

**Hanover Police Service
Hanover, ON**

ADDENDUM NO. 1

2026.08.24

The following additional instructions shall apply to and govern the tender documents.

GENERAL

1. Revise the project address on all drawings and specifications to 437 10th Avenue, Hanover, Ontario.
2. Include complete Abatement Scope for the existing Firehall as part of the demolition Work. Refer to the following enclosed documents as provided by Pinchin Ltd. For scope:
 - a. Hazardous Building Materials Assessment (Pre-Construction), Former Fire Hall, 341 10th Street, Hanover, Ontario", dated February 13, 2025, prepared by Pinchin Ltd., file number 352142.000.
 - b. Hazardous Materials Bulk Letter Report entitled "Hazardous Materials Test Results, Old Fire Hall, 341 10th Street, Hanover, Ontario" dated April 24, 2026, prepared by Pinchin Ltd. File number 352142.001.
 - c. Pinchin Specification Sections; 02 81 00, 02 82 00.01, 02 82 00.03, 02 83 10, 02 84 00, 02 84 16 & Pinchin Drawing "ACM & Abatement Work Areas Ground Floor".

QUESTIONS AND ANSWERS

- Q1 We would like to have Spacefile approved for the duty lockers and compact storage and also need front elevations to provide proper pricing. Section 10 67 00 for instance does not specify the number of shelves/openings. Also, there are no specifications for the evidence lockers shown in the drawings?
- A1 Spacefile is added by way of this addendum as an approved manufacturer/supplier.

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ADDENDUM NO. 1

2026.08.24

AMENDMENT NO.1 – REVISIONS TO ARCHITECTURAL SPECIFICATIONS

1. Replace Section 01 20 00 **Cash Allowances** with the enclosed updated Section 01 20 00.
2. Replace Section 00 20 00 Instruction to Bidders with the enclosed for revised tender closing date due to statutory holiday.
3. Include enclosed Section 00 31 32 Geotechnical Data and enclosed Geotechnical Investigation Report as part of the tender documents.
4. Replace Section 08 71 00 Finish hardware with the enclosed updated section and enclosed updated Hardware List.
5. Replace Section 08 71 50 Automatic Door Equipment with the enclosed updated section 08 71 50.
6. Replace Section 10 67 00 – Storage Shelving with enclosed Section 10 67 00.
7. Include enclosed Section 07 54 20 Adhered TPO Roof System for provision of alternate price to the base bid modified bitumen roofing system.
8. Include enclosed Section 08 88 10 Glass Guard and Railing Systems in the tender documents for the roof top patio railing.
9. Include enclosed Section 08 63 00 Metal Framed Skylight in the tender documents.
10. Replace Section 12 50 00 Manufactured Furnishings with the enclosed updated Section 12 50 00.

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ADDENDUM NO. 1

2026.08.24

AMENDMENT NO.2 – REVISIONS TO ARCHITECTURAL DRAWINGS

1. Refer to attached Drawings A2.01 and A2.06 for updated shelving layout.

End of Addendum #1

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1340 Wellington Street West, Ottawa, Ontario K1Y 3B7 | T: 613.680.5557

ATTENDANCE LIST

Project Name: Hanover Police Station

Project No : 22539

Meeting date/time: Friday August 21, 2026

Location: 443 10th Ave, Hanover, Ontario

Name	Company	Telephone (office & cell)	Address	E-mail
Rob Bauer	Hayman Construction Inc.	226-378-3193 519-433-3966 Office	London, Ont 634 Wellington St. N6A 3R9	rbauer@haymanconstruction.com dhegvin@haymanconstruction.com
CHAD AITKEN	H. BYE CONSTRUCTION	519 323 1520 519 314 9774	395 CHURCH ST. MOUNT FOREST, ON	CAITKEN@HBYEENGINEERING.COM
JEREMY KORCZ	MONTGOMERY INDUSTRIES	519 440 1614	681 10 th STREET HANOVER, ONTARIO	estimating@montgomeryconstruction.com
Alex Tsui	BDA Inc.	416.251.1757 437-848-2715	36 Buttrick Road, Toronto M8W 3Z8	estimating@bda.ca

ATTENDANCE LIST

Name	Company	Telephone (office & cell)	Address	E-mail
ANDRE JASCHINSKI	QUINAN CONSTRUCTION	705-325-7704 705-627-8933	55 PROGRESS RD #1 ORILLIA, ON L3V 0T7	estimating @ quinan.ca
Meissa Drees	DOMM Construction	519-665-7848 519-379-1134	563 Louisa St. Ayrton, ON	meissa@dommconstruction.ca
GREG BECHTEL	COREBUILD CONSTRUCTION	647-535-2955	130 TONG RD VAUGHAN	ESTIMATING @ COREBUILD CONSTRUCTION. COM
Colton Dunn	K & L Construction	519-472-7164	27-1615 N Routledge Park	estimating@kandlconstruction.com
Chris Knox	JP COMMERCIAL Constn	403-465-1436	Shoulder Blue Rd Shelton Lake, ON	office @ JPcommercial.ca Chris @ JPcommercial.ca

TENDERS

1. TENDER TIME-TABLE

Tender Issue	August 18, 2026
Mandatory Bidders Site Meeting	August 21, 2026, 1:00:00 p.m.
Deadline for Questions	Sept. 2, 2026, 4:00:00 p.m.
Tender Form Closing	Sept. 8, 2026, 1:00:00 p.m.
Supplementary Tender Form Closing	Sept. 8, 2026, 4:00:00 p.m.

NOTE: All general contractors who are considering submitting a tender proposal MUST attend the mandatory site visit. Any proponent that submits a proposal and has not attended the site visit will automatically be disqualified and their proposal will be classified as non-compliant.

2. ELECTRONIC TENDERING SYSTEM:

1. All Bidders shall have a Bidding System Vendor account and be registered as a Plan Taker for this Bid opportunity on Biddingo (Bidding System). A link will also be provided on the Town of Hanover website: www.hanover.ca.
- .2 To ensure receipt of the latest information and updates regarding the bid or if a Bidder has obtained this Bid Document from a third party, the onus is on the Bidder to create a Bidding System Vendor account and register as a Plan Taker for the bid opportunity at: biddingo.com.
- .3 Biddingo (Bidding System) will be used only for the Owner's posting of tender documents and addenda.
- .4 Should the Bidder require technical assistance in the use of the Bidding System, please contact www.biddingo.com directly.

3. BID CLOSING DATE AND TIME:

- .1 **ELECTRONIC BID SUBMISSIONS ONLY, tender forms** shall be received by the Owner, **before 1:00:00 p.m. Eastern local time, on September 8, 2026.** **Supplementary Tender Form** shall be received by the Owner before **4:00:00 p.m. Eastern local time on September 8, 2026.**

Electronic bid submissions shall be sent directly to; Vicki McDonald
vmcdonald@hanover.ca.

- .2 The closing time shall be determined by the Owner's clock.
- .3 Proponents are cautioned that the timing of their Bid Submission is based on when the Bid is **RECEIVED, not** when a bid is submitted by a Proponent, as bid transmission can be delayed in an **"Internet Traffic Jam"** due to file transfer size, transmission speed and other electronic or cyber issues.
- .4 For the above reasons, the Owner recommends that Proponents allow sufficient time to upload their Bid Submission and attachment(s) (if

applicable) and to resolve any issues that may arise. The closing time and date shall be determined by the Owner's clock.

- .5 All Bids shall be irrevocable and shall remain open for acceptance, at the prices quoted, for up to sixty (60) business days from the Bid Submission Deadline. In submitting a Bid, each Proponent agrees that, notwithstanding anything to the contrary, the Owner may notify the Successful Proponent at any time within the Bid validity period that its Bid has been awarded.
- .6 Late Proposals shall not be accepted by the Owner's Bidding System and the Owner will not be held liable or accept any responsibility for any bids that can be successfully uploaded by a Proponent.

4. BID SUBMISSIONS

- .1 Complete electronic bid submissions shall include:
 - .1 Complete Tender Form and Supplementary Tender Form, signed, sealed and dated; and
 - .2 Bid Bond; and
 - .3 Consent of Surety/Agreement to Bond; and
 - .4 Proof of Insurance as noted in this Section; and
 - .5 WSIB Certificate of good standing.
 - .6 CCDC Document 11
- .2 Tenders must be submitted on the Tender Form and Supplementary Tender Form issued with Tender Documents.
- .3 All blanks on Tender Form and Supplementary Tender Form must be filled in. Failure of a Bidder to insert a value for any Value or Unit Price shall be deemed to be a "zero dollar" (\$0) value.
- .4 Tenders shall not be qualified by any condition without express written consent of the Consultant clarified by an Addendum only prior to submission of Tender.
- .5 All requirements of the Tender Form and Supplementary Tender Form must be completed.
- .6 Bidders shall be solely responsible for delivery of Tender in the manner and time prescribed.
- .7 Bidders shall be solely responsible for verifying they have received all of the Addenda issued.

5. WITHDRAWAL/AMENDMENT OF SUBMISSION

- .1 Bidders may amend or withdraw their submission prior to the closing time and date. However, it is the Bidders responsibility to:
 - .1 Withdrawal - Ensure the submission is **withdrawn** before the time of closing, on the bid closing date;
 - .2 Amendment – Ensure the re-submitted bid is **received** by the Owner before the time of closing, on the bid closing date.

6. INFORMAL OR UNBALANCED TENDERS

1. Tenders which are incomplete, conditional, illegible or obscure, or that contain reservations, erasures, alterations, or irregularities of any kind may be rejected as informal.

7. INQUIRIES, OMISSIONS, DISCREPANCIES AND INTERPRETATIONS

- .1 All tender documents are complimentary and must be read together to ascertain a complete description of the Work.
- .2 Examine Tender Documents for completeness, discrepancies or omissions. Should a Bidder find omissions or discrepancies in any part of this Tender or should the Bidder be in doubt as to the meaning of any part of such documents, notify the Owner's designee of discrepancies or omissions as noted in .3 below.
- .3 All **Inquiries** concerning this Tender including specifications, process and results are to be directed in writing via email to: **Andrew Wilken** awilken@hanover.ca only. Do not submit questions through Biddingo.

Questions and answers will be shared with all Bidders in the form of an addendum. Questions must be submitted no later than the date and time indicated in the Tender Time-Table at the beginning of this section.
- .4 No inquiries will be accepted by telephone. Inquiries made by telephone, fax, or verbally will not be accepted or answered and will not form a part of the tender documents.
- .5 The Owner and Architect shall not be held liable for any errors or omissions in any part of this Tender. While the Owner and Architect have used considerable efforts to ensure an accurate representation of information in this document, the information contained herein is supplied solely as a guideline for Bidders. The information is not guaranteed or warranted to be accurate by the Owner and Architect, nor is it necessarily comprehensive or exhaustive. Nothing in the document is intended to relieve the Bidder from forming their own opinions and conclusions with respect to the matters addressed in this Call for Bid document.
- .6 The Owner and Consultants shall not be bound by any verbal instruction, amendment, clarification, informative advice or suggestion from any of the Owner's personnel, Trustees or agents or consultants to the Owner. Communication with interested proponents is to be solely through the Owner's Bidding System.
- .7 Provide notification at once of discrepancies found in, or omissions from the drawings, specifications or other documents or if in doubt as to their meaning; A written instruction through an Addendum will be sent to all

Bidders. If a discrepancy exists, an addendum will be issued to all Bidders to clarify or correct such discrepancies.

