



TORONTO ZOO

Request for Tenders for

● VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR

RFT No.: TZC T 06-2021-03

Contract No.: -

Issued: ● 2021-03-30

TZC T 06-2021-023
VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
CLOSING DATE: Thursday 2021-04-22 at 12:00 p.m. local time

Bids are invited for AFRICA PAVILION – WASHROOM UPGRADES all in accordance with this Request for Tender. This RFT is posted on the Toronto Zoo web site at <http://www.torontozoo.com/business>

SUBMISSION

The Tender submission must be sealed in an envelope using the attached mailing label and submitted to Supervisor, Purchasing & Supply c/o Reception, 361A Old Finch Ave., Toronto, ON M1B 5K7 by **Thursday 2021-04-22 at 12:00 hours, 12:00 p.m. local standard time** (hereinafter referred to as the “closing time”).

QUESTIONS REGARDING THIS RFT

Questions regarding this RFT must be submitted in writing only to Peter Vasilopoulos, Supervisor, Purchasing & Supply no later than **(2021-04-15 at 4:00 p.m. local time)**. Questions received later than this stated time and date may not be acknowledged or answered.

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PART 1: REQUEST FOR TENDERS PROCESS

SECTION 1 - RFT SPECIFIC PROCESS AND SUBMISSION INSTRUCTIONS

1.1 Introduction

- .1 This RFT is an invitation by the Toronto Zoo to waterproof and repair the foundation wall at the Valley Halla site and
 - .1 **[to prospective Suppliers to submit bids for the performance of the Work, as further described in Part 3 (DRAWINGS AND SPECIFICATIONS) and the Contract (the "Project").]**
- .2 This RFT shall be interpreted in accordance with Section 3.123.3.10 (Governing Law) and 3.13 (RFT Definitions and Interpretation).
- .3 Invitation to submit a Bid, including participation in any pre-qualification, request for information or other similar process or exchange of information prior to the RFT, does not imply that a Supplier is automatically prequalified to meet the requirements of the RFT or that the factors which were examined during such process or exchange may not be re-examined or re-evaluated by the Toronto Zoo during the consideration and selection process for this RFT. It will still be necessary for the Supplier to demonstrate its qualifications through the RFT process.
- .4 The Successful Supplier will be required to execute the Contract with the Toronto Zoo for the provision of the Work. Suppliers should review the terms and conditions set out in Part 2 (FORM OF CONSTRUCTION AGREEMENT) to understand the Contract being entered into with the Toronto Zoo.

1.2 Procurement Contact

- .1 The contact Person at the Toronto Zoo for all matters related to the RFT process (the "**Procurement Contact**") is set out below:

Name and Title
Name: Peter Vasilopoulos Title: Supervisor, Purchasing & Supply Email: pvasilopoulos@torontozoo.ca

- .2 All communications relating to this RFT must be submitted to the Procurement Contact and only communications received by the Procurement Contact will be considered in the RFT process.
- .3 All permitted communications with the Procurement Contact will be deemed as having been received by the Procurement Contact on the dates and times

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1.3 RFT Documents

.1 This RFT is comprised of the following documents:

Part 1 – Request for Tender Process

Section 1 – RFT Process and Submission Instructions;

Section 2 – Evaluation, Acceptance and Execution;

Section 3 – Other RFT Terms and Conditions;

Part 2 – Form of Construction Agreement;

Part 3 – Drawings and Specifications;

Part 4 – Submission Forms, consisting of:

- Form A - Bid Submission Form;
- Appendix I - Experience and Qualifications Form;
- Appendix II - List of Subcontractors Form;
- Appendix III – Statutory Declaration Form;

Part 5 – Pricing Form; and all Addenda.

.2 Prior to submitting a Bid, Suppliers shall examine all components of the RFT (including all reference documents, appendices, forms and Addenda) and, in accordance with Section 1.8 (Questions) promptly notify the Procurement Contact of any perceived errors, omissions, conflicts, ambiguities or discrepancies in the RFT.

.3 While the Toronto Zoo has used considerable efforts to ensure an accurate representation of information in this RFT, the information contained in this RFT is supplied solely as a guide for Bidders. The information is not guaranteed or warranted to be accurate by the Toronto Zoo, nor is it necessarily comprehensive or exhaustive. Nothing in this RFT is intended to relieve Bidders from forming their own opinions and conclusions with respect to the matters addressed in this RFT.

.4 For clarity, no prequalification documents issued by the Toronto Zoo or prequalification submissions delivered by the Suppliers to the Toronto Zoo shall form a part of the RFT or the Contract.

.5 It shall be the responsibility of each Supplier to acquire, other sources or in person from the Procurement Contact, as specified in the RFT, any document that is referenced or mentioned in this RFT which is not included herein.

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- .6 The failure of any Supplier to acquire, receive or examine any document, form, Addendum, or policy shall not relieve the Supplier of any obligation with respect to its Bid or the Contract. The Toronto Zoo is not responsible for any misunderstanding on the part of any Supplier concerning this RFT or its processes.

1.4 Responding to the RFT and Prohibited Communications

Toronto Zoo website

The RFT is available only through, the Toronto Zoo website at:
<http://www.torontozoo.com/business>

Prohibited Communications

- .1 Suppliers (including potential Suppliers) shall not, and shall cause their representatives not to discuss, disclose or communicate, directly or indirectly, any details pertaining to or in connection with their Bid or this RFT to:
- any employee, official, agent, elected or appointed official or other representative of the Toronto Zoo other than the Procurement Contact; or
 - anyone not specifically involved in their Bid (including, without limitation, any other Supplier),

except as may be authorized in writing by the Procurement Contact Other than the Procurement Contact, no Toronto Zoo representative, whether an official, agent or employee, is authorized to speak for the Toronto Zoo with respect to this RFT. Any Supplier who uses or relies on any representation, information, clarification, correspondence or other communication from any other Toronto Zoo representative does so entirely at the Supplier's own risk and the Toronto Zoo shall not be bound by such representation, information, clarification, correspondence or other communication.

- .2 Without limiting any other provision of this Section 1.4. any attempt by a Supplier to bypass the RFT process may be grounds for rejection of its Bid.

1.5 RFT Timetable

- .1 The Toronto Zoo's currently proposed schedule for each step in the RFT process is set out in below.

Event	Date /Time
Issue Date of RFT	2021-03-30

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Event	Date /Time
Site Visit / Pre-Bid Meeting	By appointment only on 2021-04-09, at 9:00 a.m. local standard time. Additional meeting times may be added based on interest. Due to Provincial Covid19 restrictions, the site meeting will be limited to one (1) representative per bidder. Bidders are required to pre-register by email, no later than (2021-04-08 at 12:00 p.m. local standard time). Email: pvasilopoulos@torontozoo.ca ; jjakaran@torontozoo.ca ; bknoop@torontozoo.ca
Deadline for Questions	● no later than (2021-04-15 at 4:00 p.m. local time)
Submission Deadline	● 2021-04-22 at 12:00 hours , 12:00 p.m. local standard time
Bid Validity Period	● 90 Days
Anticipated Award Date	● 2021-05-03

- .2 The Toronto Zoo reserves the right to, in the Toronto Zoo’s sole and absolute discretion, at any time:
- revise the RFT schedule, to accelerate, eliminate or postpone any of the dates or times set out in this RFT, including the Submission Deadline;
 - to add to, delete or re-order any of the milestones set out in this RFT, at any time; or
 - modify the RFT process.

1.6 In the event of an inconsistency or a conflict between the Submission Deadline as displayed in the Toronto Zoo website portal and the Submission Deadline as indicated in an Addendum, the Submission Deadline as displayed in the Toronto Zoo website portal shall take precedence.

1.7 Site Meetings

.1 **Site Meeting**

All Suppliers are encouraged to attend a site meeting to familiarize themselves with the Project and ascertain the full extent of the Work required. The site meeting will take place by appointment only on 2021-04-09, at 9:00 a.m. local standard time at 361A Old Finch Ave, Toronto, ON M1B

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5K7. Additional meeting times may be added based on interest. Due to Provincial Covid19 restrictions, the site meeting will be limited to one (1) representative per bidder. Bidders are required to pre-register by email, no later than (2021-04-08 at 12:00 p.m. local standard time).

- .2 No statement or information provided in such meeting by either the Toronto Zoo or the Suppliers will amend any provision of this RFT or the Contract, or may be relied upon by a Supplier in the RFT process or its Bid, except and to the extent such statement or information is later confirmed through the issuance of an Addendum.

1.7 Addenda

- .1 The RFT may only be amended by Addendum in accordance with this Section 1.7 (Addenda). Prior to the Submission Deadline, the Toronto Zoo may at any time or times modify the RFT in whole or in part through the issuance of an Addenda, if deemed necessary by the Toronto Zoo. Each Addendum shall form an integral part of this RFT.
- .2 All Addenda will be posted on the <http://www.torontozoo.com/business> and Toronto Zoo, the Toronto Zoo is not responsible for any failure of such notice system or for notices not received by Suppliers.
- .3 Suppliers must check the Toronto Zoo's <http://www.torontozoo.com/business> frequently to inform themselves of any posted Addendum. Toronto Zoo. Suppliers shall be wholly responsible for checking and reviewing any posted Addenda and ensuring the completeness of the RFT (as amended) and their Bids (as impacted by such Addenda). The Toronto Zoo is not responsible for any incomplete or incorrect Bids resulting from the issuance of an Addendum or a Supplier's failure to update its Bid in response to an Addendum.
- .4 The Toronto Zoo will make reasonable efforts to issue the final Addendum (if any) in a sufficient time prior to the Submission Deadline to allow Suppliers to submit their Bids. If any Addendum requires substantial amendments to the RFT, the Toronto Zoo may, in its sole and absolute discretion, extend the Submission Deadline.
- .5 Other than documents issued as part of the RFT (including Addenda), the Toronto Zoo shall not be responsible for any explanations, instructions or interpretations even if provided by its actual or purported employees, designees or agents. No oral or written explanations, instructions or interpretations shall modify any of the requirements or provisions of the RFT unless in the form of an Addendum.
- .6 Any reference in this RFT to any document comprising this RFT includes any amendments to such document made in accordance with this Section 1.7 (Addenda).

1.8 Questions

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- .1 Prospective Suppliers finding errors, omissions, conflicts, ambiguities or discrepancies in the RFT or having questions, comments or concerns regarding this RFT, its process and related matters (“**Questions**”) may submit such Questions to the Procurement Contact using the Toronto Zoo QBD form attached. The Toronto Zoo will make reasonable efforts to respond to Questions received by the deadline for Questions set out in the RFT timetable in Section 1.5 (RFT Timetable). However, the Toronto Zoo shall have no obligation to respond to any or all Questions, and the Toronto Zoo’s determination as to whether or not it will respond to any Question shall be in the Toronto Zoo’s sole and absolute discretion. The onus is on each Supplier to confirm the Toronto Zoo has received all correspondence from the Supplier.
- .2 Although it is the Toronto Zoo’s practice to make available to all Questions received as well as responses to such Questions: (i) for Questions of an administrative nature; or (ii) where a prospective Supplier’s Question is identified as commercially confidential in nature and where, the Toronto Zoo in its sole and absolute discretion deems the Question or response to be commercially confidential, the Toronto Zoo may provide a response only to that Supplier. The Toronto Zoo reserves the right to edit Questions for clarity and applicability to all Suppliers generally.
- .3 Pursuant to Section 1.7.1 (Addenda), responses to Questions prepared and circulated by the Toronto Zoo are not RFT documents and do not amend the RFT, unless such responses form part of an Addendum.

1.9 Submission of Bids

.1 General

- .1 Subject to Section 1.9.3 (Bid Bond) with respect to the submission of the Bid Bond, Bids must be in person Toronto Zoo prior to the Submission Deadline. Bids will be rejected as non-compliant if submitted by any other mechanism including, but not limited to, post, courier, fax, e-mail or orally, unless specifically requested Toronto Zoo
- .2 It is the Supplier’s sole responsibility to ensure its Bid is received by the Submission Deadline in accordance with the requirements of this RFT. The receipt of Bids can be delayed due to a number of factors including “internet traffic”, file transfer size and transmission speed. The Supplier should allow sufficient time to download, complete and upload, as applicable, the submission forms comprising its Bid and any attachments.
 - A Bid will only be considered to be submitted once it has been received by the Toronto Zoo. The time of such receipt is reflected by the time stamped by the Toronto Zoo.
- .3 Suppliers must submit their Bids in the format presented, prescribed and compatible with the requirements of the RFT and Toronto Zoo must include all attachments required by the Toronto Zoo. Failure to fully complete the forms presented in this RFT or to include and submit the required attachments or

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separate documentation, as applicable, may result in the bid being rejected as non-compliant.

- .4 The forms, documents and other items outlined in this Section 1.9 (Submission of Bids) must be completed in their entirety and submitted in the format presented and prescribed by the Toronto Zoo in accordance with the requirements of the RFT. Failure to so submit any such items may result in the Bid being rejected as non-compliant.
- .5 All Suppliers should exercise extreme care when completing their Bid submissions, as failure to complete the Bid fully or to comply with the requirements of this RFT may cause the Bid to be rejected as non-compliant.

.2 Bid Submission Form

- .1 Suppliers shall complete and submit all information and respond to all items in the Bid submission form set out in Form A of Part 4 (Bid Submission Form) ("**Bid Submission Form**").
- .2 The Bid Submission Form contains confirmatory statements and declarations in respect of the Toronto Zoo's Policies.

.3 Bid Bond

- .1 In addition to the requirements set out in this RFT in respect of the submission of Toronto Zoo, each Supplier shall submit, a bid bond to secure the execution of the Contract by the Supplier ("**Bid Bond**").
- .2 The Bid Bond shall be made out to the Toronto Zoo
 - .1 an original paper Bid Bond shall be enclosed with your submission delivered to Purchasing & Supply before the Submission Deadline at the following address:

Attention: Supervisor, Purchasing & Supply
Toronto Zoo
361A Old Finch Ave
Toronto, ON
M1B 5K7

Re: Bid Bond for Request for Tender No. **TZC T 06-2021-03**

Submitting a photocopy of the original paper Bid Bond is not acceptable. For clarity, the Toronto Zoo will not accept any original paper Bid Bonds that are delivered after the Submission Deadline and any original paper Bid Bond received after the Submission Deadline shall result in the Bid being rejected as non-compliant.

[The determination of whether the original paper Bid Bond is delivered by or before the Submission Deadline shall be based

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on the time and date stamp, the Supplier must ensure it receives from the Toronto Zoo at foregoing address]

- .3 The Bid Bond shall be in the amount and in the form provided in Appendix IV of Part 4 (Bid Bond) or in another substantially similar format approved by the Toronto Zoo prior to Bid submission; and
 - .4 The Bid Bond shall be signed and sealed by the Supplier and by a licensed surety company, authorized to carry on business in the Province of Ontario, and having a place of business in Ontario.
 - .5 Failure of a Supplier to submit a Bid Bond, in compliance with the requirements of Sections 1.9.3.1 and 1.9.3.2 (Bid Bonds) shall result in the Bid being rejected as non-compliant.
- .4 Experience and Qualifications Form**
- .1 Each Supplier shall complete, and submit the Experience and Qualifications Form provided in Appendix I of Part 4 (Experience and Qualifications Form). In submitting such form the Supplier gives the Toronto Zoo consent to contact the references therein to confirm the information therein. Failure to provide the required information listed on the Experience and Qualifications Form shall render the Bid non-compliant. If, in the Toronto Zoo's sole and absolute discretion, the references do not confirm the Supplier's experience and qualifications as required by the RFT, the Bid will be declared non-compliant and will not be considered for acceptance.
 - .2 The Toronto Zoo reserves the right to verify whether Suppliers are relying upon past experience of an Affiliated Person including the nature of the corporate relationship and its relevance to the Project. If, in the Toronto Zoo's sole and absolute discretion, it is determined that a Supplier is relying on an Affiliated Person's past experience and a transfer of the Affiliated Person's experience cannot be demonstrated as relevant to the Project then the Bid will be declared non-compliant and not be considered for acceptance.
 - .3 The Toronto Zoo reserves the right to verify past performance of the Supplier or its Affiliated Persons with the Toronto Zoo's performance records on relevant Toronto Zoo projects (including the Toronto Zoo's agencies, boards, commissions and corporations).
 - .4 The Toronto Zoo reserves the right to verify a mandatory certification of qualifications submitted by a Supplier for itself or its Affiliated Persons with any relevant third party certifying organization.
- .5 List of Subcontractors Form**
- .1 The Supplier shall complete and submit the form provided in Appendix II of Part 4 (List of Subcontractors Form) indicating the subcontractors it intends to

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employ to carry out each portion of the Work (“**Subcontractors**”) indicated therein.

- .2 Suppliers must not include companies under suspension by the Toronto Zoo on their list of Subcontractors.

.6 **Pricing Form**

- .1 Each Supplier shall complete and submit the Pricing Form set out in Part 5 (PRICING FORM) according to the instructions contained in such form.
- .2 In completing the Pricing Form, Suppliers must take into account compliance with all of the requirements of the RFT, including Part 3 (DRAWINGS AND SPECIFICATIONS) and the terms of the Contract. The Toronto Zoo will assume, in evaluating all Bids, that compliance with such requirements has been accounted for in the completed Pricing Form.

1.10 Amendment of Bids

- .1 Prior to the Submission Deadline, a Supplier may amend its Bid at any time after submission of the Bid Toronto Zoo and a Supplier may amend its Bid one or more times if it so wishes prior to the Submission Deadline.
- .2 If a Supplier amends its Bid, the Supplier must resubmit the Bid prior to the Submission Deadline Toronto Zoo the most recently submitted version of the Bid as dated and stamped recorded Toronto Zoo, shall be irrevocable and binding in accordance with the provisions of the RFT, and may be accepted by the Toronto Zoo in its sole and absolute discretion unless such Bid has been properly withdrawn in accordance with Section 1.11 (Withdrawal of Bids).

1.11 Withdrawal of Bids

- .1 A Bid may be withdrawn at any time prior to the Submission Deadline by delivering written notice of withdrawal to the Procurement Contact by means of email or in person Toronto Zoo before the Submission Deadline.
- .2 For clarity, a Bid may only be withdrawn by delivering such notice to the Procurement Contact prior to the Submission Deadline and cannot be withdrawn by any other means. If a Supplier fails to properly withdraw a Bid, the Bid shall be considered to be the Supplier’s submitted Bid, shall be irrevocable and binding in accordance with the provisions of the RFT, and may be accepted by the Toronto Zoo in its sole and absolute discretion, notwithstanding such failure.
- .3 Any Bids that are properly withdrawn will not be examined or evaluated for the purpose of the RFT but shall be retained for the Toronto Zoo’s record retention purposes.

1.12 Bid Validity Period

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- .1 Upon the Submission Deadline, each submitted Bid shall be irrevocable and binding on Suppliers for the period of time following the Submission Deadline as set out in the RFT timetable in Section 1.5 (RFT Timetable) (“**Bid Validity Period**”).
- .2 In exceptional circumstances, prior to the expiration of the Bid Validity Period, the Toronto Zoo may request Suppliers to extend the validity of their Bids and any accompanying Bid Bonds. The request and responses shall be made in writing by the Procurement Contact Toronto Zoo. A Supplier may refuse the Toronto Zoo’s request without rendering its Bid non-compliant. A Supplier granting the request shall not be required or permitted to modify its Bid.

SECTION 2 - EVALUATION, ACCEPTANCE AND EXECUTION

2.1 Evaluation

.1 Evaluation Process

- .1 The Toronto Zoo will conduct the evaluation of Bids in the following two stages.

Stage 1: The Bids will be reviewed to determine whether they comply with all of the mandatory requirements of the RFT, including the requirements of Section 1.9 (Submission of Bids). Bids that are substantially incomplete or do not substantially comply with the requirements of this RFT will be excluded from consideration in Stage 2.

Stage 2: The compliant Bids will be ranked on the basis of the submitted pricing of each in accordance with the price evaluation method set out in the Pricing Form.

- .2 Subject to its reserved rights set out in this Part, the Toronto Zoo may at any time and from time to time, in its sole and absolute discretion, revisit, revise, confirm or adjust the evaluations of a Bid at any time during the RFT process.

.2 Tied Bids

In the event that the Toronto Zoo receives two (2) or more Bids identical in price, the Toronto Zoo reserves the right to select one of such Bids as set out the Toronto Zoo's Policies. The Tied Bid procedure allows Toronto Zoo the tie to be broken by way of coin toss or lottery.

.3 Materially Unbalanced or Abnormally Low Bids

- .1 A Bid is materially unbalanced if:
- it is based on prices which are significantly less than cost for some items and prices which are significantly overstated in relation to cost for other items; and
 - the Toronto Zoo has determined that the Bid may not result in the lowest overall cost to the Toronto Zoo even though it may be the lowest submitted Bid; or
 - it is so unbalanced as to be tantamount to allowing an advance payment.
- .2 A Bid is abnormally low if the pricing, in combination with other constituent elements of the Bid, appears unreasonably low to the extent that the pricing raises material concerns with the Toronto Zoo as to the capability of the Supplier to perform the Contract on the basis of the offered pricing.

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- .3 If a materially unbalanced Bid or an abnormally low Bid is identified, the Toronto Zoo may seek clarification from the Supplier, including a detailed price analysis of its pricing in relation to the subject matter of the Contract, the scope of Work, the estimated quantities, the schedule for the performance of the Work, the allocation of risks and responsibilities and any other requirements of RFT.
- .4 If after evaluation of the price analysis, the Toronto Zoo determines that the Supplier has failed to demonstrate its capability to perform the Contract on the basis of the offered pricing, or that the offered pricing in constitutes a material risk to the Toronto Zoo, the Toronto Zoo may reject the Bid.

2.2 Rights of the Toronto Zoo

In addition to, but without limiting any other rights or options of the Toronto Zoo under this RFT, the Toronto Zoo may, in its sole and absolute discretion carry out the RFT process as it determines to be in the best interests of the Toronto Zoo and to be the most beneficial to Toronto Zoo. The Toronto Zoo may, in its sole and absolute discretion, exercise any or all of the following rights and options with respect to this RFT, at any time.

- .1 The Toronto Zoo may waive minor irregularities in any Bid.
- .2 The Toronto Zoo shall not be obliged to accept or reject any Bid (in whole or in part), including if:
 - the Bid contents appear to be incorrect, inaccurate or inappropriate;
 - the Supplier has engaged in conduct prohibited by the RFT; or
 - the Supplier or any member of a Supplier's Joint Venture is or becomes bankrupt, insolvent, makes an assignment for the benefit of its creditors generally or has a receiver appointed over all or a substantial part of its assets.
- .3 The Toronto Zoo may suspend, modify and/or cancel this RFT (with or without the substitution of another RFT) or the Project.
- .4 The lowest quoted price may not necessarily be accepted by the Toronto Zoo.
- .5 The Toronto Zoo may verify the validity of a Bid including the Supplier's statements, claims, qualifications or capabilities, by whatever means the Toronto Zoo deems appropriate including obtaining references other than those offered by the Supplier, and conduct investigations as to the qualifications of each Supplier.
- .6 The Toronto Zoo may, at any time during the RFT process, require (within such time period as set by the Toronto Zoo) one, some or all of the Suppliers to:

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- submit supplementary information or documentation clarifying any matters contained in their Bid;
- meet with the Toronto Zoo to clarify aspects of their Bid;
- acknowledge and agree to the Toronto Zoo's interpretation of any aspect of a Bid,

provided, however, that the Toronto Zoo is not obliged to seek clarification of any aspect of a Bid and may request clarification from some but not all Suppliers. Such clarification may be in respect of clarification with respect to whether a Bid meets the mandatory requirements of the RFT or whether the Supplier meets the necessary experience and performance qualifications set out in the RFT, if any. Any supplementary information and documents submitted by a Supplier which have been accepted by the Toronto Zoo and the interpretations prepared by the Toronto Zoo which have been acknowledged and agreed to by a Supplier shall be considered to form part of the Bid.

- .7 The Toronto Zoo reserves the right to assess the ability of the Supplier to perform the Contract and may reject any Bid where, in the Toronto Zoo's sole determination, the personnel and/or resources of the Supplier are insufficient.
- .8 Bids that are improperly prepared, not in compliance with all of the requirements or instructions of the RFT, incomplete, improperly signed, conditional, qualified, illegible, obscure or contain reservations, additions not called for, arithmetical errors, omissions, erasures, alterations, or irregularities of any kind may, be considered informal or irregular and may be rejected or be retained by the Toronto Zoo for consideration and acceptance.
- .9 The Toronto Zoo may choose to meet with some or all of the Suppliers in connection with their Bids or the matters provided for in the RFT. The Toronto Zoo may visit the existing place or places of business of some or all Suppliers for purposes of clarification or verification.
- .10 The Toronto Zoo may award one or more contracts for portions or all of the Work to as many Suppliers and/or Other Persons as it deems appropriate, including awarding a contract for Work less than the scope or quantity contemplated in the Successful Supplier's Bid or the RFT.
- .11 The Toronto Zoo may issue a solicitation to one, some or all of the Suppliers and/or any Other Person.
- .12 After the Submission Deadline, the Toronto Zoo may increase or decrease the quantity of any unit of Work in accordance with the Contract.
- .13 The Toronto Zoo may exercise any other right or option provided for in, or in connection with, this RFT, including the rights and options set out in the Toronto Zoo's Policies.

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.14 The Toronto Zoo may do nothing in relation to the Bids or this RFT.

2.3 Contract Execution

- .1 Once a Bid has been accepted by the Toronto Zoo, the Procurement Contact will notify the Successful Supplier that it has been awarded the Contract.
- .2 The Successful Supplier will be required to execute and deliver the Contract as well as the other documentation set out below in this Section 2.3.2 (Contract Execution) by taking the following steps within ten (10) Business Days after being notified by the Toronto Zoo that the Contract is ready for execution:
 - .1 execute and return the Contract, without any unilateral revisions to the Contract;
 - .2 obtain and deliver a performance bond and a labour and material payment bond for the due and proper performance of the Work, each in accordance with the requirements of the Contract and signed and sealed by the Supplier and its surety;
 - .3 arrange for the certificate of insurance in the form attached as a part of the Contract to be completed and signed (including stamp of insurance broker) and delivered to the Toronto Zoo;
 - .4 A letter from Workplace Safety and Insurance Board certifying that the Contractor is in good standing with the Board. A "letter of good standing" must be re-submitted throughout the Contract every 90 days.
- .3 Should the Successful Supplier fail to execute and deliver the Contract and deliver the accompanying documents in accordance with the requirements of Section 2.3.2 (Contract Execution), the Successful Supplier shall be deemed to have abandoned all rights and interests in the Contract and the RFT and the Toronto Zoo may, without prejudice to any other remedy or right which it may have, exercise all or any one or more of the following rights:
 - rescind its award of the Contract;
 - call on the Bid Bond;
 - accept the Bid of the next highest ranked Supplier and proceed to execute the Contract with such Supplier; or
 - suspend the Successful Supplier from participating in other Toronto Zoo procurement processes for such period of time as may be determined under the Supplier Performance Evaluation .

2.4 Notification to Other Suppliers

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Part 1 – Instruction to Bidders – Section 2 – EVALUATION, ACCEPTANCE AND EXECUTION

Once the Successful Supplier is notified that the Toronto Zoo has awarded the Contract, the other Suppliers will be notified by the Toronto Zoo in writing Toronto Zoo the outcome of the RFT process.

2.5 Debriefing

Unsuccessful Suppliers may request a debriefing after receipt of a notification of the outcome of the selection process. All requests must be in writing to the Procurement Contact Toronto Zoo. The intent of the debriefing information session is to aid the Supplier in presenting a better bid in subsequent procurement opportunities. Any debriefing provided is at the sole and absolute discretion of the Toronto Zoo, and not for the purpose of providing an opportunity to challenge the RFT process.

SECTION 3 - GENERAL RFT TERMS AND CONDITIONS

3.1 General Process Terms and Conditions

- .1 Suppliers acknowledge that their Bids are governed by the terms and conditions set out in this RFT as well as the by-laws, policies and procedures established by the Toronto Zoo (including the Toronto Zoo's Policies and Procedures) and any additional terms and conditions related to the provision of the Toronto Zoo and Suppliers will become familiar, and comply with, all of the foregoing. Each Supplier shall comply with the Toronto Zoo's Policies and Procedures including the specific policies set out in Form A of Part 4 – Bid Submission Form (Toronto Zoo's Policies and Procedures) and elsewhere in this RFT. It is the responsibility of the Supplier to review all such policies.
- .2 Suppliers should structure their bids in accordance with the instructions in this RFT. Where information is requested in this RFT, any response made in a Bid should reference the applicable section numbers of this RFT.
- .3 The Toronto Zoo will have no obligation to consider information, documentation or other content not included in a Bid for the purpose of evaluating the Bid. For clarity, the Toronto Zoo will not consider any content referred to in but not included in the Bid, including information referenced by links to websites or other external documents.

3.2 Suppliers Shall Bear Their Own Costs

Each Supplier shall bear all costs, expenses and financial obligations associated with or incurred by the Supplier to: (i) prepare and present its Bid or to otherwise participate in the RFT process including, if applicable, costs incurred for samples, interviews or demonstrations; or (ii) to establish a legally binding contract with the Toronto Zoo.

3.3 Limitation of Liability

- .1 Notwithstanding anything in the RFT and any express or implied duties or obligations of the Toronto Zoo to the contrary, the Toronto Zoo and each of its agencies, boards, commissions, elected officials, officers, employees, servants, agents, volunteers, suppliers, advisers and contracted personnel will have no liability to any Person, including any Supplier and prospective Supplier for any damages, costs, liabilities, losses or expenses including direct, indirect, special or punitive damages, or for loss of profits, loss of opportunity or loss of reputation arising out of or otherwise relating to:
 - this RFT,
 - participation of any such Person in this RFT process;
 - the provision and availability or lack of availability or accuracy of the Toronto Zoo RFT issued by the Toronto Zoo; or
 - the Toronto Zoo's acts or omissions in connection with the conduct of this RFT process, including the acceptance, non-acceptance or delay in acceptance by the Toronto Zoo of any Bid.
- .2 This limitation applies to all possible claims, whether arising in contract, tort, equity, or otherwise, including any claim for a breach by the Toronto Zoo of a duty of fairness, if any, or relating to a failure of the Toronto Zoo to comply with the rules set out in this

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Part 1 – Instruction to Bidders – Section 3 – General RFT Terms and Conditions

RFT. By submitting a Bid to the Toronto Zoo, each Supplier irrevocably and unconditionally waives any claims for damages, costs, liabilities, losses and expenses, and shall not seek any order for injunctive relief or specific performance, against the Toronto Zoo, its agencies, boards, commissions, elected officials, officers, employees, servants, agents, volunteers, advisers and contracted personnel.

- .3 Each Supplier agrees that, despite Section 3.3.1(Limitation of Liability) or any limitations of liability or releases in favour of Toronto Zoo, if the Toronto Zoo is found to be liable, in any way whatsoever, for any act or omission in respect of the RFT Toronto Zoo to any Supplier or any other Person participating in the RFT process, and the aggregate amount of damages recoverable against Toronto Zoo for any matter relating to or arising from any act or omission by the Toronto Zoo, whether based upon an action or claim in contract, warranty, equity, negligence, intended conduct or otherwise, including any action or claim arising from the acts or omissions, negligent or otherwise, of the Toronto Zoo shall be no greater than the Supplier's cost of preparing its Bid.
- .4 Notwithstanding the Toronto Zoo's limitation of liability, the Supplier may seek a debriefing or may pursue a dispute of the RFT process in accordance with the Toronto Zoo's Policies and Legislation.

3.4 Joint Venture Bids

A Supplier may be a private legal entity or any combination of such entities in the form of a joint venture (**Joint Venture**) under and existing agreement or with the intent to enter into such an agreement as supported by a letter of intent. In the case of a Joint Venture, all members shall be jointly and severally liable for the execution of the entire contract if selected by the Toronto Zoo. The Joint Venture shall nominate a representative who shall have the authority to conduct all business on behalf of all members of the Joint Venture during the procurement process and for the execution and performance of any resulting contract.

3.5 Participation in Multiple Bids

Submission or participation in more than one Bid by a Supplier will result in the disqualification of all proposals in which the Supplier is involved. This does not limit the inclusion of the same subcontractor from being named in more than one Bid as a subcontractor only.

3.6 Toronto Zoo Materials

- .1 The RFT and all correspondence, data, plans, materials, drawings, specifications, reports, estimates, summaries, photographs, models and all other information and documentation in any form provided or made available to any Supplier or prospective Supplier by, or on behalf of, the Toronto Zoo in connection with, or arising out of this RFT (collectively, the "**Toronto Zoo Materials**") and all intellectual property rights therein:
 - are and shall remain the sole and absolute property of the Toronto Zoo;
 - must be treated by Suppliers and prospective Suppliers as confidential and Suppliers must maintain such confidentiality;

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Part 1 – Instruction to Bidders – Section 3 – General RFT Terms and Conditions

- must not be disclosed without prior written authorization from the Toronto Zoo;
 - must not be used for any purpose other than for replying to this RFT, and for fulfillment of the Contract or any related subsequent agreement; and
 - immediately upon the request of the Toronto Zoo, must be returned by the Supplier to the Toronto Zoo and all electronic copies must be destroyed.
- .2 Unless and to the extent provided otherwise in the Contract, the Toronto Zoo and its advisers make no representation or warranty as to the accuracy or completeness of the Toronto Zoo Materials. Any quantities shown or data contained in the Toronto Zoo Materials are estimates only and are for the sole purpose of indicating to Suppliers the general scale and scope of the Work. Use of or reliance by Suppliers on the Toronto Zoo Materials Toronto Zoo shall be at the Supplier's sole risk and without recourse against the Toronto Zoo.
- .3 It is the Suppliers' responsibility to make their own independent investigations, due diligence, projections and conclusions, and consult their own advisors, to obtain all the information necessary to:
- verify and confirm the accuracy and completeness of the Toronto Zoo Materials, unless and to the extent provided otherwise in the Contract;
 - Toronto Zoo satisfy themselves as to all existing conditions affecting the Project or the Contract; and
 - prepare their Bids in response to this RFT.

3.7 Ownership of Bid Materials

- .1 The documentation comprising any Bid, along with all correspondence, data, plans, materials, drawings, specifications, reports, estimates, summaries, photographs, models and all other information and documentation in any form provided or made available to the Toronto Zoo by, or on behalf of, any Supplier in connection with, or arising out of this RFT (collectively, the "**Bid Materials**") and all intellectual property rights therein, once received by the Toronto Zoo:
- shall become the sole and absolute property of the Toronto Zoo;
 - shall become subject to MFIPPA, and the Toronto Zoo may be required to disclose the Bid Materials members of the public, pursuant to MFIPPA.
- .2 Each Supplier:
- represents and warrants that the information contained in its Bid Materials does not infringe any intellectual property right of any third party;
 - hereby assigns and transfer to the Toronto Zoo, and shall cause all its personnel and other third parties to assign and transfer to the Toronto Zoo, all right, title and interest in the Bid Materials, including intellectual property rights therein:

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- shall cause all its personnel and other third parties to waive, for the benefit of the Toronto Zoo, their respective moral rights (and any similar rights to the extent that such rights exist) in and to the Bid Materials; and
 - shall indemnify, defend and hold harmless the Toronto Zoo, City of Toronto and Toronto Regional Conservation Authority and its agencies, boards, commissions, elected officials, officers, employees, servants, agents, volunteers, advisers and contracted personnel, if any, against all claims, actions, suits and proceedings brought against, or losses, costs, expenses, damages suffered, sustained, or incurred by them which may be directly or indirectly attributable to, or arising or alleged to arise out of the infringement or alleged infringement of any patent, copyright, trademark, or other intellectual property right of a third party in connection with the Bid Materials.
- .3 Suppliers are also advised that MFIPPA does provide protection for confidential and proprietary business information. For the purposes of the Toronto Zoo's compliance with MFIPPA, Suppliers are advised to identify in their Bid Materials material any scientific, technical, commercial, proprietary or similar confidential information, the disclosure of which could cause them injury.
- .4 Each Supplier's name and total bid price may be made public. Bid Materials will, as necessary, be made available:
- on a confidential basis, to advisers retained by the Toronto Zoo to advise or assist with the RFT process;
 - to members of Council in accordance with the Toronto Zoo's procedures; and
 - to members of the public pursuant to MFIPPA.
- .5 The Toronto Zoo will not return the Bid or any other Bid Materials.

3.8 Failure or Default of Supplier

- .1 Without prejudice to any other right or remedy available to the Toronto Zoo under this RFT or at law, if the Supplier, for any reason, fails or defaults in respect of an obligation of the Supplier under the terms of the RFT, the Toronto Zoo may:
- disqualify the Supplier from the RFT and/or from competing for any future solicitations issued by the Toronto Zoo; and
 - require the Supplier to pay the Toronto Zoo the difference between its Bid and any other Bid which the Toronto Zoo accepts, if the latter is for a greater amount and, in addition, to pay the Toronto Zoo any other cost which the Toronto Zoo may incur by reason of the Supplier's failure or default.
- .2 The Supplier shall be ineligible to submit a new bid for any solicitations that the Toronto Zoo is required to reissue as a result of the Supplier's failure or default under

the Contract or where the Toronto Zoo deems that the Supplier has abandoned the Contract.

3.9 Trade Agreements

Suppliers should be aware that procurements falling within the scope of the Canadian Free Trade Agreement or other trade agreements applicable to the Toronto Zoo are subject to such agreements, but the rights and obligations of the parties will be governed by the specific terms of this RFT

3.10 Governing Law and Enforceability

- .1 The terms and conditions of the RFT process are to be governed by and construed in accordance with the Toronto Zoo's Policies, the laws of the province of Ontario and the federal laws of Canada applicable therein.
- .2 If any provision of the RFT or its application to any party or circumstance is unenforceable, the provision shall be ineffective only to the extent of the unenforceability without: (i) invalidating the remaining provisions of the RFT; (ii) changing the fundamental nature of the obligations assumed by the parties; and (iii) affecting its application to other parties or circumstances.

3.11 RFT Definitions and Interpretation

.1 Definitions

Throughout this RFT, unless inconsistent with the subject matter or context, the following definitions shall apply other than in respect of Part 2 (FORM OF CONSTRUCTION AGREEMENT).

- .1 “**Addenda**” or “**Addendum**” means a document containing additional information and/or changes to the RFT issued by the Toronto Zoo on its website.
- .2 “**Bid**” means an offer submitted by a Supplier in response to the RFT, which includes all of the documentation necessary to satisfy the submission requirements of the RFT and “**Bids**” shall have a corresponding meaning;
- .3 “**Bid Bond**” has the meaning set out in Section 1.9.3 (Bid Bonds).
- .4 “**Bid Materials**” has the meaning set out in Section 3.7.1 (Ownership of Bid Materials).
- .5 “**Bid Submission Form**” has the meaning set out in Section 1.9.2 (Bid Submission Form).
- .6 “**Bid Validity Period**” has the meaning set out in Section 1.12. (Bid Validity Period).
- .7 “**Business Day**” means a day other than:
 - .1 a Saturday, Sunday, statutory holiday, or statutory vacation day that is observed by the Toronto Zoo of Toronto; or

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Part 1 – Instruction to Bidders – Section 3 – General RFT Terms and Conditions

- .2 a day identified by the Toronto Zoo as a designated or statutory holiday
- .8 “**Toronto Zoo**” means the Board of Management of the Toronto Zoo.
- .9 “**Materials**” has the meaning set out in Section 3.6 (Toronto Zoo Materials).
- .10 “**Contract**” means the contract in the form set out in Part 2 (FORM OF CONSTRUCTION AGREEMENT) to be executed by the Successful Supplier and the Toronto Zoo, which sets out the terms and conditions for the performance of the Work.
- .11 “**Joint Venture**” has the meaning set out in Section 3.4 (Joint Venture Bids).
- .12 “**MFIPPA**” means the *Municipal Freedom of Information and Protection of Privacy Act*, as amended, supplemented, re-enacted or replaced from time to time.
- .13 “**Person**” means any individual, partnership, limited partnership, firm, joint venture, syndicate, company or corporation with or without share capital, trust, trustee, executor, administrator or other legal personal representative, governmental authority or entity however designated or constituted
- .14 “**Procurement Contact**” has the meaning set out in Section 1.2 (Procurement Contact).
- .15 “**Project**” has the meaning set out in Section 1.1 (Introduction).
- .16 “**RFT**” means this RFT package in its entirety, including all documents listed in Section 1.3 (RFT Documents) and Addenda that may be issued by the Toronto Zoo.
- .17 “**Subcontractor**” means a Person undertaking the execution of a part of the Work by virtue of an agreement with the Contractor.
- .18 “**Submission Deadline**” means the specified deadline for Bids to be submitted to the Toronto Zoo as indicated in the RFT timetable in Section 1.5 (RFT Timetable).
- .19 “**Successful Supplier**” means the Supplier that has been selected to enter into the Contract for the performance of the Work.
- .20 “**Supplier**” means a Person, including, where applicable, a Joint Bid Team, that submits a Bid in response to this RFT and “**Suppliers**” shall have a corresponding meaning.
- .21 “**Work**” means all work, services and deliverables to be provided by a Contractor in respect of the Project as described in this RFT.

.2 Interpretation of the RFT

- .1 Except where otherwise requested, all documents relating to the Bid and all communications between Suppliers and the Toronto Zoo will be in the English language.

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Part 1 – Instruction to Bidders – Section 3 – General RFT Terms and Conditions

- .2 Except where otherwise disclosed, all references to times in this RFT will mean local time in Toronto, Ontario, Canada.
- .3 The phrase “includes” “, include” or “including” means “includes, without limitation” or “including” or “include, without limitation”.
- .4 In the RFT, unless the context otherwise requires, words importing the singular include the plural and vice versa and words importing gender include all genders.
- .5 Unless otherwise stated herein, all amounts in the RFT are in Canadian dollars, including any amounts provided in the Pricing Form.
- .6 In addition to the words defined in Section 13.13.1 (Definitions), the other words used in this RFT shall be interpreted consistent with the definitions contained in the Toronto Zoo's Policies..

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Part 1 – Instruction to Bidders – Submission Label

QUESTIONS ON BID DOCUMENTS (QBD)

Deadline: 4:00 p.m. on Friday, 2021-04-15.

See Section Instructions to Bidders 1.8

Contact:

To: The Toronto Zoo
361A Old Finch Avenue
Toronto, ON M1B 5K7
Tel: (416) 392-5916
Fax: (416) 392-6711
Attn: Peter Vasilopoulos pvasilopoulos@torontozoo.ca

From:	_____	Date:	_____
Firm:	_____	Tel:	_____
Spec Section:	_____	Paragraph(s):	_____
Drawing Sheet:	_____	Detail(s):	_____

Question(s):

:

Mark this box if the QBD can be answered by Bidder's review of the documents. Reply with location(s) where the information can be obtained.

Reply:	_____
--------	-------

By:	Firm:	Date:
-----	-------	-------

The reply is an answer to a Bidder's question. The reply does not change the Bid Documents unless the information contained therein is issued in an Addendum. At the sole discretion of the Toronto Zoo, the question and reply may be returned to the questioner and distributed to all bidding general contractors for informational purposes.

SUBMISSION LABEL

This address label should be affixed to the front of your sealed tender, quotation and proposal envelope/package submission. Toronto Zoo will not be held responsible for envelopes and packages that are not properly labelled or submitted to an address other than the one listed on this label.

Vendor Name _____

TZC T 06-2021-03 – (VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR)

Closing: Thursday, 2021-04-22, 12:00 (noon) local time

TO BE RETURNED TO

**TORONTO ZOO
C/O SUPERVISOR, PURCHASING & SUPPLY
ADMINISTRATIVE SUPPORT CENTRE
361A OLD FINCH AVE.
TORONTO, ONTARIO
M1B 5K7**



CONSTRUCTION AGREEMENT CONTRACT TZC T 06-2021-03

for

**Facilities & Infrastructure, Project Management
Branch**

**EDUCATION CENTRE – WASHROOM
UPGRADES**

NOTICE RE: CONSTRUCTION ACT

* Parts I.1 (Prompt Payment) and II.1 (Adjudication) of the Construction Act apply with respect to this Agreement and all subcontracts thereunder.

* All claims for lien (Form 12) must be completed and submitted through the City of Toronto's website at www.toronto.ca/liens, pursuant to section 34(3.1) of the Construction Act and section 11.1 of O. Reg 304/18.

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AGREEMENT BETWEEN OWNER AND CONTRACTOR

This Agreement entered into on the Effective Date

between

The Board of Management of the Toronto Zoo

(“Owner”)

and

● **[Note to Finalization before Execution: Insert Legal Name of Contractor]**

(“Contractor”)

WHEREAS Parts I.1 (Prompt Payment) and II.1 (Adjudication) of the Construction Act apply with respect to this Agreement and all subcontracts thereunder as the Owner commenced a procurement process for the improvement that is subject of the Agreement (“**Procurement Process**”) on or after October 1, 2019;

AND WHEREAS ● **[Note to Finalization before Execution: Complete recitals];**

NOW THEREFORE in consideration of the mutual covenants herein contained, the Owner and the Contractor agree as follows:

1. THE WORK

The Contractor shall:

- 1.1 perform the Work required by the Agreement for the Project located at the Site; and
- 1.2 do and fulfill everything indicated by the Agreement; and
- 1.3 commence the Work on the Commencement Date and, subject to adjustment in Contract Time as provided for in the Agreement, attain Substantial Performance of the Work, by the Scheduled Date for Substantial Performance of the Work, and otherwise perform the Work in accordance with the Construction Schedule.

2. CONTRACT PRICE

- 2.1 The price for the Work (including any changes in the Work), which excludes Value Added Taxes, is the sum of, if applicable:
 - .1 in respect of the Fixed Price Work, the Fixed Price; plus
 - .2 in respect of the Unit Price Work, the Total Price of Unit Price Work; plus

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- .3 in respect of T&M Changes in the Work recorded in a Change Order, the T&M Price, (the “**Contract Price**”).
- 2.2 Value Added Taxes in the percentage amount of thirteen percent (13%) are payable by the Owner to the Contractor.
- 2.3 The Contract Price shall only be subject to adjustment as provided in the Agreement.
- 2.4 All amounts in the Agreement are expressed and payable in Canadian currency, unless expressly noted otherwise.

3. DOCUMENTS COMPRISING THE AGREEMENT

- 3.1 The following documents whether attached hereto or referred to herein form an integral part of the Agreement:
 - Schedule A – Information Sheet
 - Schedule B – Pricing Form
 - Schedule C – Definitions
 - Schedule D – General Conditions
 - Schedule E – Valuing Changes in the Work
 - Schedule F – Owner Policies, Procedures, By-Laws and Other Requirements
 - Schedule G – Forms
 - Form 1 – Proper Invoice
 - Form 2 – Certificate of Insurance
 - Form 3 – Tax Statutory Declaration
 - Form 4 – Notice of Adjudication
 - Schedule H – Drawings and Specifications
 - Construction Schedule
 - Supplemental Instructions
 - any other document identified elsewhere in the Agreement as a document forming part of the Agreement.

Construction Agreement

The parties hereto have executed this Agreement by the hands of their duly authorized representatives.

SIGNED AND DELIVERED

in the presence of:

The Board of Management of the Toronto Zoo

● **[Note to Finalization before Execution:
Authority stamp to be completed by the
Owner]**

By:

Name: ●
Title: ●
I have authority to bind the corporation

By:

Name: ●
Title: ●
I have authority to bind the corporation

● **[Note to Finalization before Execution:
Insert Legal Name of Contractor]**

By:

Name: ●
Title: ●
I have authority to bind the corporation

By:

Name: ●
Title: ●
I have authority to bind the corporation

[Note to Finalization before RFT/Execution: If the Contractor is an individual, use the following signature block. Delete signature block not used. Consult Legal Services if needed.]

SIGNED, SEALED & DELIVERED

In the presence of:

Witness

Name

**SCHEDULE A
INFORMATION SHEET**

[Note to Finalization before Execution: Revise A.3, A.4, A.5 and A.6 with information provided after award.]

The following table provides information cross-referenced in the provisions of the Agreement. All reference to GCs are located in Schedule D – General Conditions.

Row	Input Information	Reference	Description
A. Names and Information			
A.1	Project	Sch. C, Definition 79 & GC 3.8.2.3(1)	VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR at the Toronto Zoo.
A.2	Site	Definition 90	Work under this contract will take place at: 361A Old Finch Ave, Toronto, ON M1B 5K7 VALLEY HALLA – TORONTO ZOO
A.3	Notice information	GC 1.6.1.2, GC 1.6.1.3 & GC 1.6.1.4	To be provided after award
A.4	Identity of Contract Administrator	Sch. C, Definition 24	To be provided after award
A.5	Identity of Owner Representative	Sch. C, Definition 70	To be provided after award
A.6	Approved Subcontractors	GC 3.8.3, GC 3.8.3.1 & GC 3.8.3.2	To be entered after award
B. Pricing, Markups and Liquidated Damages			
B.1	Contractor's Markup for negotiated fixed price and negotiated unit price changes in the Work performed by Contractor	Sch. E, s. 2.2.3.1	Not Applicable Note: All markups for Labour and Equipment shall be included in the Unit Bid Prices. No additional markups will be paid.
B.2	Total Cumulative Markup allowed for Contractor,	Sch. E, s. 2.2.3.2	Zero percent (0%)

Construction Agreement
Schedule A – Information Sheet

Row	Input Information	Reference	Description
	Subcontractors, Suppliers and Sub-subcontractors on negotiated fixed price and negotiated unit price changes in the Work performed by Subcontractors, Suppliers or Sub-subcontractors (and not performed by the Contractor)		
B.3	T&M Percentage Markup for changes in the Work performed by Contractor	Sch. E, s. 3.3.1	Ten percent (10%)
B.4	Total Cumulative T&M Percentage Markup allowed for Contractor, Subcontractors, Suppliers and Sub-subcontractors on changes in the Work performed by Subcontractors, Suppliers or Sub-subcontractors (and not performed by the Contractor)	Sch. E, s. 3.3.2	Fifteen percent (15%)
B.5	Markup for Cash Allowance overages	GC 6.1.4	Ten percent (10%)
B.6	Amounts of Delay Liquidated Damages	GC 7.6.1	\$0.00 per Calendar Day that is a weekday; \$0.00 per Calendar Day that is a weekend day.
B.7	Changes in the Work on a Time & Material Basis	Sch. E, s. 3	Vertical Approach
B.8	Schedule A Schedule of Prices for Changes in the Work	Sch. B	Not applicable
B.9	Invoice Period		No change to default Invoice Period

**Construction Agreement
Schedule A – Information Sheet**

Row	Input Information	Reference	Description
		Sch. C, Definition 54	
B.10	Giving of a Proper Invoice	GC 5.3.1	Proper invoices shall be given to the Owner by referencing GC 1.6.1.1
C. Dates, Time Periods and Deadlines			
C.1	Effective Date	Sch. C, Definition 40	To be finalized after award
C.2	Commencement Date	Sch. C, Definition 17 & GC 3.1.6	To be provided after execution of Agreement by Notice in Writing to the Contractor
C.3	Key Work Milestones	Sch. C, Definition 55	Not applicable
C.4	Scheduled Date for Substantial Performance of the Work	Sch. C, Definition 86	Monday June 28, 2021
C.5	Scheduled Date for Total Performance of the Work	Sch. C, Definition 87	Friday July 09, 2021
C.6	Warranty Period	Sch. C, Definition 113	No change to default Warranty Period, except as stated within specifications.
C.7	Working Days	Sch. C, Definition 115	No change to default Working Days
C.8	Number of Days for Contract Administrator to Issue a Certificate for Payment	GC 5.4.1.2	28 Calendar Days after receipt of a Proper Invoice
C.9	Deadline to acknowledge a Contemplated Change Order	GC 7.2.1	No change to default of 10 Working Days
C.10	Deadline to respond	GC 7.3.5	5 Working Days

**Construction Agreement
Schedule A – Information Sheet**

Row	Input Information	Reference	Description
	to a Change Directive		
C.11	Suspension Period for Stop Work Orders	GC 11.2.1	No change to default of 60 Working Days
D. Insurance, Contract Security, Bonds and Contractual Holdback			
D.1	Insurance Coverages	GC 8.1.1.1, GC 8.1.1.2, GC 8.1.1.3 & GC 8.1.3	Automobile Liability Insurance shall have limits of not less than two million dollars (\$2,000,000) Professional Liability Insurance shall have limits of not less than one million dollars (\$1,000,000). Pollution Liability Insurance coverage is not required.
D.2	Additional Contract Security	GC 8.2.1	Not Applicable
D.3	Amount of the Contractual Holdback	GC 8.4.1	Not Applicable
D.4	Percentage by which Contractual Holdback is Reduced after Total Performance of the Work	GC 8.4.3	Not Applicable
D.5	Surety Bonds	GC 8.3.1	No change to requirements in GC 8.3.1
E. Miscellaneous			
E.1.	Alternate order of priority of the Agreement Documents	GC 1.1.7.1	<i>No change to default order of priority</i>
E.2.	Allowable Portion of the Work for Subcontracting	GC 3.8.1	Not Applicable
E.3.	Accuracy of Utilities and Structures	GC 4.1.4.1	Contractor to rely on accuracy of positions of Utilities and Structures provided in the Agreement, subject to the following tolerances: on any drawing, 2 metres horizontally, and 1 metre vertically
E.4.	Fair Wage Schedule	Sch. F, if applicable	Fair Wage Policy is applicable. Use the City of Toronto's Fair Wage Policy available at https://www.toronto.ca/business-economy/doing-business-with-the-city/understanding-the-

**Construction Agreement
Schedule A – Information Sheet**

Row	Input Information	Reference	Description
			procurement-process/fair-wage-office-policy/fair-wage-policy/
E.5.	Workforce Development Plan	Sch. F, if included	There is <u>no requirement</u> for a Workforce Development Plan under this Agreement.

SCHEDULE B

PRICING FORM

[Note to Finalization before Execution: Attach Pricing Form]

SCHEDULE C

DEFINITIONS

The following Definitions shall apply to the Agreement.

- 1. Adjudicable Dispute**
A dispute respecting an Adjudicable Matter and that complies with GC 12.1.2.
- 2. Adjudicable Matter**
Any matter:
 1. referred to in s. 13.5(1) of the Construction Act, other than in paragraph 7;
 2. that is prescribed under the Construction Act as referable to adjudication; or
 3. agreed to by the parties pursuant to GC 12.2.1.2.
- 3. Adjudication**
Adjudication means a construction dispute interim adjudication under Part B.1 of the Construction Act.
- 4. Adjudicator**
Adjudicator means an individual who is qualified by the Authority as an adjudicator.
- 5. Agreement**
Agreement means the agreement between Owner and Contractor and the Schedules attached thereto, as the same may be amended, supplemented, restated or replaced from time to time in writing upon the mutual agreement of the parties or as may be otherwise provided for in the Agreement.
- 6. Allowance**
Allowance means a Cash Allowance or Provisional Allowance, as applicable.
- 7. As-Built Drawings**
As-Built Drawings has the meaning set out in GC 3.10.2.
- 8. Authority**
Authority means the Authorized Nominating Authority designated under the Construction Act.
- 9. Calendar Day**
Calendar Day means a calendar day.
- 10. Cash Allowance**
Cash Allowance means the allowances, if any, identified in the Pricing Form for known items included in the Work where the actual cost was unknown at the time of tender. The Contractor's overhead and profit is excluded from Cash Allowance and is carried in other pricing as set out in GC 6.1.2.

Construction Agreement Schedule C – Definitions

- 11. Certificate of Recognition (COR™)**
Certificate of Recognition (COR™) means the nationally recognized occupational health and safety certification granted to qualifying firms by the Infrastructure Health and Safety Association (IHSA) of Ontario or its successor.
- 12. Change Directive**
A Change Directive means a written instruction, which shall be deemed incorporated into and forming part of the Agreement, prepared by the Contract Administrator and signed by the Owner directing the Contractor to proceed with a change in the Work prior to or in the absence of the Owner and the Contractor agreeing upon adjustments in the Contract Price and the Contract Time.
- 13. Change Order**
A Change Order means a written amendment to the Agreement, which shall be deemed incorporated into and forming part of the Agreement, prepared by the Contract Administrator and signed by the Owner and the Contractor stating their agreement upon:
1. a change in the Work;
 2. the method of adjustment or the amount of the adjustment in the Contract Price, if any; and
 3. the extent of the adjustment in the Contract Time, if any.
- 14. City**
City means the City of Toronto. The words “City” or “City of Toronto” wherever used in the Agreement shall be regarded as synonymous.
- 15. Claims**
Claims means any and all actual, threatened or potential claims, demands, proceedings, complaints, grievances, actions, adjudications, litigation, applications, suits, causes of action, orders, charges, arbitrations or other similar process, of whatsoever kind or nature (whether civil, administrative, regulatory, arbitral or otherwise), and Losses in respect of the foregoing matters.
- 16. Claim Notice**
Claim Notice has the meaning set out in GC 7.7.1.
- 17. Commencement Date**
Commencement Date means the commencement date for the performance of the Work as set out in row C.2 of the Information Sheet, or if no such date is set out, the date described in the Notice in Writing issued by the Owner to the Contractor, pursuant to GC 3.1.6 directing the Contractor to commence the performance of the Work.
- 18. Confidential Information**
Confidential Information means any and all (as the context requires) information of the disclosing party (including information in respect of or in connection with the Project or the performance of the Work) that is confidential to the disclosing party, or would reasonably be considered confidential, and that is disclosed orally or in writing by or on behalf of the disclosing party, to the receiving party pursuant to the Agreement, including

Construction Agreement Schedule C – Definitions

during the performance of the Work, regardless of whether the Information is specifically identified or marked as “Confidential”, “Restricted” or “Secret”. For the purposes of the Agreement, all Personal Information shall constitute Confidential Information.

19. **Conflict of Interest**

Conflict of Interest means any situation or circumstance where in relation to the performance of its obligations under the Agreement, the Contractor’s other commitments, relationships or financial interests:

1. could or could be seen to exercise an improper influence over the objective, unbiased and impartial exercise of its independent judgment; or
2. could or could be seen to compromise, impair or be incompatible with the effective performance of its contractual obligations.

20. **Construction Act**

Construction Act means the *Construction Act*, RSO 1990, c. C 30.

21. **Construction Equipment**

Construction Equipment means all tools, machinery and equipment, either operated or not operated, that is required for preparing, fabricating, conveying, erecting, or otherwise performing the Work but is not incorporated into the Work.

22. **Construction Schedule**

Construction Schedule has the meaning set out in GC 3.5.1.1.

23. **Contemplated Change Order**

Contemplated Change Order has the meaning set out in GC 7.2.1.

24. **Contract Administrator**

Contract Administrator means the Person designated by the Owner in row A.4 of the Information Sheet to be the Owner’s day to day administrator for the purposes of the Agreement or such other Person as may be designated by the Owner, from time to time. The words “Engineer”, “Architect” or “Consultant” wherever used in the Agreement shall be regarded as synonymous with the Contract Administrator, unless identified otherwise in row A.4 of the Information Sheet or if the Owner notifies the Contractor otherwise in writing.

25. **Contract Price**

Contract Price has the meaning set out in paragraph 2.1 of Section 2 of the Agreement – CONTRACT PRICE.

26. **Contract Time**

Contract Time means the time stipulated in paragraph 1.3 of Section 1 of the Agreement - THE WORK from the Commencement Date to the Scheduled Date for Substantial Performance of the Work.

Construction Agreement Schedule C – Definitions

- 27. Contractor**
Contractor means the Person identified as such on page 1 of the Agreement. The term Contractor means the Contractor or the Contractor's authorized representative as designated to the Owner in writing.
- 28. Contractor Parties**
Contractor Parties means the Contractor, Subcontractors, Suppliers and Sub-subcontractors and their respective Personnel.
- 29. Contractor Project Manager**
Contractor Project Manager has the meaning set out in GC 3.7.3.1.
- 30. Contractor Records**
Contractor Records means the Contractor's books, payrolls, accounts, invoices, purchase orders, receipts or other information or documentation.
- 31. Contractor Site Supervisor**
Contractor Site Supervisor has the meaning set out in GC 3.7.3.2.
- 32. Contractual Holdback**
Contractual Holdback has the meaning set out in GC 8.4.1.
- 33. Contractor Prepared Documents**
Contractor Prepared Documents has the meaning set out in GC 13.3.1.
- 34. Current Schedule**
Current Schedule means the Contractor's most up-to-date working schedule, prepared based on the Construction Schedule, indicating for a specific reporting period the actual progress of the Work and forecasting of future progress and performance to complete the Work.
- 35. Daily Contractor Work Records**
Daily Contractor Work Records mean daily Contractor Records detailing labour (including the number and categories of Personnel and hours worked or on standby) and Construction Equipment (including types and quantities) employed and Product (including descriptions and quantities) used.
- 36. Deficiency or Deficient**
Deficiency or Deficient means any aspect of the Work (including Products) that fails to comply with, or conform to, the requirements of the Agreement including Laws and the Standard of Care, whether or not such non-compliance or non-conformances occur, or are discovered, prior to or during the Warranty Period. Deficiency or Deficient includes deficiencies in application, engineering, manufacture, installation, construction, workmanship or materials (to the extent the Work includes such elements) and deficiencies in Products.
- 37. Delay Liquidated Damages**
Delay Liquidated Damages has the meaning set out in GC 7.6.1.

Construction Agreement Schedule C – Definitions

38. Dispute

Dispute means all disputes between the parties arising out of or in connection with the Agreement including as to:

1. the interpretation, application or administration of the Agreement;
2. findings or determinations under the Agreement, including under GC 7.7.6; or
3. the performance of the Work.

39. Drawings

Drawings means the graphic and pictorial portions of the Agreement as attached or listed in Schedule H – Drawings and Specifications or elsewhere in the Agreement wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, and diagrams, as the same may be amended, supplemented or replaced from time to time by the Owner.

40. Effective Date

Effective Date means the effective date of the Agreement as set out in row C.1 of the Information Sheet.

41. Equivalent OHS Certification

Equivalent OHS Certification means an occupational health and safety certification issued to qualifying firms by an independent third-party organization and accepted by the Owner (in the Owner's sole discretion) as equivalent to the Certificate of Recognition (COR TM).

42. Estimate of Units

Estimate of Units means an estimate of the total units performed during the identified period for each item of the Unit Price Work, as may be amended by the Contract Administrator or Owner Representative.

43. Estimate of Units for Completion

Estimate of Units for Completion means the Estimate of Units as of the Effective Date for the total performance of the applicable item of Unit Price Work, as may be set out in the Pricing Form.

44. Extended Warranty Periods

Extended Warranty Periods has the meaning set out in GC 9.3.6.

45. Fair Wage Policy

Fair Wage Policy means the Owner's Fair Wage Policy, if any such policy is identified in Schedule F - Owner Policies, Procedures, By-Laws and Other Requirements.

46. Final Acceptance Certificate

Final Acceptance Certificate has the meaning set out in GC 5.8.1.

47. Fixed Price

Fixed Price means the fixed price for the Fixed Price Work set out in the Pricing Form, and as may be adjusted by Change Order.

Construction Agreement Schedule C – Definitions

- 48. Fixed Price Work**
Fixed Price Work means the portion of the Work paid for on a Fixed Price basis.
- 49. GC**
GC means the General Conditions.
- 50. Governmental Authority**
Governmental Authority means any federal, provincial or municipal government, parliament or legislature, or any regulatory authority, agency, tribunal, commission, board or department of any such government, parliament or legislature, or any court or other law, regulation or rule-making entity, each having jurisdiction in the relevant circumstances, including, for clarity, any Person acting under the authority of any Governmental Authority and, with respect to taxes, whether domestic or foreign.
- 51. Hazardous Material**
Hazardous Material means any contaminant, pollutant, dangerous substance, potentially dangerous substance, noxious substance, toxic substance, hazardous waste, flammable material, explosive material, radioactive material, urea formaldehyde foam insulation, asbestos, polychlorinated biphenyls, coal tar and any other biological or chemical agent, substance or material named, described, declared or defined to be hazardous, toxic, or a contaminant or pollutant in, or pursuant to, any applicable Laws.
- 52. Highway**
Highway means a common and public highway, any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.
- 53. Indemnitees**
Indemnitees has the meaning set out in GC 9.1.1.
- 54. Invoice Period**
Unless otherwise specified in row B.9 of the Information Sheet, Invoice Period means the one-month long period which commences on the Commencement Date and ends on the day prior to the same date as the Commencement Date in the next successive calendar month and each subsequent one-month long period thereafter.
- 55. Key Work Milestones**
Key Work Milestones means the major milestones for the performance of the Work as set out in row C.3 of the Information Sheet, if any, as such milestones may be revised by Change Order or Change Directive.
- 56. Laws**
Laws means all:
1. laws, orders-in-council, by-laws, codes, rules, regulations and statutes of any Governmental Authority;
 2. orders, decisions, judgments, injunctions, decrees, awards, directives, rulings and writs of any court, tribunal, arbitrator, Governmental Authority or other Person having jurisdiction;

Construction Agreement

Schedule C – Definitions

3. legally enforceable consents, approvals, policies and guidelines of any Governmental Authority; and

4. any requirements under or prescribed by applicable common law,

which are applicable to the Owner, Contractor, the Project, Site, Work or obligations under the Agreement.

57. Lien Holdback

Lien Holdback means the ten percent (10%) holdback retained pursuant to Part IV of the Construction Act.

58. Losses

Losses means any and all losses, debts, expenses, liabilities, damages, obligations, payments, fines and costs.

59. Major Item

Major Item means any item of Unit Price Work that has a value, calculated on the basis of its Estimate of Units for Completion multiplied by its Unit Price, which is equal to or greater than the lesser of:

1. \$100,000; and

2. 5% of the estimated Total Price of Unit Price Work (calculated using the Estimate of Units for Completion for all items of Unit Price Work).

60. MFIPPA

MFIPPA means the *Municipal Freedom of Information and Protection of Privacy Act*.

61. Notice in Writing

A Notice in Writing means a written communication between the parties or between them and the Contract Administrator that is transmitted in accordance with the provisions of GC 1.6.1 and GC 1.6.2.

62. Notice of Adjudication

Notice of Adjudication means a written notice of Adjudication, which:

1. complies with Section 13.7(1) of the Construction Act; and

2. is substantially in the form attached as Form 4 of Schedule G – Forms, including the submission of all applicable attachments.

63. Notice of Negotiations

Notice of Negotiations has the meaning set out in GC 12.3.1.

64. OHSA

OHSA means the *Occupational Health and Safety Act (Ontario)*.

65. OPS

OPS means the Ontario Provincial Standards.

Construction Agreement Schedule C – Definitions

- 66. Other Work**
Other Work has the meaning set out in GC 4.2.1.3.
- 67. Owner**
The Owner means the City of Toronto or its agency, board or commission as more particularly set out on page 1 of the Agreement.
- 68. Owner Documents**
Owner Documents means, collectively, the Owner Prepared Documents and Contractor Prepared Documents.
- 69. Owner Prepared Documents**
Owner Prepared Documents has the meaning set out in GC 1.1.11.
- 70. Owner Representative**
The Owner Representative means the Person designated by the Owner in row A.5 of the Information Sheet to have the authority to bind the Owner for the purposes of the Agreement or such other Person as may be designated by the Owner, from time to time.
- 71. Owner Supplied Material**
Owner Supplied Material means the material and/or equipment identified or referenced in the Drawings, Specifications or elsewhere in the Agreement as supplied by the Owner for incorporation into the Project, which is to be installed, tested, commissioned and otherwise dealt with, as applicable, by the Contractor in accordance with the Agreement.
- 72. Owner's Policies, Procedures and By-laws**
Owner's Policies, Procedures and By-Laws means the policies and procedures of the Owner and the by-laws of the City of Toronto, as may be amended, supplemented or replaced from time to time, including the policies, procedures and by-laws referenced in Schedule F - Owner Policies, Procedures, By-Laws and Other Requirements.
- 73. Person**
Person means any individual, partnership, limited partnership, joint venture, syndicate, company or corporation with or without share capital, trust, trustee, executor, administrator or other legal personal representative, Governmental Authority or entity however designated or constituted.
- 74. Personal Information**
Personal Information means all information captured by the definition of "personal information" contained in MFIPPA, regardless of whether MFIPPA is applicable to such information.
- 75. Personnel**
Personnel means with respect to a Person, its employees, invitees, directors, officers, representatives and agents, and any other person for whom the Person is directly or indirectly responsible under contract or law.
- 76. Pricing Form**
Pricing Form means the pricing form set out in Schedule B – Pricing Form.

Construction Agreement

Schedule C – Definitions

- 77. Procurement Process**
Procurement Process has the meaning set out in the recitals to the Agreement.
- 78. Product**
Product or Products means products, goods, material, machinery, devices, equipment, and fixtures forming the Work or any part thereof, but does not include Construction Equipment and Owner Supplied Material.
- 79. Project**
Project means the project as described in row A.1 of the Information Sheet, of which the Work may be the whole or a part.
- 80. Proper Invoice**
Proper Invoice means an invoice from the Contractor to the Owner on account as provided in 5.2 - OWNER'S OBLIGATION TO PAY, which is in compliance with the requirements of 5.3.
- 81. Provide**
Provide means to supply and install.
- 82. Provisional Allowance**
Provisional Allowance means the allowances, if any, identified in a schedule of prices in the Pricing Form for alterations, extras and deductions. Provisional Allowance items include overhead and profit.
- 83. QA/QC Plan**
QA/QC Plan has the meaning set out in GC 3.13.2.
- 84. Recovery Plan**
Recovery Plan has the meaning set out in GC 7.5.6.1.
- 85. Rules**
Rules means the *Rules of Civil Procedure*, RRO 1990, Reg 194.
- 86. Scheduled Date for Substantial Performance of the Work**
Scheduled Date for Substantial Performance of the Work means the scheduled date for Substantial Performance of the Work as set out in row C.4 of the Information Sheet, or if no such date is set out, the number of Calendar Days or Working Days after the Commencement Date specified in row C.4 of the Information Sheet.
- 87. Scheduled Date for Total Performance of the Work**
Scheduled Date for Total Performance of the Work means the scheduled date for Total Performance of the Work as set out in row C.5 of the Information Sheet, or if no such date is set out, the number of Calendar Days or Working Days after the Commencement Date specified in row C.5 of the Information Sheet.

Construction Agreement

Schedule C – Definitions

- 88. Schedules**
Schedules means the schedules to the Agreement listed in paragraph 3.1 of Section 3 of the Agreement – DOCUMENTS COMPRISING THE AGREEMENT and includes any appendices thereto.
- 89. Shop Drawings**
Shop Drawings means the drawings, diagrams, illustrations, schedules, performance charts, brochures, Product data, and other data which the Contractor provides to illustrate details of portions of the Work.
- 90. Site**
Site means the designated site or location of the Work identified in row A.2 of the Information Sheet.
- 91. Special Specification**
Special Specification means a Specification containing requirements specific to the Work that are not included in any Standard Specification or which are intended to amend, supplement or replace part or all of a Standard Specification, as the same may be amended, supplemented or replaced from time to time by the Owner.
- 92. Specifications**
Specifications means that portion of the Agreement as attached or listed in Schedule H – Drawings and Specifications or elsewhere in the Agreement, wherever located and whenever issued, consisting of the written descriptions, requirements, instructions and standards for Products, systems, performance, installation, workmanship, quality, and the services necessary for the performance of the Work, as the same may be amended, supplemented or replaced from time to time by the Owner.
- 93. Standard Drawing**
Standard Drawing means a Drawing listed in the Schedule H – Drawings and Specifications as a standard drawing, as the same may be amended, supplemented or replaced from time to time by the Owner. The City of Toronto's Standard Drawings can be found on-line at www.toronto.ca/ecs-standards. Any of the OPS' Standard Drawings can be acquired from the OPS. Information about OPS can be found at www.ops.on.ca.
- 94. Standard of Care**
Standard of Care has the meaning set out in GC 3.13.1.
- 95. Standard Specification**
Standard Specification means a Specification listed in Schedule H – Drawings and Specifications as a standard Specification, as the same may be amended, supplemented or replaced from time to time by the Owner. The City of Toronto's Standard Specifications can be found on-line at www.toronto.ca/ecs-standards. Any of the OPS' Standard Specifications can be acquired from the OPS.
- 96. Subcontractor**
Subcontractor means a Person having a direct contract with the Contractor to perform a part or parts of the Work at the Site.

Construction Agreement
Schedule C – Definitions

97. Subject Matter of Indemnity

Subject Matter of Indemnity has the meaning set out in GC 9.1.1.

98. Submittals

Submittals means documents or items required by the Agreement to be provided by the Contractor in accordance with the Agreement such as:

1. Shop Drawings, samples, models, mock-ups to indicate details or characteristics, before the portion of the Work that they represent can be incorporated into the Work; and
2. As-Built Drawings and manuals to provide instructions as to the operation and maintenance of the Work.

99. Substantial Performance of the Work

Substantial Performance of the Work means:

1. the requirements set out in the Construction Act for a contract to be “substantially performed” have been met, including the Work being ready for use. For clarity, the Work shall not be “ready for use” until it has satisfied all the requirements for “ready for use” in the Specifications or elsewhere in the Agreement; and
2. the Contractor has submitted to the Contract Administrator all items required by the Specifications for Substantial Performance of the Work.

100. Substitution

Substitution has the meaning set out in GC 3.9.4.2.

101. Sub-subcontractor

Sub-subcontractor means a Person having a direct contract with a Subcontractor or Supplier or any other subcontractor or supplier at any tier, to perform a part or parts of the Work, or to supply Products. For greater certainty, Sub-subcontractors do not include the Subcontractors or the Suppliers.

102. Supplemental Instruction

A Supplemental Instruction means an instruction issued in writing, not involving adjustment in the Contract Price or Contract Time, in the form of Specifications, Drawings, schedules, samples, models or written instructions, which are consistent with the intent of the Agreement and issued by the Contract Administrator to supplement the Agreement as required for the performance of the Work.

103. Supplier

Supplier means a Person having a direct contract with the Contractor to supply Products.

104. Temporary Work

Temporary Work means temporary supports, structures, facilities, services, and other temporary items, excluding Construction Equipment, required for the execution of the Work but not incorporated into the Work.

Construction Agreement
Schedule C – Definitions

- 105. Total Performance of the Work or Totally Performed**
Total Performance of the Work or Totally Performed means when the entire Work (except for the correction of Deficiencies that are identified after the receipt of the Proper Invoice for payment, in accordance with 5.7) has been fully and totally performed to the requirements of the Agreement (including completion in accordance with the Construction Act and the correction of all Deficiencies that were identified prior to the receipt of such Proper Invoice) as certified by the Contract Administrator in the certificate of payment issued to the Owner pursuant to GC 5.7.1.4.
- 106. Total Price of Unit Price Work**
Total Price of Unit Price Work means the aggregate amount of, for all items of Unit Price Work, the total units required by the Owner under the Agreement for each item of Unit Price Work multiplied by the Unit Price of each such item.
- 107. T&M Changes in the Work**
T&M Changes in the Work means changes in the Work performed on a time and material basis in accordance with Section 3 of Schedule E – Valuing Changes in the Work.
- 108. T&M Price**
T&M has the meaning set out in section 3.1 of Schedule E – Valuing Changes in the Work.
- 109. Unit Price**
Unit Price means the unit price for an item of Unit Price Work set out in the Pricing Form.
- 110. Unit Price Work**
Unit Price Work means the portion of the Work paid for on a Unit Price basis.
- 111. Utilities and Structures**
Utilities and Structures has the meaning set out in GC 4.1.4.1.
- 112. Value Added Taxes**
Value Added Taxes means such sum as shall be levied upon the Contract Price by the Federal or any Provincial or Territorial Government and is computed as a percentage of the Contract Price and includes the Goods and Services Tax, the Harmonized Sales Tax, and any similar tax, the collection of which have been imposed on the Contractor by the tax legislation.
- 113. Warranty Period**
Warranty Period means the warranty period under the Agreement in respect of the Work (except for the Extended Warranty Periods as described in GC 9.3.6), which is two (2) years from the date of Substantial Performance of the Work or such other period as may be specified in row C.6 of the Information Sheet or elsewhere in the Agreement.
- 114. Work**
The Work means the total construction, Products, installation, commissioning, checkout, start-up, testing and related services, deliverables and other obligations as set out in,

Construction Agreement
Schedule C – Definitions

required by, reasonably inferable from or described in the Agreement. For clarity, the Work does not include the supply of Owner Supplied Material.

115. Working Day

Unless otherwise specified in row C.7 of the Information Sheet, Working Day means a Calendar Day other than:

1. a Saturday, Sunday, statutory holiday that is observed by the construction industry in the area of the Site; or
2. a Calendar Day identified by the City of Toronto as a designated or statutory holiday.

116. WSIB

WSIB means the Workplace Safety & Insurance Board.

SCHEDULE D

GENERAL CONDITIONS

1. GENERAL PROVISIONS

1.1 INTERPRETATION

- 1.1.1 The intent of the Agreement is to include the labour, Products and services required for the performance and completion of the Work by the Contractor in accordance with the Agreement or properly inferable from them.
- 1.1.2 If, subsequent to the Effective Date, changes are made by the Owner to any Standard Specifications, Special Specifications, Standard Drawings or any other Drawing or Specification which affect the cost of the performance of the Work or Contract Time, any claim by the Contractor must be submitted in accordance with the requirements of 7.7 - CLAIMS PROCEDURE and the Owner may submit a change in accordance with the requirements of 7.1 – OWNER’S RIGHT TO MAKE CHANGES.
- 1.1.3 Subject to any rights or remedies which may be available to the Owner, nothing contained in the Agreement shall create any contractual relationship between:
- .1 the Owner and a Contractor Party performing any portion of the Work;
 - .2 the Contract Administrator and a Contractor Party performing any portion of the Work; or
 - .3 the Owner Representative and a Contractor Party performing any portion of the Work.
- 1.1.4 Words and abbreviations which have well known technical or trade meanings are used in the Agreement in accordance with such recognized meanings.
- 1.1.5 In the Agreement, unless the context otherwise requires, words importing the singular include the plural and vice versa and words importing gender include all gender.
- 1.1.6 Neither the organization of the Specifications nor the arrangement of Drawings shall control the Contractor in dividing the Work among Subcontractors and Suppliers.
- 1.1.7 Subject to GC 1.1.9, if there is an inconsistency or a conflict within the Agreement:
- .1 the order of priority of documents, from highest to lowest, shall be, unless otherwise provided for in row E.1 of the Information Sheet:
 - (1) any amendment to the Agreement made in accordance with the terms and conditions of the Agreement, shall take precedence only over those specific provisions of the Agreement expressly amended, in order of most recent date issued (if any),
 - (2) Schedule A - Information Sheet and Schedule B – Pricing Form,

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- (3) the Agreement (excluding the Schedules),
 - (4) the Schedules of Agreement in the following order: Schedule F – Owner Policies, Procedures, By-Laws and Other Requirements, Schedule D – General Conditions and all remaining Schedules other than Schedule H – Drawings and Specifications,
 - (5) Supplemental Instructions,
 - (6) the summary of the Work as described in the Specifications,
 - (7) the Specifications (other than the summary of the Work and the material and finishing schedules in the Specifications),
 - (8) material and finishing schedules in the Drawings and Specifications,
 - (9) the Drawings (other than the material and finishing schedules in the Drawings),
 - (10) Construction Schedule, and
 - (11) any other document identified elsewhere in the Agreement as a document forming part of the Agreement
- .2 Drawings of larger scale shall govern over those of smaller scale of the same date;
 - .3 dimensions shown on Drawings shall govern over dimensions scaled from Drawings;
 - .4 detailed Drawings shall govern over general Drawings;
 - .5 later dated documents shall govern over earlier documents of the same type; and
 - .6 Special Specifications shall govern over Standard Specifications.
- 1.1.8 Subject to GC 1.1.9, if there is an inconsistency or a conflict within the contents of Standard Specifications and Standard Drawings, the order of priority from highest to lowest shall be:
- .1 City of Toronto Standard Specifications and City of Toronto Standard Drawings, including any amendments; then
 - .2 OPS Standard Specifications and OPS Standard Drawings, including any amendments; then
 - .3 other Standard Specifications and Standard Drawings referenced in the City of Toronto Standard Specifications and City of Toronto Standard Drawings or OPS Standard Specifications and OPS Standard Drawings, including, as applicable, those produced by Canadian Standards Association, Canadian General

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Standards Board, American Society for Testing and Materials and American National Standards Institute.

- 1.1.9 Notwithstanding GC 1.1.7 and 1.1.8, any provision within the Agreement establishing a higher standard of safety, reliability, durability, performance, service or quality shall take precedence over a provision establishing a lower standard of safety, reliability, durability, performance, service or quality.
- 1.1.10 The Owner shall provide the Contractor, without charge, one (1) electronic copy and up to three (3) hard copies of the Agreement other than the specifications of Canadian, United States of America or internationally recognized standards associations (including the Standard Specifications and Standard Drawings), in which case, such documents are the responsibility of the Contractor to obtain as the case may be. If requested by the Contractor, the Owner shall provide additional copies and the Contractor shall be responsible for the cost of printing, handling and shipping.
- 1.1.11 All Specifications, Drawings, models and other applicable Agreement documents and any other correspondence, data, plans, drawings, specifications, reports, estimates, summaries, photographs, models, mock-ups, information and documentation in any form, and copies thereof, furnished by the Contract Administrator or the Owner (collectively, the “**Owner Prepared Documents**”) are not the property of the Contractor. All Owner Prepared Documents furnished by the Contract Administrator or Owner are to be used by the Contractor only with respect to the Work and are not to be used on other work. The Owner Prepared Documents are not to be copied or altered in any manner by the Contractor without the written authorization of the Contract Administrator or the Owner.
- 1.1.12 The Owner may issue to the Contractor one or more purchase orders in respect of the Work and/or Agreement. Any such purchase order shall be solely for the convenience of the Owner in administering its internal procedures, and notwithstanding any of the provisions set out in such purchase order, shall not create any binding obligations of either party or in any way be deemed to amend, restate, supplement or replace any of the Agreement or otherwise be considered to form a part of the Agreement.

1.2 ENTIRE AGREEMENT AND AMENDMENTS

- 1.2.1 The Agreement embodies and constitutes the sole and entire agreement between the parties hereto. There are no terms, obligations, covenants or conditions between the parties hereto, other than as contained herein. The Agreement is complementary and what is required by any:
- .1 part thereof shall be considered as being required by the whole; and
 - .2 one document forming a part of the Agreement shall be as binding as if required by all. The Agreement supersedes all prior negotiations, representations or agreements, either written or verbal, relating in any manner to the Work, including the documents from the Procurement Process.

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1.2.2 The Agreement may be amended only as provided in the Agreement. No amendment of the Agreement shall be valid unless executed by an instrument in writing by the parties, except as provided for in the Agreement. Neither the Agreement, nor any term hereof, can be amended in whole or in part, except by such instrument in writing, except as provided for in the Agreement, and no subsequent verbal agreement shall have any validity whatsoever.

1.2.3 Unless expressly provided otherwise in the Agreement including GC 2.4.1:

.1 no verbal arrangement or agreement, relating to the Work, the Agreement or any other matter concerning the Agreement or Work, will be of any force or effect unless it is in writing and signed by duly authorized representative of the Owner; and

.2 the Owner and the Contract Administrator shall not be bound by any verbal communication or representation or conduct whatsoever, including any instruction, amendment or clarification of the Agreement, or any representation, information, advice, inference or suggestion, from any Person (including but not limited to an elected official, Personnel, independent contractor or any other Person acting on the behalf of or at the direction of the Owner or Owner Representative or other representative of the Owner including the Contract Administrator) concerning the Agreement, or any other matter concerning the Agreement or Work. Where in the Agreement a reference is made to the express written agreement, approval or consent of the Owner or the Contract Administrator, it shall be understood that the Owner or the Contract Administrator, as applicable, shall not be deemed or construed to have agreed to any stipulation, specification, exclusion, limitation or other term or condition that deviates from or amends a provision set out in the Agreement, unless that deviation or amendment is expressly confirmed in the executed Agreement or in a written and express amendment to the Agreement by a duly authorized representative of the Owner.

1.3 LAW OF THE AGREEMENT AND INTERPRETATION

1.3.1 The laws of the Province of Ontario and the federal laws of Canada applicable therein shall govern the interpretation of the Agreement.

1.3.2 The phrase “includes”, “include” or “including” means “includes, without limitation” or “including” or “include, without limitation,”.

1.3.3 If any provision of the Agreement or its application to any party or circumstance is unenforceable, the provision shall be ineffective only to the extent of the unenforceability without: (.1) invalidating the remaining provisions of the Agreement; (.2) changing the fundamental nature of the obligations assumed by the parties; and (.3) affecting its application to other parties or circumstances.

1.3.4 Except as otherwise expressly provided for in the Agreement, any reference in the Agreement to a statute or code or rule promulgated under a statute or to any provision of a statute, code or rule promulgated under a statute shall be a reference to the statute, code, rule or provision, as amended, supplemented, re-enacted or

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replaced from time to time. Any reference to a statute shall be a reference to the statute and its underlying regulations.

1.3.5 The terms of the Agreement, which expressly or by their nature are intended to survive the termination or discharge of the Agreement (including all indemnities, representations and warranties of the Contractor) shall survive such termination or discharge.

1.3.6 For the purposes of the Agreement, all documents and communications pertaining to the Agreement shall be in the English language.

1.4 RIGHTS AND REMEDIES

1.4.1 Except as expressly provided in the Agreement, the duties and obligations imposed by the Agreement and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights, and remedies otherwise imposed or available by Laws.

1.4.2 No act or failure to act by the Owner, the Contract Administrator or Contractor shall, except as may be specifically agreed:

- .1 constitute a waiver of any right or duty afforded any of them under the Agreement;
- .2 constitute an approval of or acquiescence in any breach, default or non-observance thereunder; or
- .3 operate as a waiver of any such right or duty of the Owner in respect of any continuing or subsequent default, breach or non-observance, or so as to defeat or affect in any way such right or duty in respect of any such continuing or subsequent default, breach or non-observance.

1.4.3 The Contractor acknowledges and agrees that the exercise by the Owner of any of its rights or remedies under the Agreement, including the Owner's rights and remedies under 11. DEFAULT, TERMINATION AND SUSPENSION shall not result in irreparable harm to the Contractor and the Contractor shall not seek any order for injunctive relief, specific performance, certiorari or mandamus from any arbitral tribunal or court of law in relation to such exercise.

1.5 ASSIGNMENT AND SUCCESSION

1.5.1 The Contractor shall not assign the Agreement, either in whole or in part, without the written consent of the Owner, which consent may be withheld or given subject to such terms and conditions as the Owner deems appropriate.

1.5.2 Notwithstanding the foregoing, the Contractor acknowledges and agrees that the Owner may assign the Agreement, or any portion thereof, without the consent of the Contractor.

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1.5.3 The Agreement shall enure to the benefit of and be binding upon the parties hereto, their respective heirs, legal representatives, successors, and permitted assigns.

1.6 RECEIPT OF AND ADDRESSES FOR NOTICES AND DOCUMENTATION

1.6.1 Subject to GC 1.6.3, the parties agree that any Notice in Writing required to be given or that may be given under this Agreement shall be given in writing only by one of the following methods:

- .1 electronic mail to the name and address set out in row A.3 of the Information Sheet, including the name and telephone number of a person at the sender to contact in the event of a transmission problem;
- .2 delivery by hand to the name and address set out in row A.3 of the Information Sheet;
- .3 registered mail to the name and address set out in row A.3 of the Information Sheet; or
- .4 courier to the name and address set out set out in row A.3 of the Information Sheet.

1.6.2 For purposes of this Agreement:

- .1 a Notice in Writing sent by electronic mail which is transmitted prior to 5:00 p.m. on a Working Day, shall be deemed to have been received by the recipient on that Calendar Day, or on the next Working Day, if delivered after 5:00 p.m. or on a Calendar Day which is not a Working Day; provided that during the transmission of which no indication of failure of receipt is communicated to the sender;
- .2 a Notice in Writing delivered by hand or courier prior to 5:00 p.m. on a Working Day, shall be deemed to have been received by the recipient on such Calendar Day of delivery, or on the next Working Day, if delivered after 5:00 p.m. or on a Calendar Day which is not a Working Day; or
- .3 a Notice in Writing which is sent by registered mail is deemed to be received by the party to whom the Notice in Writing is addressed on the fifth (5th) Working Day after the date of mailing, where the date appearing on the postal registration receipt shall be deemed conclusively to be the date of mailing.

1.6.3 Notwithstanding GC 1.6.1, the parties agree that documents and notices required to be given or that may be given under the Construction Act shall be given in writing by a means or method permitted for under the Construction Act unless such means or methods are stipulated elsewhere in the Agreement.

1.6.4 Either Party may change its address or other contact particulars as set out in GC 1.6.1 by giving a Notice in Writing to the other in the manner set out in GC 1.6.1.

1.7 CONFLICTS OF INTEREST

1.7.1 The Contractor shall:

- .1 avoid any Conflict of Interest in the performance of its contractual obligations;
- .2 disclose to the Owner without delay any actual or potential Conflict of Interest that arises during the performance of its contractual obligations;
- .3 comply with any reasonable requirements prescribed by the Owner to resolve any Conflict of Interest; and
- .4 comply with the other requirements of Chapter 195, Purchasing, of the Toronto Municipal Code in respect of conflicts of interest and unfair advantages (as defined therein).

For clarity, the Owner shall be entitled to exercise any rights or remedies which may be available to the City of Toronto pursuant to Chapter 195, Purchasing, of the Toronto Municipal Code in respect of conflicts of interest and unfair advantages (as defined therein).

1.8 MISCELLANEOUS

1.8.1 The Contractor is an independent contractor and is not an agent of the Owner.

1.8.2 The Contractor shall not publish, issue or make any statements or news release, electronic, graphic, pictorial or otherwise, concerning the Agreement, the Work, or the Project, without the express prior written consent of the Owner.

2. ADMINISTRATION OF THE AGREEMENT

2.1 AUTHORITY OF THE CONTRACT ADMINISTRATOR AND THE OWNER REPRESENTATIVE

2.1.1 The Contract Administrator shall have no authority to bind the Owner, unless otherwise provided for in writing by the Owner.

2.1.2 The Owner Representative shall be the Owner's representative during construction and until the issuance by the Contract Administrator of the Final Acceptance Certificate. Only the Owner Representative shall have the authority to bind the Owner for the purposes of the Agreement. The Owner Representative may be a Personnel of the Owner or any other Person including the same Person as the Contract Administrator.

2.1.3 The Owner Representative will execute Change Orders and Change Directives as provided in 7.2 - CHANGE ORDER and 7.3 - CHANGE DIRECTIVE.

2.1.4 All instructions and documents issued to the Contractor will be issued by the Contract Administrator or the Owner Representative, as the case may be, and the Contractor shall not recognize instructions issued by other Personnel of the Owner or any other

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document issued by other Personnel of the Owner as amending, supplementing or clarifying the Agreement.

2.2 ROLE OF THE CONTRACT ADMINISTRATOR

- 2.2.1 The Contract Administrator will provide administration of the Agreement as described in the Agreement. The Contract Administrator may be a third party, including an architect or engineer or other consultant, or a Personnel of the Owner.
- 2.2.2 The Contract Administrator will visit the Site at intervals appropriate to the progress of construction to become familiar with the progress and quality of the Work and to determine if the Work is proceeding in general conformity with the Agreement.
- 2.2.3 If the Owner and the Contract Administrator agree, the Contract Administrator will provide at the Site, one or more project representatives to assist in carrying out the Contract Administrator's responsibilities.
- 2.2.4 The Contract Administrator will promptly inform the Owner of the date of receipt of Proper Invoices as provided in 5.4 - PROGRESS PAYMENT.
- 2.2.5 The Contract Administrator will review the Work for its conformity with the Agreement and record the necessary data to establish payment quantities under the schedule of quantities and Unit Prices for Unit Price Work or to assess the value of the Work completed in the case of Fixed Price Work. Based on such records and the Contract Administrator's evaluation of the Proper Invoices, the Contract Administrator will determine the amounts owing to the Contractor under the Agreement and will issue certificates for payment as provided in 5. CONTRACT PRICE AND PAYMENT.
- 2.2.6 The Contract Administrator will not be responsible for and will not have control, charge or supervision of construction means, methods, techniques, sequences, or procedures, or for health and safety precautions and programs required in connection with the Work in accordance with the applicable health and safety Laws or general construction practice. The Contract Administrator will not be responsible for the Contractor's failure to carry out the Work in accordance with the Agreement. The Contract Administrator will not have control over, charge of or be responsible for the acts or omissions of the Contractor Parties performing portions of the Work.
- 2.2.7 The Contract Administrator will be, in the first instance, the interpreter of the requirements of the Agreement.
- 2.2.8 Matters in question relating to the performance of the Work or the interpretation of the Agreement shall be initially referred in writing to the Contract Administrator by the party raising the question for interpretations and findings and copied to the other party.
- 2.2.9 Interpretations and findings of the Contract Administrator shall be consistent with the intent of the Agreement. In making such interpretations and findings, the Contract Administrator will not show partiality to either the Owner or the Contractor.

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- 2.2.10 The Contract Administrator's interpretations and findings will be given in writing to the parties within a reasonable time and shall be subject to either party's right to dispute such interpretations and findings in accordance with 12. DISPUTE RESOLUTION.
- 2.2.11 The Contract Administrator will investigate all Claim Notices made by the Contractor pursuant to 7.7 - CLAIMS PROCEDURE and will make findings as set out in 7.7 - CLAIMS PROCEDURE and issue appropriate instructions.
- 2.2.12 During the progress of the Work the Contract Administrator will provide Supplemental Instructions to the Contractor with reasonable promptness or in accordance with a schedule for such Supplemental Instructions agreed to by the Contract Administrator and the Contractor.
- 2.2.13 The Contract Administrator will review and take appropriate action upon Shop Drawings, samples and other Contractor's Submittals and submissions, in accordance with the Agreement.
- 2.2.14 The Contract Administrator will prepare Change Orders and Change Directives as provided in 7.2 - CHANGE ORDER and 7.3 - CHANGE DIRECTIVE. For clarity, Change Directives must be signed by the Owner and Change Orders must be signed by both the Owner and the Contractor.
- 2.2.15 The Contract Administrator and the Contractor will jointly conduct reviews of the Work to determine the date of Substantial Performance of the Work and Total Performance of the Work as provided in 5.5 - SUBSTANTIAL PERFORMANCE OF THE WORK and 5.7 - PAYMENTS UPON TOTAL PERFORMANCE OF THE WORK, respectively.
- 2.2.16 All certificates issued by the Contract Administrator will be to the best of the Contract Administrator's knowledge, information and belief. By issuing any certificate, the Contract Administrator does not guarantee the Work is correct or complete.
- 2.2.17 The Contract Administrator will receive and review written warranties and related documents required by the Agreement and provided by the Contractor.
- 2.2.18 If the Contract Administrator observes that any Personnel of the Contractor, Subcontractors, Suppliers or Sub-subcontractors is potentially incompetent, disorderly or a detriment to the Project, then the Contract Administrator shall provide Notice in Writing to the Contractor and the Contractor, at the Contractor's cost and without any extension of the Contract Time, shall, in accordance with its obligations under the Agreement, immediately remove such Personnel from the Site if the Contractor determines that such Personnel should be immediately removed from the Site. If such Personnel is removed, the Contractor, at the Contractor's cost and without any extension of the Contract Time, shall provide replacement Personnel acceptable to the Contract Administrator. Such incompetent, disorderly or detrimental Personnel shall not return to the Site without the prior written consent of the Contract Administrator.
- 2.2.19 The Contract Administrator shall have the authority to temporarily suspend the Work for such reasonable time as may be necessary, for the following reasons:

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- .1 for the Contractor to remedy its non-compliance with the provisions of the Agreement;
- .2 to facilitate the checking of any portion of the Contractor's construction layout;
- .3 to facilitate the inspection of any portion of the Work by the Contract Administrator.

