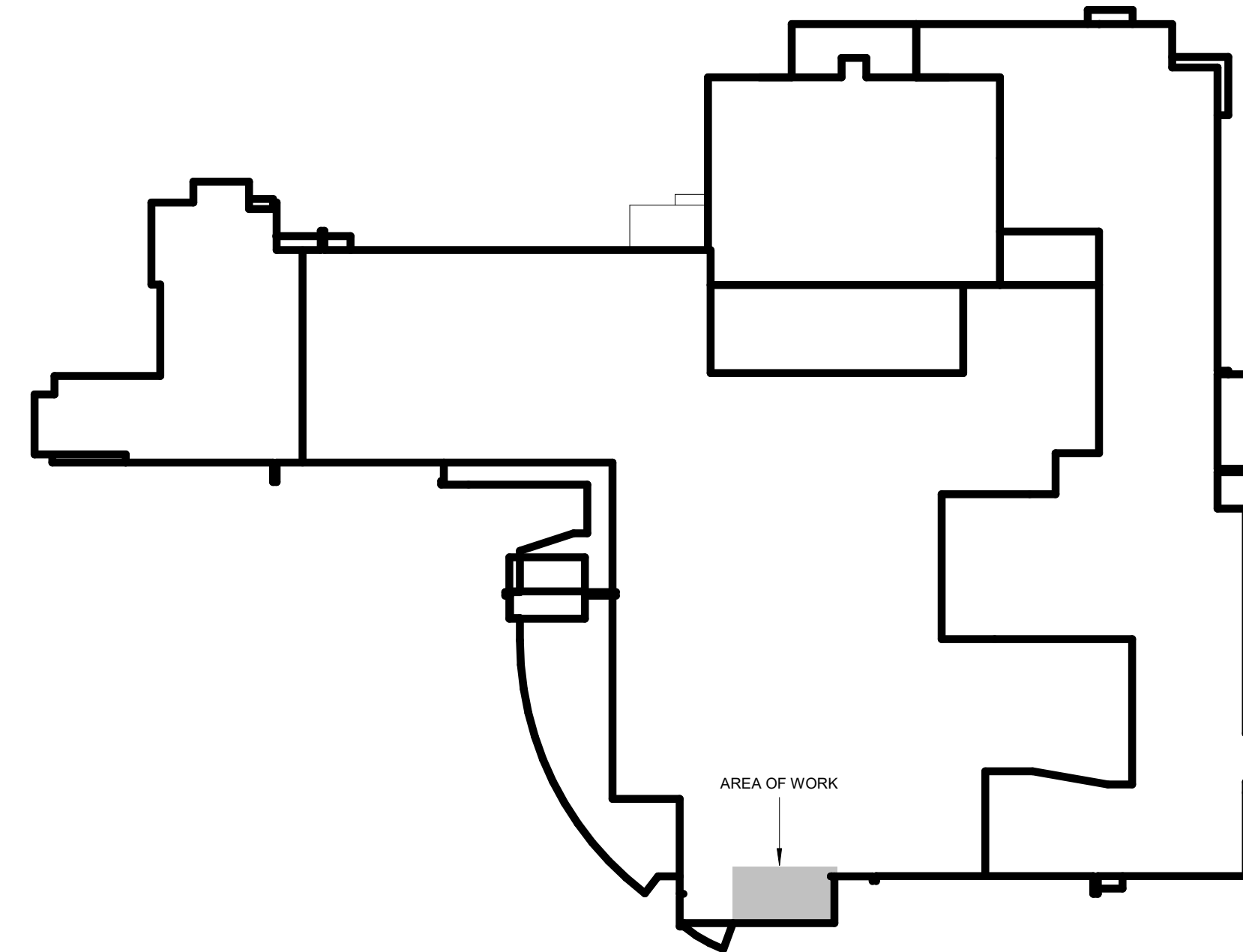
- All structural steel elements are designed in accordance with CSA S16.
- Submit erection and shop drawings for review by the project engineer. Standard connections shall conform to the Handbook of Steel Construction. Non-standard connections (including moment connections) shall be designed and sealed by a professional engineer registered in the province of Ontario.
- Structural steel beams and columns shall conform to ASTM A992/992M grade 50 (F<sub>y</sub> = 345 MPa) unless noted.
- Structural steel channels and angles shall conform to CSA G40.21 grade 300W unless noted.
- All steel plate to be A36 (F<sub>y</sub> = 248 MPa) material (minimum), unless noted.
- Welding shall conform to CSA W47.1 and CSA W59, by the Canadian Welding Bureau. All welding shall be completed by CWB certified welders.
- Third party welding inspection shall be performed by firms certified to CSA W178.1 and W178.2.
- Bolted connections shall be made using grade A325 bolts, unless noted otherwise.
- Anchor rods shall conform to ASTM F1554 (formerly ASTM A307). Material shall be minimum grade 36 (F<sub>y</sub> = 414 MPa) (formerly ASTM A307 grade C), or CSA G40.21 300W (F<sub>y</sub> = 450 MPa).
- Structural steel shall be tested by an independent CSA certified testing company for erection tolerances, plumbness, alignment, connections, elevation, material, and workmanship.
- Galvanizing for metals shall conform to CSA G164 unless noted. Touch-up on site by grinding the surface to bright metal and applying zinc rich paint conforming to CAN/CSG-1.181 (or ASTM A780).
- Coordinate with mechanical, electrical and all other trades whose work affects the detailing, fabrication and erection of the structural steel.
- Do not cut openings in structural steel members without approval from Tacoma Engineers.
- Where masonry bears on steel beams, weld 15M x 300mm (12") long weldable rebar dowels at 1200mm (48") o.c. to beams.
- If holes in base plates are oversized to suit site conditions, notify Tacoma Engineers and supply and install plate washers to cover the hole.
- Design steel connections to the maximum L<sub>o</sub>L<sub>l</sub> loads in the Steel Handbook beam tables, provided no point loads act on the beam and when shears are not indicated.
- Connections shall be concentric and shall not introduce eccentricity into any elements, including beams into which beams frame.

**DRAWINGS AND EXISTING STRUCTURAL FRAMING LAYOUT BASED ON THE FOLLOWING DOCUMENTS:**  
 - AS-BUILT ARCHITECTURAL DRAWINGS PROVIDED BY THE SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD, PROJECT NUMBER 9852, DATED APRIL 09, 1999.  
 - AS-BUILT STRUCTURAL DRAWINGS PROVIDED BY THE SIMCOE MUSKOKA CATHOLIC DISTRICT SCHOOL BOARD, PROJECT NUMBER 9852, DATED MARCH 29, 1999.