- .8 Neither Owner, Consultants nor Architect will be responsible for any verbal instructions.
- .9 Should any discrepancies or omissions go unreported during tendering period, the proper interpretation of the bid documents shall be at the discretion of the Architect.

8. ADDENDA

- .1 Addenda may be issued during the Tender period. All addenda will be issued on the The Bidding System platform.
- .2 To ensure receipt of the latest information, updates, clarifications and/or addenda via email from The Bidding System regarding this Tender, or if a proponent has obtained this Tender from a third party, proponents "must" create a bidding system Vendor account with The Bidding System, and be registered as a "Plans Taker" with The Bidding System for this Tender. Addenda issued pursuant to this Tender will only be sent to those proponents who have properly registered with The Bidding System.
- .3 All addenda become part of the Tender Documents. Include costs arising from addenda in the Base Bid and Supplementary Tender Form. Confirm the completeness of all addenda.
- .4 Proponents shall acknowledge receipt of any addenda when submitting their bid through the Bidding System. Proponents shall check a box for each addendum / addenda and any applicable attachments that have been issued before a Proponent can submit their Bid Submission online.
- .5 Addendum/Addenda will be issued through the Bidding System, typically no less than forty-eight (48) Hours prior to Bid Closing Time and Date.
- .6 In the event an addendum is issued within forty-eight (48) Hours prior to Closing Time and Date, the Owner may include an extension of the Closing Time and Date. It is the responsibility of the Proponent to have received all Addenda that have been issued. Proponents should check online at www.biddingo.com prior to submitting their Bid and up until Bid closing time and date in the event additional addenda are issued.
- .7 The Owner encourages Bidders to not submit their Bid forty-eight (48) hours prior to the Bid Closing Time and Date, in the event that an addendum is issued. If a Bidder submits their bid prior to this or at any time prior to the bid closing and an addendum/addenda is issued by the Owner, the bid will be considered incomplete.
The Bidder is solely responsible to:

- .1 make any required adjustments to their Bid; and
- .2 acknowledge the addendum/addenda; and
- .3 ensure the re-submitted Bid is RECEIVED by the Owner before the specified Bid Closing, Time and Date.

9. TENDERING COSTS

- .1 All costs associated with the preparation and delivery of a tender shall be paid by the Bidder.
- .2 The Owner is not responsible for compensation of tendering costs under any circumstances.

10. AWARD OF CONTRACT

1. FACTORS AFFECTING CONTRACT AWARD

A Bidder's experience in this type of work, past performance, organization, proposed subcontractors, equipment, ability to perform and complete this Contract in the manner and within the time specified, together with the amount of the Tender, will be vital elements considered in the award of the Contract.

Only bids received from general contractors who have successfully completed new construction of similar scope on Police projects or similar use in the past 7 years will be considered. Projects of this description shall be clearly indicated in the CCDC Document 11 requested to be submitted.

- 1. The Owner reserves the sole discretionary right to accept or reject any or all bids received.
- 2. The Owner will evaluate the bids received and identify the offer which represents "best value", as interpreted in its own best interest by the Owner in its sole and absolute discretion; this may not be the lowest priced tender.
- 3. The owner will consider the following additional criteria in determining which, if any, offer to accept:
 - .1 General Contractor's CCDC Document 11- This required document will be used to evaluate the bidder's Relevant experience, Past Performance, References and other key elements.

The Owner reserves the right to award the contract based on the base bid price only or any combination of base bid, alternate prices, separate prices, and relevant experience which are deemed to be to the advantage of the Owner at the time of award at their sole discretion.

2. AWARD OR REJECTION OF TENDER

The Owner reserves the right to reject any or all tenders and to waive any irregularity therein the lowest tender may not necessarily be accepted.

3. ACCEPTANCE OF TENDER

No Bidder shall be considered under Contract after the opening and reading of Tenders until the AGREEMENT is signed and compliance therewith has been made.

4. DISPOSITION OF BONDS

Within seven days of opening of the tender, all bid bonds other than the securities from the two proponents deemed to offer "Best Value" shall be returned to the applicable bidders.

11. DELETION OF WORK UNDER THE CONTRACT

1. WORK DELETED FROM THE CONTRACT

The Owner reserves the right to delete any or all work from the contract.

The contract amount will be the tender amount plus or minus the amounts of separate and alternate prices accepted to as determined by the owner and Architect.

12. BID BOND

1. Every tender shall be accompanied by a Bid Bond (with a recognized Guarantee or Insuring company - approved by the Canadian Construction Association) in the amount of 10% of the Tender Sum being quoted which may be forfeited. The tenderer agrees that, if they withdraw this tender within 60 days after the closing date, the deposit made with this tender shall be forfeited to the Owner.

13. BONDS

1. PERFORMANCE BOND

An Agreement to Bond for **50%** of the Tender amount must accompany each tender and the tenderers shall include for the cost to provide a **50%** Performance Bond in their Tender Amount. Refer to CCDC Document 2 (Revised 2020). The format must conform to CCDC Document 2 (Revised 2020) General Conditions and as amended in the Supplementary General Conditions. The issuing company of the Bond must be approved by the Canadian Construction Association.

NOTE: At Substantial Performance of the contract, this bond shall be converted to cover the warranty period and shall remain in force for a period of **24 months** after the date of substantial performance.

2. LABOUR AND MATERIAL BOND

An Agreement to Bond for **50%** of the Tender amount must accompany each Tender and the Tenderers shall include for the cost to provide a **50%** Labour and Material Bond in their Tender Amount. Refer to CCDC Document 2 (Revised 2020). The format must conform to CCDC Document 2 (Revised 2020) General Conditions and as amended in the Supplementary General Conditions. The issuing company of the Bond must be acceptable to the Owner and approved by the Canadian Construction Association.

3. Both Performance Bonds and Labour and Materials Bonds are to be provided within seven (7) days of award of tender, after receiving notification of acceptance of their quotation from the Owner or forfeit the amount of the Bid Bond enclosed with the tender.

14. CONTRACT

1. The successful bidder shall execute the said formal contract as called for, within 7 days after notification of the acceptance of their tender or forfeit the amount of the Bid Bond enclosed with the tender.
2. The successful bidder will be required to execute a "Canadian Standard Form of Construction Contract to a Stipulated Sum" (Revised 2020) CCDC Document No. 2, including Amendments thereto as set out in the Supplementary General Conditions.

15. SITE

1. The work is to be performed at 203, 10th Street, Hanover, Ontario.

16. CLIENT / OWNER

1. The Client is The Corporation of the Town of Hanover – 341, 10th Street, Hanover, ON N4N 1P5.

17. CONSULTANTS

1. The Architect is: +VG - The Ventin Group Ltd., Architects
50 Dalhousie Street
Brantford, Ontario N3T 2H8
2. The Structural Engineer is: Structures +VG.
50 Dalhousie Street
Brantford, Ontario N3T 2H8
3. The Mechanical/
Electrical Engineer is: Vanderwesten & Rutherford Associates Inc.
7242 Colonel Talbot Road,
London, ON Canada, N6L 1H8

4. Civil Engineer is: Cobide Engineering Inc.
517, 10th Street,
Hanover, ON N4N 1R4

18. DOCUMENTS

1. The Documents are listed in the front of the book/document which contains them and a list of drawings is incorporated in the specifications.
2. Drawings and specifications are the property of the Owner.
3. A pdf copy of the Bid documents will be placed with the Grand Valley and Orillia & Barrie Construction Associations.
4. Contractor to pay for all their own printing of documents for Tender and Bidding.

19. EXAMINATION

1. The site shall be accepted by the Contractor in its present condition. The Contractor will be held to have visited the site and to have carefully examined all conditions affecting the work to be done there on, including the location of all services which may have to be protected, removed or relocated. The Contractor shall accept sole responsibility for any error or neglect on their part in this respect. Submission of Tender shall be deemed confirmation that tenderer has inspected site and is thoroughly conversant with existing conditions. No claims for extra payment will be considered for extra work, expense or difficulties encountered due to conditions on each site which were visible upon or reasonably inferable from an examination of the said site prior to the closing of tenders.
2. Examine the specifications and drawings thoroughly. Report in writing through the Owner's Bidding System to Architect all ambiguities, discrepancies, omissions, errors, departures from Building Code, By-Laws, or from good practice, discovered during examination as early in the tender period as possible to allow clarification by addenda to be issued to all bidders. No claims for extra payment will be considered for work, expense or difficulties which are reasonably inferable from an examination of the documents prior to the closing of tenders.
3. The drawings and specifications complement each other and neither is to be considered alone. Hence, any item omitted in one, but mentioned or implied in the other, must be provided.
4. All changes to the contract documents which result in an extra or a credit to the contract amount are not to be executed until written instructions have been received and the extra or credit agreed to in writing by all parties to the contract.
5. The Contractor shall execute variations, alterations and substitutions which do not

affect the contract amount as instructed by the Architect or the Owner.

6. Bidders finding discrepancies or omissions in the drawings or specifications shall at once notify in writing through the Owner's Bidding System who shall send written instructions through an Addendum to all bidders. Bidders may, during the tender period, be advised by addenda of any additions, alterations or deletions to the specifications and drawings. All such changes shall be covered by the tender and become part of the contract documents.
7. If any person submitting a bid on this project is in doubt as to the true meaning and intent of any part of the specifications or other documents, they must submit a question on The Bidding System requesting an interpretation by the Architect. If such a question is not submitted and an interpretation is not requested, the bids will be presumed to be based on the interpretation or directions that may be subsequently given by the Architect after award of the Contract, in accordance with the provisions of the Contract.
8. Prior to the closing date of tenders, any and all necessary clarifications of the specifications or other Tender documents will be in the form of written Addenda. The Architect, Consultants and Owner will **NOT** be responsible for verbal instructions or explanations or interpretation of Drawings and Specifications.
9. No questions concerning this project will be accepted during the day of the tender closing date. The final date for questions to be submitted is noted above.

20. UNIT PRICES

- 1 At time of submission include in the tender form all the unit prices in accordance with the Supplementary Tender Form. These unit prices will be included in the agreement.
- 2 Unit prices shall include labour, material and applicable taxes , overhead and profit, and other relative charges, but shall be exclusive of HST. Any work done on the basis of unit prices shall be carried out generally in accordance with the specifications for similar work and shall be to the Architect's approval.
- 3 The Owner reserves the right to accept or reject any or all of the Unit Prices prior to entering in the construction contract. The owner reserves the right to negotiate these unit prices rejected or proposed and to renegotiate prices for any proposed changes.