The Contractor shall not be entitled to any increase in the Contract Price or extension of the Contract Time in these circumstances.

2.3 REVIEW AND INSPECTION OF THE WORK

2.3.1 The Owner and the Contract Administrator shall have access to the Work at all times. The Contractor shall provide sufficient, safe and proper facilities and assistance at all times for the review of the Work by the Contract Administrator and Owner and the inspection of the Work by Governmental Authorities and quasi-governmental authorities. If parts of the Work are in preparation at locations other than the Site, the Owner and the Contract Administrator shall be given access to such Work whenever it is in progress.

2.3.2 If tests, inspections or approvals for the Work are required by the Agreement, or by the Contract Administrator's instructions, or by Laws, the Contractor shall give the Contract Administrator no less than three (3) Working Days notification of when the Work will be ready for review and inspection and make available for inspection or testing a sample of any Product. All inspection, sampling, and testing of Products shall be carried out on a random basis in accordance with the standard inspection or testing methods required for the Product. The Contractor shall arrange for and shall give the Contract Administrator reasonable notification of the date and time of inspections by other authorities and shall notify the Contract Administrator of the sources of supply of Products sufficiently in advance of the Product shipping dates to enable the Contract Administrator to perform any required inspection, sampling and testing. The Contractor shall obtain for the Contract Administrator the right to enter onto the premises of the Product manufacturer or supplier to carry out such inspection, sampling and testing. The Owner shall not be responsible for any delays to the performance of the Work where the Contractor fails to give sufficient advance notice to the Contract Administrator to enable the Contract Administrator to carry out the required inspection, sampling and testing.

2.3.3 The Contractor shall furnish promptly to the Contract Administrator, and in no event later than within fourteen (14) Calendar Days after receipt thereof, two copies of certificates and inspection reports relating to the Work prepared by Governmental Authorities and quasi-governmental authorities.

2.3.4 If the Contractor covers, or permits to be covered, Work that has been designated for special tests, inspections or approvals before such special tests, inspections or approvals are made, given or completed, the Contractor shall, if so directed, uncover such Work, have the inspections or tests satisfactorily completed, and make good covering Work at the Contractor's cost and without any extension of the Contract Time.

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- 2.3.5 Subject to GC 2.3.4, the Contract Administrator may order any portion or portions of the Work to be examined to confirm that such Work is in accordance with the requirements of the Agreement. If the Work is not in accordance with the requirements of the Agreement, the Contractor shall correct the Work and pay the cost of examination and correction and without any extension of the Contract Time. If the Work is in accordance with the requirements of the Agreement, the Owner shall pay the cost of examination and restoration.
- 2.3.6 The Contractor shall pay the cost of making any test or inspection whether to be performed by the Contractor, Contract Administrator, Owner, Governmental Authorities or quasi-governmental authorities, including the cost of samples required for such test or inspection, if such test or inspection is required by the Agreement or is required by Laws.
- 2.3.7 If any portion or portions of the Work is found to be Deficient in initial tests or inspections as determined by the Contractor, Owner, Contract Administrator, Governmental Authorities or quasi-governmental authorities, the costs of re-testing and re-inspections shall be borne by the Contractor and with no adjustment in the Contract Price or any extension of the Contract Time.
- 2.3.8 The Contractor shall provide any documentation requested by the Owner, where that documentation relates to any of the Work. The Contractor shall ensure that all such documentation is provided no later than ten (10) Calendar Days following the receipt of any such request.
- 2.3.9 The Contract Administrator and Owner will each have authority to reject any portion of the Work which in the Contract Administrator's or Owner's opinion is Deficient. Whenever the Contract Administrator or Owner considers it necessary or advisable, the Contract Administrator or Owner will have authority to require inspection or testing of Work, whether or not such Work is fabricated, installed or completed.
- 2.3.10 Any review, inspection, comment, acceptance, approval, audit, survey or rejection, or failure to review, inspect, comment, accept, approve, audit, survey or reject, by the Owner or the Contract Administrator of the Work (including Products or any documents prepared by the Contractor, Subcontractors, Suppliers or Sub-subcontractors, in whole or in part) or the issuance of any certificates or the making of any payment by the Owner or the presence of the Owner or the Contract Administrator at the Site or the receipt or taking delivery by the Owner of any Products, shall not:
- .1 constitute acceptance of the Work (including Products) or any Deficiencies or relieve the Contractor of its responsibility therefor;
 - .2 impose on the Owner or the Contract Administrator the responsibility for the sequencing, scheduling or progress of the Work;
 - .3 be deemed to confirm that any schedule is a reasonable plan for providing the Work in accordance with the relevant Construction Schedule;

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- .4 constitute an approval, disapproval, endorsement or confirmation of any Work (including Products or any document prepared by the Contractor, Subcontractors, Suppliers or Sub-subcontractors, in whole or in part) or an acknowledgment by the Owner or the Contract Administrator that any Work (including Products and such documents) satisfies the requirements of the Agreement;
- .5 affect or change the Contractor's obligation to perform the Work in accordance with the Agreement and relieve the Contractor from any liability arising from its failure to properly perform the Work;
- .6 give rise to any duty or responsibility of the Owner or the Contract Administrator to the Contractor Parties performing any of the Work; or
- .7 except as otherwise provided in the Agreement, have the effect of waiving or diminishing any obligation of, or limiting any liability of, the Contractor or of transferring any obligation under the Agreement from the Contractor to the Owner or the Contract Administrator or otherwise have the effect of amending the Agreement.

Any review or approval by the Owner and/or Contract Administrator is intended only to ascertain that the document or the performance of the Contractor's duties, liabilities, responsibilities or obligations under the Agreement including the Work generally meets the intention of the Agreement and is not an assurance or confirmation of the adequacy, quality, fitness, suitability or correctness of the Contractor's obligations, responsibilities, duties and liabilities under the Agreement including the Work, for which the Contractor is solely responsible in accordance with the Agreement.

- 2.3.11 Any Deficiencies arising from Work done by the Contractor without consulting the Contract Administrator or the Owner when the Work required the acceptance of or review with same, or when the Contractor should have sought the acceptance of Contract Administrator or Owner, shall be corrected at the cost of the Contractor (without increase in the Fixed Price or Unit Prices) and without any extension of the Contract Time.

2.4 EMERGENCY SITUATIONS

- 2.4.1 If the Contract Administrator or Owner determines, in their sole and absolute discretion, that there is an emergency situation, then the Contract Administrator or Owner, as applicable, may instruct the Contractor to take action to remedy the situation verbally or in writing. If such instruction is verbal, the Contract Administrator or Owner, as applicable, shall provide timely confirmation of such instruction in writing. If the Contractor does not take timely action, or if the Contractor is not available, the Contract Administrator or Owner may direct others to remedy the situation. If the emergency situation is the fault of the Contractor, the remedial Work shall be done at the cost of the Contractor and without any extension of the Contract Time.

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2.5 DEFICIENCIES

- 2.5.1 The Contractor shall promptly correct all Deficiencies, including Deficiencies that have been identified by the Contract Administrator and/or Owner, at the Contractor's cost (and with no adjustment in the Fixed Price or Unit Prices) and without any extension of the Contract Time, whether or not the Deficiency has been incorporated in the Work and whether or not the Deficiency is the result of poor workmanship, use of Deficient products or damage through carelessness or other act or omission of a Contractor Personnel, provided that:
- .1 the Contractor shall correct, in a manner acceptable to the Owner or the Contract Administrator, all Deficiencies, whether or not they are specifically identified by the Contract Administrator or Owner; and
 - .2 the Contractor shall prioritize the correction of any Deficiencies which, in the sole discretion of the Owner, adversely affects the work or operations of the Owner or other contractors or there is a risk of bodily injury to any individual or physical loss of or damage to property.
- 2.5.2 The Contractor shall remove rejected Products from the Site expeditiously after the notification to that effect from the Contract Administrator or Owner. Where the Contractor fails to comply with such notice, the Contract Administrator or Owner may cause the rejected Products to be removed from the Site and disposed of in what the Contract Administrator or Owner considers to be the most appropriate manner, and the Contractor shall pay the costs of disposal.
- 2.5.3 The Contractor shall promptly make good damage or destruction to the Owner's or other contractors' work, other property of the Owner, or any other property as a result of Deficiencies or the correction of Deficiencies at the Contractor's cost (and with no adjustment in the Fixed Price or Unit Prices) and without any extension of the Contract Time.
- 2.5.4 If the Contractor fails to promptly carry out the correction of Deficiencies or make good damage or destruction to the Owner's or other contractors' work, other property of the Owner, or any other property as required by this 2.5 – DEFICIENCIES, the Owner may correct the Deficiencies or make good such work or property and hold the Contractor responsible for all costs thereof.
- 2.5.5 If in the opinion of the Contract Administrator or Owner it is not expedient to correct a Deficiency, the Owner may, in accordance with 5.10 – OWNER'S SET-OFF, set-off the greater of (i) the difference in value between the Work as performed and that called for by the Agreement and (ii) the cost to correct such Deficiency. If the Owner and the Contractor do not agree on the difference in value or the cost to correct such Deficiency, they shall refer the matter to the Contract Administrator for determination.
- 2.5.6 No payment by the Owner under the Agreement nor partial or entire use or occupancy of the Work by the Owner shall constitute an acceptance of any portion of the Work (including Products) which is Deficient.

2.6 CONTRACTOR RECORDS

- 2.6.1 Prior to the issuance of the final certificate for payment, and thereafter until the later of two (2) years after the end of the Warranty Period, or all Claims in respect of the Agreement being settled, the Contractor shall maintain and keep accurate Contractor Records in respect of Work (including in respect of Fixed Price Work, Construction Equipment, Products, component costs reflecting the taxes and customs duties, including excise taxes and changes in the Work). Without limiting the generality of the foregoing, the Contractor Records shall be of sufficient detail to support the total cost of any Work (other than Fixed Price Work), changes in the Work, Cash Allowances expenditures and taxes and duties. For Fixed Price Work, the Contractor Records shall be of sufficient detail for the Owner to ascertain the Contractor's compliance with the Fair Wage Policy, if any.
- 2.6.2 The Contractor shall cause the Subcontractors, Suppliers and Sub-subcontractors, to:
- .1 maintain and keep accurate Contractor Records in respect of all items for which the Contractor is required by the Agreement to maintain and keep Contractor Records; and
 - .2 allow the Owner to inspect and audit such Contractor Records, for the same period of time.
- 2.6.3 Without limiting the generality of 13.3, the Owner may inspect and audit the Contractor Records at any time during the period in which the Contractor is required to maintain and keep such Contractor Records. The Contractor shall, at its cost, supply certified copies (and notarized if maintained outside of Ontario) of any part of the Contractor Records required whenever requested by the Owner.

3. EXECUTION OF THE WORK

3.1 CONTROL AND COMMENCEMENT OF THE WORK

- 3.1.1 The Contractor shall, and shall cause the Subcontractors, Suppliers and Sub-subcontractors to, perform the Work in accordance with the Agreement and comply with the Agreement. The Contractor shall have total control of the Work and shall effectively direct and supervise the Work so as to ensure conformity with the Agreement.
- 3.1.2 The Contractor shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for co-ordinating the various parts of the Work under the Agreement, even if such means, methods, techniques, sequences or procedures are set out in the Owner Prepared Documents.
- 3.1.3 The Contractor shall not enter upon or occupy any property of a third party for any purpose, unless the Contractor has received prior written permission from the property owner.
- 3.1.4 Except for such Work as may be required by the Contract Administrator to maintain the Work in a safe and satisfactory condition or as otherwise expressly allowed by the

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Agreement, the Contractor shall not carry on Work at the Site on Calendar Days other than Working Days without permission in writing from the Contract Administrator.

3.1.5 The Contractor shall, at all times and as part of the Work, fully assist, co-operate, consult and co-ordinate with the Contract Administrator, the Owner Representative and any other Persons retained or identified by the Owner which are related to or connected with the Project or performing work at or near the Site. The objective of such assistance, co-operation, consultation and co-ordination is to make certain the Work is properly co-ordinated with and integrated with the work, services and operations of such entities.

3.1.6 The Contractor shall not commence the Work or deliver anything to the Site prior to the Commencement Date. If no date is set out for the Commencement Date in row C.2 of the Information Sheet, the Owner shall be entitled to issue a Notice in Writing to the Contractor directing the Contractor to commence the performance of the Work on the date described therein.

3.2 SUPPLEMENTAL INSTRUCTIONS

3.2.1 The Contract Administrator may, during the progress of the Work, issue Supplemental Instructions, which shall be deemed incorporated into and forming part of the Agreement. Supplemental Instructions shall only be issued by the Contract Administrator.

3.2.2 Upon receipt of a Supplemental Instruction, the Contractor shall immediately proceed to perform the Work in accordance with such Supplemental Instruction and otherwise in accordance with the Agreement, unless the Contractor is of the opinion that such Supplemental Instructions require a change in the Contract Price and/or extension of the Contract Time, in which case the Contractor shall proceed in accordance with GC 3.2.3.

3.2.3 If the Contractor, after receiving Supplemental Instructions, is of an opinion that such Supplemental Instructions require a change in the Contract Price and/or extension of the Contract Time, then the Contractor shall promptly notify the Owner and Contract Administrator of such and submit a Claim Notice in accordance with the requirements of 7.7 - CLAIMS PROCEDURE. The Contractor shall not proceed with the Work in respect of such Supplemental Instruction until it has received further instruction from the Contract Administrator. If, pursuant to 7.7 - CLAIMS PROCEDURE it is subsequently determined that the Claim Notice in respect of such Supplemental Instructions is valid, then such determination shall be reflected in a Change Directive issued pursuant to 7.3 – CHANGE DIRECTIVE.

3.3 CONSTRUCTION BY OWNER OR OTHER CONTRACTORS

3.3.1 The Owner reserves the right to award separate contracts in connection with other parts of the Project to other contractors and to perform work with its Personnel. Such work by other contractors or Owner's Personnel may include utility relocation and surveying, testing, sampling and quality assurance estimates prior to, and possibly during, the Work.

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- 3.3.2 Subject to and without limitation to 4.2 – HEALTH AND SAFETY, when separate contracts are awarded for other parts of the Project, or when work is performed by the Owner's Personnel, the Contractor shall:
- .1 co-ordinate, schedule and sequence the activities and work of other contractors and Owner's Personnel on the Project with the Work; and
 - .2 promptly report to the Contract Administrator in writing, and in no event later than within five (5) Working Days of discovery thereof, any apparent deficiencies in the work of other contractors or of the Owner's Personnel, where such work affects the proper execution of any portion of the Work, prior to proceeding with that portion of the Work. Failure by the Contractor to so report shall invalidate any Claims against the Owner by reason of deficiencies in the work of other contractors or Owner's Personnel except those deficiencies not then reasonably discoverable,
- 3.3.3 Where the Agreement identifies work to be performed by other contractors or the Owner's Personnel, the Contractor shall co-ordinate the Construction Schedule (and access to the Site) with the work of other contractors and the Owner's Personnel so as to mitigate the risk of delay and disruption under the Agreement and for the other contractors and the Owner's Personnel.
- 3.3.4 Disputes and other matters in question between the Contractor and other contractors shall be dealt with as provided in 12. DISPUTE RESOLUTION provided the other contractors have reciprocal obligations. The Contractor shall be deemed to have consented to arbitration of any dispute with any other contractor whose contract with the Owner contains a similar agreement to arbitrate.
- 3.3.5 Notwithstanding that the Owner may award separate contracts in connection with other parts of the Project to other contractors and perform work with its Personnel, the performance of such work or connection of such work onto the Work, by the Owner's Personnel or by other contractors, will not limit or relieve the Contractor of its obligations and responsibilities under the Agreement (including warranty) unless a Deficiency has been created by the Owner's Personnel or Owner's other contractors.
- 3.3.6 When requested in writing by the Contract Administrator or Owner, the Contractor shall stop Work on the Project so as to avoid interference with work being performed at adjacent or impacted construction projects of the Owner that are unrelated to the Project. The Contractor shall not be entitled to an extension of the Contract Time or to an increase in the Contract Price unless, and only to the extent, the event which caused the cessation of the Work would entitle the Contractor to an extension of the Contract Time or the reimbursement of the Contractor's Losses as provided in GC 7.5.1, 7.5.2 or 7.5.3.

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3.4 TEMPORARY WORK

- 3.4.1 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance, removal and repair of Temporary Work.
- 3.4.2 The Contractor shall engage and pay for registered professional engineering Personnel skilled in the appropriate disciplines to perform those functions referred to in GC 3.4.1 where required by Laws or by the Agreement and in all cases where such Temporary Work is of such a nature that professional engineering skill is required or prudent to produce safe and satisfactory results.
- 3.4.3 Notwithstanding the provisions of 3.1 - CONTROL OF THE WORK, GC 3.4.1 and 3.4.2 or provisions to the contrary elsewhere in the Agreement, but subject to 3.6 – DOCUMENT REVIEW, where the Agreement includes designs for Temporary Work:
- .1 such designs shall be considered to be part of the design of the Work and the Contractor shall not be held responsible for that part of the design; and
 - .2 the Contractor shall, however, be responsible for the execution of such design in the same manner as for the execution of the Work.
- 3.4.4 2.3 - REVIEW AND INSPECTION OF THE WORK and the requirements for Shop Drawings in 3.11 – SHOP DRAWINGS also apply to the Temporary Work.

3.5 CONSTRUCTION SCHEDULE

- 3.5.1 The Contractor shall:
- .1 prepare and submit to the Owner and the Contract Administrator within seven (7) Calendar Days from the Commencement Date, unless otherwise stipulated elsewhere in the Agreement or agreed to by the Contract Administrator, a construction schedule for their review and acceptance that indicates the timing of the major activities of the Work and provides sufficient detail of the critical events and their inter-relationship to demonstrate the Work shall be performed in conformity with the Contract Time. The construction schedule shall:
 - (1) take into account the phasing and sequencing of construction and the completion dates contained in the Agreement or as otherwise required by the Contract Administrator or the Owner;
 - (2) include and conform to the Key Work Milestones or any other milestones for the performance of the Work set out in the Agreement;
 - (3) be of a computerised type and provided in both electronic format and hard copy;
 - (4) show the Project critical path and the critical path must be identified in a contrasting colour (red) from the other activities;

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- (5) clearly show, in weekly intervals, the logic and timing of major activities, proposed start dates and estimated duration for activities; and
- (6) have a level of detail sufficient to identify the Contractor and each specific Subcontractor and their respective parts of the Work and the specific location thereof.

Once approved by the Owner and the Contract Administrator, the construction schedule submitted by the Contractor under this GC 3.5.1.1, as updated by the Contractor and approved by the Owner and Contract Administrator, shall become the “**Construction Schedule**”. The Construction Schedule (and any approved updates) shall be the benchmark against which the progress of the Work is to be measured for the purposes of the Agreement;

- .2 monitor the progress of the Work relative to the Construction Schedule;
- .3 maintain a Current Schedule and update the Current Schedule every two (2) weeks, unless otherwise stipulated elsewhere in the Agreement or agreed to by the Contract Administrator, and provide the updated Current Schedule to the Owner and Contract Administrator. For clarity, the Current Schedule shall be used for information purposes only;
- .4 advise the Contract Administrator of any revisions required to the Construction Schedule as the result of extensions of the Contract Time as provided in 7.CHANGES IN THE WORK and provide the Owner and Contract Administrator for approval, an updated Construction Schedule reflecting such extensions; and
- .5 perform the Work in accordance with the Construction Schedule including the Key Work Milestones.

3.5.2 If the Contractor fails to submit the initial or any updated Construction Schedule satisfactory to the Contract Administrator, the Owner shall be entitled to withhold or delay payments under the Agreement until the Contractor complies with the requirements of GC 3.5.1.

3.6 DOCUMENT REVIEW AND EXAMINATION OF SITE

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- 3.6.1 The Contractor shall review the Agreement in accordance with the Standard of Care. The Contractor shall report to the Contract Administrator, no later than three (3) Working Days after discovery by the Contractor, any error, inconsistency or omission the Contractor may discover. The Contractor shall not be liable for Losses resulting from errors, inconsistencies or omissions in the Agreement, which the Contractor did not discover, provided that the Contractor exercised such Standard of Care. The Contractor shall be liable and responsible for Losses (and without any extension of the Contract Time) resulting from errors, inconsistencies or omissions in the Agreement if it recognizes, or should have recognized, exercising such Standard of Care, such errors, inconsistencies or omissions, yet fails to raise such errors, inconsistencies or omissions to the Contract Administrator's attention prior to performing the affected portion of the Work.
- 3.6.2 If the Contractor does discover any error, inconsistency or omission in the Agreement or has any doubt as to the meaning or intent of any part thereof, the Contractor shall not proceed with the Work affected until the Contractor has reported to the Contract Administrator and received corrected or missing information, instructions or explanations from the Contract Administrator in writing. The Contractor shall comply with such information, instructions or explanations. The Contractor shall cooperate in good faith with the Owner and the Contract Administrator to resolve any error, omission or inconsistency in the Agreement in a manner that will not result in increased cost to the Owner or any extension of the Contract Time.
- 3.6.3 The Owner makes no representation, warranty or guarantee about the accuracy, completeness, feasibility or any other aspect of the documents or information provided by the Owner including interpretations of data or opinions expressed in any subsurface report or geotechnical report. Accordingly, the Contractor shall review and otherwise deal with such documents or information in accordance with the requirements of GC 3.6.1 and 3.6.2.
- 3.6.4 Without limitation to any specific obligations in the Drawings and Specifications in respect of the examination of the Site and surrounding area, the Contractor represents and warrants that in entering into the Agreement with the Owner and acting in accordance with the Standard of Care, it has examined the Site and surrounding area and it has satisfied itself as to the scope and character of the Work, all conditions and information affecting the Work, including the nature of the Work and the Site, access to the Site and weather conditions or that, not having acted in such a manner, the Contractor has assumed and does hereby assume all risk of conditions now existing or arising in the course of the Work which might or could make the Work more expensive or more onerous to fulfil and which a contractor acting in accordance with the Standard of Care would have discovered. The cost and time of all conditions referred to in this GC 3.6.4 form part of the Fixed Price and Unit Prices and the Contract Time and shall not be the basis for an increase in the Fixed Price or Unit Prices or any extension of the Contract Time.

3.7 SUPERVISION

- 3.7.1 The Contractor shall provide all necessary supervision.
- 3.7.2 The Contractor shall:

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- .1 furnish competent and adequate Personnel, who shall be in attendance at the Site at all times, as necessary, for the proper administration, co-ordination, supervision and superintendence of the Work;
 - .2 organize the procurement of all Products and Construction Equipment so that they will be available in advance of the time they are needed for the Work; and
 - .3 keep an adequate force of skilled Personnel on the job to complete the Work in accordance with all requirements of the Agreement.
- 3.7.3 Prior to commencement of the Work, unless otherwise stipulated elsewhere in the Agreement or agreed to by the Contract Administrator, the Contractor shall select a competent and experienced:
- .1 Project manager (the “**Contractor Project Manager**”) who shall:
 - (1) be in attendance at the Site or otherwise engaged in the Work at all times, or for such other period of attendance as required by the Agreement including the Specifications;
 - (2) have full responsibility for the prosecution of the Work, with full authority to act in all matters as may be necessary for the proper co-ordination, supervision, direction and technical administration of the Work;
 - (3) attend site meetings in order to render reports on the progress of the Work; and
 - (4) have authority to bind the Contractor in all matters related to the Agreement; and
 - .2 supervisor of the Site (the “**Contractor Site Supervisor**”) who shall be in attendance at the Site at all times while Work is being performed, or for such other period of attendance as required by the Agreement including the Specifications and shall have full responsibility for the day to day field supervision and superintendence of the Work.
- 3.7.4 The Contractor Project Manager and the Contractor Site Supervisor, if applicable:
- .1 shall represent the Contractor at the Site; and
 - .2 may be the same individual if specified as such in the Specifications.
- 3.7.5 Information, notices and instructions given to the Contractor Project Manager and/or the Contractor Site Supervisor, if applicable, shall be deemed to have been received by the Contractor, other than notices that are required to be delivered in accordance with 1.6 - RECEIPT OF AND ADDRESSES FOR NOTICES AND DOCUMENTATION.
- 3.7.6 At the request of the Owner, the Contractor shall supply complete information including written job-specific qualification records for any Personnel of the Contractor,

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Subcontractors, Suppliers or Sub-subcontractors. Such records will detail the activities that each such Personnel has been trained and qualified to perform.

- 3.7.7 If the Owner observes that any Personnel of the Contractor, Subcontractors, suppliers or Sub-subcontractors is potentially incompetent, disorderly or a detriment to the Project, then the Owner shall provide Notice in Writing to the Contractor and the Contractor, at the Contractor's cost and without any extension of the Contract Time, shall, in accordance with its obligations under the Agreement, immediately remove such Personnel from the Site if the Contractor determines that such Personnel should be immediately removed from the Site. If such Personnel is removed, the Contractor, at the Contractor's cost and without any extension of the Contract Time, shall provide replacement Personnel acceptable to the Owner. Such incompetent, disorderly or detrimental Personnel shall not return to the Site without the prior written consent of the Owner or Contract Administrator.
- 3.7.8 Without limiting the obligations of the Contractor described in 3.3 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS and 4.2 – HEALTH AND SAFETY, if the Owner or Contract Administrator observes that any Personnel of the Contractor, Subcontractors, Suppliers or Sub-subcontractors poses an imminent risk to the health and safety of other persons, then the Owner or Contract Administrator can require the Contractor to immediately remove such Personnel from the Site at the Contractor's cost and without any extension of the Contract Time, and in accordance with its obligations under the Agreement. The Contractor, at the Contractor's cost and without any extension of the Contract Time, shall provide replacement Personnel acceptable to the Owner. The Personnel that posed an imminent risk to the health and safety of other persons shall not return to the Site without the prior written consent of the Owner or Contract Administrator.
- 3.7.9 The Contractor shall provide the Owner and the Contract Administrator with the names, work addresses and mobile telephone numbers of the Contractor Project Manager, the Contractor Site Supervisor and other responsible field Personnel who may be contacted for emergency and other reasons during non-working hours and update as necessary.

3.8 SUBCONTRACTORS AND SUPPLIERS

- 3.8.1 The Contractor may, subject to this 3.8 – SUBCONTRACTORS AND SUPPLIERS, subcontract portions of the Work, which shall not exceed the portion set out in row E.2 of the Information Sheet, to Subcontractors and Suppliers. The Contractor shall, and shall cause the Subcontractors, Suppliers and Sub-subcontractors to, perform the Work in accordance with the Agreement. The Contractor shall be fully responsible to the Owner for the Subcontractors', Suppliers' and Sub-subcontractors' failure to abide by the obligations of the Agreement.
- 3.8.2 The Contractor shall preserve and protect the rights of the parties under the Agreement with respect to the portion of the Work to be performed under subcontract, and shall:
- .1 enter into subcontracts with Subcontractors and Suppliers to require them to perform their portion of the Work as provided in the Agreement;

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- .2 provide the Owner or Contract Administrator with a redacted copy of any subcontract with a Subcontractor or Supplier, and all applicable amendments and changes, promptly upon request of the Owner, and in no event later than within five (5) Working Days of such request.
 - .3 incorporate, or cause to be incorporated, into all subcontracts with Subcontractors and Suppliers the terms and conditions of the Agreement, including:
 - (1) the contract number set out on the cover page of the Agreement and Project description set out in row A.1 of the Information Sheet;
 - (2) 9.3 – WARRANTY, GC 13.2.4 and Schedule F - Owner Policies, Procedures, By-Laws and Other Requirements;
 - (3) a provision requiring the Subcontractor or Supplier to provide adequate notice to the Contractor in order for the Contractor to fulfill its obligations under GC 12.2.16. For clarity, such provision shall include a requirement that the Subcontractor or Supplier include a similar provision in all its subcontracts with Sub-subcontractors and all such Sub-subcontractors to include a similar provision in all their subcontracts with their Sub-subcontractors and so on within every tier of the construction pyramid; and
 - (4) a provision that permits the Contractor's interest in the subcontract to be immediately assigned, at the same price and in the Owner's sole and absolute discretion, to the Owner or the Owner's designee upon Notice in Writing thereof given by the Owner to both Contractor and Subcontractor or Supplier, as the case may be, for nominal consideration of \$5.00, provided, however, that until the Owner has given such Notice in Writing, nothing herein contained shall be deemed to create any contractual or other liability upon the Owner for the performance of obligations under such subcontracts and the Contractor shall be fully responsible and liable for all of its obligations and liabilities (if any) under such subcontracts; and
 - .4 have control over, charge of, and be fully responsible to the Owner for, the acts and omissions of Subcontractors, Suppliers and their Personnel and for the acts and omissions of Personnel of the Contractor even if such Subcontractor or Supplier was approved or selected by the Owner.
- 3.8.3 Unless expressly stated otherwise in row A.6 of the Information Sheet, the Contractor may only use the Subcontractors and Suppliers identified in row A.6 of the Information Sheet for the specific portion of the Work which they are identified as performing for the Project. Contractor shall not:
- .1 change any of such identified Subcontractors or Supplier or let any subcontracts for the performance of the Work to Subcontractors and Suppliers that have not been identified in row A.6 of the Information Sheet;

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- .2 use a Subcontractor or Supplier to perform Work which has not been identified in row A.6 of the Information Sheet as being performed by such Subcontractor or Supplier,

without the prior written approval of the Owner. The Owner shall be entitled to a minimum of ten (10) Working Days to review and approve any such request for approval by the Contractor. Without limiting the generality of the factors or criteria which the Owner and Contract Administrator may consider during such review and approval process, the Owner shall be entitled to consider the proposed Subcontractor's or Supplier's compliance with the Owner's Policies, Procedures and By-laws. Any approved replacement of a Subcontractor or Supplier shall be made with no increase in the Contract Price and extension of the Contract Time and any costs incurred by the Owner for the services of the Contract Administrator in reviewing such proposed replacement shall be borne by the Contractor.

- 3.8.4 The Owner's consent to subcontracting by the Contractor shall not be construed as relieving the Contractor from any obligation under the Agreement and shall not impose any liability on the Owner.
- 3.8.5 The Owner, through the Contract Administrator, may provide to a Subcontractor, Supplier and Sub-subcontractor information as to the percentage of the Subcontractor's or Supplier's Work which has been certified for payment.
- 3.8.6 The Contractor shall pay the Subcontractors and Suppliers on a timely basis in accordance with the terms of their respective subcontracts and applicable Laws.

3.9 LABOUR AND PRODUCTS

- 3.9.1 The Contractor shall provide and pay for labour, Products, Construction Equipment, water, heat, light, power, transportation, and other facilities and services necessary for the performance of the Work in accordance with the Agreement. Without limiting the generality of the foregoing, the Contractor shall pay its Personnel, and shall cause the Subcontractors and Suppliers to pay their Personnel, performing the Work, in accordance with the labour related provisions set out in the Agreement and at intervals no less than those required by such Personnel's employment or labour agreements.
- 3.9.2 The Contractor covenants and agrees that the Work, including all Products and components thereof, shall conform to the Agreement in all respects, and, unless otherwise specified in the Agreement, shall be of merchantable quality and fit for their intended purpose as described in the Contract Documents and shall be new and free from Deficiencies. Products which are not specified shall be of a quality consistent with those specified and the use of such Products shall be subject to the acceptance of the Contract Administrator or Owner. This GC 3.9.2 shall be in addition to and not in limitation of any other right or remedy granted by the Agreement or otherwise available to the Owner.
- 3.9.3 Title to the Work including the Products (and each portion thereof) shall pass to the Owner immediately upon payment therefore (subject to applicable holdback that is not then due) or upon incorporation of the Products into the Work at the Site,

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whichever first occurs, free and clear of all liens, charges and encumbrances (subject to any rights or remedies provided by the Construction Act, if applicable).

Notwithstanding any transfer of title to the Work or any portion thereof to the Owner, the Contractor shall be responsible for and bear the risk of Loss with respect to the Work (including Products delivered to the Site, whether or not incorporated into the Work) until the date of Total Performance of the Work. Title to Owner Supplied Material shall remain with the Owner at all times.

3.9.4 Substitutions

- .1 The Contractor shall not substitute any Product without the prior written approval of the Contract Administrator and the Owner.
- .2 Where the Agreement requires the Contractor to supply a Product, the Contractor may apply to the Contract Administrator to propose a substitution for such Product (“**Substitution**”) that equals or exceeds the quality, suitability, reliability, durability and performance of the Product designated in the Agreement. The application by the Contractor to the Contract Administrator for a Substitution shall be:
 - (1) in writing and include complete data as to the quality, suitability, reliability, durability, performance and projected cost or cost savings of the Substitution, impact on the Construction Schedule and such other information as the Contract Administrator may require; and
 - (2) made in such time as to ensure that the review and approval process by the Contract Administrator and the Owner shall not adversely impact the Construction Schedule.

The burden of proving the quality, suitability, reliability, durability and performance of a Substitution shall be upon the Contractor.

- .3 The approval or rejection of a Substitution shall be made at the sole and absolute discretion of the Contract Administrator and the Owner. Notwithstanding the foregoing, the Contractor shall not be entitled to any increase in Contract Price or extension of the Contract Time as a result of the review, approval or rejection of a Substitution by the Contract Administrator or the Owner.
- .4 Approval of a Substitution will only be for the specific circumstances set out in the application and shall not change or modify any other requirement contained in the Agreement or establish approval for the Substitution to be used in any other portion of the Work that is unrelated to the subject approval.

3.9.5 All surplus Products which have not been used in the performance of the Work shall be removed from the Site when notified in writing to do so by the Contract Administrator. The cost for such surplus Products shall be credited to the Fixed Price or Total Price of Unit Price Work under the Proper Invoice submitted pursuant to GC 5.7.1.1, to the extent the Owner has paid for such surplus Products.

3.9.6 The cost of overtime Work (including overtime rates):

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- .1 required beyond the normal working day at the Site (as may be described in the Specifications) to complete individual construction operations of a continuous nature in respect of Fixed Price Work or Unit Price Work, such as pouring or finishing of concrete or similar Work; or
- .2 in respect of Fixed Price Work or Unit Price Work that the Contractor elects to perform without the Owner or the Contract Administrator requesting such overtime Work; or
- .3 except as expressly provided for in the Specifications as a part of the Contract Price,

shall not be chargeable to the Owner and shall be at the cost of the Contractor and without adjustment in the Fixed Price or Unit Prices.

- 3.9.7 The Contractor shall maintain good order and discipline among the Contractor Parties engaged on the Work and shall not employ on the Work anyone not skilled in the tasks assigned.

3.10 DOCUMENTS AT THE SITE

- 3.10.1 The Contractor shall control, store and retain copies (one of which must be in hardcopy) of the Agreement, Submittals, reports, and records of meetings at the Site, in good order and readily available to the Owner and the Contract Administrator. Upon the request of the Owner, the Contractor shall provide hard copies and electronic copies of all the foregoing documents to the Owner, at the Owner's cost, except to the extent the delivery of such document already forms part of the Fixed Price Work.
- 3.10.2 The Contractor shall accurately and continuously note on the Drawings and Specifications kept by the Contractor at the Site, (1) all approved changes and deviations made during the Work which differ from that shown or specified in the Agreement and reviewed Shop Drawings indicating, in a neat, accurate and legible manner the Work as actually installed; (2) the exact location and detail of buried, embedded or concealed as-built conditions and all other as-built conditions of the Work (including the location of all asbestos abatement Work dealing with such matters as floor tiles and pipe insulation); and (3) the exact location and detail of Work installed on a "field run" basis (collectively, the "**As-Built Drawings**"). If any Work is performed otherwise than as shown in the Agreement, the Contractor shall note on such As-Built Drawings the Work as installed, including with respect to the mechanical, electrical and fire protection Work. The As-Built Drawings shall be made available for review by the Owner and the Contract Administrator at all times. The Contractor shall deliver the As-Built Drawings to the Owner on or before Substantial Performance of the Work, in the following format: (A) one complete set of reproducible final versions; and (B) one complete set stored on the latest edition of AutoCAD or such other format required by the Owner.

3.11 SHOP DRAWINGS

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- 3.11.1 The Contractor shall provide Shop Drawings if required by the Agreement or as the Contract Administrator may reasonably request. The Shop Drawings shall meet the requirements of the Agreement (including this 3.11, unless otherwise stipulated elsewhere in the Agreement or agreed to by the Contract Administrator) and the Contractor shall carry out the Work in accordance with Shop Drawings which meet such requirements. The Contractor shall not perform any portion of the Work covered by or affected by Shop Drawings until the Contract Administrator has completed its review of such Shop Drawings for construction in accordance with the procedure referred to in the Agreement.
- 3.11.2 The Contractor shall provide Shop Drawings to the Contract Administrator to review in orderly sequence and sufficiently in advance so as to cause no delay in the Work or in the work of other contractors.
- 3.11.3 Upon request of the Contractor or the Contract Administrator, they shall jointly prepare a schedule of the dates for provision, review and return of Shop Drawings.
- 3.11.4 The Contractor shall provide Shop Drawings in the form specified, or if not specified, as directed by the Contract Administrator.
- 3.11.5 Shop Drawings provided by the Contractor to the Contract Administrator shall indicate by stamp, date and signature of the Person responsible for the review that the Contractor has reviewed each one of them.
- 3.11.6 The Contract Administrator's review is for conformity to the design concept and for general arrangement only and shall not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings or for meeting all requirements of the Agreement.
- 3.11.7 Shop Drawings which require approval of any legally constituted authority having jurisdiction shall be provided to such authority by the Contractor for approval.
- 3.11.8 The Contractor shall review all Shop Drawings before providing them to the Contract Administrator. The Contractor represents by this review that:
- .1 the Contractor has determined and verified all applicable field measurements, field construction conditions, Product and Owner Supplied Material requirements, catalogue numbers and similar data, or will do so, and
 - .2 the Contractor has checked and co-ordinated each Shop Drawing with the requirements of the Work and of the Agreement.
- 3.11.9 At the time of providing Shop Drawings, the Contractor shall expressly advise the Contract Administrator in writing of any deviations in a Shop Drawing from the requirements of the Agreement. The Contract Administrator shall indicate the acceptance or rejection of such deviation expressly in writing.
- 3.11.10 The Contractor shall provide revised Shop Drawings to correct those which the Contract Administrator rejects as inconsistent with the Agreement, unless otherwise directed by the Contract Administrator. The Contractor shall notify the Contract

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Administrator in writing of any revisions to the Shop Drawings other than those requested by the Contract Administrator.

3.11.11 The Contract Administrator shall review and return Shop Drawings in accordance with the schedule agreed upon, or, in the absence of such schedule, with reasonable promptness so as to cause no delay in the performance of the Work.

3.11.12 The Contractor shall provide the Owner with a "specification compliance report" from the manufacture or Supplier of each item of equipment forming part of the Products. The specification compliance report shall provide details which demonstrate that all applicable requirements of the Drawings and Specifications have been satisfied. Any deviations from such requirements must be addressed in the specification compliance report to the satisfaction of the Owner, as confirmed by the Owner. For clarity, any deviation set out in the specification compliance report is not accepted by the Owner, except to the extent such acceptance has been confirmed in writing by the Owner.

3.12 USE OF THE WORK

3.12.1 The Contractor shall confine Construction Equipment, Temporary Work, storage of Products, Owner Supplied Material, waste products and debris, and operations of Contractor Parties to limits indicated by Laws or the Agreement and shall not unreasonably encumber the Site. All Products and Owner Supplied Equipment shall be stored under suitable conditions to prevent damage, deterioration, and contamination.

3.12.2 The Contractor shall not load or permit to be loaded any part of the Work or any part of the Site with a weight or force that shall or could be considered to endanger the safety or integrity of the Work or any part of the Site, individuals and the area adjacent to the Site.

3.13 STANDARD OF CARE, QUALITY ASSURANCE AND QUALITY CONTROL

3.13.1 In performing the Work, the Contractor shall exercise a standard of care, skill and diligence that would normally be provided by an experienced, qualified and prudent contractor supplying similar work for similar projects ("**Standard of Care**"). The Contractor acknowledges and agrees that throughout the term of the Agreement, the Contractor's obligations, duties and responsibilities shall be interpreted in accordance with the Standard of Care. The Contractor shall exercise the Standard of Care in respect of any Products and Personnel which it may recommend to the Owner.

3.13.2 If required by the Specifications, the Contractor shall develop and maintain a quality assurance and quality control plan ("**QA/QC Plan**"), in accordance with the Specifications, to ensure that the Work, including the performance of the Work is in accordance with the Agreement.

3.13.3 As of the Effective Date, the Contractor represents and warrants that there are no pending, threatened or anticipated Claims that would have a material effect on the financial ability of the Contractor to perform the Work. The Contractor shall immediately notify the Owner of any such Claims that arise after the Effective Date

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and shall take all necessary and prudent steps to remedy or resolve such Claims to ensure that the performance of the Work is unaffected.

3.14 USE AND OCCUPANCY OF THE WORK PRIOR TO SUBSTANTIAL PERFORMANCE OF THE WORK

- 3.14.1 Without limitation to any other right of the Owner in the Agreement, the Owner shall, at any and all times, have the right to enter, occupy and use the Work or any part thereof prior to Substantial Performance of the Work if such entry and occupancy does not materially interfere with the Contractor's performance and the completion of the Work within the Contract Time. Should the Owner wish to use or occupy part or all of the Work prior to Substantial Performance of the Work, the Owner shall give thirty (30) Calendar Days' Notice in Writing to the Contractor of the intended purpose and extent of such use or occupancy.
- 3.14.2 If the Owner exercises the right of occupancy and/or use of the Work in accordance with GC 3.14.1, it agrees to do so in a manner that does not materially interfere with the Contractor's performance and the completion of the Work within the Contract Time and with the understanding that the Owner will be occupying premises within a construction site which will require compliance with all normal construction site requirements including health and safety requirements.
- 3.14.3 The use or occupancy of the Work or any part thereof by the Owner prior to Substantial Performance of the Work shall not constitute an acceptance of the Work or parts so occupied. Such use or occupancy of the Work shall not:
- .1 relieve or limit the Contractor or its surety from any responsibilities under the Agreement or liability that has arisen, or may arise, from the performance of the Work;
 - .2 waive the Owner's right to charge the Contractor liquidated damages (including Delay Liquidated Damages) in accordance with the terms of the Agreement; or
 - .3 affect the Warranty Period or the warranties set out in the Agreement.
- 3.14.4 Within five (5) Working Days of receiving the Notice in Writing referred to in GC 3.14.1, the Contractor shall notify the Owner in writing of the additional premium cost, if any, to maintain all risk property insurance coverage (including boiler coverage). The cost of such additional premium shall be paid by the Owner (but without any markup by the Contractor) through the issuance of a Change Order, provided that the Owner's need to use or occupy the space did not arise as a result of the Work being behind schedule for a reason other than as described in GC 7.5.1 , 7.5.2 or 7.5.3. If because of such use or occupancy the Contractor is unable to provide such additional coverage, the Owner shall provide, maintain and pay for all risk property insurance coverage (including boiler coverage) insuring the full value of the used or occupied portion of the Work, including coverage for such use or occupancy, and shall provide the Contractor with proof of such insurance. The Contractor shall refund to the Owner the unearned premiums applicable to the Contractor's policies upon termination of coverage.

3.15 ACCESS TO PROPERTIES ADJOINING THE WORK AND INTERRUPTION OF OPERATIONS

3.15.1 The Contractor shall provide, at all times and at no extra cost to the Owner and without extension of the Contract Time, access to fire hydrants, water and gas valves, and all other Utilities and Structures and access to any existing equipment located at the Site which remains in operation by the Owner over the duration of the Project. The operation of any such Utilities and Structures and equipment shall take precedence over the Work in the case of conflicts.

3.15.2 The Contractor acknowledges that during the term of the Contract, the Place of the Work and the area in the vicinity of the Place of the Work may be occupied by the Owner and other Persons and that, if so occupied, such Persons will continue to carry out their normal operation and use of Place of the Work and shall be allowed to maintain their services and business continuity. The Contractor shall perform the Work in the least intrusive manner possible so as to avoid interfering with any such operations in the vicinity of the Work. The Contractor shall not disrupt the use or enjoyment of the Place of the Work and the vicinity by the Owner and other Persons.

4. PROTECTION OF PERSONS, WORK AND PROPERTY

4.1 PROTECTION OF WORK AND PROPERTY

4.1.1 The Contractor shall protect the Work, Persons and the Owner's property and property adjacent to, in the vicinity of or proximate to the Site from damage which may arise as the result of the Work (including from settlement of ground, flow of water, vibration or shock), and the Contractor shall, and shall cause the other Contractor Parties to, take all precautions to avoid such damage. The Contractor shall be responsible for making good any such damage, at its cost, except damage which occurs as the result of:

- .1 subject to 3.6 – DOCUMENT REVIEW, errors, inconsistencies or omissions in the Agreement; and
- .2 negligent acts or omissions by the Owner, the Owner Representative, the Contract Administrator, any other contractors (other than the Contractor Parties), and their respective Personnel.

4.1.2 Should damage occur to the Work or Owner's property for which the Contractor is not responsible for pursuant to the Agreement, the Contractor shall make good such damage to the Work and, if the Owner so directs, to the Owner's property. The Contract Price and Contract Time shall be adjusted as provided in 7.1 - OWNER'S RIGHT TO MAKE CHANGES, 7.2 - CHANGE ORDER and 7.3 - CHANGE DIRECTIVE.

4.1.3 Construction Affecting Railway Property or Third Party Operations

- .1 The Contractor shall be required to conduct the Work in such a manner as to avoid the possibility of damaging or interfering with any railway property in the vicinity of the Work. Every reasonable precaution shall be taken by the

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Contractor to ensure the safety and protection of all Contractor Parties and Construction Equipment and railway property (at track crossings or otherwise) and users thereof throughout the performance of the Work.

- .2 The Owner shall pay the costs of all flagging and other traffic control measures required and provided by a railway company unless such costs are solely a function of the Contractor's chosen method of completing the Work.

4.1.4 Operational Risk

- .1 The position of all pole lines, conduits, pipes, watermains, sewers and other covered, underground and overground utilities and structures in, on, adjacent to under or over the Site (collectively, the "**Utilities and Structures**") are not necessarily provided in the Agreement, and where provided, the accuracy of the position of such Utilities and Structures is not guaranteed and the Owner disclaims all liability with respect to same except to the extent explicitly stated otherwise in row E.3 of the Information Sheet. The Contractor shall be liable for damages to the Utilities and Structures as a result of any act or omission, whether or not the result of negligence, by the Contractor Parties and the Losses relating to such damage shall not be chargeable to the Owner and shall be at the cost of the Contractor.
- .2 Without limiting the generality of GC 4.1.4.1, before commencing any Work, the Contractor shall inform itself of the existence and exact condition, size, depth and location of all Utilities and Structures in accordance with the Standard of Care and the Specifications, if applicable, and such process shall occur in conjunction with the Contractor's review of the Agreement pursuant to GC 3.6.1. For clarity, to the extent the Owner is required to provide such information to the Contractor as a part of its obligation under Laws, including the *Ontario Underground Infrastructure Notification System Act, 2012*, any work required to obtain such information shall be performed by the Contractor as a part of the Work without any increase to the Contract Price or extension of the Contract Time.
- .3 As a part of, and in co-ordination with, the Work, the Contractor shall provide for the removal, protection, support, temporary and permanent relocation and restoration of the Utilities and Structures to the satisfaction of the owners of the Utilities and Structures, and in performing such Work, the Contractor shall comply with the requirements of the owners of the Utilities and Structures. The Contractor shall arrange with the appropriate owners for the stake out of all Utility and Structure connections that may be affected by the Work. The Contractor shall maintain records of such stake outs and make such records available to the Owner upon request. The Contractor shall observe the location of such stake outs, prior to commencing the Work, and in the event that there is a discrepancy between the location of such stake outs and the locations provided in the Agreement, that may affect the Work, the Contractor shall, prior to performing the affected portion of the Work, immediately notify the Contract Administrator and the affected owners of the Utilities and Structures, in order to resolve the discrepancy.

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- .4 Where any interruptions in the supply of utility services are required and are authorized by the Contract Administrator, the Contractor shall, in consultation with the Owner, give the affected property owners notice in accordance with the Specifications, and shall arrange such interruptions so as to create a minimum of interference to those affected.
- 4.1.5 Without in any way limiting the Contractor’s obligations under 4.1, should the Contractor or any Subcontractor, Supplier or Sub-subcontractor cause Losses to trees or other plantings, whether owned by the Owner or third parties, the Contractor shall be liable for the replacement cost of the trees or other plantings damaged, including the cost of any arborist or other consultant, and such Losses may be set-off in accordance with 5.10 – OWNER’S SET-OFF.
- 4.1.6 The Contractor shall immediately inform the Contract Administrator of all damage that occurs during the term of the Agreement. The Contractor shall then investigate and report back to the Contract Administrator and Owner within fifteen (15) Calendar Days of the occurrence of such damage. Such reports shall include all details as the Owner and Contract Administrator require. The Contractor shall neither undertake to repair and/or replace any damage whatsoever to the Work of other contractors, or to adjoining property, nor acknowledge the same was caused or occasioned by the Contractor, without first consulting the Owner and receiving written instructions as to the course of action to be followed from either the Owner or the Contract Administrator. However, where there is imminent danger to life or public safety, the Contractor shall take such emergency action as it deems necessary to remove the danger. The Contractor shall notify the Owner of such imminent danger as promptly as is practicable under the circumstances. The Contract Administrator may conduct its own investigation and the Contractor shall provide all assistance to the Contract Administrator and Owner as may be necessary for that purpose.
- 4.1.7 The Contractor shall immediately upon becoming aware of a complaint or Claim made by a resident or property owner, inform the Contract Administrator and the Owner.

4.2 HEALTH AND SAFETY

- 4.2.1 The Contractor shall, until Total Performance of the Work, be solely responsible for:
- .1 construction health and safety at the Site;
 - .2 compliance with the Laws and practices which relate to construction health and safety, including OHSA; and
 - .3 initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work and the other work performed by the Owner’s Personnel and other contractors at the Site (collectively, the “**Other Work**”).
- 4.2.2 Without restricting the generality of any other provision in the Agreement, the Contractor shall, for the purposes of the OHSA, be deemed, construed and designated as the "constructor" for the Work (including the Work of the

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Subcontractors, Suppliers and Sub-subcontractors and the Other Work of the Owner's Personnel and other contractors at the Site) and shall assume and fulfill all of the responsibilities of constructor as set out in OHSA in respect of the Work and the Other Work and the Site from the Commencement Date until Total Performance of the Work. Unless explicitly stated otherwise in the Agreement, nothing in the Agreement shall be deemed or construed as making the Owner the "employer" (as defined in OHSA) or the "constructor" (as defined in OHSA), either instead of or jointly with the Contractor.

- 4.2.3 The Contractor shall establish and administer a health and safety plan for the performance of the Work at the Site, which shall comply with the requirements of all Governmental Authorities having jurisdiction and all Laws. The Contractor shall provide the Owner with a copy of the health and safety plan prior to the Commencement Date. The Contractor shall ensure the Contractor Parties, Owner's Personnel and other contractors at the Site comply with the health and safety plan. As part of its reporting obligations on the progress of the Work described in the Specifications, the Contractor shall provide information on the ongoing implementation of its health and safety plan.
- 4.2.4 Prior to the Commencement Date, the Contractor shall submit to the Owner:
- .1 a current WSIB clearance certificate;
 - .2 a tax statutory declaration in the form attached as Form 3 of Schedule G – Forms;
 - .3 documentation of the Contractor's in-house corporate level health and safety program;
 - .4 a copy of the Notice of Project filed with the Ministry of Labour naming itself as "constructor" under OHSA; and
- 4.2.5 The Contractor shall possess and maintain a valid Certificate of Recognition (COR™) or an Equivalent OHS Certification for the duration of performance of the Agreement. The Contractor shall provide the Contract Administrator with a new Certificate of Recognition (COR™) or Equivalent OHS Certification immediately upon the expiry of the previous Certificate of Recognition or Equivalent OHS Certification or otherwise upon demand by the Contract Administrator.
- 4.2.6 The Contractor shall report to the Owner all health and safety incidents at the Site including the Contractor's response. Without limiting the foregoing, the Contractor shall report any such incident occurring on or off the Site that relates to its Work or Other Work immediately, and shall, in addition, in no event later than forty-eight (48) hours give written notice of such incident
- 4.2.7 During the course of the Work, the Contractor shall furnish forthwith to the Contract Administrator a copy of all correspondence, reports, orders or charges respecting health and safety, including under OHSA, the *Technical Standards and Safety Act, 2000*, the *Highway Traffic Act*, the *Environmental Protection Act*, the *Workplace Safety and Insurance Act, 1997*, the *Employment Standards Act, 2000* and the

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Criminal Code, which are received by, or which come to the notice of, the Contractor that apply or are relevant to any of the Work or activities conducted under the terms of the Agreement. The Contractor shall immediately take all corrective measures necessary to address the issues identified or arising out of any such correspondence, report, order or charges.

- 4.2.8 Without limiting the obligations of the Contractor described in 3.3 – CONSTRUCTION BY OWNER OR OTHER CONTRACTORS and this 4.2 – HEALTH AND SAFETY, the Owner or Contract Administrator may, by written notice, direct the Contractor to stop the Work where the Owner or Contract Administrator determines that there is an imminent risk to the safety of individuals or property at the Site. In the event that the Contractor receives such written notice, it shall immediately stop the Work and secure the Site. The Contractor shall not be entitled to an extension of the Contract Time or to an increase in the Contract Price unless, and only to the extent, the event which caused such imminent risk would entitle the Contractor to an extension of the Contract Time or the reimbursement of the Contractor's Losses as provided in GC 7.5.1, 7.5.2 or 7.5.3.
- 4.2.9 Nothing in the Agreement shall be construed as requiring the Contract Administrator or Owner to monitor or approve the health and safety practices of the Contractor.

4.3 HAZARDOUS MATERIALS

- 4.3.1 Unless expressly permitted in the Agreement, the Contractor shall, and shall cause the other Contractor Parties to, not bring onto the Site any Hazardous Materials without the prior written authorization of the Contract Administrator. No later than five (5) Working Days following execution of the Agreement and prior to the Contractor mobilizing to the Site, the Contractor shall provide to the Owner, a list of all Hazardous Materials, including safety data sheets, which the Contractor expects to use for the Work, for the Owner's review, and update the Owner with any changes made to the list. The Contractor shall also comply with all other provisions under OHSА related to Hazardous Materials.
- 4.3.2 The Contractor shall use all reasonable care to avoid spilling or disturbing any Hazardous Materials during the performance of the Work. In the case of a "spill" as defined in the *Environmental Protection Act*, the Contractor shall immediately notify the Owner and the Contract Administrator of the location and details of such spill and report the spill to the relevant Governmental Authority. Reporting a spill to the Owner shall not relieve the Contractor of its legislated responsibilities regarding spills or discharges.
- 4.3.3 If the Contractor or the Owner encounters Hazardous Materials at the Site or has reasonable grounds to believe that Hazardous Materials are present at the Site, which were not:
- .1 brought to the Site by the Contractor Parties;
 - .2 disclosed by the Owner or in the Agreement; or

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- .3 discovered by the Contractor through the fulfillment of its responsibilities pursuant to 3.6 - EXAMINATION OF SITE,

the Contractor shall:

- .4 take all necessary steps, in accordance with Laws, including stopping the Work, to
 - (1) manage, remove, dispose of, store or otherwise render harmless such Hazardous Materials;
 - (2) ensure that no individual's exposure to any Hazardous Materials exceeds any applicable time weighted levels prescribed by Laws (including O Reg 833 under OHSA); and
 - (3) ensure that no property is damaged or destroyed as a result of exposure to, or the presence of, such Hazardous Materials; and
- .5 immediately report the circumstances to the Contract Administrator and the other party in writing.

4.3.4 If the Owner and Contractor do not agree on:

- .1 the existence and significance of the Hazardous Materials described in GC 4.3.3;
- .2 if such Hazardous Materials were brought onto the Site by a Contractor Party;
- .3 if such Hazardous Materials were disclosed by the Owner or in the Agreement; or
- .4 if such Hazardous Materials should have been discovered by the Contractor through the fulfillment of its responsibilities pursuant to 3.6 - EXAMINATION OF SITE,

the Owner shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the Owner and the Contractor.

4.3.5 If the Owner and Contractor agree or if the expert referred to in GC 4.3.4 determines that the Hazardous Materials were not brought onto the Site by a Contractor Party and were not disclosed by the Owner or in the Agreement and would not have been discovered by the Contractor through the fulfillment of its responsibilities pursuant to 3.6 - EXAMINATION OF SITE, the Owner shall immediately at the Owner's own cost:

- .1 reimburse the Contractor for the costs of all steps taken pursuant to GC 4.3.3; and
- .2 extend the Contract Time for such reasonable time as the Contract Administrator may recommend in consultation with the Contractor and the expert referred to in 4.3.4 and reimburse the Contractor for reasonable Losses incurred as a result of

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the delay, but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity resulting from such delay.

4.3.6 If the Owner and Contractor agree or if the expert referred to in GC 4.3.4 determines that the Hazardous Materials were brought onto the Site by a Contractor Party and were not disclosed by the Owner or in the Agreement and would not have been discovered by the Contractor through the fulfillment of its responsibilities pursuant to 3.6 - EXAMINATION OF SITE, the Contractor shall immediately at the Contractor's own cost and without extension of the Contract Time:

- .1 make good any damage to the Work, the Owner's property or property adjacent to the Site as provided in GC 4.1.1; and
- .2 reimburse the Owner for reasonable Losses incurred under GC 4.3.4 but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity.

4.3.7 If either party does not accept the expert's findings under GC 4.3.4, the disagreement shall be settled in accordance with 12. DISPUTE RESOLUTION. If such disagreement is not resolved within thirty (30) Calendar Days, the parties shall act immediately in accordance with the expert's determination and take the steps required by GC 4.3.5 or GC 4.3.6 it being understood that by so doing, neither party will jeopardize any claim that party may have to be reimbursed as provided by 4.3 - HAZARDOUS MATERIALS.

4.4 MOULD

4.4.1 If the Contractor or Owner observes or reasonably suspects the presence of mould at the Site, the remediation of which is not expressly part of the Work:

- .1 the observing party shall immediately report the circumstances to the other party in writing;
- .2 the Contractor shall immediately take all reasonable steps, including stopping the Work if necessary, to ensure that no individual suffers injury, sickness or death and that no property is damaged as a result of exposure to or the presence of the mould; and
- .3 if the Owner and Contractor do not agree on the existence, significance or cause of the mould or as to what steps need be taken to deal with it, the Owner shall retain and pay for an independent qualified expert to investigate and determine such matters. The expert's report shall be delivered to the Owner and Contractor.

4.4.2 If the Owner and Contractor agree, or if the expert referred to in GC 4.4.1.3 determines that the presence of mould was caused by the Contractor's operations under the Agreement, the Contractor shall promptly, and in no event later than within ten (10) Working Days after such agreement or determination, as applicable, at the Contractor's own cost:

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- .1 take all reasonable and necessary steps to safely remediate or dispose of the mould;
 - .2 make good any damage to the Work, the Owner's property or property adjacent to the Site as provided in GC 4.1.1; and
 - .3 reimburse the Owner for reasonable Losses incurred under GC 4.4.1.3.
- 4.4.3 If the Owner and Contractor agree, or if the expert referred to in GC 4.4.1.3 determines that the presence of mould was not caused by the Contractor's operations under the Agreement, the Owner shall promptly, and in no event later than within ten (10) Working Days after such agreement or determination, as applicable, at the Owner's own cost:
 - .1 take all reasonable and necessary steps to safely remediate or dispose of the mould;
 - .2 reimburse the Contractor for the cost of taking the steps under GC 4.4.1.2 and making good any damage to the Work as provided in GC 4.1.2; and
 - .3 extend the Contract Time for such reasonable time as the Contract Administrator may recommend in consultation with the Contractor and the expert referred to in GC 4.4.1.3 and reimburse the Contractor for reasonable Losses incurred as a result of the delay but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity.
- 4.4.4 If either party does not accept the expert's finding under GC 4.4.1.3, the disagreement may be settled in accordance with 12. DISPUTE RESOLUTION. If such disagreement is not resolved within thirty (30) Calendar Days, the parties shall act immediately in accordance with the expert's determination and take the steps required by GC 4.4.2 or 4.4.3, it being understood that by so doing neither party will jeopardize any Claim the party may have to be reimbursed as provided by 4.4 - MOULD.
- 4.5 ARTIFACTS AND FOSSILS**
 - 4.5.1 Fossils, coins, articles of value or antiquity, structures and other remains or things of scientific or historic interest discovered at the Place or Work shall, as between the Owner and the Contractor, be deemed to be the absolute property of the Owner.
 - 4.5.2 The Contractor shall take all reasonable precautions to prevent removal or damage to discoveries as identified in GC 4.5.1, and shall immediately notify the Contract Administrator upon discovery of such items and shall suspend the Work within any area identified by the Contract Administrator. Initial notification may be verbal provided that such notice is confirmed in writing by the Contractor within two (2) Calendar Days of discovery.
 - 4.5.3 The Contract Administrator will investigate the impact on the Work of the discoveries identified in GC 4.5.1. If conditions are found that would cause an increase or decrease in the Contractor's cost or time to perform the Work, the Contract

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Administrator, with the Owner's approval, will issue appropriate instructions for a change in the Work as provided in 7.2 - CHANGE ORDER or 7.3 - CHANGE DIRECTIVE.

5. CONTRACT PRICE AND PAYMENT

5.1 CONTRACT PRICE

5.1.1 The Contract Price, which excludes Value Added Taxes, is described in paragraph 2.1 of Section 2 of the Agreement – CONTRACT PRICE.

5.2 OWNER'S OBLIGATION TO PAY

5.2.1 Subject to the provisions of the Agreement, and in accordance with the Construction Act, the Owner shall:

- .1 in respect of Fixed Price Work, make progress payments and, if any, milestone payments to the Contractor for amounts undisputed by the Owner on account of the Fixed Price when due, together with such Value Added Taxes as may be applicable to such payments;
- .2 in respect of Unit Price Work, make progress payments to the Contractor for amounts undisputed by the Owner on account of the Total Price of Unit Price Work when due, together with such Value Added Taxes as may be applicable to such payments;
- .3 upon Substantial Performance of the Work, pay to the Contractor the unpaid balance of the ten percent (10%) portion of the Lien Holdback when due together with such Value Added Taxes as may be applicable to such payment; and
- .4 upon Total Performance of the Work, pay to the Contractor the unpaid amount of the Contract Price and the finishing portion of the Lien Holdback when due together with such Value Added Taxes as may be applicable to such payments.

5.2.2 Payment of the Contract Price shall be full compensation for all labour, services, Contractor Parties, Construction Equipment and Products required in the performance of the Unit Price Work, including, hand tools, supplies and other incidentals.

5.2.3 The Unit Prices shall not be adjusted during the term of the Agreement other than as provided for in Schedule B – Pricing Form.

5.2.4 Payment for any Unit Price Work not specifically detailed as part of any one item of Unit Price Work and without specified details of payment shall be deemed to be included in the items of Unit Price Work with which it is associated.

5.2.5 Advance payments for Products not yet incorporated into the Work (whether or not delivered to the Site) shall not be made by the Owner without the prior written consent of the Owner, in its sole and absolute discretion. Any such advance payment shall be made on terms as agreed to by the Owner and Contractor (such terms may

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include transfer of title, the Contractor's responsibility for risk of Loss and off-site storage requirements).

- 5.2.6 In the event of Losses occurring where payment becomes due under the all risk property insurance policies, payments shall be made to the Contractor in accordance with the provisions of 8.1 – INSURANCE.

5.3 PROPER INVOICES

- 5.3.1 After the Commencement Date, Proper Invoices shall be given to the Owner monthly for each Invoice Period as the Work progresses, unless otherwise specified in row B.9 of the Information Sheet. Proper Invoices shall be given to the Owner by giving it to the Owner Representative in accordance with row B.10 of the Information Sheet.

- 5.3.2 If the Contractor is performing Unit Price Work, the Contract Administrator or Owner Representative shall make an Estimate of Units once an Invoice Period, in writing. The first Estimate of Units shall be in respect of the Unit Price Work performed since the Contractor commenced the Unit Price Work, and every subsequent Estimate of Units, except the final one, shall be in respect of the Unit Price Work performed since the preceding Estimate of Units was made. The Contract Administrator or Owner Representative, as applicable, shall provide a copy of each such Estimate of Units to the Contractor on or before the 5th Calendar Day after the end of the Invoice Period (or the next Working Day following such date if such date is not a Working Day).

- 5.3.3 For all Work, the Contractor shall submit a draft invoice to the Contract Administrator:

- .1 at the invoice meeting held on or before the 7th Calendar Day after the end of the Invoice Period (or the next Working Day following such date if such date is not a Working Day) to which the Proper Invoice relates; or
- .2 on or before the 7th Calendar Day after the end of the Invoice Period (or the next Working Day following such date if such date is not a Working Day) to which the Proper Invoice relates, in such form of written or electronic communication as agreed to by the parties.

If the Contractor submits the draft invoice in accordance with GC 5.3.3.1, then the Contract Administrator, the Owner and the Contractor shall review such draft invoice at such meeting or, if the Contractor submits the draft invoice in accordance with GC 5.3.3.2, then the Contractor Administrator and the Owner shall review such draft invoice and, prior to the 14th Calendar Day after the end of such Invoice Period, the Owner and the Contract Administrator may provide the Contractor with suggested revisions to the draft invoice based upon the progress of the Work, the Contract Administrator's or Owner Representative's, as applicable, Estimate of Units and other relevant considerations. The draft invoice shall be submitted in the same format (and with the same content) as the Proper Invoice.

- 5.3.4 On the 14th Calendar Day after the end of the Invoice Period to which the Proper Invoice relates, the Contractor shall give a Proper Invoice to the Owner. In preparing the Proper Invoice, the Contractor should take into consideration revisions proposed by the Contract Administrator and the Owner from the draft invoice process including

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any reconciliations with the Contract Administrator's or Owner Representative's, as applicable, Estimate of Units. Incorporating such revisions will reduce the likelihood of the Owner issuing a notice of non-payment pursuant to GC 5.4.1.3 but is without prejudice to any rights or remedies of the Owner under the Agreement or otherwise. For clarity:

- .1 a Proper Invoice shall not be rendered incompliant with the requirements of the Agreement solely by reason of a failure to incorporate any such proposed revisions including any reconciliation with the Contract Administrator's or Owner Representative's, as applicable, Estimate of Units; and
- .2 the Contractor may only give to the Owner a Proper Invoice on the 14th Calendar Day after the end of the Invoice Period to which the Proper Invoice relates, and the Contractor shall not give to the Owner a Proper Invoice on any other Calendar Day. Any Proper Invoice received by the Owner on any Calendar Day:
 - (1) earlier than the 14th Calendar Day after the end of such Invoice Period shall be deemed to have been received by the Owner on the 14th Calendar Day after the end of such Invoice Period; or
 - (2) later than the 14th Calendar Day after the end of such Invoice Period shall be deemed to have been received by the Owner on the Calendar Day of such delivery,

and if the date on which the Proper Invoice is received under GC 5.3.4.2, or is deemed to have been received under GC 5.3.4.2(1) or (2), is not a Working Day, then it shall be deemed to be received on the next Working Day.

5.3.5 The amount applied for in each Proper Invoice shall be:

- .1 for Fixed Price Work:
 - (1) relating to milestones set out in the Agreement, the portion of the Fixed Price attributable to the milestones which the Owner has agreed have been completed on or before the last Calendar Day of the Invoice Period to which the Proper Invoice relates except for milestones dealt with in prior Proper Invoices;
 - (2) not relating to milestones set out in the Agreement, the value, proportionate to the Fixed Price not attributable to the milestones, of such Fixed Price Work performed to the last Calendar Day of the Invoice Period to which the Proper Invoice relates less the value of such Fixed Price Work previously invoiced in prior Proper Invoices;
- .2 for Unit Price Work, the aggregate of the total units for each item of the Unit Price Work performed to the last Calendar Day of the Invoice Period to which the Proper Invoice relates multiplied by the applicable Unit Price of each such item, less the value of all Unit Price Work previously invoiced in prior Proper Invoices; and

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- .3 for T&M Changes in the Work, an amount equal to:
- (1) the total T&M Price of all T&M Changes in the Work performed to the last Calendar Day of the month to which the Proper Invoice relates; less
 - (2) the total T&M Price of all T&M Changes in the Work in respect of all prior Proper Invoices,
- calculated in accordance with Section 3 of Schedule E – Valuing Changes in the Work.

For clarity, the amount applied for in each Proper Invoice shall not include any amounts included in any Claim Notice unless and until the Owner or the Contract Administrator, as the case may be, has issued a determination to the Contractor regarding the validity of such Claim Notice pursuant to GC 7.7.6.

5.3.6 Schedule of Values

- .1 The Contractor shall submit to the Contract Administrator, within fourteen (14) Calendar Days of the Effective Date and prior to the first Proper Invoice, a schedule of values with a detailed breakdown of the Fixed Price Work not relating to milestones, aggregating the total amount of the Fixed Price not attributable to the milestones, so as to facilitate evaluation of Proper Invoices.
- .2 The schedule of values shall:
 - (1) be made out in such form and supported by such evidence as the Contract Administrator may reasonably direct;
 - (2) include a fair and reasonable value for the preparation and completion of the As-Built Drawings; and
 - (3) include the fixed price for the bonds and insurance to be maintained by the Contractor in compliance with the requirements of the Agreement and provide for the payment of such fixed price for the bonds and insurance in amounts proportionate to the payment of the Fixed Price not attributable to the milestones unless otherwise agreed to by the Contract Administrator.
- .3 When accepted by the Contract Administrator, the schedule of values shall be used as the basis for evaluating Fixed Price Work not relating to the milestones in Proper Invoices, unless both parties agree the schedule of values is in error.
- .4 The Owner, acting reasonably, reserves the right to modify costs allocated to the various breakdown items in the schedule of values during the performance of the Work to prevent front loading.

5.3.7 The Proper Invoice shall be in a form similar to Form 1 of Schedule G – Sample Proper Invoice and shall, to the extent applicable:

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- .1 include the following information, to the extent such information is not included in any schedule of values:
 - (1) the Contractor's name, telephone number and mailing address, and contact information of the Contractor Project Manager;
 - (2) remittance payment information;
 - (3) Proper Invoice number;
 - (4) the date of the Proper Invoice and the Invoice Period during which the Work was performed;
 - (5) the Contract number;
 - (6) purchase order number
 - (7) contact information of the Owner's Representative and Contract Administrator;
 - (8) a description of the Project;
 - (9) percentage of Work completed to date;
 - (10) a description of the Work performed during the Invoice Period and a specific itemization of the Work with quantities where appropriate including:
 - (A) the Contract Administrator's or Owner Representative's, as applicable, Estimate of Units; and
 - (B) the Contractor's Estimate of Units;
 - (11) the total Contract Price and the amount of the Contract Price previously paid;
 - (12) the value of Work and changes in the Work performed to date itemized by Change Order; and
 - (13) the amount payable for the Work and changes in the Work performed during the Invoice Period;
- .2 include the schedule of values;
- .3 include a detailed description of expenditures under the Cash Allowance and Provisional Allowance;
- .4 include Daily Contractor Work Records;
- .5 include evidence of compliance with worker's compensation legislation including a WSIB clearance certificate;

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- .6 include a statutory declaration using the latest form CCDC 9A - 2018 Statutory Declaration of Progress Payment Distribution by Contractor, confirming that all accounts of the Contractor have been paid in full up to and including the latest progress payment received;
- .7 for advance payment, if applicable, for Products not yet incorporated into the Work:
 - (1) list such Products (and the advance payment calculations in respect thereof) as a separate line item; and
 - (2) be supported by invoices and such other evidence as the Contract Administrator may reasonably request to establish the value and delivery of such Products;
- .8 list the Lien Holdback, Contractual Holdback and any other holdbacks provided for under this Contract as a separate line item;
- .9 include the Contractor's registration number for Value Added Taxes and list the total amount of Value Added Taxes separate from the total Contract Price;
- .10 include a copy of the latest Current Schedule delivered in compliance with the applicable requirements of 3.5 – CONSTRUCTION SCHEDULE; and
- .11 include such other information and documents: (1) identified elsewhere in the Agreement; or (2) as required under the Construction Act.

5.3.8 A Proper Invoice may be revised by the Contractor after it has submitted the Proper Invoice to the Owner, if:

- .1 the Owner agrees in advance to the revision;
- .2 the date of the Proper Invoice is not changed; and
- .3 the Proper Invoice continues to be in compliance with the requirements of GC 5.3.7.

5.4 PROGRESS PAYMENT

5.4.1 After receipt by the Contract Administrator of a Proper Invoice submitted by the Contractor in accordance with 5.3 – PROPER INVOICES:

- .1 the Contract Administrator shall promptly inform the Owner of the date of receipt of the Proper Invoice;
- .2 the Contract Administrator shall, no later than the number of Calendar Days or Working Days, as applicable, after the receipt of the Proper Invoice identified in row C.8 of the Information Sheet, issue to the Owner and copy to the Contractor, a certificate for payment in the amount applied for, or in such other undisputed amount as the Contract Administrator determines to be properly due; and

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.3 if the Contract Administrator, or the Owner independent of the Contract Administrator, disputes all or any portion of the amount applied for in such Proper Invoice, the Owner shall promptly, but no later than fourteen (14) Calendar Days after the Contract Administrator's receipt of the Proper Invoice from the Contractor, provide the Contractor a notice of non-payment in the form and manner prescribed by the Construction Act specifying the amount that is not being paid and detailing all of the reasons for such non-payment.

5.4.2 The Owner shall, no later than twenty-eight (28) Calendar Days after the receipt of the Proper Invoice, make payment to the Contractor of the amount set out in the Proper Invoice less the amount disputed by the Contract Administrator or the Owner independent of the Contract Administrator, as applicable, that is set out in the notice of non-payment issued pursuant to GC 5.4.1.3. For clarity, progress payments for Unit Price Work shall be based on Estimates and as such shall be construed and held to be approximate. Subject to section 1.1 of Schedule E – Valuing Changes in the Work, the final quantities of total units for each item of the Unit Price Work performed for the Proper Invoice submitted pursuant to GC 5.7.1.1 shall be based on actual field measurements of the Unit Price Work completed. The Owner shall retain the Contractual Holdback, Lien Holdback and any other holdbacks provided for under this Contract as a separate line item from such payment and may retain any other amount pursuant to 5.10 - OWNER'S SET-OFF. Unless otherwise specified in the Agreement, no letter of credit or demand-worded holdback shall be accepted or used to retain any part of the Lien Holdback.

5.4.3 For clarity, if the Contractor fails to submit a Proper Invoice to the Contract Administrator which is in compliance with the requirements of GC 5.3.7, the Owner shall not be required to make payment to the Contractor within the twenty-eight (28) Calendar Day period set out in GC 5.4.2. Such twenty-eight (28) Calendar Day period shall not commence until such time as the Contract Administrator has received from the Contractor a Proper Invoice in compliance with the requirements of GC 5.3.7.

5.5 SUBSTANTIAL PERFORMANCE OF THE WORK

5.5.1 When the Contractor considers that Substantial Performance of the Work has been attained the Contractor shall, within one (1) Working Day, deliver to the Contract Administrator and to the Owner a comprehensive list of items to be completed or corrected, together with a written application for a review by the Contract Administrator to establish Substantial Performance of the Work. Failure to include an item on the list does not alter the responsibility of the Contractor to complete the Agreement. Such written application shall include the proof required by the Agreement including the Specifications to demonstrate that the Work has been substantially performed in conformance with the requirements of the Construction Act.

5.5.2 The Contract Administrator shall review the Work to verify the validity of the written application for Substantial Performance of the Work and shall promptly, and in any event, no later than twenty (20) Calendar Days after receipt of the Contractor's list and application:

.1 advise the Contractor in writing that the Work is not substantially performed and give reasons why, or

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- .2 set out the date of Substantial Performance of the Work in the certificate of Substantial Performance of the Work and issue a copy of such certificate to each of the Owner and the Contractor within seven (7) Calendar Days after signing such certificate. The certificate of Substantial Performance of the Work shall be in the form prescribed by the Construction Act.
- 5.5.3 Immediately following the issuance of the certificate of Substantial Performance of the Work, the Contractor shall prepare and submit to the Owner and the Contract Administrator a schedule for completing the Work and correcting all Deficiencies, which establishes the date for the Total Performance of the Work. Upon the Owner and the Contract Administrator's approval of such schedule, the Construction Schedule shall be deemed to be amended to include such schedule. The date for Total Performance of the Work identified in such schedule shall not be later than the Scheduled Date for Total Performance of the Work.
- 5.5.4 Upon receipt of a copy of the certificate of Substantial Performance of the Work, the Contractor shall forthwith, as required by section 32(1) of the Construction Act, publish a copy of the certificate in the manner set out in the regulations. If the Contractor fails to publish a copy of the certificate of Substantial Performance of the Work within seven (7) Calendar Days after receiving a copy of such certificate, the Owner may publish a copy of such certificate at the Contractor's cost.
- 5.6 PAYMENT OF LIEN HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK**
- 5.6.1 After the date on which all liens that may be claimed against the Lien Holdback have expired or been satisfied, discharged or otherwise provided for under the Construction Act and provided the certificate of Substantial Performance of the Work has been published in accordance with 5.5, the Contractor shall submit a Proper Invoice for the Lien Holdback, which shall, in addition to complying with the requirements of GC 5.3.7, include the following items in order to be considered a "Proper Invoice" for the purposes of GC 5.6.2:
- .1 the list of Claims required by GC 9.2.1;
 - .2 the value of outstanding or incomplete Work; and
 - .3 a representation and warranty from the Contractor that, as of the date of the Proper Invoice, the only Adjudications in respect of disputes as described in GC 12.2.16 are Adjudications which the Contractor has provided Notice in Writing of to the Owner in accordance with GC 12.2.16.
- 5.6.2 After the receipt of a Proper Invoice from the Contractor in compliance with the requirements of GC 5.6.1, the Contract Administrator shall issue a certificate for payment of the Lien Holdback.
- 5.6.3 Subject to GC 5.6.4 and the Construction Act, the Owner shall, no later than fifteen (15) Working Days after the receipt of the Proper Invoice, make payment to the Contractor of the amount of the Lien Holdback set out in the Proper Invoice. Subject to the Construction Act, the Owner may retain out of the Lien Holdback any sums

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required by law to satisfy any liens against the Work and any other amount pursuant to 5.10 - OWNER'S SET-OFF.

5.6.4 The Owner may refuse to pay some or all of the Lien Holdback the Owner is required to pay to the Contractor pursuant to GC 5.6.3 if:

- .1 no later than forty (40) Calendar Days after publication of the certificate of Substantial Performance of the Work in accordance with GC 5.5.4, the Owner publishes, in the manner set out in the Construction Act, a notice in the form prescribed by the Construction Act, specifying the amount of the Lien Holdback that the Owner refuses to pay; and
- .2 the Owner notifies the Contractor, in accordance with the Construction Act, of the publication of such notice.

5.6.5 For clarity, if the Contractor fails to submit a Proper Invoice to the Contract Administrator which is in compliance with the requirements of GC 5.6.1, the Owner shall not be required to make payment to the Contractor within the fifteen (15) Working Day period set out in GC 5.6.3. Such fifteen (15) Working Day period shall not commence until such time as the Contract Administrator has received from the Contractor a Proper Invoice in compliance with the requirements of GC 5.6.1.

5.7 PAYMENTS UPON TOTAL PERFORMANCE OF THE WORK

5.7.1 Payment Upon Total Performance of the Work

- .1 When the Contractor considers that the Work is Totally Performed, the Contractor shall submit a Proper Invoice for payment of the unpaid amount of the Contract Price other than the finishing portion of the Lien Holdback.
- .2 The Contractor's Proper Invoice submitted in accordance with GC 5.7.1.1 shall, in addition to complying with the applicable requirements of GC 5.3.7, include the list of Claims required by GC 9.2.2 in order to be considered a "Proper Invoice" for the purposes of GC 5.7.1.5.
- .3 The Contract Administrator shall, no later than ten (10) Calendar Days after the receipt of a Proper Invoice from the Contractor submitted in accordance with GC 5.7.1.1, review the Work to verify the validity of such Proper Invoice. If the Contract Administrator, or the Owner independent of the Contract Administrator, disputes the validity of such Proper Invoice, the Owner shall promptly, but no later than fourteen (14) Calendar Days after the Contract Administrator's receipt of such Proper Invoice from the Contractor, provide the Contractor a notice of non-payment in the form and manner prescribed by the Construction Act specifying the amount that is not being paid and detailing all of the reasons why such Proper Invoice is invalid. No later than twenty-eight (28) Calendar Days after the receipt by the Contract Administrator of such Proper Invoice, the Owner shall make payment to the Contractor of the amount set out in such Proper Invoice less the amount disputed by the Contract Administrator or the Owner independent of the Contract Administrator, as applicable, that is set out in a notice of non-payment. If such Proper Invoice is invalid, then the Contractor shall

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then submit another Proper Invoice when it considers that the Work is Totally Performed and the process described in this GC 5.7.1 shall repeat.

- .4 When the Contract Administrator finds the Proper Invoice submitted in accordance with GC 5.7.1.1 is valid and in compliance with the requirements of GC 5.7.1.2, the Contract Administrator shall promptly issue a certificate for payment which shall set out the date of Total Performance of the Work.
- .5 The Owner shall, no later than twenty-eight (28) Calendar Days after the receipt by the Contract Administrator of a Proper Invoice submitted in accordance with GC 5.7.1.1 pay the Contractor as provided in 5.2 - OWNER'S OBLIGATION TO PAY less any amount disputed by the Contract Administrator or the Owner independent of the Contract Administrator, as applicable, that is set out in a notice of non-payment issued pursuant to GC 5.4.1.3 (including amounts in respect of Deficiencies identified after the receipt of the Proper Invoice).
- .6 For clarity, if the Contractor fails to submit a Proper Invoice to the Contract Administrator which is in compliance with the requirements of GC 5.7.1.1, the Owner shall not be required to make payment to the Contractor within the twenty-eight (28) Calendar Day period set out in GC 5.6.3. Such twenty-eight (28) Calendar Day period shall not commence until such time as the Contract Administrator has received from the Contractor a Proper Invoice in compliance with the requirements of GC 5.7.1.1.

5.7.2 Payment of the Finishing Portion of the Lien Holdback

- .1 After the date on which all liens that may be claimed against the finishing portion of the Lien Holdback have expired or been satisfied, discharged or otherwise provided for under the Construction Act and provided the Contract Administrator has certified that the Work is Totally Performed in accordance with GC 5.7.1, the Contractor shall submit a Proper Invoice for the finishing portion of the Lien Holdback.
- .2 When the Contract Administrator finds the Proper Invoice submitted in accordance with GC 5.7.2.1 is valid and in compliance with the requirements of GC 5.7.2.1, the Contract Administrator shall promptly issue a certificate of payment for the finishing portion of the Lien Holdback.
- .3 Subject to GC 5.7.2.4 and the Construction Act, the Owner shall, no later than fifteen (15) Working Days after the receipt of the Proper Invoice, make payment to the Contractor of the amount of the finishing portion of the Lien Holdback set out in the Proper Invoice. Subject to the Construction Act, the Owner may retain out of the finishing portion of the Lien Holdback any sums required by law to satisfy any liens against the Work and any other amount pursuant to 5.10 - OWNER'S SET-OFF.
- .4 The Owner may refuse to pay some or all of the finishing portion of the Lien Holdback the Owner is required to pay to the Contractor pursuant to GC 5.7.2.3 if:

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- (1) no later than forty (40) Calendar Days after the date of Total Performance of the Work, the Owner publishes, in the manner set out in the Construction Act, a notice in the form prescribed by the Construction Act, specifying the amount of the finishing portion of the Lien Holdback that the Owner refuses to pay; and
 - (2) the Owner notifies the Contractor, in accordance with the Construction Act, of the publication of such notice.
- .5 For clarity, if the Contractor fails to submit a Proper Invoice to the Contract Administrator which is in compliance with the requirements of GC 5.7.2.1, the Owner shall not be required to make payment to the Contractor within the fifteen (15) Working Day period set out in GC 5.6.3. Such fifteen (15) Working Day period shall not commence until such time as the Contract Administrator has received from the Contractor a Proper Invoice in compliance with the requirements of GC 5.7.2.1.

5.8 FINAL ACCEPTANCE CERTIFICATE

5.8.1 The Contract Administrator shall issue the final acceptance certificate (“**Final Acceptance Certificate**”) after the later of the:

- .1 date on which the Contract Administrator determines that the Work has passed all inspection and testing requirements and is satisfied that the Contractor has corrected all Deficiencies and has discharged all of the Contractor’s obligations under the Agreement; and
- .2 expiry of the Warranty Period.

The Contract Administrator shall have no obligation to issue the Final Acceptance Certificate until all known Deficiencies have been corrected and the Contractor has discharged all obligations under the Agreement.

5.9 CONTRACTOR DISCHARGE OF LIABILITIES

5.9.1 In addition to the obligations assumed by the Contractor pursuant to 3.8 – SUBCONTRACTORS AND SUPPLIERS, the Contractor agrees to discharge all liabilities and obligations for the Work including in respect of labour, services, Contractor Parties, Construction Equipment and Products, except for amounts withheld by reason of legitimate dispute and which have been identified to the party or parties, from whom payment has been withheld.

5.10 OWNER’S SET-OFF

5.10.1 In addition to and without limiting any other rights the Owner may have under the Agreement and at law or otherwise, the Owner may set-off and deduct from any amount owing to the Contractor under the Agreement (including any payments by the Owner pursuant to GC 5.4.2, GC 5.6.3, GC 5.7.1.5, GC 5.7.2.3 and determinations pursuant to an Adjudication) an amount sufficient to cover:

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- .1 any outstanding or disputed liabilities or obligations of the Contractor to the Owner (including unpaid liquidated damages), or to the Indemnities pursuant to 9.1 – INDEMNIFICATION;
- .2 any Losses or amounts for which the Owner is expressly entitled in the Agreement to set-off or retain including GC 2.5.5, GC 5.4.2, GC 5.6.3, GC 5.7.2.3, GC 11.1.5.1, GC 11.1.5.2, GC 4.1.5, GC 10.2.5, GC 8.1.11.3, GC 9.1.3 GC 9.1.6, GC 13.2.1.2 and GC 13.2.2;
- .3 any of the following:
 - (1) any assessment due to the Workplace Safety and Insurance Board relating to the Work; and
 - (2) any amount necessary to satisfy Contractor's obligations under 5.9 – CONTRACTOR DISCHARGE OF LIABILITIES;
- .4 any other amounts owed by the Contractor to the Owner under the Agreement; and
- .5 if the Contractor becomes insolvent, all outstanding Claims and Losses of the Owner whether or not related to the Agreement.

If there is an insufficient amount owing by the Owner to the Contractor, then the Contractor shall reimburse the Owner for all of the aforementioned Claims and Losses.

6. ALLOWANCES

6.1 ALLOWANCES

- 6.1.1 The Fixed Price or Total Price of Unit Price Work includes the Allowances, if any. The Allowances include all taxes and duties (except only Value Added Taxes).
- 6.1.2 The Contractor's overhead and profit for the Cash Allowance is included in the Fixed Price or Total Price of Unit Price Work, and not in the Cash Allowance itself. Each Provisional Allowance item includes the Contractor's overhead and profit in connection with such Provisional Allowance. The Contractor shall not be paid any additional overhead and profit in connection with the Allowances other than as provided for in this 6.1 - ALLOWANCES.
- 6.1.3 Expenditures under Allowances shall be pre-authorized by the Owner in writing through the Contract Administrator.
- 6.1.4 Where the actual cost of the Work under any individual Cash Allowance exceeds the amount of such Cash Allowance, any unexpended amounts from other Cash Allowances may be reallocated, at the Owner's direction, to cover the shortfall, and, in that case, there shall be no additional amount added to the Fixed Price for overhead and profit. Only where the actual cost of the Work under all Cash Allowances exceeds the total amount of all Cash Allowances shall the Contractor be

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compensated for the excess incurred and substantiated, plus an amount for overhead and profit on such excess, as set out in row B.5 of the Information Sheet, and the Fixed Price shall be adjusted accordingly by Change Order.

- 6.1.5 The total amount of any unexpended Allowances shall be deducted from the Fixed Price or Total Price of Unit Price Work by Change Order, after providing for any reallocation contemplated in GC 6.1.4. For Provisional Allowances, such deduction includes the Contractor's overhead and profit included in such total amount. For clarity, no adjustment shall be made for the Contractor's overhead and profit included in the Fixed Price or Total Price of Unit Price Work on such total amount deducted in respect of Cash Allowances.
- 6.1.6 The value of the Work performed under an Allowance is eligible to be included in Proper Invoices.
- 6.1.7 The Contractor and the Contract Administrator shall jointly prepare a schedule that shows when the Contract Administrator and Owner must authorize ordering of items called for under Allowances to avoid delaying the progress of the Work.
- 6.1.8 The Contractor shall extend to the Owner all refunds and trade, quantity and cash discounts, rebates and refunds which may be received in purchasing under Allowances.
- 6.1.9 The Owner reserves the right to call, or to have the Contractor call, competitive bids or other types of procurements for portions of the Work to be paid for from Allowances. If the Owner determines to proceed with competitive bids, the Contractor shall comply with the directions of the Owner.
- 6.1.10 The Contractor shall include copies of Contractor Records substantiating purchases under Allowances.

7. CHANGES IN THE WORK

7.1 OWNER'S RIGHT TO MAKE CHANGES

- 7.1.1 The Owner, through the Contract Administrator, without invalidating the Agreement, may make:
 - .1 changes in the Work consisting of additions, deletions or other revisions to the Work by Change Order or Change Directive; and
 - .2 changes to the Contract Time for the Work, or any part thereof, by Change Order or Change Directive.
- 7.1.2 The Contractor shall not perform a change in the Work without a Change Order or a Change Directive. To the extent the Contractor performs any such change in the Work, the Contractor does so at its own risk and without any liability or obligation on the part of the Owner. There shall be no change in the Contract Price (including delay prolongation costs, remobilization costs or other compensation), extension of the Contract Time or other amendment to the Agreement on account of any change in

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the Work unless specified in, and initiated through, a Change Order or a Change Directive.

7.1.3 There shall be no extension of the Contract Time or increase in the Contract Price or payment of any kind whatsoever (including for loss of productivity) based on the aggregate quantity, scope or value of changes in the Work whether resulting from Change Order or Change Directive. The Contractor agrees that in connection with any Change Order or Change Directive it shall co-operate with the Owner and the Contract Administrator and shall carry out such Change Order or Change Directive in such a manner as to avoid incurring or to minimize any additional Losses to be incurred as a result of such Change Order or Change Directive or delay in the performance of the Work.

7.1.4 The value of a change shall be determined as follows, at the sole discretion of the Owner, as indicated in the Contemplated Change Order or Change Directive, as applicable:

- .1 if the change relates to items for which the Unit Prices set out in the Agreement are applicable, in accordance with Section 1 of Schedule E – Valuing Changes in the Work; or
- .2 in the absence of applicable Unit Prices set out in the Agreement:
 - (1) on either a negotiated fixed price or unit price basis, in accordance with the provisions in Section 2 of Schedule E – Valuing Changes in the Work; or
 - (2) if the Parties are unable to agree on a fixed price or unit price pursuant to GC 7.1.4.2(1), on a time and material basis, in accordance with the provisions in Section 3 of Schedule E – Valuing Changes in the Work.

7.1.5 Without limiting the entitlement of the Contractor pursuant to GC 11.1.9.2 when there is a termination for convenience pursuant to GC 11.1.9.1, if any change in the Work is made by which the amount of Work to be done is decreased, or any portion of the Work is dispensed with, the Owner shall not be liable to the Contractor for any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity.

7.1.6 Subject to any entitlement of the Contractor expressly provided for under the Agreement, no course of conduct or dealing between the parties, no express or implied acceptance of additions, deletions or other revisions to the Work, and no Claims that the Owner has been unjustly enriched by any addition, deletion or other revision to the Work, whether in fact there is any such unjust enrichment or not, shall be the basis of a Claim Notice or any other Claim for additional payment under the Agreement or a Claim Notice for any extension of the Contract Time or any other Claim.

7.2 CHANGE ORDER

7.2.1 When a change in the Work is proposed or required by the Owner, the Contract Administrator will provide the Contractor with a written description of the proposed

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change in the Work (a “**Contemplated Change Order**”). The Contractor shall promptly but in no event later than ten (10) Working Days (or such other period set out in row C.9 of the Information Sheet) after receipt of a Contemplated Change Order submit, in a form acceptable to the Contract Administrator, a method of adjustment or an amount of adjustment for the Contract Price, if any, and the adjustment in the Contract Time, if any, for the proposed change in the Work.

- 7.2.2 Subject to GC 7.1.4, when the Owner and Contractor agree to the adjustments in the Contract Price and Contract Time or to the method to be used to determine the adjustments, such agreement shall be reflected in a Change Order. The value of the Work performed as the result of a Change Order shall be included in the Proper Invoice.
- 7.2.3 A Change Order shall be a final determination or adjustment in the Contract Time, Contract Price and any other amendment to the Agreement as a result of the change in the Work and shall constitute a full and final settlement and satisfaction of all consequences to the Contractor of such change in the Work and shall be deemed to compensate Contractor fully for all effects of such change in the Work. For clarity, if a Change Order does not address an adjustment in the Contract Time, Contract Price or any other amendment to the Agreement, as the case may be, there shall be no adjustment in the Contract Time, Contract Price or any other amendment to the Agreement, as the case may be as a result of the change in the Work provided for in such Change Order.

7.3 CHANGE DIRECTIVE

- 7.3.1 If the Owner requires the Contractor to proceed with a change in the Work prior to the Owner and the Contractor agreeing upon the corresponding adjustment in Contract Price and/or Contract Time the Owner, through the Contract Administrator, shall issue a Change Directive.
- 7.3.2 Without limiting GC 7.3.1, a Change Directive may be used to direct a change in the Work that is only a change in the Construction Schedule or Contract Time.
- 7.3.3 Upon receipt of a Change Directive, the Contractor shall proceed immediately with the change in the Work.
- 7.3.4 The adjustment in the Contract Price, if any, for a change carried out by way of a Change Directive shall be determined in accordance with GC 7.1.4.
- 7.3.5 Without limitation to GC 7.3.3, upon receipt of a Change Directive, the Contractor shall promptly provide the Owner with an estimate of the cost of the performance of the change in the Work contemplated in the Change Directive and the impact on the Construction Schedule, if applicable, but in no event later than ten (10) Working Days (or such other period set out in row C.10 of the Information Sheet) after receipt of the Change Directive. If the Contractor, acting reasonably, requires more time to provide an estimate, it may notify the Owner of the date when the estimate will be provided.
- 7.3.6 Without limitation to GC 7.3.3, when the Owner and the Contractor reach agreement in respect of a Change Directive on the adjustment to the Contract Price and to the

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Contract Time, if any, such agreement shall be reflected in a Change Order. The Contractor shall not be entitled to include the value of the change in the Work performed as the result of such Change Directive in its Proper Invoices until, and unless, such Change Order has been executed.