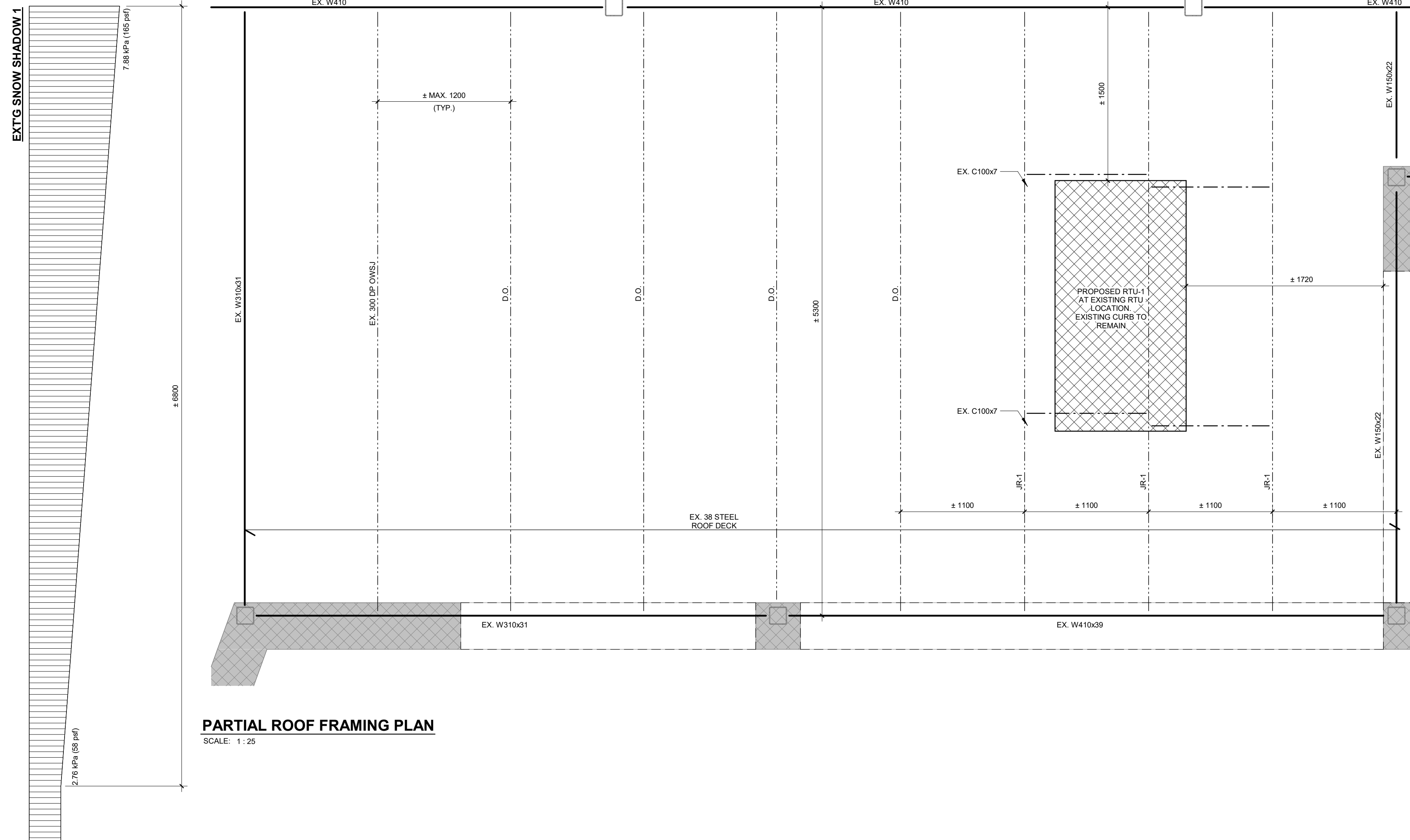
CONTRACTOR TO CONFIRM EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND REPORT BACK ANY DISCREPANCIES TO TACOMA ENGINEERS.

**ROOF TOP UNIT SCHEDULE**

MARK	DESCRIPTION	DIMENSIONS	UNIT WEIGHT	NOTES
RTU-1	LENNOX LGA042H	85-147" L x 47" W x 46-7/8" H	1260 lbs	WEIGHT = EX. CURB (~200lb) + TRANSITION CURB (~250lb) + NEW RTU (810lb)



**KEY PLAN**  
N.T.S.

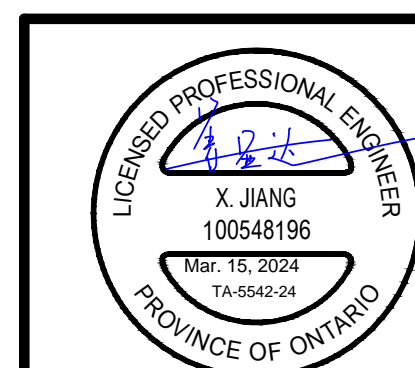


**PARTIAL ROOF FRAMING PLAN**

SCALE: 1:25

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PROJECT NORTH	No. / Date	Revision / Issued for
	1 / 2024-03-15	ISSUED FOR TENDER



salterpilon

**ST. PETER'S CSS  
OWSJ  
REINFORCING**

201 Ashford Dr. Barrie, ON

**STRUCTURAL  
NOTES AND  
FRAMING PLANS**

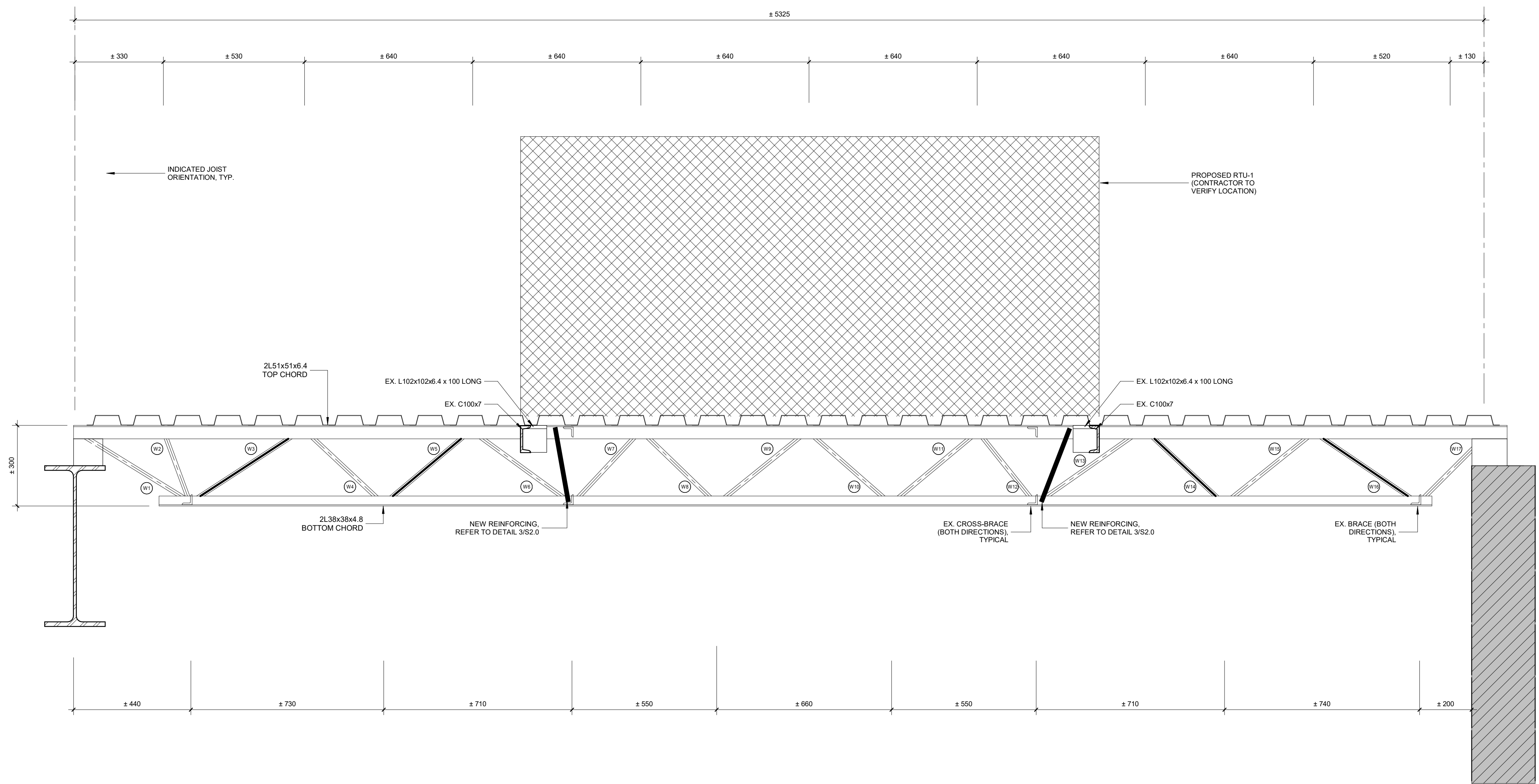
Project No. TE-05542-24 Drawn by J. HUTCHINGS