21. BASE BID TENDERS

1. Materials and equipment are specifically described and named in this specification to establish a standard of materials and workmanship to which the tenderers shall strictly adhere. Where manufacturer's trade names are used, the first named or specified by catalogue numbers meets specifications in all respects regarding performance, quality of material and workmanship, and is acceptable

to the Architect.

2. Where the contractor uses equivalent products (either identified in the specifications or added after review by addendum) other than the first named, on which the design is based, they shall be responsible for all details of installation including product size, arrangement, fit, colour, etc. and maintenance of all required clearances. Contractor shall prepare and submit revised layouts to indicate arrangement of all affected surrounding equipment, etc. Failure by Contractor to provide such drawings may be considered indication that original arrangements, and space allocations are adequate. All additional costs associated with equivalent products such as revisions to surrounding architectural finishes, structural components, or the need for larger motor starters, larger power feeders, space revisions to associated product, equipment, controls, etc. shall be provided by the General Contractor and be included in Bid price.
3. Tenders may include with their lump sum tenders, alternative proposals based on the use of alternative material equivalent to the materials or equipment specified, in quality and performance, provided clearances and dimensions shown on the drawings are maintained. For all such alternative proposals, the tenderer shall include such proposals and the following information, in a letter accompanying their tender, for consideration by the Owner and Architect at the time of opening tenders. Under no circumstances shall the bid for an alternative material or equipment be included in the tender amount.
 1. Manufacturer's name and supplier's name.
 2. Change in price, if any.
 3. Reason for proposing alternative.
 4. Detailed description of alternative.
 5. Statement assuming full responsibility that any equipment shall not exceed the space requirement allocated on the drawings. This contractor shall be responsible for any additional installation cost resulting from the acceptance of a substitute piece of equipment or product.
4. Under no circumstances will alternatives submitted after the closing of tenders, be considered.
5. The Architect reserves the right to accept or reject proposed alternatives as the Architect sees fit, and also to claim for the Owner, the financial benefit of a substitution, if a substitute is accepted. A rejection by the Architect does not become obligated to give any reason for their action.

22. PROCEDURES AND SUPPLY OF CRITICAL MATERIALS

1. Submission of a tender shall constitute the Tenderer's agreement that they will commence work immediately upon award of the Contract, and that they will execute the same without interruption until completion, including the furnishing of all necessary supplies and equipment for winter operations. Contractor shall assure themselves before submitting a tender that they are in a position to furnish adequate supplies of all materials, critical or otherwise, at such times necessary to ensure immediate commencement of the work and continuous operation

without delays on the project. The Contractor shall include in their tender amount, sufficient sums for the purchase of critical materials from any source available. The contractor shall include in their bid any costs related to storage of materials delivered to the site prior to the work being ready for their installation. After award of the contract, the Owner will not grant increases to the tender amount to obtain critical materials at premium prices, nor will delays or interruption of the work be tolerated.

23. LAWS, CODES AND REGULATIONS

The tenderer is assumed to have made themselves familiar with and abide by the Federal National Authorities, Provincial, Municipal and local laws, rules and regulations which in any manner affect those engaged or employed in the work, or in any way affect the work, and no plea of misunderstanding will be considered on account of ignorance thereof. If the Bidder shall discover any provisions in the drawings, specifications or contract which are contrary to or inconsistent with any law, rule of regulation, Contractor shall at once report it in writing through Bids and Tenders.

24. PERMITS

1. The Owner will be applying and paying for Building Permit and the Contractor shall expedite receiving and picking it up from the Building Department. The Contractor shall be responsible for expediting, obtaining, paying for and picking up all other necessary permits, relative inspection fees, licences, notices, certificates of inspection, approval required to carry out work and provide the Owner with proof of same.
2. It is the responsibility of this Contractor to expedite and obtain the required building permit prior to commencing the work. Contractor must allow for time to obtain all required permits within the project completion schedule.
3. Proof of issue of Building Permit must be submitted before any progress payments can be released for the project.

25. STATUTORY HOLDBACK

1. A holdback of 10% of the contract price shall be held by the Owner for a period of 60 days after substantial performance and approval of the work as per specifications and pursuant to the requirements of the Construction Act, the holdback will be released after the expiration of 60-day lien waiting period, provided no liens are then registered. The date of advertisement in a construction trade publication shall commence the lien period.
2. At the end of 60 days waiting period, the Contractor will submit to the Owner and Architect, an invoice for the amount of the 10% holdback, at which time affidavits will be submitted to the Owner ensuring there are no liens against the job at that time.

26. INSURANCE

1. All Risk Property Insurance, including fire insurance, to be provided by the General Contractor and shall be in joint names of the Owner, Architect and Consultants.
2. The Contractor shall provide a minimum of \$10,000,000.00 Public Liability Insurance.
The Contractor shall indemnify and save harmless the Owner, The Ventin Group Ltd., Architects, their Consultants, and their officers and agents from all claims relating to labour, materials and equipment furnished for the work and to inventions, patents or patent rights used in doing the work. The Contractor shall be responsible for any and all damages or claims for damages or injuries or accidents done to or caused by them or their employees or relating to the prosecution of the works, or any of their operations or caused by reason of the existence or location or condition of any materials, plant or machinery used there on, or which may happen by reason thereof, or arising from any failure, neglect or omissions on their part, or on the part of any of their employees to do or perform any or all of the several acts or things required to be done by them under and by these conditions and covenants and agrees to hold the Owner, The Ventin Group Ltd., Architects and Consultants, harmless and indemnified for all such damages and claims for damages.
3. Automobile Liability Insurance and Contractor's Equipment Insurance and all other insurances shall be provided by the General Contractor and shall be in joint names of the Contractor, the Owner, the Architect, and Consultants.
4. Proof of Insurances and the named insured showing the Owner as an additional named insured for the project shall be submitted to the Owner upon execution of the Contract. Insurance Certificate shall provide that the insuring company will give 60 days' notice to the Owner of an intention to cancel.

27. WORKPLACE SAFETY AND INSURANCE

1. Submit proof of Workplace Safety and Insurance coverage. The contractor shall provide the owner with written documentation that all Workplace Safety and Insurance and Employment Insurance payments are up to date and in order.

28. IMPERIAL/METRIC DIMENSIONS

1. Where both imperial and metric dimensions are given in this specification, the metric dimensions apply for this project.

29. SITE ACCESS

1. Contractor to remove all debris from site daily.
2. Location of all trailers, storage container units, and construction fences by contractor shall be reviewed and approved by the Owner and Architect at a

preliminary site meeting prior to contractor moving on to site.

3. Parking for construction workers shall be on site.
4. Site access for construction to be confirmed at first site meeting.
5. Construction Site must be closed and locked after hours.

30. TAXES AND DUTIES

The Base Bid Price shall be exclusive of any value added taxes, i.e., HST.

1. The successful General Contractor will indicate on each application for payment **as a separate amount** the appropriate HST the Owner is legally obliged to pay.

31. CASH ALLOWANCES

1. The Contractor shall include in the contract the sum of all cash allowances specified in the specifications, which allowances shall be expended in whole or in part as the Architect shall direct, and the amount of the contract sum being adjusted accordingly. The contract sum shall include such sums for expenses and profit on account of such cash allowances as the Contractor and all subcontractors require.
2. In the event that the cost of work covered by a cash allowance shall be greater than or less than the cash allowance, the contract sum shall be adjusted accordingly, there shall be no adjustment in the contract sum for expenses and profit; it being understood and agreed that the contract sum includes the Contractor's and Subcontractor's expenses and profit for all cash allowances whether or not they are exceeded. The Sub-contractor shall submit to the General Contractor copies of all invoices and statements from the suppliers furnishing materials, equipment, etc. purchased under the cash allowances.

32. GENERAL NOTES TO CONTRACTOR

1. The contractor will be required to keep and maintain a set of as-built drawings for each project. These drawings will be used for no other purpose than recording the exact location of buried or covered services and all changes to the contract documents. The as-built drawings will be submitted to the Architect along with guarantees, maintenance data, extra supplies, etc. at the substantial performance of the contract.
2. The contractor will turn over to the Architect at the completion of the contract all project close out documents, material, etc. These documents, material, etc. including occupancy permit, will be accepted only with a transmittal and at no other time than when submitting a written request for substantial performance of the contract. For purposes of determining a value of this work it will be

considered as **\$10,000**. Note this amount is in addition to any values identified in the mechanical and electrical divisions.

3. Conform to the Ontario Building Code, CEC CSA C22, (latest Edition as currently amended) CAN3-B44, and CSA W59.1, where applicable, to the Canadian Code for Construction Safety, as currently amended, and to the Construction Safety Act, Ont. as currently amended, and to all other applicable codes and Building By-Laws hereinafter referred to as Codes; and to the requirements of the authorities having jurisdiction, including public utilities, referred to in the Contract Documents as the authorities.

33. ACCESS TO INFORMATION

1. All tenders, quotes and proposals are subject to the Municipal Freedom of Information and Protection of Privacy Act and will be disclosed where the Owner is required to do so for the purposes of complying with an Order of the Information and Privacy Commissioner.

34. WHMIS REQUIREMENTS

1. Contractors shall comply with WHMIS requirements in accordance with the Occupational Health and Safety Act (Ontario). Before commencement of work and during the full term of the Contract, the Contractor shall provide a list with current MSDS for all hazardous materials proposed for use on the Project. The Contractor shall label hazardous materials used and/or supplied on the Project in accordance with WHMIS requirements. The Contractor shall conform to the Environmental Protection Act for disposal and clean-up requirements. The Contractor shall obtain from the Owner, where applicable, a list and MSDS of hazardous materials that may be handled, stored or used by the Owner's employees and/or other contractors retained by the Owner at the location where work of this Contract will be performed. The Contractor shall ensure that those who handle and/or are exposed to, or are likely to handle or to be exposed to hazardous materials, are fully instructed and trained in accordance with WHMIS requirements.
2. Also refer to Section 01545 - Safety Requirements.

END OF SECTION



Hazardous Building Materials Assessment (Pre-construction)

Former Fire Hall
341 10th Street, Hanover,
Ontario

Prepared for:

Town of Hanover
341 10th Street
Hanover, Ontario, N4N 1P5

February 13, 2025

Pinchin File: 352142.000



Hazardous Building Materials Assessment (Pre-construction)

Former Fire Hall, 341 10th Street, Hanover, Ontario
Town of Hanover

February 13, 2025
Pinchin File: 352142.000

Issued to: Town of Hanover
Issued on: February 13, 2025
Pinchin File: 352142.000
Issuing Office: Waterloo, ON
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Team Leader, Hazardous Materials



EXECUTIVE SUMMARY

Town of Hanover (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at Former Fire Hall located at 341 10th Street, Hanover, Ontario. Pinchin performed the assessment on January 27, 2025.