7.4 CONCEALED OR UNKNOWN CONDITIONS

7.4.1 If the Owner or the Contractor discover conditions at the Site which are:

- .1 subsurface or otherwise concealed physical conditions which existed before the commencement of the Work which differ materially from those indicated in, or inferable from, the Agreement; or
- .2 physical conditions, other than conditions due to weather, that are of a nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Agreement,

then the observing party shall give Notice in Writing to the other party of such conditions before they are disturbed and in no event later than five (5) Working Days after first observance of the conditions.

7.4.2 The Contract Administrator will promptly, and in no event later than within twenty (20) Working Days after discovery thereof by the Owner or the Contractor, investigate such conditions and make a finding having regard to and subject to the liabilities and responsibilities assumed by the Contractor pursuant to 3.6 - EXAMINATION OF SITE and GC 4.1.4. If the finding is that the conditions differ materially and, having regard to and subject to the liabilities and responsibilities assumed by the Contractor pursuant to 3.6 - EXAMINATION OF SITE and GC 4.1.4, this would cause an increase or decrease in the Contract Time or Contract Price, the Contract Administrator, with the Owner's approval, will issue appropriate instructions for a change in the Work as provided in 7.2 - CHANGE ORDER or 7.3 - CHANGE DIRECTIVE. For clarity, the Contractor's entitlement to such change in the Work shall be determined by the Contract Administrator taking into account the respective liabilities assumed by the Owner and Contractor pursuant to 3.6 - EXAMINATION OF SITE and GC 4.1.4.

7.4.3 If the Contract Administrator finds that the conditions at the Site are not materially different or that no change in the Contract Price or extension of the Contract Time is justified, the Contract Administrator will report the reasons for this finding to the Owner and the Contractor in writing.

7.4.4 If such concealed or unknown conditions relate to Hazardous Materials, artifacts and fossils, or mould, the parties will be governed by the provisions of 4.3 - HAZARDOUS MATERIALS, 4.5 - ARTIFACTS AND FOSSILS and 4.4 – MOULD, as applicable.

7.5 DELAYS

7.5.1 If the Contractor is delayed in the completion of a critical path Work activity by:

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- .1 subject to GC 7.5.3, an act or omission of the Owner, the Owner Representative, the Contract Administrator or anyone employed or engaged by them directly or indirectly, which is contrary to the provisions of the Agreement; or
- .2 by a stop work order issued by a court or other public authority,

then, except to the extent such event results from the negligent act or omission of the Contractor Parties or the default or breach of the Contractor's obligations under the Agreement or any other act or fault of the Contractor Parties, the Contract Time shall be extended for such reasonable time as agreed to by the Parties, taking into account such time period as recommended by the Contract Administrator and the Contract Price shall be adjusted to account for reasonable Losses incurred by the Contractor as the result of such delay including the Losses referred to in GC 7.5.8, as applicable, but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity resulting from such delay.

7.5.2 If the Contractor is delayed in the completion of a critical path Work activity by any cause beyond the Contractor's control, including:

- .1 war, blockades, and civil commotions;
- .2 labour disputes, strikes and lock-outs (other than lock-outs described in GC 7.5.3);
- .3 fire, unusual delay by common carriers or unavoidable casualties; or
- .4 abnormally adverse weather conditions at the Site which are different from those normally and customarily experienced at the Site (as documented by weather data from Environment Canada) over the past ten (10) years taking into consideration severity, duration and time of year conditions,

except to the extent such event results from the negligent act or omission of the Contractor Parties or the default or breach of the Contractor's obligations under the Agreement, then the Contract Time shall be extended for such reasonable time as agreed to by the Parties, taking into account such time period as recommended by the Contract Administrator. The extension of time shall not be less than the time lost as the result of the event causing the delay, unless the Contractor agrees to a shorter extension. The Contractor shall not be entitled to payment for Losses incurred by such delays except to the extent the Contractor would be entitled to reasonable Losses in accordance with GC 7.5.1 or if such delay is the cause of the stop work order in connection with the Contractor's termination of the Agreement pursuant to GC 11.2.1.

7.5.3 If the Contractor is delayed in the completion of a critical path Work activity by a lock-out of the Owner or the City of Toronto, except to the extent such event results from the negligent act or omission of the Contractor Parties or the default or breach of the Contractor's obligations under the Agreement:

- .1 the Contract Time shall be extended for the duration of such lock-out, provided that if the duration of such lock-out exceeds five (5) Working Days, the Contract

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Time shall be extended by the duration of such lock-out plus an additional (5) Working Days; and

- .2 the Contract Price shall only be adjusted to account for direct reasonable costs the Contractor incurs for leased Construction Equipment as a result of such lock-out, but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity resulting from such delay.

7.5.4 No extension of the Contract Time shall be made for delay unless Notice in Writing of the cause of delay is given to the Contract Administrator and Owner in accordance with 7.7.1.

7.5.5 If no:

- .1 schedule is made under GC 2.2.12 for the Contract Administrator to provide Supplemental Instruction; or
- .2 time period is provided elsewhere in the Agreement where the Contract Administrator is to provide instructions to the Contractor,

then no request for an extension of the Contract Time shall be made by the Contractor because of failure of the Contract Administrator to provide such Supplemental Instructions or other instructions, as applicable, until fifteen (15) Working Days after demand for such Supplemental Instructions or other instructions, as applicable, has been made or such longer period of time reasonably required under the circumstances.

7.5.6 If the Work is behind schedule for a reason other than as described in GC 7.5.1, 7.5.2 or 7.5.3, the Contractor, at its expense and subject to GC 7.5.7, shall:

- .1 prepare and present to the Contract Administrator and Owner, for review and approval, a recovery plan (“**Recovery Plan**”) as soon as practical, but not later than three (3) Working Days after the earlier of the Contractor becoming aware of the Work being behind schedule or the Owner notifying the Contractor that the Work is behind schedule. Such Recovery Plan shall include information and details required by the Contract Administrator and Owner, acting reasonably, and shall demonstrate how the Contractor shall achieve the recovery of the schedule and bring the Work back on schedule. Any costs incurred by the Owner for the services of the Contract Administrator in reviewing multiple submissions of the Recovery Plan shall be borne by the Contractor; and
- .2 commence the implementation of the Recovery Plan approved by the Contract Administrator and Owner as soon as practical, but not later than within two (2) Working Days of the Contract Administrator and Owner providing approval of the Recovery Plan; and
- .3 otherwise take all measures necessary to bring the Work back on schedule (including expediting, increasing the labour force, supervisors and equipment, and working overtime).

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For clarity, this GC 7.5.6 shall not limit the other provisions of 7.5.

- 7.5.7 For greater certainty and without limiting any other provision in the Agreement, there shall be no extension of the Contract Time or increase in the Fixed Price or Unit Prices to the extent a delay was caused by the negligent act or omission of the Contractor Parties or by the Contractor's default or breach of the Agreement. Without limiting any other provision in the Agreement, the Owner shall be reimbursed by the Contractor for all Losses incurred by the Owner as the result of such delay, including all services required by the Owner from the Contract Administrator and Owner Representative as a result of such delay by the Contractor and, in particular, the costs of the Contract Administrator's and Owner Representative's services during the period between the Scheduled Date for Substantial Performance of the Work as the same may be extended through the provisions of the GC and the actual date of Substantial Performance of the Work achieved by the Contractor. For clarity, such costs shall be in addition to any Delay Liquidated Damages payable by the Contractor.
- 7.5.8 The Contractor shall be responsible for the care, maintenance and protection of the Work in the event of any suspension of construction as a result of the delay described in GC 7.5.1, 7.5.2 or 7.5.3. In the event of such suspension, the Contractor shall be reimbursed by the Owner for the reasonable Losses incurred by the Contractor for such care, maintenance and protection, but excluding the costs of the Contractor's head office Personnel and any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity.
- 7.5.9 Without limiting the generality of any other provision in the Agreement, the Contractor shall use best efforts to mitigate the impact of any delay events dealt with by GC 7.5.1, 7.5.2 or 7.5.3 and any other matters dealt with in a Claim Notice upon the performance of the Work, the Contract Time and the Contract Price. If the Contractor does not exercise such best efforts, the Contractor's entitlements under any applicable Claim Notice will be reduced or invalidated to reflect impacts that would have been avoided by such mitigation.
- 7.5.10 Any extension of the Contract Time or adjustment in the Contract Price provided for in this 7.5 – DELAYS shall be authorized in accordance with 7.2 - CHANGE ORDER.

7.6 DELAY LIQUIDATED DAMAGES

- 7.6.1 The Contractor acknowledges and agrees that the Owner will suffer financial Loss if the Work is not completed within the time specified in the Agreement. The Contractor also recognizes the delays, costs and difficulties involved in proving the actual Loss suffered by the Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Contractor agrees that if the date of Substantial Performance of the Work is delayed past the Scheduled Date for Substantial Performance of the Work, subject to any adjustment in Contract Time as provided for in the Agreement, the Contractor shall pay Owner liquidated damages in the amount designated in row B.6 of the Information Sheet ("**Delay Liquidated Damages**") for each and every Calendar Day or Working Day, as applicable, of delay until the Contractor has attained Substantial Performance of the Work. The Contractor further

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expressly acknowledges and agrees that Delay Liquidated Damages payable by the Contractor are:

- .1 not intended to be a penalty and are a reasonable and genuine pre-estimate of the actual damage that will be incurred by the Owner if the Contractor fails to achieve Substantial Performance of the Work in accordance with the requirements of the Agreement (including paragraph 1.3 of Section 1 of the Agreement);
- .2 in addition to, and without prejudice to, any other right or remedy available to the Owner under the Agreement or otherwise and does not limit or reduce any obligation or liability of the Contractor under the Agreement or otherwise; and
- .3 not a cap on the damages payable by, or liability of, the Contractor, if the Contractor fails to achieve Substantial Performance of the Work in accordance with the requirements of the Agreement (including paragraph 1.3 of Section 1 of the Agreement).

7.6.2 If there is a delay in attaining Substantial Performance of the Work, in spite of the payment of Delay Liquidated Damages in accordance with GC 7.6.1, the Contractor shall continue to perform and expedite the Work in accordance with the Agreement.

7.6.3 The Contractor shall pay Delay Liquidated Damages pursuant to 7.6.1 on a monthly basis as they accrue.

7.7 CLAIMS PROCEDURE

7.7.1 The Contractor shall provide a Notice in Writing to the Owner and the Contract Administrator of any claim for a change in the Contract Price, extension of the Contract Time or other changes to the Work or amendments to the Agreement (“**Claim Notice**”) within ten (10) Working Days after the Contractor knows, or should know applying the Standard of Care, of the event or circumstance giving rise to such claim. Any Claims by the Contractor in respect of such claim or Claim Notice shall be irrevocably barred, and waived and released by the Contractor unless the Contractor has strictly complied with the applicable requirements of 7.CHANGES IN THE WORK and the Contractor has provided such Claim Notice within the prescribed time period.

7.7.2 Without limiting the generality of any other provision in the Agreement, the Contractor shall immediately upon commencing Work that may result in a Claim Notice, keep such Contractor Records that relate to such Work (including any T&M Change in the Work) and the Claim Notice arising therefrom (including Daily Contractor Work Records) as may be necessary to support and substantiate such Claim Notice. The Contractor shall attempt, on a daily basis, to reconcile its Daily Contractor Work Records with the records of the Contract Administrator or Owner Representative, as applicable and have the Daily Contractor Work Records signed by the Contract Administrator or Owner Representative, as applicable. For clarity, the reconciling of the Contractor’s Daily Work Records with the records of the Contract Administrator or Owner Representative, as applicable, shall not be construed to be acceptance of a Claim Notice. If it is not possible to reconcile the Daily Contractor Work Records, then the Contractor shall submit the un-reconciled Daily Contractor Work Records with its

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Claim Notice, whereby the resolution of the dispute about the Daily Contractor Work Records shall not be resolved until there is a resolution of the applicable Claim Notice.

7.7.3 Subject to GC 7.7.4, the Claim Notice shall:

- .1 identify the item or items in respect of which the Claim Notice arises;
- .2 include the date the Contractor first became aware of the event or circumstance giving rise to the Claim Notice;
- .3 state the grounds, contractual or otherwise, upon which the Claim Notice is made;
- .4 provide sufficient and detailed information and documentation to allow the Contract Administrator and the Owner to properly consider the Claim Notice of the Contractor including:
 - (1) a description of the portions of the Work affected thereby;
 - (2) the cause of the change in the Contract Time, a description of such change, an assessment of the impact such change will have on the Construction Schedule (including an explanation as to how the critical path will be affected) and a reasonable estimate of the number of Calendar Days by which the Work will be delayed and date and time when the delay was experienced;
 - (3) a detailed account of the amount claimed and a breakdown of the change in the Contract Price;
 - (4) details of mitigation strategies applied; and
 - (5) all other pertinent details and backup information and documents; and
- .5 include the Contractor Records (including Daily Contractor Work Records) maintained by the Contractor supporting such Claim Notice.

The Contractor shall submit further updates on the Claim Notice to the Owner and the Contract Administrator as they become available, but in no event shall the Contractor submit any further updates within the fourteen (14) Calendar Days prior to the deadline for the Contract Administrator to issue its determination pursuant to GC 7.7.6.

7.7.4 Where the event giving rise to the Claim Notice has a continuing effect, the Claim Notice submitted under GC 7.7.2 shall be considered to be an interim Claim Notice and the Contractor shall, submit further updates on the Claim Notice at such intervals as the Owner or Contract Administrator may reasonably require. Such updates shall give the accumulated amount of the Claim Notice and any further grounds upon which it is based, as a part of the information and documents which the Contractor is required to provide in accordance with GC 7.7.2. The Contractor shall submit a final

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Claim Notice after the end of the effects resulting from the event as a part of the information and documents which the Contractor is required to provide in accordance with GC 7.7.2.

- 7.7.5 The Contract Administrator may, from time to time, request the Contractor to submit any further and other particulars as the Contract Administrator considers necessary to assess the Claim Notice. The Contractor shall submit the requested information within thirty (30) Calendar Days of receipt of such request or such shorter time as required by the Contract Administrator.
- 7.7.6 Within ninety (90) Calendar Days of initial receipt of the Claim Notice pursuant to GC 7.7.1, or such longer period of time required by Owner, the Owner, or if authorized by the Owner, the Contract Administrator, shall prepare and issue a determination to the Contractor regarding the validity of the Claim Notice. Such determination may be reflected in a Change Order or Change Directive to the extent required pursuant to GC 7.1.2. The Contractor shall be conclusively deemed to have accepted such determination of the Owner, or the Contract Administrator, as the case may be, and to have expressly waived and released the Owner from all Claims in respect of the Claim Notice including the particular matter dealt with in that determination unless, within fifteen (15) Working Days after receipt of that determination, the Contractor provides a revised Claim Notice or disputes that determination in accordance with 12.DISPUTE RESOLUTION.

7.8 SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS

- 7.8.1 For the purposes of this 7.8 - SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS, "Third Party Claimant" means any Person asserting a Claim that is not a party to the Agreement other than a Subcontractor, Supplier or Sub-subcontractor asserting a Claim in respect of the Work or the Project:
- .1 for which such Subcontractor, Supplier or Sub-subcontractor is entitled to assert rights (including lien rights) under the Construction Act against the Owner; or
 - .2 which relate to a Claim the Contractor is asserting against the Indemnitees.
- 7.8.2 Without limiting the obligations of the Contractor under 7.7 – CLAIMS PROCEDURE and GC 7.8.3 or elsewhere in the Agreement, the Contractor shall, or shall cause the Contractor's insurer to, in the manner and extent requested by the Owner:
- .1 respond to all Third Party Claimants in a timely manner;
 - .2 ensure that Third Party Claimants are provided with accurate information about the status of their Claim, and
 - .3 where appropriate, notify Third Party Claimants of the relevant activity on their Claims and provide them with information.

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- 7.8.3 If the Contractor receives notice of a Claim of a Third Party Claimant relating to or arising out of the Agreement, the Contractor shall immediately forward the notice of Claim to the City of Toronto Clerk's office at claims@toronto.ca.
- 7.8.4 Once the Contractor receives notice of a Claim of a Third Party Claimant relating to or arising out of the Agreement (including any notice from the City of Toronto's adjuster), the Contractor shall, or shall cause the Contractor's insurer to, in the manner and extent requested by the Owner:
- .1 within five (5) Working Days of receiving notice of such Claim, send a letter to the Third Party Claimant acknowledging receipt of such Claim and provide the Third Party Claimant with the contact information of the Contractor Project Manager, or another Person representing the Contractor, to whom the Third Party Claimant can refer questions regarding such Claim;
 - .2 conduct an investigation of such Claim and make a decision regarding such Claim that is based on a proper consideration of the facts; and
 - .3 within twenty-five (25) Working Days of receiving notice of such Claim, provide the Third Party Claimant with a letter advising of the results of the investigation and clearly explaining the Contractor's decision regarding such Claim or should the Contractor require the involvement of their insurance company to resolve such Claim, this shall be forwarded to the insurance company and the Third Party Claimant shall be notified within the allotted period of time above.
- 7.8.5 The Owner may, in writing, provide an extension of time for responding to the Claim of a Third Party Claimant pursuant to this 7.8- SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS if the Contractor or the Contractor's insurer, in writing, provides the Owner with a request for an extension as well as the reasons for the extension. In considering whether to provide such an extension, the Owner shall consider the Contractor's, or the Contractor's insurer's, reasons for the request and all of the surrounding circumstances including good customer service standards. Once the Contractor forwards such Claim to its insurer, the resolution of such Claim shall follow the insurance industry standards for claim investigation.
- 7.8.6 If an extension of time is provided under GC 7.8.5, the Contractor, or the Contractor's insurer, shall write to the Third Party Claimant advising that the investigation is on-going, advise of the date by which the Contractor or its insurer will report the results of the investigation to the Third Party Claimant, and explain the reasons why additional time is required to make a decision on the Claim.
- 7.8.7 A copy of all letters sent to a Third Party Claimant by or on behalf of the Contractor, including letters sent by the Contractor's insurer, pursuant to this 7.8- SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS, shall be copied to the Owner, and the City of Toronto's adjuster.
- 7.8.8 Where appropriate, the Contractor shall ensure its insurer takes all of the appropriate steps to meet the obligations under GC 7.8.1 to 7.8.7.

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- 7.8.9 The Contractor shall provide to the Owner monthly updates on the status of all Claims received from Third Party Claimants until resolution of such Claims.
- 7.8.10 If the Contractor fails to meet any of its obligations under this 7.8 - SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS, the Owner may provide the Contractor with Notice in Writing that the relevant obligations have not been fulfilled. If the Contractor does not fulfil such obligations within five (5) Working Days from receipt of such Notice in Writing, the Owner, without prejudice to any other right or remedy, may hold back an amount of \$10,000.00 from monies payable to the Contractor under the Agreement. The Owner may exercise its right of holdback under this section for each Claims of a Third Party Claimant for which the Contractor fails to meet its obligations under 7.8 - SERVICE STANDARDS FOR CONTRACTOR IN RESPONDING TO THIRD PARTY CLAIMANTS. Without limiting any of the Owner's other rights of holdback or set-off, the Owner will release the monies held back pursuant to this GC 7.8.10 once it has received evidence that the Contractor has sent the Third Party Claimant a letter(s) in accordance with GC 7.8.4.1 and 7.8.4.3.

8. INSURANCE, CONTRACT SECURITY, BONDS AND CONTRACTUAL HOLDBACK

8.1 INSURANCE

- 8.1.1 Without restricting the generality of 9.1 – INDEMNIFICATION or any other provision of the Agreement, the Contractor shall provide, maintain and pay:
- .1 for the insurance coverages listed in this 8.1 - INSURANCE under GCs 8.1.2, 8.1.4, 8.1.5, 8.1.6, 8.1.7, 8.1.8 and 8.1.9 as such coverages may be modified by Row D.1 of the Information Sheet;
 - .2 if required by row D.1 of the Information Sheet, coverage under GC 8.1.3; and
 - .3 such additional insurance coverages as required by Row D.1 of the Information Sheet.
- 8.1.2 Commercial General Liability Insurance:
- (1) in the amount of five million dollars (\$5,000,000) per occurrence;
 - (2) that includes the Indemnitees and such other Persons identified by the Owner from time to time as additional insureds with respect to liability arising out of the operation of the Contractor with regard to the Agreement; and
 - (3) that provides for a cross liability and/or severability of interest, contractual liability, Owner's and Contractor's protective liability, broad form property damage, contingent/and or employer's liability, products and completed operations, non-owned automobile liability and, if applicable to the insured operations as detailed in the Agreement, coverage for blasting, explosion, shoring, underpinning, underground works, pile driving and collapse; and

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- (4) which includes completed operations coverage for a period of six (6) years from the date of Substantial Performance of the Work, unless otherwise indicated in the Agreement. If the Contractor fails to comply with the requirements of this GC 8.1.2(4) or to maintain such coverage any contractual period for claiming indemnity described in the Agreement will not be binding on the Owner.

8.1.3 Contractor's Pollution Liability Insurance

- .1 If specified in row D.1 of the Information Sheet, pollution liability insurance. The policy shall have a limit of not less than Two Million Dollars (\$2,000,000) per claim limit. The policy shall cover third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from the Contractor's, Subcontractor's, Sub-subcontractor's or Supplier's operations and completed operations (i.e. Work performed). If written as a single project policy, the policy shall include an extended reporting period of 24 months. If written as an annual policy, the policy should be kept in force for 24 months from the date of the later of the: issuance of the Final Acceptance Certificate or termination of the Agreement, as the case may be. The Owner shall be included as an additional insured on this policy.

8.1.4 All Risk Property Insurance

- .1 All risk property insurance shall be written on a replacement cost basis based on the Contract Price, on the building or structure while in the course of construction, and on all Products, Construction Equipment, supplies and/or systems, including boiler and machinery, and pressure vessels if applicable, that form part of the Work or are used in the performance of the Work. The policy may be written separately in the form of a Builder's Risk or Installation Floater; and Boiler and Machinery policy and/or Contractor's Equipment policy, as appropriate to the Project. The Owner shall be included as an additional insured and a joint loss payee on these policies, except for the Contractor's Equipment policy. This GC 8.1.4 is subject to GC 3.14.4.
- .2 The all risk property insurance shall provide that, in the event of a loss or damage:
 - (1) unless directed otherwise by the Owner in its sole and absolute discretion, the Contractor shall act on behalf of both the Owner and the Contractor for the purpose of adjusting the amount of such loss or damage payment with the insurers and payment shall be made to the Owner and the Contractor as their respective interests may appear;
 - (2) when the extent of the loss or damage is determined the Contractor shall proceed to restore the Work. Loss or damage shall not affect the rights and obligations of either party under the Agreement except that the Contract Time may be extended relative to the extent of the loss or damage in accordance with 7.5 – DELAYS; and

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(3) the Contractor shall be entitled to receive from the Owner, in addition to the amount due under the Agreement, the amount at which the Owner's interest in restoration of the Work has been appraised, such amount to be paid as the restoration of the Work proceeds and in accordance with the requirements of 5. CONTRACT PRICE AND PAYMENT. In addition, the Contractor shall be entitled to receive from the payments made by the insurers the amount of the Contractor's interest in the restoration of the Work.

8.1.5 Automobile Liability Insurance

.1 Automobile liability insurance in respect of all licensed owned/leased vehicles that will be utilized in the performance of the Work, unless otherwise required by the Agreement. Such automobile liability insurance shall have limits of not less than five million dollars (\$5,000,000).

8.1.6 Professional Liability Insurance

.1 If providing specialized consulting services including architectural, design, mechanical engineering, or other engineering professional services as a part of the Work, the Contractor shall provide and/or cause any Subcontractor or Sub-subcontractor, where such Subcontractor or Sub-subcontractor is under a professional obligation to maintain the same, Professional Liability Insurance or Errors and Omissions Insurance in the amount of not less than five million dollars (\$5,000,000) and shall continue for twenty-four (24) months following the date of the earlier of the issuance of the Final Acceptance Certificate or termination of the Agreement, as the case may be.

8.1.7 Aviation Liability Insurance

.1 If used directly or indirectly in performance of the Work by the Contractor, Subcontractor, Sub-subcontractor or Supplier, aviation liability insurance with respect to owned or non-owned aircraft, remotely piloted aircraft, unmanned aerial vehicles or drones including the use of additional premises, and shall include, if applicable, coverage for bodily injury, death, aircraft passenger hazard, and damage to property including loss of use thereof. Such insurance shall have limits of not less than five million dollars (\$5,000,000).

8.1.8 Watercraft Liability Insurance

.1 If used directly or indirectly in performance of the Work by the Contractor, Subcontractor, Sub-subcontractor or Supplier, watercraft liability insurance with respect to owned or non-owned watercraft including the use of additional premises, and shall include coverage for bodily injury, death, and damage to property including loss of use thereof. Such insurance shall have limits of not less than five million dollars (\$5,000,000).

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8.1.9 Marine Insurance

- .1 If carrying out any ocean, coastal and inland waterway shipments, the Contractor shall ensure a marine insurance policy is in place to fully insure the full replacement value of the shipment, insurance, and freight plus 10% and should cover the cargo on an "All Risks" basis from the point of origin of shipment until delivery in Toronto, Ontario, including the risk of unloading at the delivery point.
- .2 The Contractor shall maintain or cause to be maintained, if applicable, hull and machinery insurance covering the full replacement cost of all barges, scows and other watercraft owned, rented or leased by the Contractor or any Subcontractor or Sub-subcontractor.

8.1.10 The Contractor shall be responsible for all deductible and self-insured retention amounts under the policies required by this 8.1 - INSURANCE.

8.1.11 Insurance Requirements and Duration

- .1 Unless specified otherwise in this 8.1 - INSURANCE, the duration of each insurance policy shall be from on or before Commencement Date until the date of the earlier of the issuance of the Final Acceptance Certificate or termination of the Agreement, as the case may be.
- .2 Prior to the execution of the Agreement, and upon placement and at amendment or extension of all or any part of the insurance, the Contractor shall within five (5) Working Days provide the Owner with confirmation of coverage on the Owner's certificate of insurance form as attached as Form 2 of Schedule G – Forms or on a form acceptable to the Owner, without notice or demand by the Owner. Prior to the expiration date of all or any part of the insurance the Contractor shall submit to the Owner such confirmation of coverage or a replacement policy without notice or demand by the Owner. The insurance documents required by this GC 8.1.11.2 shall be signed by the insurer or an authorized representative of the insurer.
- .3 If the Owner receives notice of cancellation for nonpayment of the insurance premium, the Owner may, but is not obliged to, pay the premium of any policy of insurance required to be maintained herein and make a formal demand for reimbursement of such costs from the Contractor. If the Contractor fails to pay the cost of the insurance placed by the Owner within fifteen (15) Calendar Days of the date on which the Owner made a formal demand for reimbursement of such costs, the Owner may set-off the costs thereof in accordance with 5.10 – OWNER'S SET-OFF.
- .4 The Contractor shall, on request, within five (5) Working Days provide the Owner with a certified true copy of each insurance policy exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. The certified true copy shall include a signature of the insurer or the underwriter or the broker.

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- .5 All insurance policies taken out by the Contractor shall be placed with insurers satisfactory to the Owner in its sole and absolute discretion. Without limiting the generality of the foregoing, all insurers must be licensed to underwrite insurance in the Province of Ontario, except to the extent the Owner waives such requirement in writing.
- .6 The insurance policies required pursuant to this GC shall:
 - (1) be primary and shall not call into contribution any insurance available to the Owner; and
 - (2) contain a waiver of subrogation rights which the insurers may have against the Owner or any other additional insured, except for the Automobile Liability and Professional Liability policies.
- .7 The amount of the deductible for the purpose of the Agreement shall not be more than \$25,000.00. Following the award of the Agreement, the Owner reserves the right to negotiate a higher or lower deductible, as appropriate.
- .8 In addition to the insurance required by 8.1 – INSURANCE, the Contractor shall, at its cost, maintain such other forms of insurance as the Owner, acting reasonably, may require from time to time, in amounts and for risks against which a prudent contractor would insure.
- .9 Each policy (except for the policy of automobile liability insurance required under GC 8.1.5) shall contain an endorsement requiring the insurer(s) to notify the Owner in writing, by registered mail, at least thirty (30) Calendar Days (fifteen (15) Calendar Days if cancellation is due to non-payment of premium), prior to any cancellation of the Contractor's insurance.
- .10 "Claims made" insurance policies shall not be permitted, except for the Professional Liability and Contractor's Pollution Liability policy.
- .11 The insurance coverages required by 8.1 – INSURANCE shall allow for partial or total use and occupancy by the Owner prior to Substantial Performance of the Work in accordance with 3.14.
- 8.1.12 The Contractor shall cause the Subcontractors and Suppliers to provide and maintain, at the expense of the Subcontractors and Suppliers, the insurance set out in GC 8.1.3 and 8.1.5.
- 8.2 CONTRACT SECURITY**
- 8.2.1 The Contractor shall, prior to the Commencement Date or within the specified time, provide to the Owner any contract security specified in row D.2 of the Information Sheet.

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8.3 SURETY BONDS

- 8.3.1 Unless expressly indicated otherwise in row D.5 of the Information Sheet, the Contractor shall provide surety bonds, which shall be:
- .1 a performance bond with a coverage limit of fifty percent (50%) of the aggregate amount of the Fixed Price and the estimated Total Price of Unit Price Work (calculated using the Estimate of Units for Completion), plus Value Added Taxes; and a labour and material payment bond with a coverage limit of fifty percent (50%) of such aggregate amount;
 - .2 in compliance with the requirements of the Construction Act and in the form prescribed by the Construction Act; and
 - .3 delivered to the Owner prior to the execution of the Agreement by both the Owner and the Contractor.
- 8.3.2 The premiums for the bonds required by the Agreement are included in the Fixed Price and Unit Prices.
- 8.3.3 If the Contract Price increases during the Performance of the Work, the Owner shall have the right, in its sole discretion and at any time, to require riders be provided to the existing bonds, to increase the value of the bonds to fifty percent (50%) of the total of the Contract Price plus Value Added Taxes.

8.4 CONTRACTUAL HOLDBACK

- 8.4.1 The Owner shall retain a contractual holdback equal to the amount(s) identified in row D.3 of the Information Sheet (the aggregate of such amounts retained by the Owner being the “**Contractual Holdback**”). For clarity, the Owner shall not retain Contractual Holdback in respect of the payment of Lien Holdback pursuant to 5.6 - PAYMENT OF LIEN HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK or the payments pursuant to 5.7 – PAYMENTS UPON TOTAL PERFORMANCE OF THE WORK.
- 8.4.2 The Owner, without prejudice to any other right or remedy, shall be entitled to apply the Contractual Holdback towards Losses the Owner may suffer, sustain or incur in connection with the:
- .1 exercise of its rights in respect of the Contractor’s failure to correct a default pursuant to GC 11.1.5;
 - .2 failure of Contractor to complete the Work and correct deficient Work after the issuance of the certificate of Substantial Performance of the Work in accordance with the completion schedule established pursuant to GC 5.5.3; and
 - .3 exercise of its right to correct Deficiencies or make good damaged work or property pursuant to GC 2.5.4 and 9.3.5.

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8.4.3 Upon the Total Performance of the Work, the portion of the Contractual Holdback which remains after the Owner has exercised its rights pursuant to 8.4.2, if any, shall be reduced by the percentage amount identified in row D.4 of the Information Sheet. The reduced amount of the Contractual Holdback (without any interest owed by the Owner) shall be eligible to be included in the Proper Invoice submitted pursuant to GC 5.7.1.1.

8.4.4 After the issuance of the Final Acceptance Certificate, the Contractor may submit a Proper Invoice to the Owner in accordance with the applicable requirements of 5.3 – PROPER INVOICES requesting release of the portion of the Contractual Holdback which remains after the Owner has exercised its rights pursuant to GC 8.4.2, if any. The Owner shall make payment to the Contractor of such remaining portion of the Contractual Holdback (without any interest owed by the Owner) in accordance with the applicable requirements of 5.4 – PROGRESS PAYMENT.

9. INDEMNIFICATION, WAIVER OF CLAIMS AND WARRANTY

9.1 INDEMNIFICATION

9.1.1 The Contractor shall indemnify, defend and hold harmless the Owner, the mayor of the City of Toronto and each of the City of Toronto's agencies, boards, commissions, Personnel, elected officials, servants, volunteers and advisers (including the Contract Administrator and the Owner Representative), and their respective successors and assigns (collectively as the "**Indemnitees**") from and against all Claims brought against, or Losses suffered, sustained, or incurred by, the Indemnitees which may be directly or indirectly attributable to, or arising or alleged to arise out of:

- .1 the negligent acts or omissions of the Contractor Parties;
- .2 any deliberate act of wrongdoing or wilful misconduct or fraud of a Contractor Party including intentional misrepresentation; or
- .3 the performance of or the failure to perform any of the Contractor's obligations under the Agreement

(collectively, the "**Subject Matter of Indemnity**"). The Subject Matter of Indemnity includes:

- .4 all Losses that any of the Indemnitees may suffer, sustain or incur arising in respect of bodily injury, illness or death of any individual or physical loss of or damage to tangible property (including all or any part of the Site or any other tangible property related thereto); and
- .5 all Claims arising in respect of bodily injury, illness or death of any individual or physical loss of or damage to tangible property.

9.1.2 Without limiting the generality of any other provision in the Agreement, the Contractor shall indemnify, defend and hold harmless the Indemnitees from and against all Claims brought against, or Losses suffered, sustained, or incurred by the Indemnitees which may be directly or indirectly attributable to, or arising or alleged to arise out of:

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- .1 a lien or subsequent lawsuit brought in connection with any lien by a Subcontractor, Sub-subcontractor or Supplier;
 - .2 the infringement or an alleged infringement of any patented invention or copyright by the Contractor Parties in connection with the Work including the Products;
 - .3 the Contractor's failure to comply with the requirements of 4.3 – HAZARDOUS MATERIALS;
 - .4 the Contractor's failure to comply with the requirements of OHSА and the duties, responsibilities and obligations of the constructor under OHSА;
 - .5 the Contractor's failure to comply with the requirements of GC 12.2.16 or 3.8.2.3(3);
 - .6 a Subcontractor, Supplier or Sub-subcontractor's failure to comply with the requirements of GC 3.8.2.3(3);
 - .7 the presence of mould caused by the Contractor's operations under the Agreement as determined in accordance with GC 4.4.2; or
 - .8 the Contractor's failure to comply with the requirements of GC 10.1.6.
- 9.1.3 The Contractor shall pay to the Indemnitees, or any of them, on demand the amount of all Losses and Claims for which the Contractor is obligated to indemnify the Indemnitees and any moneys paid or payable by the Indemnitees in settlement or in discharge or on account thereof. If the Contractor fails to make such payments within ten (10) Working Days after such demand, the Owner may set-off such payments in accordance with 5.10 – OWNER'S SET-OFF.
- 9.1.4 The Owner shall indemnify, defend and hold harmless the Contractor from and against all Claims brought against the Contractor by third parties, or Losses suffered, sustained, or incurred by the Contractor in respect of such third party Claims, that are attributable to, or arise out of, the Contractor's direct involvement in the Agreement, provided such third party Claims are directly caused by the negligent act or omission of the Owner in the performance of the Owner's obligations under the Agreement, and then only to the extent the Losses was caused by the Owner.
- 9.1.5 The Owner shall indemnify, defend and hold harmless the Contractor from and against all Claims brought against the Contractor, or Losses suffered, sustained, or incurred by the Contractor arising out of the Contractor's performance of its obligations under the Agreement which are attributable to, or arise out of
- .1 a lack of or defect in title or an alleged lack of or defect in title to the Site; or
 - .2 an infringement of a patent of invention directly resulting from the use of a model, plan or design that was supplied to the Contractor by the Owner as part of the Agreement,

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but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity. The Contractor expressly waives the right to indemnity for Claims other than those stated above.

- 9.1.6 The Contractor hereby authorizes and empowers the Owner or its solicitor to defend, settle or compromise any of the Claims described in GC 9.1.1 and 9.1.2 as the Owner or its solicitor may deem expedient. The Contractor shall ratify and confirm all the acts of the Owner and its solicitor undertaken pursuant to this GC 9.1.6 and shall pay to such solicitor on demand his or her reasonable costs of any such defense, settlement and/or compromise. If the Contractor fails to make such payments to the solicitor, the Owner may set-off such payments in accordance with 5.10 – OWNER’S SET-OFF.
- 9.1.7 The Contractor shall not settle or compromise any of the Claims described in GC 9.1.1 or 9.1.2, for which it is liable to indemnify, defend and hold harmless the Owner without first obtaining the consent of the Owner with such consent not to be unreasonably withheld or delayed.
- 9.1.8 The Contractor acknowledges that the Owner holds the benefit of any covenant, release or indemnity in the Agreement, including the covenants of the Contractor in GC 9.1.1, 9.1.2 and 9.1.3, that is expressly intended to extend to include the Indemnitees (other than the Owner) as third party beneficiaries as trustee and agent for such Indemnitees. The Owner shall be entitled to enforce the rights of such Indemnitees as third party beneficiaries under such covenant and indemnities.
- 9.1.9 9.1 - INDEMNIFICATION in no way limits any other liability or obligation of the parties in respect of the Agreement.

9.2 WAIVER OF CLAIMS

- 9.2.1 With its Proper Invoice for the Lien Holdback submitted in accordance with 5.6 - PAYMENT OF LIEN HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF THE WORK, the Contractor shall include a list setting out the status of all outstanding Claim Notices which have been submitted in strict compliance with 7.7 – CLAIMS PROCEDURE. For clarity, notwithstanding any other provision of the Agreement to the contrary:
- .1 any Claim Notices submitted prior to such Proper Invoice, but which are not set out in such list shall be deemed to be irrevocably barred, and waived and released by Contractor; and
 - .2 any Claims not included in such list shall be deemed to be irrevocably and unconditionally barred, and waived and released by Contractor, except for payment of the Lien Holdback which is the subject matter of such Proper Invoice, payment of the Contractual Holdback and any Claims in respect of Work to be performed sixty (60) Days prior to the date of Substantial Performance and on and after the date of Substantial Performance of the Work.
- 9.2.2 With its Proper Invoice submitted pursuant to GC 5.7.1.1 the Contractor shall include a list setting out the status of all outstanding Claim Notices which have been

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submitted in strict compliance with 7.7 – CLAIMS PROCEDURE. For clarity, notwithstanding any other provision of the Agreement to the contrary:

- .1 any Claim Notices submitted prior to such Proper Invoice, but which are not set out in such list shall be deemed to be irrevocably barred, and waived and released by Contractor; and
- .2 any Claims not included in such list shall be deemed to be irrevocably and unconditionally barred, and waived and released by Contractor, except for payment of any remaining Lien Holdback and the payment which is the subject matter of such Proper Invoice.

9.3 WARRANTY

- 9.3.1 The Contractor warrants that all Work shall be free of Deficiencies including in materials and workmanship and conform to the requirements of the Agreement during the Warranty Period. Except as expressly provided elsewhere in the Agreement, the Contractor does not warrant that the Owner Supplied Materials are free of Deficiencies. For clarity, this does not limit any warranty obligations of the Contractor for Work in respect of, or in connection with, the Owner Supplied Materials.
- 9.3.2 The Owner or Contract Administrator shall promptly give the Contractor Notice in Writing of observed Deficiencies which occur during the Warranty Period.
- 9.3.3 The Contractor shall, at the Contractor's cost, commence correction of Deficiencies in the Work which appear prior to and during the Warranty Period promptly, and in no event later than within ten (10) Working Days after receipt of Notice in Writing from the Owner or Contract Administrator of observed Deficiencies, and promptly complete the correction of such Deficiencies. The obligation of the Contractor to perform the corrective Work in accordance with this 9.3 – WARRANTY shall include the provision of all necessary labour and materials and the removal and replacement of covering materials. The carrying out of the correction of Deficiencies shall be executed at times convenient with the Owner which may entail overtime Work on the part of, and at the cost of, the Contractor. For greater certainty, if the Contractor is notified of Deficiencies prior to the end of the Warranty Period, then the Contractor shall make good the Deficiencies, notwithstanding that the warranty Work may commence or extend beyond the end of the Warranty Period.
- 9.3.4 The Contractor shall, at its cost, make good or pay for damage or destruction to other parts of the Work, the Owner's or other contractors' property or any other property caused by the Deficiencies during the Warranty Period or the correction of such Deficiencies.
- 9.3.5 If after receipt of the Owner's or Contract Administrator's Notice in Writing, the Contractor fails to, within the required period, commence and complete the correction of Deficiencies or make good damage or destruction to other parts of the Work, the Owner's or other contractors' property or any other property as required by this 9.3 – WARRANTY, the Owner may correct the Deficiencies or make good such damage and destruction and hold the Contractor responsible for all costs thereof.

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- 9.3.6 Any extension of the warranty beyond the Warranty Period shall be as specified in the Agreement (“**Extended Warranty Periods**”). Without limiting the Contractor’s warranty under 9.3 – WARRANTY, the Extended Warranty Periods shall be issued by the warrantor to the benefit of the Owner. The Contractor’s responsibility with respect to the Extended Warranty Periods shall be limited to obtaining any of the Extended Warranty Periods from the warrantor and assisting the Owner in the administration of the Extended Warranty Periods to the extent reasonably required by the Owner. The obligations under the Extended Warranty Periods are solely the responsibilities of the warrantor. For clarity, this GC 9.3.6 does not limit any responsibility or liability of the Contractor in respect of Deficiencies which appear prior to and during the Warranty Period.
- 9.3.7 Any Product or equipment requiring excessive servicing during the Warranty Period (or free maintenance period, if applicable) shall be considered Deficient and the warranty (or free maintenance period) shall be deemed to take effect from the time that the Deficiency has been corrected so as to cause excessive servicing to terminate.
- 9.3.8 Within thirty (30) Calendar Days after Substantial Performance of the Work, and without limiting the Contractor’s warranty under this 9.3 – WARRANTY, the Contractor shall assign to the Owner, to the extent assignable, the benefit of all warranties and guarantees relating to the Work. The assignment shall:
- .1 expressly reserve the right of the Contractor to make any claims under such warranties and guarantees;
 - .2 in no way prejudice any rights of or benefits accruing to the Contractor pursuant to such warranties and guarantees; and
 - .3 be in a form acceptable to the Owner.
- 9.3.9 The provisions of 9.3 – WARRANTY shall not deprive the Owner of any action, right or remedy otherwise available to the Owner for the Contractor’s failure to fulfill its obligations or responsibilities under the Agreement and shall not be construed as a waiver of Claims in favour of the Contractor or as a limitation on the time in which the Owner may pursue such other action, right or remedy. The warranties set out in the Agreement are not supplemental to and do not limit or preclude the application of any other conditions and warranties, express or implied, by law, trade usage or otherwise.

10. GOVERNING REGULATIONS

10.1 LAWS, NOTICES, PERMITS, AND FEES

- 10.1.1 The Owner shall obtain and pay for development approvals, building permit, easements, rights of servitude, and all other necessary approvals and permits, except for the permits and fees referred to in GC 10.1.2 or for which the Agreement specify as the responsibility of the Contractor.
- 10.1.2 The Contractor shall be responsible for the procurement of permits, licences, inspections, and certificates, which are necessary for the performance of the Work

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(including dewatering permits/agreements) and customarily obtained by contractors in the jurisdiction of the Site after the issuance of the building permit. The Contract Price includes the cost of these permits, licences, inspections, certificates and agreements, and their procurement.

- 10.1.3 The Contractor shall, and shall cause all Subcontractors, Suppliers and Sub-subcontractors to give the notices required by, and comply with, the Laws which are or come into force during the performance of the Work and which relate to the Work, to the preservation of health and safety.
- 10.1.4 Without limiting GC 10.1.3, the Contractor shall notify the Chief Building Official or the registered code agency where applicable, of the readiness, substantial completion, and completion of the stages of construction set out in the Ontario Building Code. The Contractor shall be present at each site inspection by an inspector or registered code agency as applicable under the Ontario Building Code.
- 10.1.5 Subject to 3.6 – DOCUMENT REVIEW AND EXAMINATION OF SITE, the Contractor shall not be responsible for verifying that the Agreement is in compliance with the Laws relating to the Work. If the Agreement is at variance therewith, or if, subsequent to the Effective Date, changes are made to the applicable Laws which require modification to the Agreement, the Contractor shall advise the Contract Administrator in writing requesting direction immediately upon such variance or change becoming known. The Contract Administrator will make the changes required to the Agreement as provided in 7.1 - OWNER'S RIGHT TO MAKE CHANGES, 7.2 - CHANGE ORDER and 7.3 - CHANGE DIRECTIVE.
- 10.1.6 If the Contractor:
- .1 fails to notify the Owner and the Contract Administrator in writing of changes made to the applicable Laws (other than Owner's Policies, Procedures and By-laws) in accordance with GC 10.1.5;
 - .2 fails to obtain direction as required in GC 10.1.5; or
 - .3 performs Work that it knows or should have known, applying the Standard of Care, contravenes any Laws,
- the Contractor shall be responsible for and shall correct the violations of such Laws, and shall be responsible for the Losses and delay attributable to the failure to comply with the provisions of such Laws, and, notwithstanding any limitations described in GC 9.1.1.
- 10.1.7 Notwithstanding GC 7.5.2, if subsequent to the Effective Date, changes are made to Laws (other than Owner's Policies, Procedures and By-laws) which increase or decrease the cost of the performance of the Work or Contract Time then:
- .1 any claim by the Contractor must be submitted in accordance with the requirements of 7.7 - CLAIMS PROCEDURE; and

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- .2 the Owner may submit a change in accordance with the requirements of 7.1 – OWNER’S RIGHT TO MAKE CHANGES.

10.1.8 Without limiting the generality of any other provision in the Agreement, the Contractor shall cause all certificates to be furnished that are required or given by the appropriate Governmental Authorities or quasi-governmental authorities as evidence that the Work as installed conforms with the Laws, including certificates of compliance for the Owner’s occupancy or partial occupancy. The certificates are to be final certificates giving complete clearance of the Work, in the event that such Governmental Authorities or quasi-governmental authorities furnish such certificates.

10.2 TAXES AND DUTIES

10.2.1 Subject to GC 10.2.3, the Fixed Prices and Unit Prices shall include all taxes and customs duties except for Value Added Taxes payable by the Owner to the Contractor. For clarity, there shall be no adjustment in the Fixed Price or Unit Prices as a result of inflation or currency fluctuation.

10.2.2 The Contractor shall provide a detailed breakdown of additional taxes and duties if requested by the Owner in a form satisfactory to the Owner.

10.2.3 Any increase or decrease in costs to the Contractor due to changes in Canadian federal and provincial taxes and custom duties after the Effective Date shall increase or decrease the Fixed Prices and Unit Prices accordingly. For greater certainty, the Contractor shall not be entitled to any markup for overhead or profit on any increase in such taxes and duties.

10.2.4 The Contractor represents and warrants that it is:

- .1 not a non-resident Canadian; or
- .2 has notified the Owner in writing, prior to execution of the Agreement that it is a non-resident Canadian,

for the purposes of the *Income Tax Act* (Canada). Notwithstanding anything to the contrary, all amounts payable by the Owner shall be subject to the *Income Tax Act* (Canada) (including applicable deductions from payments by the Owner on account of withholding against tax). Without limiting the generality of the foregoing, if any Laws requires that any taxes or other amounts be deducted or withheld from any payments to be made by the Owner under the Agreement, the Owner shall deduct such taxes or other amounts and remit such taxes or other amounts directly to the applicable Governmental Authority, including the Canada Revenue Agency, on or before the applicable due date and the Owner shall not be required to compensate or otherwise indemnify the Contractor with respect to such taxes or other amount.

10.2.5 Any taxes or customs duties applicable to the Agreement, including any sales taxes, excise taxes or Value Added Taxes, whether or not paid, which are found to be inapplicable or for which refund, exemption or recovery may be obtained, are the sole and exclusive property of the Owner. The Contractor agrees to, and to cause all Subcontractors, Suppliers and Sub-subcontractors to, cooperate with the Owner in

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the application for any refund, exemption or recovery of any taxes or customs duties, which cooperation shall include, making or concurring in the making of an application for any such refund, exemption or recovery, and providing to the Owner copies, or where required, originals of Contractor Records or other documents necessary to support such applications for refunds, exemptions or recoveries. All such refunds, exemptions or recoveries shall either be paid to the Owner, or shall be a credit to the Owner against the Contract Price in accordance with 5.10 – OWNER’S SET-OFF, in the Owner’s discretion. The Contractor agrees to endorse over to the Owner any cheques received from the federal or provincial governments, or any other taxing authority, as may be required to give effect to this GC. The Contractor agrees to enable, assist with and submit to any reasonable audit requested by the Owner with respect the potential refunds, exemptions or recoveries under this GC.

10.2.6 Customs duties penalties, or any other penalty, fine or assessment levied against the Contractor, shall not be treated as a tax or customs duty for the purpose of this 10.2 – TAXES AND DUTIES.

10.3 PATENT FEES

10.3.1 The Contractor shall pay the royalties and patent licence fees required for the performance of the Agreement.

10.4 WORKERS’ COMPENSATION

10.4.1 Prior to commencing the Work, and again with the Proper Invoice for the Lien Holdback following Substantial Performance of the Work and the Contractor’s Proper Invoice submitted pursuant to GC 5.7.1.1, the Contractor shall provide evidence of compliance with workers’ compensation Laws, including payments due thereunder by the Contractor.

10.4.2 At any time during the term of the Agreement, when requested by the Owner, the Contractor shall provide evidence of compliance with workers’ compensation Laws by the Contractor and Subcontractors.

11. DEFAULT, TERMINATION AND SUSPENSION

11.1 OWNER’S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR’S RIGHT TO CONTINUE WITH THE WORK, TERMINATE THE AGREEMENT OR SUSPEND THE WORK

11.1.1 If the Contractor is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the Contractor’s insolvency, or if a receiver is appointed because of the Contractor’s insolvency, the Owner may, without prejudice to any other right or remedy the Owner may have, immediately terminate the Contractor’s right to continue with the Work or immediately terminate the Agreement, by giving the Contractor or receiver or trustee in bankruptcy Notice in Writing to that effect specifying the date upon which such termination becomes effective.

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11.1.2 If the Contractor:

- .1 fails to comply with the requirements of 1.7 – CONFLICTS OF INTEREST or if the parties are unable to resolve a Conflict of Interest of the Contractor to the satisfaction of the Owner;
- .2 fails to provide a Recovery Plan in accordance with GC 7.5.6.1 or comply with the requirements in respect of a Recovery Plan under GC 7.5.6.2 and 7.5.6.3; or
- .3 is found or determined to have committed any offence that qualifies as an “indictable offence” under the *Criminal Code* (Canada) or any offence of a similar nature with substantially similar penalties under any quasi-criminal provisions of another Law or any fraudulent act in any way related to the Work or the Agreement,

the Owner may, without prejudice to any other right or remedy the Owner may have, immediately terminate the Contractor’s right to continue with the Work or immediately terminate the Agreement, by giving the Contractor Notice in Writing to that effect specifying the date upon which such termination becomes effective.

11.1.3 Subject to GC 11.1.1 and GC 11.1.2, if the Contractor:

- .1 fails to commence the Work by the Commencement Date;
- .2 neglects to prosecute the Work properly or fails or neglects to maintain the latest Construction Schedule; or
- .3 otherwise fails to comply with the requirements of the Agreement,

the Owner may, without prejudice to any other right or remedy the Owner may have, give the Contractor Notice in Writing that the Contractor is in default of the Contractor’s contractual obligations and instruct the Contractor to correct the default in the five (5) Working Days immediately following the receipt of such Notice in Writing. Failure by the Owner to provide such Notice in Writing in a timely manner after the default has occurred shall not constitute condonation of the default.

11.1.4 If the Owner determines that the default referred to in GC 11.1.3 cannot be corrected in the five (5) Working Days specified or in such other time period as may be subsequently agreed in writing by the parties, the Contractor shall be in compliance with the Owner’s instructions if the Contractor:

- .1 commences the correction of the default within the specified time;
- .2 provides the Owner with an acceptable schedule for such correction; and
- .3 corrects the default in accordance with the Agreement terms and with such schedule.

11.1.5 If the Contractor fails to correct the default referred to in GC 11.1.3 in the time specified or in such other time period as may be subsequently agreed in writing by

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the parties, without prejudice to any other right or remedy the Owner may have, the Owner may:

- .1 correct such default and set-off the cost thereof in accordance with 5.10 – OWNER’S SET-OFF provided the Contract Administrator has certified such cost to the Owner and the Contractor;
- .2 charge the Contractor for any Losses suffered, sustained or incurred by the Owner as a result of such default and/or set-off such Losses in accordance with 5.10 – OWNER’S SET-OFF; or
- .3 immediately terminate the Contractor’s right to continue with the Work in whole or in part or immediately terminate the Agreement by giving the Contractor Notice in Writing to that effect specifying the date upon which such termination becomes effective.

11.1.6 If the Owner terminates the Contractor’s right to continue with the Work or terminates the Agreement as provided in GC 11.1.1, 11.1.2 and 11.1.5, without prejudice to any other right or remedy which the Owner may have, the Owner may, at its sole option:

- .1 take possession of the Work, Products and Owner Supplied Material at the Site;
- .2 subject to the rights of third parties, utilize the Construction Equipment at the Site;
- .3 finish the Work by whatever method the Owner may consider expedient, but without undue delay or cost;
- .4 require Contractor to provide such reasonable assistance as required to properly and safely transition the Work to the Owner or its other contractors;
- .5 withhold further payment to the Contractor until a final certificate for payment is issued;
- .6 charge the Contractor the amount by which the full cost of finishing:
 - (1) any Fixed Price Work as certified by the Contract Administrator exceeds the unpaid balance of the Fixed Price; and
 - (2) any Unit Price Work as certified by the Contract Administrator exceeds the portion of the Total Price of Unit Price Work that would have been paid to the Contractor on the completion of such Unit Price Work (calculated based on the number of units required to complete the Unit Price Work after the effective date of termination).

plus compensation to the Contract Administrator for the Contract Administrator’s additional services and a reasonable allowance as determined by the Contract Administrator to cover the cost of corrections to Work performed by the Contractor that may be required under 9.3 - WARRANTY;

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- .7 on expiry of the Warranty Period, charge the Contractor the amount by which the cost of corrections to the Contractor's Work under 9.3 - WARRANTY exceeds the allowance provided for such corrections, or if the cost of such corrections is less than the allowance, pay the Contractor the difference; and
- .8 charge the Contractor for any Losses suffered, sustained or incurred by the Owner as a result of such termination and/or set-off such Losses in accordance with 5.10 – OWNER'S SET-OFF.

For clarity, any one or more of the Owner's rights in GC 11.1.6 shall also apply to the portions of the Work that the Owner has terminated the Contractor's right to continue pursuant to GC 11.1.5.3, *mutatis mutandis*.

- 11.1.7 Upon receipt of Notice in Writing from the Owner terminating the Agreement, the Contractor shall:
 - .1 subject to GC 11.1.6.4, cease Work on the effective date of the termination;
 - .2 place no additional orders (and if requested by the Owner, the Contractor shall cancel existing orders and subcontracts specified by the Owner upon terms satisfactory to the Owner); and
 - .3 preserve and protect the Products (at the Site or in transit), Owner Supplied Material and Work completed and in progress pending the Owner's instructions, and the Contractor shall dispose of same in accordance with the Owner's instructions.
- 11.1.8 The Contractor's obligation under the Agreement as to quality, correction and warranty of the Work performed by the Contractor up to the time of termination shall continue after such termination of the Agreement.
- 11.1.9 Termination for Convenience
 - .1 Notwithstanding any other term or condition in the Agreement, the Owner may (at any time) terminate the Contractor's right to continue with the Work or terminate the Agreement without cause and in its sole and absolute discretion by giving a Notice in Writing to the Contractor, specifying the date upon which such termination becomes effective, provided that such termination date may not be less than seven (7) Calendar Days from the date on which the Contractor is deemed to have received such Notice in Writing.
 - .2 In the event of termination pursuant to GC 11.1.9.1, the Owner shall be entitled to take possession of the Site, the Work, the Products and the Owner Supplied Material, and the Contractor shall be entitled to be paid for the following, without duplication, but subject to the other requirements in the Agreement to be satisfied by the Contractor prior to payment:
 - (1) the value proportionate to the Contract Price, of the Work performed up to the effective date of termination;

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- (2) reasonable demobilization costs paid by the Contractor which have been pre-approved by the Owner in writing;
- (3) reasonable costs incurred in connection with the preservation or protection of the Work; and
- (4) Subcontractor and Supplier cancellation costs reasonably paid by the Contractor as a result of such termination which have been pre-approved by the Owner in writing and could not have been reasonably mitigated by the Contractor.

For greater certainty, the amounts payable pursuant to GC 11.1.9.2(1) are less any previous amounts paid or properly withheld on account of the Contract Price and except for the amounts referred to in this GC 11.1.9.2, the Contractor shall not be entitled to any additional Losses resulting from the termination in accordance with GC 11.1.9.1 including any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity.

11.1.10 Notwithstanding any other provision in the Agreement, the Contractor shall accept, and not dispute, the termination of the Agreement or the Contractor's right to continue with the Work in whole or in part by the Owner under GC 11.1.1, 11.1.2 or 11.1.5.3, provided that the Contractor is entitled to dispute the existence of the underlying default or event giving the Owner the right to terminate the Agreement, or the Contractor's right to continue with the Work in whole or in part, in accordance with 12. DISPUTE RESOLUTION. However, if the Agreement is terminated under GC 11.1.1, 11.1.2 or 11.1.5.3 and it is later determined that there was no default or other event giving the Owner the right to terminate the Agreement or the Contractor's right to continue with the Work in whole or in part, as applicable, such termination shall be deemed to have been a termination for convenience and the rights and obligations of GC 11.1.9 shall apply to such termination.

11.1.11 Suspension

- .1 The Owner, from time to time, may suspend any portion or the whole of the Work for any reason for such time as the Owner may notify the Contractor in a Notice in Writing. In addition to suspending any portion or the whole of the Work, the Owner shall be entitled to instruct the Contractor in the Notice in Writing to take such other action as may be reasonably required in respect of the suspension.
- .2 The Contractor shall, upon receipt of such Notice in Writing, suspend the Work referred to in such Notice in Writing (except for Work which, in the reasonable opinion of the Contractor is necessary for the safety and security of people or property) and such suspended Work shall not be resumed until the Owner so directs in writing.
- .3 Subject to GC 2.2.19, upon resumption of the suspended Work and provided the suspension of the Work was not as a result of the negligent act or omission of the Contractor Parties or the default or breach of the Contractor's obligations under the Agreement or any other act or fault of the Contractor Parties, the Contract Time shall be extended for such reasonable time as agreed to by the Parties,

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taking into account such time period as recommended by the Contract Administrator and the Contract Price shall be adjusted to account for reasonable Losses incurred by the Contractor as the result of such suspension but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity resulting from such suspension.

- 11.1.12 The Contractor acknowledges that remedies at law may be inadequate to provide the Owner with full compensation if the Contractor breaches its obligations under this 11.1 - OWNER'S RIGHT TO PERFORM THE WORK, TERMINATE THE CONTRACTOR'S RIGHT TO CONTINUE WITH THE WORK, TERMINATE THE CONTRACT OR SUSPEND THE WORK and that any such breach of such obligations by the Contractor may cause the Owner irreparable harm. As a result, the Owner will be entitled, without prejudice to any other right or remedy it may have at law or in equity, to seek injunctive relief, specific performance, or any other equitable remedy if the Contractor breaches such obligations or takes steps that reasonably will result in a breach of such obligations.

11.2 CONTRACTOR'S RIGHT TO TERMINATE THE AGREEMENT

- 11.2.1 If the Work is suspended or otherwise delayed for a period of sixty (60) Working Days (or such alternate period under row C.11 of the Information Sheet) or more, by a stop work order issued by a court or other public authority (other than the City of Toronto) and providing that such order was not issued as the result of an act or fault of a Contractor Party, the Contractor may terminate the Agreement by giving the Owner Notice in Writing to that effect specifying the date upon which such termination becomes effective.

- 11.2.2 The Contractor may give Notice in Writing to the Owner, with a copy to the Contract Administrator, that the Owner is in default of the Owner's contractual obligations if:

- .1 the Contract Administrator fails to issue a certificate for payment as provided in 5.4 - PROGRESS PAYMENT; or
- .2 the Owner fails to pay the Contractor an amount: (1) which is due and payable under the Agreement, subject to the Owner's right to set-off pursuant to 5.10 – OWNER'S SET-OFF; or (2) awarded by arbitration or court; or
- .3 the Owner fails to comply with a material requirement of the Agreement,

and instruct the Owner to correct the default in the fifteen (15) Working Days immediately following the receipt of such Notice in Writing.

- 11.2.3 If the default cannot be corrected within the fifteen (15) Working Days specified in GC 11.2.2, the Owner shall be in compliance with the Contractor's instructions if the Owner:

- .1 commences the correction of the default within the specified time;
- .2 provides the Contractor with an acceptable schedule for such correction; and

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.3 completes the correction in accordance with such schedule.

11.2.4 If the Owner fails to correct the default in the time specified or subsequently agreed upon, the Contractor may, without prejudice to any other right or remedy the Contractor may have, terminate the Agreement by giving the Owner Notice in Writing to that effect specifying the date upon which such termination becomes effective.

11.2.5 If the Contractor terminates the Agreement under the conditions described in this 11.2 - CONTRACTOR'S RIGHT TO TERMINATE THE AGREEMENT, the Contractor shall be entitled to be paid for all Work performed to the date of termination. The Contractor shall also be entitled to recover the reasonable Losses associated with termination, including the costs of demobilization, but excluding any consequential, indirect or special damages and loss of profit, loss of opportunity or loss of productivity resulting from such termination.

11.3 OTHER TERMINATION OBLIGATIONS

11.3.1 If the Agreement is terminated, by the Owner or Contractor, as the case may be:

- .1 the party terminating the Agreement shall publish, in the manner set out in the Construction Act, a notice of the termination in the form prescribed by the Construction Act and, for the purposes of this section, the date on which the Agreement is terminated is the termination date specified in the Notice in Writing delivered by such party to the other party pursuant to the Agreement; and
- .2 the Contractor shall:
 - (1) comply with the requirements in GC 13.5.7 in respect of Confidential Information;
 - (2) stop, and cause all Subcontractors, Suppliers and Sub-subcontractors to stop, all Work in progress and refrain from undertaking any further commitments;
 - (3) except for subcontracts to be assigned to the Owner pursuant to GC 3.8.2.3(4), terminate any subcontracts related to the Work;
 - (4) minimize all costs resulting from the termination of the Agreement; and
 - (5) at the Owner's option, deliver, or cause to be delivered, to the Owner all Work-in-process obtained or performed by the Contractor and the Subcontractors, Suppliers and Sub-subcontractors up to the effective date of termination (including all Work-in-process situate at locations other than the Site and Contractor Prepared Documents).

12. DISPUTE RESOLUTION

12.1 DISPUTE RESOLUTION

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- 12.1.1 Unless the Agreement has been terminated or completed, the Contractor shall in every case, notwithstanding any Claim Notice or the occurrence of a Dispute, continue to proceed with the Work with due diligence and expedition. Such continuance shall not jeopardize the Contractor's entitlement in respect of such Claim Notice or Dispute, provided the Contractor has complied with all other requirements of the Agreement.
- 12.1.2 The parties acknowledge and agree that, for the purposes of Part II.1 of the Construction Act, there shall be no dispute with respect to an Adjudicable Matter that is also the subject matter of a Claim Notice, unless and until a Claim Notice in accordance with GC 7.7 – CLAIMS PROCEDURE has been received by the Owner and the Contract Administrator, and the Owner or the Contract Administrator, as the case may be, has issued a determination to the Contractor regarding the validity of the Claim Notice pursuant to GC 7.7.6.
- 12.1.3 The parties acknowledge that no arbitration, action, suit or other proceeding shall be brought, nor any mediation undertaken, with respect to the subject matter of a Claim Notice unless and until a Claim Notice in accordance with GC 7.7 has been received by the Owner and the Contract Administrator, and the Owner or the Contract Administrator, as the case may be, has issued a determination to the Contractor regarding the validity of the Claim Notice pursuant to GC 7.7.6.

12.2 ADJUDICATION

- 12.2.1 The parties acknowledge and agree that, for the purposes of paragraph 7 of s. 13.5(1) of the Construction Act:
- .1 neither the Agreement nor any Schedule sets out "any other matter" that the parties agree may be referred to an Adjudication; and
 - .2 the parties may agree after the commencement of the Agreement to "any other matter" that may be referred to an Adjudication provided such agreement is in writing and explicitly identifies and refers to the other matter to refer to an Adjudication.
- 12.2.2 All Adjudications shall proceed in accordance with the provisions of the Construction Act and the additional procedures set out in this 12.2 - ADJUDICATION, subject to the exercise of the powers provided to the Adjudicator under section 13.12 of the Construction Act.
- 12.2.3 Subject to GC 7.7 – CLAIMS PROCEDURE and GC 12.1.2, at any time prior to the completion of the Agreement, either party may refer an Adjudicable Dispute to Adjudication, by giving a Notice of Adjudication to the other party.
- 12.2.4 If the party issuing the Notice of Adjudication is the:
- .1 Contractor, the Notice of Adjudication shall be given to:

City of Toronto
Adjudication Unit

Construction Agreement

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C/O City Solicitor's Office
Metro Hall, 26th Floor
55 John Street
Toronto, Ontario M5V 3C6

- .2 Owner, the Notice of Adjudication shall be given to the person at the address set out in row A.3 of the Information Sheet.

The Notice of Adjudication shall be given to the other party by registered mail, courier or hand delivery.

- 12.2.5 Delivery of the Notice of Adjudication by registered mail is deemed given on the fifth day after the Notice of Adjudication is mailed.
- 12.2.6 Delivery of the Notice of Adjudication by courier is deemed given on the second day following the day the courier was given the document, unless the second day is a holiday, in which case the Notice of Adjudication is deemed given on the next day that is not a holiday.
- 12.2.7 The seat of the Adjudication shall be in Toronto, Ontario.
- 12.2.8 In addition to the requirements of section 13.8 of the Construction Act, if an Adjudication between the Owner and the Contractor is with respect to an Adjudicable Matter that is the same or includes the subject matter of disputes that can be referred to adjudication between:
- .1 the Contractor and Subcontractors and/or Suppliers that are to be adjudicated in separate Adjudications, if a Subcontractor and/or Supplier does not agree to a consolidated Adjudication, the Owner shall be entitled, in its sole and absolute discretion, to direct the Contractor to, and the Contractor shall, require the consolidation of the Adjudication through the exercise of the Contractor's right pursuant to section 13.8(2) of the Construction Act; or
 - .2 the Owner and other contractors engaged by the Owner to perform work on the improvement that are to be adjudicated in separate Adjudications, the Contractor hereby acknowledges and agrees to the consolidation of the separate Adjudications if the Owner requires the consolidation of the separate Adjudications and such other contractors have also agreed to the consolidation of the separate Adjudications.
- 12.2.9 The Adjudicator nominated by the party issuing the Notice of Adjudication shall:
- .1 have relevant qualifications and experience with respect to the Project or projects of a similar nature and magnitude, to the Project;
 - .2 be independent of and at arm's length to Contractor, Owner and any other person having an interest in the Project or any of the documents comprising the Agreement; and
 - .3 have no conflict of interest relating to the parties or the Dispute.

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12.2.10 In addition to the requirements of section 13.11 of the Construction Act, the copy of the contract and any other documents delivered to the party that received the Notice of Adjudication pursuant to section 13.11 of the Construction Act shall:

- .1 be delivered to such party by the other party in the manner as required by the Adjudicator;
- .2 if the contract and such documents have an aggregate file size in excess of twenty (20) MB, be delivered to such party by the other party on a USB flash drive or using a secure electronic document exchange service in a searchable format; and
- .3 include an index of documents with identifying information (for example, date, document description, author/recipient).

12.2.11 The Contractor and Owner hereby acknowledge and agree that:

- .1 they shall, immediately after the appointment of the Adjudicator, either through the agreement of the parties or by the Authorized Nominating Authority ("**ANA**"), deliver a written agreement requesting that the Adjudicator provide the party that received the Notice of Adjudication no less than fourteen (14) Calendar Days from the date of receipt of the documents pursuant to section 13.11 of the Construction Act to respond;
- .2 if the documents delivered pursuant to section 13.11 of the Construction Act:
 - (1) exceed 100 documents or 1000 pages in the aggregate, excluding the Agreement and all Schedules; or
 - (2) seek monetary relief in excess of one million dollars (\$1,000,000) exclusive of Value Added Taxes,

they shall, immediately after the receipt of such documents, deliver to the Adjudicator a written agreement requesting that the Adjudicator provide the party that received the Notice of Adjudication no less than sixty (60) Calendar Days from the date of receipt of such documents to respond and extend the deadline for the Adjudicator to make its determination to no less than thirty (30) Calendar Days after the deadline for the delivery of the response by such party; and

- .3 if the documents delivered pursuant to section 13.11 of the Construction Act are delivered at any time between the Friday prior to December 25th in a given year and the first Monday of January of the following year, they shall, immediately after the receipt of such documents, deliver to the Adjudicator a written agreement requesting that the Adjudicator exclude the period between the date of delivery of such documents and that first Monday of January from the counting of Calendar Days for the purposes of the Adjudication and, as necessary to give effect to such exclusion, extend the deadline for the party that received the Notice of Adjudication to respond and the deadline for the Adjudicator to make its determination.

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- 12.2.12 The Adjudicator shall be entitled to grant any remedy or relief which is consistent with the intentions of the parties expressed under the Agreement but shall not be entitled to exercise the power of prerogative writs.
- 12.2.13 In addition to the requirements of section 13.19(1) of the Construction Act, a requirement to pay an amount in accordance with section 13.19 of the Construction Act is subject to GC 13.2.1.2.
- 12.2.14 Other than in accordance with the Construction Act, any determination and reasons of an Adjudicator on the Project shall not be relied upon by either party on any other projects. The determination and reasons of any adjudicators on any other projects shall not be relied upon by the parties in any Adjudication on the Project.
- 12.2.15 If an Adjudicable Dispute is referred to Adjudication and such Adjudicable Dispute is already the subject of a mediation pursuant to GC 12.4 - MEDIATION, an arbitration pursuant to GC 12.5 - ARBITRATION or a court proceeding, which has not been finally determined, the party responding to the Notice of Adjudication shall be entitled, in its sole and absolute discretion, to choose to:
- .1 terminate, suspend or proceed with such mediation or arbitration, as applicable, and if the responding party elects to terminate such mediation or arbitration, as applicable, the party referring the Adjudicable Dispute to Adjudication shall be responsible for all costs of the mediator or arbitrator, as applicable, up to the date of receipt of the Notice of Adjudication; or
 - .2 stay or proceed with such court proceeding, and if the responding party elects to stay such court proceeding, the party referring the Adjudicable Dispute to Adjudication shall execute all further documents and do all other lawful things necessary to give full effect to such stay, and after the Adjudicator makes its determination, either party may move to lift such stay, which the other party shall consent to.
- 12.2.16 The Contractor shall, in respect of any dispute between:
- .1 the Contractor and a Subcontractor or Supplier;
 - .2 a Sub-subcontractor and a Subcontractor or Supplier; or
 - .3 a Sub-subcontractor and another Sub-subcontractor,
- no later than two (2) Working Days after the receipt by the Adjudicator of the documents under section 13.11 of the Construction Act in respect of such dispute, deliver a Notice in Writing to the Contract Administrator and Owner setting out the date which such Adjudicator received such documents.

12.3 NEGOTIATIONS

- 12.3.1 Either party may initiate negotiations of any Dispute by giving written notice to the other party ("**Notice of Negotiations**") with reasonable particulars of the Dispute. After the receipt of a Notice of Negotiations the parties shall make all reasonable

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efforts to resolve the Dispute by amicable negotiations and the parties agree to provide, without prejudice, open and timely disclosure of relevant facts, information, and documents to facilitate such negotiations.

- 12.3.2 Any applicable negotiations shall be completed as soon as possible and shall be limited to a period of no more than ninety (90) Calendar Days following the delivery of a Notice of Negotiations, or such other period of time as the Parties agree in writing.

12.4 MEDIATION

- 12.4.1 Subject to GC 12.1.3, the parties, by mutual written agreement, may submit any Dispute to mediation. Such mediation shall proceed in accordance with this 12.4 – Mediation and such other terms and conditions agreed to by the parties.

- 12.4.2 The mediator shall be mutually agreed upon by the Owner and Contractor.

- 12.4.3 Subject to GC 12.2.15.1, each party is responsible for its own costs related to the mediation. The costs of the mediator shall be equally shared by the Owner and Contractor.

12.5 ARBITRATION

- 12.5.1 Subject to GC 12.1.3, the parties, by mutual written agreement, may submit any Dispute to be finally determined by arbitration before a sole arbitrator, who shall also be agreed to as a part of such mutual agreement. The provisions of the *Arbitration Act, 1991* (ON) shall apply to such arbitration, including the provisions for appeal therein except as otherwise provided in this 12.5 - ARBITRATION and such arbitration shall be subject to such other terms and conditions agreed to by the parties.

- 12.5.2 If the parties agree to arbitration to resolve a Dispute, the Owner shall notify the Contract Administrator in writing within fifteen (15) Calendar Days of the written agreement to arbitrate.

- 12.5.3 Subject to GC 12.2.15.1, unless otherwise agreed to in the written agreement to arbitrate, each party is responsible for its own costs related to the arbitration and the arbitrator shall not have the discretion to award costs related to the arbitration. The costs of the arbitrator and any other Persons appointed to assist the arbitrator (including independent experts) shall be equally shared by the Owner and Contractor.

- 12.5.4 The arbitrator's reasoned decision shall be made in writing within ninety (90) Calendar Days of the conclusion of the hearing. An extension of time to make a decision may be granted with consent of both parties.

- 12.5.5 The resolution of Disputes pursuant to this 12.5 - ARBITRATION shall be final and binding upon the parties, and there shall be no appeal therefrom, including any appeal to a court of law on a question of law, a question of fact, or a question of mixed fact and law.

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12.6 RIGHTS OF BOTH PARTIES

12.6.1 Unless the parties agree otherwise, no action taken under GC 12.1 to GC 12.5 by either party shall be construed as a renunciation or waiver of any of the rights or recourse available to the parties.

13. OTHER PROVISIONS

13.1 OWNERSHIP OF EXISTING MATERIALS AND EQUIPMENT

13.1.1 Unless otherwise specified, all materials, equipment and other property existing at the Site at the time of execution of the Agreement shall remain the property of the Owner or any other Person identified by the Owner.

13.2 CONSTRUCTION LIENS

13.2.1 Upon the receipt of a written notice of lien, claim for lien or a certificate of action under the Construction Act, arising from the performance of the Work by any Subcontractor, Supplier or Sub-subcontractor:

- .1 the Contractor at its sole cost, shall take whatever steps are necessary to discharge, release or vacate such claim for lien or certificate of action, or withdraw the written notice of a lien within ten (10) Calendar Days of it coming to the notice of the Contractor. If the claim for lien or certificate of action is merely vacated, the Contractor shall, if requested, undertake the Owner's defence of any subsequent lawsuit commenced in respect of the claim for lien or certificate of action at the Contractor's sole cost; and
- .2 the Owner may retain an amount sufficient to satisfy such claim for lien, certificate of action or written notice of a lien, including an amount sufficient to cover potential costs, in accordance with GC 5.10 – OWNER'S SET-OFF.

13.2.2 If the Contractor fails or refuses to vacate or discharge the claim for lien or certificate of action, or cause the withdrawal of the written notice of a lien, within the time period required by 13.2.1, the Owner shall at its option, be entitled (but not obliged) to take whatever steps are necessary to vacate and/or discharge the claim for lien or certificate of action, or cause the withdrawal of the written notice of a lien and all Losses incurred by the Owner in so doing (including all legal fees and disbursements) may be set-off by the Owner in accordance with 5.10 – OWNER'S SET-OFF.

13.2.3 After the Contractor or the Owner, as the case may be, has vacated and/or discharged the claim for lien or certificate of action, or caused the withdrawal of the written notice of a lien, then any amount retained by the Owner pursuant to GC 13.2.1.2 in respect of such claim for lien, certificate of action or written notice of lien shall be eligible to be included in the next Proper Invoice submitted by the Contractor.

13.2.4 The Contractor acknowledges that all claims for lien shall be given to the Clerk of the City of Toronto through its web portal at www.toronto.ca/liens.

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13.2.5 This 13.2 – CONSTRUCTION LIENS does not apply to any claim for lien or certificate of action to the extent arising from a payment default of the Owner under the Agreement.

13.3 OWNERSHIP OF CONTRACTOR DOCUMENTS

13.3.1 Subject to GC, 1.1.11, all correspondence, data, plans, drawings, specifications, reports, estimates, summaries, photographs, models, mockups, Contractor Records and all other information and documentation in any form (an whether in draft or final format) prepared by or for the Contractor in connection with, or arising out of the Work or the Agreement (collectively, the “**Contractor Prepared Documents**”) shall be the exclusive property of the Owner, provided the Contractor shall retain the copyright in the Contractor Prepared Documents prepared by the Contractor. The Contractor grants the Owner an irrevocable, perpetual, royalty free and cost free license to use, amend and copy the Contractor Prepared Documents in any manner it chooses including the construction, design, testing, refurbishment, use, modification, expansion, occupancy, operation, maintenance, renovation, management, sale, extension, alteration and repair of the Work, the Site, the Project or any part thereof or any other project or any work including providing the Contractor Prepared Documents to consultants, design-builders, construction managers, contractors, suppliers and others for such purposes. Such license shall survive the termination of the Agreement.

13.3.2 In the event of any termination of the Agreement or as requested by the Owner, from time to time, the Contractor agrees to promptly, and in no event later than within ten (10) Working Days after such termination, deliver the Contractor Prepared Documents to the Owner.

13.4 OWNER SUPPLIED MATERIAL

13.4.1 The Contractor shall, in advance of receipt of shipments of Owner Supplied Material, provide adequate and proper storage facilities acceptable to the Contract Administrator and on the receipt of the Owner Supplied Material shall immediately place it in storage except where it is to be incorporated forthwith into the Work.

13.4.2 The Contractor shall be responsible for acceptance of Owner Supplied Material, at the specified delivery point. All Owner Supplied Material in each shipment shall be accounted for by the Contractor. Immediately upon receipt of each shipment, the Contractor shall provide the Contract Administrator with copies of bills of lading, or such other documentation the Contract Administrator may require to substantiate and reconcile the quantities of Owner Supplied Material received. Where Owner Supplied Material arrives at the delivery point in a damaged condition or where there are discrepancies between the quantities received and the quantities shown on the bills of lading, the Contractor shall immediately report such damage or discrepancies to the Contract Administrator who shall arrange for an immediate inspection of the shipment. Where damage or deficiencies are not so reported, it shall be assumed that the shipment arrived in good condition and order, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner and without any extension of the Contract Time.

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- 13.4.3 Once accepted by the Contractor, notwithstanding that title to the Owner Supplied Equipment shall be held by the Owner, the risk of Loss to the Owner Supplied Material shall be borne by the Contractor. If after accepting delivery, such Owner Supplied Material is damaged or lost while under the control of the Contractor, it shall be replaced or repaired by the Contractor at no cost to the Owner, and to the satisfaction of the Contract Administrator. If such Owner Supplied Material is rejected by the Contract Administrator for reasons that are not the fault of the Contractor, it shall remain in the care and at the risk of the Contractor until its disposition has been determined by the Contract Administrator.
- 13.4.4 Owner Supplied Material shall not, except with the written permission of the Contract Administrator, be used by the Contractor for purposes other than the performance of the Work under the Agreement. Contractor shall store, operate, maintain, repair and otherwise deal with the Owner Supplied Material in the same manner as would a prudent owner of such material and equipment, and in accordance with the Agreement and the applicable operating and maintenance manuals, and using suitably qualified and experienced Personnel, until returned to the Owner.
- 13.4.5 Empty reels, crates, containers and other types of packaging from Owner Supplied Material shall become the property of the Contractor when they are no longer required for their original purpose and shall be disposed of by the Contractor at the Contractor's cost unless otherwise specified in the Agreement or directed by the Owner.
- 13.4.6 Where Owner Supplied Material supplied by the Owner is ordered and stockpiled prior to the award of the Agreement, the Contractor shall, at no extra cost to the Owner, immediately upon commencement of operations, check the Owner Supplied Material, report any damage or deficiencies to the Contract Administrator and take charge of the Owner Supplied Material at the stockpile site. Where damage or deficiencies are not so recorded by the Contractor, it shall be assumed that the stockpile was in good condition and order when the Contractor took charge of it, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner and without any extension of the Contract Time.

13.5 CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION

- 13.5.1 The parties acknowledge and agree that MFIPPA applies to the Owner and the Owner Documents and that the Owner is required to fully comply with MFIPPA. The Contractor shall retain and preserve Owner Documents in a secure and accessible manner to enable the Owner to fulfill its obligations under MFIPPA and the Owner's Policies, Procedures and By-laws.
- 13.5.2 Notwithstanding anything else in the Agreement to the contrary, the Contractor acknowledges and agrees that the Owner has a right to disclose or publish the Agreement (including any or all terms hereof), any or all Owner Documents and any information derived from the Owner Documents as the Owner, in its sole discretion, may consider appropriate.
- 13.5.3 Each party acknowledges the importance of maintaining the confidentiality and privacy of Confidential Information. Except as authorized hereunder, each receiving

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party shall, with respect to Confidential Information it receives from or on behalf of any disclosing party at all times:

- .1 hold such Confidential Information in strict confidence, under and in accordance with all applicable requirements of the Agreement including the Specifications, if any;
- .2 implement and use, appropriate technical, organizational and physical security measures to protect and secure such Confidential Information, whether in storage or in use, with no less than the same degree of care as the receiving party uses to protect its own Confidential Information against loss, theft and unauthorized access, use, copying, modification, disclosure, publication or dissemination or disposal, but in no case with less than a reasonable degree of care. Further, the Contractor shall comply, if requested by the Owner, with a document control and security protocol approved by the Owner, which protocol shall prescribe limitations on the use, disclosure and storage of such Confidential Information;
- .3 comply with all applicable requirements of Laws, including MFIPPA, the *Personal Information Protection and Electronic Documents Act* (Canada), and any other Laws now in force or that may in the future come into force governing the collection, use, disclosure and protection of Personal Information applicable to the Contractor;
- .4 not disclose to a third party and not permit any third party any manner of access to, whether directly or indirectly, such Confidential Information without the prior written approval of the disclosing party in each instance, except as provided for in this 13.5 – CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION; and
- .5 not to use such Confidential Information for any purpose whatsoever other than in connection with the rights conferred under the Agreement as permitted by the Agreement.

13.5.4 The parties agree that:

- .1 the receiving party may disclose Confidential Information of the disclosing party received by it pursuant to the Agreement:
 - (1) to its Personnel if and when such Personnel have a need to know such Confidential Information so that such receiving party may exercise its rights and/or meet its obligations under the Agreement or comply with Laws, provided that such Personnel are advised of the confidential nature of the Confidential Information and, by virtue of the terms of their employment, engagement or retainer or as a result of an agreement in writing, are bound by confidentiality obligations substantially no less restrictive than those imposed on the receiving party pursuant to the Agreement;
 - (2) to the extent such disclosure is required pursuant to Laws or any Governmental Authority, provided that, where circumstances permit, prior to

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such disclosure the receiving party shall to the extent it is legally permitted to do so give the disclosing party a notice of the potential disclosure and allow the disclosing party the opportunity to contest the requirement for disclosure or seek a protective order or ruling in connection with such potential disclosure;

- (3) as necessary in connection with any dispute resolution commenced pursuant to the Agreement; and
 - (4) as may be permitted or required under the *City of Toronto Act, 2006*;
- .2 the Contractor may disclose Confidential Information of the Owner to its professional advisors, Subcontractors, Suppliers or Sub-subcontractors, to the extent necessary, to enable that party to perform, to cause to be performed the Work, or to enforce, its rights or obligations under the Agreement, provided that such parties are advised of the confidential nature of the Confidential Information and bound in writing to confidentiality obligations in favour of both the Owner and Contractor substantially no less restrictive than those imposed on Contractor by the Agreement;
- .3 the Owner may disclose Confidential Information of the Contractor to its professional advisors, consultants, other contractors, Personnel and any other party providing or potentially providing services to the Owner to enable the Owner to perform any of its obligations or exercise any of its rights under the Agreement, provided that such parties are advised of the confidential nature of the Confidential Information and bound in writing to confidentiality obligations substantially no less restrictive than those imposed on the Owner by the Agreement; and
- .4 any disclosure of Confidential Information allowed pursuant to this 13.5 - CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION shall be limited to that which is necessary to satisfy the need for such disclosure.
- 13.5.5 The Contractor acknowledges that the Owner may use the Confidential Information of Contractor for purposes not specific to the Project, but for other general governmental purposes.
- 13.5.6 Each receiving party shall immediately provide Notice in Writing to a disclosing party in the event that it becomes aware of any actual or suspected loss, theft or accidental or unauthorized access, disclosure, copying, use, modification or destruction of Confidential Information by a receiving party or any party to which a receiving party has disclosed any Confidential Information.
- 13.5.7 The Contractor shall allow the Owner on reasonable Notice in Writing to inspect any Confidential Information in the custody or possession of a Contractor Party and to audit compliance with this GC including the measures used to protect Confidential Information, and otherwise properly respond to all reasonable inquiries of the Owner with respect to handling of Confidential Information within five (5) Working Days.

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- 13.5.8 The Contractor shall provide, and shall cause each of its professional advisors, Subcontractors, Suppliers or Sub-subcontractors to provide, in a timely manner, all necessary and reasonable information and co-operation to the Owner and to any Governmental Authorities with jurisdiction or oversight over Laws governing the collection, use, disclosure and protection of Personal Information in connection with any investigations, audits or inquiries made by any such bodies or authorities under such legislation.
- 13.5.9 Subject to any applicable requirement of Laws, the Contractor shall on the earliest of the date of Total Performance of the Work, termination or expiry of the Agreement or upon the written request of the Owner, immediately cease all use of and return to the Owner or, at the direction of the Owner, dispose of, destroy, or render permanently anonymous, all Confidential Information, in each case using appropriate technical, organizational and physical security measures to protect Confidential Information against loss, theft and unauthorized access, disclosure, copying, use or modification.
- 13.5.10 This 13.5 – CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION shall not apply in respect of information (except for Personal Information), if such information:
- .1 was lawfully acquired by the receiving party prior to the Effective Date without any restrictions as to use or disclosure or any obligation of confidentiality;
 - .2 is lawfully, and without any restrictions as to use or disclosure or any obligation of confidentiality, provided to a receiving party by a third party, except where the third party is known or should reasonably have been suspected of being subject to an obligation to the disclosing party to maintain such information in confidence;
 - .3 is independently created, developed or acquired by or for the receiving party without reference to the Confidential Information provided by the disclosing party or through third parties to whom the Confidential Information had not been disclosed; or
 - .4 is released from the confidentiality provisions of the Agreement by the written authorization of the disclosing party.
- 13.5.11 The obligations in this 13.5 – CONFIDENTIAL INFORMATION AND PERSONAL INFORMATION shall survive the termination of the Agreement. To the extent of any conflict or inconsistency between this GC and any other provision of the Agreement, this GC shall prevail.

SCHEDULE E

VALUING CHANGES IN THE WORK

1. CHANGES IN THE WORK BASED ON UNIT PRICES SET OUT IN THE AGREEMENT

1.1 Notwithstanding that the number of units of an item of Unit Price Work to be performed shall exceed or be less than the Estimate of Units for Completion, subject to section 1.2 of this Schedule E, the Contractor shall proceed to perform the applicable Unit Price Work and payment shall be made for the final quantities of total units for such item in accordance with GC 5.3.5.2.

1.2 When the number of units of a Major Item of Unit Price Work exceeds the Estimate of Units for Completion for such item by more than 30%, the Contractor shall not proceed with the portion of such Major Item of Unit Price Work in excess of 130%, but the Owner shall have the right, in its sole discretion, to require that the portion of the applicable Unit Price Work for such Major Item which exceeds 130% of the Estimate of Units be performed and paid for as a T&M Change in the Work, in accordance with Section 3 of this Schedule E and if the Owner so elects, the Contract Administrator shall issue a Change Directive pursuant to GC 7.3 – CHANGE DIRECTIVE, or the parties shall sign a Change Order pursuant to GC 7.2 – CHANGE ORDER, reflecting the change for this portion of the Unit Price Work. For clarity:

1.2.1 where the number of units of a Major Item exceeds 100% of the applicable Estimate of Units for Completion for such Major Item, the units of such Major Item which are less than 130% of the Estimate of Units for Completion of such Major Item shall be paid for at the Unit Prices in accordance with GC 5.3.5.2;

1.2.2 where the number of units of an item of Unit Price Work (other than Major Items) exceeds 100% of the Estimate of Units for Completion for such item, all units of such item (including any units in excess of 130% of the applicable Estimate of Units for Completion) shall be paid for at the Unit Prices in accordance with GC 5.3.5.2; and

1.2.3 the Unit Prices under "Schedule A Schedule of Prices for Changes in the Work", if attached to Schedule B - Pricing Form, shall apply to an item of Unit Price Work if there is no corresponding Unit Price set out elsewhere in Schedule B – Pricing Form for such item.

2. CHANGES IN THE WORK ON A NEGOTIATED FIXED PRICE OR NEGOTIATED UNIT PRICE BASIS

2.1 The negotiated fixed price for a change in the Work or negotiated unit price(s) for the components of a change in the Work, as the case may be, whether performed by the Contractor or a Subcontractor, Supplier or Sub-subcontractor, shall be inclusive of all costs, charges, expenses, fees and taxes whatsoever required or related to the performance of such change in the Work and markup as provided for in section 2.2.3 of this Schedule E, with the exception of Value Added Taxes.

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Schedule E – Valuing Changes in the Work

2.2 The negotiated fixed price for a change in the Work or negotiated unit price(s) for the components of a change in the Work, as the case may be, shall be the sum of the following:

2.2.1 the negotiated fixed price or negotiated unit price(s), as applicable, for the portions of the change in the Work to be carried out by the Contractor's Personnel, without markup by the Contractor;

2.2.2 the negotiated fixed price or negotiated unit price(s), as applicable for the portions of the change in the Work to be carried out by the Subcontractors, Suppliers or Sub-subcontractors, without markup by the Contractor, Subcontractor, Supplier or Sub-subcontractor; and

2.2.3 markup calculated as follows:

.1 multiplying the negotiated amount set out in section 2.2.1 of this Schedule E by the percentage amount described in row B.1 of the Information Sheet; and

.2 multiplying the negotiated amount set out in section 2.2.2 of this Schedule E by the percentage amount described in row B.2 of the Information Sheet.

Such markup percentages shall not be adjusted during the term of the Agreement. Notwithstanding any other provision in the Agreement, the cumulative total percentage markup charged by the Contractor, Subcontractors, Suppliers and Sub-subcontractors pursuant to section 2.2.3.2 of this Schedule E shall not exceed the percentage amount set out in row B.2 of the Information Sheet, regardless of the extent to which the change in the Work is performed by a Subcontractor, Supplier or Sub-subcontractor. For greater certainty, such markup percentage shall not apply to Value Added Taxes. Any change in Work performed by a Subcontractor, Supplier and Sub-subcontractor that is an "associate" (as defined by the Securities Act) of the Contractor shall be treated as if such change in the Work was performed by the Contractor for the purposes of calculating the markup and, in such an instance, the markup in section 2.2.3.1 of this Schedule E is applicable, not the markup in section 2.2.3.2 of this Schedule E.

2.3 The Contractor shall provide written quotes identifying each amount to be charged by the Contractor and each Subcontractor, Supplier and Sub-subcontractor, including for each of the foregoing, a detailed breakdown of amounts for transportation, labour, Product, Construction Equipment, services. The Value Added Taxes, as applicable, shall be identified separately in a manner satisfactory to the Owner. The Contractor shall also provide any other detail reasonably required by the Owner to evaluate the proposed fixed price of the change in the Work.

2.4 Where such change in the Work requires the rental of Construction Equipment, any rental charges for the actual operation time required for the performance of the change in the Work must be agreed upon by the parties before the Contractor commences the change in the Work.

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Schedule E – Valuing Changes in the Work

- 2.5 The markups provided for in section 2.2.3 of this Schedule E shall constitute the only compensation the Contractor shall be entitled to for any and all overhead, profit, incidental and administrative costs whatsoever related to the change, including, costs relating to superintendence and supervision, shop drawing production, estimating, site office and home office expenses, tools of Personnel, temporary facilities and controls, and coordination of any and all Work-related activities.
- 2.6 If such change in the Work results in a net decrease in the Fixed Price, the Fixed Price shall be decreased by an amount proportionate to the reduction in the Fixed Price Work, provided that such reduction shall not include any amounts for portions of the Fixed Price relating to the fixed overhead costs incurred by the Contractor as reasonably substantiated by the Contractor.
- 3. CHANGES IN THE WORK ON A TIME AND MATERIAL BASIS – VERTICAL APPROACH**
- 3.1 For the purposes of this Section 3 of this Schedule E, the following definitions apply:
- 3.1.1 “**T&M Costs**” has the meaning set out in section 3.2.1 of this Schedule E;
- 3.1.2 “**T&M Markup**” has the meaning set out in section 3.4.2 of this Schedule E;
- 3.1.3 “**T&M Percentage Markup**” has the meaning set out in section 3.2.2 of this Schedule E;
- 3.1.4 “**T&M Price**” means, in respect of a T&M Change in the Work, the total T&M Costs plus the T&M Markup.
- 3.2 For T&M Changes in the Work, the following shall apply:
- 3.2.1 the cost of performing the T&M Change in the Work shall be calculated using the provisions of section 3.5 of this Schedule E, subject to all applicable credits being deducted and section 3.11 of this Schedule E (“**T&M Costs**”); and
- 3.2.2 the percentage markup shall be determined in accordance with section 3.3 of this Schedule E (“**T&M Percentage Markup**”).
- 3.3 The T&M Percentage Markup applicable to T&M Change in the Work shall be determined as follows:
- 3.3.1 on T&M Changes in the Work performed by Contractor: the percentage amount set out in row B.3 of the Information Sheet; and
- 3.3.2 on T&M Changes in the Work performed by the Subcontractor or Supplier or Sub-subcontractors: the percentage amount set out in row B.4 of the Information Sheet.

The T&M Percentage Markup shall not be adjusted during the term of the Agreement. Notwithstanding any other provision in the Agreement, the cumulative total percentage markup charged by the Contractor, Subcontractors, Suppliers and all Sub-subcontractors pursuant to section 3.3.2 of this Schedule E shall not exceed the amount

Construction Agreement

Schedule E – Valuing Changes in the Work

set out in row B.4 of the Information Sheet, regardless of the extent to which the change in the Work is performed by a Subcontractor, Supplier or Sub-subcontractor. For greater certainty, the percentage markup shall not apply to Value Added Taxes. Any change in Work performed by a Subcontractor, Supplier and Sub-subcontractor that is an “associate” (as defined by the Securities Act) of the Contractor shall be treated as if such change in the Work was performed by the Contractor for the purposes of calculating the T&M Percentage Markup and, in such an instance, the T&M Percentage Markup in section 3.3.1 of this Schedule E is applicable, not the markup in section 3.3.2 of this Schedule E.