**S1.0**

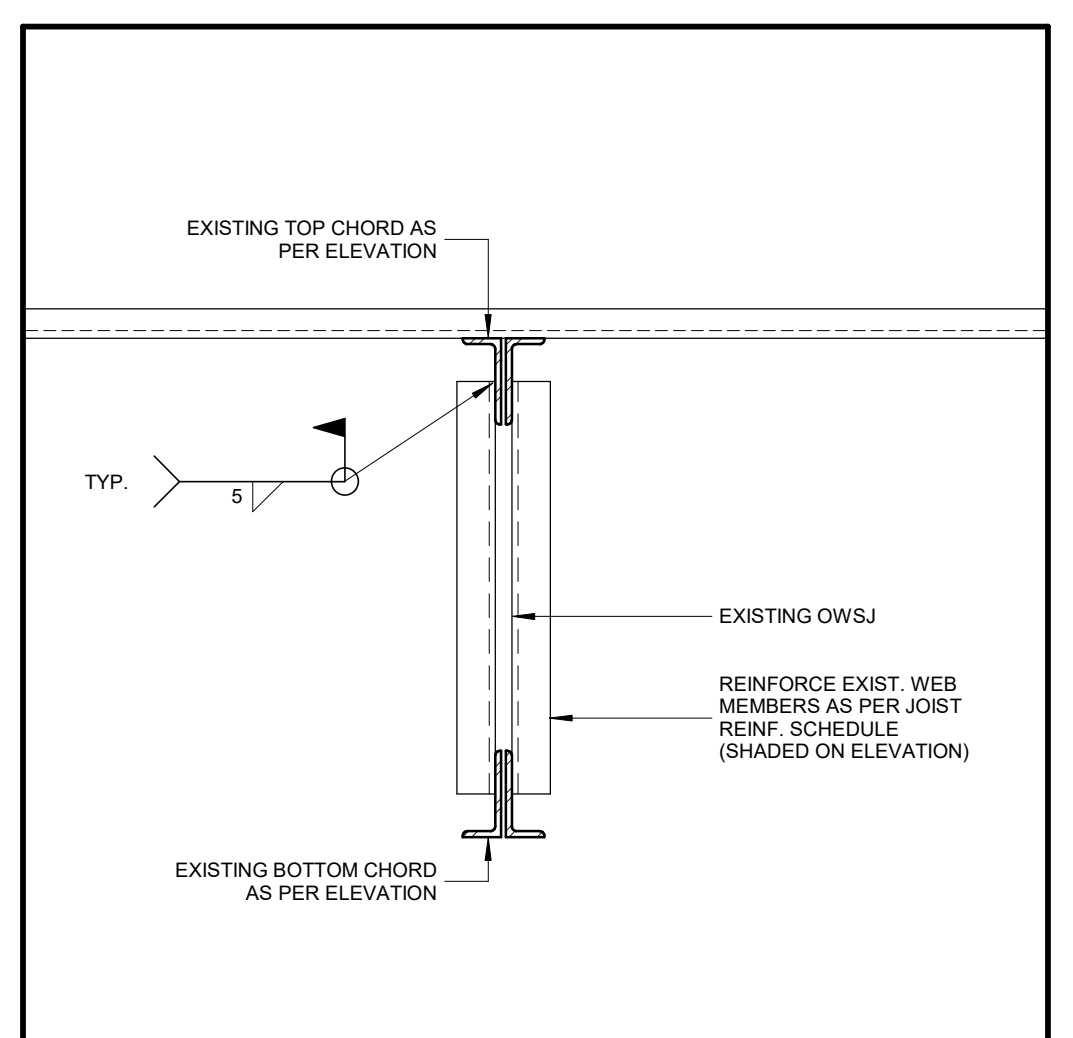
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No. 1 Date: Revision: Issued for: 1024-03-15 ISSUED FOR TENDER