The objective of the assessment was to identify specified hazardous building materials in preparation for building demolition activities. The proposed work as identified by the Client includes complete demolition of the building.

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

SUMMARY OF FINDINGS

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

Asbestos:

- Texture Finish.
- Transite Wall Boards.
- Sink Mastic.
- Thin-set behind ceramic tiles.
- Black duct mastic on roof (presumed).
- Caulking, tars and mastics on roof (presumed)

Lead:

- Lead is present in paints and coatings.
- Batteries of emergency lights are presumed to contain lead acid.
- Caulking on cast iron pipe joints (bell and spigot) contains lead.

Silica: Crystalline silica is present in concrete and other materials such as masonry and ceramic tiles.

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

Polychlorinated Biphenyls (PCBs): Based on the date of construction, PCBs may be present in light ballasts.

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



SUMMARY OF RECOMMENDATIONS

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

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

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



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APPENDICES

APPENDIX I	Drawings
APPENDIX II-A	Asbestos Analytical Certificates
APPENDIX II-B	Lead & PCB Analytical Certificates
APPENDIX III	Methodology
APPENDIX IV	Location Summary Report
APPENDIX V	Hazardous Materials Summary Report / Sample Log
APPENDIX VI	HMIS All Data Report



1.0 INTRODUCTION AND SCOPE

Town of Hanover (Client) retained Pinchin Ltd. (Pinchin) to conduct a hazardous building materials assessment at Former Fire Hall located at 341 10th Street, Hanover, Ontario .

Pinchin performed the assessment on January 27, 2025. The surveyor was unaccompanied during the assessment. The assessed area was unoccupied at the time of the assessment.

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

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

1.1 Scope of Assessment

The **assessed area** consisted of all areas of the building including the roof and building exterior.

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

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

- Asbestos
- Lead
- Silica
- Mercury
- Polychlorinated Biphenyls (PCBs)
- Mould

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

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



2.0 METHODOLOGY

Pinchin conducted a room-by-room assessment to identify the hazardous building materials as defined in the scope.

The assessment included demolition of wall and ceiling finishes (drywall or plaster) to view concealed conditions at representative areas as permitted by the current building use. Destructive testing of flooring was conducted where possible (under carpets or multiple layers of flooring). Demolition of exterior building finishes, masonry walls (chases, shafts etc.), and structural surrounds was conducted as permitted by the current building use.

Limited demolition of masonry block walls (core holes) was conducted to investigate for loose fill vermiculite insulation. Sampling of roofing materials was conducted.

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

3.0 BACKGROUND INFORMATION

3.1 Building Description

Description Item	Details
Use	Former Fire Hall
Number of Floors	The building is a single storey above grade with mezzanines.
Total Area	The total area of the building is 5,700 square feet.
Year of Construction	The building was constructed in 1937 with renovations reportedly completed in 1996.
Structure	Masonry block and structural steel and wood.
Exterior Cladding	Brick veneer and exposed masonry block.
HVAC	Forced air and suspended heating units.
Roof	Built up roofing.
Flooring	Vinyl floor tiles, ceramic tiles, carpet flooring and epoxy.
Interior Walls	Masonry block, drywall and plaster.
Ceilings	Drywall and acoustic ceiling tiles.

3.2 Existing Reports

No existing reports were provided for reference.

4.0 FINDINGS

The following section summarizes the findings of the assessment and provides a general description of the hazardous building materials identified. For details on approximate quantities, condition, friability, accessibility, and locations of hazardous building materials; refer to the Hazardous Material Summary / Sample Log and All Data Report in Appendices V and VI.

Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

4.1 Asbestos

4.1.1 *Texture Finishes (Decorative)*

Texture finish, containing asbestos, is present on masonry block columns in Bay 2, Location 11 (samples S0018A-C).



Asbestos-containing texture finish on masonry block wall

4.1.2 *Pipe Insulation*

Pipes in the assessed area are either uninsulated or insulated with non-asbestos fibreglass.

Pipes insulated with asbestos-containing insulations may be present in inaccessible spaces such as above solid ceilings, in chases, in column enclosures and within shafts.



Non-asbestos fibreglass insulations on pipe straights and fittings

4.1.3 Duct Insulation and Mastic

Ducts are either uninsulated or insulated with non-asbestos fibreglass (foil-faced or canvas jacketing).

Remaining ducts are either uninsulated or insulated with non-asbestos fibreglass (foil-faced or canvas jacketing).

The black duct mastic present on the rooftop ducting is presumed to contain asbestos until further sampling can be conducted.

The grey ducting mastic present on ducting seams within Bay 2 (Location 11) was confirmed to have been installed in 2021 and is presumed to be non-asbestos based on the date of installation.



Presumed asbestos-containing black mastic on rooftop ducting

4.1.4 Mechanical Equipment Insulation

Mechanical equipment (hot water tanks, suspended heaters etc.) were observed to be uninsulated.



Uninsulated suspended heating units

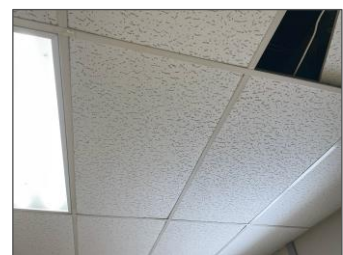
4.1.5 Vermiculite

Destructive testing was conducted of masonry block walls, including creating penetrations at 6 locations. The locations of destructive testing have been indicated on the drawings in Appendix I.

Loose fill vermiculite was not observed within the cavities.

4.1.6 Acoustic Ceiling Tiles

The following is a summary of acoustic ceiling tiles sampled.

Description	Sample Location	Date Code	Asbestos	Photo
24" x 48" lay in ceiling tiles, pinhole with widthwise fissure	Meeting Room (Location 5) Office (Location 9)	1996	Presumed non-asbestos by date code	

Ceiling tiles are presumed to be non-asbestos based on the date of manufacture determined from the date stamp applied to the top of the tiles (1996) The tiles were manufactured after asbestos stopped being used in acoustic ceiling tiles.

4.1.7 Plaster and Stucco

Smooth plaster, present on walls and ceilings within the assessed area, was sampled and does not contain asbestos (samples S0011A-G).



Non-asbestos smooth plaster on wall finishes

4.1.8 Drywall Joint Compound

Drywall joint compound present on wall and ceiling finishes throughout the assessed area, was sampled and does not contain asbestos (samples S0005A-G and S0020A-C).

4.1.9 Asbestos Cement Products

Cement wall boards (e.g. Transite), containing asbestos, is present in the Bay 2, Location 11 (samples S0017A-C).



Asbestos-containing asbestos cement (Transite) wall boards
(Location 11)

4.1.10 Vinyl Floor Tiles, Baseboard, and Stair Flooring

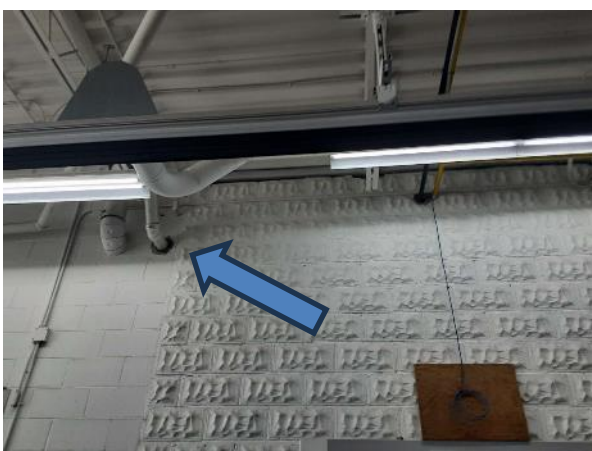
The following is a summary of vinyl floor tiles sampled.

Description	Sample Location (Location #)	Sample Number	Asbestos (Tile / Adhesive)	Photo
12" x 12", grey with grey fleck	Kitchen (Location 4)	S0006A-C	No / No	
12" x 12" beige mottled	Women's Washroom (Location 6)	S0008A-C	No / No	
12" x 12" beige with brown fleck	Men's Washroom (Location 7)	S0009A-C	No / No	
Black baseboards and mastic	Women's Washroom (Location 6)	S0010A-C	No / No	

Description	Sample Location (Location #)	Sample Number	Asbestos (Tile / Adhesive)	Photo
Brown baseboards and mastic	Office (Location 8)	S0015A-C	No / No	

4.1.11 Firestopping

The grey Firestopping (cementitious) present at pipe and conduit penetrations in Bay 1 (Location 1) was sampled does not contain asbestos (samples S0004A-C).



Non-asbestos grey firestopping at wall penetrations

4.1.12 Sealants, Caulking, and Putty

The following is a summary of sealants, caulking, and putties sampled.

Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Grey Caulking on floor joints	Bay 1 (Location 1)	S0003A-C	None detected	

Material, Description and Application	Sample Location (Location #)	Sample Number	Asbestos	Photo
Butyl sealant on windowpanes at door	Office (Location 8)	S0016A-C	None detected	
Beige caulking on window frames	Exterior (Location 15)	S0022A-C	None detected	
Grey caulking on door frames	Exterior (Location 15)	S0024A-C	None detected	

4.1.13 Roofing Products

All roofing tars, mastics and caulking's present on the roof (concealed by ice) are presumed to contain asbestos until further sampling is conducted.

The materials associated with the built-up roofing system on the upper tower roof was sampled and does not contain asbestos (samples S0025A-C).

The materials associated with the built-up roofing system on the main roof was sampled and does not contain asbestos (samples S0026A-C).



Non-asbestos built up roofing, Upper Roof

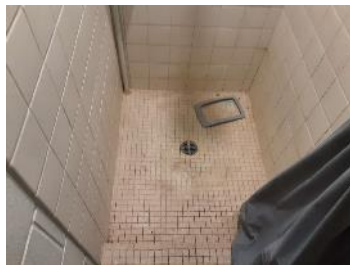
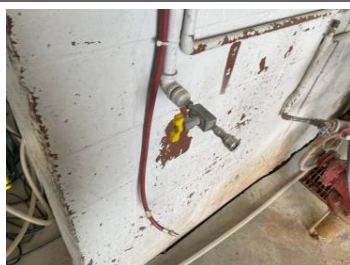
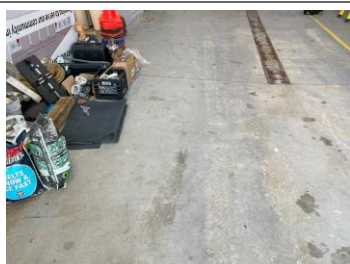


Non-asbestos built up roofing, Main Roof

4.1.14 Other Building Materials

The following is a summary of other materials sampled.