3.4 If the T&M Change in the Work results in a net increase in the Contractor’s cost, the Contract Price shall be increased by:

3.4.1 the T&M Costs; plus

3.4.2 the T&M Percentage Markup multiplied by the T&M Costs (“**T&M Markup**”),

3.5 The T&M Costs shall be the actual reasonable costs to the extent directly paid by the Contractor in performing such T&M Change in the Work in accordance with the Agreement (without any markup) and, subject to section 3.11 of this Schedule E, is limited to the actual reasonable costs of the following:

3.5.1 salaries, wages and benefits paid to Personnel in the direct employ of the Contractor applying the labour rates as agreed in writing between the Owner and Contractor for Personnel:

- .1 carrying out the T&M Change in the Work, including, to the extent the T&M Change in the Work results in an extension of the Contract Time, project managers, superintendents, assistants, watch persons and administrative Personnel;
- .2 engaged in expediting the production or transportation of material or equipment, at shops or on the road; or
- .3 engaged in the preparation of Shop Drawings, fabrication drawings, coordination drawings and As-Built Drawings.

The Contractor acknowledges that the agreed upon labour rates (including the underlying salaries, wages and benefits on which the labour rates were calculated) shall be subject to audit and verification by the Owner in accordance with GC 2.6 and adjustment as appropriate.

3.5.2 contributions, assessments or taxes incurred for such items as employment insurance, provincial or territorial health insurance, workers’ compensation, and Canada or Quebec Pension Plan, insofar as such cost is based on wages, salaries or other remuneration paid to Personnel of the Contractor and included in the cost of the Work as provided in section 3.5.1 of this Schedule E;

3.5.3 all Products including cost of transportation thereof;

Construction Agreement

Schedule E – Valuing Changes in the Work

- 3.5.4 materials and supplies, including transportation and maintenance thereof, which are consumed in the performance of the Work; and cost less salvage value on such materials and supplies used but not consumed, which remain the property of the Contractor;
- 3.5.5 all Construction Equipment, exclusive of hand tools, and Temporary Work, used in the performance of the Work, whether rented from or provided by the Contractor or others, including installation, minor repairs and replacements, dismantling, removal, transportation, and delivery cost thereof, which for clarity, excludes the labour costs for directly operating such items included in section 3.5.1 of this Schedule E;
- 3.5.6 all equipment and services required for the Contractor's field office;
- 3.5.7 deposits lost provided that they were not lost by acts or omissions of the Contractor's Personnel;
- 3.5.8 subject to the Owner's prior written approval for amounts in excess of \$10,000, the value of subcontracts with Subcontractors and Suppliers, provided however that any time and material costs included in such amounts shall be limited to the actual costs of the items described in this section 3.5 of this Schedule E changing "Contractor" to "Subcontractor" or "Supplier" as necessary";
- 3.5.9 quality assurance required by the Agreement such as inspection and testing services, charges levied by authorities, provided such costs are pre-approved in writing by the Owner;
- 3.5.10 legal costs, incurred by the Contractor, in relation to the performance of the T&M Change in the Work provided that they are not related to or arising from a dispute between the Owner and the Contractor unless such costs are part of a settlement or awarded by adjudication, arbitration or court;
- 3.5.11 charges levied by authorities having jurisdiction at the Site;
- 3.5.12 royalties, patent licence fees and Losses for infringement of patents and cost of defending suits therefor subject always to the Contractor's obligations to indemnify the Owner as provided in GC 9.1.2.2;
- 3.5.13 any adjustment, attributable to the T&M Change in the Work, in premiums for all bonds and insurance which the Contractor is required, by the Agreement, to purchase and maintain;
- 3.5.14 any adjustment in taxes, other than Value Added Taxes and those relating to the Contractor's income or real or personal property;
- 3.5.15 duties for which the Contractor is liable;
- 3.5.16 charges for long distance telephone and facsimile communications, courier services, expressage, and petty cash items incurred in relation to the performance of the Work;

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Schedule E – Valuing Changes in the Work

3.5.17 removal and disposal of waste products and debris; and

3.5.18 safety measures and requirements.

All other costs attributable to the T&M Change in the Work are included in the percentage markup calculated in accordance with the provisions of section 3.3 of this Schedule E.

- 3.6** Notwithstanding any other provisions contained in the Agreement (other than section 3.11 of this Schedule E), it is the intention of the parties that the cost of any item under any cost element referred to in section 3.5 of this Schedule E shall cover and include any and all costs or liabilities attributable to the T&M Change in the Work other than those which are the result of or occasioned by any failure on the part of the Contractor to perform the change in the Work in accordance with the Standard of Care. Any cost due to failure on the part of the Contractor to perform the change in the Work in accordance with the Standard of Care shall be borne by the Contractor.
- 3.7** The Contractor shall prepare and maintain complete and accurate Daily Contractor Work Records for T&M Changes in the Work.
- 3.8** All trade, quantity and cash discounts and rebates and refunds accrue to the Owner, including all returns from sale of surplus materials and equipment applicable to the T&M Change in the Work, and the Contractor shall make provisions for them to be secured without delay.
- 3.9** Pending determination of the final amount of a T&M Change in the Work, the undisputed value of the T&M Change in the Work performed:
- 3.9.1 as the result of a Change Order, is eligible to be included in Proper Invoices; and
 - 3.9.2 as the result of a Change Directive, is not eligible to be included in Proper Invoices except to the extent that it is dealt with in a Change Order.
- 3.10** If the Owner and the Contractor do not agree on the proposed adjustment in the Contract Time attributable to the T&M Change in the Work, or the method of determining it, the adjustment shall be referred to the Contract Administrator for determination.
- 3.11** Notwithstanding any other provisions contained in the Agreement, the T&M Costs shall not include, and no payment shall be made by the Owner for:
- 3.11.1 head office salaries, wages and benefits and all other overhead or general expenses;
 - 3.11.2 capital expenses and interest on capital;
 - 3.11.3 general clean-up, except where the performance of the T&M Change in the Work causes specific additional clean-up requirements;
 - 3.11.4 salaries, wages and benefits paid for project managers, superintendents, assistants, watch persons and administrative Personnel except only for the salaries, wages and benefits of Personnel described in section 3.5.1 of this

Construction Agreement
Schedule E – Valuing Changes in the Work

Schedule E and the related contributions, assessments or taxes referred to in section 3.5.2 of this Schedule E;

- 3.11.5 salaries, wages, benefits, rentals, or other expenses that exceed the rates that are standard in the locality of the Site that are otherwise deemed unreasonable by the Contract Administrator;
- 3.11.6 any Losses attributable to Deficiencies, the negligent acts or omissions of the Contractor Parties or the Contractor's failure to perform any of its obligations under the Agreement;
- 3.11.7 any costs noted in the Agreement as non-reimbursable by the Owner; or
- 3.11.8 any costs noted in the Agreement as paid or incurred at the Contractor's expense.

SCHEDULE F

OWNER'S POLICIES, PROCEDURES, BY-LAWS AND OTHER REQUIREMENTS

The following Toronto Zoo Official Policy Statements and procedures are included in this RFT, are applicable for this project.

SAFE-001	Occupational Health & Safety
SAFE-002	Health & Safety Hazard Reporting
SAFE-005	Hazardous Materials
SAFE-007	Confined Space
SAFE-013	Lock Out / Tag Out Procedure
SAFE-017	Contractor Safety
SAFE-018	Vehicles on Site
SAFE-025	Hot Work
SAFE-026	Scaffold & Ladder Safety

City of Toronto Fair Wage Policy: <https://www.toronto.ca/business-economy/doing-business-with-the-city/understanding-the-procurement-process/fair-wage-office-policy/fair-wage-policy/>

Toronto Zoo's Commitment to the City of Toronto's Corporate Smog Alert Response Plan.

Toronto Zoo's Accessible Customer Service Training Requirements: Contractors, Consultants and other Service Providers

SCHEDULE G

FORMS

Schedule G is comprised of the following forms:

Form 1: Sample Proper Invoice

Form 2: Certificate of Insurance

Form 3: Tax Statutory Declaration

Form 4: Notice of Adjudication

**Construction Agreement
Schedule G – Forms**

FORM 1: SAMPLE PROPER INVOICE

Contractor Company Logo

INVOICE

BILL TO:

Owner: *City of Toronto*
 Street Address: *55 John Street, 20th Floor*
 City: *Toronto, Ontario*
 Postal Code: *M5V 3C6*
 Division: *Engineering & Construction Services*

REMIT TO:

Vendor Name: *Vendor*
 Vendor Number: *123456789*
 Street Address: *123 Toronto Street, Unit 12*
 City: *Toronto, Ontario*
 Postal Code: *XXX XXX*

Owner Representative: *John Doe*

Contractor Project Manager: *John Doe*

Tel. #: *416-39X-XXXX*
 Email: *John.Doe@toronto.ca*

Tel. #: *416-39X-XXXX*
 Email: *John.Doe@Vendor.ca*

Contract #: *Contract Number*
 Blanket Contract #: (if any) *XXXXXXXX*
 PO #/ CRO#/ DPO#: *XXXXXXXX*
 Project Description: *Project Description*
 Invoice Period: *(Start) to (End)*
 Progress Payment Certificate#: *PR-XX*

INVOICE DATE: *September 19, 2019*
INVOICE # *12548*

HST Registration No. _____
 Currency _____

Item	Contract Price	Progress To Date		Previous Billing	Current Billing
		%	\$		
A	B	C = (D / B)	D	E	F = (D - E)
Base Contract	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Allowances	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Approved Change Orders (non-Allowance)	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Gross Amount	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Less: Statutory Lien Holdback			\$(0.00)	\$(0.00)	\$(0.00)
Less: Contractual Holdbacks			\$(0.00)	\$(0.00)	\$(0.00)
Net Amount			\$0.00	\$0.00	\$0.00
HST 13%			\$0.00	\$0.00	\$0.00
Less: Other Taxes			\$(0.00)	\$(0.00)	\$(0.00)
Total Amount Due					\$0.00

Name: _____

Signature: _____

Title: _____

Date: _____

Additional information to be included/attached

FORM 2: CERTIFICATE OF INSURANCE

To be completed only by the insurer or by its representative.

Name of Insured:	City of Toronto Contact Name, Address, and Telephone Number:
Address and Telephone Number of Insured:	

Operations of Named Insured for which certificate is issued:

(NOTE: Provide specific project information including the Toronto Zoo contract number)

1. Commercial General Liability: Deductible \$ _____

Insuring Company	Policy Number	Policy Limit(s) \$ (per occurrence)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)
Primary Insurer:				
Umbrella/Excess Insurer:				
<input type="checkbox"/> Applicable to Auto Coverage				
Contractor's Pollution Liability, Sudden and Accidental and Gradual, if applicable				

Commercial General Liability policy provisions:

- a) The CITY OF TORONTO, ITS BOARDS, AGENCIES, COMMISSIONS OR SUBSIDIARY OPERATIONS, AS APPLICABLE, the TORONTO AND REGION CONSERVATION AUTHORITY, and the CONSULTANT are included as Additional Insureds but only with respect to liability arising out of the operations of the Insured for which a contract or proposal is issued by the Toronto Zoo.
- b) The policy includes a Cross-Liability and Severability of Interest, Blanket Form Contractual Liability, Owner's and Contractor's Protective Liability, Broad Form Property Damage, Contingent and/or Employer's Liability, Non-Owned Automobile Liability, Products/Completed Operations and any other provision relevant to the contract work. If applicable to the insured operations, coverage for Blasting, Pile Driving and Collapse.
- c) The Commercial General Liability Policy(ies) identified above shall apply as primary insurance and not excess to any other insurance available to the City.

2. Automobile Liability, if applicable: Deductible \$ _____

Insuring Company	Policy Number	Policy Limit(s) (\$)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)

3. Contractor's Equipment Property Insurance: Deductible \$ _____

 Contractor's tools & equipment, materials & supplies in an amount to reflect the replacement cost.
 Policy includes a Waiver of Subrogation Clause in favour of the City.

Insuring Company	Policy Number	All-Risk Property Limit(s) (\$)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)

4. Builder's Risk or Installation Floater - Products, supplies and equipment and/or systems, including boiler and machinery, if applicable, that forms part of the Work. Deductible \$ _____

Identify Policy Type:

Builder's Risk

Installation Floater

The Owner shall be included as an additional insured and a joint loss payee.

Insuring Company	Policy Number	Limit of Coverage (\$)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)

5. Other (Specify) _____. Deductible \$ _____

Insuring Company	Policy Number	Policy Limit(s) (\$)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)

6. Other (Specify) _____. Deductible \$ _____

Insuring Company	Policy Number	Policy Limit(s) (\$)	Effective Date (yyyy-mm-dd)	Expiry Date (yyyy-mm-dd)

All of the above policies (with the exception of the Automobile Insurance, Section 2 above) must include a clause that states that if the policy is cancelled during the period of coverage, as stated herein, thirty (30) days, (fifteen (15) days if cancellation is due to non-payment of premium), prior written notice by registered mail will be given by the Insurer(s) to the City of Toronto.

CERTIFICATION

I certify that the insurance is in effect as stated in this Certificate and that I have authorization to issue this Certificate for and on behalf of the Insurer(s). This Certificate is valid until the expiration date(s) stated in the "Expiry Date" provision, unless notice is given in writing in accordance with the provision of this Certificate.

Date	Broker's or Insurer's Name and Address	Signature and Stamp of Certifying Official

FORM 3: TAX STATUTORY DECLARATION

CANADA,) IN THE MATTER OF the annexed Agreement
PROVINCE OF ONTARIO,) made between
JUDICIAL DISTRICT OF YORK)
)
)
)
) – and –
)
) **[OWNER]**
)
) this ____ day of ____, 20__.
) with respect to
)

I, _____, of the CITY / TOWN / VILLAGE of _____
in the Province of _____, do solemnly declare as follows:

1. I am _____ of _____
(If an incorporated Company, state " President", (Company Name)
"Secretary", or as the case may be)
referred to above (hereinafter called "the Contractor"), and as such have knowledge of
the matters hereinafter declared to.
2. The Contractor has paid all taxes and/or penalties imposed on it by the Corporation Tax
Act, R.S.O. 1990, c. C.40, as may be amended.

AND I MAKE this solemn Declaration conscientiously believing it to be true and knowing that it
is of the same force and effect as if made under oath.

DECLARED before me at }
the _____ of _____ }
in the City of Toronto }
this _____ day } _____
of _____ 20__ } Signing Officer of Company

A Commissioner, etc.

FORM 4: NOTICE OF ADJUDICATION

**IN THE MATTER OF AN ADJUDICATION PURSUANT TO PART II.1 OF THE
CONSTRUCTION ACT, R.S.O. 1990, c. C.30, as amended**

Notice of Adjudication

Date

Agreement Information

Contract Number

Project

Information of Party Initiating the Adjudication

Corporate Name

Corporate Address

City/Town Province Corporate Phone No.

Postal Code Email (if applicable) Corporate Fax No.

Information of Party Receiving the Notice of Adjudication

Corporate Name

Corporate Address

City/Town Province Corporate Phone No.

Postal Code Email (if applicable) Corporate Fax No.

Contractor Information

Contractor Project Manager, if applicable

Contractor Site Supervisor, if applicable

Owner Information

Owner Representative

Contract Administrator

Adjudication Claim Information

Claimed Amount, exclusive H.S.T.

**Construction Agreement
Schedule G – Forms**

Please indicate which Adjudicable Matter the Adjudication is in respect of:

Valuation of services or materials provided under the Agreement

Payment under the Agreement

Dispute regarding a Notice of Non-Payment

Amounts Set-off by Owner

Non-payment of Lien Holdback

If applicable, please identify relevant:

Change Directive Number: _____

Change Order Number: _____

Proper Invoice Number: _____

Claim Notice reference number and date: _____

Please provide the nature and a brief description of the dispute, including details respecting how and when the dispute arose and the nature of the redress sought (attach a separate sheet if necessary):

Requested Adjudicator

First and Last Name

Address

City/Town

Province

Phone No.

Postal Code

Website (if applicable)

Email

Consolidation

The dispute which is the subject matter of this Notice of Adjudication is proposed to be consolidated with the disputes which are the subject matter of the notices of adjudication attached as "**Attachment 1**"

Delivery

See GC 12.2.4 for method of delivery of the Notice of Adjudication and address for delivery.

Attachments

Please attach a copy of any notices of adjudication for adjudications proposed to be consolidated to this Notice of Adjudication as "**Attachment 1**".

Please attach a copy of SCHEDULE A – INFORMATION SHEET to this Notice of Adjudication as "**Attachment 2**".

SCHEDULE H
DRAWINGS AND SPECIFICATIONS

1.0 SCOPE OF WORK

1. Supply all labour, tools, materials and equipment to complete the work for the VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR as outlined in the quotation documents, drawings and specifications.
 - (a) Drawings and specifications to include:
 - (i) TZC T 06-2021-03 PART 3A - DRAWINGS
 - (ii) TZC T 06-2021-03 PART 3C – SPECIFICATIONS #1
2. All work to be completed in accordance with applicable codes (e.g. Building Code, Electrical Code, Fire Code, etc.)
3. Any work must be carefully coordinated with the Zoo to ensure the safety of visitors, staff and the animals.
4. Overhead work shall be performed using appropriate barricades to prevent people from inadvertently walking below the work.
5. Any equipment parked on service roads or public pathways shall be completely surrounded by appropriate barricades to prevent unauthorized personnel from entering the area.
6. Any required barricades shall be supplied and installed by the successful bidder.
7. The contractor shall supply the Zoo with copies of relevant certificates and licences for all workers prior to commencement of work.
8. All measurements to be site verified.
9. Provide proper ventilation for the duration of this work to ensure fumes are not transmitted into other areas of the building.
10. Excess material will be stored on the Toronto Zoo site for future use. Toronto Zoo staff will designate a suitable area for stockpiling of additional material.
11. The contractor is required to provide closeout documents including but not limited to as built drawings, warranty, and inspection certificates.

2.0 CONTRACTOR RESPONSIBILITIES

1. Regular meetings/communication with the Toronto Zoo Project Team to review project status and to discuss issues that may arise during the project.
2. Provide samples, mock ups, etc. as required to the Project Team. A sample is required, prior to complete application. Sample is to be approved by the Toronto Zoo.
3. Provide product information, SDS sheets and colour samples to the Project Team prior to start of the work where applicable.
4. Protect adjacent areas not included in the project. Any damage caused will be

- the responsibility of the contractor to rectify at no additional cost to the Zoo.
5. Clean the work area and remove all debris from site on a daily basis and make good any damage caused as a result of the work.
 6. Secure the work site and provide construction signs and barriers to prevent injury to Zoo personnel and the public who will require access to the surrounding space during the work.
 7. All electric current required for the work shall be provided or furnished by the Contractor. All temporary connections for electricity shall be subject to the approval of the Owner. All temporary lines will be furnished, installed, connected, and maintained by the Contractor in a professional manner satisfactory to the Owner and shall be removed by the Contractor in like manner upon completion of the work.
 8. Upon award of contract, Contractor is to finish all work, including clean up and de-mobilization by the completion date specified.
 9. Submit all shop drawings for review and approval prior to start of fabrication. Review of shop drawings shall not mean that the Toronto Zoo approves detail design inherent in shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in shop drawings or of his responsibility for meeting all requirements of the subcontract documents.
 10. Submit close out documents as requested. Include warranties and “As built” drawings.

3.0 SAFETY SPECIFICATIONS

1. It is the responsibility of the Contractor to protect the site as required during construction.
2. Ensure that awareness of public safety is considered and protect visitors in the vicinity during the construction period.
3. All necessary personal protective equipment must be worn at all times and SDS sheets must be available on site as required.
4. It is the responsibility of the Contractor to ensure that the work site is properly protected at all times. All work sites must be marked and hoarded adequately with construction signs posted to secure and isolate the work site from the public or other personnel that have access to the area.

**VALLEY HALLA VILLA
FOUNDATION WALL
WATERPROOFING & REPAIRS
TORONTO ZOO
TORONTO, ONTARIO**

TECHNICAL SPECIFICATIONS

PREPARED FOR: TORONTO ZOO
361A Old Finch Avenue
Toronto, ON M1B 5K7

PREPARED BY: READ JONES CHRISTOFFERSEN LTD.
400 - 100 University Avenue, North Tower
Toronto, ON M5J 1V6

RJC Job No.: TOR.113946.0016

Date: Issued for Tender – March 2021

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APPENDICES

Appendix A – Designated Substances Survey (DSS) Report

1.0 GENERAL

The drawings listed below will be included in the General Contractor/ Owner agreement and will become part of the Contract.

Drawing No.	Drawing Title	Date
	Cover Page and General Notes	Mar. 2021
S1.1	Phasing Layout	Mar. 2021
S2.1	Basement Level – Interior Demolition and Concrete Restoration Plan	Mar. 2021
S2.2	Ground Floor Level – Exterior Demolition and Concrete Restoration Plan	Mar. 2021
S3.1	Basement Level – Interior Waterproofing Plan	Mar. 2021
S3.2	Ground Floor Level – Exterior Waterproofing and Landscaping Plan	Mar. 2021
S4.1	Sections and Details	Mar. 2021
S4.2	Sections and Details	Mar. 2021

END OF SECTION

1.0 GENERAL

Work under this Contract includes the repair and protection of the foundation wall and weeping tile drainage system of the Valley Halla Villa, owned by the Toronto Zoo, in Toronto, Ontario.

1.1 BRIEF DESCRIPTION OF THE EXISTING BUILDING

The Valley Halla Villa is a two-storey detached residential structure constructed circa 1936 and designated as a heritage property in 1980. The building is currently located on the Toronto Zoo property.

The building consists of a below-grade basement level with perimeter cast-in-place concrete walls and footings. A weeping tile drainage system is also installed around the perimeter of the building at footing level. The two above-grade levels of the building appear to be a combination of masonry and wood-frame construction. The footprint of the basement level generally matches the footprint of the superstructure above; however, there are several sections in which the foundations walls are located within the footprint of the level above.

1.2 DESCRIPTION OF WORK

It is the Contractors responsibility to provide all labour, material, equipment, supervision, and services necessary to complete the repairs outlined in the Contract Documents taking into account all site conditions, noise restrictions, work area restrictions, protection requirements, accessibility restrictions, etc. No extras will be entertained for inconveniences after the award of this Contract.

In particular, the work includes, but is not necessarily limited to, the following:

1. The installation and maintenance of hoarding, dust protection, site protection, and construction signage around each area of work, as described in Section 01 56 00 - Protection of Work and Property.
2. The installation and maintenance of ventilation and exhaust systems into and out of the work areas, as described in Section 01 56 00 - Protection of Work and Property.
3. Removal of hard and soft landscaping features (including parapet and retaining walls, stone and unit pavers, tile, concrete, plantings, soil, granular materials, etc.), weeping tile piping, waterproofing systems, coatings, etc. to expose the exterior side of the building foundation wall and footing in localized areas, as indicated on the Drawings. Parapet and retaining walls, stone and unit pavers, and tile are to be dismantled and stockpiled for reuse in conformance with the Project Specifications. All other features shall be disposed of.

4. Removal and disposal of interior finishes, and temporary relocation/ removal of mechanical and electrical equipment, to expose the interior side of the foundation wall and footing in localized areas, as indicated on the Drawings. Interior finishes are to be thoroughly documented prior to performing removals in order to reinstate existing conditions following completion of repairs.
5. Localized repair of all vertical and beam/ corbel concrete deterioration on the exterior and interior sides of the foundation walls, where directed by the Consultant.
6. Injection of through-wall leaking cracks on the interior side of the foundation wall, where directed by the Consultant.
7. Surface preparation and installation of a new cold applied waterproofing system on the exterior side of the foundation wall and footing, as indicated on the Drawings.
8. Surface preparation and installation of a new crystalline waterproofing system on the interior side of the foundation wall and footing, as indicated on the Drawings.
9. Installation of new weeping tile piping, including connections to existing systems, as indicated on the Drawings.
10. Replacement of deteriorated or clogged sections of below-grade piping, where directed by the Consultant. Contractor to perform CCTV inspection of below-grade piping to confirm areas of deteriorated and clogged piping.
11. Installation of new engineered granular material within excavation areas around the perimeter of building and reinstatement of hard and soft landscaping finishes to match pre-existing conditions.
12. Reinstatement of interior finishes and mechanical and electrical services to match pre-existing conditions. Mechanical and electrical services are to be commissioned following reinstatement.
13. Repair all areas damaged by construction activity; specifically, the Contractor shall repair all damage resulting from the construction to the satisfaction of the Consultant including reinstating finishes, repainting surfaces, replacing landscaping features, etc. in accordance with these Specifications which have been damaged.
14. Final cleaning of structure, fixtures, finishes, landscaping features, windows, doors, etc., and the disposal all waste products and/ or debris generated by the construction activity as well as any material present in the work area prior to the commencement of the Work. The areas requiring cleaning shall consist of all areas affected by the Work.

1.3 WORK SEQUENCE

1. The work areas will be available as of **Monday May 17, 2021 or within five (5) days following award of Contract**. Contractor to confirm start date. All work outlined in these specifications are to be complete by **Friday July 9, 2021**, providing for a construction schedule of **eight (8) weeks**.

1.4 CONSTRUCTION SCHEDULE

1. In conjunction with and in a form acceptable to the Consultant and the Owner's Representative, provide within five (5) working days after award of contract a detailed schedule indicating the following parameters.
 - .1 Start date and completion date for each Phase of the work.
 - .2 Start and completion dates for excavation and removals based on estimated quantities and work areas indicated in the Contract Documents.
 - .3 Start and completion dates for concrete repairs based on estimated quantities in bid form.
 - .4 Start and completion of waterproofing work co-ordinated with concrete repair schedule and patch curing.
 - .5 Co-ordination of other repair items (drainage system, backfilling, planting, reinstatement of finishes, etc.) with the concrete and waterproofing repairs.
 - .6 Daily and weekly schedule for manpower and equipment, hours of operation and crew sizes.
2. The construction schedule shall reflect completion of all work under the Contract within the specified time and in accordance with these Specifications.
3. If the Contractor desires to make a major change in the method of operation after commencing construction, or if the schedule fails to reflect the actual progress, the Contractor shall submit to the Consultant a revised construction schedule in advance of beginning revised operation.

2.0 PRODUCTS

Not applicable

3.0 EXECUTION

Not applicable

END OF SECTION

1.0 GENERAL

1.1 CONTRACTORS USE OF SITE

- .1 The site and building will be closed to the public, but are to remain open to Owner and property staff, throughout the course of the Work. The Contractor shall have use and access to the designated work areas during the specified work hours, unless otherwise stipulated by the Owner during the course of the Work.
- .2 The Contractor shall co-ordinate their work schedule with the Owner so as to minimize disruptions of the site. No work shall be performed until approved by Owner.
- .3 It is the Contractor's responsibility to ensure the site and building remain operational at all times and to perform work as required to ensure that access to site and building entrances and exits are available to Owner and property staff at all times.
- .4 It is the Contractor's responsibility to control traffic and to redirect if necessary to allow access to site and building areas outside of the work areas. Any required traffic rerouting and the work sequence shall be closely co-ordinated with the Owner.
- .5 Provide signage of professional quality, barriers, and hoarding necessary to protect the public from construction and Contractor operations, to secure the work areas, and to route traffic around the work areas as designated. Signage indicating that repairs are being performed and we are sorry for the inconvenience must be provided at the entrances and exits to the site and at each entrance/ exit of the building. Refer to the Drawings and Specification Section 01 56 00 - Protection of Work and Property for a list and the locations of non-standard construction signage that must be supplied by the Contractor. These signage requirements are in addition to any standard signs required to control and/or reroute traffic or maintain public safety.
- .6 Hoarding and dust protection is to be provided around each area of work in accordance with specification Section 01 56 00 - Protection of Work and Property. Each area of the work is to be sealed to prevent the release of construction dust into other areas.
- .7 The Contractor shall completely enclose and ventilate interior work areas (fresh air in and exhaust out) without allowing any dust to escape from the work area. The exhaust system must filter the dust out of the air before it is released into the atmosphere. All exhaust systems must be filtered and directed to the outside

- through ducting, which is to be installed in a manner acceptable to the Owner and Consultant. Filters are to be cleaned and replaced regularly.
- .8 Contractor shall implement temporary measures to maintain air quality, temperature, and ventilation during performance of the Work.
 - .9 The use of all power plant and percussive equipment is to be in accordance with all local by-laws and ordinances.
 - .10 Do not unreasonably encumber site with materials or equipment.
 - .11 Do not overload areas with equipment or stored materials. Review all equipment weights and loading procedures with Consultant prior to commencing work.
 - .12 Do not close or obstruct or store materials in roadways, sidewalks, passageways, etc. without prior approval from the Owner. Do not interfere with safe passage to and from the site and building.
 - .13 Move stored products or equipment which interferes with operations of the site, building, Owner, etc.
 - .14 General Contractor to obtain and pay for all necessary approvals to locate equipment or materials on city property, excluding the building permit.
 - .15 Protect all existing light fixtures, walls (including retaining walls), trees, plants, hard landscaping features, finishes, windows, doors, etc.
 - .16 Protect all utilities, gas mains, electrical conduit, etc. that must remain in service throughout the construction period.
 - .17 During transportation of materials or equipment through occupied areas, ensure the public, property, finishes, landscaping features, structure, windows, doors, etc. are protected from damage. All damage caused by the Contractor is to be repaired or rectified at the Contractor's expense.
 - .18 The Contractor shall make allowance in their price to cover all costs of temporary removal and replacement and/or relocation of existing electrical wiring and mechanical hardware required for completion of the work.
 - .19 Propane powered equipment is not permitted within interior areas.
 - .20 Temporary heat and ventilation used during construction -- including the cost of installation, fuel, operation, maintenance and removal of equipment -- shall be paid

for by the Contractor. The use of direct-fire heaters discharging waste products into work areas will not be permitted.

- .21 The Contractor is required to use the adjacent laneway for delivery and removal of material and debris for the duration of the project. Disposal bins, supply trucks, etc. are to be located within the laneway or in a location closely coordinated with the Owner. Contractor to be responsible for all required permits.
- .22 Maintain free access routes for ambulance, fire emergency vehicles, garbage trucks, etc.

1.2 HOURS OF WORK

- .1 Use of all equipment to be restricted in accordance with local and municipal noise by-laws and regulations.
- .2 All noise generating Work shall be limited to the hours of 7:00 A.M. to 7:00 P.M. MONDAY through FRIDAY. No work is permitted on SATURDAY, SUNDAY, and STATUTORY HOLIDAYS unless otherwise stipulated by the Owner during the course of the Work.

1.3 EFFECT ON BUILDING AND SITE

- .1 The Contractor shall schedule their operations to minimize the interruption of the normal use of the site and building and to comply with laws, by-laws, ordinances, rules and regulations relating to the Work.
- .2 The Contractor shall be responsible for arranging for the location of all existing utilities prior to construction and protection of the same during construction.

2.0 PRODUCTS

Not applicable

3.0 EXECUTION

Not applicable

END OF SECTION

1.0 GENERAL

1.1 SUBSTITUTION OF MATERIALS PRIOR TO BID CLOSING

- .1 Where products or systems have been specified by trade name, no substitution will be allowed except where alternatives have been approved prior to bid closing.
- .2 Where a specified product or system is not available at the time of bid, the bidder must inform the Consultant in writing so that they may advise all Bidders of proposed changes. In the event that the Bidder fails to do so, the Consultant will choose a substitute product suitable for the application at the time of construction.

1.2 REQUEST FOR APPROVAL OF ALTERNATIVES

- .1 Contractors and suppliers of products or systems that have not been specified may apply for approval of their product or system as an "alternative".
- .2 Requests for approval must reach the Consultant at least seven (7) working days prior to the bid closing. The Consultant will advise applicants of the status of their request three (3) working days prior to bid closing.
- .3 Request for approval shall include sufficient information for the Consultant to satisfactorily review the alternative. This may include the following:
 - .1 Project name and number.
 - .2 Specification sections to which the product or system applies.
 - .3 Description of proposed substitution, including manufacturer's material specifications, manufacturer's preparation and application requirements and manufacturer's warranties.
 - .4 Sample of product indicating surface finish and material thickness to be applied under this Contract.
 - .5 Installation history of proposed alternative including:
 - .1 projects and locations
 - .2 approximate value of contract
 - .3 approximate size of projects
 - .4 number of years in use
 - .5 type of usage
 - .6 name of owner and consultant involved.
- .4 When submitting alternatives to specified materials or equipment, Bidders shall include in their Bid any changes in the Work required to accommodate the alternatives. A later claim for an addition to the Contract Price due to changes in the Work that are necessitated by the use of the alternatives will not be considered.

1.3 APPROVAL OF ALTERNATIVES

- .1 An addendum will be issued prior to bid closing if an alternative is approved. No alternative materials or equipment will be considered after bid closing.
- .2 Products or systems that have been approved as alternatives may be substituted for specified products and systems as outlined in the addendum.
- .3 When substitution of any proposed alternative into the work -- either in whole or in part -- affects other parts of the work, the Contractor shall assume full responsibility and bear the associated costs. The Contractor will also be responsible for paying for any drawing changes required as a result of the substitution.
- .4 Cost savings arising from approved alternative products or systems are to be credited to the Contract and the Contract Price will be adjusted accordingly.
- .5 The Consultant reserves the right to reject any or all requests for approval.
- .6 No substitutions will be permitted without the approval of the Consultant in the form of an addendum.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

1.1 PROJECT CO-ORDINATION

- .1 The Contractor is responsible for co-ordination of Trades. Lines of demarcation between Contractors and Trades or trade and trade are solely the responsibility of the Contractor.
- .2 Contractor is responsible for co-ordination with the Owner of all on-site activity as it affects the operation of the building.

1.2 NOTIFICATION FOR FIELD REVIEW

- .1 The Contractor is to notify the Consultant at least 24 hours in advance for field review. No work shall be covered or concealed until reviewed by the Consultant unless Contractor is informed that a field review will not be performed. Such review does not absolve the Contractor from their responsibility to perform the work in accordance with the Contract Documents.
- .2 The Consultant shall notify the designated testing company for material sampling and testing.
- .3 The Contractor shall provide the Consultant with safe access to any part of the Work requiring field review.
- .4 The Owner may be present during field review at the Owner's discretion.

1.3 SUPERINTENDENCE

- .1 The Contractor is to provide a full time Superintendent who is to be on-site on a continuous basis during the execution of the work. The Superintendent shall have a mobile phone at all times during Working hours to allow for communication with the Consultant or Owner.
- .2 The Superintendent shall be satisfactory to the Owner and the Consultant and shall not be changed without the Consultant or Owner's consent.
- .3 Superintendence shall be deemed not satisfactory and changes or additions to the superintendence may be demanded when control, organization or co-ordination of the Work is not satisfactory, or, the quality of the Work does not meet the requirements of the Contract Documents, or directions given in accordance with the Contract Documents are not followed, or, progress is behind schedule.

2.0 PRODUCTS

Not applicable

3.0 EXECUTION

Not applicable

END OF SECTION

1.0 GENERAL

1.1 DOCUMENTS

- .1 This section, along with the drawings, forms part of the Contract Documents and is to be read, interpreted, and coordinated with all other parts.

1.2 WORK INCLUDED

- .1 Administration of Project Meetings.
- .2 Pre-Construction Meetings.
- .3 Progress Meetings.

1.3 ADMINISTRATION OF PROJECT MEETINGS

- .1 The Consultant shall preside at meetings.
 - .1 A representative of the Consultant shall record the minutes, include significant proceedings and decisions, and identify "action by" parties.
 - .2 The Consultant shall reproduce and distribute copies of the minutes to meeting participants, affected parties not in attendance, the Owner and Contractor.
- .2 The Consultant shall:
 - .1 Schedule and administer project meetings unless otherwise noted.
 - .2 Prepare agenda for meetings.
 - .3 Distribute written notice of each unscheduled meeting three (3) days in advance of meeting date to the Contractor and Owner. The Contractor is to notify relevant Subcontractors.
- .3 The Contractor shall provide physical space and arrange for meetings on site.
- .4 Representatives of Contractor, Subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the party each represents.

1.4 PRE-CONSTRUCTION MEETING

- .1 After award of Contract, a meeting of all parties in the Contract shall be held to discuss and resolve administrative procedures and responsibilities.
- .2 Representatives of the Owner, Consultant, Contractor, major Subcontractors, and construction review personnel will attend.
- .3 The Consultant shall establish a time and location of the meeting and shall notify concerned parties at least five (5) days before the meeting.
- .4 Agenda to include the following:
 - .1 Appointment of official representatives of participants of the Work.
 - .2 Schedule of Work, progress scheduling.
 - .3 Shop drawings (if required) and schedule of shop drawing submissions.
 - .4 Requirements of temporary facilities, site signage, hoarding, dust protection, tree protection, offices, storage sheds, utilities, fences, etc.
 - .5 Delivery schedule of critical equipment.
 - .6 Site security.
 - .7 Contemplated change orders, procedures, approvals required.
 - .8 Take over procedures, acceptance, warranties.
 - .9 Monthly progress claims, administrative procedures, holdbacks.
 - .10 Appointment of inspection and testing agencies or firms.
 - .11 Insurance, transcript of policies.

1.5 PROGRESS MEETINGS

- .1 During the course of Work, the Consultant or the Contractor shall schedule progress meetings every two (2) weeks. Further progress meetings may be scheduled by the Consultant, Contractor, or Owner as required to expedite the Work.
- .2 The Consultant, Contractor, major Subcontractors involved in the Work, and Owner when required, are to attend.
- .3 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems which impede construction schedule, conflicts.

- .4 Progress, schedule during succeeding work period.
- .5 Corrective measures and procedures to regain projected schedule.
- .6 Revisions to construction schedule.
- .7 Review of off-site fabrication delivery schedules.
- .8 Review submittal schedules; expedite as required.
- .9 Maintenance of quality standards.
- .10 Pending changes and substitutions, Notices of Proposed Change, Change Orders.
- .11 Review proposed changes effect on construction schedule and on completion date.
- .12 Other business.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

- .1 This section specifies general requirements and procedures for Contractor shop drawing, product data, sample, and mock-up submissions for the Consultant's review. Additional specific submission requirements may be specified in other specification sections.
- .2 Do not proceed with work until relevant submissions are reviewed by Consultant.
- .3 Present shop drawings, product data, samples and mock-ups in SI metric units. Where items or information is not produced in SI metric, converted values are acceptable.
- .4 Contractor's responsibility for errors or omissions in any submission is not relieved by Consultant's review of the submission.
- .5 Notify Consultant, in writing at time of submission, of any deviations from the requirements of Contract Documents that form part of submissions. Also indicate the reasons for the deviations.
- .6 Contractor's responsibility for deviations from the requirements of the Contract Documents in submissions is not relieved by Consultant's review of the submissions unless Consultant provides written acceptance of the identified deviations.
- .7 Make any changes in submissions that Consultant may require consistent with the Contract Documents and resubmit where directed by Consultant.
- .8 Notify Consultant in writing of any revision other than those requested by Consultant when resubmitting.

1.1 SUBMISSION REQUIREMENTS

- .1 Coordinate each submission with requirements of work and Contract Documents. Individual submissions will not be reviewed until all related information is available.
- .2 Submit electronic copies of product data, manufacture's catalogue sheets, brochures, literature, performance charts and diagrams.
- .3 Comply with the following requirements in regard to submission of product data:
 - .1 Delete information not applicable to project.
 - .2 Supplement standard information to provide details applicable to project.
 - .3 Provide certification of compliance to applicable codes.
 - .4 Provide manufacture's certification as to current production.

- .4 Allow ten (10) working days for Consultant’s review of each submission.
- .5 Accompany submissions with an electronic transmittal letter that contains:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor’s name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .6 Submission shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor’s stamp, signed by Contractor’s authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.
 - .10 Relationship to adjacent work.
 - .6 After Consultant’s review, distribute electronic copies to relevant affected subcontractors.

1.2 PRODUCT DATA

- .1 Product data: manufactures catalogue sheets, brochures, literature, performance charts and diagrams, used to illustrate standard manufactured products.
- .2 Submit electronic copies of product data.
- .3 Sheet size: 215x280 mm.

- .4 Delete information not applicable to project.
- .5 Supplement standard information to provide details applicable to project.
- .6 Cross-reference product data information to applicable portions of Contract Documents.

1.3 SAMPLES

- .1 Samples: examples of materials, equipment, quality, finishes, workmanship.
- .2 Where colour, pattern or texture is criterion, submit full range of samples.
- .3 Reviewed and accepted samples will become standard of workmanship and material against which installed work will be verified.

1.4 MOCK-UPS

- .1 Mock-ups: field-erected examples of work complete with specified materials and workmanship.
- .2 Erect mock-ups at locations acceptable to Consultant.
- .3 Reviewed and accepted mock-ups will become standards of workmanship and material against which installed work will be verified.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

1.1 TEMPORARY UTILITIES

.1 Provide and pay for where specified, locate where directed, and maintain temporary facilities for the Work and for all Subcontractors, and remove them upon completion of the Work.

.2 Where specified to provide utilities, make all arrangements with the public utilities, obtain all necessary permits, provide or pay for connections and pay all respective fees.

.3 ELECTRICAL POWER

.1 Discuss available power with the Owner's Representative prior to bidding.

.2 The Contractor shall pay for any alternations to the electrical system which may be needed to accommodate the Contractor's equipment. Co-ordinate any required alterations with the Owner's Representative. Reinstate the system to its original condition upon completion of the Work.

.3 The Owner shall pay for electrical consumption from building sources made available by the Owner.

.4 WATER SUPPLY

.1 Contractor shall pay for the cost of any temporary water connections or alterations which are required to perform the Work. Reinstate the system to its original condition upon completion of the Work.

.2 The Owner shall pay for water consumption from building sources made available by the Owner.

1.2 TEMPORARY LIGHTING

.1 Provide and maintain temporary lighting for safe demolition and working conditions conforming to Ontario Occupational Health and Safety Act.

.2 Illumination must be provided and maintained at all areas affected by the Work.

.3 Contractor is to have an emergency generator and lighting system available to be used in a situation where the existing lighting system becomes inoperative due to the Work and cannot be repaired within a two (2) hour period. Once the repair is complete, the temporary lighting system may be removed.

- .1 If the damaged lighting cannot be repaired within the specified period, the Contractor must promptly notify the Owner.
- .2 If the Contractor does not repair the damaged lighting within the specified time and does not promptly notify the Owner, the Owner reserves the right to repair the damage and deduct the cost from the Contract.
- .4 Temporary lighting requirements discussed herein shall also apply to all subcontractors.

1.3 TEMPORARY TELEPHONE

- .1 Provide and pay for a mobile telephone for the Contractor's own use and, as required, the use of Consultant and Owner.

1.4 TEMPORARY FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of the Work as required by governing codes, regulations and by-laws.

1.5 TEMPORARY FIRST AID FACILITIES

- .1 Provide well stocked and maintained first aid kits within the site office that are adequate to meet the requirements and hazards of the Work.
- .2 Maintain safety data sheets (SDS) for all material being used at the project site. Ensure the SDS are readily available to the Consultant, Owner and Contractor's forces.

1.6 TEMPORARY SANITARY FACILITIES

- .1 Provide temporary sanitary facilities at the time of initial mobilization and maintain them throughout the course of the work.
 - .1 Sanitary facility is to include an odourless flushing chemical type temporary toilet that is properly enclosed, weatherproof, and serviced periodically as required.
 - .2 The building toilets and facilities shall not be used by the Contractor's forces.

1.7 TEMPORARY FIELD OFFICES AND SHEDS

- .1 Provide or construct work sheds for storage of tools, equipment and materials, which may be damaged by weather.

- .2 Provide and maintain a field office for the Contractor's personnel that is equipped with lights, power, and tables for drawing examinations.
- .3 Maintain sheds in a clean and orderly condition to the Consultant's satisfaction.
- .4 Provide suitable hardware and locks on doors to sheds to reasonably secure them and keep locked when unsupervised.
- .5 Field sheds shall be weather tight and have floors elevated above grade.
- .6 Relocate sheds as required by the progress of the Work. Remove sheds from the Site when directed or when they are no longer required.

1.8 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Provide hoarding, fencing, barriers, barricades, and plant protection as required by the authorities and specified herein to protect persons and property, public and private. Refer to Section 01 56 00 - Protection Work and Property for signage and hoarding requirements.
- .2 Maintain barriers in sound, clean and, where required, painted, condition throughout the Work.
- .3 Keep Site clear of unauthorized signs.
- .4 Provide barriers with required warnings and signs.
- .5 Hoarding, fencing, barriers and barricades are to be constructed and supported in such a manner that no sharp projections that can cause personnel injury are created.
- .6 Remove hazards requiring barriers as soon as possible.
- .7 Remove barriers at time of turn-over of the Work to the Owner.
- .8 Exterior enclosures shall be constructed to protect the work and interior areas from environmental conditions (i.e. weather tight) that may affect schedule and that may damage property.

1.9 TEMPORARY HEATING AND VENTILATION

- .1 Provide and maintain supplementary heating as required to maintain sufficient application and curing temperatures.

- .2 Provide and maintain supplementary ventilation as required. Ventilation requirements shall conform to Occupational Health and Safety Standards. Do not modify the base building systems without the coordination and approval of the Owner.
- .3 Temporary heating and ventilation used during construction -- including the cost of installation, fuel, operation, maintenance and removal of equipment -- shall be paid for by the Contractor. The use of direct-fired heaters discharging waste products into enclosed work areas will not be permitted.

1.10 SECURITY

- .1 Take all necessary precautions to guard site, premises, materials and the public at all times other than when supervised work is in progress.

1.11 PROTECTION OF THE WORK DURING CLOSE-DOWN

- .1 Should the project be closed down for any cause, assume all responsibility for its proper protection during such period.

2.0 PRODUCTS

Not applicable

3.0 EXECUTION

Not applicable

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Protection of the Work, Work in Progress, Property, and Persons by all Sections.

1.2 WALK-THROUGH INSPECTION OF SITE

- .1 Prior to start of Work, Contractor, Consultant, and Owner will perform a walk-through inspection of the site and building to determine existing conditions.
- .2 The Contractor is to perform a thorough inspection of the site and building prior to the start of work and provide a written notice to the Consultant that details all damaged property as well as all items that appear to be of poor working order or appearance (i.e. signs, fixtures, piping, interior and exterior finishes, landscaping, dirt, debris, damages, etc.).
- .3 Upon receiving this notice, the Consultant and the Owner will review the validity of the items listed.
- .4 If written notice is not given within five (5) days of commencement of Work, it will be assumed that the Contractor has reviewed the site and building and has accepted the condition of the property as being free of damage.
- .5 Any damages not listed as part of the written notice of clause 1.2.2 above found after the completion of the work will be the sole responsibility of the Contractor to rectify. These rectifications shall be completed in a timely and satisfactory manner.
- .6 The project will not be considered substantially performed if the cost to correct these outstanding deficiencies is greater than the limits outlined in the Construction Act.

1.3 THE WORK, WORK IN PROGRESS, PROPERTY AND PERSONS

- .1 Protect the Work during construction from damage by weather.
- .2 Provide protection as required to protect work in progress and other property from damage and to provide suitable conditions for the progress of finishing work.
- .3 Provide means for protecting interior areas from water leakage between the removal and reinstallation of the waterproof membrane, and membrane leakage during the application of the waterproofing system.

- .4 Take reasonable and required measures, including those required by authorities having jurisdiction, to protect the public and those employed on the Work from bodily harm.
- .5 Comply with requirements of The Ontario Occupational Health and Safety Act for Construction Projects.
- .6 The Contractor shall be prepared to provide respirators, dust protection, and ear protection for those employed by the Consultant and Owner at the Site.
- .7 Direct all Subcontractors to protect their own work, existing property, adjacent public and private property and work of other Sections from damage while working.

1.4 CONSTRUCTION SIGNAGE

- .1 Contractor shall provide all required signage necessary to protect the public from the construction, control the vehicle and pedestrian traffic flow around the work areas, and to inform patrons, property staff, and the public that construction activity is in process.
- .2 Additional signs may be required at the discretion of Owner or Consultant as construction progresses. No extras will be entertained for signage requirements after tenders close.
- .3 All signage required are to be as per Owl-Lite Rental, Sales and Manufacturing Product Catalogue (quality, design, size, etc.). This catalogue is available for viewing in the office of the Consultant, or copies can be obtained from Owl-Lite (tel: (416) 647-9663). “Standard Construction Signs” (i.e. orange background with 150mm high black letter or decals). All signage to be of professional quality and design.
- .4 Typical signage that may be required are as follows:
 - .1 Danger due to open excavation
 - .2 Two-way traffic
 - .3 Keep right or left
 - .4 Yield, stop, detour
 - .5 One way traffic
 - .6 No parking, directional arrows, etc.
 - .7 Keep Out: Work in Progress
- .5 Signage will be required at all access gates and entrances to the site/ property. This signage shall consist of the standard “Men at Work” sign with an additional signs (special order) indicating: “The Site is Temporarily Under Construction - Sorry for the Inconvenience.

- .6 Typical additional non-standard signage that will be required is as follows:
 - .1 The Site is Temporarily Under Construction - Sorry for the Inconvenience
 - .2 The Building is Closed For Repairs
 - .3 Danger – Open Excavation
 - .4 Do Not Enter

- .7 All non-standard signage is to be of adequate size (discuss with Consultant prior to ordering) with orange background and large black letters and decals. Plywood backing is sufficient. All signs are to be of professional quality.

- .8 All signage is to be securely fastened directly to hoarding or, if signage is required and hoarding is not available, the signs are to be securely fastened to ballasted stands. Ballasted stands are to be constructed to be capable of withstanding wind loads and impact. Signs and posts are to be installed in such a manner that projections that may cause public injury are not created.

1.5 CONSTRUCTION BARRIERS AND ENCLOSURES

- .1 All work areas are to be completely enclosed by hoarding and dust protection and only accessible to the Contractor, the Owner, and the Consultant.

- .2 Contractor shall supply, construct, and maintain hoarding, dust protection, barriers, and enclosures as indicated in the Contract Documents and as directed by the Consultant or Owner as the construction progresses.

- .3 No extras shall be entertained for hoarding, dust protection, barriers, and enclosures after tenders close unless the scope of work is significantly changed.

- .4 The work areas are to completely enclosed to keep the dust generated by the construction activity from escaping into the other areas of the site or interior areas. The Contractor shall be responsible to ventilate the interior work areas as required (fresh air in and exhaust out) without allowing any dust to escape from the work area. The exhaust system must filter the dust out of the air before it is released into the atmosphere. All exhaust systems must be filtered and directed to the exterior of the building through ducting which is to be laid on the floors of the building. Filters are to be cleaned and replaced regularly and as directed by Consultant.

- .5 The Contractor is responsible for any damage to mechanical equipment, motors, fire alarm and security systems/ devices, etc. resulting from dust contamination.

- .6 Areas that are to be protected but still require access are to be hoarded using temporary vestibules. Pressurization to be adjusted by Contractor by providing necessary fans to prevent dust from entering these areas.

- .7 The following types of enclosures/ hoarding systems will be required for this construction project:
- .1 Type 1 - Fast Fence Hoarding with Fabric Lining
- This system consists of 6'-0" high temporary fencing. A continuous sheet of poly-weave tarping or filter fabric is to be installed at the fencing to create a dust tight enclosure and hide the areas of work from view. System must be ballasted or anchored to prevent overturning due to impact and wind loads.
- .1 This system shall be supplied around the exterior work areas to enclose and prevent unauthorized access into the areas of work.
- .2 System shall also be supplied to control traffic.
- .2 Full Height Dust Protection
- This system consists of full height poly-weave tarping connected to the floor and ceiling with 2" x 4" construction grade wood nailers wedged tight to the floor and ceiling with 2 x 4 studs or post shores at 4'-0" c.c. The seams of the poly-weave tarping, if any, are to be fastened together with duct tape.
- .1 The main purpose of this system is to control dust and keep it from escaping from the work area, thus must be dust tight. This system shall be supplied around interior work areas to prevent dust and debris from escaping into other areas of the building.
- .8 The Contractor shall be responsible to maintain the condition of hoarding and dust protection for the duration of the work.
- .9 All seams in poly-weave tarping and hoarding are to be taped together to provide dust tight enclosure.
- .10 Anchor holes are to be repaired after construction hoarding has been removed. Contractor to repair all finishes and painted surfaces damaged by fastening materials used as part of the hoarding and protection systems.
- .11 Restrict access for unauthorized personnel by placing barricades or posting guards around areas of the Work. Unauthorized personnel shall mean the public and anyone not directly concerned with the execution, supervision or inspection.
- .12 In exterior location, that is, area exposed to weather, are to be protected against weather conditions that may hinder the performance of work in these areas.

1.6 EXISTING BUILDINGS, CURBS, ROADS, LANES AND LANDSCAPING

- .1 Protect existing buildings, structures, curbs, roads, lanes, hard and soft landscaping features, etc. If, during work, any existing items are damaged, repair or replace them at no extra cost to the Owner.
- .2 Provide protection for public thoroughfares and the Work in progress as required by the authorities and to protect public property and the Work.
- .3 The Contractor shall remove, stockpile and protect, and re-install all features in areas where repairs are to be performed.

1.7 CONTROL OF CONSTRUCTION GENERATED DUST, DEBRIS, FUMES, ETC.

- .1 Dust, dirt, construction debris, water, fumes, etc. from the work areas must not be permitted to enter areas of the building or rooms in or adjacent to work areas.
- .2 Protection shall be provided for all entrance and exit ways, floors, walls and all standing fixtures, air intakes, exhaust fan openings, floor drains, catch basins, sump pits, electrical/ mechanical rooms, etc. against dust, spillage or overspray of materials and/or damage during the construction period. The required protection shall consist of but is not limited to the following:
 - .1 Filter cloth in all floor drains, catch basins, manholes, sump pits, etc. within and immediately adjacent to the work areas.
 - .2 Filter cloth over all intake and exhaust louvers and openings.
 - .3 Poly-weave tarping over doorways and around the exterior perimeter of work area to prevent the escape of dust & debris from the work area.
 - .4 Plywood protection over all windows within the work areas.
 - .5 Protect sprinkler heads, sensors, equipment, fixtures, etc. with Polyethylene or filter cloth to prevent dust build up
- .3 Provide for protection of vehicles in or near the area of work and payment for cleaning or damage to vehicles.

1.8 PROTECTION OF EXISTING EXPOSED FACILITIES

- .1 Existing lighting system is to be protected from damage or removed and re-installed upon completion of repairs.

- .2 If Contractor wishes to use existing lighting system as an alternate to installing temporary light, Contractor shall assume all responsibility for damages incurred.
- .3 All exposed conduit, fixtures, attached devices, sprinkler fire system plumbing, mechanical and electrical system components, security system components, louvres, ducts, etc. are to be protected against the accumulation of dust, debris and damage. The Contractor will be responsible to correct any damages to these systems at their own expense. Contractor to promptly report any damage to the Owner and the Consultant.
- .4 Inspect materials, equipment and components to be re-used or turned over to the Owner. Note their condition and advise Consultant in writing, of any defects or conditions which would affect their removal and re-use, prior to removal.
- .5 Prior to commencing Work, contact the Owner to locate all protective or alarm systems and sensors. All services shall be protected against damage or interruption. All claims resulting from damage shall be the responsibility of the Contractor.
- .6 Contractor must notify Owner's Representative and Consultant of any fault or alarm to the main fire alarm panel immediately. When Contractor's activities result in charges to Service the fire alarm panel or alarm system, the Contractor shall bear all costs.
- .7 Any damage to existing surfaces or finishes to remain caused by the construction shall be repaired by the Contractor at no cost to the Owner.

1.9 OVERLOADING

- .1 Load no part of the structure during construction with a load greater than its designed capacity.
- .2 Submit equipment weights and construction procedures to the Consultant for review prior to commencing the Work.
- .3 Make every temporary support as strong as the designed permanent support.

1.10 FIRE PROTECTION

- .1 Take necessary precautions to eliminate fire hazards and to prevent damage to the Work, building materials, equipment and other property both public and private having to do with the Work. Inspect the Work at least once a week for this purpose.

- .2 Store and locate products and equipment packed in cardboard cartons, wood crates and other combustible containers in orderly and accessible manner. Place approved types of firefighting equipment in vicinity of products packed in this type of crate or carton until permanent fire protection and equipment are available.
- .3 Do not store flammable products such as paint or fuel on site, except in owner-approved locations, if available.
- .4 Tarpaulins to be fire-resistant.
- .5 Open fires or burning of rubbish or debris are not permitted on the Site.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

1.1 MANUFACTURERS' INSTRUCTIONS

- .1 Unless otherwise specified, comply with Manufacturer's latest printed instructions for materials and installation methods. Supply copies of these instructions to Consultant prior to commencing work.
- .2 Notify Consultant in writing of any conflict between the Contract Documents and Manufacturer's instructions.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and maintain packaged materials with Manufacturer's seals and labels intact.
- .2 Immediately remove rejected materials from the Place of the Work.
- .3 Storage and handling of materials shall conform to Ontario Occupational Health and Safety Act and Manufacturer's instructions.
- .4 Toxic or hazardous materials shall be secured in a locked storage area.
- .5 All containers to be labeled in accordance with WHMIS regulations.
- .6 All containers to be labeled with material expiration dates. Materials older than the expiry date shall not be used on the Work and shall be removed immediately from the site.
- .7 Provide Owner and Consultant with electronic copies of all Safety Data Sheets (SDS) and maintain hard copies on site.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Use new products unless otherwise specified.
- .2 Provide electronic copies of maintenance instructions and material literature for finished surfaces prior to Substantial Performance.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

1.1 DESCRIPTION OF WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and services necessary to clean the structure, fixtures, finishes, building envelope, hard and soft landscaping features, etc. and dispose of all waste products and debris in the work area as indicated on the Contract Documents.
- .2 Provide all labour, material, equipment, supervision, and services necessary to clean the site, structure, interior spaces, hard and soft landscaping features, finishes, building envelope, etc. outside the work area if debris generated by construction has affected these areas.

1.2 GENERAL REQUIREMENTS

- .1 Conduct cleaning and disposal operations to comply with the local and municipal ordinances and anti-pollution laws and the building management.
- .2 Store volatile wastes in covered metal containers and remove from premises daily.
- .3 Prevent accumulation of wastes which create hazardous conditions.
- .4 Provide adequate ventilation during use of volatile or noxious substances.
- .5 Co-ordinate requirements for ventilation and waste disposal operation with the Owner/Property Manager.

1.3 REFERENCES

- .1 Waste Control Regulation - Ontario Environmental Protection Act.

2.0 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- .1 Use only cleaning materials and equipment approved by the Manufacturer of the surface to be cleaned, and only as recommended by the cleaning material Manufacturer.

3.0 EXECUTION

3.1 PRIOR TO CONSTRUCTION

- .1 Prior to the submission of a Bid for this project, the Contractor shall examine the site and building to determine their condition with respect to debris and dust.
- .2 At the time when cleaning is to be performed, it will be the Contractor's responsibility to clean the site and building of all debris generated by the construction as well as any existing debris, unless otherwise indicated in the Contract Documents.
- .3 No extras will be entertained for cleaning after the Contract is awarded.

3.2 WASTE REMOVAL AND CLEANING DURING CONSTRUCTION

- .1 The Contractor to perform all required cleaning during construction.
- .2 Maintain the Place of the Work and adjacent areas free from accumulations of waste materials and rubbish.
- .3 Provide on-site containers for collection of waste materials and rubbish.
- .4 Store volatile wastes in covered metal containers. All wastes that create hazardous conditions must be removed from the premises daily.
- .5 Disposal of waste products to be performed in strict accordance with the product Manufacturer's Material Safety Data Sheet and in accordance with the provincial Waste Control Regulations.
- .6 Seal off all work areas to prevent dust and debris generated by construction from affecting other areas, including areas required for construction access. Any dust and debris that escapes from the work areas is to be cleaned up in a timely fashion. If it is deemed by the Consultant that cleaning has not been performed in a timely fashion, the Owner may contract an independent cleaner to rectify the situation. The cost of the independent cleaner will be back-charged to the Contractor.
- .7 The Contractor is to test and confirm that drains and catch basins and associated piping affected by the Work are free running prior to construction. Contractor to perform all subsequent cleaning and protection.
- .8 Cover drains and catch basins as required to prevent concrete, abrasive blasting debris, or any other material from entering the drainage systems. Ensure that the drains and catch basins continue to operate as required during construction.

- .9 Drainage systems, sewer systems, sump pits, nor adjacent ravines shall not be used to dispose of Project wastes and materials.

3.3 FINAL CLEANING

- .1 Contractor is responsible to clean all areas affected by the Work to an as new condition. Remove all debris generated by construction.
- .2 Remove all grease, dust, dirt, stains, labels, fingerprints, over-spray, and other foreign materials immediately prior to the Owner's final inspection. Clean to "as new" condition.
- .3 Prior to the work being considered Substantially Performed, the Contractor shall remove their surplus products, tools, construction machinery, and equipment not required for the performance of the remaining work. Contractor shall also remove waste products and debris other than that caused by other Contractors or their employees not involved with the Work and leave the Site clean and suitable for occupancy by the Owners unless otherwise specified.
- .4 Prior to the Work being considered Totally Performed, the Contractor shall remove their remaining products, tools, construction machinery, and equipment.
- .5 All vertical and horizontal surfaces, systems, fixtures, equipment, etc. shall be cleaned of all dust, grease or spray accumulations. Power wash is recommended. Ensure all moisture sensitive equipment (i.e. fire detection sensors and pull stations, CO detectors, exposed electrical, security systems, etc.) are removed or protected against moisture infiltration during washing.
- .6 Contractor to return all areas to the Owner in a dust-free condition.
- .7 Hard landscaping surfaces and interior surfaces shall be swept clean and then washed. Soft landscaping surfaces shall be blown and raked clean, then washed.
- .8 Test drains and catch basins to ensure that they are unobstructed. Contractor to flush and clean out drains and catch basins at the end of the project if affected by the Work, including drain lines under slabs on grade all the way to the sump pits.
- .9 If flushing and cleaning occurs, Contractor to clear sump pits of all debris at end of project including debris not generated by the Work.

END OF SECTION

1.0 GENERAL

1.1 TAKE OVER PROCEDURE

.1 Contractor's Review

- .1 The Contractor and their Subcontractors shall conduct a review of the work and correct all noted deficiencies.
- .2 The Contractor shall notify the Consultant, in writing, of satisfactory completion of the "Contractor's Review" after the correction of all noted deficiencies and shall request a "Consultant's Review".

.2 Consultant's Review

- .1 The review team shall consist of the Consultant and the Contractor. The Owner or their representative shall attend at their option.
- .2 The Consultant will prepare a list of deficiencies noted during the "Consultant's Review" and will issue the list to the Contractor.
- .3 The Consultant will determine the value of work associated with any outstanding deficiencies noted during the Consultant's Review. Payment of these retained funds will be withheld until the deficiencies have been rectified to the satisfaction of the Consultant and Owner.
- .4 The Contractor shall correct all deficiencies indicated on the list in a timely and satisfactory manner.

.3 Final Review

- .1 The Contractor shall request a "Final Review" when the Contractor is satisfied that all deficiencies have been corrected. The request shall be made in writing.
- .2 The "Final Review" shall be conducted by the Consultant and the Contractor. The Owner or their representative will attend at their discretion.

.4 Certificate of Substantial Performance

- .1 The Contractor must submit a request in writing to the Consultant for a Certificate of Substantial Performance.

.2 The Contractor shall comply with the following during Contract close-out:

.1 The requirements of the Construction Act.

.2 The requirements of the Workers Compensation Act.

.3 All other contractual requirements

.5 Total Performance

.1 Immediately following the issuance of the Certificate of Substantial Performance, the Consultant, in consultation with the Contractor, will establish a reasonable date for the “Total Performance of the Work”.

.2 The Contractor shall supply all guaranties and review certificates in accordance with the requirements of the Contract Documents prior to the date established for “Total Performance of the Work”.

.6 Release of Holdback

.1 The lien holdback amounts will be released pursuant to the Construction Act.

2.0 PRODUCTS

Not applicable

3.0 EXECUTION

Not applicable

END OF SECTION

1.0 GENERAL

1.1 BONDS

- .1 Bonding costs, including the expense of getting bonds executed, shall be borne by the Contractor.
- .2 Provide the Owner with the following surety bonds within fourteen (14) days after Contract award:
 - .1 A Performance Bond to secure the due and proper performance by the Contractor of their obligations under the Contract in an amount equal to 100% of the Contract Price.
 - .1 The performance bonding period shall commence on the date of contract execution and end two (2) years from date of Substantial Performance.
 - .2 A Labour & Material Payment Bond in an amount equal to 50% of the Contract Price to secure:
 - .1 The due and proper payment of those having direct Contracts with the Contractor for labour, material and/ or services.
 - .2 Full reimbursement of the Owner for all liability and payments to those having direct Contracts with the Contractor for labour, material and/ or services in connection with the Contract.
- .3 If a lien claim is filed against the title of the lands on which the work or any part thereof is performed in relation to the Contract by an entity other than the Contractor, the Contractor is to provide a Lien Bond to remove the registered lien claims and/ or certificates of action.
- .4 Bonds are to be in favour of the Owner in a form satisfactory to the Owner.
- .5 Bonds are to name the Owner as Obligee. The Obligors are the Contractor and a Guarantee Surety Company unobjectionable to the Owner and not insolvent, bankrupt, in receivership or winding-up proceedings.
- .6 Guarantee Surety Company is to be a properly licensed surety company registered and duly authorized to transact the business of suretyship in the Province of Ontario.

1.2 WARRANTY/ GUARANTY PERIOD

- .1 Provide a three (3) year minimum warranty for all Work of the Contract, including a guaranty secured by Performance Bond for the first 2 years, commencing on the date of substantial performance.
- .2 Extended warranties beyond the three (3) year minimum period are outlined below.

1.3 COLD APPLIED WATERPROOFING SYSTEM WARRANTY

- .1 Total warranty period of five (5) years as follows:
 - .1 First two (2) years in the form of a guaranty secured by the Performance Bond and commencing on the date of Substantial Performance.
 - .2 Third, fourth and fifth years as an extended warranty, unsecured by bond, commencing on expiration of the Performance Bond.
 - .3 Warranty is to be a Joint Warranty by Contractor and Manufacturer. Submit a joint warranty certificate to the Consultant that is signed by the Contractor and Manufacturer.

1.4 CRYSTALLINE WATERPROOFING SYSTEM WARRANTY

- .1 Total warranty period of five (5) years as follows:
 - .1 First two (2) years in the form of a guaranty secured by the Performance Bond and commencing on the date of Substantial Performance.
 - .2 Third, fourth and fifth years as an extended warranty, unsecured by bond, commencing on expiration of the Performance Bond.
 - .3 Warranty is to be a Joint Warranty by Contractor and Manufacturer. Submit a joint warranty certificate to the Consultant that is signed by the Contractor and Manufacturer.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

3.1 REMEDIAL WORK UNDER GUARANTY/WARRANTY

- .1 Perform any required warranty repair work for the duration of the warranty period at no extra cost.
- .2 Notice will be provided to the Contractor during the warranty period within thirty (30) days of the discovery of any defect in the Work. The Contractor shall take necessary steps to protect the area against further damage immediately upon receipt of notice and shall take corrective action to make good any damage incurred. The Contractor shall schedule repair work with the Owner and shall make every attempt to make good the defects within three (3) weeks of notice.
- .3 Remedy is to be at no cost to the Owner and is to include all labour, material, equipment, supervision, and services necessary to make good defective areas of the Work and any damages incurred to obtain access to defective areas.
- .4 The Contractor must reimburse the Owner for any resulting assessment costs incurred to define the extent of the defect and for costs incurred to test the repaired defect to confirm acceptability of repairs.
- .5 The Contractor must reimburse the Owner for all associated costs incurred due to closure of the areas requiring repair under warranty.
- .6 Warranty periods for areas requiring repair are to be extended by the amount of time lapsed between issuance of notice and completion of remedial work. The warranty/ guaranty period will then re-commence upon completion of the remedial work.
- .7 Warranties are not to be deemed to restrict any liability of the Contractor arising out of any applicable law.

END OF SECTION

1.0 GENERAL

1.1 RECORD DRAWINGS

- .1 Consultant will provide Contractor two sets of white prints for record drawing purposes.
- .2 The Contractor to maintain project record drawings and record deviations from Contract documents accurately in red ink and mark on one set of prints.
- .3 Record following information:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by Change Order, Change Directive, or Supplemental Instruction.
 - .3 Deviation from electrical and mechanical installations shown on drawings.
 - .4 Other significant deviations that are concealed in construction and cannot be identified by visual inspection.
 - .5 Type and location of structural repairs, delaminations, etc.
 - .6 Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
- .4 At completion of contract and prior to final review, neatly transfer "as-built" records to second set of white prints using a fine red marker. Neatly print lettering and numbers in size to match original. Lines may be drawn free-hand, but shall be neat and accurate. Add at each drawing title block note: "AS-BUILT RECORD". Circle on List of Drawings each title and number of drawings marked with "as-built" records.
- .5 Submit both sets of "as-built record" drawings to Consultant on completion of Contract and before the final payment.
- .6 Make project record drawing available at all times for reference purposes and for review by the Consultant. Provide reproducible prints to Consultant at regular intervals but not less than once each month.
- .7 If the project is completed without significant deviations from contract drawings, declare this in writing and submit to Consultant in lieu of project record drawings.

1.2 OPERATION AND MAINTENANCE MANUALS

- .1 Submit electronic copies of Manufacturers' printed operation and maintenance manuals for requirements requested within those specification Sections.

- .2 Provide original Manufacturers parts list, illustrations, assembly drawings and diagrams required for maintenance as requested within the related specification sections.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

Not applicable.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to supply, install, and maintain hoarding, dust protection, site protection, shoring, bracing, etc. around the Work as indicated on the Drawings and described in Section 01 56 00 – Protection of Work and Property.
- .2 Provide all labour, material, equipment, supervision, and services necessary to remove and dispose of all material and debris resulting from the removal of:
 1. Hard and soft landscaping features (including parapet and retaining walls, stone and unit pavers, tile, concrete, plantings, soil, granular materials, etc.), weeping tile piping, waterproofing systems, coatings, etc. to expose the exterior side of the foundation wall and the footing in areas of exterior foundation wall waterproofing installation and repairs. Parapet and retaining walls, stone and unit pavers, and tile are to be dismantled and stockpiled for reuse in conformance with the Project Specifications. All other features shall be disposed of.
 2. Interior finishes, mechanical and electrical equipment, etc. to expose the interior side of the foundation wall in areas of interior foundation wall waterproofing installation and repairs. Interior finishes are to be thoroughly documented prior to performing removals in order to reinstate existing conditions following completion of repairs. Mechanical and electrical services are to be stockpiled for reinstatement, and are to be reinstated and commissioned to match pre-existing conditions following completion of repairs.
 3. Sound and unsound concrete from the building foundation wall, beam/corbel, and soffit in areas of localized concrete repair, where directed by the Consultant.
 4. Sound and unsound concrete, granular materials, and piping at localized below-grade piping replacement, where directed by the Consultant.

2.0 PRODUCTS

Not applicable.

3.0 EXECUTION

3.1 INSPECTION

- .1 Visit and examine the site and note all characteristics and features affecting the Work of this Section.
- .2 Ensure all services, whether buried, built-in, or exposed, are properly identified as to position, type of service, size, direction of flow.
- .3 Inspect materials, equipment, components, etc. to be re-used or turned over to the Owner. Note their condition and advise the Consultant in writing of any defects or conditions which would affect their removal and re-use.

3.2 PREPARATION

- .1 Prevent movement, settlement, or damage of elements of the existing building and landscaping elements which are to remain. Provide bracing, shoring and supports as required. Protect existing surfaces not to be restored from damage during removal procedures.
- .2 Cut and/or cap existing services within the work area, if any, prior to start of Work as required, but do not affect the services of areas not under construction or essential to the ongoing operation of the building.
- .3 In all cases, exercise all reasonable care during removal operations to avoid damaging items to be salvaged, re-used, or items that are not part of the Scope of Work.
- .4 Seal off all work areas to prevent dust and debris from affecting other areas outside of the work area. Prevent public access to areas being repaired.
- .5 Tape and/ or seal and provide protection to all mechanical and electrical services and all fire alarm and security devices still functioning adjacent to the work areas to prevent damage resulting from dust, water, or impact.
- .6 Cover drains, catch basins, manholes, etc. as required to prevent any construction related materials and debris from entering the drainage system. Ensure that all drainage systems continue to operate as required during construction.
- .7 Remove or protect in place all surface mounted or permanent fixtures not to be demolished from damage during demolition procedure.

- .8 Apply filter cloth to all exhaust and ventilation vents within work area to prevent dust generated by the construction activity from escaping.
 - .1 Contractor shall clean, or replace filter cloth if the filter cloth becomes unsuitably dirty as determined by Consultant.
- .9 Provide temporary lighting and ventilation as required to work areas. Owner shall provide 110 volt, 220 amp. service to work area for Contractor's use.
- .10 Provide temporary shoring/ bracing for excavations during construction.
 - .1 This shoring/ bracing is to be left in place until the completion of foundation wall repairs.
- .11 Submit details of proposed shoring/ bracing to the Consultant for review prior to commencing work.
 - .1 Details to be designed and stamped by Registered Professional Engineer in the Province of Ontario.

3.3 WATERPROOFING REMOVAL EQUIPMENT

- .1 High pressure waterblast or other approved non-impact equipment is to be used to remove existing waterproofing systems, coatings, etc. from the foundation wall surfaces where indicated on the Drawings or directed by the Consultant.
- .2 Equipment should be capable of efficiently removing the waterproofing systems, coatings, etc. while ensuring all reasonable precautions are taken to avoid damaging the concrete surface.
- .3 Equipment shall meet applicable noise control restrictions. It shall be muffled or surrounded by an acoustic enclosure to produce maximum operating noise levels which are to be in accordance with all local and municipal by-laws and regulations.

3.4 DEMOLITION

- .1 Remove and dispose of material and debris resulting from the removal of hard and soft landscaping features (including parapet and retaining walls, stone and unit pavers, tile, concrete, plantings, soil, granular materials, etc.), weeping tile piping, waterproofing systems, coatings, etc. to expose the exterior side of the foundation wall and the footing in areas of exterior foundation wall waterproofing installation and repairs. Parapet and retaining walls, stone and unit pavers, and

- tile are to be dismantled and stockpiled for reuse in conformance with the Project Specifications. All other features shall be disposed of. Existing waterproof membrane shall be totally removed from concrete surfaces leaving a clean, sound, smooth, concrete surface suitable for the placement of a waterproofing system to the approval of the Consultant.
- .2 Remove and dispose of material and debris resulting from the removal of interior finishes, mechanical and electrical equipment, etc. to expose the interior side of the foundation wall in areas of interior foundation wall waterproofing installation and repairs. Interior finishes are to be thoroughly documented prior to performing removals in order to reinstate existing conditions following completion of repairs. Mechanical and electrical services are to be stockpiled for reinstatement, and are to be reinstated and commissioned to match pre-existing conditions following completion of repairs. Existing coatings shall be totally removed from concrete surfaces leaving a clean, sound, smooth, concrete surface suitable for the placement of a waterproofing system to the approval of the Consultant.
 - .3 Remove and dispose of material and debris resulting from the removal of sound and unsound concrete from the building foundation walls, beam/corbel, and soffit in areas of localized repair, where directed by the Consultant.
 - .4 Remove and dispose of material and debris resulting from the removal of sound and unsound concrete, granular materials, and piping at localized below-grade piping replacement, where directed by the Consultant.
 - .5 Remove existing mechanical and electrical services associated with the areas of repair. The removal of these services is to be accomplished prior to the commencement of the demolition work outlined in the Contract Documents.
 - .6 Demolition procedures and equipment shall meet all applicable noise-control by-laws and regulations of the location of the work.
 - .7 Provide shoring and bracing systems to support the foundation wall and structure when removals reduce their load-carrying capacities, as well as the excavations, as directed by the Consultant. No payment will be made for such shoring and bracing systems as they are to be included in the cost of repair as outlined in these documents.
 - .8 The Contractor is to take care not to damage the surface of sound material which is to remain through the removal operation. Where any such damage is done, it is to be repaired by the Contractor at their own expense to the approval of the Consultant.

- .9 Where new concrete is to be applied to existing concrete, the surface is to be left clean and sound.
- .10 All required repairs, replacement, etc. due to damage, overspray, etc. is the Contractor's responsibility.
- .11 At end of each day's work, leave work in safe condition so that no part is in danger of causing injury or damage.

3.5 WASTE DISPOSAL

- .1 Disposal of waste products and material is to be in strict accordance with the product manufacturer's material safety data sheets and in accordance with the governing waste control regulations.
- .2 The existing drainage systems, adjacent ravine, etc. are not to be used to dispose of project wastes and / or materials.
- .3 Store volatile wastes or material in covered metal containers. All wastes which create hazardous conditions must be removed from the premises daily.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and services necessary to prepare slab-on-grade, vertical, and beam/ corbel concrete repair areas and place new concrete repair material, where directed by the Consultant and as described herein.
- .2 Use of pre-packaged materials is to be in smaller localized concrete repair areas and locations requiring expedited application of new waterproofing systems following completion of concrete repairs.

1.2 REPAIR QUANTITY DETERMINATION

- .1 Length and width shall be measured to the nearest 25 mm (1 inch).

1.3 REFERENCE STANDARDS

- .1 Ontario Building Code
- .2 CSA-A23.1-14 Concrete Materials and Methods of Concrete Construction
- .3 CSA-A23.2-14 Methods of Test for Concrete
- .4 CAN/CSA-A3000-13 Cementitious Materials Compendium
- .5 ASTM C260/C260M-10A Standard Specification for Air-Entraining Admixtures for Concrete
- .6 ICRI 310.2R-2013 Selecting and Specifying Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

1.4 PERFORMANCE REQUIREMENTS

- .1 Repaired concrete surfaces shall not scale or crack excessively.
- .2 The concrete repair materials shall not spall or debond from the existing concrete.
- .3 The concrete repair materials shall achieve a minimum compressive strength of 20MPa within 24 hours.

1.5 SUBMITTALS

- .1 Submit manufacturer's product specifications and data sheets for the following products:

- .1 Cement slurry bonding agent
 - .2 Rapid cure repair concrete material
 - .3 Vertical, beam/corbel, and soffit repair concrete materials
- .2 Submittals to be provided for review by the Consultant a minimum of two (2) weeks prior to placement or use of products.
 - .3 Do not commence placement of repair products until review is complete and proposed products and procedures are accepted by Consultant.
 - .4 If requested by Consultant, provide a certificate signed by the Contractor and pre-packaged material manufacturer certifying the following:
 - .1 Surfaces to receive pre-packaged material were acceptable and satisfactory to receive the materials per the manufacturer's requirements and these Specifications. Application of pre-packaged materials shall imply acceptance of surfaces.
 - .2 Pre-packaged materials were installed in accordance with manufacturer's written instructions and these Specifications.

1.6 QUALIFICATIONS

- .1 Use only qualified concrete placers and finishers, with a minimum of two (2) years' experience in similar work.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Portland Cement to be type GU to CSA-A3000-13
- .2 Aggregate: Natural stone to CSA-A23.1-14
- .3 Water: Potable and to CSA-A23.1-14
- .4 Air entraining agents to ASTM C260/C260M-10A
- .5 Chemicals admixtures to CSA-A3000-13. Calcium chloride is not permitted.
- .6 Pozzolanic mineral admixtures to CSA-A3000-13
- .7 Curing materials to CSA-A23.1-14
- .8 Blended hydraulic cementing material to be type 10SF to CSA-A3000-13.
- .9 Supplementary cementing material to be to CSA-A3000-13
- .10 Superplasticizing admixture to be to CSA-A3000-13.

2.2 CEMENT SLURRY BONDING AGENT

- .1 Cement slurry grout consisting of a mixture of one part cement to one part fine aggregate and enough water to make a heavy cream consistency. Aggregate to conform to CSA Standard CSA-A23.1-14 Clause 4.2.3.
- .2 Contractor to provide written confirmation of manufacturer’s recommended slurry bonding agent prior to placement of repair material.

2.3 SURFACE/ FULL DEPTH CONCRETE REPAIR MATERIALS

- .1 Proportion patch materials with specially graded aggregate to give the following properties in accordance with CSA-A23.2-14:

	<u>Description</u>	<u>Requirements</u>
.1	Compressive strength (24 hours)	20 MPa minimum
.2	Compressive strength (7 days)	30 MPa minimum
.3	Flexural Strength (7 days)	5 MPa minimum
.4	Slant/Shear Bond Strength (7 days)	5 MPa minimum
.5	Linear shrinkage	0.08% max.
.6	Rapid chloride permeability	less than 1,000 coulombs
.7	Thermally compatible with concrete substrate under all applicable service conditions.	

- .2 The patch materials listed below may conform to the specified properties and linear shrinkage requirements. Manufacturer’s latest product data sheets for proposed patch materials shall demonstrate that the patch material conforms to the specified requirements. Where product data is incomplete, manufacturer is to provide supplementary independent test data that demonstrates conformance.

- .3 Patch materials:

	<u>Product Name</u>	<u>Manufacturer</u>
.1	MasterEmaco T1060	BASF
.2	MasterEmaco T1061	BASF
.3	CPD Rapidcrete	CPD
.4	Eurocrete	Euclid Chemical
.5	Versaspeed	Euclid Chemical
.6	HP-S6	King
.7	HP-S10	King
.8	MS-S6	King
.9	MS-S10	King
.10	Structuroc H	Solhydroc

2.4 VERTICAL, BEAM/ CORBEL, AND SOFFIT CONCRETE REPAIR MATERIALS

.1 Vertical, beam/ corbel, and soffit concrete repair materials shall be polymer modified cementitious, fast-setting, and formulated especially for the repair of vertical and overhead concrete surfaces.

.2 Patch materials to have the following properties:

	<u>Description</u>	<u>Requirements</u>
.1	Compressive strength (7 days)	30 MPa minimum
.2	Flexural Strength (7 days)	5 MPa minimum
.3	Slant/ Shear Bond Strength (7 days)	5 MPa minimum
.4	Linear shrinkage	0.10% max.
.5	Rapid chloride permeability	less than 1,000 coulombs
.6	Thermally compatible with concrete substrate under all applicable service conditions.	

.3 The patch materials listed below may conform to the specified properties and linear shrinkage requirements. Manufacturer's latest product data sheets for proposed patch materials shall demonstrate that the patch material conforms to the specified requirements. Where product data is incomplete, manufacturer is to provide supplementary independent test data that demonstrates conformance.

.4 Patch Materials:

	<u>Product Name</u>	<u>Manufacturer</u>
.1	MasterEmaco S 440MC (form)	BASF
.2	MasterEmaco S 466 CI (form, vertical only)	BASF
.3	MasterEmaco S 477 CI	BASF
.4	MasterEmaco S 488 CI	BASF
.5	MasterEmaco N425	BASF
.6	MasterEmaco N400	BASF
.7	MS S6 Concrete	King
.8	MS S6 Self-Consolidating Concrete	King
.9	MS S10 Self-Consolidating Concrete	King
.10	Structuroc V	Solhydroc

2.5 REPAIR MATERIALS FOR REDUCED CURING PERIOD

- .1 Approved product for surface/ full depth delamination repairs requiring extra-fast curing period :

	<u>Product Name</u>	<u>Manufacturer</u>
.1	VersaSpeed	Euclid Chemicals
.2	MasterEmaco T415	BASF
.3	MasterEmaco T430	BASF

2.6 PRESSURE GROUT – SLAB SOFFIT AND VERTICAL SURFACES

- .1 Pressure Grouting Materials (Silica Fume: 8 – 10% by mass of cement):

	<u>Product Name</u>	<u>Manufacturer</u>
.1	In-Pakt Construction (non-shrink grout)	King
.2	In-Pakt Precision (non-shrink grout)	King
.3	Sika Grout 212 (non-shrink grout)	Sika Canada Inc.
.4	MasterEmaco S 477-CI (repair mortar)	BASF
.5	MasterEmaco T240 (flowable repair mortar)	BASF
.6	MS-S6 (repair mortar)	King

2.7 ADMIXTURES

- .1 Use only compatible admixtures and add to mix in strict accordance with manufacturer's written instructions.
- .2 Use of calcium chloride not permitted.

3.0 EXECUTION**3.1 CONCRETE SURFACE PREPARATION**

- .1 All concrete surfaces to receive new concrete repair material shall have a minimum No. 6 CSP per ICRI 310.2R-2013 and be thoroughly abrasive-blast, sandblast or shot blast prior to concrete placement to remove laitance, debris, and loose aggregate.
- .2 Clean all existing concrete surfaces to receive new concrete of foreign material, dust, debris, grease and oil as directed by Consultant. Emulsifiers shall be required for surfaces containing grease or oil.
- .3 Contractor to notify Consultant to review surfaces prior to concrete placement.

3.2 CONCRETE PLACEMENT – SURFACE/ FULL DEPTH REPAIRS

- .1 Prepare patch surface, mix patch material and apply, finish, and cure in strict accordance with the more stringent requirements of the Contract Specifications and manufacturer's written instructions.
- .2 The patch area shall be thoroughly wetted as required to achieve a saturated surface dry (SSD) state prior to placing concrete repair material.
- .3 Puddles of free water shall be blown from the patch area and the surface is to be permitted to dry to a saturated surface dry (SSD) state prior to application of cement slurry.
- .4 Apply a cement slurry bonding agent to the surface of existing concrete just prior to placing new concrete.
- .5 The cement slurry bonding agent shall be broomed or scrubbed into the existing concrete material to fully saturate the surface but not to be allowed to puddle.
- .6 Pre-wet filter fabric, burlap, or cotton mats shall be available on site prior to placement of concrete to allow for immediate placement overtop of new concrete patches after their initial set.
- .7 Prepare pre-packaged concrete mix per manufacturer's specifications.
- .8 Contractor to confirm the minimum and maximum application lift thickness prior to placement of concrete. If required and permitted by the manufacturer, the concrete repair material can be extended with aggregate.
- .9 Contractor to submit proposed aggregate extension mix design to the Consultant prior to proceeding with Work.
- .10 Place new dense concrete thoroughly compacted and vibrated into place to ensure good bond.
 - .1 Ensure reinforcing steel is secured in place and is not disturbed during placement.
 - .2 Vibrators are to be used for consolidation purposes only and are not to be used to an extent that causes segregation of the concrete.
 - .3 Internal vibrators shall conform to CSA A23.1-14 Clause 7.2.5.2 and Table 19: Internal Vibrators for Various Applications.

- .4 Vibrators shall be inserted into concrete perpendicular to concrete surface.
- .5 Vibrators shall be inserted such that zones of consolidation always overlap.
- .11 Concrete surfaces to be flush with existing surfaces, free of voids and cracks, and have a uniform surface and transition to the existing surface.
- .12 Finish concrete in accordance with CSA A23.1/A23.2. Initial finish shall be completed before any bleeding or free water is present on the surface of the concrete. Final finishing shall commence after the bleed water has disappeared and when the concrete has stiffened sufficiently to prevent the working of excess mortar to the surface. Do not add water to finish.
- .13 Do not overwork concrete surface. Wood float finish is acceptable.
- .14 Do not use steel trowels with air-entrained concrete. For air-entrained concrete, the surface can be further levelled and consolidated with a magnesium bull float for larger repairs or a magnesium trowel for smaller repairs. One or more passes shall be made at suitable time intervals to obtain a level finish free of float marks. Do not work bleed water on the concrete surface into the concrete during finishing.
- .15 Tool crack control joints per existing layout.
- .16 Cure concrete per manufacturer's written instructions.
- .17 Full depth concrete repair areas shall be patched with concrete, well consolidated and vibrated into place to the approval of the Consultant. Once forms have been removed from below suspended slabs, edges of repair areas are to be ground, hand patched, etc. as required to produce smooth (form like) transition from new patch material to the adjacent concrete material.
- .18 Do not allow traffic on newly placed repair patches until 75% of the specified 28 day strength has been reached.

3.3 CONCRETE PLACEMENT – FORM AND PUMP (PRESSURE GROUTING)

- .1 At overhead and vertical surfaces, place new dense concrete by pressure grouting.
- .2 Thoroughly wet prepared surface for a period of one (1) hour prior to placement.
- .3 Design forms to resist pressure of contained grout and seal against grout leakage until set.

- .4 Forms to be adequately supported to maintain position during grout pumping and setting.
- .5 Treat bond line between old and new concrete per grout manufacturer's specifications to ensure adequate bond.
- .6 Pressure fill the repair area with pumpable non-shrink cementitious grout to completely fill the void area and provide a good bond to existing concrete.
- .7 Remove all form work and support brackets to leave a smooth, flush concrete finish after curing. Formwork to remain in place for seven (7) days minimum for curing, or longer until concrete has attained 75% of its specified 28 day strength.
- .8 Edges of repair areas are to be ground, hand patched, etc. as required to produce a smooth (form-like) transition from the new patch surface to the existing concrete material to the approval of the Consultant once forms have been removed.
- .9 Cure concrete per manufacturer's written instructions.
- .10 Patch material that has sagged, debonded, is porous, honeycombed, or is cracked shall be replaced.

3.4 CONCRETE PLACEMENT – VERTICAL SURFACES (GRAVITY GROUTING)

- .1 Ensure formwork is secure and free of debris.
- .2 Thoroughly wet the patch area and forms for a period of not less than twenty-four (24) hours prior to concrete placement.
- .3 Place new concrete into forms by gravity method and thoroughly consolidate concrete in forms using vibrators or other Consultant-approved method.
- .4 Remove all form work and support brackets to leave a smooth, flush concrete finish after curing. Formwork to remain in place for seven (7) days minimum for curing, or longer until concrete has attained 75% of its specified 28 day strength.
- .5 Edges of repair areas are to be ground, hand patched, etc. as required to produce a smooth (form-like) transition from the new patch surface to the existing concrete material to the approval of the Consultant once forms have been removed.
- .6 Concrete repair material that has sagged, debonded, is porous, honeycombed, or is cracked shall be replaced.

3.5 CONCRETE MIXING AND PLACING

- .1 Concrete shall be machine mixed unless otherwise stipulated by the manufacturer. Mixing and placing shall be in accordance with CSA-A23.1-14.
- .2 Concrete shall be conveyed from the mixer to the place of deposit by methods that will ensure the required quality of concrete. Equipment for conveying the concrete shall be of such size and design as shall ensure a practically continuous flow of concrete at the delivery end without separation of materials.
- .3 Concrete shall be deposited in the forms as nearly as practicable to its final position to avoid re-handling.
- .4 Depositing shall be continuous throughout each division and the concrete shall be so placed and worked that a uniform texture will be produced.
- .5 No concrete shall be placed later than one half hour after leaving the mixer. No re-tempered concrete shall be allowed.
- .6 Mix concrete in accordance with the manufacturer's written instructions.

3.6 COMPACTION AND VIBRATION

- .1 Concrete shall be consolidated by means of sufficient vibrators of adequate size operated by competent workmen.
- .2 The use of vibrators to transport concrete shall not be allowed.
- .3 Concrete shall be thoroughly worked around reinforcement, embedded items, and into corners.
- .4 Compaction and vibration is to eliminate all air and stone pockets that may cause honeycombing, pitting or planes of weakness.

3.7 CONCRETE CURING

- .1 Ensure manufacturer's recommended curing conditions are maintained over the patch area. The more stringent curing conditions between the manufacturer's written instructions and those outlined in this section will govern unless otherwise agreed upon by the Consultant in writing.
- .2 Initiate surface concrete repair wet curing as soon as possible after the concrete has sufficiently set, and no later than 30 minutes after finishing.

- .1 Minimum acceptable wet curing method on slab surfaces is installation of pre-saturated filter fabric, burlap, or cotton mats that are covered with soaker hoses and plastic sheeting. Overlap wet-curing mats 150-mm and ballast in place without marring the concrete surface.
- .2 Wet curing procedures to be in accordance with manufacturer's written requirements, but shall be no less than a one (1) day period at a minimum temperature of 10° C. Water shall not be permitted to evaporate from the concrete surfaces at any time within the wet cure period.
- .3 Prevent airflow in the space between the wet-curing mats and the plastic sheeting. Protect wet-curing assembly from freezing during cold weather.
- .3 Vertical repair patches are also to be wet cured for the duration of the wet-curing period by either:
 - .1 Maintaining formwork in place with form ties loosened and water applied to run down the inside form face after the concrete has hardened to keep the repair surfaces wet.
 - .2 Removing formwork from vertical surfaces and providing fog misting, light water spray, or application of wet burlap covered with polyethylene to keep the repair surfaces continually wet.
- .4 Exposed beam/ corbel and soffit repairs require, as a minimum, misting with a water spray on a daily basis during the wet-curing period, or as often as is necessary to prevent surface dusting.
- .5 The use of chemical curing compounds is not permitted.
- .6 Protect concrete from the harmful effects of heat, cold, running or surface water, and mechanical shock.
- .7 Do not place concrete when air temperature is below 10° C, or without implementing provisions to ensure proper curing of concrete when -- in the opinion of the Consultant -- there is a possibility of air temperature falling below 10° C. These provisions shall be reviewed by the Consultant and conform to the requirements of CSA-A23.1-14.
- .8 Maintain concrete material and forms between 15° C and 32° C until concrete placement whenever the surrounding air is below 5° C. No frozen material or material containing ice shall be used. All existing concrete, reinforcement, forms, and ground that the concrete will contact is to be free from frost.

- .9 Maintain a curing temperature above 10° C for 10 days or longer to ensure proper concrete curing. Under no circumstances may dry heat be used. Provide means to humidify the air within the heated enclosure and ensure that moisture requirements for curing are maintained.
- .10 Do not allow traffic onto patch until material has adequately cured to its specified 24-hour compressive strength.
- .11 The Consultant will have cause to not certify payment for repairs undertaken without adequate wet-curing procedures or that become surface dry during the specified curing period.

3.8 INSPECTION AND TESTING

- .1 Testing is to conform to CSA-A23.2-14.
- .2 Inspection and testing to be conducted by a testing agency designated by the Owner. The Owner will pay costs of inspection and testing described in this section.
- .3 Contractor to inform testing agency 24 hours in advance of concrete placement.
- .4 Testing shall include:
 - .1 Preparation and testing of concrete grout cubes or cylinders for compressive strength.
 - .2 Review manufacturer product data sheets submitted by the Contractor.
 - .3 Bond testing of concrete repair patches to existing concrete where designated by the Consultant.
 - .4 Submission of test results to the Owner, the Consultant, and the Contractor.
 - .5 A minimum of one set of concrete grout cubes (9 cubes) or cylinders (4 cylinders) shall be taken for compressive strength testing for of concrete patch material used each day unless otherwise directed by Consultant. Concrete test samples are to be placed in an area with similar curing conditions to that of the cast concrete.
- .5 Testing procedures for concrete shall conform to the following requirements:
 - .1 Compression tests on concrete shall be carried out in accordance with CSA Standard A23.1 and A23.2. Strength test on approved grout shall consist of nine grout cubes with three cubes tested at seven (7) days and the remainder

tested at 28 days. For cylinders, strength tests shall be undertaken on one cylinder each at 3 and 7 days with the remaining 2 tested at 28 days.

- .6 The Contractor shall provide at no additional costs to the Owner:
 - .1 Samples of all material required for testing.
 - .2 Co-operation with the execution of concrete testing which shall include protection against injury or loss of grout cubes or cylinders.
 - .3 Access for the testing agency to test and/ or inspect materials.
 - .4 Site storage facilities meeting requirements of CSA A23.2-14 for concrete test specimens prior to removal to laboratory.
- .7 Bond Strength:
 - .1 After the concrete or grout has cured, the testing agency may perform bond strength tests if requested by Consultant.
 - .2 These cores are to be used for the evaluation of the bond strength of the new concrete to the existing by direct tensile force. The testing agency will drill through patches selected by Consultant.
 - .3 Failure to achieve a minimum tensile bond strength of 0.9 MPa shall constitute failure of patches.
 - .4 Contractor to fill all core holes with non-shrink cementitious grout upon completion of the tests.
- .8 Contractor shall pay for costs of additional testing as follows:
 - .1 If Contractor fails to notify testing agency in event of pour cancellation.