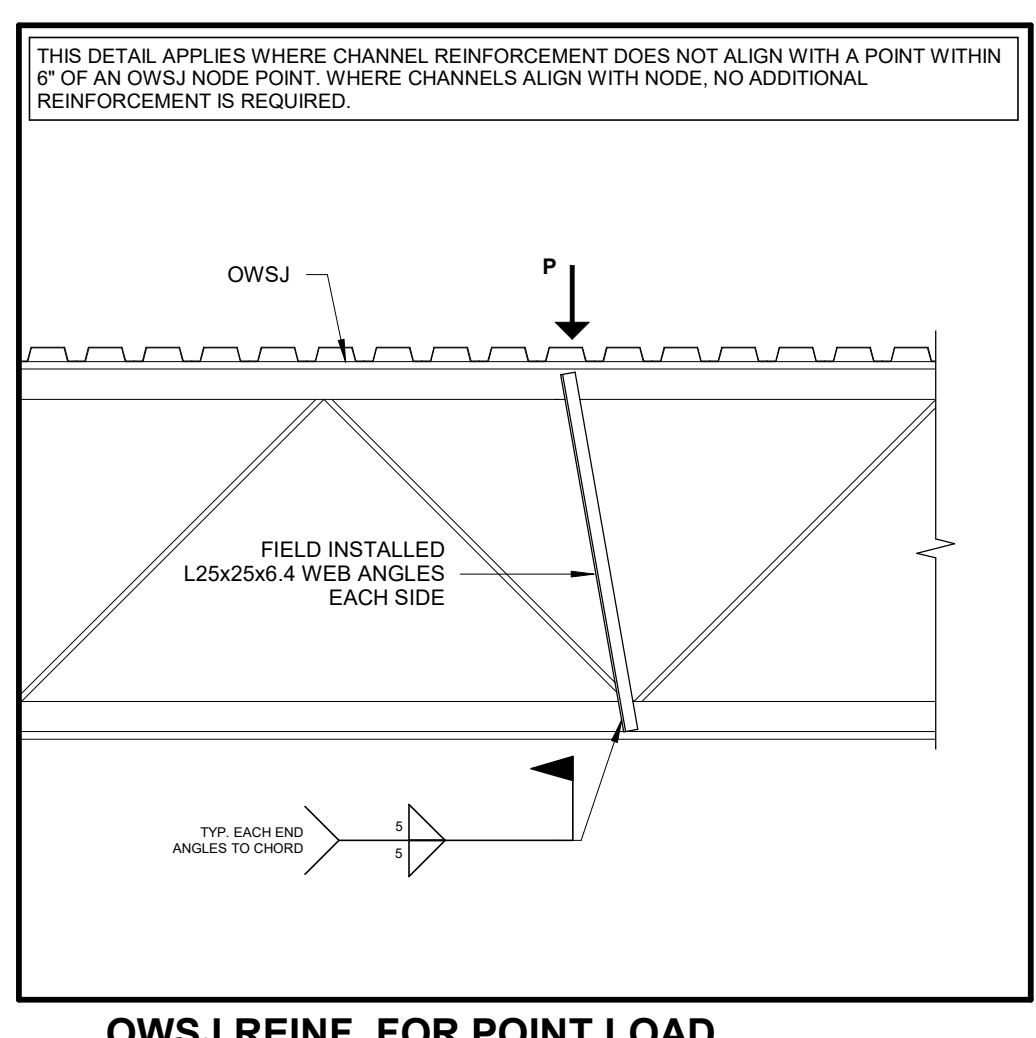
JR-1 WEB MEMBER SCHEDULE					
MARK	SIZE	REINFORCING	MARK	SIZE	REINFORCING
W1	20# ROUND BAR		W11	16# ROUND BAR	
W2	20# ROUND BAR		W12	19# ROUND BAR	
W3	20# ROUND BAR	(2) L25x25x6.4	W13	19# ROUND BAR	
W4	19# ROUND BAR		W14	19# ROUND BAR	(2) L25x25x6.4
W5	19# ROUND BAR	(2) L25x25x6.4	W15	19# ROUND BAR	
W6	19# ROUND BAR		W16	20# ROUND BAR	(2) L25x25x6.4
W7	19# ROUND BAR		W17	20# ROUND BAR	
W8	16# ROUND BAR				
W9	16# ROUND BAR				
W10	16# ROUND BAR				



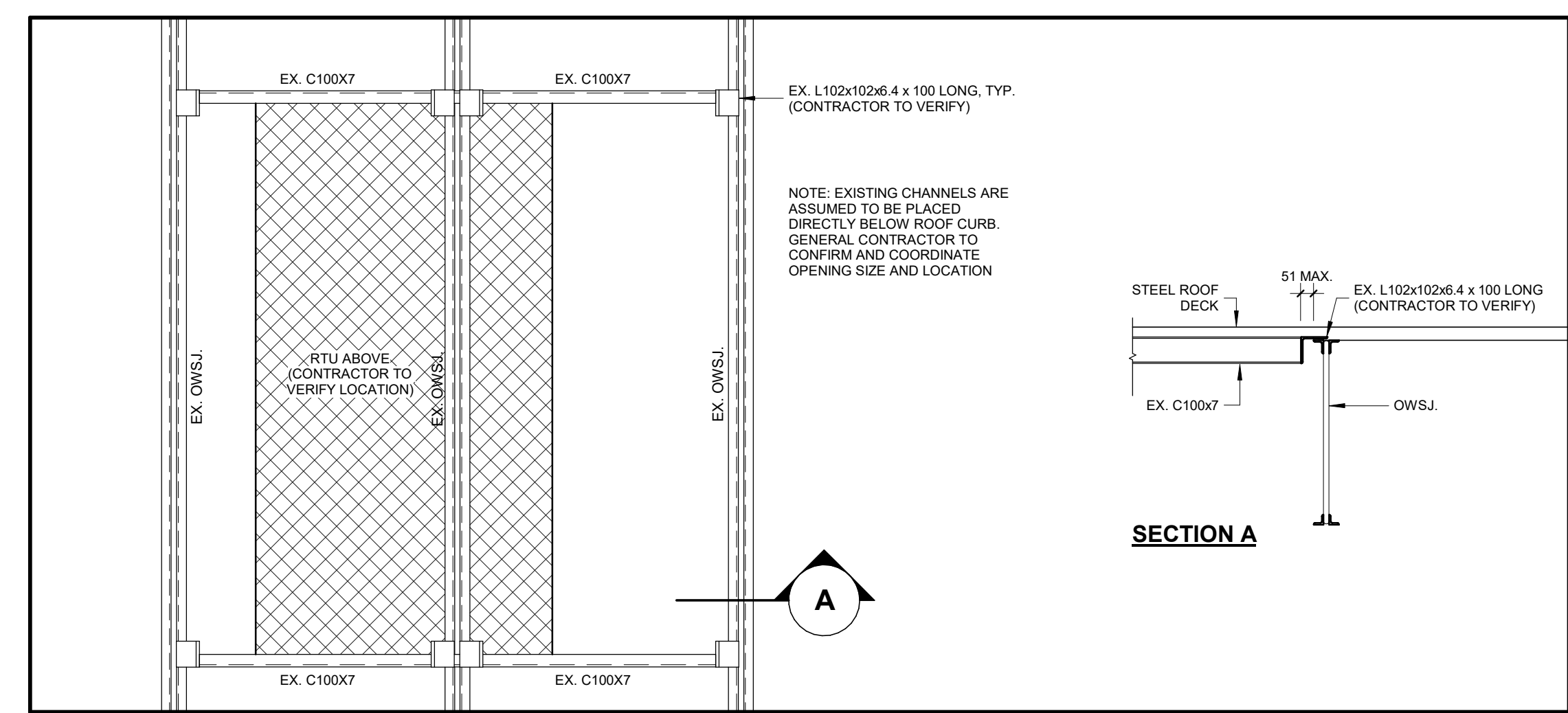
**ELEVATION - OWSJ TYPE 'JR-1' REINFORCING**  
SCALE: 1:10