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Masonry block wall mortar	Bays 1 and 2 (Location 1 and 11)	S0001A-C	None detected	
Textured masonry block wall mortar	Bay 1 (Location 1)	S0002A-C	None detected	
Gold antisweat mastic on sinks	Kitchen (Location 4)	S0007A-C	Chrysotile	

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Thin-set under 1" x 1" ceramic floor tiles	Men's Washroom Shower (Location 7)	S0012A-C	None detected	
Thin-set behind 1 4" x 4" ceramic wall tiles	Men's Washroom Shower (Location 7)	S0013A-C	Chrysotile	
Beige carpet mastic	Office (Location 8)	S0014A-C	None detected	
Block filler paint on masonry block wall	Bay 2 (Location 11)	S0019A-C	None detected	
Grey epoxy flooring	Bays 1 and 2 (Locations 1 and 11)	S0021A-C	None detected	

Description	Sample Location (Location #)	Sample Number	Asbestos	Photo
Brick mortar	Exterior (Location 15)	S0023A-C	None detected	

4.1.15 Excluded Materials

The following is a list of materials which may contain asbestos and was excluded from the assessment. These materials are presumed to contain asbestos until otherwise proven by sampling and analysis:

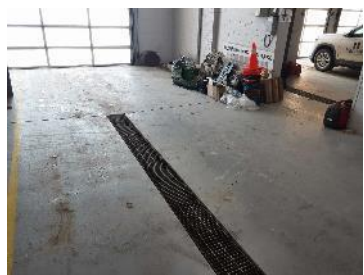
- Electrical components
- Mechanical packing, ropes, and gaskets
- Ropes and gaskets in cast-iron bell and spigot joints
- Sealants on pipe threads

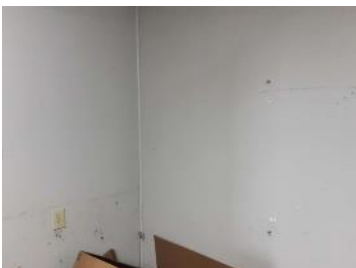
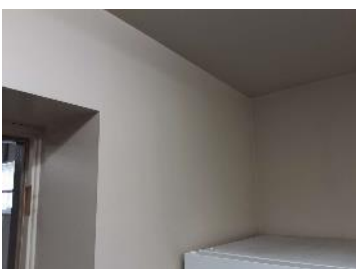
4.2 Lead

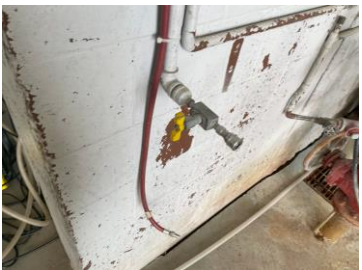
4.2.1 Paints and Surface Coatings

Refer to the lab report(s) in Appendix II-B and the Hazardous Material Summary / Sample Log in Appendix V for details on paints sampled and their locations.

The following table summarizes the analytical results of paints sampled.

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0001	Grey paint on concrete floor	Bay 1 (Location 1	0.00088	

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0002	Grey paint on masonry block walls	Bay 1 (Location 1)	0.0010	
L0003	White paint on masonry block walls	Bay 1 (Location 1)	0.00095	
L0004	White paint on structural steel	Mezzanine 1 (Location 2)	<0.00061	
L0005	Light grey paint on drywall walls	Storage (Location 3)	<0.00015	
L0006	Beige paint on drywall walls	Kitchen (Location 4)	0.00036	

Sample Number	Colour, Substrate Description	Sample Location	Lead (%)	Photo
L0007	Purple paint on drywall ceiling	Office (Location 9)	<0.00032	
L0008	Brown paint on masonry block walls	Bay 2 (Location 11)	0.029	

Results less than or equal to 0.1% (1,000 mg/kg), but equal to or greater than 0.009% (90 mg/kg), are considered low-level lead paints or surface coatings in accordance with the EACC guideline.

Results less than or equal to 0.009% (90 mg/kg) are considered to be insignificant in accordance with the EACC guideline.

4.2.2 Lead Products and Applications

Lead-containing batteries are presumed present in emergency lighting and fire control panels.



Lead-acid batteries in emergency lighting units

4.2.3 *Excluded Lead Materials*

Lead is known to be present in several materials which were not assessed or sampled. The following materials, where found, should be presumed to contain lead.

- Electrical components, including wiring connectors, grounding conductors, and solder
- Solder on pipe connections
- Glazing on ceramic tiles

4.3 **Silica**

Crystalline silica is assumed to be a component of the following materials where present in the building.

- Concrete
- Masonry and mortar
- Ceramic tiles and grout
- Plaster
- Asphalt

4.4 **Mercury**

4.4.1 *Lamps*

Mercury vapour is present in fluorescent lamp tubes and other lighting that is known to contain mercury such as mercury vapour lamps..

4.4.2 *Mercury-Containing Devices*

Mercury is present as a liquid in thermostats ampules.



Liquid mercury ampules present within thermostat

4.5 Polychlorinated Biphenyls

4.5.1 Caulking and Sealants

The following table presents a summary of caulking sampled:

Material, Colour, Application	Sample Location (Location #)	Sample Number	PCB (mg/kg)	Photo
Grey caulking at floor joints	Bay 1 (Location 1)	P0001	0.2	
Grey caulking at door frames	Exterior (Location 15)	P0002	<0.6	

Caulking's in the table above are considered to be non-PCB solids based on the threshold (50 mg/kg).

4.5.2 Lighting Ballasts

The building has not been comprehensively re-lamped with energy efficient light fixtures (evidence of T-12 fixtures, and as such, a percentage of light ballasts may be manufactured prior to 1980 and may contain PCBs.

Based on the presence of Light Emitting Diode (LED) lamps, the fixtures with LED lamps will not contain PCB ballasts.

4.5.3 Transformers

Transformers were not found during the assessment.

4.5.4 *Excluded PCB Materials*

PCBs are known to be present in several materials and equipment which were not assessed or sampled. The following materials, where found, should be presumed to contain PCBs until sampling proves otherwise.

- Capacitors within or associated with electrical equipment
- Voltage regulators and capacitors

4.6 Mould and Water Damage

Visible mould growth and water damage was not found during the assessment.

5.0 RECOMMENDATIONS

5.1 General

1. Prepare scope of work or performance specifications for hazardous material removal required for the planned work. The specifications should include safe work practices, personal protective equipment, respiratory protection, and disposal of waste materials.
2. If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb, and arrange for further testing and evaluation.
3. Conduct further investigation of the following items, areas, or locations, which were not completed during this assessment:
 - a. Sample all presumed asbestos-containing items prior to disturbance.
 - b. Any items listed as exclusions in this report, prior to disturbance.
4. Provide this report and the detailed plans and specifications to the contractor prior to bidding or commencing work.
5. Retain a qualified consultant to specify, observe and document the successful removal of hazardous materials.

5.2 Building Demolition Work

The following recommendations are made regarding demolition involving the hazardous materials identified.



5.2.1 Asbestos

Remove all asbestos-containing materials (ACM) prior to demolition work following safe work procedures. If the identified ACM will not be removed prior to commencement of the work, any potential disturbance of ACM must follow asbestos precautions appropriate for the type of work being performed.

Asbestos-containing materials must be disposed of at a landfill approved to accept asbestos waste.

5.2.2 Lead

For paints identified as having low levels of lead (i.e., equal to or above 0.009% (90 mg/kg) but less than or equal to the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints) special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned. Exposure from construction disturbance of paints containing lead less than 0.009% (90 mg/kg) is assumed to be insignificant.

Lead-containing items should be recycled when taken out of service.

5.2.3 Silica

Construction disturbance of silica-containing products may result in excessive exposures to airborne silica, especially if performed indoors and dry. Cutting, grinding, drilling or demolition of materials containing silica should be completed only with proper respiratory protection and other worker safety precautions that comply with applicable regulations and guidelines.

5.2.4 Mercury

Do not break lamps or separate liquid mercury from components. Recycle and reclaim mercury from fluorescent lamps and thermostats when taken out of service. Mercury is classified as a hazardous waste and must be disposed of in accordance with applicable regulations.

5.2.5 PCBs

Prior to demolition, remove light fixtures and examine light ballasts for PCB content. If ballasts are not clearly labelled as "non-PCB" or are suspected to contain PCBs, package and ship ballasts for destruction at a federally permitted facility.

6.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of



reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.

7.0 REFERENCES

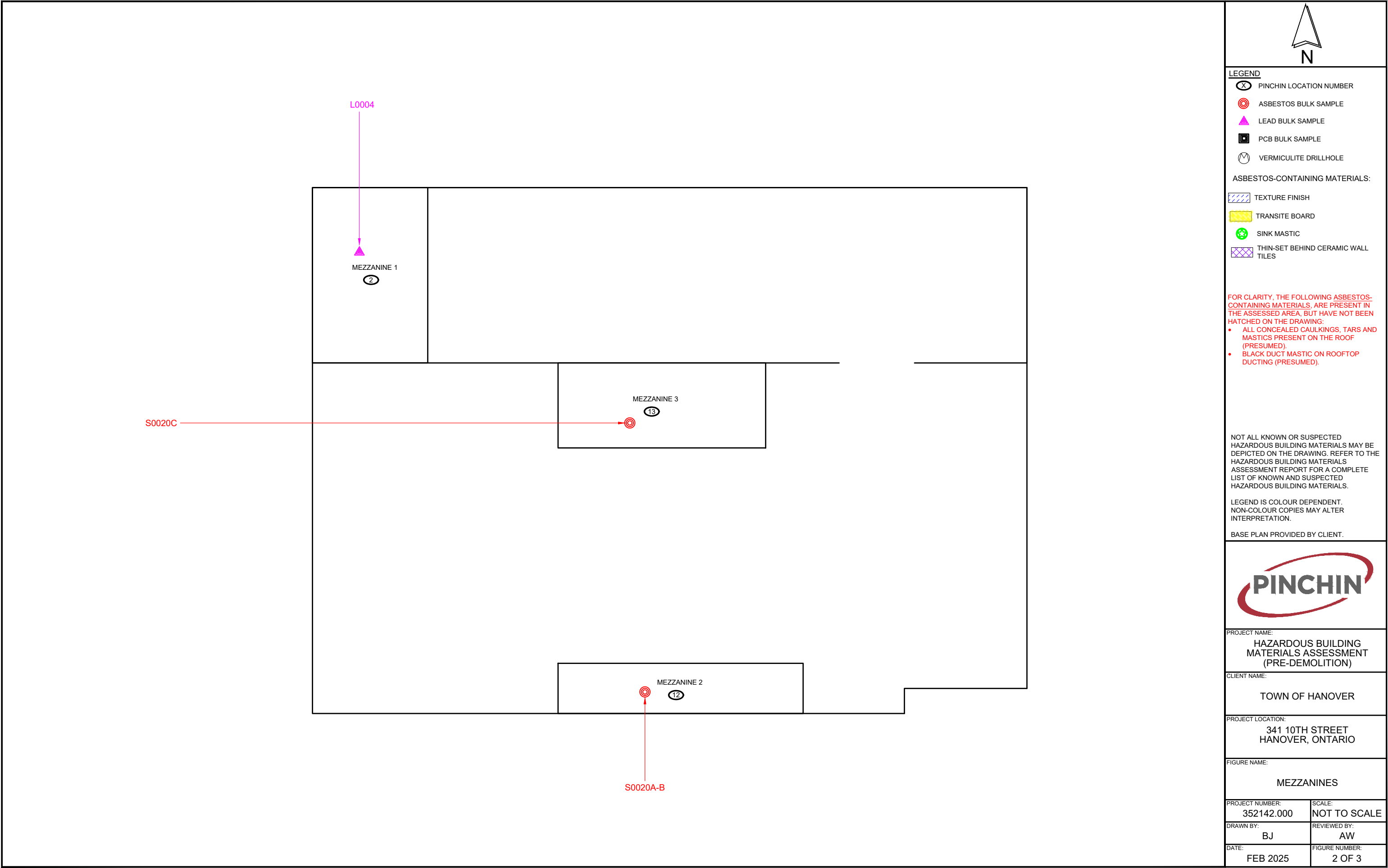
The following legislation and documents were referenced in completing the assessment and this report:

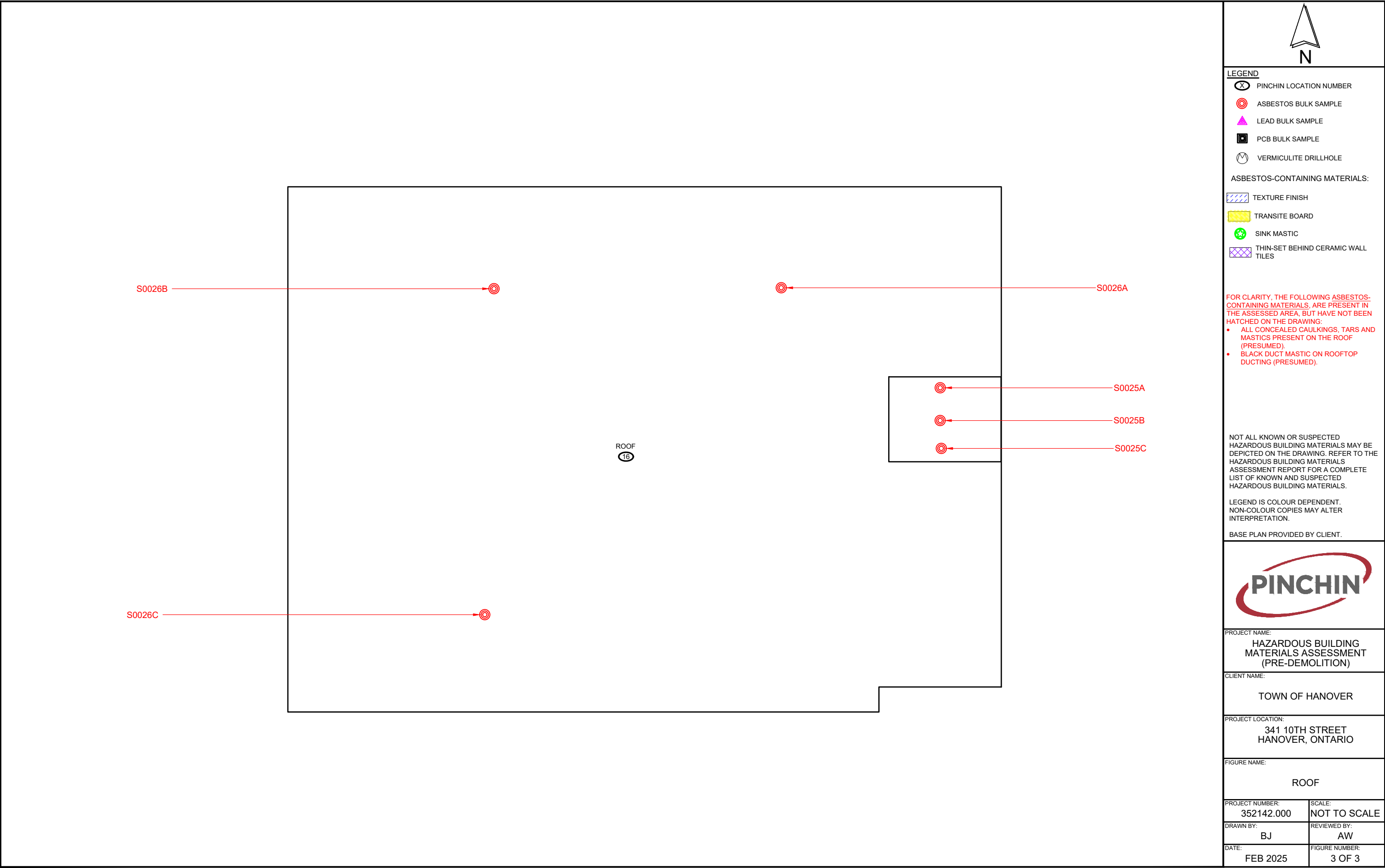
1. Asbestos on Construction Projects and in Buildings and Repair Operations, Ontario Regulation 278/05.
2. Designated Substances, Ontario Regulation 490/09.
3. Lead on Construction Projects, Ministry of Labour Guidance Document.
4. The Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair.
5. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 347 as amended.
6. Ministry of the Environment Regulation, R.R.O. 1990 Reg. 362 as amended.
7. Silica on Construction Projects, Ministry of Labour Guidance Document.
8. Alert – Mould in Workplace Buildings, Ontario Ministry of Labour.
9. PCB Regulations, SOR/2008-273, Canadian Environmental Protection Act.
10. Surface Coating Materials Regulations, SOR/2016-193, Canada Consumer Product Safety Act.
11. Consolidated Transportation of Dangerous Goods Regulations, including Amendment SOR/2019-101, Transportation of Dangerous Goods Act.
12. Mould Guidelines for the Canadian Construction Industry, Standard Construction Document CCA 82 – 2004 (Revised 2018), Canadian Construction Association.
13. Ozone-depleting Substances and Halocarbon Alternatives Regulations, SOR/2016-137.

\\PIN-WAT-FS01\job\352000s\0352142.000 TownofHanover,341,10thSt,HAZ\Deliverables\352142.000 HBMA (Pre-demolition) 341 10th Street Hanover Town of Hanover Feb 13, 2025.docx

Template: Master Report for Hazardous Materials Assessment (Pre-Construction), HAZ, June 19, 2024

APPENDIX I
Drawings





APPENDIX II-A
Asbestos Analytical Certificates



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Pinchin Ltd.
Suite 200, 13775 Commerce Parkway
Richmond, BC V6V 2V4

Attn: Brandon Jones
Ryan Farmsworth

Lab Order ID: 10073934
Analysis: PLM
Date Received: 01/31/2025
Date Reported: 02/07/2025

Project: Hanover Firefall Pre-Demo

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0001A	Structure,Mortar,Masonry Block Mortar,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0001					Dissolved
S0001B	Structure,Mortar,Masonry Block Mortar,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0002					Dissolved
S0001C	Structure,Mortar,Masonry Block Mortar,Loc:2,Bay 12	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0003					Dissolved
S0002A	Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0004					Dissolved
S0002B	Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0005					Dissolved
S0002C	Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0006					Dissolved
S0003A	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0007					Ashed
S0003B	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0008					Ashed

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Jalen Moore (98)

Analyst

Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Pinchin Ltd.
Suite 200, 13775 Commerce Parkway
Richmond, BC V6V 2V4

Attn: Brandon Jones
Ryan Farmsworth

Lab Order ID: 10073934
Analysis: PLM
Date Received: 01/31/2025
Date Reported: 02/07/2025

Project: Hanover Firefall Pre-Demo

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0003C	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0009					Ashed
S0004A	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0010					Dissolved
S0004B	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0011					Dissolved
S0004C	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0012					Dissolved
S0005A	Wall, Drywall And Joint Compound,Loc:3,Storage	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0013					Dissolved
S0005B	Wall, Drywall And Joint Compound,Loc:4,Kitchen	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0014					Dissolved
S0005C	Ceiling, Drywall And Joint Compound,Loc:4,Kitchen	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0015					Dissolved
S0005D	Wall, Drywall And Joint Compound,Loc:7,Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0016					Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0005E	Ceiling, Drywall And Joint Compound, Loc:7, Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0017					Dissolved
S0005F	Wall, Drywall And Joint Compound, Loc:8, Office	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0018					Dissolved
S0005G	Ceiling, Drywall And Joint Compound, Loc:9, Office	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0019					Dissolved
S0006A - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0020	tile				Dissolved
S0006A - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0079	mastic				Dissolved
S0006B - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0021	tile				Dissolved
S0006B - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0080	mastic				Dissolved
S0006C - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0022	tile - ashed				Ashed

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0006C - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Grey With Grey Fleck, Loc:4, Kitchen	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0081	mastic				Dissolved
S0007A	Sink, Mastic, Gold, Sink Mastic, Loc:4, Kitchen	3% Chrysotile		97% Other	Gold Non-Fibrous Homogeneous
10073934_0023					Dissolved
S0007B	Sink, Mastic, Gold, Sink Mastic, Loc:4, Kitchen	Not Analyzed			
10073934_0024					
S0007C	Sink, Mastic, Gold, Sink Mastic, Loc:4, Kitchen	Not Analyzed			
10073934_0025					
S0008A - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0026	tile				Dissolved
S0008A - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0082	mastic				Dissolved
S0008B - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0027	tile				Dissolved
S0008B - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0083	mastic				Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0008C - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0028	tile - ashed				Ashed
S0008C - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige Mottled, Loc:6, Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0084	mastic				Dissolved
S0009A - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0029	tile				Dissolved
S0009A - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0085	mastic				Dissolved
S0009B - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0030	tile				Dissolved
S0009B - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0086	mastic				Dissolved
S0009C - A	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Beige Non-Fibrous Homogeneous
10073934_0031	tile - ashed				Ashed
S0009C - B	Floor, Vinyl Floor Tile And Mastic, 12x12 Beige With Brown Fleck, Loc:7, Mens Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0087	mastic				Dissolved

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Nathaniel Durham

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Attn: Brandon Jones
Ryan Farmsworth

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Analysis: PLM
Date Received: 01/31/2025
Date Reported: 02/07/2025

Project: Hanover Firefall Pre-Demo

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0010A - A	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0032	wallbase				Ashed
S0010A - B	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0088	mastic				Dissolved
S0010B - A	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0033	wallbase				Ashed
S0010B - B	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0089	mastic				Dissolved
S0010C - A	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0034	wallbase				Ashed
S0010C - B	WallBaseBlack Base,Loc:6,Women's Washroom	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0090	mastic				Dissolved
S0011A - A	Wall,Plaster,Smooth,Loc:6,W omen's Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0035	finish				Dissolved
S0011A - B	Wall,Plaster,Smooth,Loc:6,W omen's Washroom	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0091	base				Dissolved

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Attn: Brandon Jones
Ryan Farmsworth