3.9 FIELD QUALITY CONTROL

- .1 The Consultant shall evaluate bonding of fresh patch material to existing concrete after the fresh patch material has cured sufficiently.
- .2 The evaluation shall be performed by acoustic sounding, using a "chain-drag," "hammer-tap," or other techniques.
- .3 Hollow sounds detected in repair area provide reason to suspect inadequate bonding. Contractor is to perform a localized concrete repair at these areas to

remove and replace inadequately bonded concrete, at no additional cost to the Contract. Locations will be identified by the Consultant.

3.10 REJECTION OF DEFECTIVE WORK

- .1 The Consultant shall have the right to order additional concrete testing of any portion of repairs in accordance with CSA Standard A23.1-14 if previous testing demonstrates non-conformance with specified requirements. The testing agency shall be selected by the Consultant and shall deal directly with the Consultant. Payment for costs associated with the additional concrete testing will be at the Contractor's expense.
- .2 Where it is the Consultant's opinion that material or workmanship fails to meet the specified requirements, the work shall be replaced or repaired to the approval of the Consultant at no additional cost to the Owner.
- .3 Bond failure between repair material and the existing concrete, or failure to meet compressive strength requirements based on compression testing of concrete cylinders, will result in drilling of additional core samples at the Contractor's expense. Failure of these additional samples will require the work to be replaced or repaired to the approval of the Consultant at no additional cost to the Owner.

3.11 RECORD DRAWINGS

- .1 Maintain accurate records of the location, size, and concrete placement date for each repair area.
- .2 Records to be kept up-to-date and made available to Consultant throughout the duration of the Work.
- .3 Prior to Substantial Performance of the Work provide a plan showing location, size, and date of concrete repairs.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to prepare localized concrete repair areas, exterior concrete slab-on-grade and curb reinstatement areas, and parapet and retaining wall reinstatement areas, and place new concrete material as outlined in this Section.
- .2 All repairs to finished surfaces are to be cleaned and restored to match pre-existing conditions after the concrete repairs have been completed and sufficient time for concrete curing has lapsed.

1.2 REPAIR QUANTITY DETERMINATION

- .1 Length and width shall be measured to the nearest 25-mm (1 inch).

1.3 REFERENCE STANDARDS

- .1 Ontario Building Code
- .2 CSA-A23.1-14 Concrete Materials and Methods of Concrete Construction
- .3 CSA-A23.2-14 Methods of Test for Concrete
- .4 CAN/CSA-A3000-13 Cementitious Materials Compendium
- .5 ASTM C260/C260M-10A Standard Specification for Air-Entraining Admixtures for Concrete
- .6 ICRI 310.2R-2013 Selecting and Specifying Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair

1.4 PERFORMANCE REQUIREMENTS

- .1 Concrete repair surfaces shall not scale or crack excessively.
- .2 The concrete repair materials shall not spall or debond from the existing concrete.

1.5 SUBMITTALS

- .1 Submit all mix designs, product specifications, and Manufacturer's recommendations for review by the Consultant a minimum of two (2) weeks prior to placement or use of products.

- .2 Submit details of proposed methods of concrete curing and provisions for weather protection to the Consultant for review a minimum of two (2) weeks prior to placement.
- .3 Submit Manufacturer's product data sheets for proposed admixtures and corrosion inhibitors.
- .4 Do not commence placement of concrete until review is complete and proposed products and procedures are accepted by Consultant.

1.6 QUALIFICATIONS

- .1 Use only qualified concrete placers and finishers, with a minimum of two years' experience in similar work.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Portland Cement to be type GU to CSA-A3000-13
- .2 Aggregate: Natural stone to CSA-A23.1-14
- .3 Water: Potable and to CSA-A23.1-14
- .4 Air entraining agents to ASTM C260/C260M-10A
- .5 Chemicals admixtures to CSA-A3000-13. Calcium chloride is not permitted.
- .6 Pozzolanic mineral admixtures to CSA-A3000-13
- .7 Curing materials to CSA-A23.1-14
- .8 Blended hydraulic cementing material to be type 10SF to CSAA3000-13.
- .9 Supplementary cementing material to be to CSA-A3000-13.
- .10 Superplasticizing admixture to be to CSA-A3000-13.

2.2 DELAMINATION REPAIR AND EXTERIOR REINFORCED CONCRETE MIX DESIGN REQUIREMENTS – SILICA FUME

- .1 Normal weight “ready mixed” Portland cement/silica fume modified concrete mixed in accordance with Section 15, CSA-A23.1-14 class of exposure C-1 with the following requirements:

	<u>Description</u>	<u>Requirements</u>
.1	Compressive strength (28 days)	35 MPa minimum
.2	Air content	6.0% to 9.0%
.3	Aggregate size	13 mm
.4	Slump Prior to superplasticizer	50 mm maximum +/- 20mm

- | | | |
|-----|---------------------------------|---|
| | After superplasticizer | 125 mm maximum +/- 25mm |
| .5 | Water/cementing materials ratio | 0.40 maximum |
| .6 | Cement content | 335 kg/m ³ minimum |
| .7 | Cement –Type GU | Normal Portland Cement |
| .8 | Silica Fume – Type U | Minimum 7.5 % Silica Fume by mass of cement (25 kg/m ³ min.) |
| .9 | Fly Ash – Type F | Maximum 15% by mass of cement (50 kg/cu. m. max) |
| .10 | Concrete density | Normal weight (2360 kg/m ³) |
- .2 The intent of this mix design is to provide a low permeability, high electrical resistivity concrete mix with a coulomb rating less than 1500 when 28-day samples are tested using rapid chloride permeability testing.
- .3 Non-chloride based plasticizers shall be used to facilitate concrete placement as required. Costs associated with the use of such materials shall be included in the Contract Price. Plasticizer shall be compatible with the air entrainment agent.
- .4 Note that although a maximum slump is specified, the Contractor shall endeavour to provide concrete at the minimum slump that permits placement and handling.
- .5 Mix design is the responsibility of the Contractor.
- .6 Do not add calcium chloride to concrete.
- .7 Addition of water to the concrete mix shall not be permitted on-site. The Contractor shall be permitted to adjust only the quantities of superplasticizer and air entraining agent on-site.
- .8 No concrete shall be placed later than two (2) hours after the time of batching. No re-tempered concrete shall be allowed.
- .9 The Contractor shall use superplasticizers to facilitate concrete placement and must demonstrate to the satisfaction of the Consultant that such admixtures will have no deleterious effect on the durability or strength of the proposed concrete mix (i.e. freeze/thaw durability).

2.3 INTERIOR AND UNREINFORCED CONCRETE SLAB-ON-GRADE MIX DESIGN REQUIREMENTS

- .1 Normal weight “ready mixed” Portland cement concrete mixed in accordance with Section 15, Durability Requirements, Class of Exposure C-2 of CSA-A23.1-14, with the following requirements:

.1	maximum water/ cement ration by mass	0.45
.2	minimum specified 28-day compressive strength	32 MPa
.3	maximum size of coarse aggregate	20 mm
.4	range of total % air content	5-8 %
.5	maximum slump	50 ± 20 mm
.6	minimum cement content	335 kg/m ³
.7	cement (normal portland cement)	Type GU
.8	concrete density - normal weight	2360 kg/m ³

- .2 Should the Contractor wish to employ superplasticizers to facilitate concrete placement he must demonstrate to the satisfaction of the Consultant that such admixtures are non-chloride based and will have no deleterious effect on the durability or strength of the proposed concrete mix (i.e. freeze/ thaw durability). The slump after the addition of superplasticizer shall be 125 mm ± 25 mm.

2.4 AIR ENTRAINMENT

- .1 Air entraining chemical admixtures shall be according to ASTM C260. Ensure chemical admixtures are compatible with one-another and that they will not negatively impact performance of the concrete.
- .2 The total fresh air content of air entrained concrete will be tested via the pressure method with an air meter prior to the placement of concrete in accordance with CSA A23.2-4C.
- .3 Air content in hardened concrete shall meet the requirements of CSA A23.1 and this specification and, if directed by the Consultant, will be tested and determined in accordance with ASTM C457 as outlined in CSA A23.1.

2.5 CEMENT SLURRY BONDING AGENT

- .1 Cement slurry grout consisting of a mixture of one part cement to one part fine aggregate and enough water to make a “heavy cream” consistency. Aggregate to conform to CSA Standard CSA-A23.1-14 Clause 4.2.3.

3.0 EXECUTION

3.1 CONCRETE SURFACE PREPARATION

- .1 All concrete surfaces to receive new concrete shall have a minimum No. 6 CSP per ICRI 310.2R-2013 and be thoroughly abrasive-blast, sandblast or shotblast prior to concrete placement, unless surfaces have received hydro-demolition acceptable to Consultant.
- .2 Clean all existing concrete surfaces to receive new concrete of foreign material, dust, debris, grease and oil as directed by Consultant. Emulsifiers shall be required for surfaces containing grease or oil.
- .3 Contractor to notify Consultant to review surfaces prior to concrete placement.

3.2 CONCRETE PLACEMENT - READY-MIXED CONCRETE

- .1 The patch area shall be thoroughly wetted for a period of not less than three (3) hours, and longer where required to achieve a saturated surface dry (SSD) state, prior to placing of concrete.
- .2 Puddles or free water shall be blown from the patch area and the surface is to be permitted to dry to a saturated surface dry (SSD) state prior to application of cement slurry.
- .3 Apply a cement slurry bonding agent to the surface of existing concrete just prior to placing new concrete.
- .4 The cement slurry bonding agent shall be broomed or scrubbed into the existing concrete surface to fully saturate the surface but not to be allowed to puddle.
- .5 Pre-wet burlap shall be available on site prior to placement of concrete to allow for immediate placement overtop of new concrete patches after their initial set.
- .6 **Do not add extra water to the concrete.**
- .7 Place new dense concrete thoroughly compacted and vibrated into place to ensure good bond.
 - .1 Ensure reinforcing steel is secured in place and is not disturbed during placement.
 - .2 Vibrators are to be used for consolidation purposes only and are not to be used to an extent that causes segregation of the concrete.

- .3 Internal vibrators shall conform to CSA A23.1-14 Clause 7.2.5.2 and Table 19: Internal Vibrators for Various Applications.
- .4 Vibrators shall be inserted into concrete perpendicular to concrete surface.
- .5 Vibrators shall be inserted such that zones of consolidation always overlap.
- .8 Concrete surfaces to be flush with existing surfaces, free of voids and cracks, and have a uniform surface and transition to the existing surface.
- .9 Finish concrete in accordance with CSA A23.1/A23.2. Initial finish shall be completed before any bleeding or free water is present on the surface of the concrete. Final finishing shall commence after the bleed water has disappeared and when the concrete has stiffened sufficiently to prevent the working of excess mortar to the surface. **Do not add water to finish.**
- .10 Do not overwork concrete surface. Wood float finish is acceptable.
- .11 Do not use steel trowels with air-entrained concrete. For air-entrained concrete, the surface can be further leveled and consolidated with a magnesium bull float for larger repairs or a magnesium trowel for smaller repairs. One or more passes shall be made at suitable time intervals to obtain a level finish free of float marks. Do not work bleed water on the concrete surface into the concrete during finishing.
- .12 If mechanical floats are to be used for final finishing of larger air entrained concrete surfaces, the mechanical floating of the concrete surface shall commence as soon as the concrete surface has reached initial set and will support the weight of a power float machine equipped with magnesium float blades and the operator.
- .13 Tool crack control joints to match existing layout.
- .14 Cure concrete as outlined in this section.
- .15 Areas of concrete repair completely through slab thicknesses shall be patched with concrete that is well consolidated and vibrated into place on compacted granular to the approval of the Consultant. Once any forms have been removed edges are to be grinded, hand patched, etc. as required to produce smooth (form like) transition from new patch material to the existing slab.
- .16 Do not allow traffic on newly placed repair patches until 75% of the specified 28 day strength has been reached.

3.3 CONCRETE MIXING AND PLACING

- .1 Concrete shall be machine mixed. Mixing and placing shall be in accordance with CSA-A23.1-14.
- .2 Concrete shall be conveyed from the mixer to the place of deposit by methods that will ensure the required quality of concrete. Equipment for conveying the concrete shall be of such size and design as shall ensure a practically continuous flow of concrete at the delivery end without separation of materials.
- .3 Concrete shall be deposited into patch repairs as near as practicable to its final position to avoid re-handling.
- .4 Depositing shall be continuous throughout each division and the concrete shall be so placed and worked that a uniform texture will be produced.
- .5 No concrete shall be placed later than one half hour after leaving the mixer. No re-tempered concrete shall be placed.

3.4 COMPACTION AND VIBRATION

- .1 Concrete shall be consolidated by means of sufficient vibrators of adequate size operated by competent workmen.
- .2 The use of vibrators to transport concrete shall not be allowed.
- .3 Concrete shall be thoroughly worked around reinforcement, embedded items, and into corners.
- .4 Compaction and vibration is to eliminate all air and stone pockets that may cause honeycombing, pitting or planes of weakness.

3.5 CONCRETE CURING (SILICA FUME)

- .1 Incorporate fog-mist curing methods or evaporation retarder in order to prevent loss of moisture from concrete repair surfaces in all rapid drying conditions. In these conditions, fog-mist curing shall be initiated immediately after initial finishing, and continued until concrete is covered with wet-curing mats. Rapid-drying conditions may include any of the following:
 - .1 High concrete ambient temperatures
 - .2 Low humidity
 - .3 High winds
 - .4 Direct sunlight

- .5 Heated interiors during cold weather.
- .2 Initiate surface concrete repair wet curing as soon as possible after the concrete has sufficiently set, and no later than 30 minutes after finishing.
 - .1 Minimum acceptable wet curing method on slab surfaces is installation of pre-saturated filter fabric, burlap, or cotton mats that are covered with soaker hoses and plastic sheeting. Overlap wet-curing mats 150-mm and ballast in place without marring the concrete surface.
 - .2 Wet curing procedures are to keep the concrete surfaces continuously wet for a period of at least ten (10) consecutive days at a minimum temperature of 10° Celsius. Do not permit water to completely evaporate from the concrete surfaces at any time within the wet cure period.
 - .3 Prevent airflow in the space between the wet-curing mats and the plastic sheeting.
- .3 Vertical repair patches are also to be wet cured for the duration of the ten (10) day wet-curing period by either:
 - .1 Maintaining formwork in place with form ties loosened and water applied to run down the inside form face after the concrete has hardened to keep the repair surfaces wet.
 - .2 Removing formwork from vertical surfaces and providing fog misting, light water spray, or application of wet burlap covered with polyethylene to keep the repair surfaces continually wet.
- .4 Continuous water curing of exposed beam and slab soffit repairs is not required; however, exposed concrete soffit surfaces shall be misted with a water spray on a daily basis during the wet-curing period, or as often as necessary to prevent surface dusting.
- .5 Provide the Consultant with proposed fog-curing and wet-curing procedures at least 2-weeks prior to concrete placement. Any revisions to the proposed procedures must be submitted to the Consultant for review a minimum of one week prior to concrete placement.
- .6 The use of chemical curing compounds is not permitted.
- .7 Protect concrete from the harmful effects of heat, cold, running or surface water, and mechanical shock.

- .8 Do not place concrete when air temperature is below 10° C, or without implementing provisions to ensure proper curing of concrete when -- in the opinion of the Consultant -- there is a possibility of air temperature falling below 10° C. These provisions shall be reviewed by the Consultant and conform to the requirements of CSA-A23.1-14.
- .9 Maintain concrete material and forms between 15° C and 32° C until concrete placement whenever the surrounding air is below 5° C. No frozen material or material containing ice shall be used. All existing concrete, reinforcement, forms, and ground that the concrete will contact is to be free from frost.
- .10 Maintain a curing temperature above 10° C for 10 days or longer to ensure proper concrete curing. Under no circumstances may dry heat be used. Provide means to humidify the air within the heated enclosure and ensure that moisture requirements for curing are maintained.
- .11 Do not allow traffic onto patch until material has adequately cured to 75% of its specified 28-day compressive strength.
- .12 The Consultant will have cause to not certify payment for repairs undertaken without adequate wet-curing procedures or that become surface dry during the specified curing period.

3.6 INSPECTION AND TESTING

- .1 To conform to CSA-A23.2-14.
- .2 Inspection and testing to be conducted by a testing agency designated by the Owner. The Owner will pay costs of inspection and testing described in this section.
- .3 Contractor to inform testing agency 24 hours in advance of concrete placement.
- .4 Testing shall include:
 - .1 Preparation and testing of concrete cylinders for compressive strength.
 - .2 Establishment of slump and the percentage of entrained air for each concrete truck, unless otherwise directed by Consultant.
 - .3 Review of concrete mix designs submitted by the Contractor.
 - .4 Submission of test results to the Owner, Consultant, and the Contractor.

- .5 A minimum of one set (4 cylinders) of concrete cylinders shall be taken for compressive strength testing of concrete patch material used each day unless otherwise directed by Consultant. Concrete cylinders are to be placed in an area with similar curing conditions to that of the cast concrete.

- .5 Testing procedures for concrete shall conform to the following requirements:
 - .1 Compression tests on concrete shall be carried out in accordance with CSA Standard A23.2-14 and A23.1-14 except that a Strength Test shall consist of four test cylinders and one cylinder shall be tested at the age of three (3) days, the second cylinder shall be tested at the age of seven (7) days and the remaining two at an age of 28 days.
 - .2 Slump and air entrainment test shall be conducted at the time of sampling concrete for compressive tests and shall be conducted in conformity with CSA Standard A23.2-14. Slump and air entrainment tests shall be performed on all loads used each day.

- .6 The Contractor shall provide at no additional costs to the Owner:
 - .1 Samples of all material required for testing.
 - .2 Co-operation with the execution of concrete testing, which shall include protection against injury or loss of cylinders.
 - .3 Access for the Testing Company to test and/ or inspect materials.
 - .4 Site storage facilities meeting requirements of CSA A23.2-14 for concrete test specimens prior to removal to laboratory.

- .7 Contractor shall pay for costs of additional testing as follows:
 - .1 Additional standby time required due to late delivery by concrete supplier.
 - .2 Additional slump and/ or air tests if first tests indicate that concrete properties are outside of specified requirements and the Contractor wishes to modify the mix and retest. All modifications are to be approved by the Consultant.
 - .3 If the Contractor fails to notify the testing agency of pour cancellation.

3.7 FIELD QUALITY CONTROL

- .1 The Consultant shall evaluate bonding of fresh patch material to existing concrete after the fresh patch material has cured sufficiently.
- .2 The evaluation shall be performed by acoustic sounding, using a "chain-drag," "hammer-tap," or other techniques.
- .3 Hollow sounds detected in repair area provide reason to suspect inadequate bonding. Contractor is to perform a localized concrete repair at these areas to remove and replace inadequately bonded concrete, at no additional cost to the Contract. Locations will be identified by the Consultant.

3.8 REJECTION OF DEFECTIVE WORK

- .1 The Consultant shall have the right to order additional concrete testing of any portion of repairs in accordance with CSA Standard A23.1-14 if previous testing demonstrates non-conformance with specified requirements. The testing company shall be selected by the Consultant and shall deal directly with the Consultant. Payment for costs associated with the additional concrete testing will be at the Contractor's expense.
- .2 Where it is the Consultant's opinion that material or workmanship fails to meet the specified requirements, the work shall be replaced or repaired to the approval of the Consultant at no additional cost to the Owner.
- .3 Bond failure between repair material and the existing concrete, or failure to meet compressive strength requirements based on compression testing of concrete cylinders, will result in drilling of additional core samples at the Contractor's expense. Failure of these additional samples will require the work to be replaced or repaired to the approval of the Consultant at no additional cost to the Owner.

3.9 RECORD DRAWINGS

- .1 Maintain accurate records of the location, size, and concrete placement date for each repair area.
- .2 Records are to be kept up-to-date and made available to the Consultant for review throughout the duration of the Work.
- .3 Provide a plan showing location, size, and date of concrete repairs prior to Substantial Performance.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to design, supply, install, maintain, and remove shoring and bracing systems as required to support the structure and excavations during repairs, as described herein.
- .2 Shoring and bracing costs are included in the removals/excavation items and the concrete repair unit prices.

1.2 SUBMITTALS

- .1 Provide shoring shop drawings that include a shoring design and layout designed by a Professional Engineer licensed to practice in Ontario a minimum of two (2) weeks prior to starting demolition work. Professional Engineer is to be retained by the Contractor at no additional cost to the Owner.
 - .1 Shoring shop drawings are to include shoring layouts for randomly located concrete delamination repairs.

1.3 REFERENCE STANDARDS

- | | | |
|----|---------------------------|---|
| .1 | CSA S269.1-16 | Falsework and Formwork |
| .2 | CSA S269.2-16 | Access Scaffolding for Construction Purposes |
| .3 | CSA S350-1980 (Rev. 2003) | Code of Practice for Safety in Demolition of Structures |

2.0 PRODUCTS

2.1 EQUIPMENT

- .1 Post shores with a minimum capacity of 24 kN at 2.5 metre height. Approved Products:
 - .1 Anthes Type 1 post shore
 - .2 UMACS No. 1 vertical post shore

3.0 EXECUTION

3.1 STRUCTURAL AND EXCAVATION SHORING

- .1 Support the structure and excavation during the Work. Design, supply, install, and maintain all shoring and bracing necessary to prevent movement, settlement, or damage to the structure, services, landscaping features, window wells, and property.
- .2 Provide additional shoring and bracing during construction where the Consultant deems it necessary to prevent movement, settlement, or damage to the structure, services, landscaping features, window wells, and property based on the required excavation and identified concrete delamination repair locations.
- .3 Provide additional shoring and bracing to support suspended items (i.e. sprinkler, piping and mechanical systems) during the Work.
- .4 Provide additional shoring and bracing at the Contractor's expense where it is necessary to support stockpiled rubble and equipment.
- .5 Formwork shoring requirements are in addition to structural and excavation shoring requirements. Formwork shoring requirements are also included in the delamination repair unit prices.
- .6 Install and arrange shoring and bracing in a manner that prevents sharp projections that may cause personnel injury.
- .7 Modify the position of shoring and bracing if requested by the Consultant at no additional cost to Owner.
- .8 Manage and maintain shoring and bracing by regularly inspecting and checking installed shoring and bracing components to ensure that supports, fastenings, wedges, ties, and parts are secure.
- .9 Do not strip shoring and bracing at concrete repairs until concrete repair material has reached 75% of design strength.
- .10 Do not strip shoring and bracing at excavations until all work is complete and backfilling is commencing.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to remove sound and unsound concrete from localized concrete repair areas, where directed by the Consultant, indicated on the Drawings, and as described herein.

2.0 PRODUCTS

2.1 EQUIPMENT

- .1 Provide hand-held jackhammers for concrete removal that are capable of efficiently removing sound and unsound concrete without causing excessive or unwanted removal.
- .2 Maximum jackhammer size is 15 kg. Light chipping hammers are to be used where the Consultant deems it necessary to reduce the amount of concrete breakage. Maximum light chipping hammer size is 7 kg. The use of light chipping hammers is at no additional cost to the Owner.
- .3 Equipment located outside shall be muffled or placed within an acoustic enclosure to produce maximum operating noise levels of 70 dBA at 3.0 metres. Noise levels are also to be in accordance with all local and municipal by-laws and regulations.
- .4 Use "Silenced" compressors.
- .5 Compressors and all diesel-powered equipment are to be fitted with a diesel exhaust scrubber.

3.0 EXECUTION

3.1 FULL SLAB DEPTH (SLAB-ON-GRADE AND CONCRETE HARD LANDSCAPING) CONCRETE REMOVAL

- .1 Remove concrete in areas designated by the Consultant, or as indicated on the Drawings. The areas shall be initially located by the Contractor and marked on the concrete surface with a durable red-coloured paint. The Consultant will then review the markings and mark out the actual area of concrete to be removed.

- .2 Use light chipping hammers at patch perimeters to minimize damage to sound concrete and to provide a rough surface for new concrete material to bond to.
- .3 Upon exposure of visibly corroded or debonded reinforcement, additional concrete removal shall be performed until bars appear to be rust-free for a minimum length of 75mm and perimeter of designated area is sound or until otherwise directed by the Consultant.
 - .1 This concrete removal shall not proceed until authorized by Consultant.
 - .2 Contractor shall not receive payment for concrete removals not authorized by and considered necessary to Consultant.
- .4 Excess or unnecessary concrete removal to be at no extra cost to the Contract.
- .5 Outline patch area with a 13-mm deep vertical sawcut at surface of slab as close as possible to limits of concrete already removed. Reduce sawcut depth if necessary to avoid cutting reinforcement. Remove concrete to sawcut taking precautions to avoid damaging sawcut edge. Edges with spalls or chips will be rejected and shall be resawcut at Contractor's expense.
- .6 Call for review by Consultant to confirm acceptability of patch preparation prior to cleaning of reinforcement. After concrete removal has been complete, a final check adjacent to the areas shall be made by the Contractor to determine any additional spalling or delamination which may have occurred. Contractor shall mark out these areas and notify Consultant to make a review.
- .7 Remove additional concrete required to provide adequate development and/or lap for new reinforcing steel required as directed by the Consultant.

3.2 VERTICAL SURFACE, BEAM/ CORBEL, AND SOFFIT CONCRETE REMOVAL

- .1 Remove concrete in areas that are already spalled or that produce a hollow sound under a hammer test, which indicates the presence of concrete delaminations. The areas shall be initially located by the Contractor and marked on the concrete surface with a durable red-coloured paint. The Consultant will then review the markings and mark out the actual area of concrete to be removed.
- .2 Take precautions to avoid punching through the wall, beam/ corbel, and soffit.
- .3 Use light chipping hammers for all vertical, beam/ corbel, and soffit concrete removal.

- .4 Remove concrete within designated areas to obtain a minimum of 25-mm clearance around all exposed reinforcement within the delamination repair. Minimum removal depth shall not be less than 50-mm, which may include sound concrete.
- .5 Upon exposure of visibly corroded or debonded reinforcement, additional concrete removal shall be performed until bars appear to be rust-free for a distance of 75mm around the perimeter of a patch or until otherwise directed by the Consultant.
- .6 Excess or unnecessary concrete removal to be at no extra cost to the Contract.
- .7 Outline patch area with a 13-mm deep vertical sawcut as close as possible to limits of concrete already removed. Reduce sawcut depth if necessary to avoid cutting reinforcement. Remove concrete to sawcut taking precautions to avoid damaging sawcut edge. Edges with spalls or chips will be rejected and shall be resawcut at Contractor's expense.
- .8 Call for review by Consultant to confirm acceptability of patch preparation prior to cleaning of reinforcement. After concrete removal has been complete, a final check adjacent to the areas shall be made by the Contractor to determine any additional spalling or delamination which may have occurred. Contractor shall mark out these areas and notify Consultant to make a review.
- .9 Refer to Clause 3.2 for additional removal requirements.

3.3 EXISTING EXPOSED ELECTRICAL SERVICES

- .1 The Contractor shall perform temporary removal, replacement, and/or relocation of existing electrical wiring, conduit, equipment, fixtures, or hardware in designated concrete delamination repair areas as required for completion of the Work.
- .2 All exposed conduit, fixtures, attached devices, wet-sprinkler fire system piping, heads and pull stations, fire extinguishers, mechanical system components, louvers and ducts are to be protected or Contractor to correct damages at his own expense. The Contractor shall promptly report any damage to the Owner and the Consultant.
- .3 Prior to commencing the Work, the Contractor shall contact the Owner to locate all protective or alarm systems and sensors. All services shall be protected against damage or interruption. The Contractor shall provide the Owner with minimum 48 hours advance notice of any necessary interruption. All claims resulting from damage shall be the responsibility of the Contractor.

3.4 EXISTING EMBEDDED ELECTRICAL SERVICES

- .1 It is the Contractor's responsibility to ensure that all potential areas of buried conduit be identified and that all high voltage systems located in the area of work are switched off to prevent possible injury. Co-ordinate requirements with Owner.
- .2 The Contractor shall take the utmost caution during concrete removal operations in order to prevent damage to embedded conduits. Any damage caused to such conduits will be immediately reported to the Owner and Consultant. In no instance will damaged or deteriorated conduits be covered up by the Contractor without specific approval from the Owner.
- .3 Contractor to repair or abandon damaged conduit within the slab at the discretion of the Consultant. Owner to pay for repairs provided that damage did not result from Contractor's negligence.
- .4 Contractor to coordinate required repairs with designated Electrical Sub-Contractor. Contractor shall designate Electrical Sub-Contractor for the Work.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to clean and prepare existing reinforcing steel where exposed in delamination repairs and where otherwise designated by the Consultant.
- .2 Provide all labour, materials, equipment, supervision, and services necessary to supplement corroded or damaged reinforcement with new replacement reinforcing steel and accessories, including supply, fabrication, handling and placing.

1.2 REFERENCE STANDARDS

- .1 Ontario Building Code
- .2 CSA-A23.1-14 Concrete Materials and Methods of Concrete Construction
- .3 CSA G30.18-09(R2014) Carbon Steel Bars for Concrete Reinforcement
- .4 ACI Manual of Standard Practice for Detailing – 28th Edition
- .5 CSA W186-M1990 (R2012) Welding of Reinforcing Bars in Reinforced Concrete Construction
- .6 Reinforcing Steel Institute of Ontario (RSIO) Manual of Standard Practice – June 2010.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

- .1 Store and protect reinforcement in a manner that prevents excessive rusting and fouling with dirt, grease, form oil, and other bond-breaking coatings.
- .2 Reinforcement shall be free from excessive rusting, mud, oil or other coatings that adversely affect its bonding capacity at the time concrete is placed.

2.0 PRODUCTS

2.1 CONCRETE REINFORCEMENT AND ACCESSORIES - NEW

- .1 Refer to Section 03 20 00 – Concrete Reinforcement.

3.0 EXECUTION

3.1 PREPARATION - REINFORCEMENT IN PLACE

- .1 Exposed reinforcement and steel shall be completely cleaned of cement paste, rust, oil, and contaminants. Dry abrasive blast clean to near-white blast, completely cleaned of all grease, oil, dirt, mil scale, cement paste, old epoxy, etc. Additional cleaning shall be performed if subsequent corrosion occurs after initial cleaning. Wire brush, grinding or similar hand-cleaning methods shall not be permitted.
- .2 The Contractor may elect to cut, remove, and replace damaged or corroded reinforcement with new reinforcement in lieu of cleaning existing exposed reinforcement. Provide required tension lap splices with existing cleaned reinforcement at no additional cost to the Owner.

3.2 INSTALLATION

- .1 Replace or supplement damaged or severely corroded reinforcement that is exposed in concrete delamination repair patches with new plain reinforcement as directed by the Consultant. Additional reinforcing steel shall be provided when the existing reinforcing steel has a section loss of 20% or greater.
- .2 The replacement reinforcing bars shall be of the same bar size or greater than the original bars. Additional concrete removal may be required (at unit price cost, except as noted in 3.1.2.) to allow for placement of supplemental reinforcing bars. The length of the supplemental bars shall be equal to the length of the deteriorated segment of the existing bars, plus the required lap splices at each end. Splicing requirements shall be in accordance with the Standards. Supplemental bars shall be placed parallel to, and approximately 20-mm from, the existing bars.
- .3 Fully exposed reinforcement for the entire bar length shall be removed and replaced with new reinforcement of the same bar size or greater.
- .4 Accurately place new and existing reinforcement exposed in the delamination repair patches to match pre-existing locations. Reinforcement shall be firmly tied and supported by bar supports and side form spacers to ensure proper concrete cover and spacing within allowable tolerances before and during concrete placement.
- .5 Bar supports shall be sufficient in number and strength to carry the reinforcement they support and prevent displacement by workers or equipment before and during concrete placement. Bars shall be tied at all intersections where spacing is greater than 250-mm in each direction and at alternate intersections where spacing is less than 250-mm in each direction.

- .6 Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits, and embedded items. If bars are moved more than one bar diameter, or enough to exceed the specified tolerances, the resulting arrangement of bars shall be subject to approval of the Consultant.

3.3 WELDING

- .1 Any welding of reinforcing steel shall be in accordance with CSA W186-M1990 (R2012).
- .2 Copies of the Canadian Welding Bureau approved welding procedure and certificate of current operator qualification shall be submitted to the Consultant prior to commencement of welding.

3.4 INSPECTION AND TESTING

- .1 No concrete shall be placed until the Consultant has completed his review of in-place reinforcing. The Contractor shall provide a minimum of 24 hours' notice of the time when the reinforcement will be substantially in place and ready for the Consultant's review.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to supply, erect, and strip all formwork and falsework for poured-in-place concrete shown or indicated on the Contract Drawings and Specifications.

1.2 REFERENCE STANDARDS

- .1 Ontario Building Code
- .2 CSA-A23.1-14 Concrete Materials and Methods of Concrete Construction
- .3 CSA-A23.2-14 Methods of Test for Concrete
- .4 CSA-S269.1-16 Falsework and Formwork
- .5 ACI SP-004-R14: (8th) Ch.5 Formwork for Concrete
- .6 ACI 347-R14 Recommended Practice for Concrete Formwork
- .7 CSA-O86-14 Engineering Design in Wood (Limit States Design)
- .8 CSA-O121-08 R2013 Douglas Fir Plywood
- .9 CSA-O153 -13 Poplar Plywood

1.3 HANDLING REQUIREMENTS

- .1 Protect formwork materials before, during, and after installation. Protect installed work and materials of other Sections.
- .2 In the event of damage, make required repairs or replacements to Consultant's requirements at no additional cost to the Owner.

2.0 PRODUCTS

2.1 FORMWORK MATERIALS

- .1 Form Material:
 - .1 Exposed surfaces: Use metal forms, plywood forms, or plywood lined forms of sufficient structural strength. Plywood to be to CSA O121-08 R2013 – Douglas Fir Plywood or CSA O153-13 – Poplar Plywood. Plywood lining to be new GIS exterior grade fir plywood manufactured with waterproof glue.
 - .2 Unexposed surfaces: Use metal forms, plywood forms, or wood lumber. Plywood to be to CSA O121-08 R2013 – Douglas Fir Plywood or CSA

O153-13 – Poplar Plywood. Wood lumber to be to CAN/CSA O86-14 – Engineering Design in Wood.

- .3 Plywood and wood formwork materials: Material to be to CSA-S269.1-16 - Falsework and Formwork. Material is to be free from warping and sawn straight so that lines and shapes are accurately retained.
- .4 Formwork for unexposed surfaces shall be made with a good grade of lumber or plywood and fitted so that there is no leakage of mortar.
- .2 Ties and Spreaders:
 - .1 Form ties shall be adjustable in length to permit tightening of forms. Use only the snap-off type of form tie that will leave no metal within 25-mm of the concrete surface after removal. Twisted wire form ties are not acceptable.
- .3 Form Release Agent:
 - .1 Form release agent shall be a Consultant-approved chemical agent that is not an oil based product.

3.0 EXECUTION

3.1 FORMWORK

- .1 Lines and Levels:
 - .1 Verify lines, levels, and column centers before proceeding with work and ensure that dimensions agree with Drawings.
 - .2 Co-ordinate forming and setting of recesses, chases, sleeves, inserts, bolts, and hangers.
- .2 Design:
 - .1 Design, construct, and erect formwork in accordance with CSA A23.1-14, CSA-S269.1-16, ACI 347R-14, and all applicable construction safety regulations at the Place of Work.
 - .2 Build forms sufficiently strong and rigid to sustain the weight or fluid pressure of the concrete without noticeable deflection. Ensure forms are fitted sufficiently tight to prevent mortar leakage.

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- .3 The Contractor shall be responsible for design and construction of falsework.
 - .4 Do not exceed the safe live load of the structure, considering the strength and age of the concrete, with any construction or shoring loads.
 - .5 Provide 20mm x 20mm chamfer strips at exposed corners or edges of walls, beams, slabs, etc.
- .3 Construction:
- .1 Construct forms so that the finished concrete will conform to the shape and dimensions shown on the Drawings.
 - .2 Construct forms so that they may be dismantled and removed without damaging the concrete.
 - .3 Set any shoring and bracing on wedges so they may be removed without causing undue strains in the concrete.
 - .4 Provide temporary openings at the bottom of wall forms to facilitate cleaning and review. Use water to flush out cuttings, shavings, debris, snow and ice, and foreign matter. Ensure that water and debris fully drain to the exterior through clean-out ports, and close the openings with a patch, flush on the inside.
 - .5 Notify the Consultant when formwork is completed and cleaned to allow for review.
- .4 Treatment of Forms:
- .1 Install form release agent on form surfaces and allow to dry before placing reinforcing steel, anchoring devices, and embedded parts.
 - .2 Keep untreated forms wetted down to prevent shrinkage before placing concrete and wet surfaces without allowing ponding at time of placing concrete.
- .5 Alignment:
- .1 Provide suitable means for checking the alignment and elevation of formwork and check frequently during concrete placement.
 - .2 Carry out corrective wedging as required until concrete is in place.

- .3 Remove concrete that becomes misaligned during placing to satisfaction of Consultant.
 - .4 Align forms to ensure movement and deflections of the finished product are confined.
 - .5 Tolerances for all concrete work shall conform to the requirements of CSA Standard CSA-A23.1-14 and ACI 347-R14.
 - .6 Camber formwork to provide cambers to match existing conditions. Make allowances for settlement of forms, closure of form joints, and elastic shortening of forms and add to camber requirements.
- .6 Stripping:
- .1 Do not remove shoring or strip formwork until the concrete has gained sufficient strength to carry dead loads and construction loads that are likely to be imposed. Notify the Consultant before removing formwork.
 - .2 Remove Falsework progressively in accordance with CSA S269.1-16. Ensure that no shock loads or unbalanced loads are imposed upon the structure during removal.
 - .3 Loosen forms carefully using a method that prevents spalling and damage to the concrete surface and edges. Do not use wedge pry bars, hammers, or other tools against exposed concrete surfaces.
 - .4 Leave forms loosely in place for protection until curing requirements are complete.
 - .5 Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface. Point up and patch the resulting pockets flush to surrounding areas.
- .7 Re-Use of Formwork:
- .1 Forms may be re-used after adequate cleaning if the surfaces are not cracked or roughened. The formwork shall be trimmed and properly patched to provide a smooth surface.

3.2 INSERTS AND EMBEDDED ITEMS

- .1 Provide formed openings where required for pipes, conduits, sleeves or other work to be embedded in and passing through concrete members.
- .2 Accurately locate and set in place items that are to be cast directly into concrete. Coordinate forming and setting of ties, anchor bolts, pipe hangers, accessories, inserts, recesses, openings, sleeves, etc., as required by work of other Sections.
- .3 No sleeves, ducts, pipes, or other openings shall pass through structural members unless detailed on the Drawings.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to supply and install new reinforcing steel including accessories such as hanger bars, spirals, wire ties, support bars, chairs, spacers supports or other devices required to position reinforcing properly, where directed by the Consultant, indicated on the Drawings, and as described herein.

1.2 REFERENCE STANDARDS

- .1 Ontario Building Code
- .2 CSA-A23.1-14 Concrete Materials and Methods of Concrete Construction
- .3 CSA-G30.5-M1983 R98 Welded Steel Wire Fabric for Concrete Reinforcement (Withdrawn)
- .4 CSA-G30.18 09 Carbon Steel Bars for Concrete Reinforcement
- .5 ACI Manual of Standard Practice for Detailing – 28th Edition
- .6 Reinforcing Steel Manual of Standard Practice – June 2010
- .7 SP-71(08): ASTM Standards in 318-08
- .8 CSA-23.3-04 Design of Concrete Structures
- .9 CSA W186-M1990 (R2007) Welding of Reinforcing Bars in Reinforced Concrete Construction

1.3 SUBMITTALS

- .1 Mill Tests:
 - .1 Upon request, provide the Consultant with a certified copy of mill tests of steel supplied, showing physical and chemical analysis, minimum of two (2) weeks prior to commencing reinforcing steel work.

1.4 PRODUCT DELIVERY, STORAGE AND HANDLING

- .1 Store and protect reinforcement in a manner to prevent excessive rusting and fouling with dirt, grease, form-oil and other bond-breaking coatings.
- .2 Reinforcement at the time concrete is placed shall be free from excessive rusting, mud, oil or other coatings that adversely affect its bonding capacity.

2.0 **PRODUCTS**

2.1 **MATERIALS**

- .1 Reinforcing steel bars shall conform to CSA G30.18-09 (grade 400 MPa) unless otherwise specified herein or on the drawings. Plain finish.
- .2 Reinforcing bars to be welded shall conform to CSA G30.18-09.
- .3 Welded wire fabric shall conform to CSA G30.5 (**Withdrawn**). Sizes and gauges as shown on the drawings.
- .4 Bar supports shall conform to ACI 316 unless otherwise approved by the Consultant.
- .5 Chairs, bolsters, bar supports, spacers shall be epoxy coated or plastic. The use of pebbles, pieces of broken stone or brick, pipe, or wooden blocks will not be permitted.
- .6 Tie wire for coated reinforcing shall be plastic-coated.

2.2 **FABRICATION**

- .1 Fabricate reinforcing to CSA-A23.1.
- .2 Fabricate reinforcing steel within the following tolerances:
 - .1 Sheared length plus or minus.....25 mm
 - .2 Depth of truss bar plus or minus.....10 mm
 - .3 Outside dimension of stirrups, ties and spirals, plus or minus 10 mm
 - .4 Other bends plus or minus25 mm
- .3 Colour-code each bar to correspond with code mark appearing on bar list.
- .4 Ship bundles of bar reinforcement clearly identified in accordance with bar lists.
- .5 Bars shall not be field bent, straightened, or re-bent, except where indicated or authorized by the Consultant. When field bending is authorized, bend without heat, applying slow and steady pressure. Replace bars that develop cracks or splits.
- .6 Splicing of reinforcing bars, unless indicated on the drawings, is prohibited except with the written approval of the Consultant. Such splices shall conform to the splice length for that class of splice according to CAN3-A23.3-04. Splices, where possible, shall be staggered.

3.0 EXECUTION

3.1 INSTALLATION

.1 Reinforcement shall be accurately placed in the positions shown on the drawings, firmly tied, and supported by bar supports and side form spacers to assure proper concrete cover and spacing within allowable tolerances before and during placing of concrete.

.2 Bar supports shall be sufficient in number and strength to carry the reinforcement they support and prevent displacement by workers or equipment before and during concreting. Bars shall be tied at all intersections, except where spacing is less than 250-mm in each direction, when alternate intersections shall be tied.

.3 Bars shall be placed to the following tolerances unless noted otherwise.

.1 Clear concrete protection of reinforcement5 mm ±.

.2 Where the depth of a flexural member, thickness of a wall or smallest dimension of a column is:

.1 200 mm or less.....5 mm ±.

.2 larger than 200 mm but less than 600 mm10 mm ±.

.3 600 mm or larger20 mm ±.

Lateral spacing of these bars shall be within 30 mm ± of the specified spacing.

.3 For longitudinal location of bends and ends of bars50 mm ±.

.4 As Item 3 at discontinuous ends of members20 mm ±.

.5 Specified spacing between bars.....10 mm ±.

.4 Bars may be moved as necessary to avoid interference with other reinforcing steel, conduits or embedded items. If bars are moved more than one bar diameter or enough to exceed the specified tolerances, the resulting arrangement of bars shall be subject to approval of the Consultant.

3.2 WELDING

.1 Any welding of reinforcing steel shall be in accordance with CSA W186-M1990 (R2007).

- .2 Copies of the Canadian Welding Bureau approved welding procedure and certificate of current operator qualification shall be submitted to the Consultant prior to commencement of welding.

3.3 INSPECTION AND TESTING

- .1 No concrete shall be placed until the Consultant has completed his review of reinforcing in place. The Contractor shall provide a minimum of 24 hours notice of the time when the reinforcement will be substantially in place and ready for the Consultant's review.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to prepare all surfaces and install historic mortar at parapet and retaining walls as outlined in this Section.

1.2 REFERENCES

- .1 CAN/CSA-A23.1-09/A23.2-09 (2010), Construction Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
- .2 CAN/CSA-A371-04 (R2014), Masonry Construction for Buildings.
- .3 CAN/CSA-A179-04 (R2014), Mortar and Grout for Unit Masonry.
- .4 CAN/CSA-A370-14, Connectors for Masonry.
- .5 CAN/CSA-A82-14, Fired Masonry Brick Made from Clay or Shale. Standards and Guidelines for the Conservation of Historic Places in Canada (2010).
- .6 ASTM-C5-10: Standard Specification for Quicklime for Structural Purposes.
- .7 ASTM-C144-11: Standard Specification for Aggregate for Masonry Mortar.
- .8 ASTM-C207-06 (2011): Standard Specification for Hydrated Lime for Masonry Purposes.
- .9 ASTM-C260 / C260M-10a: Standard Specification for Air-Entraining Admixtures for Concrete.
- .10 ASTM-C270-14a: Standard Specification for Mortar for Unit Masonry.
- .11 ASTM-C780-15: Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
- .12 ASTM-C1072-13e1: Standard Test Method for Measurement of Masonry Flexural Bond Strength.
- .13 CSA-A179-04 (R2014): Mortar and Grout for Unit Masonry.
- .14 CSA-A3000-13: Cementitious Materials Compendium (A3001 – A3005).
- .15 NPS Preservation Brief #2 – Repointing Mortar Joints in Historic Buildings.
- .16 Standards and Guidelines for the Conservation of Historic Places in Canada.

1.3 SUBMITTALS

- .1 Pre-Construction Photographs and Data:
 - .1 Submit all documented information regarding the existing tile finishes prior to performing removals. Allow the Consultant to review the documented information prior to performing the removals. Documented information shall include, but may not necessarily be limited to:
 - .1 Grout layout, style, colour, materials, spacing, thickness, etc.

- .2 Submit labelled samples of materials used on project for approval before work commences.
- .3 Submit mortar design mix, product literature and required ambient conditions.
- .4 Submit two (2) samples of each type and colour of mortar to be used. Each sample shall be installed on the masonry to be used in the Work. Samples to be sufficient size and quantity to allow review of colour range.
- .5 Submit mortar properties including:
 - .1 Mix proportions
 - .2 Compressive strength of mortar
 - .3 Mortar type

1.4 INSTALLER QUALIFICATIONS

- .1 Work of this Section shall be performed by a single masonry trade contractor with:
 - .1 a minimum of 5 years experience in historic masonry work, and
 - .2 a good level of understanding of structural behaviour of masonry walls.
- .2 Masons shall be journeymen and have:
 - .1 An Interprovincial Trade Certificate with 5 years minimum experience in historic stone masonry work, and
 - .2 proof of license or certification for propriety restoration mortars.
- .3 Obtain written approval from Consultant prior to changes of qualified personnel.

1.5 MOCK-UPS

- .1 Construct a mock up to show the following:
 - .1 Cut and cleaned mortar joint to required depth
 - .2 Filled and tooled joint
 - .3 Selected mortar colour
- .2 Mock up to be 1.0 m x 1.0 m area, for each masonry material, where directed by the Consultant, to demonstrate a full understanding of specified procedures, techniques and formulations before work commences.
- .3 Allow the Owner and Consultant to review mock-up before proceeding with repointing work.

- .4 When accepted by the Owner and Consultant, mock-up will demonstrate minimum standard for the work of this Section.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store, handle and protect materials in accordance with written Manufacturer's Instructions.
- .2 Store cementitious materials and aggregates in accordance with CSA-A23.1.
- .3 Keep material dry. Protect from weather, freezing and contamination. Store above ground on raised platforms.
- .4 When temperature is 10°C or less: Store cements and sands for immediate use within heated enclosure.
- .5 Ensure that manufacturer's labels and seals are intact upon delivery.
- .6 Remove rejected and/or contaminated material from site.

2.0 PRODUCTS

2.1 MORTAR

- .1 Sand: to ASTM-C144. Passing a 1.18mm sieve.
- .2 Water: clean and potable
- .3 Lime:
 - .1 Processed Lime (Quicklime): to ASTM-C5.
 - .2 Hydrated lime: ASTM-C207.
- .4 Portland cement: CAN/CSA-A5.
- .5 Masonry cement: CAN/CSA-A8.
- .6 White cement: use white silica sand and white Portland cement or white masonry cement.
- .7 Colour: metallic/ mineral pigments, coloured natural aggregates, and/or coloured sand to match existing colours.
- .8 Air entrainment: factory processed lime or cement with agents for air entrainment.

2.2 PRE-MIXED MORTAR

- .1 Type N: Compressive strength 3.5MPa to 7.5MPa.
- .2 Obtain written approval to use bag mix product from the Consultant before commencing the work.

2.3 MASONRY MORTAR

- .1 Mix masonry mortar with sand in proportion of 1:3 and with enough water to make as stiff as can be worked.
- .2 Mortar used shall match the existing mortar.
- .3 Discard mix not used and placed within 1.5 hours.
- .4 Colouring pigments: metallic oxide composition not exceeding 15 percent of weight of binder materials.

2.4 COLOURED MORTAR

- .1 Mortar Colour: Colour to match existing.
- .2 Maintain one mortar mixer exclusively for coloured mortar.
- .3 Allow mortar to set for the full curing period before subjecting to load.

2.5 BEDDING MORTAR

- .1 Dry Pack Mortar: Type N Portland Cement: 0 hydrated lime: 4 sand

2.6 ADMIXTURES

- .1 Do not use admixtures.

3.0 EXECUTION

3.1 EXAMINATION

- .1 Investigate possible structural problems and report to Consultant before beginning work.
- .2 Study existing pointing styles and methods of reproducing them, and submit sample for approval before starting work.

- .3 Examine horizontal and vertical joints to determine which were struck first and whether they are same style, as well as other aspects of workmanship that establish authenticity of original work.
- .4 Examine joints visually for obvious signs of deteriorated masonry.
- .5 Immediately report to Consultant evidence of moisture damage or structural distress and stop work in that area.

3.2 WORK IN COLD OR HOT AMBIENT CONDITIONS

- .1 Comply with the more stringent requirements of CSA-A371 and the pre-mixed mortar manufacturer.
- .2 Protect freshly laid masonry from drying too rapidly, by means of waterproof, non-staining coverings.
- .3 Maintain dry beds for masonry and use dry masonry units only. Do not wet masonry units in winter.
- .4 For masonry work which will be done below 5°C, measure temperatures of masonry material prior to use; maintain temperatures as close as possible for mortar batches; ensure mortar temperature on mortar boards does not exceed 50°C; use dry masonry units; lay masonry on unfrozen surfaces free from snow and ice; use windbreaks when laying masonry not protected by enclosures; provide a high-low registering thermometer where directed on site.
- .5 When mean air temperature will, over a 24 hour period, go below 5°C but not below 0°C, conduct masonry work as for normal temperatures except heat water or sand to produce mortar temperatures between 5°C and 50°C. Protect entire constructed masonry by enclosing within weatherproof membrane for 72 hours.
- .6 When mean air temperature will, over a 24 hour period, go below 0°C but not below -4°C, conduct masonry work as for normal temperatures except heat water and sand to produce mortar temperatures between 5°C and 50°C and maintain temperature of mortar boards above 0°C. Protect entire constructed masonry by enclosing within weatherproof membrane for 7 days and maintain air temperature within enclosure at minimum 10°C.
- .7 When mean air temperature is below -4°C, conduct laying of masonry in enclosures heated to maintain air temperature above 0°C. Conduct masonry work as for normal temperatures except heat water and sand to produce mortar temperatures between 5°C and 50°C and heat units if necessary so that temperature of units at time of laying is minimum 7°C. Maintain enclosure in position for 7 days and maintain air temperature within enclosure at minimum 10°C.

- .8 When mean air temperature will, over a 24 hour period, go above 38°C (or 32°C with a 3.6 m/s wind), maintain mortar and grout at a temperature between 21°C and 49°C and limit spread of mortar bed to 1.22m (4 ft.). Place units within one (1) minute of spreading mortar. Provide shade and air breaks as required.

3.3 MIXING

- .1 Prepare mortar by: mixing dry materials; add water; mix whole measures, or per manufacturers' instructions.
- .2 Mix mortar ingredients in quantities for use in 1.5 hours.
- .3 Use manual mixing provided quantities of materials and water are accurately controlled and the method of mixing is approved by the Consultant.
- .4 Operate power driven mixer when fully charged.
- .5 Add water slowly while mixing until all lumps are eliminated.

3.4 MORTAR STRENGTH TOLERANCES

- .1 Mortar compression strength: Mortar strength shall not exceed 25% of stone strength.
- .2 If mortar fails to meet the 7 day compressive strength requirement, but its strength at 7 days exceeds two thirds of the value required for the 7 day strength, the Contractor may elect to continue work at its own risk whilst awaiting the results of the 28 day tests, or take down the work affected.

3.5 RAKING JOINTS

- .1 Use manual raking tool to remove deteriorated mortar a minimum of 19 mm to a maximum of 150mm leaving square corners and a flat surface at back of cut. Clean out voids and cavities encountered.
- .2 Ensure that no masonry is chipped, altered, or damaged by work to remove mortar. Repair or replace masonry damaged during removals at no additional cost to the Owner. The Consultant will review damage and direct repair or replacement.
- .3 Notify Consultant if mortar is unsound past the raking depth.
- .4 Clean surfaces of joints with non-ferrous brush or compressed air without damaging texture of exposed joints or masonry units.

- .5 Flush open joints and voids. Clean open joints and voids with low pressure water and, if not free draining, blow clean with compressed air.
- .6 Leave no standing water.

3.6 REPOINTING

- .1 Dampen joints prior to repointing.
- .2 Keep masonry damp while pointing is being performed.
- .3 Completely fill joint with mortar. If surface of masonry units has worn rounded edges keep pointing back from surface to keep same width of joint. Avoid feather edges. Pack mortar solidly into voids and joints.
- .4 Tool and compact using jointing tool to force mortar into joint.
- .5 Build-up pointing in layers not exceeding 12mm in depth. Allow bottom layers to set before applying subsequent layers. Maintain joint width.
- .6 Tool joints to match existing profile. Use suitable jointing tool to form compacted tooled joints.
- .7 Remove excess mortar from masonry face before it sets. Finish jointing neatly to specified profile.

3.7 FIELD QUALITY CONTROL

- .1 Use batching box.
- .2 Monitor mixing time.

3.8 CLEANING

- .1 Clean surfaces of mortar droppings stains and other blemishes resulting from Work, with natural bristle brush, clean sponge and water after initial set.
- .2 Do not smear wet mortar.
- .3 Review with Consultant prior to using other cleaning methods for persistent stains.

3.9 PROTECTION

- .1 Protect adjacent finished work against damage that may be caused by the work of this Section.

- .2 At end of each working day, cover unprotected work with waterproof tarps. Extend tarps to 0.5 m over surface area of work and install tightly to prevent finished work from drying out too rapidly and to prevent weather from eroding recently installed material.
- .3 Install and maintain wetted burlap protection during the curing process:
 - .1 Minimum of 7 days in summer.
 - .2 Minimum of 15 days in cold weather conditions using dry heated enclosures.
- .4 Wet mist burlap only. Ensure no direct spray reaches surface of curing mortar.
- .5 Shade areas of work from direct sunlight during periods over 25°C and maintain constant dampness of burlap.
- .6 Maintain ambient temperature of 10°C for minimum of 15 days after installing new mortar.
- .7 No exhaust products shall enter the curing area.

END OF SECTION

1.0 GENERAL

1.1 SECTION INCLUDES

- .1 Provide all labour, materials, equipment, supervision, and services necessary to remove and replace damaged and deteriorated stone units with new stone units, matching existing style, colours, etc., at the parapet and retaining walls, where directed by the Consultant and as outlined in this Section.
- .2 Provide all labour, materials, equipment, supervision, and services necessary to detail, furnish, and install support, anchorage, and connection devices and coordinate size and configuration with other elements of the work.

1.2 MEASUREMENT AND PAYMENT

- .1 Measurement for payment for this work shall be on a per stone basis and shall include costs associated with supplying materials, repointing, and executing work as described herein.
- .2 Damaged and deteriorated stones shall be identified and quantified by the Consultant prior to commencing removals. No additional units will be added to the replacement quantity following initial identification by the Consultant. Additional stone units shall be added to the quantity at the discretion of the Consultant.

1.3 REFERENCES

- .1 ASTM C97 / C97M-15, Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone.
- .2 ASTM C170 / C170M-15a, Standard Test Method for Compressive Strength of Dimension Stone.
- .3 ASTM C503 / C503M-10, Standard Specification for Marble Dimension Stone.
- .4 ASTM C568 / C568M-10, Standard Specification for Limestone Dimension Stone.
- .5 ASTM C615 / C615M-11, Standard Specification for Granite Dimension Stone.
- .6 ASTM C616 / C616M-10, Standard Specification for Quartz-Based Dimension Stone.
- .7 CAN/CSA A179-04 (R2014), Mortar and Grout for Unit Masonry.
- .8 Parks Canada Standards and Guidelines for the Conservation of Historic Places in Canada (2010).
- .9 SCAQMD, California State, Rule 1168-05, Adhesives and Sealants Applications.

1.4 DEFINITIONS

- .1 The following terms have the meanings indicated when used in this Section:
 - .1 Lewis: Instrument inserted at top of stone as means of attachment in raising and lowering. Holds stone by means of keys or wedges fitted to dovetailed recess.
 - .2 Dogs: Metal appliance for securing parts or members together by means of one or more projecting teeth or bent portions, lug, cramp.

1.5 SUBMITTALS

- .1 Submit shop drawings stamped and signed by professional engineer licensed to practice structural engineering in the Place of the Work and experienced in the design of historic building systems. Shop drawings shall describe method of stone removal, stone securement, and temporary shoring and bracing systems required to facilitate the work.
- .2 Provide samples of replacement stones prior to commencing removals/dismantling. Do not commence removals until samples are approved by the Consultant and Owner. Deliver to site to allow the Consultant and Owner to review.
- .3 Submit samples of replacement stones from quarry supplying original stone (if available) and quarry having similar stone as original quarry as follows:
 - .1 One: sized and dressed to match existing stone units.
 - .2 Select samples from currently worked bed of quarry and accompanied by quarry certification.
- .4 Submit sample of used or previously quarried or salvaged stone. Submit one stone, sized and dressed to match existing stone units. Make stone supply accessible to Owner and Consultant. Consultant will select number of stones for sampling and request sizing and dressing according to requirements.
- .5 Submit samples of stone as follows:
 - .1 One (1) stone matching each condition of deteriorated or damaged stone marked for replacement, sized and dressed to match existing stone units.
 - .2 Submit certification of contents.
- .6 Submit mortar samples in quantity and size specified in CAN/CSA A179.

- .7 Submit maintenance data for masonry work.

1.6 QUALITY ASSURANCE

- .1 Allow Owner and Consultant access to mason's workshop for review of current work-in-progress.
- .2 Execute work with personnel experienced in preservation of historic masonry.
- .3 Masons shall have minimum of 5 years experience with historic masonry.
- .4 Owner and/or Consultant may reject masons who do not demonstrate appropriate abilities or experience.
- .5 Masons shall attend an on-site pre-installation conference with the Consultant.
- .6 Where masons leave work force, replacement masons shall also meet specified requirements.

1.7 MOCK-UPS

- .1 Field-erect an in-situ sample of work complete with specified materials and workmanship. Complete mock-up of stone replacement to confirm method of installation and to establish the acceptable quality of workmanship.
- .2 Construct Mock-up to be minimum of 1 m².
- .3 Use both existing and replacement stonework when constructing job mock-up, where replacement stone is required.
- .4 Construct mock-up where directed by Consultant.
- .5 Allow the Consultant and Owner to review the mock-up before proceeding with stonework.
- .6 When accepted by Owner and Consultant, mock-up will demonstrate minimum standard for the work of this Section.
- .7 Mock-up may remain mock as part of finished work.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Limestone: to ASTM C568, colour and texture shall match Consultant approved sample.
- .2 Sandstone: to ASTM C616, colour and texture shall match Consultant approved sample.
- .3 Granite: to ASTM C615, colour and texture shall match Consultant approved sample.
- .4 Marble: to ASTM C503, colour and texture shall match Consultant approved sample.
- .5 Andesite: A fine-grained volcanic stone from Haddington Island, BC, with a very uniform, minutely crystalline (0.1 mm and less), grey groundmass, composed of about 80-85% plagioclase (type of white-coloured feldspar) and minor quartz, biotite (brown-black mica) and magnetite (mineral containing iron oxide).
- .6 Field stone: angularly and/or round shaped, granite field stone of full colour range with maximum single stone face of 0.2 m² and predominance of stones measuring not less than 300 mm across.

2.2 ANCHORS, TIES, SEALANTS

- .1 Anchors, cramps, dowels: stainless steel type 304 or 316.
- .2 Sealants: Spectrum 1 by Tremco Inc.

2.3 MORTAR

- .1 Mortar: Refer to Section 04 01 25 – Historic Masonry Repointing.

3.0 EXECUTION

3.1 EXAMINATION

- .1 Report, in writing, to the Consultant areas of deteriorated masonry not previously identified prior to performing removals.

- .2 The Contractor and Consultant shall identify and mark areas for replacement.
- .3 The Contractor shall commence with replacement of deterioration and damaged stone units upon receipt of approval by the Consultant in writing.

3.2 PREPARATION

- .1 Weather (seasoned or aged) stone for six months or time specified by the Consultant. Prevent absorption of ground water and water accumulation on stone. Rest stones in their natural bedding during weathering.
- .2 Move and lift stone units using means to prevent damage. Submit stone units dropped or impacted to Consultant for review and approval prior to use. Do not make holes or indentations for Lewises or dogs on face or top side of stone.
- .3 Identify bedding planes of stone units. Duplicate bedding marks and maintain pattern on usable pieces of cut stone with adjacent stone.
- .4 Provide shoring and bracing in accordance with shop drawings.

3.3 STONE REMOVAL

- .1 Rake out mortar joints of stones to be removed.
- .2 Create relief cuts in the stone to be removed.
- .3 Remove stone using least damaging means practical. Do not pry against adjacent stones.
- .4 Clean dust, mortar and stone fragments from slot.

3.4 CUTTING/SIZING OF STONE

- .1 Use calipers, squares and levels to measure hole for new stone. Allow for mortar joint thicknesses to match existing.
- .2 Provide 1:10 slope on top face of stone unit where horizontally projecting from the building, sloping down to front face.

3.5 MOVING STONES

- .1 Use Lewises and dogs as required to lift stones to working level.
- .2 Slide stones into place on wood ramps if required.

- .3 Protect edges and face of stone from damage when hoisting and lifting from position. Use separators or wood shims to isolate units from hoisting belts.
- .4 Incorporate only undamaged stone in Work.

3.6 INSERTING REPLACEMENT STONE

- .1 Clean stone by washing with water and natural fibre brush before laying.
- .2 Dampen surfaces of slot and apply bedding mortar.
- .3 Where shims are necessary to level, install plastic shims that are of sufficient size to not contribute to point loading.
- .4 Lay heavy stones and projecting stones after mortar in courses below has hardened sufficiently to support weight.
- .5 Prop and anchor projecting stones until wall above is set.
- .6 Set large stones on water soaked softwood wedges to support stone in proper alignment until mortar has set. Remove wedges when dry. Do not break off.
- .7 Do not smear mortar onto stone face.
- .8 Install non-corrosive anchors, dowels and cramps.
- .9 Set stones to match existing layout, and completely bed and head joints. Completely fill anchor, dowel and lifting holes and voids.

3.7 FILLING JOINTS/POINTING

- .1 Fill joints and point in accordance with Section 04 01 25 - Historic - Masonry Repointing.

3.8 STONE SCHEDULE

- .1 To match existing.

3.9 REPOINTING

- .1 Refer to Section 04 01 26 – Historic – Masonry Repointing.

3.10 CLEANING

- .1 Clean stone work surfaces after repairs have been completed and mortar has set.
- .2 Clean stone surfaces of adhesive or mortar residue resulting from work performed without damaging stone or joints.
- .3 Remove drypack mortar by brushing off.
- .4 Remove pointing mortar, once initially set approximately 1-2 hours, with stiff bristle brush

3.11 PROTECTION

- .1 Cover top of completed and partially completed wall, not enclosed or sheltered, with weatherproof coverings at end of each working day. Drape cover over wall and extend 0.5 m down both sides. Anchor securely in position.
- .2 Prevent finished work from curing too quickly.
- .3 Protect adjacent work from marking or damage due to work of this Section.
- .4 Provide temporary bracing of masonry work during erection until permanent structure provides adequate bracing.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to dismantle the existing stone parapet and retaining walls as outlined in this Section.

1.2 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 – Material and Equipment.
- .2 Protect and store stones to facilitate their resetting.
 - .1 Store dismantled masonry units on wood platforms, protected from exposure to water, elements, and potential mechanical damage fully covered under polyethylene.
 - .2 Submit storage and identification system to Consultant for review and approval prior to commencing dismantling.
- .3 Waste Management and Disposal:
 - .1 Refer to Section 01 74 00 – Waste Removal and Cleaning.

1.3 SEQUENCING

- .1 Mark following:
 - .1 Stones and other elements or components to show identity and position.
 - .2 Wood platforms or other equipment used to transport and store stones.
 - .3 Work and storage areas.
 - .4 Location from which stones are removed on drawings, photographs, chart, card-index, or other means.
- .2 Prepare chart or card-index to help locate any stone or unit when necessary, and to control availability of platforms and of work and storage areas.
- .3 Keep chart or card-index up-to-date and, if required, produce copy every day.

- .4 Submit up-to-date copies of chart or card-index, as well as chronological information concerning each numbered unit (individual cards of units), when requested.

2.0 PRODUCTS

2.1 NOT USED

- .1 Not Used.

3.0 EXECUTION

3.1 EXAMINATION

- .1 Examine stone masonry, staging and storage areas prior to commencing the Work.

3.2 SITE VERIFICATION OF CONDITIONS

- .1 Report in writing, to the Consultant areas of deteriorated stone. Obtain Consultant's approval and instructions for repair of stone before proceeding.

3.3 PREPARATION

- .1 Remove stones by hand tools.
- .2 Obtain the Consultant's approval for alternative methodology and tools to be employed before commencing the work.
- .3 Clean stone surface of dust and stone chips.

3.4 PROTECTION

- .1 Prevent damage to existing structure, finishes, landscaping features, etc. which are to remain. Make good damage to the satisfaction of the Consultant at no additional cost to the Contract.
- .2 Protect surrounding components from damage during work.
- .3 Make good damage to historic fabric.
- .4 Obtain the Consultant's approval for repair methodology.

3.5 TEMPORARY MARKING AND RECORDING

- .1 Mark stone, on face, before removal using marking product which can be completely erased when required without damaging masonry unit:
 - .1 Ball-point pen on diachylon, attached to stone.
 - .2 Waxless chalk directly on stone.
- .2 Photographically record stonework to be dismantled and rebuilt.
- .3 Ensure that temporary marking will remain in use resistant to weather, handling and cleaning until final marking of stones.
- .4 Ensure that markings and adhesive are removed without damaging units by brushing with vegetable fibre brush used either dry or with water. Use no solvent, acid or other chemical product.

3.6 SUPPORT

- .1 Construct shoring and cradling, and other temporary framing work needed to support structure, or parts of it, during removal operations, according to approved shoring and bracing shop drawings, bearing seal and signature of qualified Professional Engineer familiar with historic masonry structures and licensed to practice in Ontario.

3.7 LOOSENING STONES

- .1 Use approved methods to loosen stones which will cause no damage either to stones or to other architectural elements.
- .2 Use hand tools only. Obtain Consultant's approval for use of power tools before commencing work.

3.8 SPECIAL TECHNIQUES

- .1 Avoid damaging arris of stone when removing mortar and freeing up.
- .2 Use wood wedges where required to remove or dislocate stone.
 - .1 Use flat pry bars protected with impact absorbing protection (burlap, cardboard).
- .3 Use nylon hoisting belts. Use at least 2 belts per stone.

- .4 Avoid damaging edges of stone by protecting when hoisting and lifting from position. Use separators or wood shims to isolate units from hoisting belts.
 - .1 Where damage occurs, review with Consultant. Replace damaged stone where directed by the Consultant in accordance with Section 04 03 42 - Historic - Replacement of Stone.

3.9 HANDLING

- .1 Place detached stones on wood surfaces during handling. Prevent contact with metal.
- .2 When stones are lowered to ground, place directly on wooden platform that will be used for transport or storage.
- .3 Transport and keep stones on wooden platforms.
- .4 Ensure that sharp edges of stones do not come into contact with any hard object.

3.10 TEMPORARY STORAGE STAGING AREA

- .1 Place stones in designated area of site for cleaning, detailed inspection and for final marking, before storage.
- .2 Stones to be accessible and retrievable when required.

3.11 CLEANING

- .1 Do cleaning operations at above freezing temperature. After cleaning, protect wet stones against freezing until dry.
- .2 Clean stones by wet scrubbing with vegetable fibre brush unless otherwise instructed by the Consultant.
- .3 Remove excess mortar by using hand tools and scrubbing.

3.12 FINAL MARKING

- .1 Do final marking after cleaning, on surface that supports good adhesion and legibility and will not be visible after resetting.
- .2 Do marking in colour and dimensions to be legible from distance of 2 m.

- .3 Ensure that product used will not affect mortar to stone adhesion when resetting.
- .4 Ensure that product used for marking will survive storage until resetting of stone. Storage time may last several years and another cleaning may become necessary before resetting.

3.13 PRELIMINARY WORK BEFORE RESETTING

- .1 Construct new reinforced concrete foundation for new parapet and retaining walls prior to commencement of stone reinstatement work, as indicated on the Drawings and described in Section 03 01 30 – Concrete Restoration.
- .2 Locally replace damaged and deteriorated stones with new, to match existing conditions, prior to performing full reinstatement of stone at parapet and retaining walls. Refer to Section 04 03 42 – Historic - Replacement of Stone.
- .3 Confirm all requirements to match pre-existing conditions at parapet and retaining walls, including but not limited to stone layout, mortar joint style and colour, cap stone installation and positioning, etc.

3.14 FINAL STORAGE

- .1 When stones are placed under shelter, shelter must be adequately ventilated and designed to keep condensation formed on the internal surfaces of shelter.
- .2 Layout storage so that each stone will have faces visible, and be accessible or removable without having to move adjacent stones.
- .3 Show layout of stones to be stored on record drawing and submit copy to the Consultant.
- .4 Store rubble stone in a wood box.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to prepare the foundation wall and footing surfaces, detail all cracks and joints, patch perimeters and all voids, and install a new cold applied waterproofing system as shown on the Drawings and indicated in the Specifications.

1.2 REFERENCE STANDARDS

- | | | |
|----|---------------------|---|
| .1 | CAN/CGSB-37.29-M89 | Rubber-Asphalt Sealing Compound |
| .2 | CGSB 37-GP-9Ma | Standard for: Primer, Asphalt, Unfilled, for Asphalt Roofing, Damp Proofing, and Waterproofing |
| .3 | CGSB 37-GP-15M | Application of Asphalt Primer for Asphalt Roofing, Damp Proofing and Waterproofing |
| .4 | ASTM D4263-83 | Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method |
| .5 | ASTM 836 | Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course |
| .6 | ASTM E96 (Method B) | Standard Test Methods for Water Vapor Transmission of Materials |
| .7 | ICC-ES AC29 | Acceptance Criteria For Cold, Liquid Applied, Below Grade, Exterior Damp-proofing and Waterproofing Material |

1.3 SITE EXAMINATION

- .1 Prior to submitting a bid, arrange for a visit to site by the waterproofing manufacturer's technical representative to analyze site conditions and confirm procedures to be followed.
- .2 Bidders shall visit the Site and examine the surfaces to receive membrane. Rough surfaces may require additional surface preparation after cleaning. Bid shall include all costs of surface preparation and patching of rough surfaces. No extras for surface preparation or additional material will be entertained after bid closing.
- .3 If desired, bidders may excavate and remove sections of the existing waterproofing materials in order to evaluate surface roughness. Bidders must agree to accept existing surface condition at time of bid.

1.4 SUBMITTALS

- .1 Submit manufacturers product data sheets, shop drawings and/or catalogue illustrations identifying details of waterproofing system which have not already been indicated in these documents including installation specifications, material thicknesses, details at joints, cracks, upstands, walls, drains, and termination points to the Consultant for review prior to starting work.
- .2 Submit installation procedures to the Consultant for review prior to starting work including surface preparation requirements.
- .3 Submit with Bid a description of the products to be used to patch rough surfaces suitable for membrane application.
- .4 Provide a certificate from the system manufacturer confirming the following:
 - .1 A minimum of 7,500 m² (82,000 sq. ft.) of the system has been installed on structures of similar climate and exposures and has performed satisfactorily. Provide to Consultant a list of similar completed waterproofing applications for verification of “satisfactory performance”.
 - .2 The system will meet the warranty requirements as specified in this section.
 - .3 Waterproofing system Applicator is presently a licensed Applicator of the waterproofing system.
 - .4 The Applicator has a minimum of three (3) years of directly applicable waterproofing installation experience, or has installed a minimum of 5,000 m² (55,000 sq. ft.) of the specified waterproofing system.
- .5 Provide a certificate signed by the Applicator and system manufacturer certifying the following:
 - .1 Surfaces to receive waterproofing systems were inspected and found to be satisfactory to receive the waterproofing system in accordance with the manufacturer’s requirements.
 - .2 Waterproofing system was applied in accordance with manufacturer’s recommendations.
 - .3 Completed waterproofing system conforms to system described.
 - .4 Additional or supplemental cold applied waterproofing requirements by RJC can be completed without compromising the system or its warranty.

- .6 Any existing conditions, not specified, which may adversely affect the bonding, or performance of the membrane shall be brought to the attention of the Consultant, in writing, for resolution prior to installation of membrane. Application of waterproofing shall imply acceptance of surfaces.
- .7 Confirm in writing the compatibility of the proposed waterproofing system with the existing waterproofing prior to application.
- .8 Provide three (3) copies of maintenance instructions for finished surfaces prior to Substantial Performance.

1.5 ENVIRONMENTAL REQUIREMENTS

- .1 Do not install waterproofing system when ambient air temperature or substrate temperature is less than that specified in manufacturer's specifications.
 - .1 If this temperature is not reached, installation of temporary heaters is required.
- .2 Maintain air temperatures and substrate temperature at installation area in accordance with manufacturer's specifications.
- .3 Protect materials from moisture damage or contamination until adequately cured.
- .4 Meet the requirements of the Occupational Health and Safety Act of the Province of Ontario.
- .5 During application of waterproofing system, the area must be well ventilated such that odours from the waterproofing system do not disturb users of the site and building.
 - .1 Contractor to provide forced air circulation during installation period for enclosed applications.

1.6 PERFORMANCE REQUIREMENTS

- .1 The waterproof membrane system is comprised of a fluid applied waterproofing membrane specially formulated and installed to provide a monolithic and fully bonded waterproof protective coating. The design properties and installation thicknesses of the membrane are inter-related for proper performance. The performance requirements and warranty / guaranty requirements apply to the total system and are the responsibility of the waterproofing system applicator and manufacturer.
- .2 The waterproofing system shall satisfy the following requirements for the duration of the warranty:

- .1 The system shall be totally waterproof, flexible and thermally compatible with the substrate under applicable service conditions.
- .2 The system shall not allow moisture penetration at termination details, drains, upturns, splices, joints, cracks, etc.
- .3 The system shall be free of visible pinholes or blisters.
- .4 The system shall exhibit zero chloride permeability.
- .5 The system shall withstand active cyclical crack movements to a maximum of 1.5 mm and remain waterproof. In locations where cracks have been reinforced with rubber sheets they shall withstand movements to a maximum of 3 mm and remain waterproof. Membrane shall comply with crack bridging requirements of CGSB-37-GP-50-M89.
- .6 The membrane, primer or surface patching shall fully adhere to the concrete substrate (adhesion).
- .7 All layers of the system cohesively bonded to each other (cohesion).
- .8 The system shall not debond or crack.
- .9 The waterproofing system shall not blister, swell, crack, delaminate, disintegrate, compress or stretch unduly:
 - .1 When subjected to long term weight
 - .2 When subjected to temperature ranges from winter to summer.
 - .3 When exposed to ultra violet or any other sun's rays

2.0 PRODUCTS

2.1 WATERPROOFING MEMBRANE

- .1 Cold fluid applied elastomeric waterproofing membrane system designed for concealed building components subject to hydrostatic head that is polyurethane, coal-tar free and complies with ASTM C 836:
 - .1 TREMproof 250 GC spray-applied waterproofing membrane (with or without co-spray) as manufactured by Tremco Commercial Sealants and Waterproofing or approved equivalent. Vertical applications only

- .2 Colphene LM 300 spray, brush or trowel applied as manufactured by Soprema Canada.
- .3 MasterSeal HLM 5000 as manufactured by BASF.
- .2 For application to green concrete surface or surface-dry-but-damp concrete surfaces, acceptable product:
 - .1 TREMproof 250 GC rapid-curing, high solids, VOC compliant, modified polyurethane waterproofing membrane. One-part moisture curing elastomer (viscosities: Self-Leveling, Roller and Trowel) as manufactured by Tremco Commercial Sealants and Waterproofing or approved equivalent.

2.2 ACCESSORIES

- .1 Primer: As recommended by waterproofing membrane system manufacturer
- .2 Joint backing: Closed-cell, polyethylene rod as recommended by membrane manufacturer;
- .3 Reinforcing fabric: Woven fiberglass scrim cloth;
- .4 Elastomeric sheet flashing: 1/16 inch thick by 12 inch wide uncured neoprene sheeting
- .5 Elastomeric transition flashing to above-grade: polyurethane liquid-applied coating system with ultraviolet protective topcoat. Acceptable product:
 - .1 Tremco 801
 - .2 Approved equivalent.
- .6 Joint Treatment Acceptable product:
 - .1 Dymeric 240FC; Tremco Inc.
 - .2 TREMproof 201/60T; Tremco Inc.
 - .3 TREMproof 250GCT; Tremco Inc.
 - .4 Colphene LM 300; Soprema Canada.
 - .5 Approved equivalent.
- .7 Protection course: As recommended by waterproofing membrane manufacturer:
 - .1 Acceptable products:
 - .1 40-mil HDPE Root barrier; Tremco Inc.

- .2 Sopraboard; Soprema Canada
- .3 Approved equivalent

- .8 Prefabricated Composite Drainage: Two-part prefabricated composite drainage material consisting of a formed polystyrene core covered on one side with filter fabric.
 - .1 For backfilled walls less than 20 feet in height, a composite drainage mat with non-woven polypropylene filter fabric, 9 gpm/ft. flow capacity per unit width and 10,800 lbs/ft² compressive strength. Acceptable product:
 - .1 Tremdrain 1000; Tremco Inc.
 - .2 Sopradrain 10G; Soprema Canada
 - .3 Approved equivalent

2.3 SURFACE PATCH MATERIALS

- .1 Products used to patch rough surfaces shall be 100% solids epoxy and shall contain no additives or fillers. Membrane material may be used to fill rough areas if approved by manufacturer. Alternate products may be suggested for approval but must be suitable for installation below cold applied waterproofing.
- .2 No extras will be entertained for surface preparation or additional membrane material after bid closing, unless the scope of work changes.

2.4 EQUIPMENT

- .1 Equipment weights and size shall be submitted to Consultant for approval prior to starting work and arrival on site.

2.5 ALUMINUM FASTENER BARS

- .1 All fastener bars to be aluminum ¼” x 1” (6mm x 25 mm) in size and fastened to wall and footing with ¼” x 2” long (6 mm x 50 mm) countersunk anchors at 18” (450 mm) centres and covered with an additional layer of membrane.

3.0 EXECUTION

3.1 SURFACE PREPARATION

- .1 All existing elements which may affect the installation of the waterproofing system shall be removed and re-installed as required for application of waterproofing unless otherwise noted on Drawings.

- .2 Ensure surfaces are smooth, dry, clean and free of ice and debris.
- .3 Preparation of horizontal and vertical surfaces to receive new waterproofing system is to be in strict accordance with the more stringent requirements of the membrane manufacturer's recommendations and these Contract Documents including the following: preparation and smoothing of rough surfaces, detailing of cracks, joints, and voids as required. No extras for surface preparation will be entertained after bid closing.
- .4 The minimum standard for preparation of surfaces for membrane application shall be abrasive blasting, including removal of existing paint and/or existing waterproofing membrane and coatings, hand patching voids or depressions in concrete surfaces and re-pointing masonry block wall joints as required. No extras shall be entertained for this item after the award of Contract. This applies to all foundation walls, columns, curbs, etc.
- .5 Remove all existing coatings and/or existing waterproofing membranes.
- .6 New concrete surfaces shall be allowed to air dry a minimum of 14 days after moist curing and not exhibit any condensation under plastic sheet test prior to the placement of the waterproof membrane.
- .7 No membrane shall be applied until the surface preparation has been reviewed by Consultant and inspected and accepted in writing by a representative of the system manufacturer.
- .8 Clean all surfaces to receive membrane system in accordance with manufacturer's instructions; vacuum clean or blow clean with oil-free compressed air all surfaces to receive sealants, detailing materials or membranes immediately prior to installation.
- .9 Ensure environmental and site conditions, as recommended by the membrane manufacturer, are suitable for installation of work of this section.
- .10 Commencement of work shall imply acceptance of the previously prepared concrete surfaces and assumption of full responsibility for the surfaces prepared to receive the primer and membrane.
- .11 Application procedures that result in toxic fumes or flammable solvent collecting or endangering workmen or building occupants are not permitted.
- .12 Repair adjacent paint and finishes damaged during installation to match existing.

3.2 DETAILING OF CRACKS AND JOINTS

- .1 Route, clean, prepare and detail surface cracks in accordance with manufacturer's instructions; install backer rod where required.
- .2 Install 1/4" diameter backer rod into corner of all horizontal-to-vertical junctures subject to movement and cover with 1" detail cant of approved sealant; install 1" detail cants at projections, curbs and other horizontal-to-vertical junctures.
- .3 Install detail coats, joint and crack treatments, elastomeric flashing and reinforcing fabric in accordance with manufacturer's instructions.
- .4 Allow detail applications to cure in accordance with manufacturer's instructions prior to general application of membrane.

3.3 MEMBRANE APPLICATION

- .1 Prime surfaces in accordance with manufacturer's instructions.
- .2 Prepare surfaces to assure proper coverage rates and verify membrane wet-film mil thickness with gauges as work progresses.
- .3 Retain empty product containers during course of work to aid in determining whether completed membrane complies with required average dry-film thickness.
- .4 Verify proper dry condition of substrate using method recommended by membrane system manufacturer; perform adhesion checks prior to general application of membrane system using field adhesion test method recommended by manufacturer.
- .5 Mask off adjoining surfaces not to receive membrane system.
- .6 Apply cold applied waterproofing system in two lifts evenly to provide a continuous coating. Refer to manufacturer's written instructions for wet film thickness.
- .7 Apply membrane uniformly and allow to cure in accordance with manufacturer's instructions.
- .8 Carry waterproof membrane up junction of horizontal and vertical surfaces as shown on the Drawings. Mask top of upturn to ensure neat straight finish to coating. All vertical surface irregularities to be patched prior to coating application.
- .9 Feather terminating edge when entire area cannot be completed in one day; clean area 6" wide along terminating edge of membrane with Xylene solvent on clean white rags

prior to start-up on next working day; use primer per manufacturer's instructions as needed; overlap existing work by 6" with new work.

- .10 Equipment used for the installation of the waterproof membrane material shall be approved for use by the waterproof membrane manufacturer.

3.4 PROTECTION BOARD / DRAINAGE BOARD INSTALLATION

- .1 Apply adhesive, tape or secure without fastening through the waterproofing membrane.

3.5 INSPECTION AND TESTING

- .1 Testing to be conducted by a testing agency designated by the Consultant. The Owner will pay costs of inspection and testing described in this section.
- .2 Contractor shall inform Consultant and designated testing agency 24 hours in advance of work to be performed under this section.
- .3 Prior to application of membrane, test of moisture content of concrete mass shall be made by taping down a 18" x 18" (450 mm x 450 mm) polyethylene sheet for a period of 16 hours minimum to detect evaporation from slab surface. Number of tests shall be designated by the membrane manufacturer, or Consultant, minimum number to be 1 test per 5000 sq. ft. Locations to be determined by Consultant.
- .4 To confirm membrane thickness, Consultant to perform cut tests. Number of tests to be 1 test per 550 sq. ft. of membrane minimum.
- .5 To evaluate bonding of membrane to substrate, and/ or interlayer bonding, pull off adhesion tests may be performed by the Consultant or the Designated Testing Agency at the discretion of Consultant.
- .6 Additional tests may be performed at the discretion of the Consultant.
- .7 Contractor to repair waterproofing system at test locations at no extra cost.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and services necessary to prepare all surfaces, detail all cracks and joints, patch all voids, grind rough surfaces smooth, and install a new crystalline waterproofing system at areas designated on the Drawings.

1.2 SITE EXAMINATION

- .1 Bidders shall visit the Place of the Work and review the wall surfaces to receive crystalline waterproofing. Rough surfaces may require additional surface preparation.
- .2 Bid shall include all costs of preparation and patching of rough surfaces. No extras for surface preparation or additional material will be entertained after bid closing.

1.3 REFERENCES

- .1 ASTM C109/C109M-16A: Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2-in or 50-mm cube specimens).
- .2 ASTM C321-00 (2012): Standard Test Method for Bond Strength of Chemical-Resistant Mortars.
- .3 ASTM C348-14: Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars.
- .4 ASTM C452-15: Standard Test Method for Potential Expansion of Portland-Cement Mortars Exposed to Sulfate.
- .5 ASTM C596-09 (2017): Standard Test Method for Drying Shrinkage of Mortar Containing Hydraulic Cement.
- .6 ASTM C944/944M-12: Standard Test Method for Abrasion Resistance of Concrete or Mortar Surfaces by the Rotating-Cutter Method.
- .7 NSF 61-2016: Drinking Water System Components - Health Effects (Includes Amendment)
- .8 AASHTO T-259-02 (2017): Method of Test for Resistance of Concrete to Chloride Ion Penetration (90 day ponding test).

1.4 SUBMITTALS

- .1 Provide Safety Data Sheets (SDS) for each Product.
- .2 Contractor shall submit non-typical waterproofing system details for conditions not accommodated for in the Contract Documents.

- .3 Contractor shall submit manufacturer's product data and specifications for each product utilized in the waterproofing system installation, including:
 - .1 Laboratory test or data that validates product compliance with the specified performance criteria.
 - .2 Test reports with magnified photos that demonstrate crystal growth within the concrete.
 - .3 Test reports that demonstrate the product's capability to seal cracks up to 0.3 mm that appear after the application.
- .4 Contractor to submit manufacturer's written certification that the proposed system, as specified and detailed, fully complies with specified performance requirements.
- .5 Contractor is to submit installation procedures to the Consultant for review prior to starting work, including slab preparation requirements.
- .6 The crystalline waterproofing applicator shall submit certificates confirming the following:
 - .1 Crystalline waterproofing applicator is presently a licensed applicator of the crystalline waterproofing system.
 - .2 The applicator has a minimum experience of at least 5 projects of similar nature in past 5 years.
 - .3 The applicator has undergone training provided by product manufacturer.
 - .4 The system will meet the performance requirements specified in this section for the duration of the warranty.
- .7 Contractor to submit certificate signed by the Contractor and waterproofing system manufacturer certifying the following:
 - .1 Surfaces to receive systems were acceptable and found to be satisfactory to receive the waterproofing system, per the manufacturer's requirements and these Specifications. Application of waterproofing shall imply acceptance of surfaces.
 - .2 Crystalline waterproofing was applied in accordance with manufacturer's recommendations and these Specifications.
 - .3 Completed waterproofing system conforms to system described herein.

- .8 Any existing conditions that may adversely affect the bonding or performance of the coating shall be brought to the attention of the Consultant, in writing, for resolution prior to installation of the coating.
- .9 Contractor shall provide electronic copies of maintenance instructions for finished surfaces prior to Substantial Performance of the Work.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver Products to the Place of the Work and store off the ground under appropriate cover to protect against moisture in accordance with manufacturer's instructions.
- .2 Deliver Products in manufacturer's unopened containers fully identified with brand, type, grade, class, and all other qualifying information.

1.6 ENVIRONMENTAL CONDITIONS

- .1 Do not install coating when ambient air temperature or substrate temperature is less than 5° Celsius. Install temporary heaters to maintain installation temperatures when required.
- .2 Maintain substrate base and ambient air temperatures above 5° Celsius for a minimum of 48 hours prior to, during, and 72 hours after installation. Maintain temperatures for a longer period if required to ensure materials adequately cure.
- .3 Do not apply products to frozen or frost filled surfaces.
- .4 Exercise caution when concrete surface temperatures are high. Delay waterproofing system installation, or cool installation areas, if required to meet manufacturer's requirements for application of materials.
- .5 Protect installed materials from moisture damage or dust contamination until adequately cured.
- .6 All working conditions shall meet the requirements of the Ontario Occupational Health and Safety Act.

2.0 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- .1 Crystalline waterproofing to be a blend of rapid-hardening Portland cement, specially treated quartz sand, and a compound of active chemicals.

- .2 The waterproofing system is to provide the following performance characteristics:
 - .1 Potable water certification in accordance with NSF 61-2016.
 - .2 Permeability: 0.00 cm/sec permeability at 1.5 MPa or 148 m over 20 days testing period on negative side.
 - .3 Compressive strength when measured in accordance with ASTM C109/C109M-16A: 70.3 MPa at 28 days.
 - .4 Flexural strength when measured in accordance with ASTM C348-14: 5 MPa at 28 days.
 - .5 Bond strength when measured in accordance with ASTM C321-00 (2012): 4.7 MPa at 14 days.
 - .6 Abrasion resistance when measured in accordance with ASTM C944/944M-12: 1.28 g.
 - .7 Sulphate resistance when measured in accordance with ASTM C452-15: 0.0012 % at 28 days.
 - .8 Chloride ion penetration when measured in accordance with AASHTO T-259-02 (2017): 99.99 % resistant at 6 mm, 100 % at 25 mm depth.
 - .9 Bond of reinforcement when measured in accordance with ASTM C321-00 (2012): No loss of bond due to waterproofing material.
 - .10 The system shall be totally waterproof and thermally compatible with the substrate under applicable service conditions.
 - .11 The system shall not allow moisture penetration at termination details.
 - .12 Adhesion of the coating, primer, and surface patching material to the concrete substrate shall meet or exceed 1.0 MPa.
 - .13 The system shall not debond or crack excessively.
 - .14 The waterproofing system is to be free of leaks and defects for the duration of the warranty period, with exception of structural crack locations that are 0.3 mm wide or wider.

2.2 MATERIAL

- .1 Approved Crystalline Waterproofing Systems are:
 - .1 Permaquik 200 Crystalline Waterproofing manufactured by Tremco.
 - .2 MasterSeal 500 as manufactured by BASF.
- .2 Water to be potable, clean, clear, non-alkaline, and free of salts and other harmful elements.
- .3 Patching compounds used to repair surface imperfections, honeycombs, tie holes, seal strips, fillets, coves, etc. are to be a ready-mixed crystalline waterproofing and repair mortar recommended by waterproofing system manufacturer. Patching compounds shall have the following characteristics:
 - .1 Compressive strength when measured in accordance with ASTM C109/C109M-16A: 52.5 MPa at 28 days.
 - .2 Flexural strength when measured in accordance with ASTM C348-14: 4.8 MPa at 28 days.
 - .3 Shrinkage when measured in accordance with ASTM C596-09 (2017): Minimum 0.093 % at 28 days; plus 0.073 % at 120 days.
- .4 Plugging compound for active water penetrations to be an accelerating agent for capillary waterproofing products or a pulverized rapid-setting cement.

3.0 EXECUTION

3.1 PREPARATION

- .1 Protect adjacent surfaces not designated to receive waterproofing.
- .2 Remove existing paints and finishes, grease, oil, and contaminants from substrate. Use dry abrasive blasting or other methods recommended by waterproofing manufacturer to produce surfaces suitable for application of waterproofing.
- .3 Follow manufacturer's instructions to clean and prepare surfaces and seal cracks and joints.
- .4 Rout out construction joints and visible cracks that exceed 0.3 mm in width to a 20 mm width and minimum 20 mm depth.

- .5 Remove all protrusions, work back to sound concrete and chisel out any spalled or honeycombed areas.
- .6 Roughen form tie holes.
- .7 Stop water leakage through urethane injected crack repairs (minimum) and other manufacturer recommended plugging specifications.
- .8 Install items such as anchors, plates, supports etc. prior to installation of waterproofing.
- .9 Rinse surfaces to be waterproofed to achieve a saturated surface dry (SSD) state prior to applying waterproofing system. Surfaces shall be moist but not wet when waterproofing system is applied. Remove all surface water on horizontal surfaces.

3.2 EXAMINATION

- .1 Examine substrates that waterproofing system is to be installed on, the adjoining construction, and existing site conditions affecting installation. Rectify any unsatisfactory conditions prior to proceeding with work.
- .2 Verify the following substrate conditions prior to application of waterproofing:
 - .1 Substrate condition is in accordance with manufacturer's requirements and these Specifications.
 - .2 Concrete surfaces have open pores and wood float finish on horizontal surfaces.
 - .3 Concrete surfaces are free of voids, spalled areas, loose aggregate and sharp protrusions, and with no coarse aggregate visible.
 - .4 Curing compounds or surface hardeners incompatible with waterproofing have not been used on concrete.

3.3 INSTALLATION

- .1 Mix waterproofing material in proportions recommended by manufacturer.
- .2 Apply waterproofing material in accordance with manufacturer's specifications and recommendations.

- .3 Cavity Fill:
 - .1 Prime cavities at cleaned and prepared cracks, tie holes, etc. with patching compound in mortar consistency flush to surface prior to waterproofing material installation.
 - .2 Apply patching compound in lifts per manufacturer's instructions for larger spalled or honeycombed areas.
- .4 Horizontal and Vertical Construction Joints: Prime seal strips and reglets in pre-formed 25 mm x 25 mm cavities with waterproofing material and then fill construction joints flush to surface with patching compound in mortar consistency. Apply waterproofing coat overtop of joint once preparation work has fully cured.
- .5 Vertical Surfaces:
 - .1 Apply base coat of waterproofing material in slurry consistency at uniform rate of 0.70 to 0.75 kilograms-per-square-metre. Apply using appropriate compressed air spray equipment, stiff masonry brush, or stiff broom.
 - .2 After base coat has reached initial set, and while still tacky, apply finish slurry coat of waterproofing mixture at 0.70 to 0.75 kilograms-per-square-metre. Apply so that the final brush or broom strokes leave a parallel, uniform texture.

3.4 CURING

- .1 Follow manufacturer's instructions for curing and hardening of waterproofing material.
- .2 Protect surfaces from drying.

3.5 CLEANING

- .1 Remove left-over and foreign material that resulted from the Work at the Place of the Work.
- .2 Clean adjacent surfaces and materials.

3.6 WARRANTY REQUIREMENTS

- .1 Repair defects and damage that appear during the specified warranty period at no cost to Owner and to Consultant's satisfaction. Refer to Section 01 78 36 – Warranties and Bonds for the specified warranty period.

END OF SECTION

1.0 GENERAL

1.1 DOCUMENTS

- .1 This section along with the Drawings forms part of the Contract Documents and is to be read, interpreted and co-ordinated with all other parts.