**3 OWSJ WEB REINFORCING**  
S2.0 N.T.S.

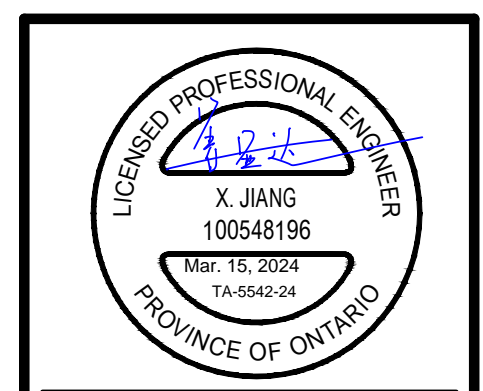


**2 OWSJ REINF. FOR POINT LOAD APPLIED TO TOP CHORD**  
S2.0 SCALE: 1:20



**1 DETAIL - TYPICAL RTU ROOF OPENING**  
S2.0 SCALE: 1:20

TACOMA ENGINEERS



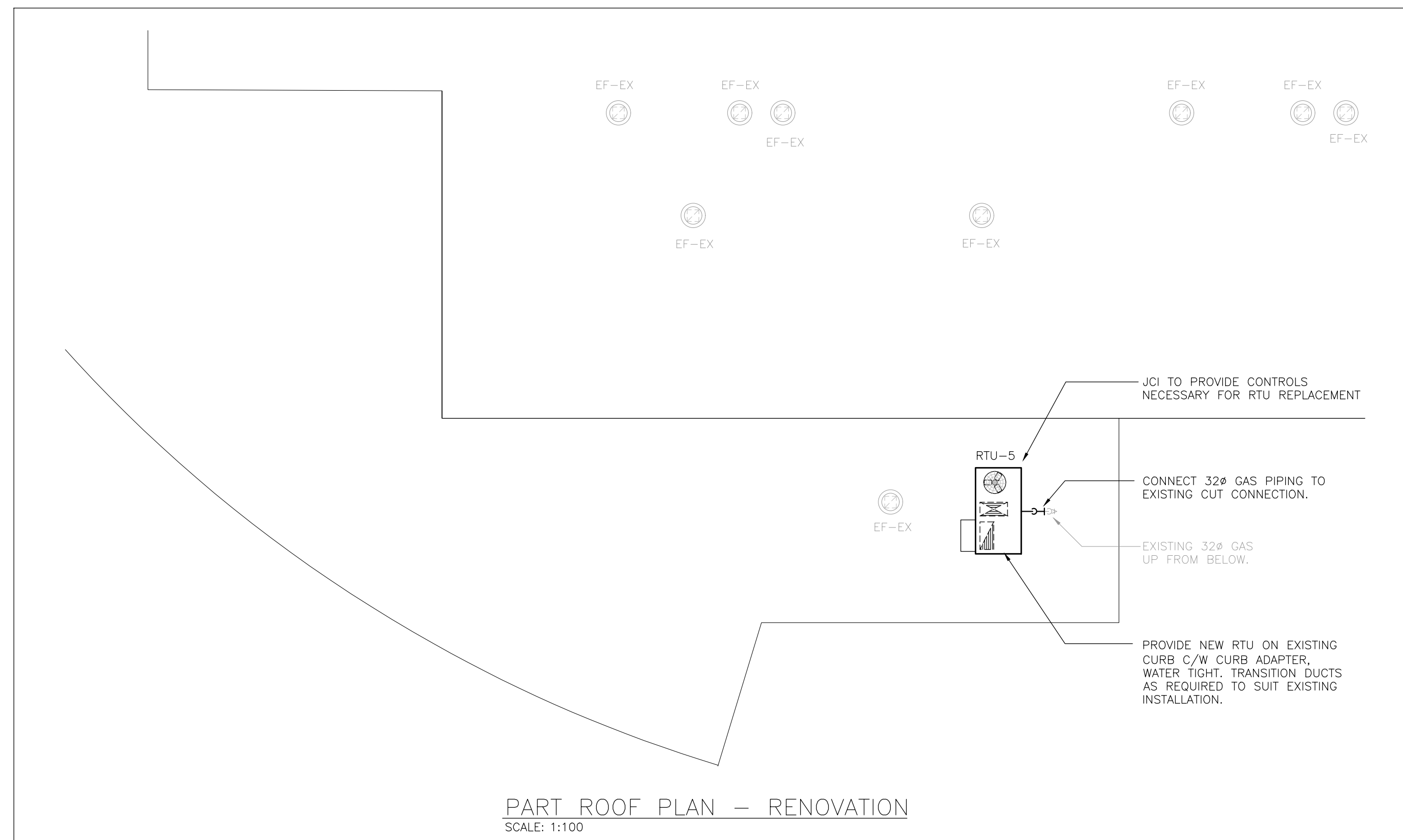
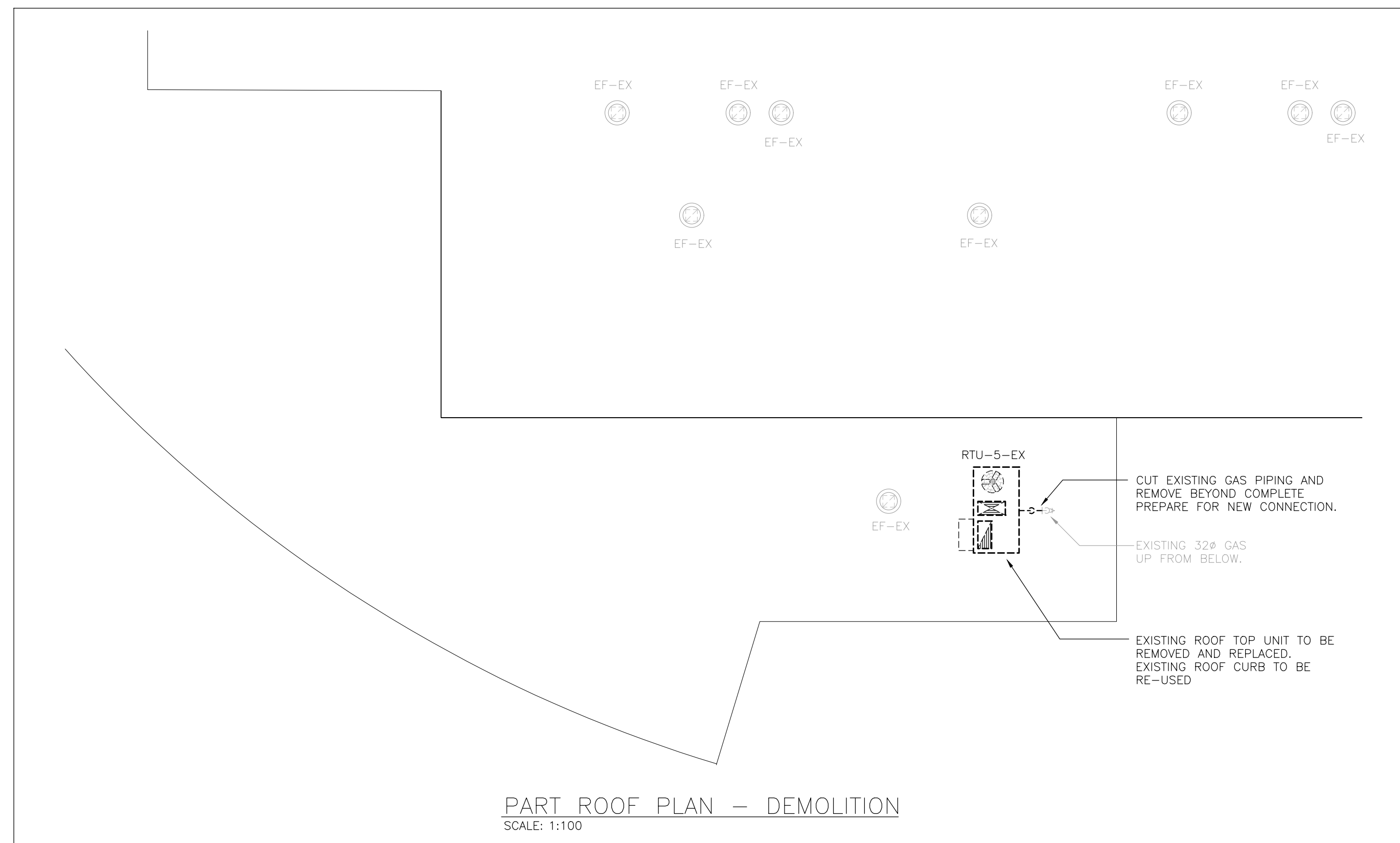
salterpilon