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0011B - A	Wall,Plaster,Smooth,Loc:6,Women's Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0036	finish				Dissolved
S0011B - B	Wall,Plaster,Smooth,Loc:6,Women's Washroom	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0092	base				Dissolved
S0011C - A	Wall,Plaster,Loc:7,Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0037	finish				Dissolved
S0011C - B	Wall,Plaster,Loc:7,Mens Washroom	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0093	base				Dissolved
S0011D - A	Wall,Plaster,Loc:9,Office	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0038	finish				Dissolved
S0011D - B	Wall,Plaster,Loc:9,Office	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0094	base				Dissolved
S0011E - A	Wall,Plaster,Loc:9,Office	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0039	finish				Dissolved
S0011E - B	Wall,Plaster,Loc:9,Office	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0095	base				Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0012A	Floor,Thin-set,1x1,Loc:7,Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0040					Dissolved
S0012B	Floor,Thin-set,1x1,Loc:7,Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0041					Dissolved
S0012C	Floor,Thin-set,1x1,Loc:7,Mens Washroom	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0042					Dissolved
S0013A	Wall,Thin-set,4x4,Loc:7,Mens Washroom	2% Chrysotile		98% Other	White Non-Fibrous Homogeneous
10073934_0043					Dissolved
S0013B	Wall,Thin-set,4x4,Loc:7,Mens Washroom	Not Analyzed			
10073934_0044					
S0013C	Wall,Thin-set,4x4,Loc:7,Mens Washroom	Not Analyzed			
10073934_0045					
S0014A	Floor,Mastic,Carpet Mastic,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0046					Dissolved
S0014B	Floor,Mastic,Carpet Mastic,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0047					Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0014C	Floor,Mastic,Carpet Mastic,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0048					Dissolved
S0015A - A	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0049	wallbase				Ashed
S0015A - B	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0096	mastic				Dissolved
S0015B - A	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0050	wallbase				Ashed
S0015B - B	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0097	mastic				Dissolved
S0015C - A	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Brown Non-Fibrous Homogeneous
10073934_0051	wallbase				Ashed
S0015C - B	WallBaseBrown,Loc:8,Office	None Detected		100% Other	Tan Non-Fibrous Homogeneous
10073934_0098	mastic				Dissolved
S0016A	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office	None Detected		100% Other	Black Non-Fibrous Homogeneous
10073934_0052					Dissolved

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Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0016B	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office	None Detected		100% Other	Black
10073934_0053					Non-Fibrous
					Homogeneous
					Dissolved
S0016C	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office	None Detected		100% Other	Black
10073934_0054					Non-Fibrous
					Homogeneous
					Dissolved
S0017A	Wall,Cement Product,Transite Panels,Loc:11,Bay 2	20% Chrysotile		80% Other	Gray
10073934_0055					Non-Fibrous
					Homogeneous
					Teased
S0017B	Wall,Cement Product,Transite Panels,Loc:11,Bay 2	Not Analyzed			
10073934_0056					
S0017C	Wall,Cement Product,Transite Panels,Loc:11,Bay 2	Not Analyzed			
10073934_0057					
S0018A	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2	2% Chrysotile		98% Other	Gray
10073934_0058					Non-Fibrous
					Homogeneous
					Dissolved
S0018B	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2	Not Analyzed			
10073934_0059					
S0018C	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2	Not Analyzed			
10073934_0060					

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Lab Sample ID	Lab Notes				Treatment
S0019A	Wall,Paint,Block Filler,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0061					Ashed
S0019B	Wall,Paint,Block Filler,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0062					Ashed
S0019C	Wall,Paint,Block Filler,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0063					Ashed
S0020A	Ceiling, Drywall And Joint Compound,Loc:12,Mezzanine 2	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0064					Dissolved
S0020B	Ceiling, Drywall And Joint Compound,Loc:12,Mezzanine 2	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0065					Dissolved
S0020C	Ceiling, Drywall And Joint Compound,Loc:13,Mezzanine 3	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0066					Dissolved
S0021A	Floor,Epoxy,Grey,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0067					Ashed
S0021B	Floor,Epoxy,Grey,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0068					Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Jalen Moore (98)

Analyst

Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Pinchin Ltd.
Suite 200, 13775 Commerce Parkway
Richmond, BC V6V 2V4

Attn: Brandon Jones
Ryan Farmsworth

Lab Order ID: 10073934
Analysis: PLM
Date Received: 01/31/2025
Date Reported: 02/07/2025

Project: Hanover Firefall Pre-Demo

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0021C	Floor,Epoxy,Grey,Loc:11,Bay 2	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0069					Ashed
S0022A	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0070					Ashed
S0022B	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0071					Ashed
S0022C	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior	None Detected		100% Other	White Non-Fibrous Homogeneous
10073934_0072					Ashed
S0023A	Structure,Mortar,Brick Mortar,Loc:15,Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0073					Crushed, Dissolved
S0023B	Structure,Mortar,Brick Mortar,Loc:15,Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0074					Crushed, Dissolved
S0023C	Structure,Mortar,Brick Mortar,Loc:15,Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0075					Crushed, Dissolved
S0024A	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0076					Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogenous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Jalen Moore (98)

Analyst

Nathaniel Durham

Approved Signatory



Bulk Asbestos Analysis

By Polarized Light Microscopy
EPA Method: 600/R-93/116 and
40 CFR, Part 763, Subpart E, App.E



Customer: Pinchin Ltd.
Suite 200, 13775 Commerce Parkway
Richmond, BC V6V 2V4

Attn: Brandon Jones
Ryan Farmsworth

Lab Order ID: 10073934
Analysis: PLM
Date Received: 01/31/2025
Date Reported: 02/07/2025

Project: Hanover Firefall Pre-Demo

Sample ID	Description	Asbestos	Fibrous Components	Non-Fibrous Components	Attributes
Lab Sample ID	Lab Notes				Treatment
S0024B	Caulking, Grey Caulking On Door Frames, Loc: 15, Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0077					Ashed
S0024C	Caulking, Grey Caulking On Door Frames, Loc: 15, Exterior	None Detected		100% Other	Gray Non-Fibrous Homogeneous
10073934_0078					Ashed

Disclaimer: Due to the nature of the EPA 600 method, asbestos may not be detected in samples containing low levels of asbestos. We strongly recommend that analysis of floor tiles, vermiculite, and/or heterogeneous soil samples be conducted by TEM for confirmation of "None Detected" by PLM. This report relates only to the samples tested and may not be reproduced, except in full, without the written approval of SAI. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. government. Analytical uncertainty available upon request. Scientific Analytical Institute participates in the NVLAP Proficiency Testing program. Unless otherwise noted blank sample correction was not performed. Estimated MDL is 0.1%.

Jalen Moore (98)

Analyst

Approved Signatory

Analyzed by:

Reviewed by:

Report Sent by:

10072934

Accepted

Rejected



Pinchin Ltd. - Asbestos Laboratory Internal Asbestos Bulk Sample Chain of Custody

Special Instructions:

25 ABC 26 ABC
Kept @ Pinchin

Client Name:	Town of Hanover	Project Address:	341 10th Street Hanover ON
Portfolio/Building No:		Pinchin File:	351392
Submitted by:	Brandon Jones	Email:	bjones@pinchin.com
CC Results to:	Ryan Farnsworth	CC Email:	rfarnsworth@pinchin.com
Date Submitted:	January 29 2025	Required by:	February 5 2025
# of Samples:	84	Priority:	5 Day Turnaround
Year of Building Construction (Mandatory, Years ONLY):	1937		
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company (Mandatory Field):	Pinchin		
HMIS2 Building Reference #:	145269/202502750558222		

To be Completed by Lab Personnel Only:

Lab Reference #:	Time:	24 hour clock		
Received by:	Date:	Month	Day	Year
Name(s) of Analyst(s):	JAN 30 2025			

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0001	A	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:12, Bay 2
S	0002	A	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	B	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	C	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0003	A	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1
S	0003	B	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1
S	0003	C	Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1
S	0004	A	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1
S	0004	B	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1
S	0004	C	Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1
S	0005	A	Wall,Drywall And Joint Compound,Loc:3,Storage
S	0005	B	Wall,Drywall And Joint Compound,Loc:4,Kitchen
S	0005	C	Ceiling,Drywall And Joint Compound,Loc:4,Kitchen
S	0005	D	Wall,Drywall And Joint Compound,Loc:7,Mens Washroom
S	0005	E	Ceiling,Drywall And Joint Compound,Loc:7,Mens Washroom
S	0005	F	Wall,Drywall And Joint Compound,Loc:8,Office
S	0005	G	Ceiling,Drywall And Joint Compound,Loc:9,Office
S	0006	A	Floor,Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen
S	0006	B	Floor,Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen

10072934

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0006	C	Floor,Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen
S	0007	A	Sink,Mastic, Gold,Sink Mastic,Loc:4,Kitchen
S	0007	B	Sink,Mastic, Gold,Sink Mastic,Loc:4,Kitchen
S	0007	C	Sink,Mastic, Gold,Sink Mastic,Loc:4,Kitchen
S	0008	A	Floor,Vinyl Floor Tile And Mastic,12x12 Biege Mottled,Loc:6,Women's Washroom
S	0008	B	Floor,Vinyl Floor Tile And Mastic,12x12 Biege Mottled,Loc:6,Women's Washroom
S	0008	C	Floor,Vinyl Floor Tile And Mastic,12x12 Biege Mottled,Loc:6,Women's Washroom
S	0009	A	Floor,Vinyl Floor Tile And Mastic,12x12 Biege With Brown Fleck,Loc:7,Mens Washroom
S	0009	B	Floor,Vinyl Floor Tile And Mastic,12x12 Biege With Brown Fleck,Loc:7,Mens Washroom
S	0009	C	Floor,Vinyl Floor Tile And Mastic,12x12 Biege With Brown Fleck,Loc:7,Mens Washroom
S	0010	A	Wall BaseBlack Base,Loc:6,Women's Washroom
S	0010	B	Wall BaseBlack Base,Loc:6,Women's Washroom
S	0010	C	Wall BaseBlack Base,Loc:6,Women's Washroom
S	0011	A	Wall,Plaster,Smooth,Loc:6,Women's Washroom
S	0011	B	Wall,Plaster,Smooth,Loc:6,Women's Washroom

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0011	C	Wall,Plaster, Smooth, Loc:7,Mens Washroom
S	0011	D	Wall,Plaster, Smooth, Loc:9,Office
S	0011	E	Wall,Plaster, Smooth, Loc:9,Office
S	0012	A	Floor,Thin-set,1x1,Loc:7,Mens Washroom
S	0012	B	Floor,Thin-set,1x1,Loc:7,Mens Washroom
S	0012	C	Floor,Thin-set,1x1,Loc:7,Mens Washroom
S	0013	A	Wall,Thin-set,4x4,Loc:7,Mens Washroom
S	0013	B	Wall,Thin-set,4x4,Loc:7,Mens Washroom
S	0013	C	Wall,Thin-set,4x4,Loc:7,Mens Washroom
S	0014	A	Floor,Mastic,Carpet Mastic,Loc:8,Office
S	0014	B	Floor,Mastic,Carpet Mastic,Loc:8,Office
S	0014	C	Floor,Mastic,Carpet Mastic,Loc:8,Office
S	0015	A	Wall Base, Brown,Loc:8,Office
S	0015	B	Wall Base, Brown,Loc:8,Office
S	0015	C	Wall Base, Brown,Loc:8,Office