1.2 WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and services necessary to:
 - .1 Prepare leaking wall cracks and joints as directed by the Consultant and inject to waterproof.
 - .2 After waterproofing crack injection is complete, grind off all extraneous material and repair surface with concrete patch material to leave a smooth surface.
 - .3 Reinstate finishes to match pre-existing conditions.

1.3 PERFORMANCE REQUIREMENTS

- .1 The sealed crack shall not leak.

1.4 SUBMITTALS

- .1 The system Manufacturer shall submit certificates confirming the following:
 - .1 The Contractor is presently a licensed applicator.
 - .2 The Contractor has a minimum of three (3) years of direct applicable waterproofing experience.
- .2 The Contractor shall submit with bid a description of the products and methods to be used, to seal wall cracks.
- .3 Submit copy of the appropriate safety and technical data sheets within seven (7) days of arrival of equipment and material on site.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Resin shall be a single component urethane based Polymer, which reacts with water to form an elastic, durable, water-insoluble gel, which will not dehydrate or degrade and is chemically and physically stable in its described usage.
- .2 Resin shall be capable of bonding to damp concrete.
- .3 Material shall exhibit elongation characteristics of minimum 300% at break.

2.2 EQUIPMENT

- .1 Injection shall be performed using equipment approved by the resin Manufacturer and shall be capable of continuous pumping at constant pressures.

3.0 EXECUTION

3.1 PREPARATION

- .1 Contractor shall identify leaking cracks to be injected and confirm with the Consultant prior to the work. Contractor shall notify Consultant immediately of any additional leaking cracks discovered.
- .2 Contractor shall flush the cracks prior to grouting by injecting diluted phosphoric acid (5% concentration) and flushing extensively afterwards until all traces of acid are eliminated.

3.2 INSTALLATION

- .1 Comply with all manufacturer's recommendations. Contractor to submit technique of injection to Consultant for review and acceptance prior to work.
- .2 Install grout packers, intersecting the crack in the middle of the wall.
- .3 Provide a sufficient number of packers to allow the water to travel from packer to packer and to create a continuous seal in the crack after the work is complete. The spacing between the packers shall be approximately 75% of the wall thickness.
- .4 Seal the crack between the packers with epoxy gel or latex modified mortar. Prepare wall cracks and joints on foundation levels as designated by the Consultant

(including removal of any existing unacceptable contaminants) and inject to waterproof.

- .5 Inject the polyurethane grout to create a continuous seal in the crack.
- .6 The grouting pressure shall not exceed 3 MPa (450 psi) at the header.
- .7 In heavily leaking areas, provide additional grout holes, where required, to ensure complete filling of the cracks after the initially injected grout has cured.
- .8 Grind off the sealing material grout on walls flush with the wall and remove injection ports to complete the grouting operation. After waterproofing crack injection is complete patch with top surface patch material to leave a smooth surface.
- .9 Restore finishes at repair areas to match pre-existing conditions.

3.3 WORKMANSHIP

- .1 All work shall be performed by trained technicians experienced in the use of injected resins and the related specialized equipment.
- .2 The wall thickness is approximately 300 to 350 mm. Contractor is to verify and confirm actual thickness by site measurement. Contact the Consultant to obtain permission to drill test holes. Patch all test holes to match the existing.
- .3 No extras will be entertained based on discrepancies between the above and actual thickness, after bid closing.
- .4 Prepare wall and slab cracks and joints on foundation levels as designated by the Consultant (including removal of any existing unacceptable contaminants) and inject to waterproof.
- .5 After waterproof crack injection is complete, grind off all extraneous materials and patch with top surface patch material to leave a smooth surface.
- .6 Restore finishes at repair areas to match pre-existing conditions.
- .7 Ensure all safety precautions required by the manufacturer are carried out.

3.4 CLEAN UP

DIVISION 7 – THERMAL AND MOISTURE PROTECTION

Section 07 92 20 Valley Halla Villa, Toronto – Foundation Wall Waterproofing & Repairs

URETHANE INJECTED CRACK REPAIRS

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- .1 Scrape clean wall surface affected by the Work.
- .2 Remove all debris and surplus material from the site and leave work area in a condition acceptable to the Consultant.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to reinstate existing tile, or supply and install new tile, where removed to facilitate foundation wall waterproofing and repairs, as indicated on the Drawings and as described herein.

1.2 REFERENCES

- .1 Installation manual 200 - 1979, “ceramic Tile”, produced by Terrazzo Tile and Marble Association of Canada (TTMAC).
- .2 CAN/CGSB-75.1-M88 - Tile, Ceramic.
- .3 CAN/CSA-A3001 - Portland Cement/Masonry Cement/Blended Hydraulic Cement.
- .4 CSA A3002 - Aggregate for Masonry Mortar.
- .5 CGSB 71- GP - 22M - Adhesive, Epoxy, and Modified Mortar Systems, for Installation of Quarry Tiles.

1.1 SUBMITTALS

- .1 Product Data: Submit data for all Products to be used. List each Product in relation to finish formula and include the following:
 - .1 Finish formula designation.
 - .2 Product type and use.
 - .3 Manufacturer's product number.
 - .4 Colour numbers.
 - .5 Manufacturer's Safety Data Sheets (SDS).
 - .6 Manufacturer's application instructions.
- .2 Samples:
 - .1 Submit duplicate 600 x 600mm sample panels of new tile to be installed, with colour and type specified.

- .3 Maintenance Data:
 - .1 Submit the following maintenance data for incorporation into the maintenance data:
 - .1 Data for cleaning and maintenance of finishes.
- .4 Pre-Construction Photographs and Data:
 - .1 Submit all documented information regarding the existing tile finishes prior to performing removals. Allow the Consultant to review the documented information prior to performing the removals. Documented information shall include, but may not necessarily be limited to:
 - .1 Tile style, materials, and colours
 - .2 Grout style, colour, materials, spacing, thickness, etc.

1.3 QUALITY ASSURANCE

- .1 Do tile work in accordance with Installation Manual 200 - 1979, “Ceramic Tile”, produce by Terrazzo Tile and Marble Association of Canada (TTMAC), except where specified otherwise.
- .2 Tile Installers’ Qualifications:
 - .1 All work of this section shall be installed by forces in the permanent employ of a company that is a current member of the Terrazzo Tile and Marble Association of Canada with at least five years experience in the successful completion of projects of similar size and design. Provide proof in writing of qualifications when requested by the Consultants.

1.4 ENVIRONMENTAL CONDITIONS

- .1 Maintain air temperature and structural base temperature at ceramic tile installation areas above 12 deg. C for 48 h before, during, and 48 h after installation.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Tiles are to match existing in appearance, thickness, overall style, etc.

2.2 MORTAR AND ADHESIVE MATERIALS

- .1 Portland Cement: to CAN/CSA-A3001 - M88, type 50, sulphate resistant cement.
- .2 Sand: to CSA A3001.
- .3 Hydrated Lime: to ASTM C207 -79.
- .4 Latex Additive for Thick Bed Mortar: multi-purpose latex additive formulated for use in Portland Cement thick bed mortar/bond coat.
 - .1 Acceptable Products:
 - .1 Planicrete 50 as manufactured by Mapei Canada Inc.
 - .2 Crestflex as manufactured by Crest Cements of Canada Ltd.
 - .3 Laticrete 8510 as manufactured by Laticrete International Inc.
- .5 Thin-Set Bond Coat: to CGSB 71-GP-20M, Type 2, two component universal setting system consisting of a liquid synthetic polymer resin and a dry, full-integrated blend of Portland Cement, selected aggregates and chemicals.
 - .1 Acceptable Products:
 - .1 Keralastic as manufactured by Mapei Canada Inc.
 - .2 Flexi-Bond as manufactured by Crest Cements of Canada Ltd.
 - .3 UTS 150 as manufactured by Laticrete International Inc.
- .6 Organic Adhesive: to CGSB 71-GP-22M, Type 1 non-flammable, synthetic resin-emulsion based adhesive.
 - .1 Acceptable Products:
 - .1 Ultra-mastic 1 as manufactured by Mapei Canada Inc.
 - .2 ProBond as manufactured by Crest Cements of Canada Ltd.
 - .3 Latimastic 1 as manufactured by Laticrete International Inc.
- .7 Water: potable and free of minerals that are detrimental to mortar and grout mixes.

2.3 GROUT

.1 Latex Modified Dry Curing Floor Grout: sanded, dry, factory-controlled blend of Portland Cement, carefully graded aggregates and dry chemicals. Colour to match existing.

.1 Acceptable Products:

.1 Keracolor as manufactured by Mapei Canada Inc.

.2 Contractor Grade as manufactured by Crest Cements of Canada Ltd.

.3 Dryset as manufactured by Laticrete International Inc.

.2 Latex Floor and Wall Grout Additive: synthetic latex liquid.

.1 Acceptable Products:

.1 Plastijoints as manufactured by Mapei Canada Inc.

.2 Crestflex as manufactured by Crest Cements of Canada Ltd.

.3 Laticrete 1776 as manufactured by Laticrete International Inc.

.3 Epoxy Grout for Floor Tile: chemical resistant, water cleanable, non-sagging, two component 100% solids epoxy grout. Colour as selected by Consultant.

.1 Acceptable Products:

.1 Kerapoxy as manufactured by Mapei Canada Inc.

.2 SP100 as manufactured by Laticrete International Inc.

.3 Chemset as manufactured by Master Builders.

2.4 MORTAR MIXES

.1 Thick bed mortar for floors: 40 kg Portland Cement, 80 kg dry silica sand #50, 20L latex additive (full concentration).

.2 Measure mortar ingredients by volume.

2.5 CLEANERS, SEALERS AND FINISHES

.1 Cleaners:

.1 TTMAC Product No. 1001 - Terrazzo Tile and Marble Cleaner, General Purpose.

- .2 TTMAC Product No. 1002 - Heavy Duty Liquid Stripper Cleaner Detergent.
- .3 TTMAC Product No. 1003 - Germicidal Detergent Cleaner.
- .2 Sealers:
 - .1 Sealon Sealer by Master Builders Technologies, or equal.

3.0 EXECUTION

3.1 TILE DISMANTLING AND REMOVAL

- .1 Perform sample removal of tile to determine if existing can be salvaged. If feasible, remove and stockpile existing tile for reuse. Catalogue all tile to replace to match existing conditions.
- .2 Existing tile that cannot be removed without damage shall be replaced with new to match existing style, colour, shape, thickness, etc. Contractor to provide samples to Consultant and Owner for review prior to performing removals in order to confirm that tile can be replaced with new products that match existing. Contractor to thoroughly document and catalogue the existing layout of tile prior to performing removals.

3.2 TILE INSTALLATION

- .1 Grind and fit tile at intersections against trim and at built-in fixtures and accessories. Fit tile around corners, fittings, fixtures, and other built-in objects so that plates, escutcheons, colours, and covers overlap cut. Maintain uniform joint appearance. Cut and drill tile and trim shapes without damage to exposed faces and edges. Rub cut edges smooth with carborundum stone. Edges resulting from splitting are not acceptable.
- .2 Maximum surface tolerance 1:800.
- .3 Make joints between tile uniform, plumb, straight, true, even and flush with adjacent tile. Ensure sheet layout not visible after installation. Align patterns.
- .4 Sound tiles after setting and replace hollow-sounding units to obtain full bond.

3.3 GROUTING

- .1 Allow tile to set for a period of 48 hours prior to grouting.
- .2 Force grout into joints, avoiding air traps or voids. Strike or tool joints of cushion edge tile to depth of cushion. Joints to be held flush with cushion edge. Remove all excess grout from face of tile.

3.4 CLEANING/SEALING AND FINISHING

- .1 Remove heavy soiling with a push broom.
- .2 Remove fine dust with clean, non-oily dust mop or heavy-duty vacuum cleaner.
- .3 Clean tile in accordance with tile manufacturer's recommendation.
- .4 Allow to dry thoroughly before application of sealer.
- .5 Apply sealer in accordance with manufacturer's recommendations.

3.5 PROTECTION

- .1 Protect the work of this section, make good damage, remove all debris and rubbish and leave the work in a clean and tidy condition.
- .2 Prohibit foot and wheel traffic from using newly tiled floors of a minimum of three (3) days.

END OF SECTION

1.0 GENERAL

1.1 SECTION INCLUDES

- .1 Provide all labour, materials, equipment, supervision, and services necessary to restore original interior finishes (i.e. millwork, paint, flooring, etc.) removed to facilitate the work, as described herein.

1.2 REFERENCE STANDARDS

- .1 Master Painters Institute (MPI)
 - .1 MPI Architectural Painting Specification Manual, 2020 Revision, for new not previously painted or finished substrates.
 - .2 MPI Maintenance and Repainting Manual, 2020 Revision, for previously painted or finished substrates.

1.3 SUBMITTALS

- .1 Product Data: Submit data for all Products to be used. List each Product in relation to finish formula and include the following:
 - .1 Finish formula designation.
 - .2 Product type and use.
 - .3 MPI number.
 - .4 Manufacturer's product number.
 - .5 Colour numbers.
 - .6 Manufacturer's Safety Data Sheets (SDS).
 - .7 Maximum VOC classification.
 - .8 Lead content
 - .9 Manufacturer's application instructions.
- .2 Samples:
 - .1 Submit duplicate 300 x 200 mm sample panels of each paint formula type colour and texture specified.

- .2 Use 3 mm plate steel for finishes over metal surfaces. Use 10 mm hardboard for finishes over wood surfaces. Use 50 mm concrete block for finishes over concrete or concrete masonry surfaces. Use 12.5 mm gypsum board for finishes over smooth surfaces.
- .3 Maintenance Data:
 - .1 Submit the following maintenance data for incorporation into manual specified in Section 01 78 23 – Maintenance and Renewal Manual:
 - .1 Data for cleaning and maintenance of painted and other finishes.
- .4 Pre-Construction Photographs and Data:
 - .1 Submit all documented information regarding the existing interior finishes prior to performing removals. Allow the Consultant to review the documented information prior to performing the removals. Documented information shall include, but may not necessarily be limited to:
 - .1 Paint style and colours
 - .2 Millwork style, materials, colours, etc.
 - .3 Locations of fixtures, mechanical, and electrical equipment that shall be stockpiled and reinstated
 - .4 Floor finish style, colour, materials, etc.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- .1 Submit one unopened 4-litre can from same production run (batch mix) of each type and colour of primer and finish coating used, properly labelled for Owner's later use in maintenance. Remnants of used materials are not acceptable.
- .2 Store where directed by the Owner.

1.5 QUALITY ASSURANCE

- .1 Qualifications of Applicators: Painting Subcontractor shall have a minimum of five (5) years experience and shall maintain a crew of qualified painters that have a provincial trade qualification certificate of proficiency.
- .2 Conform to the MPI Architectural Painting Specification Manual (for new surfaces), and the MPI Maintenance Repainting Manual (for existing surfaces).

- .3 All paint manufacturers and Products used shall be listed in the Master Painters Institute “Approved Products List”.

1.6 MOCK-UP

- .1 Assemble a mock-up on site, in area designated by the Consultant. Finish, with all required coats, a three square meter minimum sized surface of each major substrate and colour scheme, to show selected colours, finish textures, gloss levels, and workmanship. Where surface is less than three square meters, finish the entire surface.
- .2 Allow for review of mock-up by the Consultant and Owner before proceeding with the work.
- .3 Mock-up may be part of finished work.

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Deliver all painting materials in sealed, original labelled containers bearing manufacturer’s name, brand name, type of paint or coating and color designation, standard compliance, materials content as well as mixing or reducing and application requirements.
- .2 Store all paint materials in original labeled containers in a secure , dry, heated and well ventilated single designated area at a minimum ambient temperature of 7° C (45° F). Store materials and supplies away from heat generating devices.
- .3 Remove damaged, opened and rejected materials from site.
- .4 Provide minimum of one fire extinguisher adjacent to storage area.
- .5 Take all necessary precautionary and safety measures to prevent fire hazards and spontaneous combustion and to protect the environment from hazard spills. Store materials that constitute a fire hazard (paints, solvents, drop clothes, etc.) in suitable closed and rated containers and remove from site on a daily basis.
- .6 Safety: comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling storage, and disposal of hazardous materials.

1.8 AMBIENT CONDITIONS

- .1 For all areas where painting work is proceeding, provide adequate continuous ventilation during and after application of paint. Run ventilation system 24 hours per day during paint application; provide continuous ventilation for 7 days after completion of paint application.

- .2 Maintain minimum substrate and ambient air temperature of 10° C (50° F) for 24 hours before, during and after paint application. Perform no painting and finishing work when relative humidity exceeds 85% or when the dew point is less than 3° C (5° F) variance between the air/surface temperature. Maintain supplemental heating and ventilation until paint has cured sufficiently.
- .3 Apply paint only in areas where dust is no longer being generated by related construction operations such that airborne particles will not affect the quality of the finished surface.
- .4 Apply paint only when substrates are dry, clean, properly cured and adequately prepared.
- .5 Perform no painting and finishing work when the moisture content of the substrate exceeds:
 - 12% for masonry and concrete.
 - 15% for wood.
 - 12% for plaster and gypsum board.
- .6 Conduct all moisture tests using a properly calibrated electronic moisture meter.
- .7 Test concrete and masonry surfaces for alkalinity as required.
- .8 Provide minimum 323 lx (30 foot candles) of light on surfaces to be painted.

1.9 WARRANTY

- .1 Provide a two year Painting Association Guarantee in accordance with MPI requirements.
- .2 All interior painting and finishing work shall be in accordance with MPI requirements and shall be inspected by the Painting Association.

2.0 PRODUCTS

2.1 MATERIALS

- .1 All materials (primers, paints, coatings, varnishes, stains, lacquers, fillers, thinners, solvents, etc.) shall be in accordance with the MPI “Approved Product” listing and shall be from a single manufacturer for each system used.
- .2 All materials and paints shall be lead and mercury free and shall have low VOC

content where possible.

- .3 Water-borne surface coatings shall meet or exceed all applicable governmental or industrial safety and performance standards.
- .4 Water-borne surface coatings and recycled water-borne surface coatings shall contain information describing proper disposal methods within their packaging.
- .5 Paint materials shall have good flowing and brushing properties and shall dry or cure free of blemishes or sags.

2.2 EQUIPMENT

- .1 Painting equipment shall meet best trade standards for type of product and application.
- .2 Spray-painting equipment shall be of ample capacity, suited to the type and consistency of paint or coating being applied and kept clean and in good working order at all times.

2.3 MIXING AND TINTING

- .1 Except as otherwise specified, paint shall be ready-mixed and pre-tinted. Re-mix all paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and colour and gloss uniformity.
- .2 Strain materials thoroughly prior to application.
- .3 Materials in paste or powder form, or to be field-catalyzed, shall be field mixed in accordance with manufacturer's directions.
- .4 Thinning of materials to extent permitted by paint manufacturer will be permitted only where specified herein or upon Consultant's approval. Do not use solvent for thinning.
- .5 Thin paint for spraying in strict accordance with paint manufacturer's instructions.

2.4 COLOURS

- .1 Colours shall match existing.

2.5 PAINT FINISHES

- .1 New Substrates Painting and Finishing Schedule
 - .1 Unless otherwise indicated, titles and code numbers in the below listed

schedule refer to MPI Architectural Painting Specification Manual, Chapter 3, for type surfaces, coating, grade and named products and their manufacturers.

.2 Schedule:

.1 **Dressed Lumber:** for doors, door and window frames, casings, moldings apply:

- INT 6.3B Alkyd, match existing gloss/ sheen.

.2 **Spray Textured Surfaces:** for gypsum board and plaster ceilings apply:

- INT 9.1A Latex – flat finish.

.3 **Plaster and Gypsum Board:** for walls and ceilings:

- INT 9.2A Latex – match existing gloss/sheen.

.4 **Concrete Horizontal and Vertical Surfaces:**

- REX 3.1A-Latex-DSD2 - match existing gloss/sheen.

.5 **Steel and Metal Fabrications:**

- REX 5.1D-Alkyd-DSD2 - match existing gloss/sheen.

.6 **Galvanized Metal:**

- REX 5.3D-Alkyd-DSD2 - match existing gloss/sheen.

.2 Existing Substrates Repainting and Finishing Schedule

.1 Unless otherwise indicated, titles and code numbers in the below listed schedule refer to MPI Maintenance Repainting Manual, Chapter 3, for type surfaces, coating, grade and named products and their manufacturers.

.2 Schedule:

.1 **Spray Textured Surfaces:** for gypsum board or plaster ceilings apply:

- RIN 9.1A Latex – DSD 2, flat finish.

- .2 **Plaster and Gypsum Board:** for walls and ceilings:
 - RIN 9.2A Latex – DSD 3, match existing gloss/sheen.
- .3 **Dressed Lumber:** for doors, door and window frames, casings, moldings apply:
 - RIN 6.3B Alkyd – DSD 2, match existing gloss/sheen.
- .4 **Concrete Horizontal and Vertical Surfaces:**
 - REX 3.1A-Latex-DSD2 - match existing gloss/sheen.
- .5 **Steel and Metal Fabrications:**
 - REX 5.1D-Alkyd-DSD2 - match existing gloss/sheen.
- .6 **Galvanized Metal:**
 - REX 5.3D-Alkyd-DSD2 - match existing gloss/sheen.

3.0 **EXECUTION**

3.1 **EXAMINATION**

- .1 Prior to commencement of painting and finishing work, thoroughly examine and test substrates scheduled to receive coatings.
- .2 Ensure that substrates are sound, non-dusting, and free of grease, oil, dirt and other matter detrimental to adhesion and appearance of coatings.
- .3 Investigate substrates for problems related to proper and complete preparation of surfaces to be painted. Report all damage, elevated temperatures, elevated moisture contents, defects, unsatisfactory or unfavourable conditions to Consultant in writing. Proceeding with work of this Section shall constitute acceptance of the substrate conditions.

Do not commence painting work until adverse conditions and defects, if any, have been corrected and surfaces and conditions are acceptable to the Consultant.

3.2 PREPARATION

.1 General:

- .1 Clean floors and all surfaces to be finished before commencing work of this section.
 - .1 Do not commence work until floors are cleaned free of dust.
- .2 Cut out as required, scratches, cracks and abrasions in drywall and plaster surfaces and openings adjoining trim, and fill with a patching compound or approved patching material flush with adjoining surface.
 - .1 When dry, sand patch smooth and seal.
 - .2 Ensure acceptance or repair by Consultant prior to application of priming coat.
- .3 Fill holes and other similar defects after the first coat of paint has been applied.
 - .1 Colour match filler for finish and use material acceptance to Consultant only.
- .4 Carefully sand wood and metal surfaces before painting and between coats using 00 paper or fine steel wool.
- .5 Ensure surfaces to be finished are free from machine, tool or sandpaper marks, dust, grease, soiling or any extraneous matter.
- .6 Inspect surfaces to be coated for gouges, marks and nicks, and prepare by patching, filling, or any other surface preparation necessary to assure a surface satisfactory for finishing.
- .7 Clean all surfaces prior to painting. Remove all surface contaminants such as oil, grease, dirt, foreign matter, rust, mould, mildew, mortar, efflorescence and loose paint to ensure sound bonding.
- .8 Completely remove all previous paint, which is not suitable for application of new paint.
- .9 Follow all other Manufacturer's recommended cleaning, surface preparation and application procedures. Follow most stringent criteria as decided by Consultant.

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- .10 Foreign matter left on surfaces by other trades shall be removed by the trade responsible, before commencing work of this section.
 - .11 Test all surfaces for moisture content using an approved device before commencing painting.
 - .1 Do not apply to a material when moisture content exceeds 12%.
 - .12 Neutralize surfaces having high alkali conditions by washing as follows:
 - .1 If paint to be applied is latex emulsion type, wash with a 4% solution of tetrapotassium-pyrophosphate at 5 ounces in one gallon of water.
 - .2 For alkyd resin type, wash with a zinc sulphate solution mixed 3 pounds with one gallon of water.
 - .13 Concrete and masonry surfaces shall be wire brushed, rinsed with clear water and allowed to dry.
 - .14 Surfaces where traces of form oil or parting compounds are present shall be treated with a solution composed of one part concentrated muriatic acid and four parts water, to which shall be added one part acid detergent acceptable to paint manufacturer.
 - .1 After application thoroughly wash with water and allow to dry.
 - .15 Mask surfaces not being painted to obtain uniform termination.
 - .16 Remove all electrical plates, surface hardware, fittings and fastenings prior to painting operations. Carefully store, clean and replace upon completion of work in each area.
 - .17 Mask specification plates present on equipment, switch boxes and similar items requiring painting.
 - .18 Protect, remove and replace hardware, accessories, lighting fixtures and similar items as required.
 - .2 Metal Surfaces – Not previously Shop Primed:
 - .1 Solvent-clean metal surfaces to remove grease and oil to SSPC-SP1-82.
 - .2 Remove rust and mill scale by power-tool cleaning to SSPC-SP3-82.

- .3 Power-tool clean weld flux and wash with water to remove alkali contaminants.

- .3 Metal Surfaces – Galvanized:
 - .1 For unpassivated zinc-coated metal showing evidence of “white rusting”, power wire brush or vigorously hand wire brush to scuff galvanize thoroughly, and solvent clean to SSPC-SP1-82.
 - .2 For unpassivated zinc-coated metal having received the “Wiped” or “Satin Coat” (ZF075 Designation), solvent clean to SSPC-SP1-82 and prepare for vinyl wash primer.
 - .3 For full zinc-coated (Z275 or heavier) metal having received pre-treatment including oils, waxes, silicones, silicates, acrylics, flux residue, passivating compounds or other protective substances by the sheet manufacturer, obtain data on type used and remove such substances detrimental to paint adhesion by abrasive brush blasting with sand to requirements of SSPC-SP7-82, and solvent or xylol clean to SSPC-SP1-82, frequently changing clean, white cloths.

- .4 Masonry and Concrete Surfaces:
 - .1 Remove excess moisture and alkali conditions.
 - .2 Remove excess dirt and foreign dust particles from surfaces.
 - .3 Surfaces which are to be painted and show evidence of chemical efflorescence on testing shall be washed with a solution consisting of 2 lb/gal of zinc sulphate to water.
 - .4 Rinse surface with clean water and allow to dry thoroughly.
 - .5 Remove mildew by application of one part sodium hypochloride (Javex) to three parts water.
 - .1 If dirt is also in evidence, add 1/2 trisodium phosphate to one gallon of above solution.
 - .2 Scrub surface well and follow with thorough clean-water rinsing.

- .5 Plaster Surfaces:
 - .1 In addition to requirements of preceding paragraphs, when plaster hot spots are encountered, remove destroyed latex film and re-coat with solvent-type primer-sealer.
- .6 Previously Painted Surfaces:
 - .1 Deaden previously painted surfaces having hard glossy finish by sandpaper or other abrasive method to ensure adhesion, or treat with purpose-made conditioner.
 - .2 After existing walls have been patched and otherwise altered by other finishing trades, spot-coat the patched area over primer to give better “hold-out”.
 - .1 Prime entire wall with manufacturer’s recommended primer where a change in final coat is made from latex to alkyd, or alkyd to latex, all as designated in Finish Schedule.
 - .3 Spot prime previously painted and shop primed surfaces which have coating partially removed by blistering, peeling, rupture or scratching, with same primer specified for new surfaces.
 - .4 If more than 25% of previous coating has failed or if previous coating can be easily scraped off its substrate, completely remove.
 - .5 Clean previously painted ferrous metal surfaces, which are scheduled to be painted using hand tools.

3.3 PRIMING

- .1 Prime ferrous metal surfaces including structural steel, mechanical and electrical equipment, piping, ducts and conduits that have not received a shop coat of paint with a coat of primer.
- .2 Touch up metal which has received a shop primer and which is to be finished painted after removing loose paint and scale.
- .3 All exposed exterior steel shall receive, in addition to shop coat, a site applied prime coat over.

- .4 Unpassivated galvanized steel and zinc coated steel, including piping and ductwork, shall be thoroughly cleaned of oil and grease with mineral spirits, and be treated with an approved chemical phosphoric metal etch.
- .5 Prime drywall surfaces with primer/sealer which will preclude ghosting or telegraphing of substrate density.

3.4 APPLICATION

- .1 Perform painting in accordance with the MPI Architectural Painting Specification Manual for new surfaces and MPI Maintenance Repainting Manual for existing surfaces.
- .2 Apply all paint materials in accordance with paint manufacturer's written application instructions.
- .3 Method of paint application shall be either by spray-on or roll-on, sufficient to fill all voids in existing surfaces and provide uniform appearance.
- .4 Apply each coat of paint as a continuous film of uniform thickness. Repaint thin spots or bare areas.
- .5 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .6 Sand and dust between each coat to provide an anchor for next coat and to remove visible defects.
- .7 For woodwork to receive a stain finish, apply paste wood filler to open grain wood followed by uniform coats of stain and wipe off if required. Wood shall have a uniform shade. Match stain so that dissimilar woods have uniform finished appearance.
- .8 For open grain woods to receive a clear finish, tint paste wood filler to match wood. Work filler well into grain and before it sets, wipe off excess to provide a clean surface.

3.5 BACK-PRIMING OF INTERIOR WOOD

- .1 Back prime concealed surface of the following components, prior to their installation:
 - .1 Surfaces in contact with concrete or masonry.
 - .2 Surfaces in contact with any floors or floor finishes.

- .3 Cut-outs for sinks, drains and other mechanical services.
- .4 Underside of front edges of countertops and toe-spaces.
- .5 Other surfaces that may be subjected to moisture during normal use or cleaning operations.
- .6 Backboards for mechanical and electrical equipment.
- .2 Use white alkyd primer for components scheduled to receive a paint finish.
- .3 Use semi-transparent stain for components scheduled to receive a solid or semi-transparent stain finish.
- .4 Use gloss varnish, reduced 25% with thinner, for components scheduled to receive a varnish finish.

3.6 FIELD QUALITY CONTROL

- .1 All surfaces, preparation and paint applications shall be reviewed by the Consultant.
- .2 Repainted surfaces will be considered to lack uniformity and soundness if any of the following defects occurs:
 - .1 Runs, sags, hiding or shadowing by inefficient application methods.
 - .2 Evidence of poor coverage at rivet heads, plate edges, lap joints, crevices, pockets, corners and re-entrant angles.
 - .3 Damage due to touch before paint is sufficiently dry or other contributory cause.
 - .4 Damage due to application on moist surfaces or caused by inadequate protection.
- .3 Make good painted surfaces rejected by the Consultant. Small areas may be touched up. Repaint large areas or areas without sufficient dry film thickness of paint. Remove runs and sags of damaged paint by scraper or by sanding before repainting.

3.7 PROTECTION

- .1 Protect all newly painted interior surfaces from condensation, contamination, and dust until manufacturer's recommended curing periods are exceeded.
- .2 Erect barriers or screens and post signs to warn, limit or defect traffic away or around work area as required.

- .3 As painting operations progress, place "WET PAINT" signs in occupied areas.

3.8 TOUCH-UP AND CLEANING

- .1 Clean and re-install all items that were removed before undertaking painting operations.
- .2 Remove protective coverings and warning signs as soon as practical after operations cease.
- .3 Remove paint splashings on exposed surfaces that were not painted. Remove smears and spatter immediately as operations progress.
- .4 Restore areas used for storage, cleaning, mixing and handling of paint to pre-construction condition.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and coordination necessary to remove existing and supply and install new drains at the bases of window wells affected by the work, as indicated on the Drawings and where directed by the Consultant.
- .2 Provide all labour, material, equipment, supervision, and services necessary to remove existing and supply and install new weeping tile piping, including all connections to the base building systems, as indicated on the Drawings.
- .3 Provide all labour, material, equipment, supervision, and services necessary to remove and replace deteriorated below-grade drain piping, including associated accessories, hardware, connections, etc., as indicated on the Drawings and where directed by the Consultant.
- .4 Visit the Place of the Work to ascertain existing conditions and allow for all conditions that will affect the new installation.
- .5 Flush and clean the existing drainage system, including sump pits, at end of the Project.

1.2 PERFORMANCE REQUIREMENTS

- .1 The drains, weeping tile piping, and below-grade piping supplied and installed under this Contract shall satisfy the following:
 - .1 Be fully operational and not unduly damage or deteriorate under normal use or hinder the flow of water.
 - .2 All connections and hardware shall remain securely fastened without leaks.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Window well drains shall be of galvanized cast iron or galvanized ductile iron construction. They shall be equipped with a cage and strainer suitable to resist applied loads.
- .2 Approved Floor Drains (Window Wells):

- .1 Zurn Z350-G-SS (8 in., 213 mm round galvanized cast iron body with stand pipe)
- .2 Watts FD-870-P-50-13 (8 in., 206 mm round galvanized cast iron body with stand pipe)
- .3 Weeping Tile Pipe: 100mm (4 in.) diameter, flexible, HDPE perforated pipe with exterior polyester fibre sock.
- .4 Below grade piping (including risers): 100mm (4 in.) diameter, solid PVC.
- .5 Heat tracing to be Pyrotenax, where required.
- .6 Drain pipe insulation to match existing thickness, where present, complete with metal jacket.
- .7 Pipe hangers to be clevis type, Grinnel #G652 or to match existing.
- .8 Provide all traps and clean-outs in new drain lines and weeping tile pipe as necessary to conform to the plumbing and drainage act regulations.

3.0 **EXECUTION**

3.1 **DRAIN AND PIPE INSTALLATION**

- .1 Install new drains and piping in accordance with this specification and relevant building code and plumbing code requirements.
- .2 Contractor to confirm that no embedded reinforcing, conduits, etc. are located at proposed removal and through-wall piping locations prior to concrete removal. Wall areas are to be scanned using suitable non-destructive testing equipment, or x-rayed, to locate embedded objects. Exercise care and caution during removals to avoid damage to embedded objects. Any damage that results from concrete removal is to be repaired at the Contractor's expense. Testing is to be included in Contract Price.
- .3 Remove concrete using jackhammers to accommodate piping installation where required. Conform to installation details provided on the Drawings. Do not damage embedded reinforcing, conduits, etc.
- .4 Install new drains square to walls. Recess drains as shown on the Drawings. Connect new drains to the existing drainage systems.

- .5 Connect weeping tile piping and drainage piping to existing systems. Maintain adequate invert slopes. All drainage pipes to maintain a minimum slope of 2%.
- .6 Co-ordinate installation with application of waterproofing system to maintain a complete waterproof seal at any penetrations.

3.2 HANDLING AND STORAGE

- .1 Take care during handling to prevent damage to drains, pipes, accessories, hardware, etc. Replacement of damage components with new is to be at no additional cost to the Contract.
- .2 When storing pipe on a flat smooth surface, place smaller diameter pipe on top of larger pipe.
- .3 Do not store pipe close to sources of heat such as boilers, steam lines, engine exhaust outlets, etc.

3.3 FIELD QUALITY CONTROL

- .1 Confirm acceptability of drainage system installations prior to backfilling excavations.
- .2 Flood test the drainage system to confirm water-tightness and that the system is free draining. Consultant shall be present.

3.4 CLEANING OF DRAINAGE SYSTEM

- .1 Contractor to power flush (high pressure jetting, or approved equivalent) all drainage systems within the Work areas to ensure all new and existing drain lines and related piping are totally cleaned, operational, and free running.
- .2 Sumps shall be vacuumed clean of all silt and debris upon completion of the drainage system cleaning.
- .3 Clean all sediment buckets of all debris.
- .4 Test drainage system to ensure unobstructed operation.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 This section outlines repair and inspection procedures to be undertaken when existing electrical conduits, fixtures, etc. are damaged due to the construction activity.
- .2 Damaged electrical conduits, fixtures, etc. must be repaired in a timely fashion. If repair cannot be made in a timely fashion, a temporary system must be installed.
- .3 Visit site to ascertain and note existing conditions that will affect the Work.

1.2 REGULATORY REQUIREMENTS

- .1 Comply with the Safety Codes Act and rules and regulations made pursuant thereto, including Canadian Electrical Code.
- .2 Unless otherwise indicated, all references in the Contract Documents to "Canadian Electrical Code" or "CEC" shall mean the edition of the Canadian Electrical Code, Part I, CSA C22.1 and the variations made thereto by Ontario regulation, which are in force on the date of bid closing for the Contract.
- .3 All electrical products shall be tested, certified, and labelled in accordance with a certification program accredited by the Standards Council of Canada.
- .4 Submit drawings and specifications to authority having jurisdiction and local utility company for examination and approval before commencement of electrical work. Pay any associated fees required to obtain a permit for the Work.
- .5 Submit a copy of electrical permit obtained from the authority having jurisdiction to the Consultant.

1.3 EXAMINATION OF SITE

- .1 Bidders shall visit and examine the site, building, and all applicable drawings before Bid. The Bid shall include all costs for required electrical work necessary to facilitate the performance of the Work. No extras will be paid due to failure to visit the site and building or adequately review all required interfacing details.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Submit copies of Safety Data Sheets (SDS) for all products prior to arrival on site.

- .2 Deliver, store, and maintain packaged material with manufacturer seals and labels intact.
- .3 Store material in regulation containers in accordance with the Occupational Health and Safety Act and manufacturer instructions.
- .4 Toxic or hazardous chemicals shall be secured in a locked storage area with appropriate protection measures in accordance with the Occupational Health and Safety Act.
- .5 All containers to be labelled with material expiration dates. Material that is older than the expiry date shall be rejected. Shelf life shall be strictly adhered to, and material shipped without dates will be rejected. Immediately remove rejected materials from site.

2.0 PRODUCTS

2.1 MATERIAL

- .1 Use new products unless otherwise specified.
- .2 Provide electronic copies of maintenance instructions for finished surfaces and maintenance material before Substantial Performance of the Work.

3.0 EXECUTION

3.1 EXPOSED CONDUITS, FIXTURES, ETC.

- .1 Ensure all exposed conduits and fixtures are properly protected and operational at all times during the Work. Refer to Section 01 56 00 - Protection of Work and Property.
- .2 Repair or replacement of damaged exposed conduits, cables, and fixtures is the Contractor's responsibility when damage was caused by the Contractor's operations. Required repair or replacement work to exposed conduits, fixtures, etc. may be performed by the Contractor's own electrician.

3.2 EXISTING EMBEDDED ELECTRICAL SERVICES

- .1 Ensure potential areas of buried or hidden conduit are identified, and high voltage systems in the area of Work are located or switched off to prevent possible damage and injury. Co-ordinate requirements with Owner.

- .2 Take the utmost precaution during demolition operations to prevent damage to buried or hidden conduit and cables. Damage to hidden conduits, cables, and systems is to be reported immediately to the Owner and Consultant.
- .3 Damaged or deteriorated conduits are not to be covered up without specific approval from the Owner.
- .4 Allow reasonable time in scheduling of the Work for implementation of any required repairs to buried or hidden conduit, cables, and systems.
- .5 Take all precautions to ensure buried conduits uncovered by the work are not live before performing demolition work around them. Anticipate uncovering lighting conduits, 600V main power lines, exhaust fan conduits, alarm lines, telephone lines, etc.
- .6 Repair or abandon damaged conduit, cabling, and systems uncovered by the Work at the discretion of the Owner. The Owner will pay for repairs to damaged buried and hidden conduit, cabling, and systems provided the damage has not resulted from a lack of Contractor care or negligence. Negligence shall be determined at the discretion of the Consultant.
- .7 All repairs to buried electrical conduit, cabling, and services will be performed by an electrician that is agreeable to the Owner and paid via Change Order through the contingency allowance.

3.3 TEMPORARY SYSTEMS

- .1 If damage to surface mounted or hidden conduit, cabling, and systems cannot be repaired in a timely fashion, the Owner may, at their discretion, request that the Contractor provide a temporary system or connection to maintain operation.
- .2 Costs for requested temporary systems will be allocated to the Owner for damage to hidden conduit, cabling, and systems and to the Contractor for damage to surface mounted conduit, cabling, and systems.

3.4 INSPECTION OF WORK

- .1 All electrical system repair work is to be inspected as required by the authority having jurisdiction.
- .2 Arrange for required inspections of repairs within 48 hours of repairing the damage. Contractor to schedule all required inspections regardless of whether the Owner's or Contractor's electrician performed the repair.

- .3 The cost of inspections shall be the responsibility of the Contractor.
- .4 Copies of inspection certificates for required inspections shall be distributed to the Owner and the Consultant upon completing the Project.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment and supervision to perform the following work:
 - .1 Locally remove and replace soft landscaping material, plantings, topsoil, granular material, etc., to facilitate the work, as indicated on the Drawings and described herein. All soft landscaping and plantings removed shall be replaced with new to match pre-existing conditions at the end of the project.
 - .2 Damage to the existing structure caused by the Contractor is to be repaired at no cost to Owner, as directed by Consultant and in accordance with the appropriate Specification Section.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Free draining granular shall be in accordance with Ministry of Ontario guideline for Granular “A” material, except that percent finer than 0.075 mm not to exceed 8 % or clear crushed stone. Refer to Section 32 11 00 – Granular Backfill.
- .2 Geotextile filter cloth to be Terrafix 200R to fully enclose granular drainage layer. Overlap filter cloth 24” minimum.
- .3 Triple Mix topsoil material – a 30% mixture of topsoils, sands and shredded wood mulch, a 30% mixture of black organic compost and manure and a 30% mixture of peat loam.

3.0 EXECUTION

3.1 SEQUENCE OF OPERATION

- .1 Remove and dispose of existing vegetation, including but not limited to hedges, shrubs, grass, flowers, etc., at areas of work.
- .2 Excavate, remove, and dispose of soil and subgrade material from around the building perimeter, as indicated on the Drawings.

- .3 Placing:
 - 1. Place material using methods which do not lead to segregation or degradation of aggregate.
 - 2. Place material in uniform layers not exceeding 150 mm compacted thickness. Consultant may authorize thicker lifts (layers) if specified compaction can be achieved. No subsequent lifts shall be placed until the required compaction levels have been achieved.
 - 3. Compact each layer to specified density before succeeding layer is placed.
 - 4. Remove and replace that portion of layer in which material becomes segregated during spreading.
- .4 Compaction Equipment:
 - 1. Compaction equipment to be mechanical tampers capable of obtaining required material densities.
- .5 Compaction:
 - 1. Compact granular layer to density not less than 95% standard proctor. Topsoil to be compacted to 85% standard proctor.
 - 2. Apply water as necessary during compaction to obtain specified density.
- .6 Re-Instatement of Plantings:
 - 1. After installation of topsoil, install new plants, sod, etc. to match pre-existing conditions and provide all required maintenance, watering, fertilization, support from toppling and other maintenance until final acceptance of installation. Planting acceptance will be evaluated 90 days after re-instatement is complete unless instatement is performed 90 days prior to frost; in such case acceptance will be evaluated 30 days after start of growing season in following year.

3.2 PROTECTION

- .1 Maintain finished base in condition conforming to this section until succeeding materials are applied to complete landscaping.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, materials, equipment, supervision, and services necessary to prepare and compact the existing subgrade material and install and compact new granular backfill material, as indicated on the Drawings and described herein.

1.2 REFERENCES

- .1 All referenced standards are to be latest editions.
- .2 ASTM C117-17 Standard Test Method for Materials Finer than 75um (No. 200) Sieve in Mineral Aggregate by Washing.
- .3 ASTM C136/C136M-14 Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .4 CAN/CGSB-8.1-88 Sieve Testing, Woven Wire, Inch Series.
- .5 CAN/CGSB- 8.2-M88 Sieve Testing, Woven Wire, Metric.
- .6 OPSS 501-14 Compacting
- .7 OPSS 1010-13 Aggregates: Base, Subbase, Select Subgrade, and Backfill Material.

1.3 SUBMITTALS

- .1 Obtain certificates that attest that supplied materials comply with the specifications from suppliers and submit to the Consultant.
- .2 Obtain copies of weigh bills for supplied granular backfill material and submit to the Consultant at the end of each work day.
- .3 The unit weight of supplied materials will be determined by the average of three compaction tests conducted in the field or by using the minimum specified weights and the volume based on measured areas.

2.0 PRODUCTS

2.1 MATERIALS

- .1 Gradations to be within specified limits when tested to ASTM C117 and ASTM C136/136M. Sieve sizes to CAN/CGSB-8.1 and/ or CAN/CGSB-8.2.

- .2 Granular base to be Granular “A” to OPSS 1010. Inclusion of reclaimed asphalt pavement (RAP) and/ or reclaimed concrete materials (RCM) is not permitted.
- .3 Granular subbase to be Granular “B” to OPSS 1010. Inclusion of reclaimed asphalt pavement (RAP) and/ or reclaimed concrete materials (RCM) is not permitted.
- .4 Crushed stone or gravel consisting of hard, durable, angular particles, free from clay lumps, cementation, organic material, frozen material and other deleterious materials.
- .5 Filter fabric to be suitable for intended use, as confirmed by Consultant.

3.0 EXECUTION

3.1 SURFACE PREPARATION PRIOR TO INSTALLATION OF NEW MATERIAL

- .1 Verify grade of items set in work area for conformance with required elevations before placing granular material. Prepare and compact subgrade prior to placing granular backfill material.
- .2 Allow for Consultant’s review of subgrade before placing granular backfill material.
- .3 Place granular backfill material only on clean unfrozen subgrade and backfill material that is free from snow and ice.
- .4 Place granular backfill material to compacted thicknesses indicated in the Contract Documents. Do not place frozen material.
- .5 Place granular backfill in layers not exceeding 150 mm compacted thickness. Compact to density not less than 98% of maximum dry density (MDD) determined using the standard proctor test.
- .6 Finished base surface to be within 10 mm of specified grade, but not uniformly high or low. Where grades are not specified on Drawings, confirm requirements with Consultant and ensure slopes to drain.
- .7 Replace all damaged, deteriorated, and unsuitable sections of existing subgrade prior to placement of granular backfill material.

3.2 COMPACTING

- .1 Compact subgrade and granular backfill materials in accordance with the Ontario Provincial Standard Specifications, using proper equipment to achieve the specified density and complying with OPSS 501.
- .2 Compact subgrade and backfill materials to a minimum of 98% of MDD as determined by the standard proctor test method.
- .3 Density is to be measured using a nuclear density gauge.
- .4 Finished surfaces to be finished grades indicated or as directed by the Consultant, with slopes away from vertical surfaces and to drains and catch basins.
- .5 Finished surfaces to be uniform, smooth, even, dense, free from shallow areas, protrusions and surplus backfill. Correct any irregularities which vary more than 6 mm in 3,050 mm (1/4" in 10'-0").

3.3 INSPECTION AND TESTING

- .1 Testing to be conducted by a testing agency designated by the Owner's Representative. Unless otherwise noted, the Owner will pay costs of inspection and testing described in this section.
- .2 Contractor shall inform Consultant and testing agency 24 hours in advance of work to be performed under this section.
- .3 Testing may include site sampling and laboratory testing and/ or in-situ compaction testing.

END OF SECTION

1.0 GENERAL

1.1 WORK INCLUDED

- .1 Provide all labour, material, equipment, supervision, and services necessary to reinstate stockpiled paving stones (i.e. stone, precast, etc.), or supply and install new paving stones where existing are damaged, on prepared setting and base materials in areas designated on the Drawings. Reinstated and any new pavers are to match pre-existing conditions.
- .2 Provide all labour, material, equipment, supervision, and services necessary to brush and vibrate high-strength polymeric joint sand or install new grout to completely fill the joints between the paving stones, to match pre-existing conditions.

1.2 REFERENCE STANDARDS

- .1 All Reference Standards are latest editions, unless otherwise specifically referenced by latest building code in the Place of the Work.
- .2 CSA A23.4-16 Precast Concrete - Materials and Construction
- .3 Interlocking Concrete Pavement Institute (ICPI) Tech Specs

2.0 PRODUCTS

2.1 MATERIAL

- .1 Where new paving stones are required, they shall meet the following performance requirements:
 - .1 Compressive strength to CSA A23.4-09 minimum 55 MPa.
 - .2 Water Absorption to CSA A23.4-09 maximum 5%.
 - .3 Freeze/Thaw Resistance to CSA A23.4-09 maximum 1% weight loss (average) in 3% sodium chloride solution after fifty cycles.
 - .4 Colour to match existing.
 - .5 Texture to match existing.
 - .6 Shape to match existing.
 - .7 Thickness to match existing.
- .2 All paving stones shall be sound and free of cracks, chips and defects that interfere with placement or impair strength, and defects on visible surfaces.
- .3 New paving stones are to be supplied where existing paving stones have been damaged, at no extra cost to the Contract.

- .4 Crushed Gravel: Mixture of crushed gravel or stone and natural or crushed sand, meeting the specified gradation limits and the following requirements:
 - .1 Liquid limit of material passing 0.4 mm sieve shall not exceed 25%.
 - .2 Plasticity index of material passing 0.4 mm sieve shall not exceed 6%.
 - .3 Minimum of 50%, by weight, of material retained on 5 mm sieve shall have at least one face resulting from fracture.
- .5 Granular base per Section 32 11 00 – Granular Backfill.
- .6 Bedding sand and joint sand shall meet the following gradation limits based on percentage passing by mass:

Sieve Size (mm)	Bedding Size (%)	Joint Sand (%)
9.52	100	-
4.75	95-100	-
2.36	80-100	-
1.18	50-85	100
.600	25-60	50-90
0.300	10-30	25-60
0.150	5-15	12-30
0.075	0-10	0-10

- .7 Joint sand to be high-strength polymeric sand consisting of blended native sands mixed with synthetic polymers for pavement joint stabilization.
- .8 Gradation testing shall be conducted by a testing agency designated by the Consultant and paid for by the Owner.

2.2 GROUT

- .1 Epoxy Grout: chemical resistant, water cleanable, non-sagging, two component 100% solids epoxy grout. Colour to match existing.
 - .1 Acceptable Products:
 - .1 Kerapoxy as manufactured by Mapei Canada Inc.
 - .2 SP100 as manufactured by Laticrete International Inc.
 - .3 Chemset as manufactured by Master Builders.

3.0 EXECUTION

3.1 GRANULAR BASE

- .1 Install and prepare granular base in accordance with Section 32 11 00 – Granular Backfill.

3.2 BEDDING SAND

- .1 Bedding sand shall have uniform moisture content of 6% to 8% by mass when spread.
- .2 Spread sand uniformly and screed lightly to achieve the designated uniform thickness after placement and tamping of paving units. Compacted thickness to be 20 mm to 30 mm unless otherwise stated in the Reference Standards.
- .3 The screeded sand shall not be compacted, disturbed, or allowed to dry prior to placing paving stones. Remove, loosen, re-spread, and re-screed unsuitable bedding.
- .4 Do not allow prepared bedding sand to be walked across or raked prior to paver placement.
- .5 Place no more sand than will be covered with concrete paving stones on the same day.

3.3 LAYING PAVING STONES

- .1 Paving stones shall be placed in the pattern that existed prior to the start of the Work.
- .2 Paving stones shall be placed uniformly and hand-tight with all joints correctly aligned and joint spaces not wider than 3 mm.
- .3 Paving stones requiring trimming shall be cut with a quick-cut saw or a guillotine to provide a straight edge, or edge to match pre-existing conditions.
- .4 Use planks for foot and wheelbarrow traffic to prevent disturbance of paving stones prior to tamping.
- .5 Tamp paving stones with flat plate vibrator shortly after laying to bring surface to correct grade, eliminate lipping between adjacent stones, and consolidate the bedding sand.

- .6 Remove and replace paving stones that become damaged during placing and compaction.
- .7 Check finished surface to ensure surface and grade tolerances are met.

3.4 JOINT SAND

- .1 After initial paving stone placement and compaction, broom dry joint sand over the paving stones to fill the joints and provide a depth of not less than 5 mm.
- .2 Make two (2) passes, minimum, over the surface with a plate vibrator while simultaneously sweeping the sand into the joints.
- .3 Sprinkle water during vibration and sweeping to ensure proper sand compaction.
- .4 Sweep excess sand from the paver surface.

3.5 GROUTING

- .1 Allow paving stones to set for a period of 48 hours prior to grouting.
- .2 Force grout into joints, avoiding air traps or voids. Strike or tool joints of cushion edge tile to depth of cushion. Joints to be held flush with cushion edge. Remove all excess grout from face of paving stone.

3.6 TOLERANCE FOR INSTALLED PAVING UNITS

- .1 A 6-mm variation under a 3 m straightedge shall be maximum tolerance under paving stones with no variation greater than 2 mm between adjacent stones and/or edge restraints.

3.7 PROTECTION AND CLEANUP

- .1 Do not open newly installed paving stones to traffic until reviewed by Consultant.
- .2 Surface should be cleaned daily of all construction-related items.
- .3 Paving stones should be protected from damage during storage and prior to placement.

END OF SECTION



Appendix A

Designated Substances Survey (DSS) Report



November 29, 2017

DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS ASSESSMENT

Valley Halla – 1757 Meadowvale Road, Toronto, Ontario

Submitted to:

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REPORT

Report Number: 1790104(1000)

Distribution:

1 e-copy - Toronto Zoo
1 e-copy - Golder Associates Ltd.





Executive Summary

Golder Associates Ltd. (Golder) was retained by the Toronto Zoo to conduct a limited intrusive designated substance and hazardous materials survey (DSS) of the former residential building known as Valley Halla located at 1757 Meadowvale Road, Toronto, Ontario (the Site). The survey was conducted on November 10th, 2017.

The survey was performed with the objective of identifying designated substances, as required under the Ontario *Occupational Health and Safety Act* (the *Act*), R.S.O. 1990 (as amended), and to provide recommendations to remove or manage these materials in accordance with provincial regulations and guidelines, for management and environmental due diligence purposes.

The designated substances surveyed include asbestos-containing materials (ACM), lead, mercury and silica. The remaining designated substances (acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride) were not anticipated to be present at the Site. The presence of select hazardous materials including ozone depleting substances (ODSs), polychlorinated biphenyls (PCBs), radioactive materials and mould were noted, where observed.

Based on the results of the limited intrusive and overall Site survey, the following hazardous building materials were determined or presumed to be present:

Designated Substances and Hazardous Materials

Location	Material & Description	Estimated Quantity	Condition	Sample # / Content	Recommended Actions
Asbestos					
Enclosed Verandah (VH0103)	Texture coat on ceiling and walls	700 square feet	Fair to Good	05A / 2% chrysotile	Manage in place. Prior to disturbance, remove following Type 2 or Type 3 procedures dependent upon tool being used
Second Floor Kitchen (VH0214)	Pink and green 12" x 12" vinyl floor tile	60 square feet	Good	07A / 2% chrysotile	Manage in place. Prior to disturbance, remove following Type 1 procedures
Basement (VH0302)	Green 9" x 9" vinyl floor tile	600 square feet	Good	08A (layer 1) / 10% chrysotile	Manage in place. Prior to disturbance, remove following Type 1 procedures



**DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
ASSESSMENT - VALLEY HALLA – 1757 MEADOWVALE ROAD,
TORONTO, ONTARIO**

Location	Material & Description	Estimated Quantity	Condition	Sample # / Content	Recommended Actions
Basement (VH0301 and VH0302)	Texture coat on ceilings and walls	1,500 square feet	Poor-Good	09A / 3% chrysotile	Texture coat in poor condition should be removed following Type 2 or Type 3 procedures dependent upon tool being used. Texture coat in good condition can be managed in place
Basement (VH0302)	Corrugated paper pipe insulation	3 linear feet	Poor	Presumed based on Historical Report	Remove following Type 2 Glove Bag procedures
VH0102, VH0112, VH0201 and VH0207	Texture coat on ceilings	Unknown	Good	Presumed	Manage in place. Prior to disturbance sample for asbestos
Select walls throughout	Brick pattern texture coat	Unknown	Good	Presumed	Manage in place. Prior to disturbance sample for asbestos
Exterior	Stucco	Unknown	Good	Presumed	Manage in place. Prior to disturbance sample for asbestos
Basement Mechanical Room (VH0309 & VH0310)	Fire door	2 each	Good	Presumed	Manage in place. Prior to disturbance sample for asbestos or remove following Type 1 procedures
Throughout	Cast iron bell and spigot pipe connections	30 each	Good	Presumed	Manage in place. Prior to disturbance sample for asbestos or remove following Type 1 procedures
Lead-Containing Paint & Building Materials					
Second Floor - Southwest Washroom (VH0205)	Glazing on yellow ceramic tile	Not quantified	Good	L-3 / 4.1% lead	Any work involving lead must be completed in accordance with the MOL Guideline - Lead on Construction Projects (updated April 2011)



**DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
ASSESSMENT - VALLEY HALLA – 1757 MEADOWVALE ROAD,
TORONTO, ONTARIO**

Location	Material & Description	Estimated Quantity	Condition	Sample # / Content	Recommended Actions
Emergency Lighting & Exit Signs throughout	Lead-Acid Batteries	5 each	Good	N/A	Manage in place or extract and send to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste
Domestic Copper Water Pipe Lines throughout	Lead in Solder	Unknown	Good	N/A	Manage in place or extract and send to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste
Mercury					
Throughout	Mercury vapour present within fluorescent light tubes.	10 each	Good	N/A	Manage in place, recycle for reuse by qualified personnel, or dispose of in accordance with procedures prescribed under federal and provincial regulations
Silica					
Throughout Building's Concrete Foundation, Concrete Block, Concrete and Brick Mortar, and Ceiling Tiles.	Silica	Unknown	Good	N/A	Any work involving disturbances to silica must be completed in accordance with the Guideline - Silica on Construction Projects (updated April 2011).
Polychlorinated Biphenyls					
Throughout	Suspect PCB-Containing Fluorescent Light Ballasts	5 each	Good	N/A	Manage in place or handle, store or dispose of in accordance with SOR 2008/273, O. Reg. 347/90 and O. Reg. 362/90



**DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
ASSESSMENT - VALLEY HALLA – 1757 MEADOWVALE ROAD,
TORONTO, ONTARIO**

Location	Material & Description	Estimated Quantity	Condition	Sample # / Content	Recommended Actions
Ozone Depleting Substances					
Basement (VH0302)	Refrigerator	1 each	Good	N/A	Maintenance, transfer and disposal of refrigerants must be conducted in accordance with the Regulation respecting Ozone Depleting Substances and Other Halocarbons (O. Reg. 463/10).
Mould Contamination					
Basement (VH0302)	Plaster with asbestos-containing texture coat on walls and ceiling in east alcove	250 square feet	Poor	N/A	Remediate following combined EACO Level 3 mould remediation and Type 3 asbestos procedures
VH0211	Plaster ceiling	8 square feet	Poor	N/A	Remediate following EACO Level 1 mould remediation procedures
Radioactive Components					
VH0204	Smoke detector	1 each	Good	Am-241	Remediate following EACO Level 3 mould remediation procedures

Details regarding each of the identified hazardous building materials including approximate quantities, locations and present condition, where appropriate, are contained within the corresponding sections of the report. Recommendations for management and/or removal of these materials are provided in the Conclusions and Recommendations section herein.

Inaccessible, buried, or concealed ACM may be present in concealed locations (i.e. Transite™ asbestos cement pipes/products, straight- run insulation, caulking, gaskets, etc.) during future renovation activities. Based on this, contractors retained to conduct any renovation/construction activities should be notified of this limitation and written procedures be established in the event that concealed ACM are identified. The overall objective is to minimize exposure during any proposed renovation operations. If suspected ACM not identified in this report are encountered during any future renovations, the work should stop immediately and tested to confirm asbestos content. Alternatively, suspect ACM may be resumed to be asbestos-containing and removed as prescribed under O. Reg. 278/05.



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APPENDICES

APPENDIX A

Regulations, Guidelines and Standards



**DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
ASSESSMENT - VALLEY HALLA – 1757 MEADOWVALE ROAD,
TORONTO, ONTARIO**

APPENDIX B

Methodology

APPENDIX C

Historical Report – Asbestos Inspection Chart

APPENDIX D

Spreadsheet of Findings – Designated Substances and Hazardous Materials

APPENDIX E

Laboratory Certificate of Analysis – Asbestos

APPENDIX F

Laboratory Certificate of Analysis – Lead



1.0 INTRODUCTION

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The designated substances surveyed include asbestos-containing materials (ACM), lead, mercury and silica. The remaining designated substances (acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates and vinyl chloride) were not anticipated to be present at the Site. The presence of select hazardous materials including ozone depleting substances (ODSs), polychlorinated biphenyls (PCBs), radioactive materials and mould were also noted, where observed.

1.1 Site Description

The Site is an unoccupied two-storey with basement level former residence originally constructed circa 1936. The Site was last utilized as an office, however was originally constructed as a single-family residence. The building was constructed with below-grade brick foundation, brick, stone and stucco exterior walls and a clay shingled sloped roof. Flooring included carpet, vinyl floor tile, stone, hardwood and concrete. Interior walls were brick, wood panelling, plaster over wood lathe and wire mesh and drywall, and the ceilings consisted of wood panelling, drywall, and plaster. Mechanical ductwork and piping was noted to be uninsulated, insulated with fibreglass or insulated with asbestos-containing corrugated paper insulation. The building was heated and cooled via a radiators supplied by a newer central boiler system located in the Basement.

1.2 Historical Information

Previous historical asbestos survey work has been conducted at the Site and is detailed in the following document:

- Asbestos Inspection Chart, prepared by the Toronto Zoo and dated December 20, 2011.

Prior to conducting the Site investigation, Golder reviewed the above noted report and where applicable the findings were referenced during the field portion of the work, and herein. Please refer to Appendix C for a copy of this historical report.

2.0 SCOPE OF WORK

The Scope of Work involved conducting a limited intrusive building materials survey to:

- identify designated substances and other selected hazardous materials present;
- to supplement visual observations conduct representative bulk sampling of materials suspected of containing asbestos and building materials suspected of containing lead;
- complete analysis of bulk samples for asbestos type/percentage or lead content, where required; and,



- provide a report detailing the findings and any recommendations with respect to management of any identified designated substances, ODSs, PCBs, mould and radioactive materials present.

3.0 REGULATIONS, GUIDELINES, STANDARDS AND SAMPLING METHODOLOGY

The Regulations, Guidelines, and Standards referenced throughout this report are listed and defined in Appendix A. Similarly, the Investigation and Sampling Methodologies are provided in Appendix B.

4.0 RESULTS AND DISCUSSION

4.1 Asbestos

During the DSS a total of 34 samples, representing 10 distinct homogeneous building materials were collected and submitted for asbestos content analysis. Based on the laboratory Certificate of Analysis, the following materials were found to contain asbestos:

- Texture coat (Sample 05A) on the ceiling and walls in the Enclosed Verandah on the Ground Floor (Room VH0103) was found to contain 2% chrysotile. Approximately 700 square feet of this non-friable texture coat was noted to be in fair to good condition.
- Pink and green 12" x 12" vinyl floor tile (Sample 07A) present in the Second Floor Kitchen (Room VH0214) was found to contain 2% chrysotile. Approximately 60 square feet of this vinyl floor tile was noted to be in good condition.
- Green 9" x 9" vinyl floor tiles (Sample 08A, layer 1) collected from Room VH0302 in the Basement were found to contain 10% chrysotile. Approximately 600 sq. ft. of non-friable asbestos-containing vinyl floor tile was noted to be present in good condition. The associated mastic (Samples 08A-C, layer 2) was found not to contain asbestos.
- Texture coat (Sample 09A) present on the ceilings and walls in the finished portion of the Basement (Rooms VH0301 and VH0302) was found to contain 3% chrysotile. Approximately 250 square feet of this non-friable texture coat was noted to be in poor condition in the east alcove. Another 1,250 square feet of this texture coat was noted to be in fair to good condition.

A review of the historical report identified the following ACM:

- Corrugated paper pipe insulation. Approximately three linear feet of friable asbestos-containing white corrugated paper pipe insulation was noted to be present in poor condition in the Room VH0302 in the east alcove. Although not observed it is likely that additional quantities of this pipe insulation are present in concealed locations (e.g. within wall cavities, etc.) throughout in association with radiator units.
- Duct lining present in VH0306 and VH0310. During the investigation access to the interior of the ductwork was not possible. Therefore, the asbestos-containing duct lining could not be observed and is presumed to be present in good condition.



- Parging cement pipe insulation present on pipe fittings in VH0110. During the investigation no parging cement was observed, however may be present in concealed locations (e.g. wall cavities) throughout.

The following materials were not sampled in order to minimize damage to finished surfaces in good condition, and are presumed to contain asbestos until sampling proves otherwise:

- Texture coat on ceilings in Rooms VH0102, VH0112, VH0201 and VH0207;
- Brick pattern texture coat on select walls throughout; and,
- Exterior stucco.

Two fire doors were noted in the Basement Mechanical Rooms (VH0310 and VH0309) and cast-iron bell and spigot pipe connections were noted throughout. These building components are suspected to contain asbestos based on historical knowledge.

The following materials were sampled and found not to contain asbestos:

- Drywall joint compound present on walls and ceilings in the Ground Floor Kitchen (Room VH0108) (Samples 01A-C);
- Blue vinyl floor tile present in Room VH0111 (Samples 02A-C);
- Plaster crown moulding present in the Ground Floor Office (Room VH0107) (Samples 03A-C);
- Beige-pink vinyl floor tile present in the Ground Floor Washroom (Room VH0104) (Samples 04A-C);
- Plaster over wood lathe and wire mesh on walls and ceilings throughout (Samples 06A-G, layers 1 and 2); and,
- Grey stone mortar present on chimneys throughout (Samples 10A-C).

No vermiculite was observed. However, due to the nature of the investigation, asbestos-containing building materials may be present in areas that were inaccessible, given the limitations of Golder's investigative methodology noted above (i.e. behind solid surfaces, etc.). The roof was not accessible at the time of investigation due to the extensive height. In addition, the Garage was locked at the time of assessment and was not included in the investigation.

Please refer to Appendix D for the results of all samples analyzed, including those found to be non-asbestos. The laboratory Certificate of Analysis is presented in Appendix E.

4.2 Lead

A total of four bulk lead samples were collected from the Site. Based on the laboratory certificate of analysis the glazing on the yellow ceramic tiles (Sample L-3) present in the Second Floor Southwest Washroom was found to contain 4.1% lead. Based on Site observations, it is likely that the glazing on ceramic tiles present in the Washrooms throughout the Second Floor contain lead. Further, because of the age of the Site, the painted



surfaces on the exterior of the building are likely to have concentrations of lead above the limit of detection and therefore should be tested prior to disturbance.

The white ceiling paint (Sample L-1) present throughout, the grey wall paint (Sample L-2) present in the Southeast Bedroom (VH0202), and the grey mortar (Sample L-4) present on chimneys were found to be below the laboratory limit of detection and are therefore considered lead-free.

Lead is also suspected to be present in the solder within the copper domestic water pipes, in the lead-acid batteries of the emergency light fixtures, and in the leaded windows present throughout. Please refer to Appendix D for the results of all samples analyzed. The laboratory Certificate of Analysis is presented in Appendix F.

4.3 Mercury

Mercury vapour is suspected in the fluorescent light tubes observed throughout the Site. Light bulbs, if broken, may pose an occupational hazard to unprotected workers.

4.4 Silica

Silica is suspected in the concrete and concrete products used to construct the Site. No samples of these materials were collected.

4.5 Ozone Depleting Substances

ODSs are suspected within the refrigerator located in the Basement.

4.6 Polychlorinated Biphenyls

Fluorescent light ballasts present throughout may contain PCBs. The lighting systems were active at the time of the Site visit, and as such any associated ballasts were not accessed for health and safety. Given the age of the Site it is possible that PCB-containing ballasts are present.

4.7 Mould

Water damaged and mould impacted plaster with asbestos-containing texture coat present in the east alcove of Room VH0302 in the Basement was noted. The exact source of the water intrusion is unknown, however it is suspected to be the result of foundation issues. Approximately 250 square feet of water impacted plaster and texture coat was noted to be present on the ceiling and walls. It should be noted that asbestos-containing corrugated paper pipe insulation was also present on the east wall.

Minor surficial suspect mould and water damage was noted on the plaster ceiling present in Room VH0211 on the Second Floor. It is likely that the damage was due to a roof leak. Approximately eight square feet of staining/suspect mould was noted.

4.8 Radioactive Components

One smoke detector containing radioactive materials was noted to be present in Room VH0204 on the Second Floor. No other suspect radioactive components were observed.



5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Asbestos

Through Site investigation and laboratory analytical testing, asbestos was identified or presumed in vinyl floor tile, texture coat, paper pipe insulation, fire doors, bell and spigot pipe connections and stucco.

Based on Site observations and laboratory results, the following recommendations are made in accordance with the requirements of the Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations (O. Reg. 278/05):

- Pink and green 12" x 12" and green 9" x 9" non-friable asbestos-containing vinyl floor tiles present in VH0214 and VH0302 can be managed in-place. Prior to renovation or disturbance the vinyl floor tiles should be removed following Type 1 work procedures provided non-powered hand tools are used. If powered tools will be used the work should be completed following Type 2 work procedures.
- Non-friable asbestos-containing texture coat present in poor condition in Room VH0302 should be removed following Type 2 work procedures if hand-tools are used or Type 3 work procedures if power tools are used. Texture coat in good condition in Rooms VH0103, VH0301 and VH0302 can be managed in place.
- Friable asbestos-containing white corrugated paper pipe insulation present in Room VH0302 was noted to be in poor condition and should be removed following Type 2 Glove Bag procedures. Although not observed it is likely that additional quantities of this pipe insulation are present in concealed locations (e.g. within wall cavities, etc.) throughout in association with radiator units.
- Duct lining was identified in the historical report but could not be confirmed during the investigation. Prior to disturbance of the ductwork present in the Basement an intrusive investigation should be undertaken to determine the presence of asbestos-containing duct lining.
- Due to the limitations in the scope of work, several suspect materials were not sampled during the investigation. These materials include texture coat on ceilings in VH0102, VH0112, VH0201 and VH0207; brick pattern texture coat on select walls throughout; and exterior stucco. Prior to disturbance these materials should be sampled to determine asbestos content.
- The fire doors present in the Basement, and cast iron bell and spigot pipe connections present throughout are presumed to contain based on historical knowledge. Prior to disturbance, these materials should either be sampled for asbestos or removed following Type 1 procedures.
- O. Reg. 278/05 outlines specific procedures with regards to maintenance, renovations or demolition work where ACMs are or may be disturbed. This regulation requires that an asbestos management plan is implemented in any building where the owner of a building knows or ought reasonably to know that ACM has been used in a building for any purpose related to the building, [O. Reg. 278/05 s. 8(2)]. Under this regulation, responsibilities of the Building Owner generally include: Preparation and maintenance of a record of locations, condition and friability of ACMs in the building, (i.e. this report); notification of workers who may work in close proximity to the material or who have the potential to disturb this material(s); and periodic inspections to assess its condition and updating of the record at least once in each 12 month period. Based on this, the



asbestos-containing materials as identified in this report can be managed in place. We would be pleased to assist you with the development of this plan.

- The quantities of ACM as reported are estimates only and may not accurately reflect the exact quantities at the Site. Contractors retained to complete asbestos abatement activities should independently confirm the reported quantities.
- Due to the limitations in the scope of work, it is possible that undiscovered ACM are present within inaccessible locations such as behind solid wall cavities (i.e. vermiculite insulation, bulkheads, column enclosures and above solid ceilings), within the Garage or on the Roof. Although not observed, multiple layers of flooring and floor levelling compound may be present beneath existing flooring. If suspected ACM not identified in this report are encountered during future renovation activities, the work should stop immediately and the material tested to determine asbestos content. This would be executed in order to provide recommendations on the applicable work procedures.

5.2 Lead

Based on the analytical results, lead was detected in the yellow ceramic tile present in VH0205 and is suspected to be present in the ceramic tile present in Washrooms throughout the Second Floor. Lead is also suspected in the solder within the copper domestic water pipes, in the lead-acid batteries of the emergency light fixtures, and in the leaded glass windows throughout. During future renovation activities, inaccessible lead-containing materials may be uncovered (e.g. lead piping or sheeting). All bulk lead-containing materials should be extracted and sent to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste.

Ontario Regulation 490/09 - Designated Substances, as amended (O. Reg. 490/09) prescribes an occupational exposure limit (OEL) for elemental lead of 0.05 mg/m³ calculated as an 8 hour/daily and a 40 hour/weekly time-weighted average (TWA) limit. Despite the fact that O. Reg. 490/09 does not apply to a construction project, employers still have a general duty and responsibility under Part III, Section 25(2)(h) of the *Act* to protect workers.

If contracted personnel retained to conduct the work are required to perform operations where significant levels of airborne lead-containing dust may be generated, then measures must be taken by the contractor to ensure the OEL for lead is not exceeded and that all reasonable regulatory and health and safety precautions are taken. The MOL [Guideline - Lead on Construction Projects](#), (updated April 2011), provides a classification system to assist with determining the required control measures necessary, based on the proposed work activity.

The potential for worker exposure to exceed the OEL is dependent on how the materials are to be disturbed. Contractors retained to complete work should consult the cited MOL Guideline prior to completing a specific task with the objective of evaluating the need for health and safety precautions such as engineering controls, safe work and hygiene practices, personal protective equipment and training.

5.3 Mercury

Mercury vapour is suspected in the fluorescent light tubes observed throughout the Site. If the mercury is to be disposed of, it should be removed and possibly recycled. If it cannot be recycled, the suspected mercury-containing materials should be disposed of as mercury-containing waste.



5.4 Silica

Sampling for the presence of crystalline silica was not conducted during this assessment. However, silica is likely present in the concrete and mortars used to construct the building. During renovation or demolition, it is recommended that materials suspected to contain silica are routinely misted with water to control airborne dust levels, thereby preventing worker and public exposure to silica. Any work involving silica should be completed in accordance with the MOL [Guideline - Silica on Construction Projects](#) (updated April 2011). Workers in the immediate vicinity or having the potential to become exposed to airborne silica should be provided with the appropriate respiratory protection.

5.5 Ozone-Depleting Substances

Prior to disposal, the ODSs refrigerants suspected to be present within the refrigerator should be drained by a licensed technician before the equipment is decommissioned and up-to-date records should be kept detailing the transfer quantities by refrigerant types and given to the owner for their records. Maintenance, transfer and disposal of refrigerants must be conducted in accordance with the Regulation Respecting Ozone Depleting Substances and other Halocarbons (O. Reg. 463/10).

5.6 Polychlorinated Biphenyls

The lighting systems were active at the time of the Site visit, and as such any associated ballasts were not accessed for health and safety reasons. Given the reported age of the Site, it is possible that the light ballasts present contain PCBs. For confirmation purposes prior to disposal, all light ballasts must be checked and compared to the Environment Canada's Report EPS 2/CC/2 (revised) August 1991, Identification of Lamp Ballasts Containing PCBs. Ballasts clearly identified as "Non-PCB" or "PCB-Free" can be recycled or disposed of as regular construction waste. All other ballasts must be identified by the markings, date code, model and serial number to confirm the presence of PCBs.

5.7 Mould

Mould-contaminated and water damaged building materials were observed within Rooms VH0302 and VH0211. The remediation work should be completed by a qualified mould remediation contractor following Level 1 and Level 3 work procedures for all associated or impacted building materials. Work should be completed in accordance with the recommendations of the Environmental Abatement Council of Ontario, (EACO) Mould Abatement Guidelines (April 2015).

Because of the inherent nature of mould, the quantities as reported may not completely reflective of the Site conditions. Additional contamination may be present once the remediation begins and wall and ceiling cavities are further accessible.

Although comments regarding possible sources of water damage and mould growth were made by Golder based on observations during our assessment, a professional Building Science Engineer should be contracted building to determine the exact source of the suspected moisture intrusion and recommended corrective measures necessary to prevent future water intrusion and moisture accumulation. This work should be coordinated once the contaminated building materials have been removed. Any re-instatement of building materials in these areas should not commence until the source of the water has been confirmed and repaired.



5.8 Radioactive Components

Through Site investigation, one smoke detector suspected to contain Am-241 was observed in Room VH0204. Prior to disposal, the smoke detector manufacture should be determined in order to verify the presence of radioactive material. If the identity of the manufacturer is not found, the Canadian Nuclear Safety Commission (CNSC) has confirmed that individual smoke alarms containing Am-241 may be disposed of as regular waste. If the smoke alarm contains radium or if there are large numbers of smoke alarms containing Am-241 to be disposed of (more than 10 units); CNSC states that they should be returned to the manufacture or else shipped to a regional Low Level Radioactive Waste Management Office for disposal.

6.0 LIMITATIONS

This report was prepared for the use of the Toronto Zoo. This report is based on data and information collected during the Site visit conducted by Golder and is based solely on Site conditions encountered at the time of the survey.

The conclusions and recommendations contained in this report are based upon professional opinions with regard to the subject matter. These opinions are in accordance with applicable and currently accepted occupational health and safety or environmental assessment standards and practices applicable to these locations and are subject to the following inherent limitations:

- The data and findings presented in this report are valid as of the date of the investigation. The passage of time, manifestation of latent conditions or occurrence of future events may warrant further exploration at the properties, analysis of the data, and re-evaluation of the findings, observations, and conclusions expressed in this report;
- Additional hazardous building materials not identified in this report may become evident during future renovation activities. Should additional information become available, Golder requests that this information be brought to our attention so that we may re-assess the conclusions presented herein;
- Golder will not be responsible for any real or perceived decrease in a property value, its saleability or ability to gain financing through the reporting of information in this report;
- Golder's report presents professional opinions and findings of a scientific and technical nature. While attempts were made to relate the data and findings to applicable environmental and occupational health and safety laws and regulations, the report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental and occupational health and safety laws, rules, regulations or policies of federal, provincial, or local governmental agencies. Any use of this assessment report constitutes acceptance of the limits of Golder's liability. Golder's liability extends only to its client and not to other parties who may obtain this assessment report. Issues raised by the report should be reviewed by appropriate legal counsel;
- In evaluating the Site conditions, Golder has relied in good faith on information provided by others. We accept no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omissions, misinterpretations or fraudulent acts of the persons involved;



- The quantities of identified designated and hazardous substances noted herein are estimated quantities for reporting purposes, and this report is limited in that regard. It is solely the responsibility of the contractor to confirm the exact quantities of designated substances to be removed, prior to their removal;
- Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance in the management of identified materials. Contractors bidding on, or undertaking any work should rely on their own investigations, as well as their own interpretations of the factual data presented in this report, as to how concealed conditions may affect their work, including but not limited to proposed techniques, schedule, safety and equipment capabilities; and,
- Special risks occur whenever engineering or related disciplines are applied to identify Site conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain Site conditions. The conditions that Golder interprets to exist between and beyond investigation and sampling points may differ from those that actually exist.
- The data reported and the findings and recommendations expressed in this report are limited by the Scope of Work. The Scope of Work is based on the request of the client, availability of access to the property and time constraints.

7.0 CLOSURE

If you have any questions or require any further information, please feel free to contact the undersigned at (905) 723-2727. Thank you for the opportunity to be of service. We look forward to working with you again.



Report Signature Page

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APPENDIX A

Regulations, Guidelines and Standards



REGULATIONS, GUIDELINES AND STANDARDS

Occupational Health and Safety Act

The Ontario Health and Safety Act (the Act) defines and regulates designated substances that may be present within buildings. Section 30 of the Act requires that, prior to beginning a construction project (including building renovation or demolition) a document summarizing the presence of these materials must be available to contractors and subcontractors requesting tenders.

Asbestos-Containing Materials

Ontario Regulation 278/05 - Asbestos on Construction Projects and in Buildings and Repair Operations, as amended (O. Reg. 278/05), made under the Act, prescribes specific procedures for the identification of asbestos-containing materials (ACM) and protocols for their removal. Under this regulation, if ACM are suspected to be present or ought reasonably to be suspected, locations of the materials must be documented and available to contractors and subcontractors requesting tenders.

Ontario Regulation 347/90 - General Waste Management, as amended (O. Reg. 347/90), made under the *Environmental Protection Act*, prescribes requirements for general waste management including ACM. The regulation defines "asbestos waste" as "solid or liquid waste that results from the removal of asbestos-containing construction or insulation materials or the manufacture of asbestos-containing products and contains asbestos in more than a trivial amount or proportion". Asbestos waste must be disposed of in a licensed waste facility which has been properly notified of the presence of asbestos waste.

Lead

Lead was used as a pigment and drying agent in alkyd oil-based paint. Ontario Regulation 490/09 - Designated Substances, as amended (O. Reg. 490/09) made under the Act, prescribes requirements relating to the control of potential exposure to lead-containing materials in the workplace, where lead is present, produced, used, handled or stored and at which the worker is likely to be exposed to lead.

If operations that will likely produce airborne lead dust or fumes (e.g. during welding, torch cutting, sanding and sand blasting) are to occur during building demolition, it is recommended that the disturbance of lead paint be carried out in accordance with procedures outlined in the Ontario Ministry of Labour (MOL) Guideline - Lead on Construction Projects dated September 2004 (updated April 2011).

The MOL currently does not include criteria for classification of lead paint, and allows for no minimum concentration of lead in paint to be acceptable as non-lead containing. Therefore in these circumstances, Golder considers all paints with any detectable presence of lead as lead-containing paint (LCP). The accepted laboratory testing methods for determination of lead in paint is either flame atomic absorption spectroscopy (FAAS) or inductively coupled argon plasma-atomic emission spectroscopy (ICP-AES).

Mercury

Mercury is regulated under O. Reg. 490/09. This regulation prescribes occupational exposure limits (OELs) and requirements for engineering controls, work practices and hygiene practices and facilities to protect workers who may be potentially exposed to mercury.



Silica

Silica is a naturally occurring mineral and may be found in common aggregates in concrete mortar, brick and ceiling tiles, and is likely present in the concrete and mortar used to construct the Site. The health risks associated with exposure to silica is due primarily to the inhalation of respirable crystalline silica, particularly in the form of dust associated with the abrading or cutting of silica containing materials.

Silica is regulated under O. Reg. 490/09. This regulation prescribes OELs and requirements surrounding engineering controls, work practices, and hygiene practices and facilities to protect workers who may be potentially exposed to crystalline silica (cristobalite, quartz and tripoli). As prescribed under O. Reg. 490/09, an employer shall take all reasonable precautions to prevent worker exposure to crystalline silica. Procedures for workers involved in construction activities occurring on a Site where silica is disturbed are outlined in the MOL Guideline - Silica on Construction Projects dated September 2004 (updated April 2011).

Ozone-Depleting Substances

In 1998, the federal government enacted the Ozone Depleting Substances Regulations (SOR/99-7), to amend controls on production and consumption of chlorofluorocarbons (CFC), halons, tetrachloride and methylchloroform. The Federal Halocarbon Regulations (SOR/2003-289), was enacted to ensure uniformity with respect to the release, recovery and recycling of ozone depleting substances (ODSs) and their halocarbon alternatives in refrigeration and air conditioning. The regulation also requires that permits be obtained to import or export used, recovered, recycled and reclaimed ODSs.

Equipment containing ODSs should be removed by a licensed contractor and handled in accordance with the Code of Practice for the Reduction of CFC Emissions from Refrigeration and Air Conditioning Systems, updated in 2008 and Ontario Regulation 463/10 - Ozone Depleting Substances and other Halocarbons (O. Reg. 463/10). ODSs are often present in refrigerators and freezers, vending machines (refrigerated) and in water fountains/water coolers and air conditioning systems.

Polychlorinated Biphenyls

Polychlorinated Biphenyls (PCBs) were used as a dielectric fluid in electrical equipment such as transformers, light ballasts and capacitors. The use of PCBs in fluorescent lamp ballast capacitors was common up to 1980. The PCB Regulations (SOR/2008-273) prohibits and restricts the use of PCBs pertaining to the manufacture, export, import, sale, and or processing of PCBs and PCB-containing products.

SOR/2008-273 prescribes requirements pertaining to the handling, storage and disposal of PCBs and PCB-containing equipment. Revisions to the federal regulation have provided end-of-use deadlines for liquids containing PCBs, as well as PCBs in specified equipment. The first such deadline was December 31, 2009, by which time all equipment containing PCBs at concentrations greater than 500 mg/kg, and equipment within 100 metres of specified sensitive locations and containing PCBs at concentrations greater than 50 mg/kg, must have been phased out of use. These deadlines exclude PCB-containing light ballasts, and pole-mounted transformers.

The presence of PCB in caulking was determined by collecting bulk samples and submitting for laboratory analysis. Samples found to contain PCB in concentrations of 50 ug/g or greater are considered PCB-containing, as prescribed under Ontario Regulation 362 - PCB Waste Management (O. Reg. 362).



Mould

There is no specific regulation in Ontario addressing mould contamination. However, according to Health Canada¹ and the Environmental Abatement Council of Ontario (EACO)² guidelines on assessment and remediation of fungi in indoor environments, building materials supporting mould growth should be remediated as rapidly as possible in order to ensure a healthy environment. Remediation of mould growth is based on an approximation of the extent of visible mould growth including the estimated extent of any hidden mould growth. The EACO guideline describes three levels of work practice; Small- Level 1, Medium- Level 2 and Large- Level 3. The thresholds between Small and Medium (1 m² or 10 sq. ft.) and between Medium and Large project areas (10 m² or 100 sq. ft.) are guidelines only and are subject to professional judgment. Repair of the defects that led to water accumulation should be conducted in conjunction with or prior to the remediation.

The basic principles of proper water damage restoration practice and mould remediation procedures to be followed, and the precautions to be observed, are described in the Standards for Professional Water Damage Restoration S500-2006³ and Reference Guide for Professional Mould Remediation Restoration S520-2008⁴, issued by Institute of Inspection, Cleaning and Restoration Certification (IICRC).

Radioactive Materials

Ionization chamber smoke detectors contain a small amount of radioactive material encapsulated in a metal chamber. Modern smoke detectors are known to contain a small amount of Americium 241 (Am-241). Older smoke detectors may contain either Am-241 or Radium 226 (Ra-226).

Radioactive material found in smoke detectors is regulated under the Nuclear Safety and Control Act. Any radioactive sources are to be disposed of in accordance with prescribed requirements prior to demolition or returned to the manufacturer for disposal.

Other Hazardous Materials

Other hazardous materials include acrylonitrile, arsenic, benzene, coke oven emissions, ethylene oxide, isocyanates, and vinyl chloride. None of these substances were expected to be present as significant constituents of the building materials and architectural finishes and, as such, no specific observations or sampling of materials potentially containing these substances was included as part of this survey and will not be discussed further in this document.

¹ Fungal Contamination in Public Buildings: A Guide to Recognition and Management, Health Canada, Federal-Provincial Committee on Environmental and Occupational Health, June 1995.

² Mould Abatement Guidelines 2010, Environmental Abatement Council of Ontario, 2010

⁴ ANSI/IICRC S500 - Standard and Reference Guide for Professional Water Damage Restoration, Institute of inspection Cleaning and Restoration, 2006

⁵ ANSI/IICRC S520 - Standard and Reference Guide for Professional Mould Remediation, Institute of inspection Cleaning and Restoration, 2008



APPENDIX B

Methodology



METHODOLOGY

The Site was assessed for suspected asbestos-containing materials (ACM), lead-containing paint (LCP), mercury in thermostats and pressure sensing devices, ozone depleting substances (ODSs) in items or systems such as refrigerators and air conditioning units, and polychlorinated biphenyl's (PCBs) in fluorescent light ballasts. Silica will be present in common aggregates, concrete, mortar and brick, as outlined below.

Asbestos-Containing Materials

Readily available information was gathered regarding the building including age, type of structure, presence of renovated areas or additions, and any details regarding the building mechanical systems. The building systems reviewed as part of this investigation included mechanical systems, structural components, and architectural finishes and materials.

The areas surveyed were visually assessed on an area-by-area basis in order to identify the locations of confirmed and potential ACM. Bulk samples were collected of materials suspected of containing asbestos for confirmation purposes.

Homogeneous materials sampling was utilized during the course of the investigation. The bulk material sampling was completed on homogeneous materials that are uniform in colour, texture, and installation or construction date. As per "Table 1" of O. Reg. 278/05, a minimum of three samples per homogeneous material were collected and submitted for analysis.

Representative samples of suspected ACM were submitted to EMSL Canada Inc. (EMSL) of Mississauga, Ontario, for analysis to determine asbestos type and percentage content, in accordance with U.S. Environmental Protection Agency (USEPA) Method EPA/600/R-93/116, as prescribed under O. Reg. 278/05.

Lead

Systematic sampling and visual identification of suspected LCP were completed as part of the survey. Samples of suspected LCP were collected and submitted to EMSL for analysis in accordance with the American Society for Testing and Materials (ASTM) Method D3335-85A. This method is derived from the USEPA SW 846 Method 3050B where each sample is digested, diluted and analyzed by FAAS.

An inventory was made of the other known or suspected lead-containing materials (i.e. batteries for emergency lights) based on visual observations, where observed.

Mercury

A review of potential mercury-containing equipment installed at the Site was completed as part of the survey, such that any mercury-containing switches, thermostats (switch bulbs) and pressure-sensing devices were noted, if observed. Elemental mercury may be present in thermostats and trace amounts of mercury vapour may be present in metal halide light bulbs and fluorescent light tubes.

Silica

Silica is a naturally-occurring mineral and may be found in common aggregates, concrete, mortar and brick. The health risk associated from exposure to silica is primarily due to the inhalation of respirable crystalline silica, particularly in the form of dust associated with the abrading or cutting of silica-containing materials.



Ozone-depleting Substances

A review of thermostats, refrigeration and air conditioning units was completed to verify the presence of ODSs such as refrigerants R-11, R-12 and R-22. The presence of refrigerants was determined by gathering an inventory of all observed air conditioner and refrigerator units.

Polychlorinated Biphenyls

The Site was visually assessed for the presence of PCBs in stored/waste fluorescent light ballasts, and on-Site transformers, if observed. The areas surveyed were visually assessed on an area-by-area basis in order to identify the locations of potential PCB-containing caulking. The Site was assessed for the presence of polychlorinated biphenyls (PCBs) in paints and caulking materials only. Bulk samples were collected of materials suspected of containing PCB for laboratory confirmation. Representative samples of suspected PCB were submitted to Maxxam of Mississauga, Ontario for analysis to determine PCB content in accordance with U.S. Environmental Protection Agency (USEPA) Method EPA SW-846 3541 & 8082.

Mould

The assessment involved a visual examination for the evidence and characterization of water damaged/impacted building materials, visible mould colonization of the exposed surfaces, and for the areas of the Site where moisture and substrates may encourage fungal growth. The assessment focused primarily on Site finishes, building structure, mechanical systems, and interior surface treatments in the basement, in an attempt to identify water impacted building materials.

Radioactive Materials

Review of smoke detectors was undertaken to identify the existence of radioactive material contained in the ionization chamber. The presence of Am-241 or Ra-226 can be determined by gathering label information such as the manufacturer, model numbers and serial numbers.



APPENDIX C

Historical Report – Asbestos Inspection Chart

ASBESTOS INSPECTION CHART

Date of Inspection: 2011-12-20

Inspected By: B Rabideau

Unit/Branch: Utilities / Facilities & Services

Name of Building: Valley Halla

Location	Type of Material <i>(e.g. elbow)</i>	Condition	Remedial Work Required
VH0306 Mechanical Room	Duct Lining	Good	
Mechanical Room	Elbow/joint/valve Insulation	Removed	Removed by Contract Mid 1990's
Mechanical Room	Corrugated Paper Pipe Insulation	Removed	Removed by Contract Mid 1990's
Pump Room	Elbow/Joint/Valve Insulation	Removed	Removed by Contract Mid 1990's
Pump Room	Corrugated Paper Pipe Insulation	Removed	Removed by Contract Mid 1990's
Kitchenette	Corrugated Paper Pipe Insulation	Removed	Removed by Contract Mid 1990's
VH0110 Storage Room	Elbow	Good	
VH0310 Boiler Room	Duct Lining	Good	



APPENDIX D

Spreadsheet of Findings – Designated Substances and Hazardous Materials

APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
 Valley Halla
 1757 Meadowvale Road, Toronto, Ontario
 Designated Substance Survey



Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Asbestos	VH0108 - Kitchen	Drywall joint compound	NA	Square feet	Good	No	High	01A-C	None detected		No action required
Asbestos	VH0111	Blue vinyl floor tile	NA	Square feet	Good	No	High	02A-C	None detected		No action required
Asbestos	VH0107 - Office	Plaster crown moulding	NA	Square feet	Good	No	Moderate	03A-C	None detected		No action required
Asbestos	VH0104 - Ground Floor Washroom	Beige-pink vinyl floor tile	NA	Square feet	Good	No	High	04A-C	None detected		No action required

APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
 Valley Halla
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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Asbestos	VH0103 - Enclosed Verandah	Texture coat on walls and ceiling	700	Square feet	Fair-Good	No	High	05A	2% chrysotile		Manage in place. Prior to disturbance, remove following Type 2 or Type 3 procedures dependent upon tool being used
Asbestos	Throughout	Plaster over wood lathe and wire mesh	NA	Square feet	Good	Yes	High	06A-G (layers 1 and 2)	None detected		No action required
Asbestos	VH0214 - Second Floor Kitchen	Pink and green 12" x 12" vinyl floor tile	60	Square feet	Good	No	High	07A	2% chrysotile		Manage in place. Prior to disturbance, remove following Type 1 procedures
Asbestos	VH0302 - Basement	Green 9" x 9" vinyl floor tiles and associated mastic	600	Square feet	Good	No	High	08A-C (layers 1 and 2)	Tile - 10% chrysotile Mastic - None detected		Manage in place. Prior to disturbance, remove following Type 1 procedures

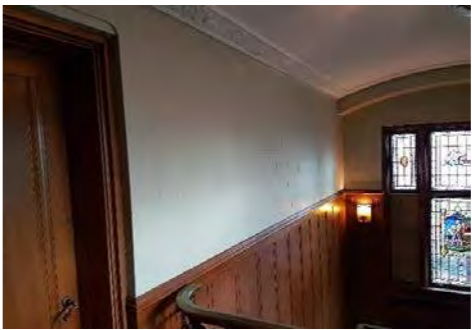



APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
 Valley Halla
 1757 Meadowvale Road, Toronto, Ontario
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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Asbestos	VH0301 and VH0302 - Basement	Texture coat on walls and ceiling	1,250	Square feet	Good	No	High	09A	3% chrysotile		Texture coat in poor condition should be removed following Type 2 or Type 3 procedures dependent upon tool being used. Texture coat in good condition can be managed in place
			250		Poor						
Asbestos	Exterior chimneys	Stone mortar	NA	Square feet	Good	No	High	10A-C	None detected		No action required
Asbestos	Throughout - Piping associated with radiators	Corrugated paper pipe insulation	3	Linear feet	Poor	Yes	High	Not Sampled	Unknown		Remove following Type 2 Glove Bag procedures
Asbestos	VH0102, VH0112, VH0201 and VH0207	Texture coat on ceilings	NA	Square feet	Good	Yes	Moderate	Not Sampled	Presumed		Manage in place. Prior to disturbance, sample for asbestos

APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
 Valley Halla
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 Designated Substance Survey



Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Asbestos	Throughout - Select locations	Brick pattern texture coat on walls	NA	Square feet	Good	No	High	Not Sampled	Presumed		Manage in place. Prior to disturbance, sample for asbestos
Asbestos	Exterior	Stucco	NA	Square feet	Good	No	High	Not Sampled	Presumed		Manage in place. Prior to disturbance, sample for asbestos
Asbestos	VH0310 and VH0309 - Basement Mechanical Rooms	Fire door	2	Each	Good	No	Low	Not Sampled	Presumed		Manage in place. Prior to disturbance, remove following Type 1 procedures or sample for asbestos
Asbestos	Throughout	Cast iron bell and spigot pipe connections	30	Each	Good	No	Low	Not Sampled	Presumed		Manage in place. Prior to disturbance, remove following Type 1 procedures or sample for asbestos

APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Lead	Throughout	White ceiling paint	Unknown	Square feet	Good / Poor	NA	Moderate	L-1	None detected		No action required
Lead	VH0202 - Southeast Bedroom	Grey wall paint	Unknown	Square feet	Good / Poor	NA	High	L-2	None detected		No action required
Lead	VH0205 - Second Floor Southwest Washroom	Yellow ceramic tile	Unknown	Square feet	Good	NA	High	L-3	4.1% lead	Photograph unavailable	Any work involving lead must be completed in accordance with the MOL Guideline - Lead on Construction Projects (updated April 2011).
Lead	Exterior chimneys	Grey mortar	Unknown	Square feet	Good	NA	High	L-4	None detected		No action required



APPENDIX D - SPREADSHEET OF FINDINGS - DESIGNATED SUBSTANCES AND HAZARDOUS MATERIALS
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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Lead	Batteries - emergency light fixtures	Lead-acid batteries	5	Each	Good	NA	Low	Not Sampled	Presumed		Bulk lead-containing materials impacted and not re-used should be extracted and sent to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste
Lead	Domestic water lines	Lead in solder	Unknown	Square feet	Good	NA	Low	Not Sampled	Presumed	Photograph unavailable	Bulk lead-containing materials impacted and not re-used should be extracted and sent to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste
Lead	Windows	Lead comes	Not Quantified	Linear feet	Good	NA	High	Not Sampled	Presumed		Bulk lead-containing materials impacted and not re-used should be extracted and sent to a recycling facility. If recycling of the lead is not practicable then it must be disposed of in an approved landfill as lead waste
Mercury	Throughout	Fluorescent light tubes	10	Each	Good	NA	Low	Not Sampled	Presumed		At the time of disposal, mercury bulbs may be recycled and reused by qualified personnel or may be disposed of in accordance with procedures specified by federal and provincial regulations



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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Silica	Throughout	Concrete products	Unknown	Square feet	Good	NA	High	Not Sampled	Presumed	Photograph unavailable	Any work involving silica should be completed in accordance with the MOL Guideline - Silica on Construction Projects (updated April 2011).
ODS	VH0302 - Basement	Refrigerator	1	Each	Good	NA	Low	NA	Presumed		Refrigerants should be drained by a licensed technician. Disposal of refrigerants must be conducted in accordance with the Regulation respecting Ozone Depleting Substances and Other Halocarbons (Ontario Regulation 463/10)
PCB	Throughout	Fluorescent light ballasts	5	Each	Good	NA	Low	Not Sampled	Presumed		All light ballasts must be checked and compared to the Environment Canada's Report EPS 2/CC/2 (revised) August 1991, Identification of Lamp Ballasts Containing PCBs. Ballasts clearly identified as "Non-PCB" or "PCB-Free" can be recycled or disposed of as regular construction waste. All other ballasts must be identified by the markings, date code, model and serial number to confirm the presence of PCBs

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Des. Sub/Haz Mat.	Location	Material & Description	Est. Qty*	Units	Condition	Friable	Accessibility	Sample #	% and Type	Photographs	Recommended Actions
						Yes/No					
Mould	VH0302 - Basement	Plaster walls and ceiling in east alcove	250	Square feet	Poor	NA	High	Not Sampled	Presumed		Remediate following Level 3 EACO procedures
Mould	VH0211	Plaster ceiling	8	Square feet	Poor	NA	Moderate	Not Sampled	Presumed		Remediate following Level 1 EACO procedures



APPENDIX E

Laboratory Certificate of Analysis – Asbestos



EMSL Canada Inc.