**ST. PETER'S CSS OWSJ REINFORCING**  
201 Ashford Dr, Barrie, ON

**OWSJ ELEVATIONS AND DETAILS**

Project No: TE-05542-24 Drawn By: J. HUTCHINGS

**S2.0**



**GENERAL DEMOLITION NOTES**

- A. EXISTING MECHANICAL ITEMS NOT SHOWN SHALL REMAIN UNLESS NOTED OTHERWISE.
- B. EXISTING MECHANICAL ITEMS SHOWN BUT NOT NOTED AS BEING REMOVED OR RENOVATED SHALL REMAIN AS PRESENTLY INSTALLED AND OPERATING.
- C. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ON SITE ALL LOCATIONS AND SIZES OF ALL SERVICES & EQUIPMENT PRIOR TO THE COMMENCEMENT OF WORK.
- D. ALL OPENINGS THAT RESULT FROM THE REMOVAL OF EQUIPMENT OR SERVICES SHALL BE NEATLY PATCHED WITH SUITABLE NEW MATERIALS TO SUIT EXISTING CONSTRUCTION.
- E. REMOVAL OF EXISTING PIPING, OR DUCT SYSTEMS INCLUDES REMOVAL OF ALL HANGERS, INSULATION, FITTINGS, ETC.
- F. MAINTAIN INTEGRITY OF EXISTING SYSTEMS THAT ARE TO REMAIN OR BE MODIFIED.
- G. INSTALL NEW SYSTEM OR SERVICES WHERE REQUIRED TO MAINTAIN SYSTEM OPERATION PRIOR TO DEMOLITION OF EXISTING SERVICES.

**GENERAL NOTES**

- A. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PREPARED SPECIFICATION.
- B. CONTRACTOR TO LOCATE ISOLATION VALVES / FREEZE PIPING / OR OTHERWISE DRAIN SYSTEMS TO ALLOW PROPOSED WORK TO PROCEED. REFILL SYSTEMS AS INDICATED.
- C. UPON COMPLETION OF THE PROJECT OR UPON COMPLETION OF EACH INDIVIDUAL PHASE OF THE PROJECT THE CONTRACTORS SHALL PROVIDE THE FOLLOWING CERTIFICATES BEFORE CONFORMANCE LETTERS ARE ISSUED BY THE CONSULTANT:  
- COPY OF MANDATORY TSSA/CSA-B149 GAS PRESSURE TEST TAG  
ALL CERTIFICATES ARE TO BE SUBMITTED TOGETHER IN A SINGLE PACKAGE.

**MECHANICAL LEGEND**

Item	Description	Item	Description	Item	Description	Item	Description
-----	ITEM TO BE REMOVED	—G—	NATURAL GAS	—R—	REDUCER/INCREASER	←	VALVE ON RISER
— —	CUT EXISTING & CONNECT NEW PIPING	—C—	PIPE DOWN	—U—	UNION	▢	SUPPLY AIR DUCT
—▶—	FLOW DIRECTION	—O—	PIPE UP	—P—	PLUG VALVE	▢	RETURN/EXHAUST AIR DUCT

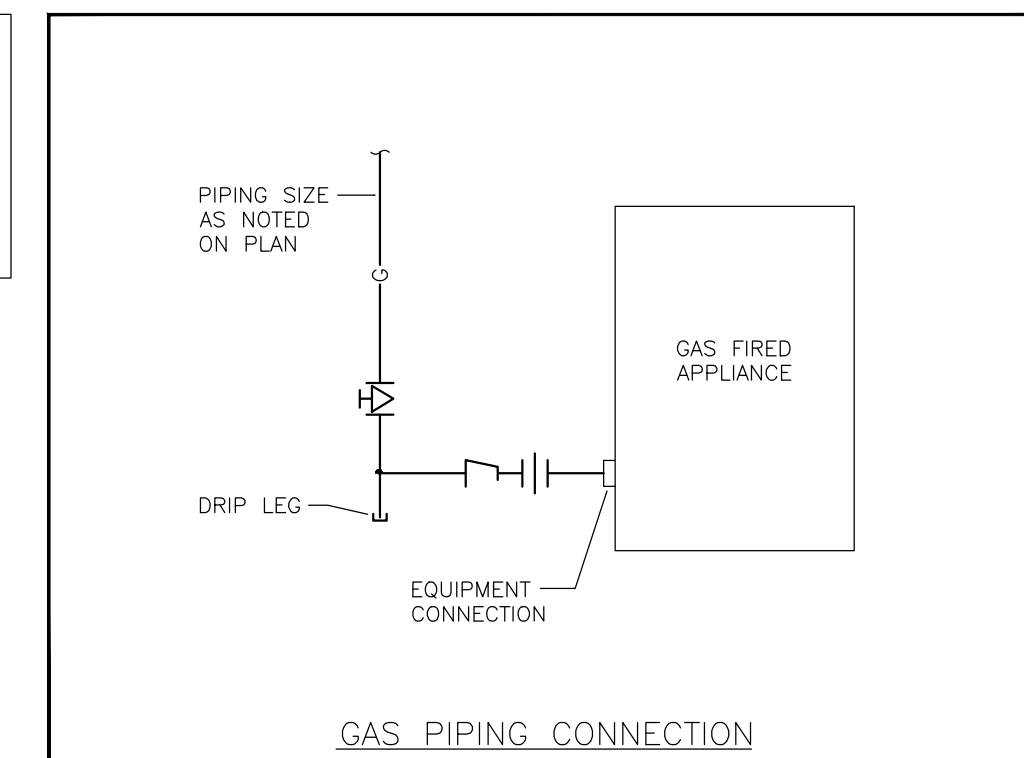
**PACKAGED HVAC UNIT SCHEDULE**

Item	Type	Nominal Capacity				ESP in wc	Motor hp	Electrical Data			Acceptable Manufacturer	Notes
		tons	cfm	Heat MBH	Cool MBH			Voltage	MCA	MOCP		
RTU-5-EX	PACKAGED ROOFTOP HVAC UNIT	3.5	1400	125	45	0.5	1.5	600/3/60	8.4	15	LENNOX LGA042	DOWN DISCHARGE & RETURN
RTU-5	PACKAGED ROOFTOP HVAC UNIT	4	1400	150	49.9	0.5	1.0	575/3/60	11	15	LENNOX LGA04BH4E	DOWN DISCHARGE & RETURN, MULTI-SPEED ECM DIRECT DRIVE TO PROVIDE 1400 CFM C/W TRANSITION ROOF CURB (SPINNAKER 20W06)

- GENERAL HVAC UNIT NOTES:
1. ACCEPTABLE MANUFACTURERS: LENNOX, CARRIER, TRANE
  2. UNITS HAVE 2 STAGE NATURAL GAS/PROPANE HEAT, 2 STAGE DX COOLING PLUS ECONOMIZER (1 STAGE ON SMALLER UNITS), BELT DRIVE FANS.
  3. PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER, CONDENSER COIL GUARD, STAINLESS STEEL FLUE GAS EXTENSION, POWER EXHAUST ON UNITS 7.5 TONS AND LARGER, ECONOMIZER, AND ALL HOODS & INLET SCREENS, DEHUMIDIFICATION PACKAGE WHERE INDICATED, AND 2 SETS MERV 8 DISPOSABLE FILTERS
  4. CONTROLS: SYSTEM CONTROLS BY BAS CONTRACTOR, PROVIDE INTEGRAL CONTROLLER MATCHED TO BAS MANUFACTURER.

**SEQUENCE OF OPERATION**

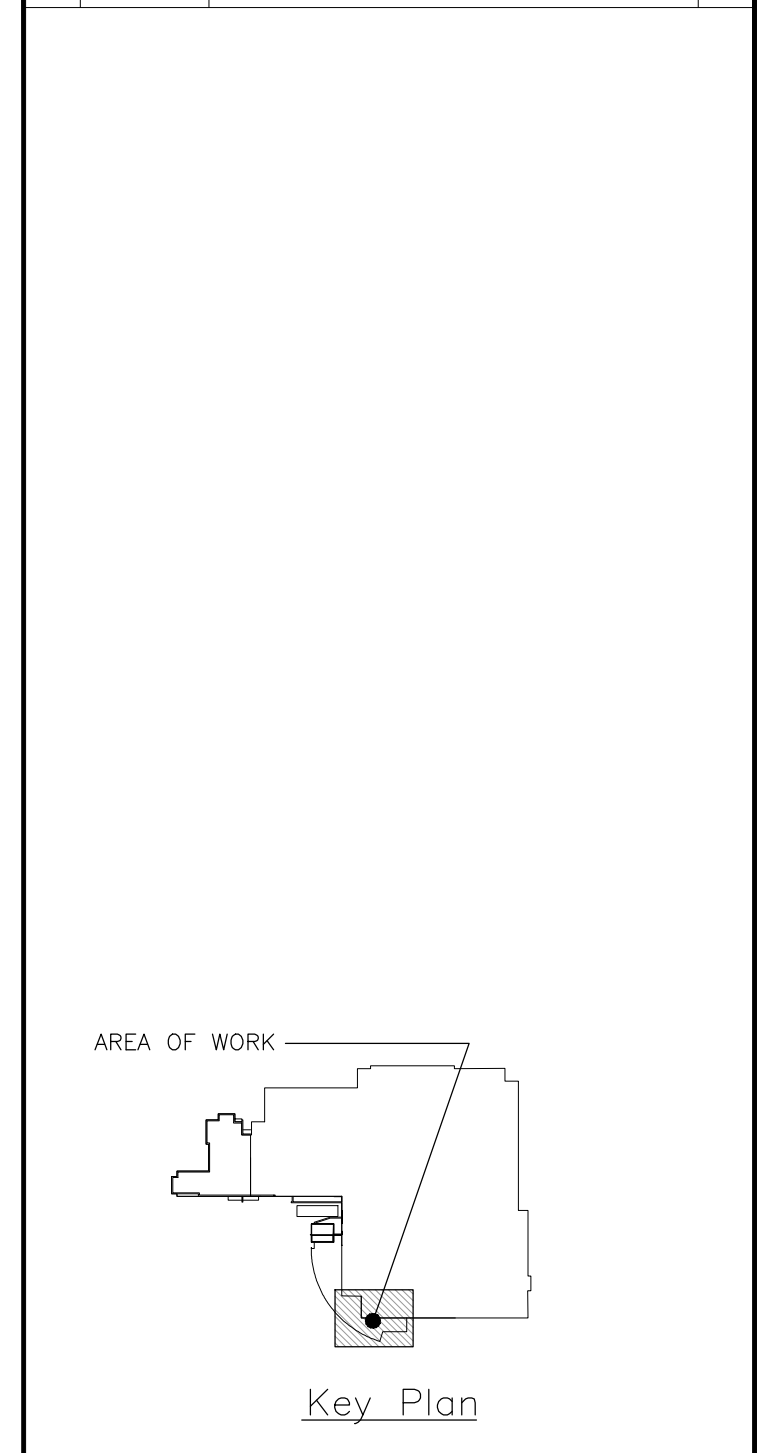
1. FMS ENABLE THE RTU UNIT UNDER A TBD OCCUPIED/UNOCCUPIED MODE TIME SCHEDULE SET AT WORKSTATION.
2. OCCUPIED MODE: FMS STARTS THE UNIT AND CYCLES TWO STAGES OF COOLING, ONE STAGE OF HEATING AND MODULATE OA AND RA DAMPERS TO MAINTAIN A DISCHARGE AIR SETPOINT.
3. UNOCCUPIED MODE: UNIT IS OFF.



The contractor shall verify all dimensions and report all errors and discrepancies to the Consultant before commencement of the work. The drawings show general arrangement of services. Follow as closely as actual building construction will permit. Obtain approval for relocation of service from Consultant before commencement of the work. The drawings do not indicate all offsets fitting and accessories which may be required. Provide the same to meet the required conditions. Drawings and specifications, etc., prepared and issued by the consultant are the property of the consultant and must be returned at the completion of the project. These documents are not to be duplicated or copied without the consent of the Consultant. Do not scale this drawing.  
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**ISSUANCES**

No	DATE YY.MM.DD	DESCRIPTION	BY
1	24.03.28	ISSUED FOR PERMIT AND TENDER	PP



Project  
**ST. PETER'S CATHOLIC SECONDARY SCHOOL ACCESSIBILITY UPGRADES & RTU REPLACEMENT**  
201 ASHFORD DR., BARRIE, ON. L4N 6A3

Sheet Title  
**LEGEND, SCHEDULES, ROOF PART PLAN, & DETAILS**

Drawn by JW	Checked by PP	Approved by PP
Scale AS NOTED	Project Date MAR 2024	Print Date 27-MAR-24

Project No. 24047  
Drawing No. **M101**

POWER AND DATA LEGEND	
LABEL	DESCRIPTION
	DIRECT CONNECTION TO EQUIPMENT AS NOTED (VOLTAGE/FREQUENCY)
	PUSH BUTTON

NOTE LEGEND	
	DEMOLISH ALL EXISTING POWER DOOR OPERATORS AND PUSH BUTTONS IN VESTIBULE V-41. UTILIZE EXISTING WIRING AND PATHWAYS FOR NEW POWER DOOR OPERATORS. CONNECT TO EXISTING ELECTRICAL CIRCUIT.