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EMSL Canada Order 551712530
Customer ID: 55GOLA62
Customer PO: 1790104
Project ID:

Attn: Ashley Chlebak
Golder Associates, Ltd.
100 Scotia Court
Whitby, ON L1N 8Y6
Phone: (905) 723-2727
Fax: (905) 723-2182
Collected: 11/ 9/2017
Received: 11/10/2017
Analyzed: 11/17/2017
Proj: 1790104 (1000)/Valley Halla

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 01A **Lab Sample ID:** 551712530-0001

Sample Description: DJC/GF Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Beige	0%	100%	None Detected	

Client Sample ID: 01B **Lab Sample ID:** 551712530-0002

Sample Description: DJC/GF Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Beige	0%	100%	None Detected	

Client Sample ID: 01C **Lab Sample ID:** 551712530-0003

Sample Description: DJC/GF Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White	0%	100%	None Detected	

Client Sample ID: 02A **Lab Sample ID:** 551712530-0004

Sample Description: Blue VFT/GF Room across from Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: 02B **Lab Sample ID:** 551712530-0005

Sample Description: Blue VFT/GF Room across from Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: 02C **Lab Sample ID:** 551712530-0006

Sample Description: Blue VFT/GF Room across from Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Blue	0%	100%	None Detected	

Client Sample ID: 03A **Lab Sample ID:** 551712530-0007

Sample Description: Plaster Crown Moulding /GF Office

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White/Yellow	0%	100%	None Detected	



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EMSL Canada Order 551712530
Customer ID: 55GOLA62
Customer PO: 1790104
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 03B **Lab Sample ID:** 551712530-0008
Sample Description: Plaster Crown Moulding /GF Office

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White/Yellow	0%	100%	None Detected	

Client Sample ID: 03C **Lab Sample ID:** 551712530-0009
Sample Description: Plaster Crown Moulding /GF Office

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White	0%	100%	None Detected	

Client Sample ID: 04A **Lab Sample ID:** 551712530-0010
Sample Description: Pink-Beige VFT/GF Washroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Pink/Beige	0%	100%	None Detected	

Client Sample ID: 04B **Lab Sample ID:** 551712530-0011
Sample Description: Pink-Beige VFT/GF Washroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Pink/Beige	0%	100%	None Detected	

Client Sample ID: 04C **Lab Sample ID:** 551712530-0012
Sample Description: Pink-Beige VFT/GF Washroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Beige	0%	100%	None Detected	

Client Sample ID: 05A **Lab Sample ID:** 551712530-0013
Sample Description: Texture Coat/GF SE Sunroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Brown/White	0%	98%	2% Chrysotile	

Client Sample ID: 05B **Lab Sample ID:** 551712530-0014
Sample Description: Texture Coat/GF SE Sunroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017					Positive Stop (Not Analyzed)

Client Sample ID: 05C **Lab Sample ID:** 551712530-0015
Sample Description: Texture Coat/GF SE Sunroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017					Positive Stop (Not Analyzed)



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Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 06A-Finish Coat **Lab Sample ID:** 551712530-0016
Sample Description: Plaster/SE Bedroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White	0%	100%	None Detected	

Client Sample ID: 06A-Rough Coat **Lab Sample ID:** 551712530-0016A
Sample Description: Plaster/SE Bedroom

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	0%	100%	None Detected	

Client Sample ID: 06B-Finish Coat **Lab Sample ID:** 551712530-0017
Sample Description: Plaster/W Bedroom immediately s of w staircase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	White	0%	100%	None Detected	

Client Sample ID: 06B-Rough Coat **Lab Sample ID:** 551712530-0017A
Sample Description: Plaster/W Bedroom immediately s of w staircase

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	0%	100%	None Detected	

Client Sample ID: 06C-Finish Coat **Lab Sample ID:** 551712530-0018
Sample Description: Plaster/2nd Floor Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Beige	0%	100%	None Detected	

Client Sample ID: 06C-Rough Coat **Lab Sample ID:** 551712530-0018A
Sample Description: Plaster/2nd Floor Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	0%	100%	None Detected	

Client Sample ID: 06D **Lab Sample ID:** 551712530-0019
Sample Description: Plaster/Attic

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray/White	0%	100%	None Detected	Inseparable layers

Client Sample ID: 06E **Lab Sample ID:** 551712530-0020
Sample Description: Plaster (Scratch coat)/basement VH0307

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray/White	0%	100%	None Detected	Inseparable layers



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Client Sample ID: 06F **Lab Sample ID:** 551712530-0021
Sample Description: Plaster (Scratch coat)/basement VH0310

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray/White	0%	100%	None Detected	Inseparable layers

Client Sample ID: 06G **Lab Sample ID:** 551712530-0022
Sample Description: Plaster/basement VH0302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray/White	0%	100%	None Detected	inseparable layers

Client Sample ID: 07A **Lab Sample ID:** 551712530-0023
Sample Description: Pink and green 12x12 VFT/2nd Floor Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Brown/Pink	0%	98%	2% Chrysotile	

Client Sample ID: 07B **Lab Sample ID:** 551712530-0024
Sample Description: Pink and green 12x12 VFT/2nd Floor Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017					Positive Stop (Not Analyzed)

Client Sample ID: 07C **Lab Sample ID:** 551712530-0025
Sample Description: Pink and green 12x12 VFT/2nd Floor Kitchen

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017					Positive Stop (Not Analyzed)

Client Sample ID: 08A-Floor Tile **Lab Sample ID:** 551712530-0026
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Green	0%	90%	10% Chrysotile	

Client Sample ID: 08A-Mastic **Lab Sample ID:** 551712530-0026A
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Black	0%	100%	None Detected	

Client Sample ID: 08B-Floor Tile **Lab Sample ID:** 551712530-0027
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017					Positive Stop (Not Analyzed)



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Client Sample ID: 08B-Mastic **Lab Sample ID:** 551712530-0027A
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Black	0%	100%	None Detected	

Client Sample ID: 08C-Floor Tile **Lab Sample ID:** 551712530-0028
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017				Positive Stop (Not Analyzed)	

Client Sample ID: 08C-Mastic **Lab Sample ID:** 551712530-0028A
Sample Description: Green 9x9 VFT/Basement VH302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Black	0%	100%	None Detected	

Client Sample ID: 09A **Lab Sample ID:** 551712530-0029
Sample Description: Texture Coat/Basement VH0301 & VH0302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Brown/Green	0%	97%	3% Chrysotile	

Client Sample ID: 09B **Lab Sample ID:** 551712530-0030
Sample Description: Texture Coat/Basement VH0301 & VH0302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017				Positive Stop (Not Analyzed)	

Client Sample ID: 09C **Lab Sample ID:** 551712530-0031
Sample Description: Texture Coat/Basement VH0301 & VH0302

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017				Positive Stop (Not Analyzed)	

Client Sample ID: 10A **Lab Sample ID:** 551712530-0032
Sample Description: Stone Mortar/Exterior Chimneys

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	2%	98%	None Detected	

Client Sample ID: 10B **Lab Sample ID:** 551712530-0033
Sample Description: Stone Mortar/Exterior Chimneys

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	2%	98%	None Detected	



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EMSL Canada Order 551712530
Customer ID: 55GOLA62
Customer PO: 1790104
Project ID:

Test Report: Asbestos Analysis of Bulk Materials for Ontario Regulation 278/05 via EPA600/R-93/116 Method

Client Sample ID: 10C

Lab Sample ID: 551712530-0034

Sample Description: Stone Mortar/Exterior Chimneys

TEST	Analyzed Date	Color	Non-Asbestos		Asbestos	Comment
			Fibrous	Non-Fibrous		
PLM	11/17/2017	Gray	0%	100%	None Detected	

Analyst(s):

Anne Balayboa PLM (7)
Ioana Taina PLM (25)

Reviewed and approved by:

Matthew Davis
or Other Approved Signatory

None Detected = <0.1%. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted. This report must not be used to claim product endorsement by NVLAP of any agency of the U.S. Government.

Samples analyzed by EMSL Canada Inc. Mississauga, ON NVLAP Lab Code 200877-0

Initial report from: 11/17/2017 11:13:00



APPENDIX F

Laboratory Certificate of Analysis – Lead



EMSL Canada Inc.

2756 Slough Street, Mississauga, ON L4T 1G3

Phone/Fax: 289-997-4602 / (289) 997-4607

<http://www.EMSL.com>

torontolab@emsl.com

EMSL Canada Or	551712503
CustomerID:	55GOLA62
CustomerPO:	1790104 (1000)
ProjectID:	

Attn: **Ashley Chlebak**
Golder Associates, Ltd.
100 Scotia Court
Whitby, ON L1N 8Y6

Phone: (905) 723-2727
Fax: (905) 723-2182
Received: 11/10/17 9:43 AM
Collected: 11/9/2017

Project: **1790104 (1000) Valley Halla**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
L-1	551712503-0001	11/9/2017	11/13/2017	<0.0090 % wt
Site: white ceiling paint/ throughout				
L-2	551712503-0002	11/9/2017	11/13/2017	<0.0090 % wt
Site: grey wall paint/ SE bedroom				
L-3	551712503-0003	11/9/2017	11/13/2017	4.1 % wt
Site: yellow ceramic wall tile/ 2nd floor SW bathroom				

Rowena Fanto, Lead Supervisor
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA Accredited Environmental Testing Cert #2845.08

Initial report from 11/17/2017 08:08:05



EMSL Canada Inc.

2756 Slough Street, Mississauga, ON L4T 1G3
Phone/Fax: 289-997-4602 / (289) 997-4607
<http://www.EMSL.com> torontolab@emsl.com

EMSL Canada Or 551712503
CustomerID: 55GOLA62
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ProjectID:

Attn: **Ashley Chlebak**
Golder Associates, Ltd.
100 Scotia Court
Whitby, ON L1N 8Y6

Phone: (905) 723-2727
Fax: (905) 723-2182
Received: 11/10/17 9:43 AM
Collected: 11/9/2017

Project: **1790104 (1000) Valley Halla**

Test Report: Lead by Flame AAS (SW 846, 7000B)

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
L-4	551712503-0004	11/9/2017	11/14/2017	<72 mg/kg
Site: mortar/ exterior chimneys Insufficient sample to reach reporting limit.				

Rowena Fanto, Lead Supervisor
or other approved signatory

Detection limit is 40 mg/kg based on a 0.5 gram sample weight. This report relates only to those items tested. Samples received in good condition unless otherwise noted. Quality Control Data associated with this sample set is within acceptable limits, unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit.
Samples analyzed by EMSL Canada Inc. Mississauga, ON A2LA# 2845.08

Initial report from 11/17/2017 08:08:05

As a global, employee-owned organisation with over 50 years of experience, Golder Associates is driven by our purpose to engineer earth's development while preserving earth's integrity. We deliver solutions that help our clients achieve their sustainable development goals by providing a wide range of independent consulting, design and construction services in our specialist areas of earth, environment and energy.

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Toronto Zoo - Valley Halla Villa

Toronto,

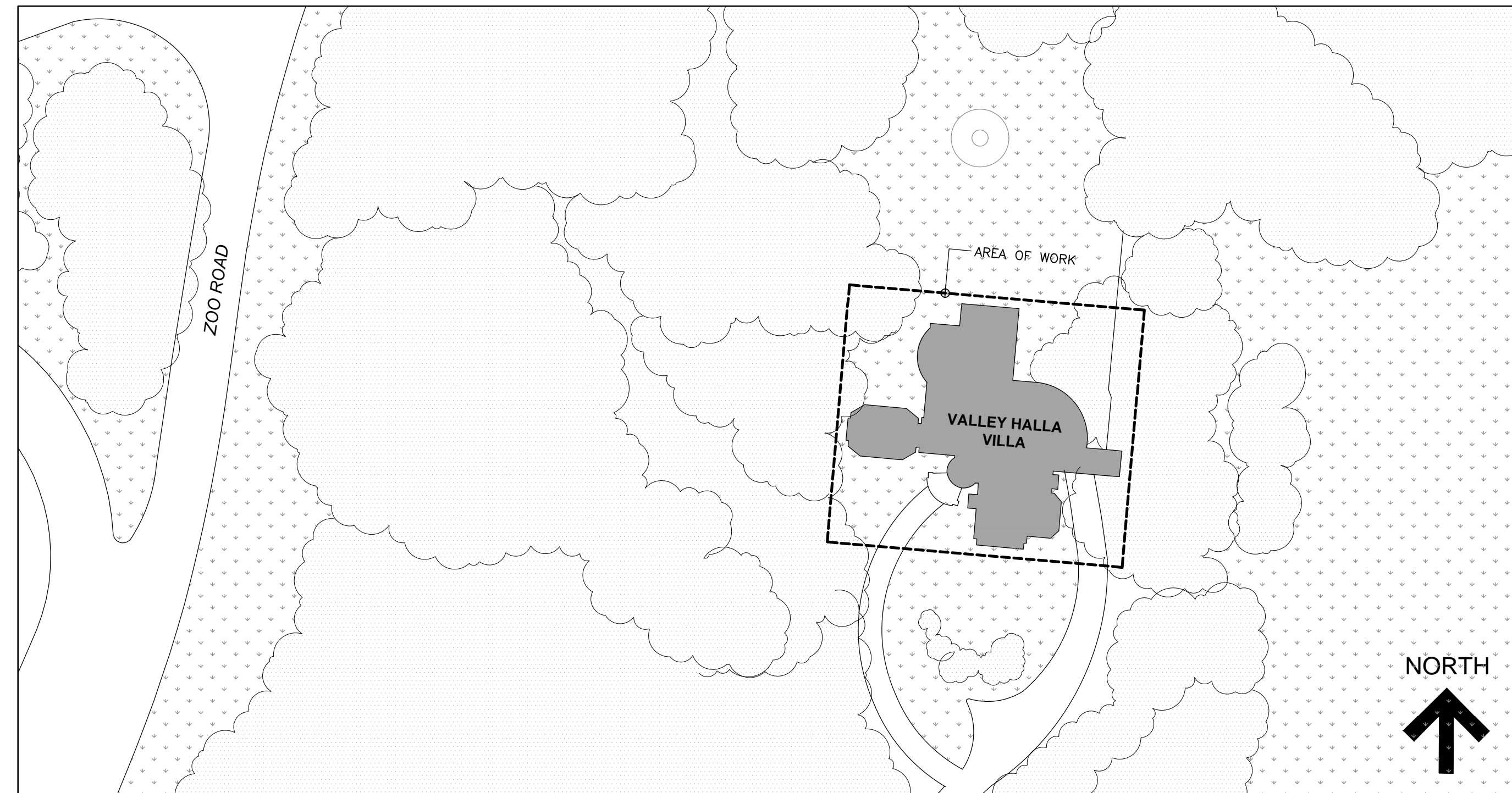
Ontario

FOUNDATION WALL WATERPROOFING AND REPAIRS



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LIST OF DRAWINGS :	
	COVER PAGE AND GENERAL NOTES
S1.1	PHASING LAYOUT
S2.1	BASEMENT LEVEL – INTERIOR DEMOLITION AND CONCRETE RESTORATION PLAN
S2.2	GROUND FLOOR LEVEL – EXTERIOR DEMOLITION AND CONCRETE RESTORATION PLAN
S3.1	BASEMENT LEVEL – INTERIOR WATERPROOFING PLAN
S3.2	GROUND FLOOR LEVEL – EXTERIOR WATERPROOFING AND LANDSCAPING PLAN
S4.1	SECTIONS AND DETAILS
S4.2	SECTIONS AND DETAILS



1.0 GENERAL NOTES :	
(THESE NOTES APPLY TO ALL PHASES / ASPECTS OF THE PROJECT)	
1.	THESE DRAWINGS ARE TO PROVIDE A SCHEMATIC REPRESENTATION OF THE APPROXIMATE LAYOUT OF THE SITE AND BUILDING IN THE AREAS OF WORK.
2.	THE CONTRACTOR MUST REVIEW AND CONFIRM THE EXTENT OF EXISTING SITE CONDITIONS THAT WILL AFFECT OR WILL REQUIRE ADJUSTMENT IN ORDER TO COMPLETE THE WORK AS SHOWN IN THE DOCUMENTS PRIOR TO BIDDING.
3.	DISCREPANCIES, AMBIGUITIES, OR OMISSIONS IN THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANT IMMEDIATELY.
4.	PARTIAL COPIES OF THE ORIGINAL CONSTRUCTION DRAWINGS ARE AVAILABLE FOR VIEWING AND REFERENCE PURPOSES ONLY. DO NOT SCALE FROM THESE DRAWINGS OR RELY ON ANY DRAWINGS AS ACCURATELY REFLECTING THE AS-BUILT CONDITION.
5.	THE EXTENT OF WORK IS AS SHOWN ON THE DRAWINGS.
6.	HOARDING, DUST PROTECTION, SITE PROTECTION, AND CONSTRUCTION SIGNAGE IS TO BE INSTALLED AROUND THE SITE AND AREAS OF WORK IN ACCORDANCE WITH SPECIFICATION SECTION 01 56 00, THESE NOTES, AND THE DRAWINGS PRIOR TO COMMENCING THE WORK.
7.	THIS SET OF DRAWINGS DOES NOT INCLUDE COMPONENTS THAT MAY BE NECESSARY FOR CONSTRUCTION SAFETY. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND AROUND THE JOB SITE DURING CONSTRUCTION, AND FOR THE DESIGN AND ERECTION OF ALL TEMPORARY STRUCTURES REQUIRED TO COMPLETE THE WORK.
8.	THE USE OF THESE DRAWINGS IS LIMITED TO THE EXTENT IDENTIFIED IN THE REVISIONS COLUMNS. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR CONSTRUCTION" BY READ JONES CHRISTOFFERSEN LTD.
9.	ALL DIMENSIONS TAKEN FROM THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SUCH MEASUREMENTS AND REPORT TO THE ENGINEER IN WRITING ALL DISCREPANCIES BETWEEN THE MEASUREMENTS AT THE BUILDING AND THOSE SHOWN ON THE DRAWINGS PRIOR TO COMMENCING THE WORK.
10.	THE CONTRACTOR SHALL REVIEW ALL THE DRAWINGS AND CHECK THE DIMENSIONS BEFORE CONSTRUCTION. REPORT ANY DISCREPANCIES BETWEEN THESE DRAWINGS AND THE SITE CONDITION TO THE CONSULTANT IMMEDIATELY.
11.	SECTION MARK SHOWN THUS $\frac{1}{S4.1}$ DENOTES SECTION 1 ON DRAWING S4.1.
12.	THE ENGINEERING FIELD SERVICES: THE ENGINEER WILL PROVIDE FIELD SERVICE DURING THE CONSTRUCTION PHASE OF THE WORK TO SATISFY THEMSELVES, BY MEANS OF A RATIONAL SAMPLING PROCEDURE WHICH THEY IN THEIR SOLE DISCRETION CONSIDER NECESSARY, TO DETERMINE THAT THE CONTRACTOR IS CARRYING OUT THAT WORK IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE FIELD SERVICES PROVIDED APPLY ONLY TO THAT WORK SHOWN ON RJC'S DRAWINGS. THE PERFORMANCE OF THE CONTRACT IS NOT THE ENGINEER'S RESPONSIBILITY, NOR ARE THE FIELD SERVICES RENDERED FOR THE CONTRACTOR'S BENEFIT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR QUALITY CONTROL AND PERFORMING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
13.	THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR/RESTORE/REPAINT ALL EXISTING FINISHES, LANDSCAPING, ETC., DAMAGED AS A RESULT OF CONSTRUCTION OR REMOVED IN ORDER TO ALLOW CONSTRUCTION TO BE UNDERTAKEN.
14.	PROVIDE SIGNAGE AS REQUIRED TO ENSURE VEHICLE AND PEDESTRIAN TRAFFIC FLOW THROUGH AND AROUND WORK AREAS IS MAINTAINED. ENSURE SITE AND BUILDING ENTRANCES HAVE PROPER SIGNAGE THROUGHOUT THE COURSE OF CONSTRUCTION. REFER TO SPECIFICATION SECTION 01 56 00 AND SIGNAGE NOTES. THE CONTRACTOR IS TO PROVIDE APPROPRIATE DIRECTIONAL ARROW WITH EACH SIGN.
15.	APPROXIMATE TYPE AND LOCATION OF CONSTRUCTION SIGNAGE HAS BEEN SHOWN, HOWEVER ADDITIONAL SIGNAGE MAY BE REQUIRED. REFER TO PHASING DRAWINGS, SIGNAGE NOTES, AND SPECIFICATION SECTION 01 56 00.
16.	FOR GENERAL BUILDING CONSTRUCTION, REFER TO SPECIFICATION SECTION 01 11 00.
17.	IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL ENTRANCE AND EXIT WAYS TO THE SITE AND BUILDING (INCLUDING STORAGE ROOMS, MECHANICAL ROOMS, STAIRWELLS, ETC.) REMAIN OPEN TO SITE STAFF AND THE CONSULTANT AT ALL TIMES, WITH THE EXCEPTION OF DOOR CLOSURES INDICATED ON THE PHASING DRAWINGS. THE SITE AND BUILDING IS CLOSED TO THE PUBLIC.
18.	THIS SET OF DRAWINGS ALONG WITH THE SPECIFICATIONS FORM THE CONTRACT DOCUMENTS AND MUST BE READ AND INTERPRETED IN CONJUNCTION WITH ONE ANOTHER.
19.	PROVIDE MEANS FOR PROTECTING INTERIOR AREAS FROM WATER AND MEMBRANE LEAKAGE BETWEEN THE REMOVAL AND REINSTALLATION OF THE FOUNDATION WALL WATERPROOFING SYSTEMS.
20.	CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF CAN3-A23.1, A23.2, A23.3 AND DOCUMENTS REFERENCED THEREIN.
21.	CONSTRUCTION LOADS MUST NOT EXCEED THE ORIGINAL DESIGN LOADS, AND DESIGN LOADS MAY ONLY BE APPLIED AFTER CONCRETE REACHES ITS DESIGN STRENGTH.
22.	ALL WORK IS TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE.

2.0 GENERAL SCOPE OF WORK :	
1.	IN GENERAL, THIS REHABILITATION PROGRAM INCLUDES THE REPAIR AND PROTECTION OF THE FOUNDATION WALLS OF THE VALLEY HALLA BUILDING LOCATED WITHIN THE TORONTO ZOO IN TORONTO, ONTARIO.
2.	IN PARTICULAR, THE WORK INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING: <ul style="list-style-type: none"> 1. THE INSTALLATION AND MAINTENANCE OF HOARDING, DUST PROTECTION, SITE PROTECTION, AND CONSTRUCTION SIGNAGE AROUND EACH AREA OF WORK, AS DESCRIBED IN SECTION 01 56 00 – PROTECTION OF WORK AND PROPERTY. 2. THE INSTALLATION AND MAINTENANCE OF VENTILATION AND EXHAUST SYSTEMS INTO AND OUT OF THE WORK AREAS, AS DESCRIBED IN SECTION 01 56 00 – PROTECTION OF WORK AND PROPERTY. 3. REMOVAL OF HARD AND SOFT LANDSCAPING FEATURES (INCLUDING PARAPET AND RETAINING WALLS, STONE AND UNIT PAVERS, TILE, CONCRETE, PLANTINGS, SOIL, GRANULAR MATERIALS, ETC.), WEeping TILE PIPING, WATERPROOFING SYSTEMS, COATINGS, ETC. TO EXPOSE THE EXTERIOR SIDE OF THE BUILDING FOUNDATION WALL AND FOOTING IN LOCALIZED AREAS, AS INDICATED ON THE DRAWINGS. PARAPET AND RETAINING WALLS, STONE AND UNIT PAVERS, AND TILE ARE TO BE DISMANTLED AND STOCKPILED FOR REUSE IN CONFORMANCE WITH THE PROJECT SPECIFICATIONS. ALL OTHER FEATURES SHALL BE DISPOSED OF. 4. REMOVAL AND DISPOSAL OF INTERIOR FINISHES, AND TEMPORARY RELOCATION/ REMOVAL OF MECHANICAL AND ELECTRICAL EQUIPMENT, TO EXPOSE THE INTERIOR SIDE OF THE FOUNDATION WALL AND FOOTING IN LOCALIZED AREAS, AS INDICATED ON THE DRAWINGS. INTERIOR FINISHES ARE TO BE THOROUGHLY DOCUMENTED PRIOR TO PERFORMING REMOVALS IN ORDER TO REINSTATE EXISTING CONDITIONS FOLLOWING COMPLETION OF REPAIRS. 5. LOCALIZED REPAIR OF ALL VERTICAL AND BEAM/ CORBEL CONCRETE DETERIORATION ON THE EXTERIOR AND INTERIOR SIDES OF THE FOUNDATION WALLS WHERE DIRECTED BY THE CONSULTANT. 6. INJECTION OF THROUGH-WALL LEAKING CRACKS ON THE INTERIOR SIDE OF THE FOUNDATION WALL, WHERE DIRECTED BY THE CONSULTANT. 7. SURFACE PREPARATION AND INSTALLATION OF A NEW COLD APPLIED WATERPROOFING SYSTEM ON THE EXTERIOR SIDE OF THE FOUNDATION WALL AND FOOTING, AS INDICATED ON THE DRAWINGS. 8. SURFACE PREPARATION AND INSTALLATION OF A NEW CRYSTALLINE WATERPROOFING SYSTEM ON THE INTERIOR SIDE OF THE FOUNDATION WALL AND FOOTING, AS INDICATED ON THE DRAWINGS. 9. INSTALLATION OF NEW WEeping TILE PIPING, INCLUDING CONNECTIONS TO EXISTING SYSTEMS, AS INDICATED ON THE DRAWINGS. 10. REPLACEMENT OF DETERIORATED OR CLOGGED SECTIONS OF BELOW GRADE PIPING, WHERE DIRECTED BY THE CONSULTANT. CONTRACTOR TO PERFORM CCTV INSPECTION OF BELOW-GRADE PIPING TO CONFIRM AREAS OF DETERIORATED AND CLOGGED PIPING. 11. INSTALLATION OF NEW ENGINEERED GRANULAR MATERIAL WITHIN EXCAVATION AREAS AROUND THE PERIMETER OF BUILDING AND REINSTATEMENT OF HARD AND SOFT LANDSCAPING FINISHES TO MATCH PRE-EXISTING CONDITIONS. 12. REINSTATEMENT OF INTERIOR FINISHES AND MECHANICAL AND ELECTRICAL SERVICES TO MATCH PRE-EXISTING CONDITIONS. MECHANICAL AND ELECTRICAL SERVICES ARE TO BE COMMISSIONED FOLLOWING REINSTATEMENT. 13. REPAIR ALL AREAS DAMAGED BY CONSTRUCTION ACTIVITY; SPECIFICALLY, THE CONTRACTOR SHALL REPAIR ALL DAMAGE RESULTING FROM THE CONSTRUCTION TO THE SATISFACTION OF THE CONSULTANT INCLUDING REINSTATING FINISHES, REPAIRING SURFACES, REPLACING LANDSCAPING FEATURES, ETC. IN ACCORDANCE WITH THESE SPECIFICATIONS WHICH HAVE BEEN DAMAGED. 14. FINAL CLEANING OF STRUCTURE, FIXTURES, FINISHES, LANDSCAPING FEATURES, WINDOWS, DOORS, ETC., AND THE DISPOSAL ALL WASTE PRODUCTS AND/ OR DEBRIS GENERATED BY THE CONSTRUCTION ACTIVITY AS WELL AS ANY MATERIAL PRESENT IN THE WORK AREA PRIOR TO THE COMMENCEMENT OF THE WORK. THE AREAS REQUIRING CLEANING SHALL CONSIST OF ALL AREAS AFFECTED BY THE WORK.

3.0 DEFINITIONS :	
1.	RJC: READ JONES CHRISTOFFERSEN LTD. OR ITS REPRESENTATIVE.
2.	SPECIALTY STRUCTURAL ENGINEER: A STRUCTURAL ENGINEER REGISTERED AND LICENSED TO PRACTICE BY THE PROFESSIONAL ENGINEERING ASSOCIATION HAVING JURISDICTION IN THE AREA WHERE THE WORK IS TO BE PERFORMED AND WHO IS RESPONSIBLE FOR THE DESIGN AND FIELD REVIEW OF: <ul style="list-style-type: none"> –STRUCTURAL ELEMENTS DESIGNED BY THE CONTRACTOR OR SUBCONTRACTORS, SUCH AS STRUCTURAL SHORING, EXCAVATION SHORING, FORMWORK, RUBBLE FORMS, CONNECTIONS, OTHER TEMPORARY WORKS, ETC.
3.	GENERAL CONTRACTOR: FOR THE PURPOSES OF THESE DRAWINGS, THE USE OF THE TERM "CONTRACTOR" OR "GENERAL CONTRACTOR" SHALL REFER TO THE PRIME PERSON OR COMPANY RESPONSIBLE FOR CONSTRUCTION OF THE PROJECT AND THE COORDINATION OF TRADES AND SUBCONTRACTORS. THIS MAY BE THE GENERAL CONTRACTOR, OR A CONSTRUCTION MANAGER.

4.0 RENOVATIONS :	
1.	THE CONTRACT DOCUMENTS ARE BASED ON ASSUMED AS-BUILT DIMENSIONS FOR THE EXISTING SITE AND BUILDING AND ASSUMPTIONS IN ACCORDANCE WITH DETAILING AND PLACING PRACTICE. THESE ASSUMPTIONS MAY VARY FROM THE ACTUAL ON-SITE CONDITIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM RJC OF ANY ACTUAL VARIATIONS FROM THE ASSUMED CONDITIONS.
2.	MINOR MODIFICATIONS WILL BE REQUIRED TO THE WORK INDICATED ON THESE DRAWINGS TO REFLECT ACTUAL SITE CONDITIONS. THE CONTRACTOR WILL COOPERATE WITH RJC IN THIS REGARD. MINOR MODIFICATIONS WILL BECOME THE RESPONSIBILITY OF THE CONTRACTOR AND WILL NOT RESULT IN A CHANGE IN THE CONTRACT PRICE.
3.	ENSURE THAT ALL NECESSARY JOB DIMENSIONS ARE TAKEN AND ALL TRADES ARE COORDINATED FOR THE PROPER EXECUTION OF THE WORK. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR THE ACCURACY AND COMPLETENESS OF SUCH DIMENSIONS, AND FOR COORDINATION.
4.	PRIOR TO CONSTRUCTION OF ANY NEW ELEMENTS, THE CONTRACTOR SHALL COMPLETE THIS SITE REVIEW OF CRITICAL "TIE-IN" DIMENSIONS AND CONFIRM ALL DIMENSIONS TO ENSURE PROPER FIT OF NEW WORK TO EXISTING. REPORT ANY DISCREPANCIES TO THE CONSULTANT PRIOR TO STARTING WORK.
5.	COMMENCEMENT OF CONSTRUCTION OR ANY PART THEREOF CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS AND MEANS DIMENSIONS AND ELEVATIONS HAVE BEEN CONSIDERED, VERIFIED AND ARE ACCEPTABLE.
6.	UNLESS NOTED OTHERWISE, AT ALL LOCATIONS WHERE NEW CONCRETE WILL BE IN CONTACT WITH EXISTING CONCRETE SURFACES, THE EXISTING CONCRETE SURFACE IS TO BE ROUGHENED TO AN AMPLITUDE OF 1/4". REFER TO APPROPRIATE SPECIFICATION SECTIONS.
7.	CONTRACTOR TO ENSURE THAT REINFORCING STEEL, CONDUITS, ETC. ARE NOT DAMAGED THROUGH DEMOLITION, SAWCUTTING, OR OTHER CONSTRUCTION ACTIVITIES. SEE SPECIFICATION FOR TESTING/LOCATING REQUIREMENTS.

5.0 HOARDING NOTES :	
1.	IN GENERAL, THE CONTRACTOR IS TO INSTALL AND MAINTAIN HOARDING AND DUST PROTECTION AROUND ALL AREAS OF WORK AS OUTLINED IN SPECIFICATION SECTION 01 56 00 AND THESE DRAWINGS.
2.	POSITION HOARDING TO RESTRICT ACCESS TO WORK AREAS, BUT TO MAINTAIN VEHICLE AND PEDESTRIAN TRAFFIC FLOW.
3.	ADJUST HOARDING TO ACCOMMODATE REPAIRS BUT TO MAINTAIN AS WIDE AS POSSIBLE DRIVEWAYS AND WALKWAYS FOR VEHICLE AND PEDESTRIAN TRAFFIC FLOW AT ALL TIMES, WHERE REDUCED, ESPECIALLY AT TURNS AND CORNERS.
4.	TEMPORARY WALKWAYS SHALL BE CONSTRUCTED TO MAINTAIN SAFE ACCESS TO BUILDING ENTRANCES/EXITS AND OTHER SERVICES, ETC., THAT REQUIRE ACCESS SO AS TO PROTECT SITE STAFF AND PEDESTRIANS USING SUCH ENTRANCE WAYS, ROOMS, AND SERVICES.

6.0 PHASING NOTES :	
1.	IN GENERAL, THE WORK IS TO BE UNDERTAKEN IN ONE (1) MAJOR PHASE WITH INTERIOR AND EXTERIOR WORK OCCURRING SIMULTANEOUSLY.
2.	MAINTAIN THE PHASING REQUIREMENTS SHOWN ON THE DRAWINGS AND AS OUTLINED IN SPECIFICATION SECTIONS 01 11 00 AND 01 11 01. THE CONTRACTOR'S WORK AREAS ARE TO BE FULLY ENCLOSED AND LOCKED FOR THE DURATION OF CONSTRUCTION. THE CONTRACTOR WILL BE REQUIRED TO COORDINATE ALL DOOR AND WORK AREA CLOSURES WITH THE OWNER'S REPRESENTATIVE.
3.	THE CONTRACTOR SHALL PROVIDE FOR A MINIMUM OF 72 HOURS NOTICE PRIOR TO ANY CLOSURES.
4.	THE CONTRACTOR IS TO ENSURE ACCESS TO THE WORK AREAS IS RESTRICTED TO THE CONTRACTOR'S STAFF, THE CONSULTANT AND THE OWNER.
5.	TO ENSURE VEHICLE AND PEDESTRIAN TRAFFIC FLOW IS MAINTAINED, AND TO NOTE RESTRICTIONS, REFER TO SPECIFICATION SECTION 01 56 00 AND SIGNAGE NOTES FOR SIGNAGE REQUIREMENTS.

7.0 TEMPORARY WORK :	
1.	THE CONTRACTOR SHALL DESIGN, PROVIDE, ERECT, MAINTAIN, REMOVE AND ASSUME FULL AND SOLE RESPONSIBILITY FOR ALL TEMPORARY WORK REQUIRED FOR THE SAFE AND COMPLETE EXECUTION OF THE WORK.
2.	IN THE EXECUTION OF THE TEMPORARY WORK AND FOR THE DURATION OF THE CONTRACT, THE CONTRACTOR SHALL MAKE ADEQUATE PROVISION FOR ALL LIKELY CONSTRUCTION LOADING AND PROVIDE SUFFICIENT BRACING AND PROPS TO KEEP THE WORK PLUMB, ALIGNED AND FREE FROM EXCESSIVE DEFLECTION.
3.	ACCESS OF HEAVY CONSTRUCTION EQUIPMENT AND ACCUMULATION OF CONSTRUCTION MATERIALS ON THE FLOORS ARE NOT PERMITTED, UNLESS SUCH HAVE BEEN CATERED FOR IN THE CONTRACTOR'S TEMPORARY WORK DESIGN TO THE SATISFACTION OF THE ENGINEER.
4.	COSTS OF ALL TEMPORARY WORK IS TO BE INCLUDED IN THE CONTRACT PRICE.
5.	SUBMIT SHOP DRAWINGS FOR ALL TEMPORARY WORK FOR REVIEW BEFORE FABRICATION COMMENCES. SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

8.0 SHORING NOTES :	
1.	BEFORE STARTING EXCAVATION AND OTHER REMOVALS, REVIEW WITH RJC THE EFFECT OF DEMOLITION ON STRUCTURAL INTEGRITY. PROVIDE SHORING AND BRACING AS REQUIRED TO FACILITATE THE WORK.
2.	THE CONTRACTOR IS TO SUBMIT SHORING DESIGN FOR RJC TO REVIEW PRIOR TO INSTALLATION. ALL REQUIRED SHORING MUST BE INSTALLED.
3.	IN ADDITION TO REPAIRS SHOWN ON THE DRAWINGS, RANDOMLY LOCATED CONCRETE DELAMINATION REPAIRS ARE TO BE PERFORMED IN LOCALIZED AREAS ALONG THE FOUNDATION WALLS IN ACCORDANCE WITH THE APPROPRIATE DETAIL AS DIRECTED BY THE CONSULTANT. SHORING AND BRACING REQUIREMENTS ALSO APPLY TO THESE RANDOMLY LOCATED REPAIRS.

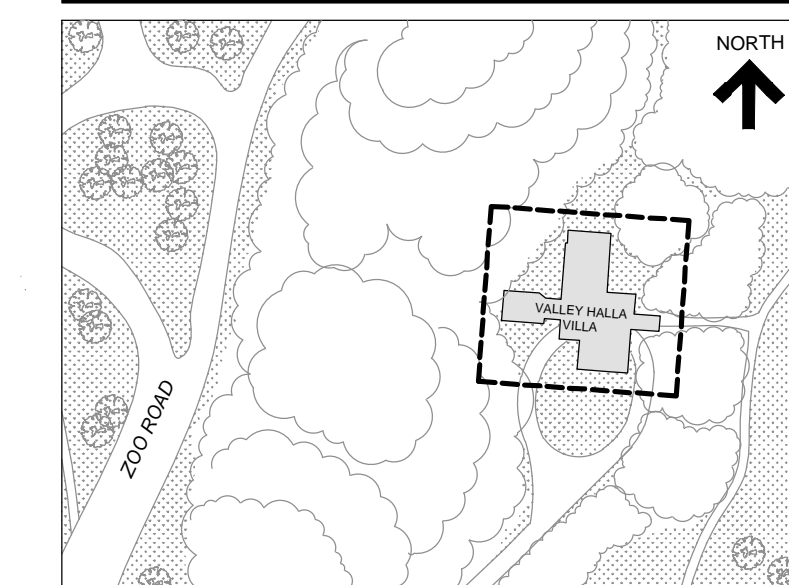
9.0 SITE REVIEW RESPONSIBILITY :	
READ JONES CHRISTOFFERSEN LIMITED ("RJC") WILL PROVIDE GENERAL REVIEW OF CONSTRUCTION IN ACCORDANCE WITH THE PERFORMANCE STANDARDS OF THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF ONTARIO BY MEANS OF A RATIONAL SAMPLING PROCEDURE TO DETERMINE WHETHER THE CONSTRUCTION OF THAT WORK SHOWN ON RJC'S DRAWINGS IS IN GENERAL CONFORMANCE WITH THE PLANS, SKETCHES, DRAWINGS, AND SPECIFICATIONS FORMING PART OF THE CONTRACT DOCUMENTS PREPARED BY RJC. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR QUALITY CONTROL AND THE PERFORMANCE OF THE WORK IN ACCORDANCE WITH THE CONTRACT. RJC SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.	

10.0 SIGNAGE NOTES :	
"✳" DENOTES CONSTRUCTION SIGN LOCATION	
1.	THE CONTRACTOR SHALL PROVIDE ALL REQUIRED SIGNAGE NECESSARY TO PROTECT THE PUBLIC FROM THE CONSTRUCTION VEHICLE AND PEDESTRIAN TRAFFIC FLOW THROUGH THE SITE AND AROUND THE WORK AREAS, INDICATE ACCESS RESTRICTIONS, AND TO INFORM THE PUBLIC, SITE STAFF, ETC. THAT CONSTRUCTION ACTIVITY IS IN PROGRESS.
2.	ADDITIONAL SIGNS MAY BE REQUIRED AT THE DISCRETION OF THE OWNER OR THE CONSULTANT AS CONSTRUCTION PROGRESSES. NO EXTRAS WILL BE ENTERTAINED FOR SIGNAGE REQUIREMENTS AFTER TENDER CLOSURE.
3.	SIGNAGE WILL BE REQUIRED AT ALL ENTRANCES TO THE SITE AND BUILDING. THIS SIGNAGE SHALL CONSIST OF THE STANDARD "MEN AT WORK" SIGN WITH AN ADDITIONAL SIGN (SPECIAL ORDER) INDICATING THAT THE "SITE IS TEMPORARILY UNDER CONSTRUCTION" AND "SORRY FOR THE INCONVENIENCE".
4.	SIGNAGE IS REQUIRED ON HOARDING ADJACENT TO AT ALL OPEN EXCAVATIONS. SIGNS ARE TO STATE "DANGER – OPEN EXCAVATION. DO NOT ENTER".
5.	SIGNAGE IS REQUIRED AT ALL BUILDING ENTRANCES. SIGNS ARE TO INDICATE THAT "THE BUILDING IS CLOSED FOR REPAIRS".
6.	THE LOCATION AND TYPE OF SITE SPECIFIC CONSTRUCTION SIGNAGE IS INDICATED ON THE PHASING DRAWINGS WHICH INCLUDES, BUT IS NOT NECESSARILY LIMITED TO, THE FOLLOWING: <ul style="list-style-type: none"> 1. "THE SITE IS TEMPORARILY UNDER CONSTRUCTION – SORRY FOR THE INCONVENIENCE" 2. "THE BUILDING IS CLOSED FOR REPAIRS" 3. "DANGER – OPEN EXCAVATION. DO NOT ENTER" 4. "DO NOT ENTER"

ISSUED FOR PERMIT - March 26, 2021
ISSUED FOR TENDER - March 26, 2021
ISSUED FOR CLIENT REVIEW - May 29, 2020



RJC PROJECT No. TOR.113946.0016



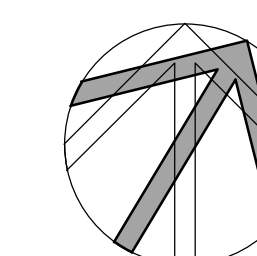
KEY PLAN

No.	Revision	Date	By
3.	ISSUED FOR PERMIT	Mar. 26, 21	S.P.
2.	ISSUED FOR TENDER	Mar. 26, 21	S.P.
1.	ISSUED FOR CLIENT REVIEW	May 22, 20	S.P.

Drawing Notes

- All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. ("RJC") and used in connection with this project are instruments of service for the work shown in them (the "Work") and as such are and remain the property of RJC whether the Work is executed or not, and RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
- These drawings are "design drawings" only. They may not be suitable for use as shop drawings. Use of these drawings as base drawings for "shop drawings" is not permitted unless written permission containing certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
- Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the parts noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

Seal



Project Name

**Toronto Zoo -
Valley Halla Villa**
Toronto, Ontario

**FOUNDATION WALL
WATERPROOFING AND REPAIRS**

Sheet Title

PHASING PLANS

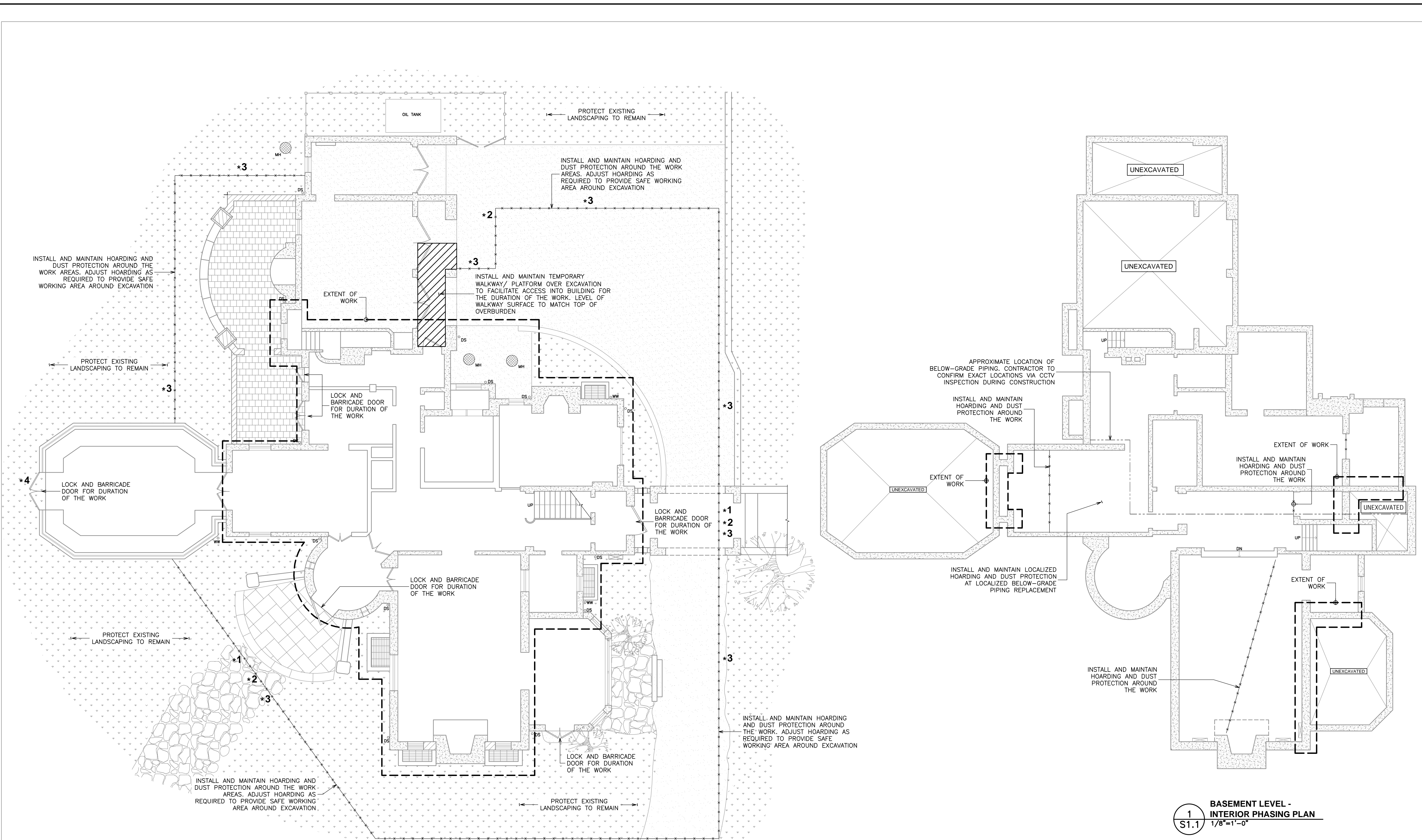
Drawn By **T.S.** Scale **1/8"=1'-0"**

Designed By **S.P.** Date **March, 2021**

RJC Project Number **TOR.113946.0016**

Sheet Number Revision

S1.1



2
S1.1
**GROUND FLOOR LEVEL -
EXTERIOR PHASING PLAN**
1/8"=1'-0"

1
S1.1
**BASEMENT LEVEL -
INTERIOR PHASING PLAN**
1/8"=1'-0"

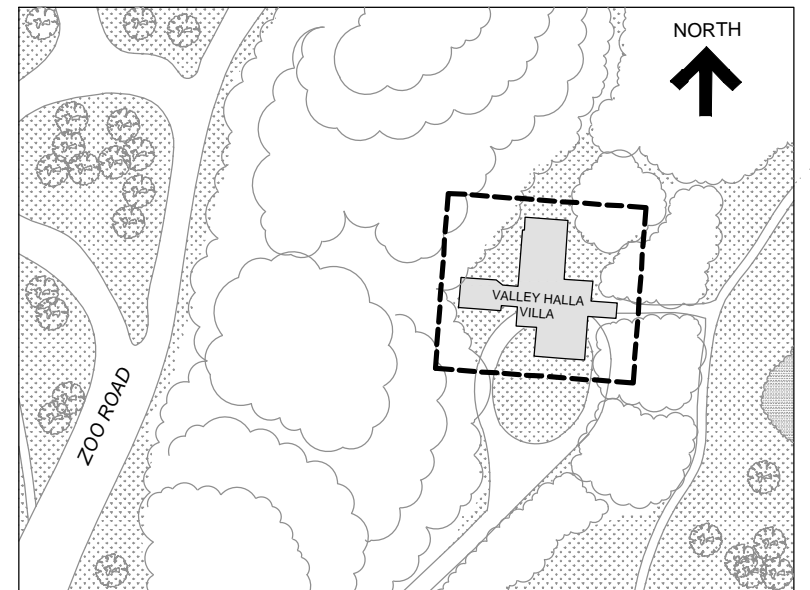
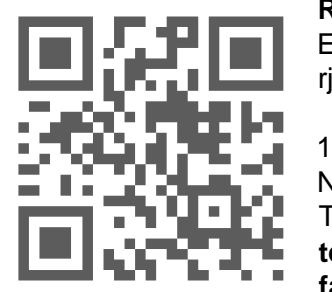
PHASING NOTES:

- NOTES APPLY TO ALL INTERIOR AND EXTERIOR WORK AREAS. REFER TO GENERAL NOTES, AND SECTIONS 01 11 00 AND 01 11 01 FOR ADDITIONAL REQUIREMENTS.
- PROVIDE AND MAINTAIN HOARDING, DUST PROTECTION, SITE PROTECTION, AND CONSTRUCTION SIGNAGE AROUND THE WORK AREAS, AS INDICATED ON THE DRAWINGS AND DESCRIBED IN SECTION 01 56 00.
- HOARDING LINE SHOWN REPRESENTS ITS APPROPRIATE LOCATION ONLY. HOARDING IS TO BE ADJUSTED TO PROVIDE SAFE WORKING AREAS AROUND OPEN EXCAVATIONS PER REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, AND TO ALLOW VEHICLE AND PEDESTRIAN TRAFFIC TO SAFELY NAVIGATE AROUND THE WORK AREAS.
- PROVIDE AND MAINTAIN CONSTRUCTION SIGNAGE AROUND THE SITE AND AREAS OF WORK AS SHOWN TO IDENTIFY CONSTRUCTION ACTIVITY, TO DIRECT VEHICLES AND PEDESTRIANS AROUND THE WORK AREAS, AND TO IDENTIFY CLOSURES/RESTRICTED AREAS. REFER TO SECTION 01 56 00 AND THE SIGNAGE NOTES.
- WORK AREAS ARE TO BE CLOSED AND LOCKED AT ALL TIMES. ACCESS TO THE WORK AREAS AND BUILDING IS TO BE RESTRICTED TO CONTRACTOR STAFF, OWNER, AND CONSULTANT.
- THE CONTRACTOR IS RESPONSIBLE FOR FLAGMEN, SIGNAGE, AND TRAFFIC CONTROL THROUGHOUT THE COURSE OF THE WORK.
- CONTRACTOR IS REQUIRED TO COORDINATE MOBILIZATION AND ALL CLOSURES WITH OWNERS REPRESENTATIVE AT LEAST 72 HOURS IN ADVANCE.
- ALL DOORS ADJACENT TO EXCAVATIONS ARE TO BE BARRICADED FOR THE DURATION OF THE PROJECT. CONTRACTOR TO COORDINATE WITH OWNER'S REPRESENTATIVE IN THIS REGARD.

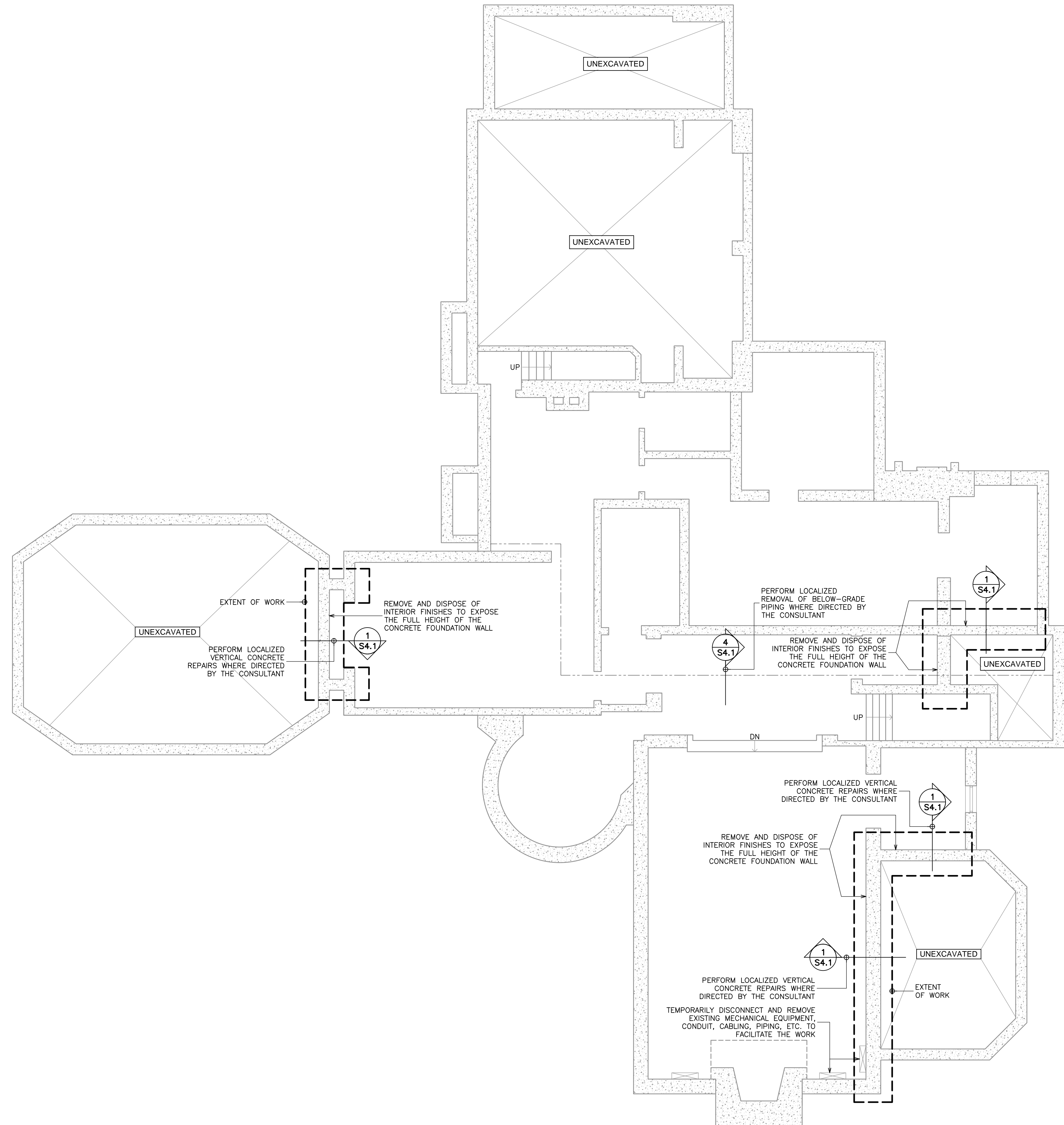
- SIGNAGE NOTES:**
- "*" DENOTES CONSTRUCTION SIGN LOCATION
- REFER TO GENERAL NOTES FOR ADDITIONAL SIGNAGE NOTES AND REQUIREMENTS.
 - THE TYPES OF SITE SPECIFIC CONSTRUCTION SIGNAGE INCLUDE, BUT ARE NOT NECESSARY LIMITED TO, THE FOLLOWING:
 - "THE SITE IS TEMPORARILY UNDER CONSTRUCTION - SORRY FOR THE INCONVENIENCE"
 - "THE BUILDING IS CLOSED FOR REPAIRS"
 - "DANGER - OPEN EXCAVATION. DO NOT ENTER"
 - "DO NOT ENTER"

LEGEND:

	EXTENT OF WORK		WATER WELL
	CONCRETE WALL		CONCRETE PAD/ TOPPING OR SIDEWALK
	MASONRY WALL		STONE PAVERS
	RETAINING WALL, PARAPET WALL, OR CURB		INTERLOCKING PAVERS
	MECHANICAL/ ELECTRICAL EQUIPMENT		SOFT LANDSCAPING
	WINDOWS		METAL GRATING
	MAN HOLE		TREES
	WOOD FENCING		LOCATION AND TYPE OF TEMPORARY CONSTRUCTION SIGNAGE (REFER TO SECTION 01 56 00)
	DOWNSPOUT		
	LOCATION OF BELOW-GRADE PIPING (APPROX.)		



KEY PLAN



LEGEND :

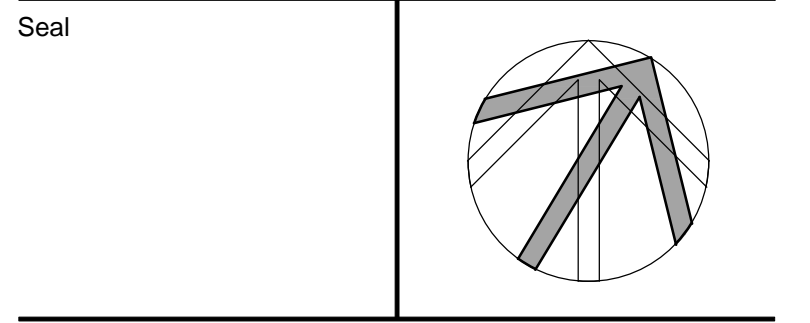
- EXTENT OF WORK
- CONCRETE WALL
- MECHANICAL/ELECTRICAL EQUIPMENT
- WINDOWS
- BELOW-GRADE PIPING (APPROX. LOCATION)

- DEMOLITION NOTES:**
- CONTRACTOR IS REQUIRED TO INSTALL AND MAINTAIN HOARDING, DUST PROTECTION, AND SIGNAGE AROUND ALL AREAS OF WORK. REFER TO SECTION 01 56 00 AND PHASING PLANS. WORK AREAS ARE TO BE LOCKED AND SECURED AT ALL TIMES.
 - AT INTERIOR WORK AREAS, CONTRACTOR TO REMOVE AND DISPOSE OF ALL FINISHES, PAINT, COATINGS, ETC. TO EXPOSE THE CONCRETE FOUNDATION WALL SURFACE. ALL FINISHES ARE TO BE THOROUGHLY DOCUMENTED BY THE CONTRACTOR, INCLUDING MATERIALS, COLOURS, TEXTURES, ETC., IN ORDER TO REINSTATE FINISHES TO MATCH EXISTING CONDITIONS FOLLOWING COMPLETION OF THE WORK.
 - AT EXTERIOR WORK AREAS, CONTRACTOR TO REMOVE CONCRETE PADS, INTERLOCKING AND STONE PAVERS, TILE, PARAPET AND RETAINING WALLS, PLANTINGS, GRANULAR MATERIAL, SUBGRADE MATERIAL, ETC. TO EXPOSE THE BUILDING FOUNDATION WALLS AND FOOTING, WHERE INDICATING ON THE DRAWINGS. CAREFULLY DISMANTLE AND STOCKPILE INTERLOCKING PAVERS, STONE PAVERS, TILE, PARAPET AND RETAINING WALLS FOR REUSE. DISPOSE OF ALL OTHER OVERBURDEN MATERIAL. ALL FINISHES ARE TO BE THOROUGHLY DOCUMENTED BY THE CONTRACTOR, INCLUDING MATERIALS, COLOURS, TEXTURES, ETC. IN ORDER TO REINSTATE FINISHES TO MATCH EXISTING CONDITIONS FOLLOWING COMPLETION OF THE WORK.
 - CONTRACTOR TO TEMPORARILY RELOCATE MECHANICAL AND ELECTRICAL EQUIPMENT, SERVICES, ETC. TO FACILITATE THE WORK. PROTECT ALL EQUIPMENT, SERVICES, ETC. WHICH ARE TO REMAIN THROUGHOUT THE COURSE OF THE WORK.
 - EXTENT OF EXCAVATION AROUND THE BUILDING PERIMETERS IS SHOWN AS A GUIDELINE ONLY. CONTRACTOR IS REQUIRED TO CONFORM TO ALL MINISTRY OF LABOUR (MOL) AND OSHA GUIDELINES AND REQUIREMENTS FOR EXCAVATIONS. EXCAVATION ARE REQUIRED TO BE ORTHOGONAL TO BUILDING ELEVATIONS WITHOUT UNNECESSARY CHANGES IN DIRECTION.
 - PROTECT INTERIOR AND EXTERIOR SURFACE AND WALL TREATMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION ACTIVITIES. ANY CONSTRUCTION RELATED DAMAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR/ REPLACE AT NO EXTRA COST TO THE OWNER.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REINSTATEMENT OF ANY FINISHES, LANDSCAPING FEATURES, MECHANICAL AND ELECTRICAL EQUIPMENT, ETC. REMOVED TO FACILITATE THE WORK.
 - SECURE ALL PERMITS PRIOR TO START OF DEMOLITION ACTIVITY, EXCLUDING THE BUILDING PERMIT.
 - CONTRACTOR TO LOCATE UTILITIES WITHIN THE AREA OF WORK AND PROTECT THESE UTILITIES DURING THE COURSE OF WORK. ANY DAMAGES TO EXISTING UTILITIES DUE TO CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR/REINSTATE AT THE CONTRACTOR'S COST. HAND DIG IN THE VICINITY OF BUILDING SERVICES.
 - CONTRACTOR TO FLUSH AND CLEAN ALL BELOW-GRADE DRAINAGE AND WEeping TILE SYSTEM PIPING AND PERFORM CCTV INSPECTION TO DETERMINE LOCATIONS OF BLOCKED OR DAMAGED PIPING. PROVIDE CONSULTANT WITH RESULTS OF INSPECTION, INCLUDING VIDEO, FOR REVIEW. CONTRACTOR TO MARK LOCATIONS FOR PIPE REPLACEMENT ON SLAB SURFACE, WHICH WILL BE REVIEWED BY THE CONSULTANT PRIOR TO PERFORMING REMOVALS.
 - CONTRACTOR TO REFER TO DSS REPORT AND CONFORM WITH ALL REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION WHEN PERFORMING REMOVALS IF HAZARDOUS MATERIALS ARE PRESENT. NO EXTRAS WILL BE ENTERTAINED FOR PROTECTION, ABATEMENT, ETC. FOLLOWING CONTRACT AWARD.
 - BUILDING HAS HERITAGE STATUS. CONTRACTOR IS TO CONFORM TO HERITAGE DEPARTMENT REQUIREMENTS AND PROJECT SPECIFICATIONS FOR THE DISMANTLING, STOCKPILING, AND REINSTATEMENT AND/OR REPLACEMENT OF INTERIOR AND EXTERIOR FEATURES THROUGHOUT THE SITE.

- CONCRETE RESTORATION NOTES:**
- LOCALLY REPAIR CORROSION-RELATED VERTICAL AND BEAM/ CORBEL CONCRETE DETERIORATION ON BUILDING FOUNDATION WALLS (INTERIOR AND EXTERIOR) PER ASSOCIATED DETAILS, WHERE DIRECTED BY THE CONSULTANT.
 - REFER TO AND CONFORM WITH SHORING NOTES ON COVER PAGE AND IN SECTION 03 01 31 PRIOR TO UNDERTAKING REMOVALS.
 - AFTER BUILDING FOUNDATION WALL REPAIRS ARE COMPLETE, PREPARE ALL SURFACES FOR THE INSTALLATION OF NEW WATERPROOFING SYSTEMS. REFER TO DRAWINGS S3.1 AND S3.2.

No.	Revision	Date	By
3.	ISSUED FOR PERMIT	Mar. 26, 21	S.P.
2.	ISSUED FOR TENDER	Mar. 26, 21	S.P.
1.	ISSUED FOR CLIENT REVIEW	May 22, 20	S.P.

- Drawing Notes**
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Project Name
Toronto Zoo - Valley Halla Villa
Toronto, Ontario

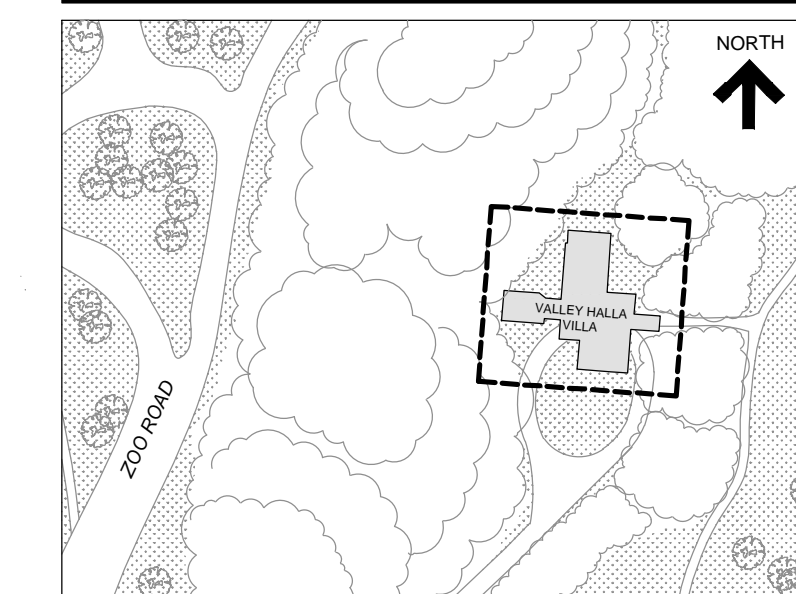
FOUNDATION WALL WATERPROOFING AND REPAIRS

Sheet Title

BASEMENT LEVEL - INTERIOR DEMOLITION AND CONCRETE RESTORATION PLAN

Drawn By **T.S.** Scale **3/16"=1'-0"**
Designed By **S.P.** Date **March, 2021**
RJC Project Number **TOR.113946.0016**

Sheet Number **S2.1** Revision



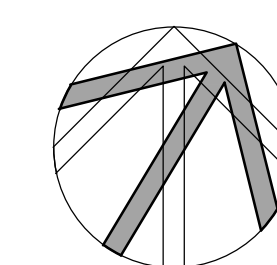
KEY PLAN

No.	Revision	Date	By
3.	ISSUED FOR PERMIT	Mar. 26, 21	S.P.
2.	ISSUED FOR TENDER	Mar. 26, 21	S.P.
1.	ISSUED FOR CLIENT REVIEW	May 22, 20	S.P.

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Seal



Project Name
**Toronto Zoo -
Valley Halla Villa**
Toronto, Ontario

**FOUNDATION WALL
WATERPROOFING AND REPAIRS**

Sheet Title

**GROUND FLOOR LEVEL -
EXTERIOR DEMOLITION AND
CONCRETE RESTORATION PLAN**

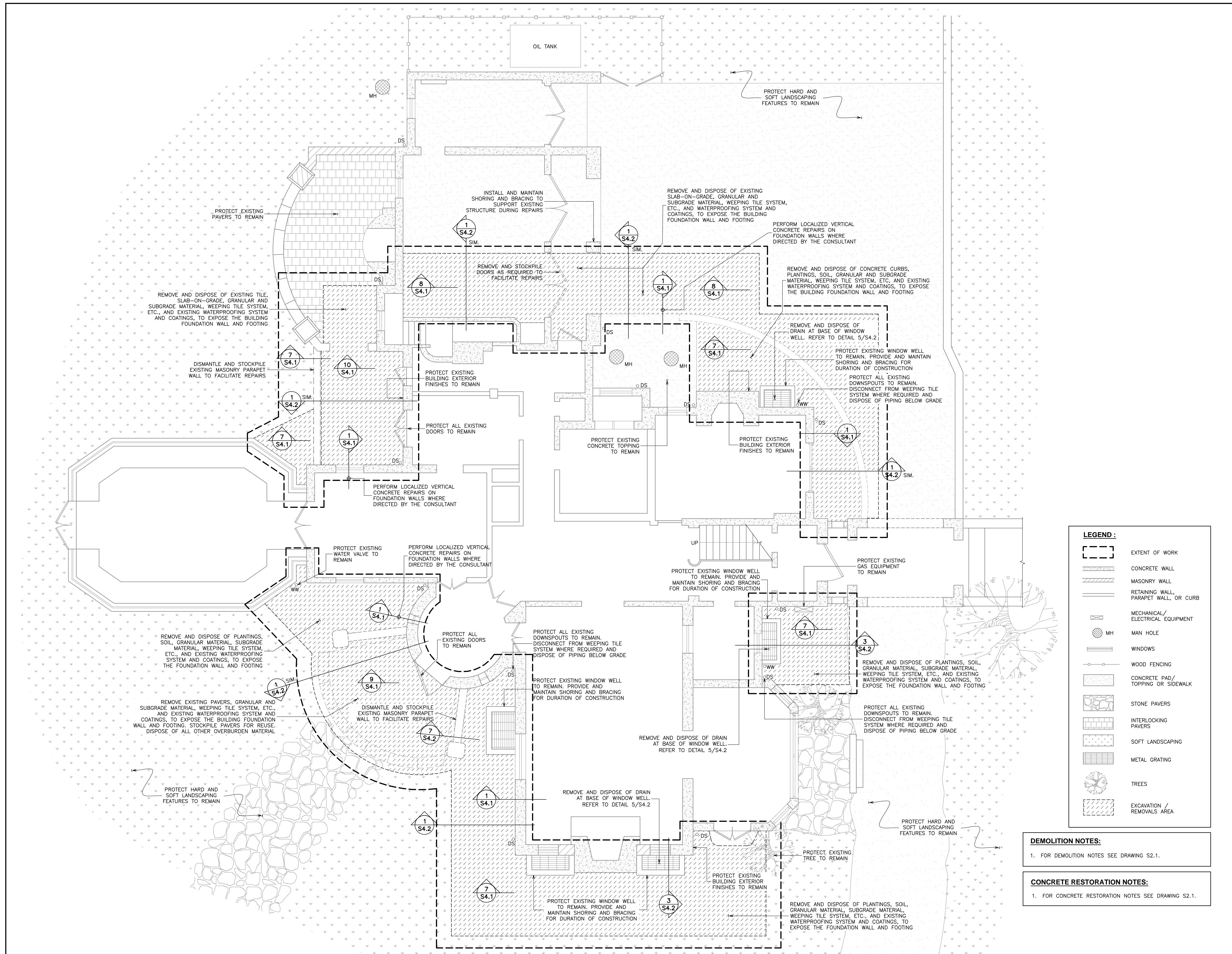
Drawn By T.S. Scale 3/16"=1'-0"

Designed By S.P. Date March, 2021

RJC Project Number TOR.113946.0016

Sheet Number Revision

S2.2

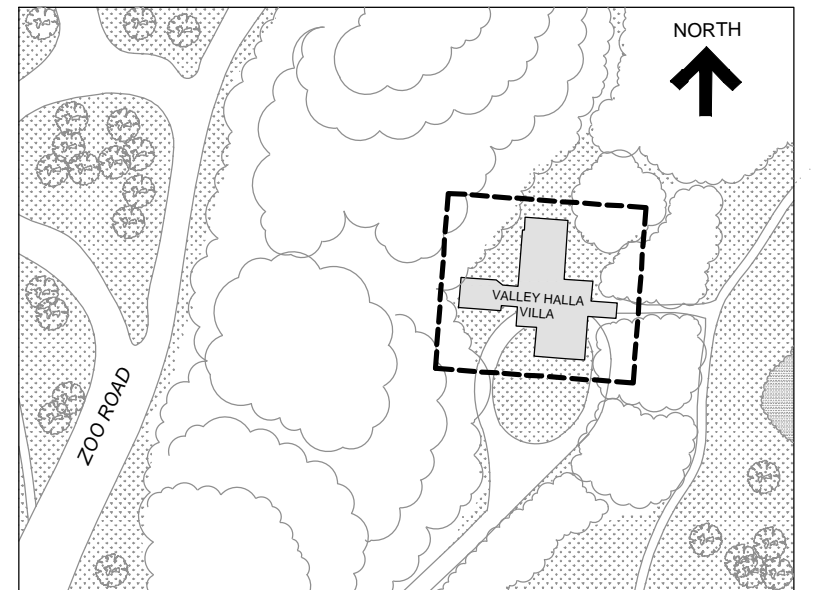
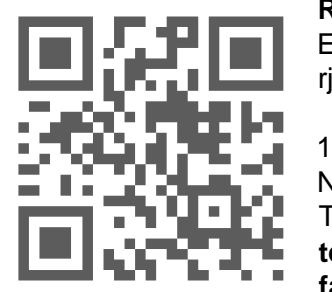


LEGEND :

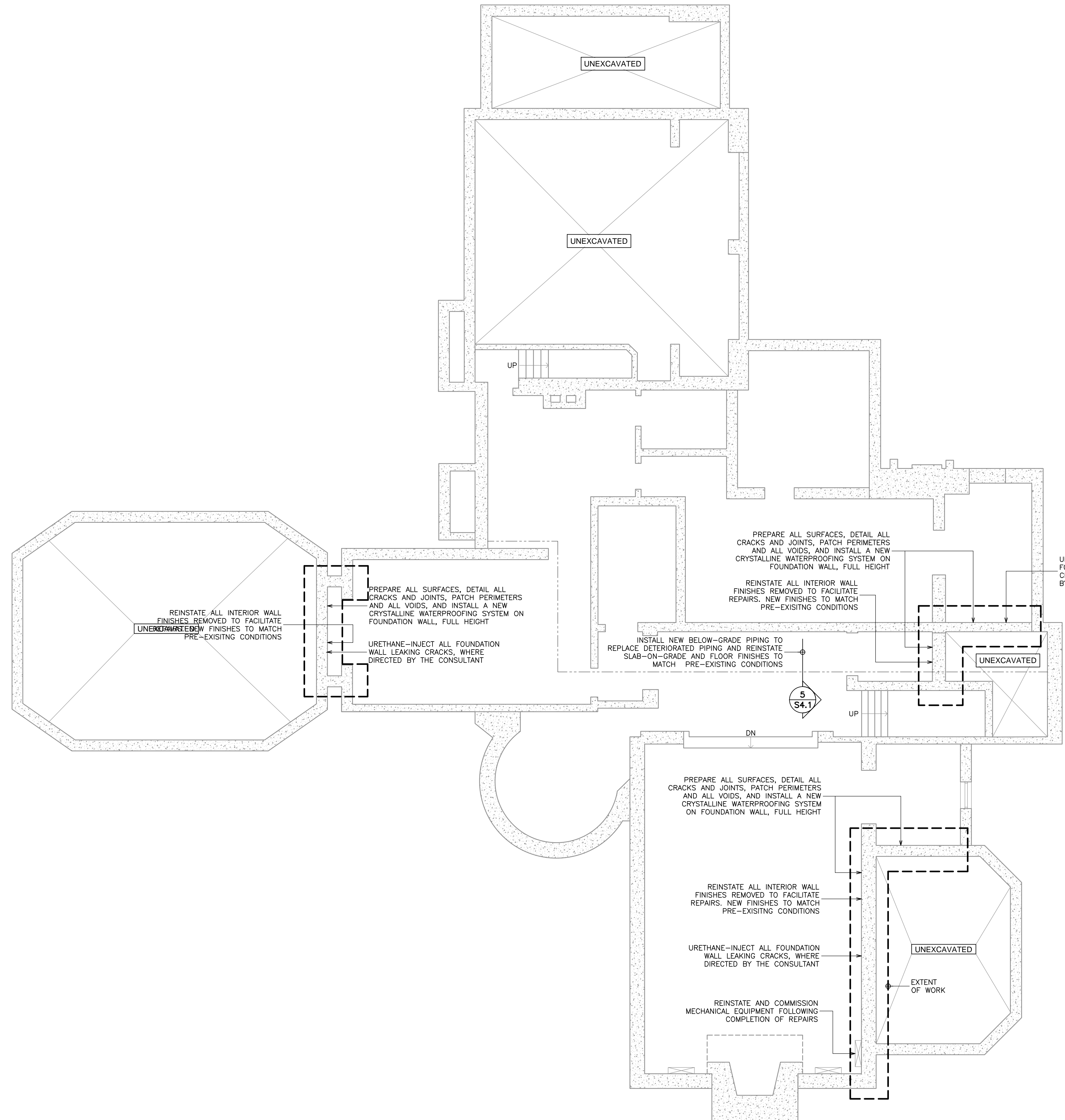
- EXTENT OF WORK
- CONCRETE WALL
- MASONRY WALL, PARAPET WALL, OR CURB
- MECHANICAL/ELECTRICAL EQUIPMENT
- MAN HOLE
- WINDOWS
- WOOD FENCING
- CONCRETE PAD/TOPPING OR SIDEWALK
- STONE PAVERS
- INTERLOCKING PAVERS
- SOFT LANDSCAPING
- METAL GRATING
- TREES
- EXCAVATION / REMOVALS AREA

DEMOLITION NOTES:
1. FOR DEMOLITION NOTES SEE DRAWING S2.1.

CONCRETE RESTORATION NOTES:
1. FOR CONCRETE RESTORATION NOTES SEE DRAWING S2.1.



KEY PLAN



LEGEND :

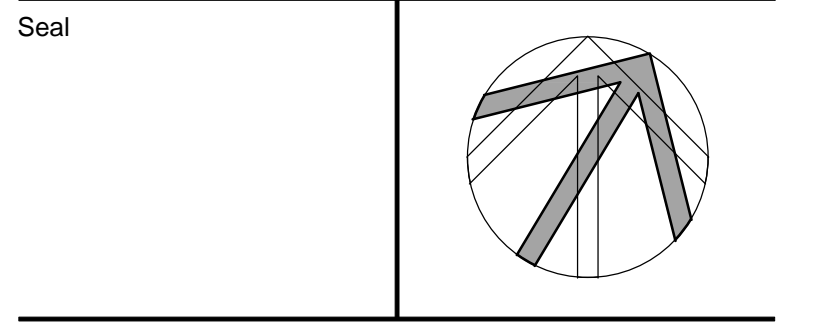
- EXTENT OF WORK
- CONCRETE WALL
- MECHANICAL/ELECTRICAL EQUIPMENT
- WINDOWS
- BELOW-GRADE PIPING (APPROX. LOCATION)

- RESTORATION AND WATERPROOFING NOTES:**
- REFER AND CONFORM TO SHORING NOTES ON COVER PAGE AND IN SECTION 03 01 31 PRIOR TO UNDERTAKING REMOVALS.
 - AT INTERIOR AREAS, PERFORM URETHANE CRACK INJECTION AT FOUNDATION WALL LEAKING CRACKS WHERE DIRECTED BY THE CONSULTANT AND IN CONFORMANCE WITH SECTION 07 92 20.
 - AT INTERIOR AREAS, PERFORM CRYSTALLINE WATERPROOFING INSTALLATION IN CONFORMANCE WITH SECTION 07 16 00.
 - AT EXTERIOR AREAS, PERFORM COLD-APPLIED WATERPROOFING INSTALLATION IN CONFORMANCE WITH SECTION 07 14 20.
 - REINSTATE ALL INTERIOR FINISHES (I.E. MILLWORK, PAINT, FLOORING, ETC.) AND MECHANICAL AND ELECTRICAL FIXTURES, CONDUIT, PIPING, ETC. UPON COMPLETION OF REPAIRS. ALL INTERIOR FINISHES ARE TO MATCH PRE-EXISTING CONDITIONS.
 - REINSTATE ALL EXTERIOR FINISHES (I.E. PARAPET AND RETAINING WALLS, TILES, PAVERS, CONCRETE PADS, CURBS, SOFT LANDSCAPING, ETC.) UPON COMPLETION OF REPAIRS. ALL EXTERIOR FINISHES ARE TO MATCH PRE-EXISTING CONDITIONS.
 - DISCOVERED HIGH WATER TABLE (I.E. ABOVE UNDERSIDE OF FOOTING ELEVATION) TO BE REPORTED TO CONSULTANT BEFORE PROCEEDING FURTHER.
 - BUILDING HAS HERITAGE STATUS. CONTRACTOR IS TO CONFORM TO HERITAGE DEPARTMENT REQUIREMENTS AND PROJECT SPECIFICATIONS FOR THE DISMANTLING, STOCKPILING, AND REINSTATEMENT AND/OR REPLACEMENT OF INTERIOR AND EXTERIOR FEATURES THROUGHOUT THE SITE.

No.	Revision	Date	By
3.	ISSUED FOR PERMIT	Mar. 26, 21	S.P.
2.	ISSUED FOR TENDER	Mar. 26, 21	S.P.
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Project Name
Toronto Zoo - Valley Halla Villa
Toronto, Ontario

FOUNDATION WALL WATERPROOFING AND REPAIRS

Sheet Title

BASEMENT LEVEL - RESTORATION AND WATERPROOFING PLAN

Drawn By T.S. Scale 3/16"=1'-0"
Designed By S.P. Date March, 2021
RJC Project Number TOR.113946.0016

Sheet Number Revision

S3.1



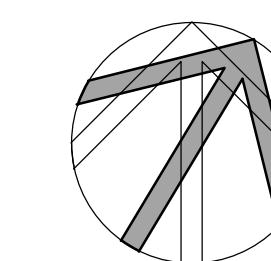
KEY PLAN

No.	Revision	Date	By
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Seal



Project Name
**Toronto Zoo -
Valley Halla Villa**
Toronto, Ontario

**FOUNDATION WALL
WATERPROOFING AND REPAIRS**

Sheet Title

**GROUND FLOOR LEVEL -
RESTORATION AND
WATERPROOFING PLAN**

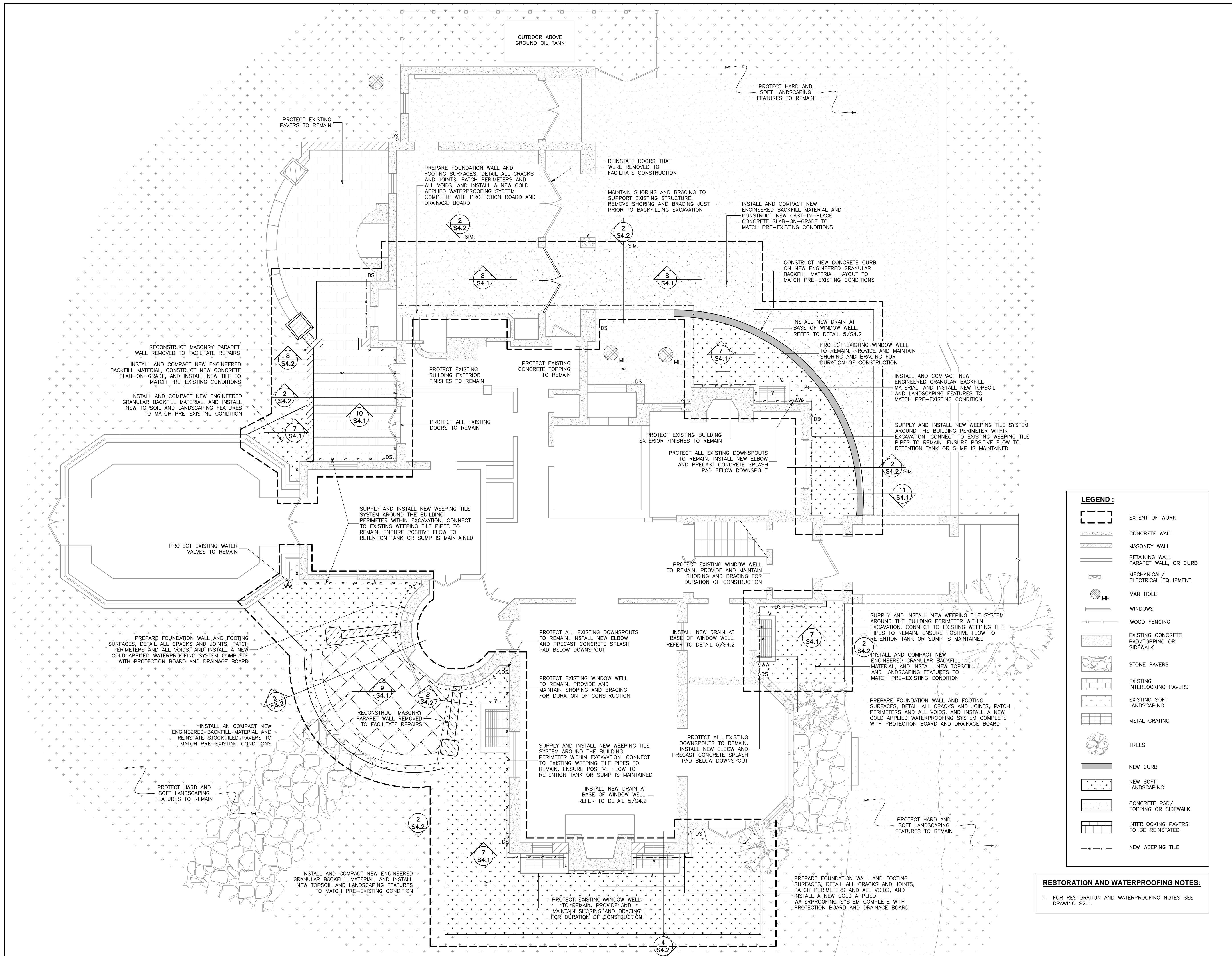
Drawn By T.S. Scale 3/16"=1'-0"

Designed By S.P. Date March, 2021

RJC Project Number TOR.113946.0016

Sheet Number Revision

S3.2

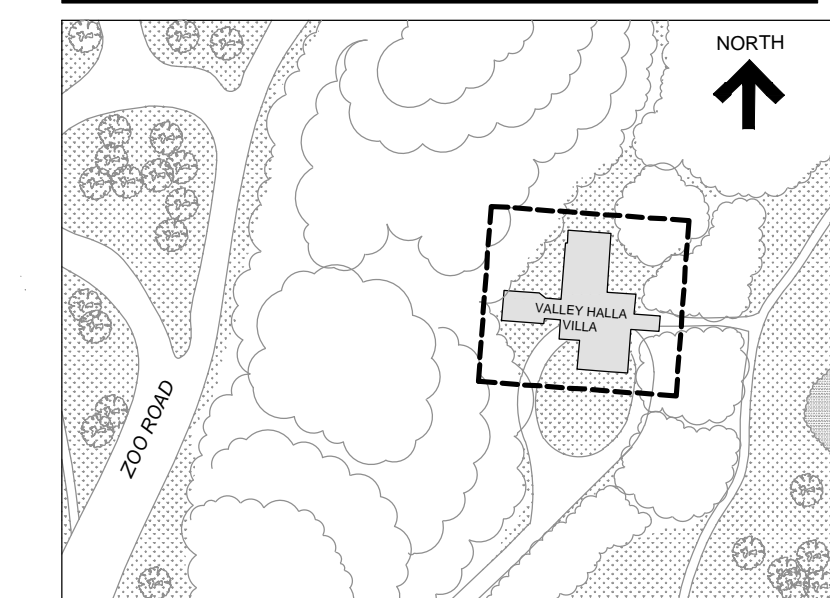


LEGEND :

- EXTENT OF WORK
- CONCRETE WALL
- MASONRY WALL
- RETAINING WALL, PARAPET WALL, OR CURB
- MECHANICAL/ELECTRICAL EQUIPMENT
- MAN HOLE
- WINDOWS
- WOOD FENCING
- EXISTING CONCRETE PAD/TOPPING OR SIDEWALK
- STONE PAVERS
- EXISTING INTERLOCKING PAVERS
- EXISTING SOFT LANDSCAPING
- METAL GRATING
- TREES
- NEW CURB
- NEW SOFT LANDSCAPING
- CONCRETE PAD/TOPPING OR SIDEWALK
- INTERLOCKING PAVERS TO BE REINSTATED
- NEW WEeping TILE

RESTORATION AND WATERPROOFING NOTES:

- FOR RESTORATION AND WATERPROOFING NOTES SEE DRAWING S2.1.