NOTES:  
 1. DEVICES AND CABLING TO BE RECESSED WITHIN CEILING AND WALL CAVITIES WHERE POSSIBLE. ANY EXPOSED CONDUIT TO BE RIGID METAL CONDUIT AND PAINTED TO SUIT THE EXISTING WALL FINISH.



1 FIRST FLOOR POWER AND DATA PLAN  
 SCALE: 1:200

# Gerrits ENGINEERING

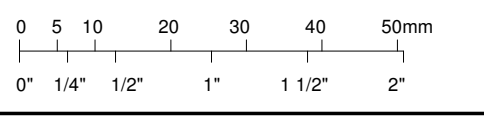
222 Mapleview Drive West, Suite 300  
 Barrie, ON L4N 6K7 Canada  
 Tel: 705.737.3323  
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No.	Issuance Description	YYYYMMDD
1	ISSUED FOR TENDER	2024-04

ISSUED FOR:  
**TENDER**  
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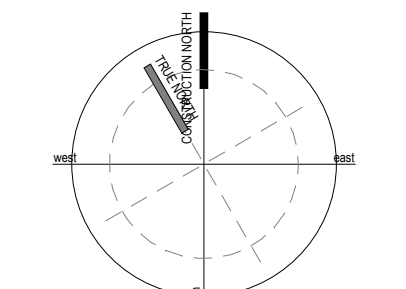
Client:  
**SALTER PILON ARCHITECTURE**

Project:  
**ST. PETERS ACCESSIBILITY**

201 Ashford Dr., Barrie, ON L4N 6A3

Drawing:  
**POWER AND DATA PLAN**

Project No:	110-040-23	Designed by:	CC	Checked by:	MG
Time Stamp:	2024-04-15 3:23:51 PM	Drawn by:	CC	Approved by:	CP
Orientation:		Stamp:			



Drawing No. **E-101**

<b>Branch Panel: LP-1LA</b>										
Location: LIBRARY WORK ROOM 161B					Volts: 120/208V			A.I.C. Rating: EXISTING		
Supply From: EXISTING					Phases: 3			Mains Type: MLO		
Mounting: RECESSED					Wires: 4			Mains Rating: 100A		
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	2
3	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	4
5	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	6
7	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	8
9	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	10
11	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	12
13	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	14
15	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	16
17	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	18
19	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	20
21	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	22
23	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	24
25	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	26
27	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	28
29	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	30
31	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	32
33	POWER DOOR OPERATORS *1	15 A	1	--	--	--	--	--	SPACE	34
35	SPACE	--	--	--	--	--	--	--	SPACE	36
37	SPACE	--	--	--	--	--	--	--	SPACE	38
39	SPACE	--	--	--	--	--	--	--	SPACE	40
41	SPACE	--	--	--	--	--	--	--	SPACE	42

<b>Branch Panel: LP-1RB</b>										
Location: ELEC ROOM 122					Volts: 120/208V			A.I.C. Rating: EXISTING		
Supply From: EXISTING					Phases: 3			Mains Type: MLO		
Mounting: SURFACE					Wires: 4			Mains Rating: 225A		
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	2
3	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	4
5	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	6
7	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	8
9	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	10
11	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	12
13	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	14
15	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	16
17	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	18
19	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	20
21	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	22
23	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	24
25	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	26
27	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	28
29	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	30
31	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	32
33	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	34
35	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	36
37	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	38
39	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	40
41	EXISTING CIRCUIT	--	--	--	--	--	1	15 A	POWER DOOR OPERATORS *1	42

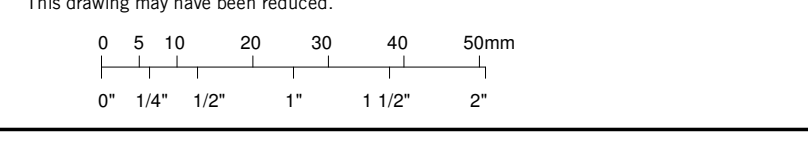
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Location: ELEC ROOM 107					Volts: 120/208V			A.I.C. Rating: EXISTING		
Supply From: EXISTING					Phases: 3			Mains Type: MLO		
Mounting: SURFACE					Wires: 4			Mains Rating: 225A		
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	2
3	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	4
5	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	6
7	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	8
9	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	10
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41	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	42
43	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	44
45	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	46
47	POWER DOOR OPERATORS *1	15 A	1	--	--	--	--	--	EXISTING CIRCUIT	48
49	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	50
51	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	52
53	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	54
55	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	56
57	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	58
59	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	60
61	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	62
63	SPACE	--	--	--	--	--	--	--	EXISTING CIRCUIT	64
65	SPACE	--	--	--	--	--	--	--	SPACE	66
67	SPACE	--	--	--	--	--	--	--	SPACE	68
69	SPACE	--	--	--	--	--	--	--	SPACE	70
71	SPACE	--	--	--	--	--	--	--	SPACE	72

<b>Branch Panel: LP-1RD</b>										
Location: ELEC ROOM 141					Volts: 120/208V			A.I.C. Rating: EXISTING		
Supply From: EXISTING					Phases: 3			Mains Type: MLO		
Mounting: SURFACE					Wires: 4			Mains Rating: 225A		
CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	2
3	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	4
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67	EXISTING CIRCUIT	--	--	--	--	--	--	--	EXISTING CIRCUIT	68
69	EXISTING CIRCUIT	--	--	--	--	--	1	15 A	POWER DOOR OPERATORS *1	70
71	EXISTING CIRCUIT	--	--	--	--	--	1	15 A	POWER DOOR OPERATORS *1	72
73	EXISTING CIRCUIT	--	--	--	--	--	--	--	SPACE	74
75	EXISTING CIRCUIT	--	--	--	--	--	--	--	SPACE	76
77	SPACE	--	--	--	--	--	--	--	SPACE	78
79	SPACE	--	--	--	--	--	--	--	SPACE	80
81	SPACE	--	--	--	--	--	--	--	SPACE	82
83	SPACE	--	--	--	--	--	--	--	SPACE	84



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1	ISSUED FOR TENDER	2024-04

ISSUED FOR:  
**TENDER**  
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Client: **SALTER PILON ARCHITECTURE**

Project: **ST. PETERS ACCESSIBILITY**

201 Ashford Dr, Barrie, ON L4N 6A3

Drawing: **SCHEDULES**

Project No.	110-040-23	Designed by:	CC	Checked by:	MG
Time Stamp:	2024-04-15 3:23:51 PM	Drawn by:	CC	Approved by:	CP
Orientation		Stamp			