KEY PLAN

No.	Revision	Date	By
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Seal	
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Project Name
Toronto Zoo - Valley Halla Villa
Toronto, Ontario

FOUNDATION WALL WATERPROOFING AND REPAIRS

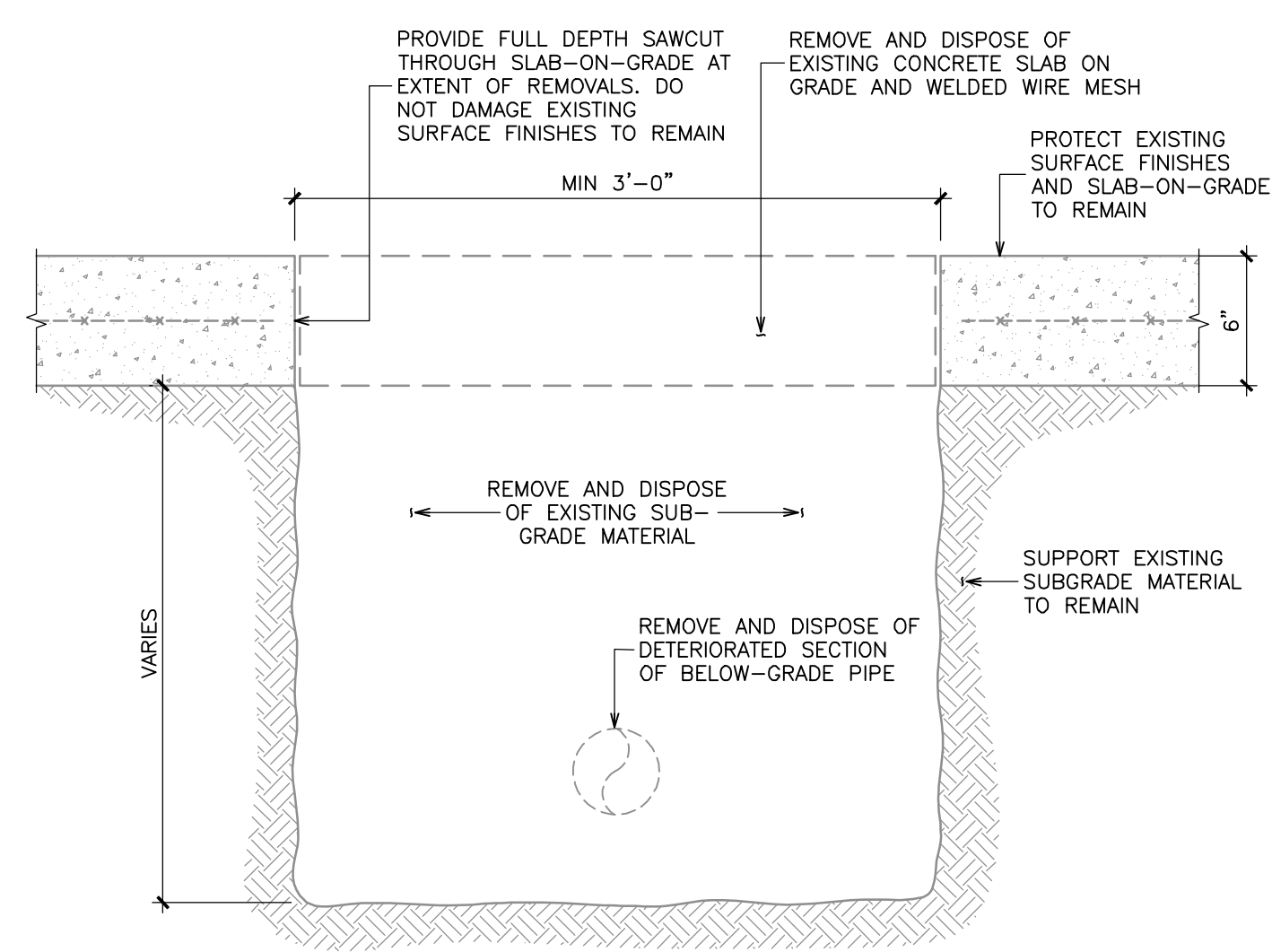
Sheet Title

SECTIONS AND DETAILS

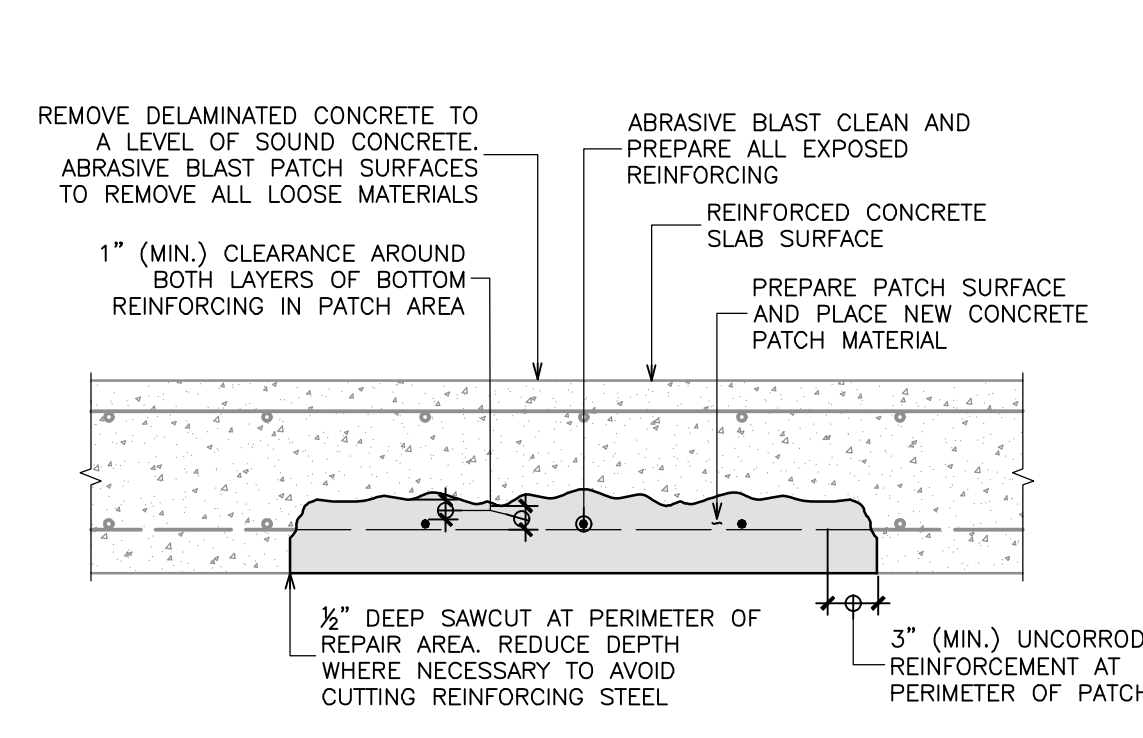
Drawn By T.S. Scale AS NOTED
Designed By S.P. Date March, 2021
RJC Project Number **TOR.113946.0016**

Sheet Number _____ Revision _____

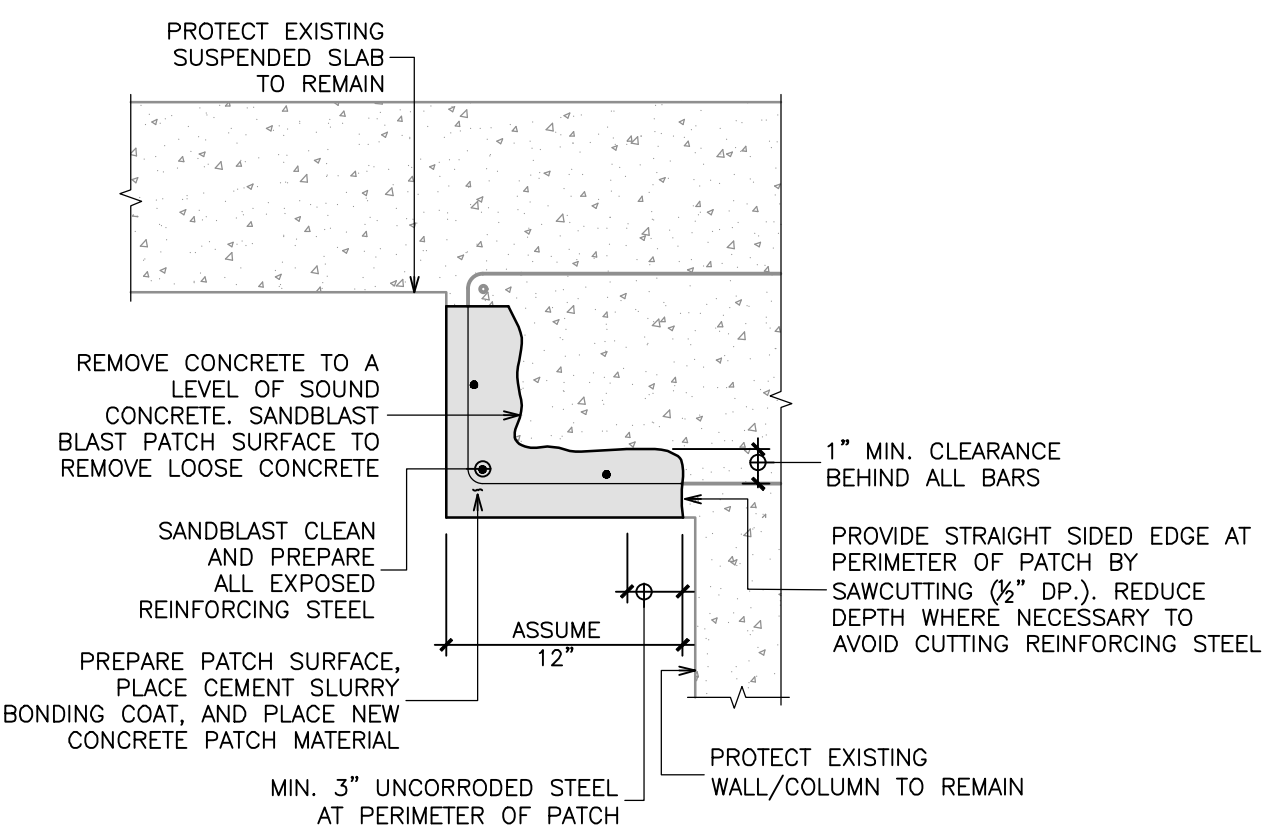
S4.1



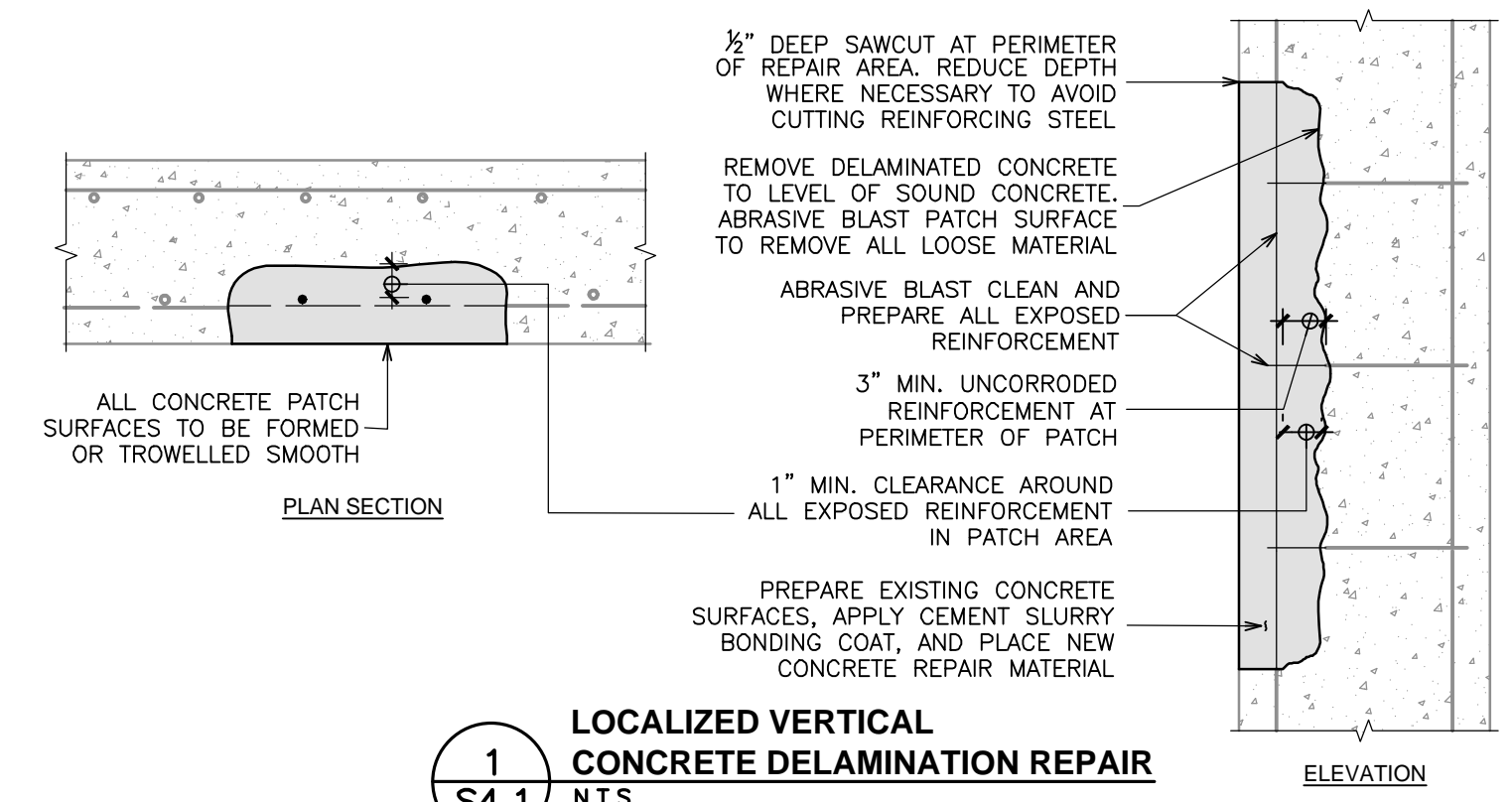
3
S4.1
LOCALIZED PARTIAL DEPTH SLAB SOFFIT DELAMINATION REPAIR
N.T.S.



2
S4.1
TYPICAL BEAM / CORBEL DELAMINATION REPAIR
N.T.S.



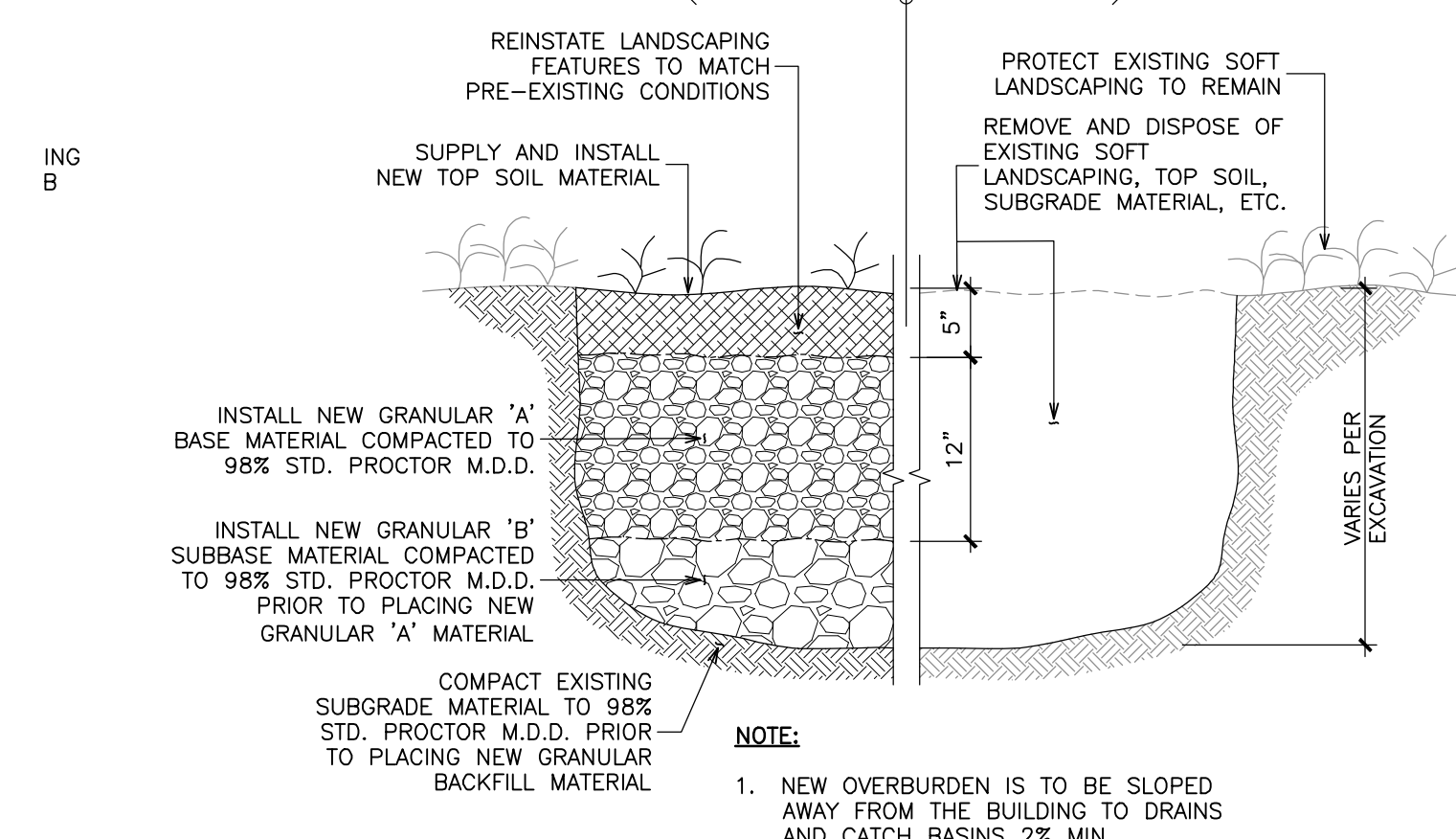
1
S4.1
LOCALIZED VERTICAL CONCRETE DELAMINATION REPAIR
N.T.S.



4
S4.1
TYPICAL BELOW-GRADE PIPING REMOVAL DETAIL
N.T.S.

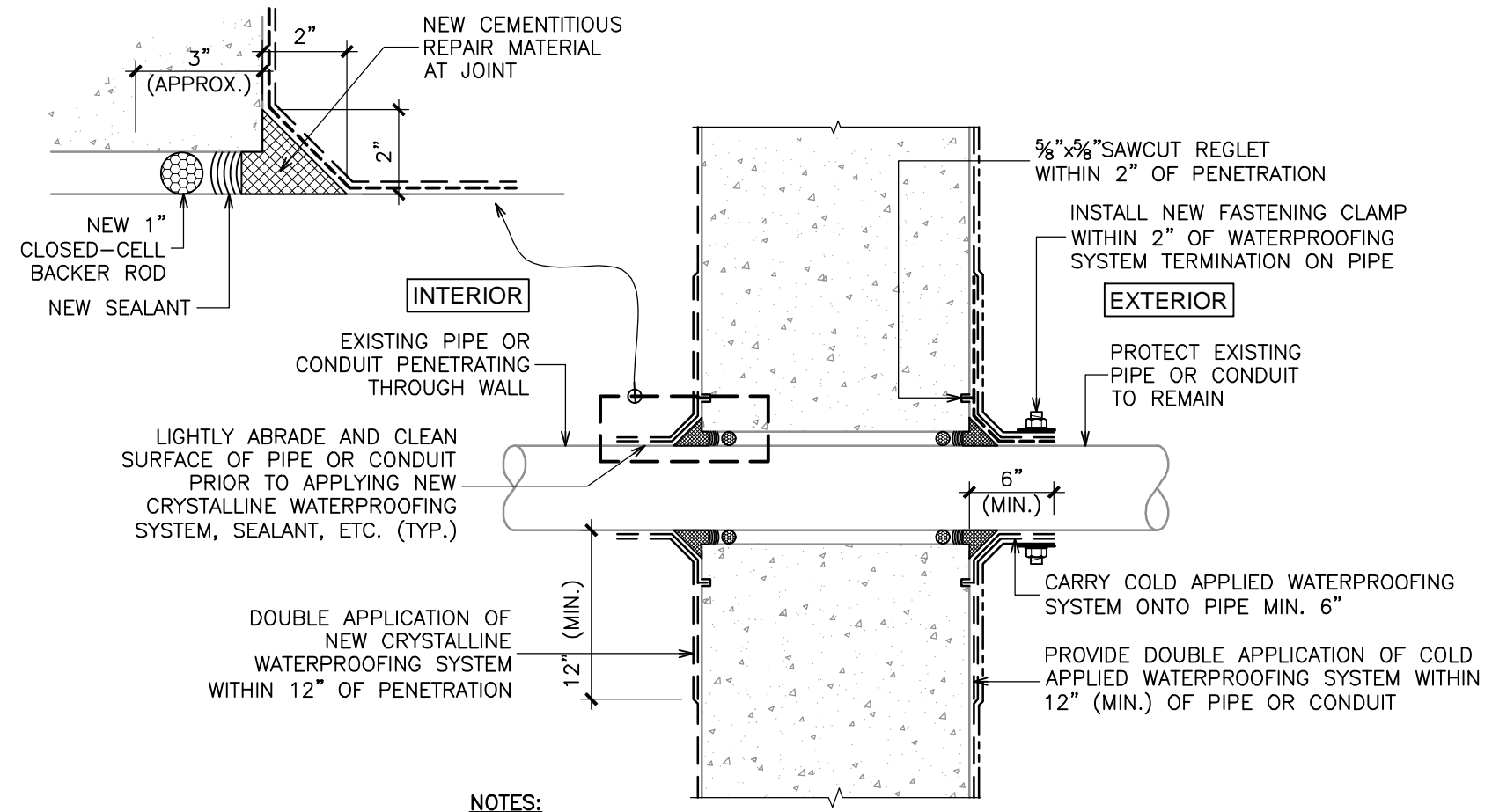
NOTE:
1. REMOVE AND STOCKPILE EXISTING SURFACE FINISHES PRIOR TO PERFORMING REMOVALS. IF NOT FEASIBLE, CONTRACTOR IS REQUIRED TO TAKE DETAILED RECORD OF EXISTING FINISHES IN ORDER TO REPLACE TO MATCH EXISTING.

ING B



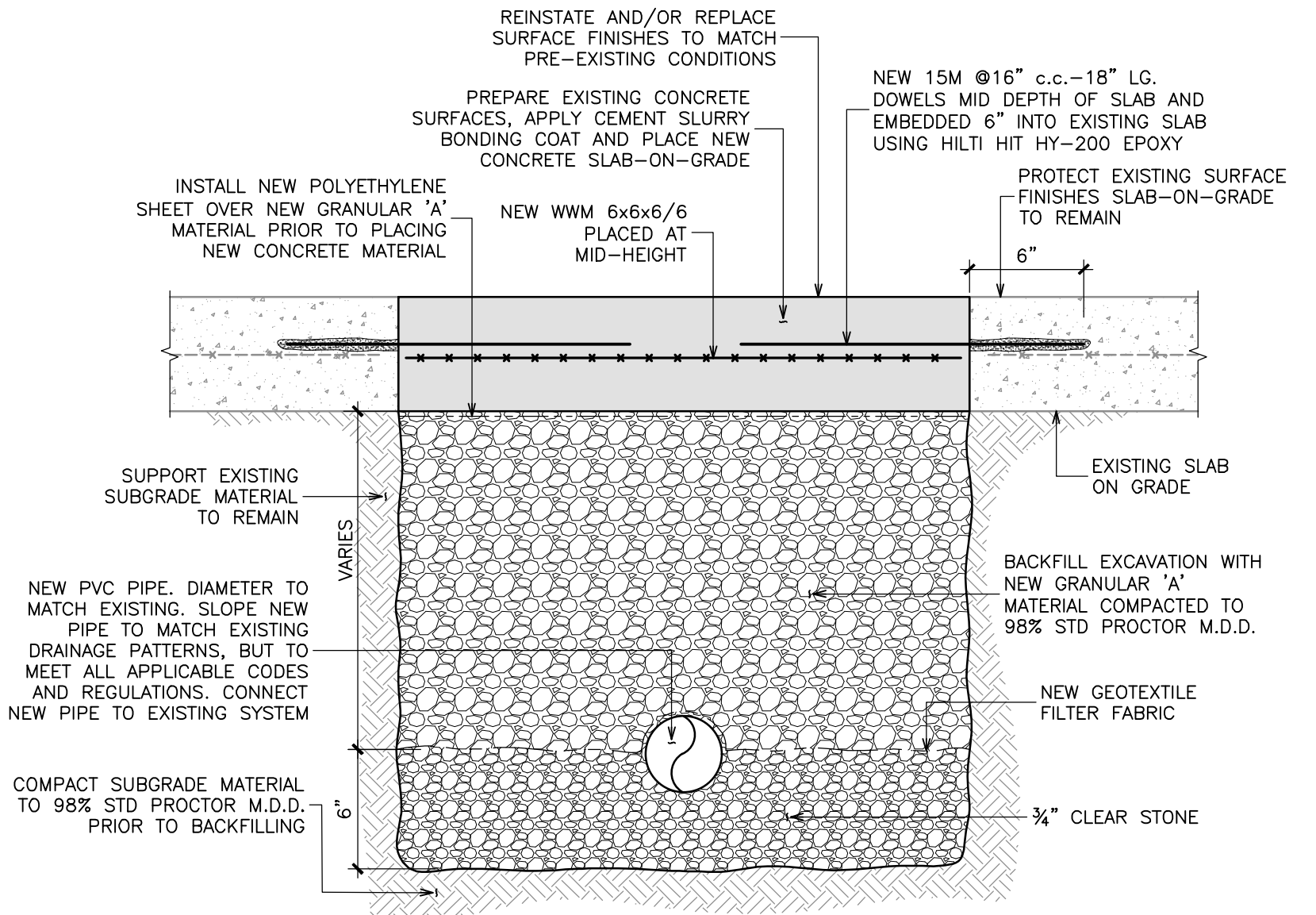
7
S4.1
TYPICAL SOFT LANDSCAPING DEMOLITION / RECONSTRUCTION DETAIL
N.T.S.

NOTE:
1. NEW OVERBURDEN IS TO BE SLOPED AWAY FROM THE BUILDING TO DRAINS AND CATCH BASINS 2% MIN.



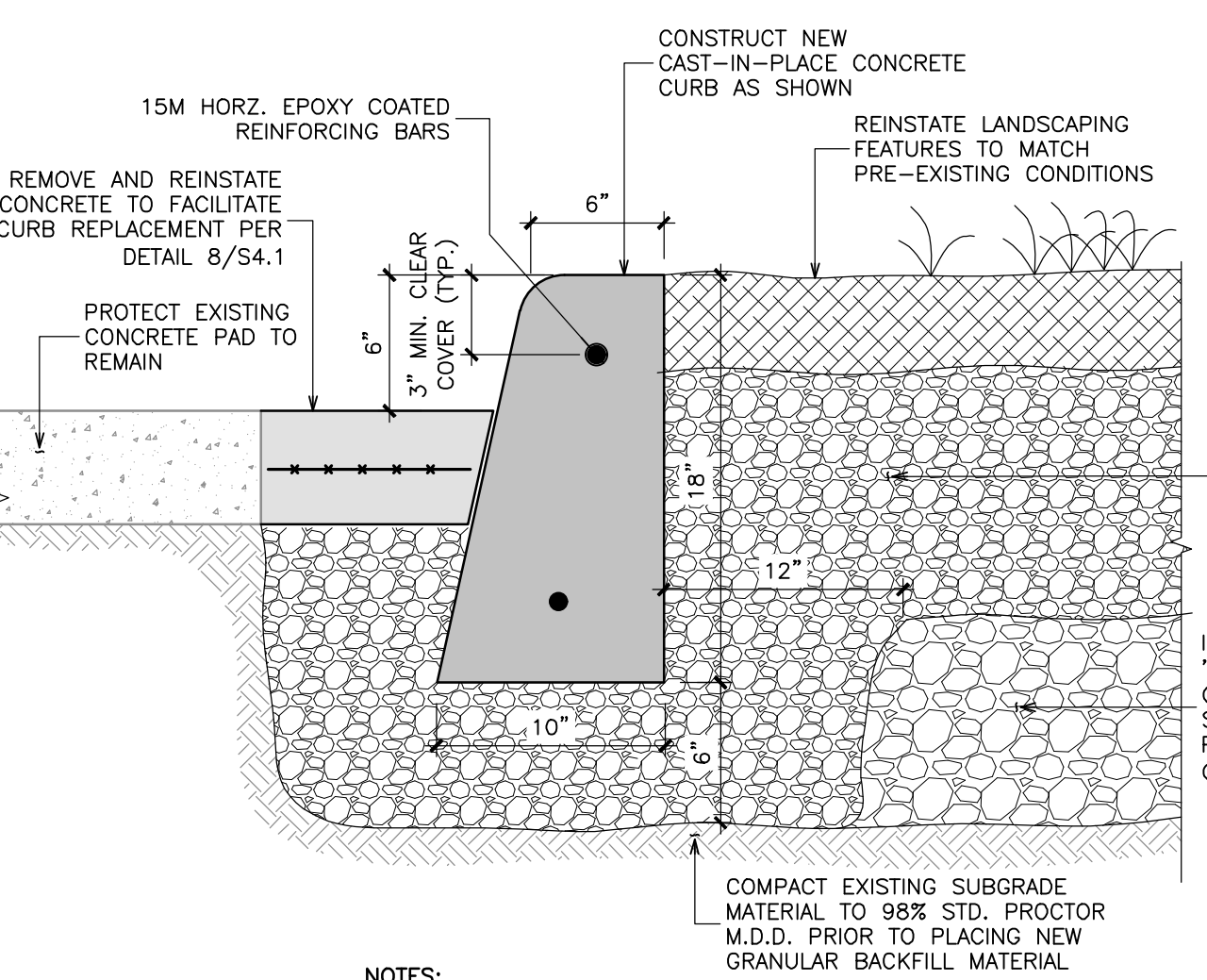
6
S4.1
PIPE PENETRATION WATERPROOFING TERMINATION DETAIL
N.T.S.

NOTES:
1. IF GAP BETWEEN PIPE AND WALL IS NOT PRESENT, INSTALL ONLY COVE REPAIR MATERIAL AT JOINT BETWEEN PIPE OR CONDUIT AND WALL.
2. IF PENETRATION IS NO LONGER REQUIRED, REVIEW WITH CONSULTANT. REPAIR TO BE PERFORMED SIMILAR TO DETAIL 1/S4.1.



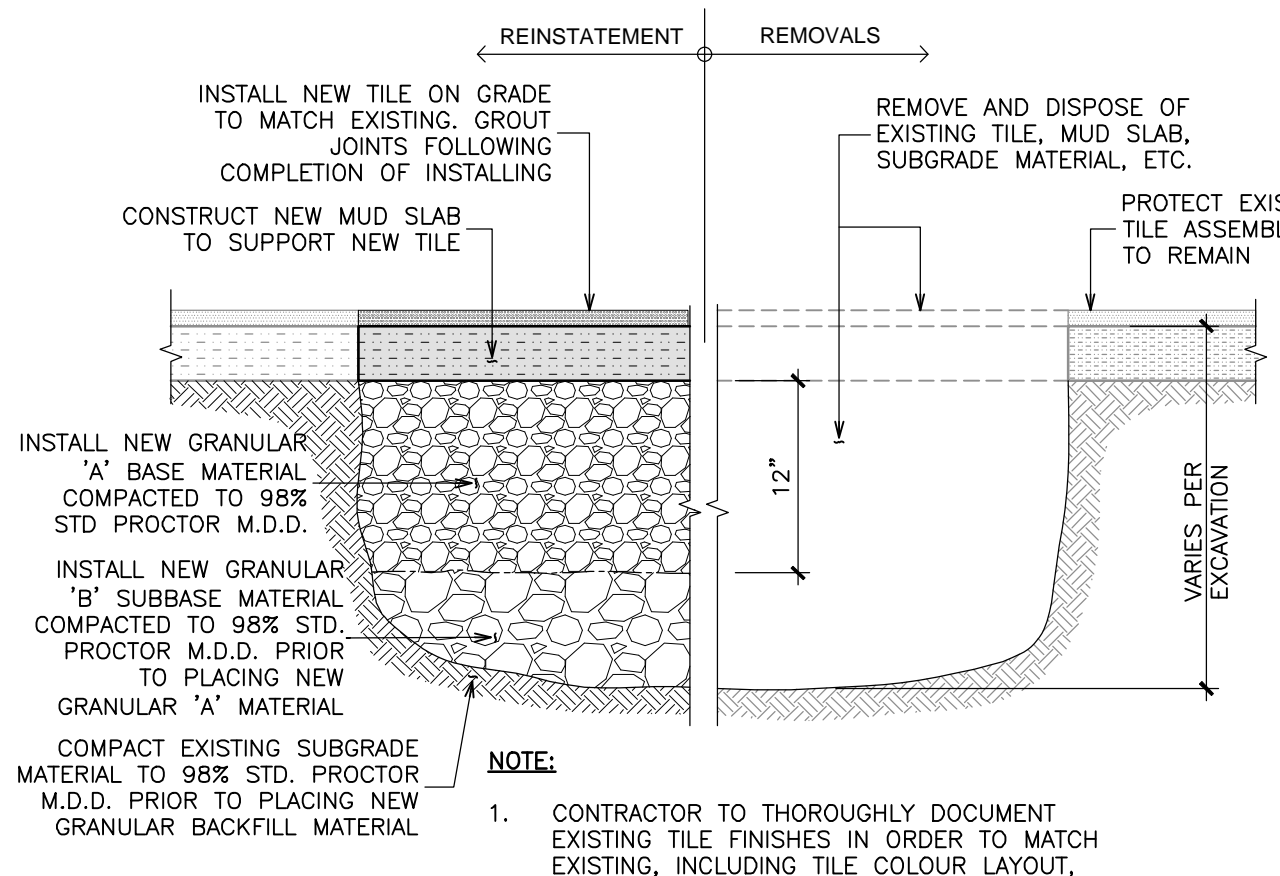
5
S4.1
TYPICAL BELOW-GRADE PIPING REINSTATEMENT DETAIL
N.T.S.

NOTE:
1. REINSTATE SURFACE FINISHES TO MATCH EXISTING CONDITIONS.



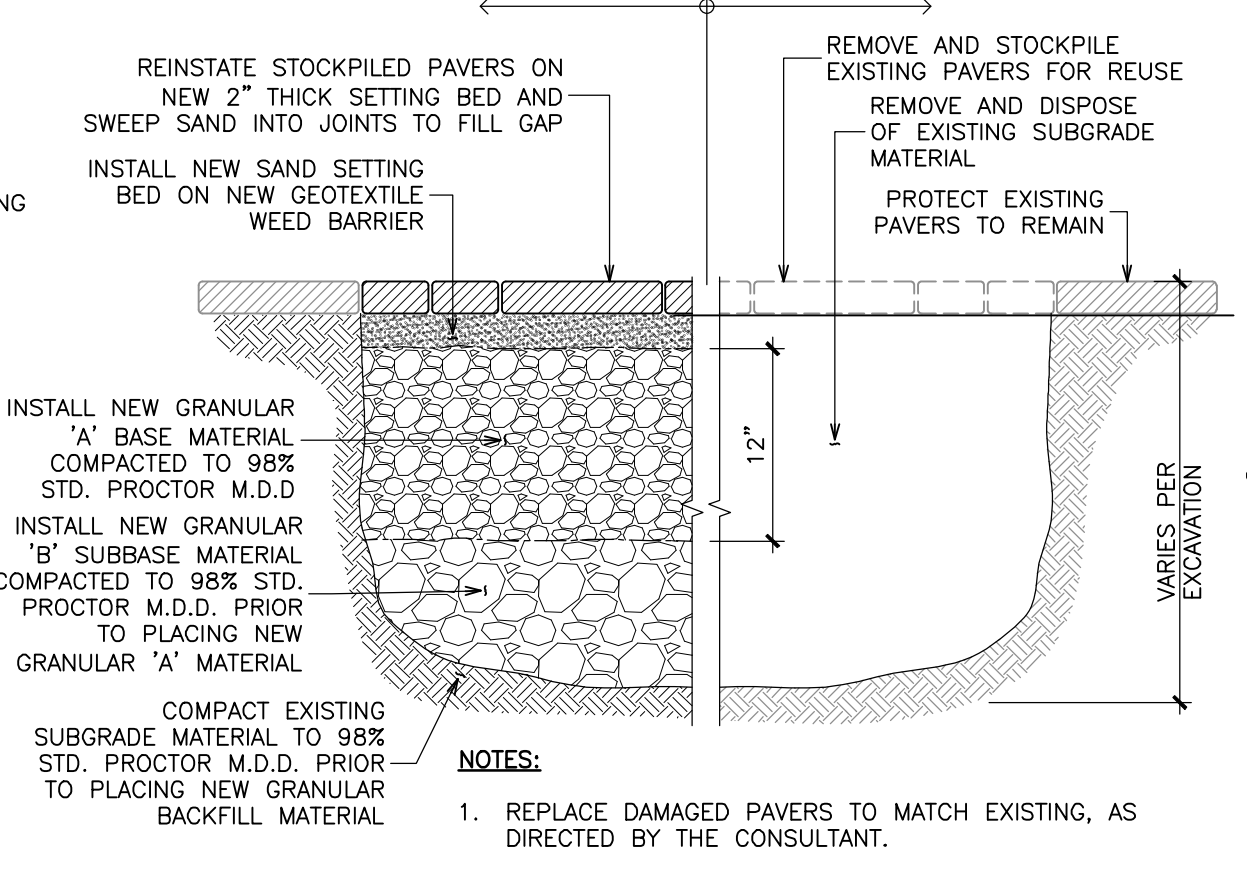
11
S4.1
CURB CONSTRUCTION DETAIL
N.T.S.

NOTES:
1. PROVIDE FULL DEPTH SAWCUT AT EXTENT OF REMOVALS.
2. PROVIDE TOOLED CONTROL JOINTS IN CONCRETE CURBS AT MAXIMUM SPACING OF 10'-0".
3. LANDSCAPING REPLACEMENT SHOWN IN THIS DETAIL. REPLACEMENT OF OTHER FINISHES TO CONFORM TO OTHER TYPICAL REINSTATEMENT DETAILS.



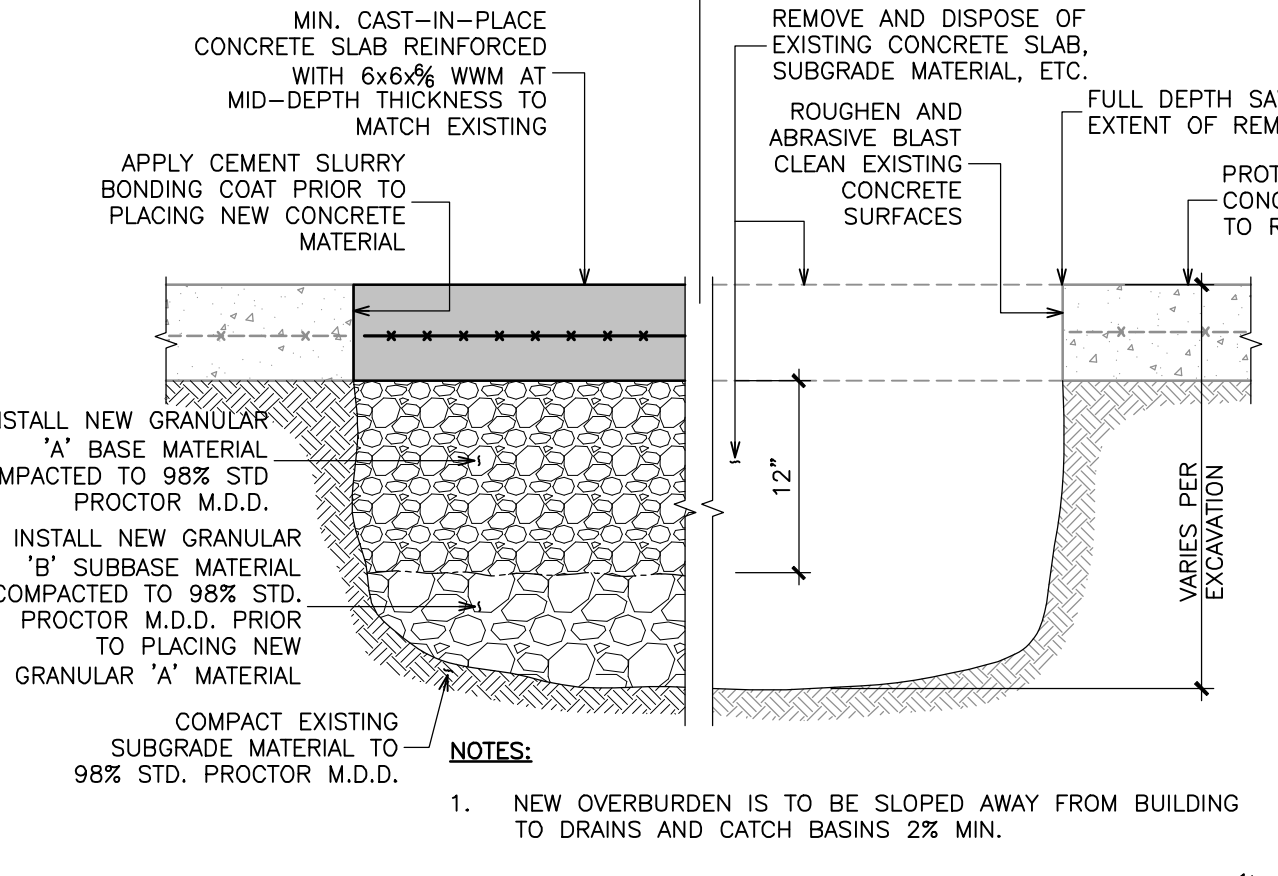
10
S4.1
TYPICAL TILES DEMOLITION / RECONSTRUCTION DETAIL
N.T.S.

NOTE:
1. CONTRACTOR TO THOROUGHLY DOCUMENT EXISTING TILE FINISHES IN ORDER TO MATCH EXISTING, INCLUDING TILE COLOUR LAYOUT, TEXTURE, SIZE, GROUT SIZE AND COLOUR, ETC.



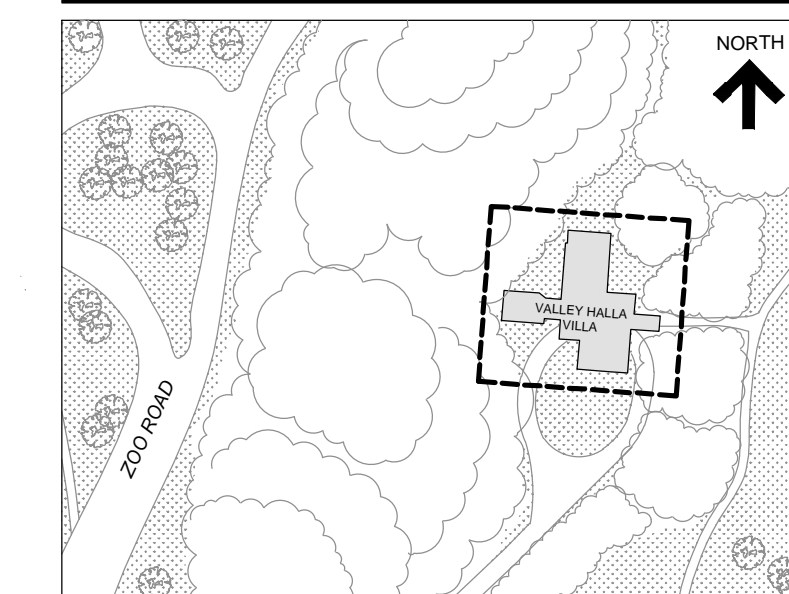
9
S4.1
TYPICAL PAVER DEMOLITION / RECONSTRUCTION DETAIL
N.T.S.

NOTES:
1. REPLACE DAMAGED PAVERS TO MATCH EXISTING, AS DIRECTED BY THE CONSULTANT.
2. CONTRACTOR TO THOROUGHLY DOCUMENT EXISTING PAVER FINISHES IN ORDER TO MATCH EXISTING, INCLUDING PAVER LAYOUT, TEXTURE, SIZE, SPACING SIZE, ETC.

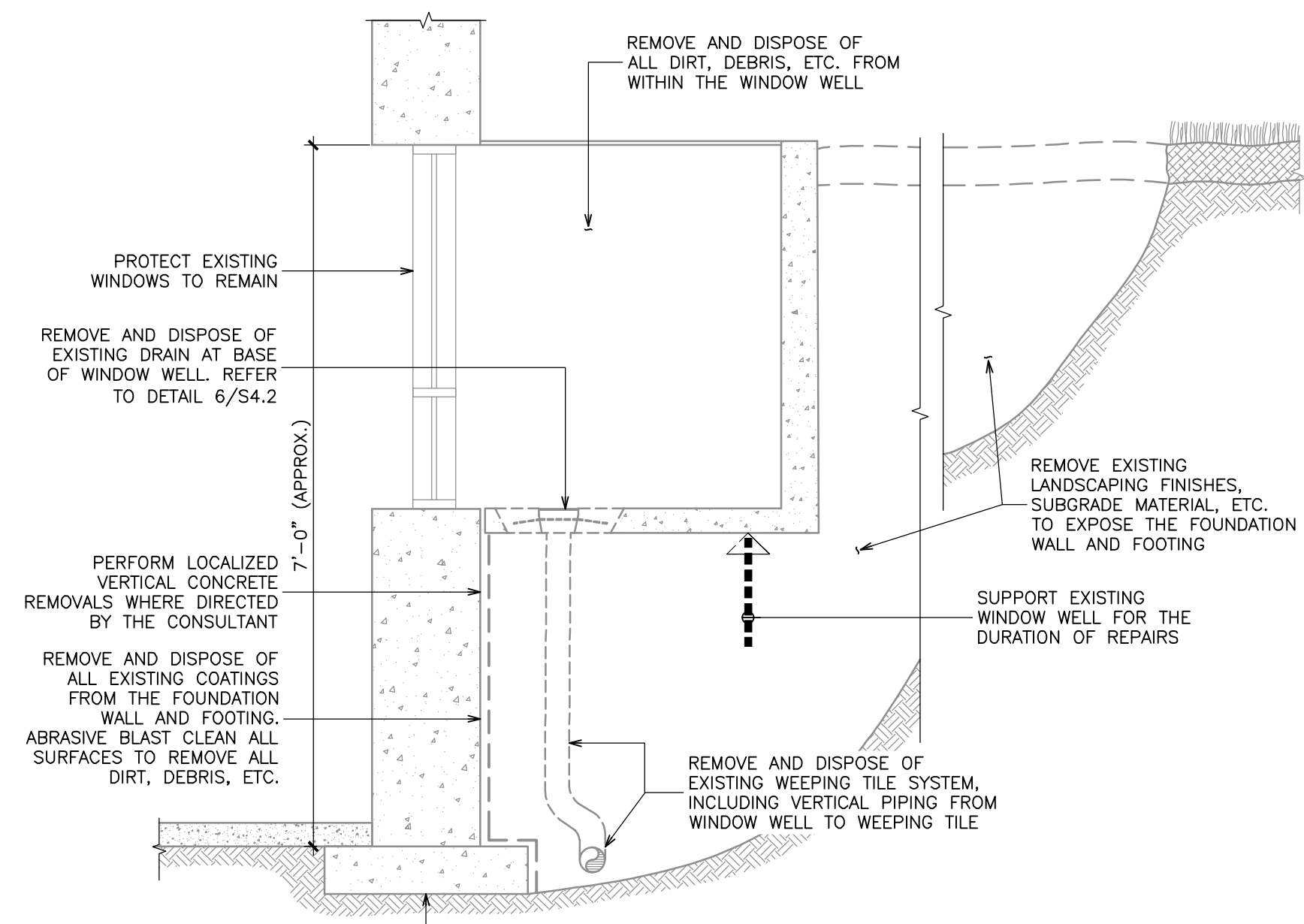


8
S4.1
TYPICAL CONCRETE PAD DEMOLITION / RECONSTRUCTION DETAIL
N.T.S.

NOTES:
1. NEW OVERBURDEN IS TO BE SLOPED AWAY FROM BUILDING TO DRAINS AND CATCH BASINS 2% MIN.
2. TOOL CRACK CONTROL JOINTS IN NEW CONCRETE PAD TO 1/2 DEPTH OF SLAB.
3. WHERE NEW CONCRETE ABUTS EXISTING CONCRETE VERTICAL SURFACE, INSTALL NEW 1/2" THICK ASPHALT IMPREGNATED FIBRE BOARD BETWEEN NEW AND EXISTING SURFACES.



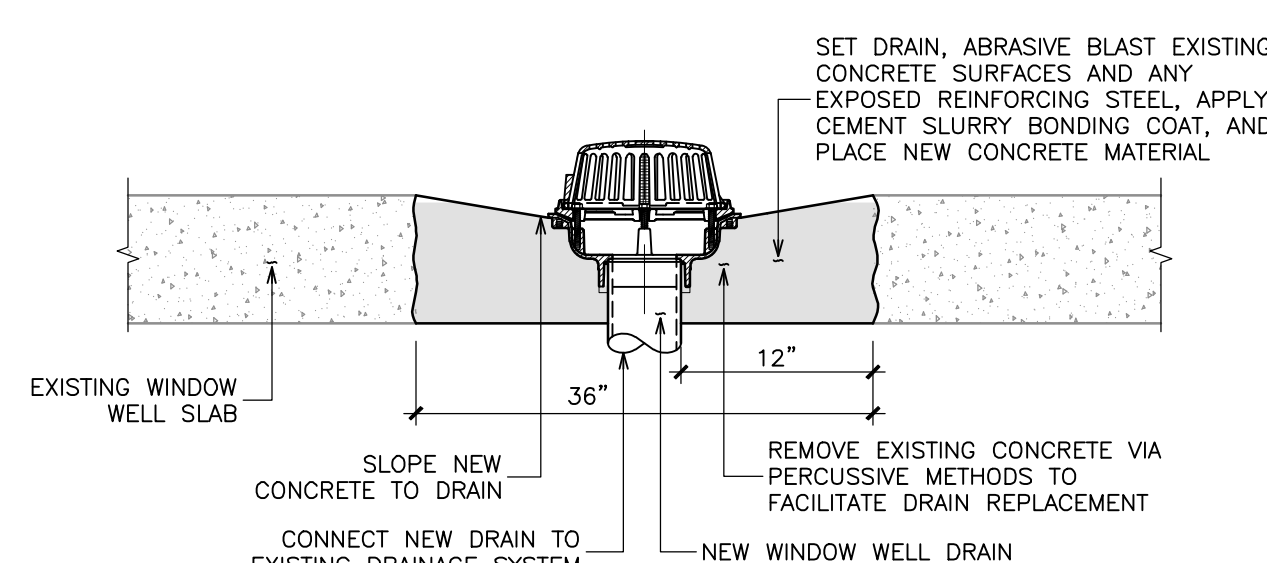
KEY PLAN



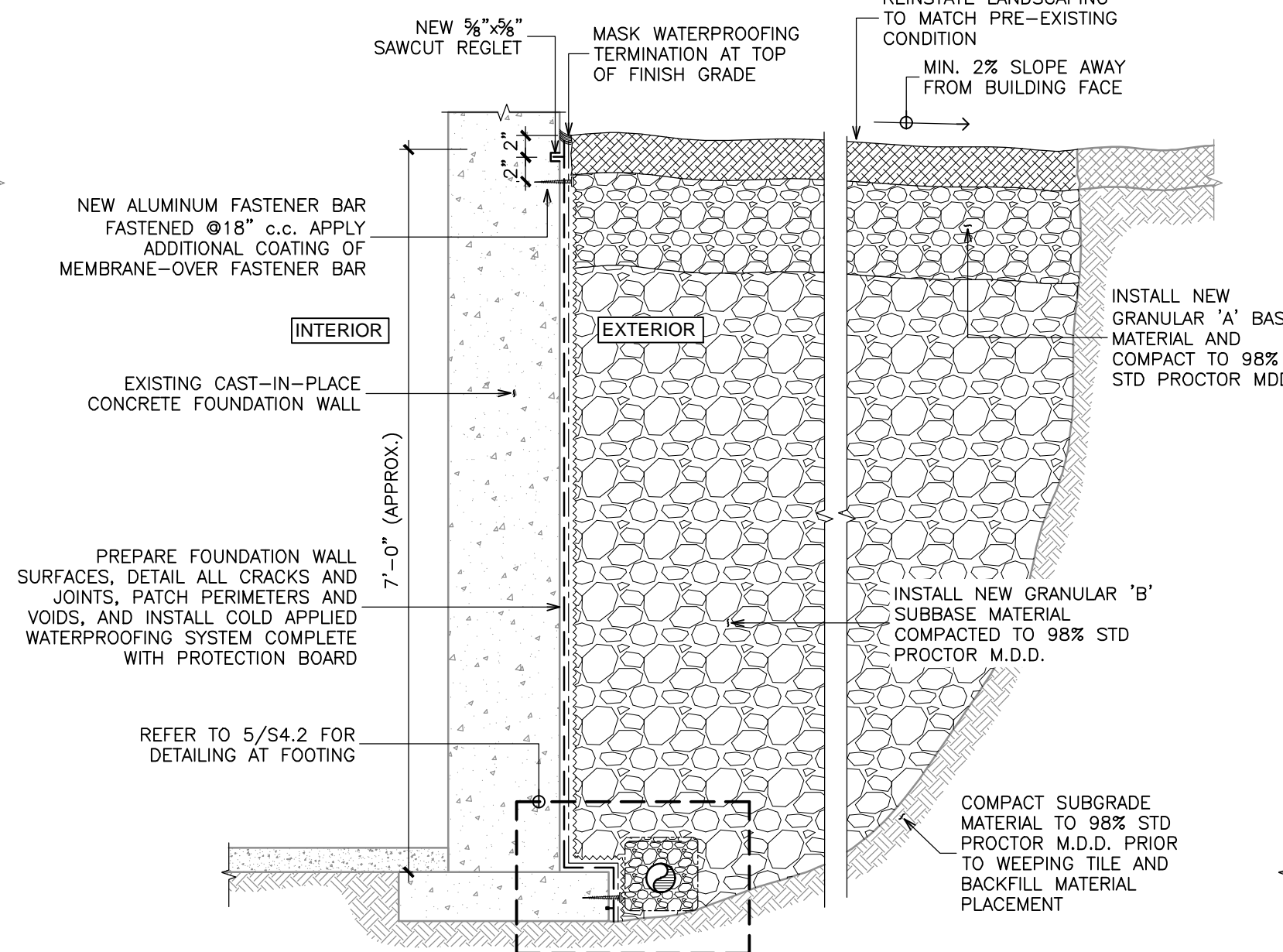
NOTES:

1. REFER TO TYPICAL OVERBURDEN DETAILS FOR CONSTRUCTION OF EACH TYPE OF OVERBURDEN EXPECTED TO BE REMOVED.
2. EXCAVATION TO CONFORM TO ALL MOL AND CHSA GUIDELINES AND REQUIREMENTS.
3. CONTRACTOR MAY ELECT TO UTILIZE EXCAVATION SHORING IN LIEU OF INCREASED EXCAVATION SIZE. CONTRACTOR TO SUBMIT SHOP DRAWINGS PREPARED BY SPECIALTY STRUCTURAL ENGINEER TO CONSULTANT FOR REVIEW PRIOR TO IMPLEMENTATION.
4. DISCONNECT AND REMOVE VERTICAL PIPING FROM WEeping TILE TO EXISTING RAIN WATER LEADERS.

3
S4.2
DEMOLITION AT FOUNDATION WALL EXTERIOR WITH WINDOW WELL
N.T.S.



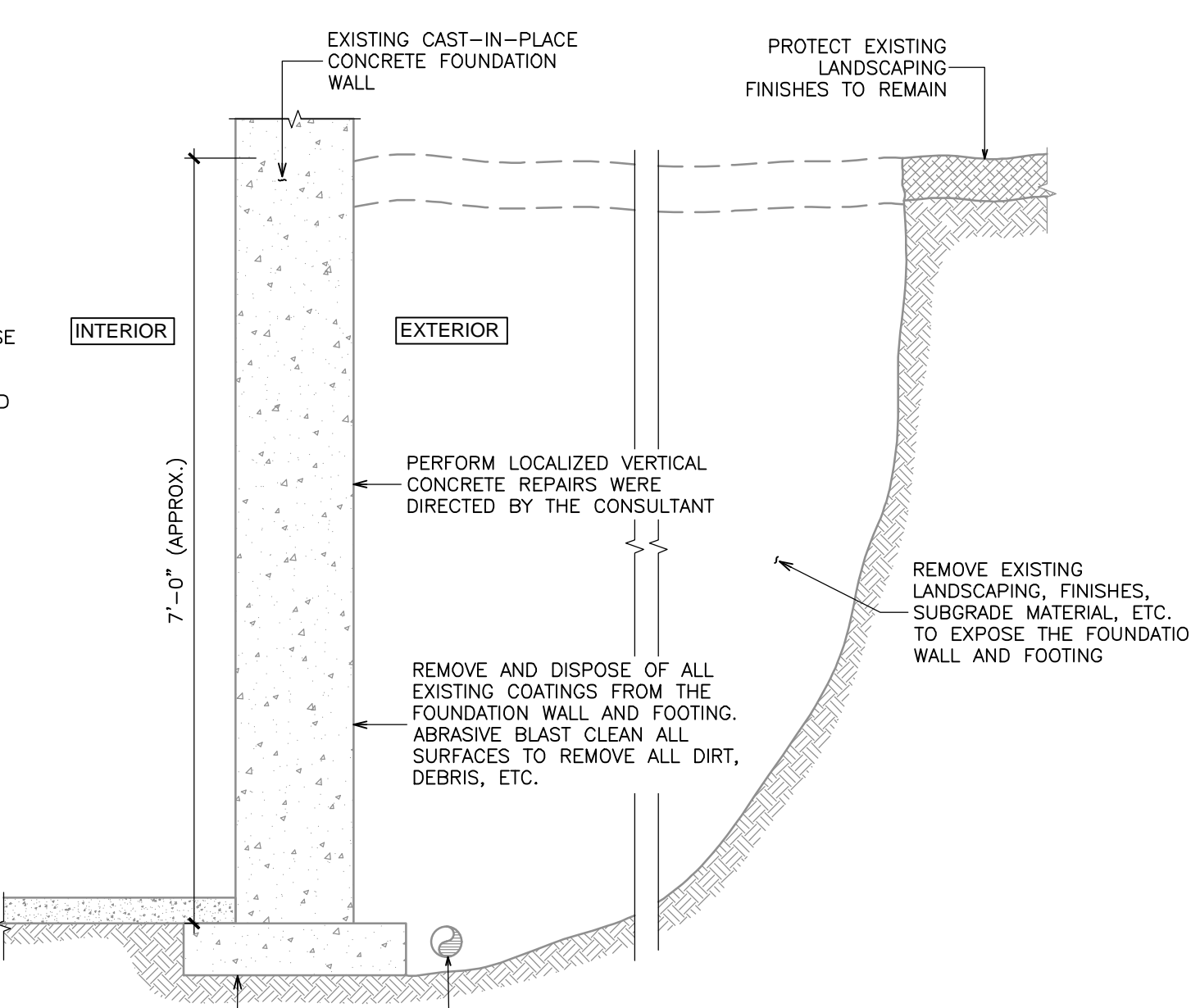
6
S4.2
DRAIN REPLACEMENT DETAIL AT WINDOW WELLS
N.T.S.



NOTES:

1. REFER TO TYPICAL OVERBURDEN DETAILS FOR CONSTRUCTION OF EACH TYPE OF OVERBURDEN TO BE REINSTATED.
2. RAIN WATER LEADERS ARE NOT TO BE RECONNECTED TO WEeping TILE SYSTEM. CONTRACTOR TO SUPPLY AND INSTALL NEW ELBOW AND SPLASH PAD BELOW RAIN WATER LEADER.

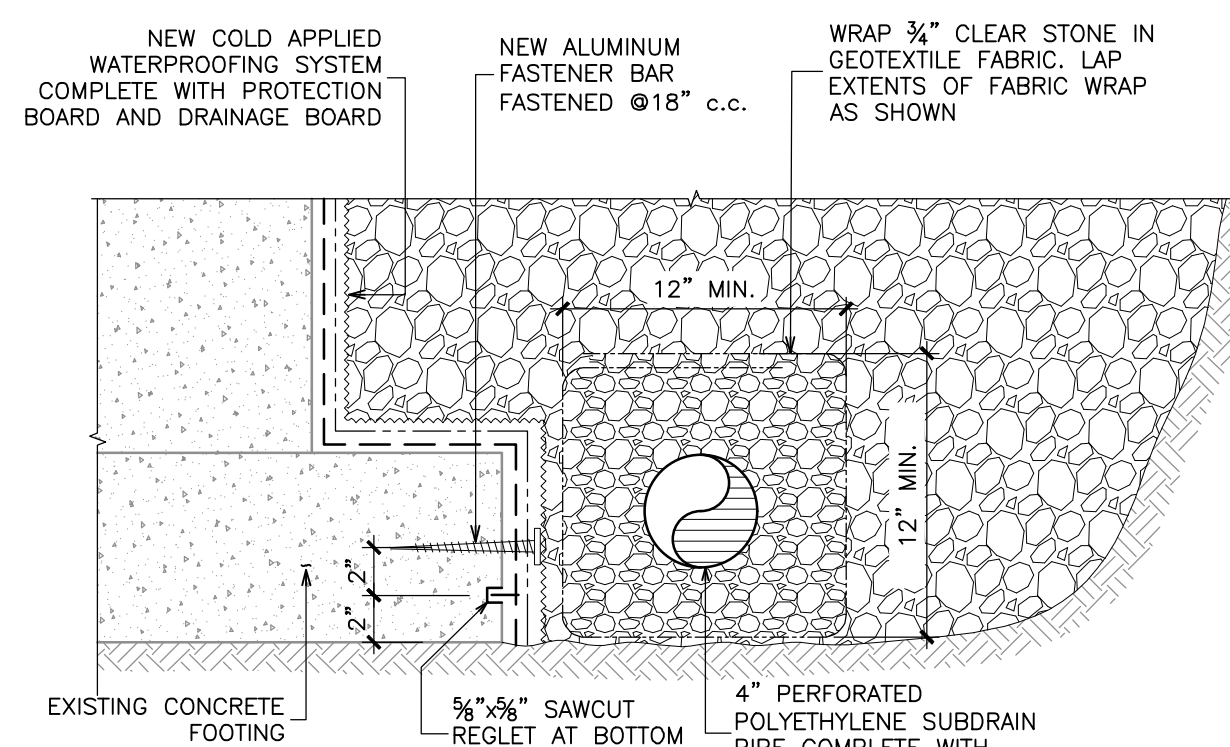
2
S4.2
TYPICAL RESTORATION AT FOUNDATION WALL EXTERIOR
N.T.S.



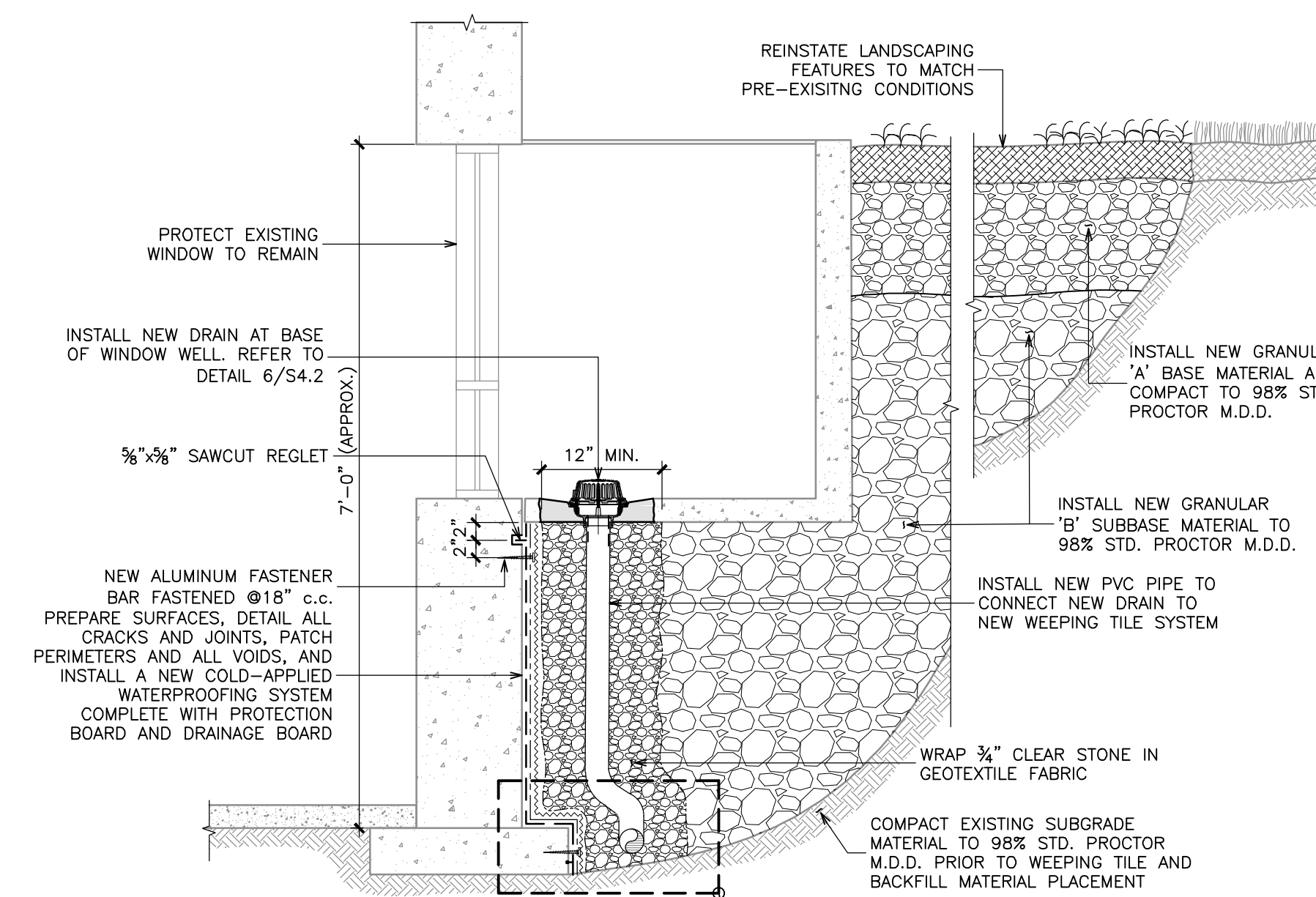
NOTES:

1. REFER TO TYPICAL OVERBURDEN DETAILS FOR CONSTRUCTION OF EACH TYPE OF OVERBURDEN EXPECTED TO BE REMOVED.
2. EXCAVATION TO CONFORM TO ALL MOL AND CHSA GUIDELINES AND REQUIREMENTS.
3. CONTRACTOR MAY ELECT TO UTILIZE EXCAVATION SHORING IN LIEU OF INCREASED EXCAVATION SIZE. CONTRACTOR TO SUBMIT SHOP DRAWINGS PREPARED BY SPECIALTY STRUCTURAL ENGINEER TO CONSULTANT FOR REVIEW PRIOR TO IMPLEMENTATION.
4. DISCONNECT AND REMOVE VERTICAL PIPING FROM WEeping TILE TO EXISTING RAIN WATER LEADERS.

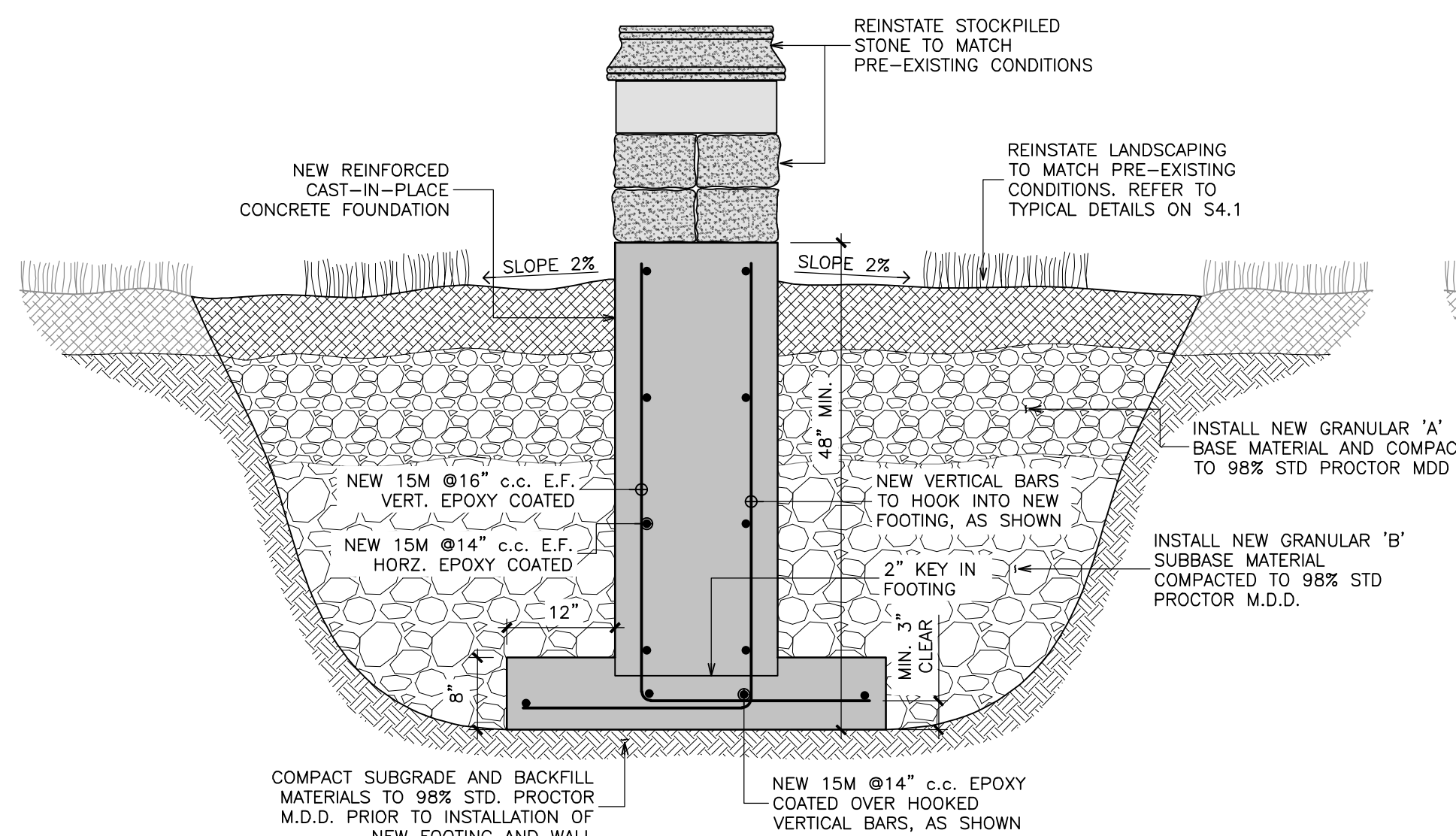
1
S4.2
TYPICAL DEMOLITION AT FOUNDATION WALL EXTERIOR
N.T.S.



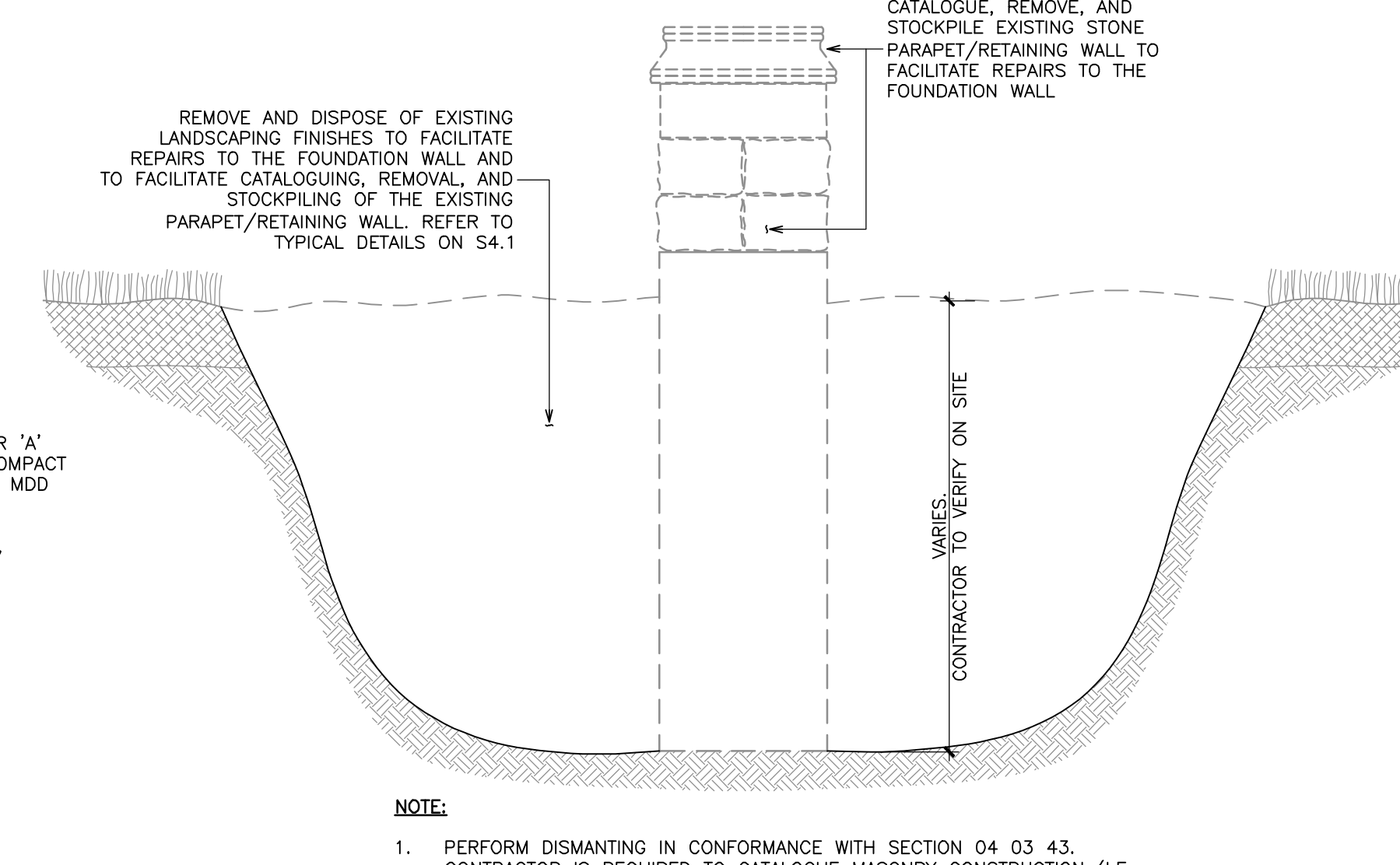
5
S4.2
DETAIL AT FOOTING
N.T.S.



4
S4.2
RESTORATION AT FOUNDATION WALL EXTERIOR WITH WINDOW WELL
N.T.S.



8
S4.2
PARAPET/RETAINING WALL CONSTRUCTION DETAIL
N.T.S.



7
S4.2
PARAPET/RETAINING WALL DEMOLITION DETAIL
N.T.S.

No.	Revision	Date	By
3.	ISSUED FOR PERMIT	Mar. 26, 21	S.P.
2.	ISSUED FOR TENDER	Mar. 26, 21	S.P.
1.	ISSUED FOR CLIENT REVIEW	May 22, 20	S.P.

Drawing Notes

1. All drawings, plans, models, designs, specifications and other documents prepared by Read Jones Christoffersen Ltd. ("RJC") and used in connection with this project are instruments of service for the work shown in them (the "Work") and as such are and remain the property of RJC whether the Work is executed or not, and RJC reserves the copyright in them and in the Work executed from them, and they shall not be used for any other work or project.
2. These drawings are "design drawings" only. They may not be suitable for use as shop drawings. Use of these drawings as base drawings for "shop drawings" is not permitted unless written permission containing certain conditions and limitations is obtained from RJC. The work "as constructed" may vary from what is shown on these drawings.
3. Use of these drawings is limited to that identified in the Revision column. Do not construct from these drawings unless marked "Issued for Construction" by RJC in the Revision column, and then only for the parts noted. The drawings shall not be used for "pricing", "costing", or "tender" unless so indicated in the Revision column. "Pricing" or "Costing" drawings are not complete and any prices based on such drawings must allow for this.

Seal

Project Name
Toronto Zoo - Valley Halla Villa
Toronto, Ontario

FOUNDATION WALL WATERPROOFING AND REPAIRS

Sheet Title

SECTIONS AND DETAILS

Drawn By **T.S.** Scale **AS NOTED**
Designed By **S.P.** Date **March, 2021**
RJC Project Number **TOR.113946.0016**

Sheet Number **S4.2** Revision

PART 4 Bid Submission Form**1. Supplier Information**

Please fill out the following information, naming one individual to be the Supplier's contact for the RFT process and for any clarifications or communication that might be necessary.	
Full Legal Name of Supplier:	
Any Other Relevant Name under which Supplier Carries on Business:	
Street Address:	
City, Province/State:	
Postal Code:	
Phone Number:	
Fax Number:	
Company Website (if any):	
Supplier Contact Name and Title:	
Supplier Contact Phone:	
Supplier Contact Fax:	
Supplier Contact Email:	

2. Acknowledgment of Binding Procurement Process

The Supplier:

- (a) acknowledges and agrees that the RFT process will be governed by the terms and conditions of the RFT and the Toronto Zoo's Policies and Legislation;
- (b) hereby confirms it has read and understand such terms and conditions;
- (c) hereby confirms its compliance with such terms and conditions; and
- (d) hereby confirms it has submitted a Bid Bond with your submission The Supplier further acknowledges and agrees that its Bid will remain legally binding for the Bid Validity Period, or if the Supplier is selected, as the Successful Supplier, until the Supplier executes a written Contract for the Work and furnishes all other documents required by Part 1 - Section 2.3.2 (Contract Execution).

3. Ability to Provide Work

The Supplier has carefully examined the RFT documents and has a clear and comprehensive knowledge of the Work required. The Supplier represents and warrants its ability to provide the

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 4– SUBMISSION FORMS

(ii) Illegality

If the Supplier declares any previous convictions of itself or its Affiliated Persons for collusion, Bid-rigging, price-fixing, bribery, fraud or other similar behaviours or practices prohibited under the *Criminal Code*, the *Competition Act* or other applicable law, for which they have not received a pardon, the Supplier must set out the details below. If no details are provided, the Supplier is deemed to declare that it or its Affiliated Persons have no such convictions.

(iii) Conflicts of Interest or Unfair Advantage

Potential Conflicts of Interest and unfair advantages include:

- (A) engaging current or former Toronto Zoo employees or public office holders to take any part in the preparation of the Bid or the performance of the contract if awarded, any time within two (2) years of such individuals having left the employ or public office of the Toronto Zoo;
- (B) engaging any family members, friends or private business associates of any public office holder which may have, or appear to have, any influence on the procurement process, or subsequent performance of the contract;
- (C) prior involvement by the Supplier or Affiliated Persons in developing the technical specifications or other evaluation criteria for the RFT;
- (D) prior access to confidential Toronto Zoo information by the Supplier, or Affiliated Persons, that is materially related to the RFT and that was not readily accessible to other prospective Suppliers;
or

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PART 4– SUBMISSION FORMS

IRREGULARITIES	ACTION
Late Response	Automatic rejection and not read publicly.
Unsealed Envelopes	Automatic rejection.
Insufficient Financial Security (No deposit or bid bond or agreement to bond or insufficient deposit or bid bond or agreement to bond).	Automatic rejection.
Response not completed in non-erasable medium and signed in ink.	Automatic rejection.
Incomplete Response	Automatic rejection unless, in the opinion of the Purchasing Agent, the incomplete nature is trivial or insignificant.
Qualified Response (qualified or restricted by an attached statement, unless allowed for), the qualification or restriction is trivial or not significant.	Automatic rejection unless, in the opinion of the Purchasing Agent the incomplete nature is trivial or insignificant.
Response received on documents other than those provided by the Toronto Zoo.	Automatic rejection unless, in the opinion of the Purchasing Agent, the matter is trivial or insignificant.
Execution of Bid Bond (Financial Security) <ul style="list-style-type: none"> - Corporate Seal or signature of bidder missing. - Both corporate seal and signature of the bidder missing. Corporate seal or signature of authorized agents of bonding company missing. 	Two (2) business days to correct. Automatic rejection. Automatic rejection.
Other Bid Security – Uncertified Cheque	Automatic rejection.
Documents – Execution <ul style="list-style-type: none"> - Corporate seal or signature missing. - Corporate seal and signature missing. 	Two (2) business days to correct. Automatic rejection.
Erasures, Overwriting or Strike-Outs which are not Initialed: Uninitialed changes to response which are minor (example: the respondent’s address is amended by over-writing but not initiated).	Two (2) business days to initial.

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<p>Unit prices have been changed but not initialed and the contract totals are consistent with the price as amended.</p>	<p>Two (2) business days to initial.</p>
<p>Unit prices have been changed but not initialed and the contract totals are not consistent with the price as amended.</p>	<p>Automatic rejection.</p>
<p>Minor Irregularities</p>	<p>The Purchasing Agent shall have the authority to waive irregularities deemed to be minor.</p>

(a) **Declaration of Compliance with the City’s Fair Wage** By completing this Bid Submission Form, the Supplier declares that the Supplier and its proposed Subcontractors agree to abide by the City’s as applicable.

(b) **Declaration of Compliance with Accessible Customer Service Training Requirements**

By completing this Bid Submission Form, the Supplier declares that the Supplier and its proposed Subcontractors agree to comply with the Toronto Zoo’s [Accessible Customer Service Training Requirements](#).

YES_____ NO_____

If yes, the Supplier confirms the following brief statement of the environmental benefit of the product/service:

(c) **The Toronto Zoo Contractor Performance Evaluation**

The Toronto Zoo follows a Contractor Performance Evaluation procedure which provides guidance to Toronto Zoo staff on creating and maintaining an evaluative record of a Contractor's performance on Toronto Zoo projects for the purpose of Contract management and future purchasing decisions.

(d) **Disclosure of Information**

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REPAIR**
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The Supplier hereby agrees that any information provided in this Bid, even if it is identified as being supplied in confidence, may be disclosed in accordance with the terms or the RFT or where required by law or by order of a court or tribunal.

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PART 4– SUBMISSION FORMS

APPENDIX I - PROJECT EXPERIENCE FORM

The bid must include Project Experience Form(s). Please include details of a minimum of three (3) and no more than five (5) projects within the last five (5) years where the bidder was the lead contractor and the work was similar in scope and/or size as the project described in the Bid Documents. **Do not include the Toronto Zoo as a named reference.**

Project/Contract:	
Start Date:	End Date:
Completed on Schedule: Yes or No	
Contract Value (CDN dollars) \$	
Owner:	
Address/Location:	
Names of Key Personnel assigned and Subcontractors	
PROJECT DETAILS: Scope of the Work, Contingency Planning, Challenges Overcome, electrical, mechanical, structural, access to materials, e.g. project management, etc.:	
REFERENCE: Name, Title, Telephone, Email	

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR

PART 4– SUBMISSION FORMS

APPENDIX II – LIST OF SUBCONTRACTORS FORM

Pursuant to Section 1.9.5 (List of Subcontractors Form), the Supplier shall provide each Subcontractor’s and the Work type the Subcontractor is expected to perform in the table below or indicate “OWN FORCES” in the “Subcontractor Name” column if a Subcontractor will not be used for the Work type indicated. The names of all Subcontractors to be used for each Work type indicated must be provided.

The Supplier submits that in proposing the under mentioned subcontractors, the Supplier has consulted each and have ascertained to our completed satisfaction that those names are fully acquainted with the extent and nature of the work and that they will execute their work with the requirements of the contract documents. The Toronto Zoo reserves the right to accept or reject any sub-contractor or persons named below.

Work or Services to be Performed	Name/Address	Company Contact & Tel #	Licence #	% of overall of Work to be performed by the Sub-Contractor

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 4– SUBMISSION FORMS

APPENDIX III - STATUTORY DECLARATION OF TENDERER

STATUTORY DECLARATION OF TENDERER

CANADA) IN THE MATTER of a Tender by*
PROVINCE OF ONTARIO)
JUDICIAL DISTRICT OF YORK) for
)
) VALLEY HALLA – FOUNDATION WALL
TO WIT:) WATERPROOFING AND REPAIR
) **TZC T 06-2021-03**
)
)
**I/We _____ the _____

_____ in the _____ of _____

DO SOLEMNLY DECLARE as follows:

If Tenderer is a corporation, **complete 1A** and strike out 1B and 1C.

If Tenderer is an individual carrying on business under firm name, **complete 1B** and strike out 1A and 1C.

If Tenderer is a partnership, **complete 1C** and strike out 1A and 1B

-) 1A. I am (state “President”, “Secretary”, or
) as the case may be)
)
) of the Tenderer above referred to.
)

) 1B. I am the Tenderer above referred to,
) and there is no other person
) associated with me in partnership.
)
) 1C. We are the Tenderers herein carrying on
) business in Partnership, under the name of
)
) _____
)
) and we are the only members of such
) partnership.
)
)

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PART 4– SUBMISSION FORMS

APPENDIX IV - BID BOND

Bond No. _____

Amount: 10% of net contract amount

KNOW ALL MEN BY THESE PRESENTS, that

as Principal, hereinafter called “the Principal”, and

as Surety, hereinafter called the Surety, are held and firmly bound unto the Board of Management of the Toronto Zoo as Obligee, each in the amount of

Dollars (\$ _____) lawful money of Canada, for the payment of which sum, well and truly to be made, the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal submitted a written Tender (hereinafter called “the Tender”) to the Obligee dated the ____ day of _____, 20____, for _____ at _____ in the _____ in the City of Toronto (hereinafter called “the Work”),

NOW THEREFORE THE CONDITION OF THIS OBLIGATION is such that if, on acceptance of the Tender in accordance with the terms and conditions of the Tender within 90 days from the closing date of the call for Tenders, the Principal shall, within the time required, enter into a formal contract and give good and sufficient bonds to secure the performance of the Work under the terms and conditions of the contract and the payment of its obligations thereunder for all labour, materials and services used or reasonably required for use in the performance of same, then this obligation shall be null and void; otherwise the Principal and Surety will pay unto the Obligee the difference in money between the amount of the price set out in the Tender and the amount for which the Obligee legally contracts with another party to perform the Work if the latter amount be in excess of the former.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond. Any suit under this Bond must be instituted before the expiration of six months from the date of this Bond.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as principal and that nothing of any kind or matter whatsoever that will not discharge the Principal, shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of sureties to the contrary notwithstanding.

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PART 4– SUBMISSION FORMS

IN TESTIMONY WHEREOF, the Principal has duly executed these presents under seal, and the Surety has caused these presents to be seated with its corporate seal duly attested by the signatures of its duly authorized officers, this ____ day of _____, A.D. 2020.

SIGNED, SEALED AND DELIVERED
in the presence of:

) *
)
)
)
) _____
)
)
)
) _____
) **
)
)
)
) _____
)
)
)
)
)

NOTE:

The NOTE on the signing page of the Tender Form applies equally to execution of this Bond.

* Type or print name of Principal here
** Type name of Surety here

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 4– SUBMISSION FORMS

APPENDIX V - AGREEMENT TO BOND

(to be attached to and to form part of Bid Bond)

We, the undersigned, the Surety on the attached Bid Bond hereby undertake and agree with the Board of Management of the Toronto Zoo as Obligee if our Principal's Tender is accepted by you to become bound as Surety for our Principal

(Name of Tenderer)

of _____

(Place)

the Tenderer to you by Tender Form dated _____

for _____

(hereinafter _____

(Description of work)
(called "the Work")

in an amount equal to Fifty Per Cent (50%) of the Contract Price for the due and proper performance of the Work as shown and described in the Contract between the Obligee and our Principal for the Work, including a period of maintenance of one (1) year after the final completion of the Work and, in addition, in an equal amount for the due and proper payment of those having direct contracts with our Principal for labour, material and/or services for the Contract Work, removal of registered lien claims and certificates of action from the title to the lands on which the Work is performed and full reimbursement of the Obligee for all liability and payments to such persons in connection with the Contract, such performance and payment bonds both to be in the forms indicated by the Obligee in the Tender documents.

It is a condition that this Agreement shall become null and void if the bonds mentioned above are not required from our Principal within ninety (90) days of the award of the Contract to our Principal.

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 4– SUBMISSION FORMS

In witness whereof we have hereunto affixed our Corporate Seal, testified by the hand(s) of the proper officer in that behalf.

Dated this _____ day of _____, 2021.
(name of Surety)
(Address of Local Office)



2021-03-30

**TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 5– PRICING FORMS**

Tender Pricing Form Submission

Complete and return this section Part 4– *Form of Tender* including Appendices I to XII

Project/Contract: VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR

Project/Contract No.: TZC T 06-2021-03

OWNER: TORONTO ZOO

I/We, the undersigned have received, allowed for and included as part of our submission all issued Addendum numbered _____.

This form must be completed, properly signed and received on or before the date and time specified or your submission will not be considered. Quoted prices shall remain in effect for a period of ninety (90) days from the stipulated closing date.

The Board of Management of the Toronto Zoo reserves the right to reject any or all Quotations or to accept any Quotation, should it deem such action to be in its interests.

By signing and submitting this FORM, you are agreeing to the release of your quotation information, as deemed necessary by the Board, in order to conduct business associated with this quotation or project.

I/We, the undersigned, **having the authority to bind the Company**, certify, that I/we have examined the Instruction to Bidders, Construction Agreement and General Conditions, Specifications, Scope of Work, Drawings and Form of Tender, do hereby offer and agree to enter into an agreement with The Toronto Zoo, VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR – at the Toronto Zoo as described herein for a Total Tender Price, including HST in Canadian funds, equal to the total of the amounts in the following clauses (A) to (B).

THIS TENDER is submitted by

PLEASE
USE INK

Name of Firm

Address

Postal Code



2021-03-30

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 5– PRICING FORMS

Telephone Number

Fax Number

Name of Authorized Signing Officer for Firm

Title of Authorized Signing Officer for Firm

Name and Title of Project Contact Person

Email and fax # of Project Contact person

**TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 5– PRICING FORMS**

FORM OF TOTAL TENDER PRICE

(A) PRICE of *TENDER, which excludes HST is:*

_____ In lawful money of Canada. (State in writing)

\$ _____
(State in numbers)

**(B) PRICE of HST of (13 %) payable by the Owner to the Contractor
DOLLARS**

_____ In lawful money of Canada. (State in writing)

\$ _____
(State in numbers)

**TOTAL TENDER PRICE, which includes the Tender (A) and HST (B) price is:
DOLLARS**

_____ In lawful money of Canada. (State in writing)

\$ _____
(State in numbers)

DISCOUNT	Discount and/or Other	Days
Discount allowed for prompt payment and period within which invoice must be paid to qualify.	%	
Charity Status: The Toronto Zoo is a registered charitable organization (registration #BN 119216398RR0001) and accordingly may be eligible for preferred pricing which should be reflected in the Quotation as submitted.		

TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 5– PRICING FORMS

The following appendix(s) must be completed and returned with the tender submission. (“Not applicable” indicated where completion of a section is not required.)

Appendix I	Schedule of Values
Appendix II	Unit Prices
Appendix III	Additional Prices
Appendix IV	Alternative Prices
Appendix V	Unsolicited Prices

**TZC T 06-2021-03 VALLEY HALLA – FOUNDATION WALL WATERPROOFING AND REPAIR
PART 5– PRICING FORMS**

APPENDIX I- SCHEDULE OF VALUES (Due 24 hours after stipulated closing date)

(**included** in Total Tender Price)

All prices are to include the supply and installation of all labour, material, taxes (excluding Harmonized Sales Tax), charges, payroll, burden, and profit, and would be deducted from the Tender Tender Price should the specified work be excluded from the contract work.

ITEM	DESCRIPTION	PRICE
Division 01 – General Requirements		
1.	Bonding	\$
2.	General Requirements, Mobilization, Demobilization, Hoarding, Dust Protection, Construction Signage, Site Protection, Tree Protection, Material Testing Costs, Etc.	\$
3.	Cleaning of the structure, fixtures, finishes, landscaping features, windows, doors, etc., and the disposal of all waste products and/or debris generated by the construction activity as well as any material present in the work area prior to the commencement of the work. The areas requiring cleaning shall consist of all areas affected by the work.	\$
Division 02 – Selective Demolition		
4.	Removal of hard and soft landscaping features (including parapet and retaining walls, tiles, pavers, concrete slab-on-grade and curbs, plantings, soil, granular materials, etc.), weeping tile system, waterproofing systems, coatings, etc. around the exterior perimeter of the building to expose the exterior side of the building foundation walls and footings, as indicated on the Drawings. Parapet and retaining walls, pavers, and tiles are to be thoroughly documented and catalogued, dismantled, and stockpiled for reuse/ reconstruction. All other overburden materials are to be disposed of. Contractor is required to confirm excavation and reinstatement area during the Bid	\$

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Period to confirm required quantity. No extras will be entertained following tender close.

5. Removal and disposal of interior finishes (including millwork, coatings, paints, etc.), and temporary relocation of mechanical and electrical fixtures, equipment, conduit, cabling, piping, etc., to expose the interior side of the foundation wall at localized areas, where indicated on the Drawings. Interior finishes are to be thoroughly documented in order to reinstate existing conditions following completion of construction. Price also includes all requirements, including but not limited to protection, ventilation, labour, disposal, etc., to abate and remove hazardous materials to facilitate the work. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

Division 03 – Concrete

6. Localized partial depth removal and repair of vertical concrete deterioration, where directed by the Consultant. Approx. area – 100 sq. ft. \$
7. Localized partial depth removal and repair of beam/ corbel concrete deterioration, where directed by the Consultant. Approx. length – 25 lin. ft. \$
8. Localized partial depth removal and repair of slab soffit concrete deterioration, where directed by the Consultant. Approx. area – 25 sq. ft. \$
9. Reinstatement/ reconstruction of exterior concrete pads/ slabs-on-grade where removed to facilitate repairs, as indicated on the Drawings. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

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10. Reinstatement/ reconstruction of exterior concrete curbs where removed to facilitate repairs, as indicated on the Drawings. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$
11. Construction of new concrete footings and foundations at parapet and retaining walls, as indicated on the Drawings. \$

Division 04 – Masonry

12. Reinstatement/ reconstruction of the parapet and retaining walls removed to facilitate repairs. Reinstated walls are to match pre-existing conditions. Price includes the replacement of damaged units with new units that match existing. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

Division 07 – Waterproofing

13. Preparation of all surfaces, detailing of all cracks and joints, patching of perimeters and all voids, and the installation of a new cold applied waterproofing system, complete with protection board and drainage board, on the exterior side of the foundation wall and footings, as indicated on the Drawings. \$
14. Preparation of all surfaces, detailing of all cracks and joints, patching of perimeters and all voids, and the installation of a new crystalline waterproofing system on the interior side of the foundation wall, full height, at localized areas, as indicated on the Drawings. \$
15. Preparation and urethane injection of through-wall leaking cracks from the interior side of the foundation wall, where directed by the Consultant. Approx. length – 100 lin. ft. \$

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Division 09 – Finishes

16. Reinstatement of exterior tile where removed to facilitate repairs, as indicated on the Drawings. Price includes slab-on-grade construction prior to tile installation. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$
17. Reinstatement of all interior finishes (millwork, coatings, paints, etc.) where removed to facilitate repairs, as indicated on the Drawings. All new finishes are to match existing conditions. \$

Division 22 – Plumbing

18. Supply and installation of new weeping tile piping, including filter cloth, clear stone and filter cloth wrap, etc., around the exterior perimeter of the building, as indicated on the Drawings. Price to include all hardware required to connect new piping to existing systems, and vertical weeping tile connections and materials below window wells. \$
19. Removal and replacement of window well drains at all exterior window wells affected by the work, as indicated on the Drawings.
Approx. no. of drains – 5 drains \$
20. CCTV inspection of the below-grade piping following completion of the initial flushing and cleaning of the drainage and weeping tile systems. Contractor to provide the Consultant with the report and video for review following completion of inspection. \$
21. Localized removal and replacement of below-grade piping below the basement level slab-on-grade, where directed by the Consultant. Price includes removal and replacement of concrete and granular material, and all required hardware (i.e. connections, etc.) to connect new piping to existing systems.
Approx. length – 50 lin. ft. \$

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- 22. Flushing and cleaning of the weeping tile drainage system and below-grade drainage system at the start of construction and following completion of construction. \$

Division 31 – Earthwork

- 23. Reinstatement of soft landscaping features removed and damaged to facilitate the work, as indicated on the Drawings. New soft landscaping features are to match pre-existing conditions. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

Division 32 – Granular Backfill and Paving Stones

- 24. Installation and compaction of new engineered granular backfill material within the excavation areas, as indicated on the Drawings. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

- 25. Reinstatement of paving stones removed and stockpiled to facilitate the work, as indicated on the Drawings. Reinstated layout is to match pre-existing conditions. Price includes the replacement of damaged paving stones with new paving stones that match existing. Contractor is required to confirm excavation and reinstatement area during the Bid Period to confirm required quantity. No extras will be entertained following tender close. \$

- 26. Any other Items required to meet the scope of drawings and specifications (that may not have been accounted for above) – please specify below if any

- \$

- \$



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-	\$	
Total Bulk Tender Price*		\$

*The sum of the amounts shown in the table above should equal the Total Tender Price stipulated in the space provided in the Form of Total Tender Price

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APPENDIX II - UNIT PRICES (Due 24 hours after stipulated closing date)

All prices are to include the supply and installation of all labour, material, charges, taxes (excluding Harmonized Sales Tax), payroll, burden and profit.

ITEM	UNIT	ADD	DEDUCT
Localized partial depth removal and repair of vertical concrete deterioration, where directed by the Consultant.	/sq.ft.		
Localized partial depth removal and repair of beam/ corbel concrete deterioration, where directed by the Consultant.	/lin.ft.		
Localized partial depth removal and repair of slab soffit concrete deterioration, where directed by the Consultant.	/sq.ft.		
Preparation and urethane injection of through-wall leaking cracks from the interior side of the foundation wall, where directed by the Consultant.	/lin.ft.		
Removal and replacement of window well drains at all exterior window wells affected by the work, as indicated on the Drawings.	/drain		
Localized removal and replacement of below-grade piping below the basement level slab-on-grade, where directed by the Consultant. Price includes removal and replacement of concrete and granular material, and all required hardware (i.e. connections, etc.) to connect new piping to existing systems.	/lin.ft.		

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APPENDIX III - ADDITIONAL PRICES (Due 24 hours after stipulated closing date)

(**not included** in Total Tender Price)

All prices are to include the supply and installation of all labour, material, taxes (excluding Harmonized Sales Tax), charges, payroll, burden and profit.

ITEM	DESCRIPTION	PRICE
		\$ _____ Increase / Reduction
		\$ _____ Increase / Reduction

* For each item, insert amount in the appropriate column to indicate whether the price change will result in an increase in, or a reduction of, the Total Tender Price.

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APPENDIX IV- ALTERNATIVE PRICES (Due 24 hours after stipulated closing date)

(**not included** in Total Tender Price)

All prices are to include the supply and installation of all labour, material, taxes (excluding Harmonized Sales Tax), charges, payroll, burden and profit.

Item	Description	Increase or Reduction From Total Tender Price
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1.

2.

* For each item, insert amount in the appropriate column to indicate whether the price change will result in an increase in, or a reduction of, the Total Tender Price.

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APPENDIX V - *UNSOLICITED ALTERNATIVES (Due 24 hours after stipulated closing date IF APPLICABLE)
(prices not used for Total Tender Price)

All alternatives must conform to the requirements of Section 01 25 00 – Product Substitution Procedures.

All prices are to include the supply and installation of all labour, material, taxes (including Harmonized Sales Tax), charges, payroll, burden and profit.

Number of Item	Description of Item	Change in Total Tender Price Substituted in Work	
		Increase	Reduction