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0016	A	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office
S	0016	B	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office
S	0016	C	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office
S	0017	A	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S	0017	B	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S	0017	C	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S	0018	A	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S	0018	B	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S	0018	C	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S	0019	A	Wall,Paint,Block Filler,Loc:11,Bay 2
S	0019	B	Wall,Paint,Block Filler,Loc:11,Bay 2
S	0019	C	Wall,Paint,Block Filler,Loc:11,Bay 2
S	0020	A	Ceiling,Drywall And Joint Compound,Loc:12,Mezzanine 2
S	0020	B	Ceiling,Drywall And Joint Compound,Loc:12,Mezzanine 2
S	0020	C	Ceiling,Drywall And Joint Compound,Loc:13,Mezzanine 3

10073924

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0021	A	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0021	B	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0021	C	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0022	A	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0022	B	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0022	C	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0023	A	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0023	B	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0023	C	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0024	A	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0024	B	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0024	C	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0025	A	Built up roofing, Upper Roof (Tower), Location 15, Roof
S	0025	B	Built up roofing, Upper Roof (Tower), Location 15, Roof
S	0025	C	Built up roofing, Upper Roof (Tower), Location 15, Roof

10073934

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0026	A	Built up roofing, Lower Roof (Main), Location 15, Roof
S	0026	B	Built up roofing, Lower Roof (Main), Location 15, Roof
S	0026	C	Built up roofing, Lower Roof (Main), Location 15, Roof

10073934

Version 1-15-2012

Client:	Pinchin Ltd.	Instructions: Use Column "B" for your contact info To See an Example Click the bottom Example Tab. 83 Begin Samples with a "<<" above the first sample and end with a ">>" below the last sample. Only Enter your data on the first sheet "Sheet1" Note: Data 1 and Data 2 are optional fields that do not show up on the official report, however they will be included in the electronic data returned to you to facilitate your reintegration of the report data.	Scientific Analytical Institute  4604 Dundas Dr. Greensboro, NC 27407 Phone: 336.292.3888 Fax: 336.292.3313 Email: lab@sailab.com
Contact:	Accounts Payable		
Address:			
Phone:			
Fax:			
Email:	AP@PINCHIN.COM (invoice) biones@pinchin.com (report)		
Project:	Hanover Firefall Pre-Demo Stop positive on all samples. Perform ashing on third vinyl floor tile if first two are ND.		
Client Notes:			
P.O. #:	352142.000		
Date Submitted:	01-30-2025		
Analysis:	PLM BULK EPA 600		
TurnAroundTime:	5 Day		

Sample Number	Data 1 (Lab use only)	Sample Description	Data 2 (Lab use only)
<<			
S0001A		Structure,Mortar,Masonry Block Mortar,Loc:1,Bay 1	
S0001B		Structure,Mortar,Masonry Block Mortar,Loc:1,Bay 1	
S0001C		Structure,Mortar,Masonry Block Mortar,Loc:2,Bay 12	
S0002A		Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	
S0002B		Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	
S0002C		Structure,Mortar,Textured Masonry Block Mortar,Loc:1,Bay 1	
S0003A		Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	
S0003B		Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	
S0003C		Caulking,Grey Caulking On Floor Joints,Loc:1,Bay 1	
S0004A		Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	
S0004B		Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	
S0004C		Fireproofing (cementitious),Grey At Wall Penetration,Loc:1,Bay 1	
S0005A		Wall, Drywall And Joint Compound,Loc:3,Storage	
S0005B		Wall, Drywall And Joint Compound,Loc:4,Kitchen	
S0005C		Ceiling, Drywall And Joint Compound,Loc:4,Kitchen	
S0005D		Wall, Drywall And Joint Compound,Loc:7,Mens Washroom	
S0005E		Ceiling, Drywall And Joint Compound,Loc:7,Mens Washroom	
S0005F		Wall, Drywall And Joint Compound,Loc:8,Office	
S0005G		Ceiling, Drywall And Joint Compound,Loc:9,Office	
S0006A		Floor, Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen	
S0006B		Floor, Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen	
S0006C		Floor, Vinyl Floor Tile And Mastic,12x12 Grey With Grey Fleck,Loc:4,Kitchen	
S0007A		Sink, Mastic, Gold,Sink Mastic,Loc:4,Kitchen	
S0007B		Sink, Mastic, Gold,Sink Mastic,Loc:4,Kitchen	
S0007C		Sink, Mastic, Gold,Sink Mastic,Loc:4,Kitchen	
S0008A		Floor, Vinyl Floor Tile And Mastic,12x12 Beige Mottled,Loc:6,Women's Washroom	
S0008B		Floor, Vinyl Floor Tile And Mastic,12x12 Beige Mottled,Loc:6,Women's Washroom	
S0008C		Floor, Vinyl Floor Tile And Mastic,12x12 Beige Mottled,Loc:6,Women's Washroom	
S0009A		Floor, Vinyl Floor Tile And Mastic,12x12 Beige With Brown Fleck,Loc:7,Mens Washroom	
S0009B		Floor, Vinyl Floor Tile And Mastic,12x12 Beige With Brown Fleck,Loc:7,Mens Washroom	
S0009C		Floor, Vinyl Floor Tile And Mastic,12x12 Beige With Brown Fleck,Loc:7,Mens Washroom	
S0010A		WallBaseBlack Base,Loc:6,Women's Washroom	
S0010B		WallBaseBlack Base,Loc:6,Women's Washroom	
S0010C		WallBaseBlack Base,Loc:6,Women's Washroom	
S0011A		Wall,Plaster,Smooth,Loc:6,Women's Washroom	
S0011B		Wall,Plaster,Smooth,Loc:6,Women's Washroom	
S0011C		Wall,Plaster,Loc:7,Mens Washroom	
S0011D		Wall,Plaster,Loc:9,Office	
S0011E		Wall,Plaster,Loc:9,Office	
S0012A		Floor,Thin-set,1x1,Loc:7,Mens Washroom	
S0012B		Floor,Thin-set,1x1,Loc:7,Mens Washroom	
S0012C		Floor,Thin-set,1x1,Loc:7,Mens Washroom	
S0013A		Wall,Thin-set,4x4,Loc:7,Mens Washroom	
S0013B		Wall,Thin-set,4x4,Loc:7,Mens Washroom	
S0013C		Wall,Thin-set,4x4,Loc:7,Mens Washroom	
S0014A		Floor,Mastic,Carpet Mastic,Loc:8,Office	
S0014B		Floor,Mastic,Carpet Mastic,Loc:8,Office	
S0014C		Floor,Mastic,Carpet Mastic,Loc:8,Office	
S0015A		WallBaseBrown,Loc:8,Office	
S0015B		WallBaseBrown,Loc:8,Office	
S0015C		WallBaseBrown,Loc:8,Office	
S0016A		Putty,Black Butyl Sealant On Window Pane,Loc:8,Office	
S0016B		Putty,Black Butyl Sealant On Window Pane,Loc:8,Office	

10073934

S0016C	Putty,Black Butyl Sealant On Window Pane,Loc:8,Office
S0017A	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S0017B	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S0017C	Wall,Cement Product,Transite Panels,Loc:11,Bay 2
S0018A	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S0018B	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S0018C	Structure,Texture Coat,Texture Coat,Loc:11,Bay 2
S0019A	Wall,Paint,Block Filler,Loc:11,Bay 2
S0019B	Wall,Paint,Block Filler,Loc:11,Bay 2
S0019C	Wall,Paint,Block Filler,Loc:11,Bay 2
S0020A	Ceiling, Drywall And Joint Compound,Loc:12,Mezzanine 2
S0020B	Ceiling, Drywall And Joint Compound,Loc:12,Mezzanine 2
S0020C	Ceiling, Drywall And Joint Compound,Loc:13,Mezzanine 3
S0021A	Floor,Epoxy,Grey,Loc:11,Bay 2
S0021B	Floor,Epoxy,Grey,Loc:11,Bay 2
S0021C	Floor,Epoxy,Grey,Loc:11,Bay 2
S0022A	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S0022B	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S0022C	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S0023A	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S0023B	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S0023C	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S0024A	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S0024B	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S0024C	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior

>>



Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

Project Name:	Town of Hanover, 341 10th St, Hanover, ON		
Project No.:	0352142.000		
Prepared For:	B. Jones		
Lab Reference No.:	b331410		
Analyst(s):	A. Williams		
Date Received:	January 30, 2025	Samples Submitted:	3
Date Analyzed:	February 7, 2025	Phases Analyzed:	7

The Pinchin Ltd. Mississauga asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis for all bulk materials. Please be advised that bulk materials do not include debris, dust, and tape-lift samples, and the analysis and reporting of these materials does not conform with Pinchin Ltd.'s NVLAP accreditation.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

This report relates only to the items tested and is valid only when signed with a protected, authorized, electronic signature. This report may not be reproduced, except in full, without the written approval of Pinchin Ltd. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. Internal verification studies, quality assurance / control data and laboratory documentation on measurement uncertainty are available upon request.



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Town of Hanover, 341 10th St, Hanover, ON
Project No.: 0352142.000
Prepared For: B. Jones

Lab Reference No.: b331410
Date Analyzed: February 7, 2025

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0025A Built up roofing, Upper Roof (Tower), Location 15, Roof	3 Phases:		
	a) Homogeneous, black, layered, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, layered, tar-impregnated, compressed, fibrous material.	None Detected	Cellulose 50-75% Tar and other Non-Fibrous Material 25-50%
	c) Homogeneous, black, tar material with rocks.	None Detected	Tar and other Non-Fibrous Material > 75%
Comments:	Cellulose is present on the surface of this sample.		
S0025B Built up roofing, Upper Roof (Tower), Location 15, Roof	2 Phases:		
	a) Homogeneous, black, layered, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, layered, tar-impregnated, compressed, fibrous material.	None Detected	Cellulose 50-75% Tar and other Non-Fibrous Material 25-50%
Comments:	Cellulose is present on the surface of this sample.		
S0025C Built up roofing, Upper Roof (Tower), Location 15, Roof	2 Phases:		
	a) Homogeneous, black, layered, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, layered, tar-impregnated, compressed, fibrous material.	None Detected	Cellulose 50-75% Tar and other Non-Fibrous Material 25-50%
Comments:	Cellulose is present on the surface of this sample.		

Reviewed by:

Digitally signed by
Pinchin Ltd.

Date: 2025.02.07
10:54:57-05'00'

Reporting Analyst:

Digitally signed
by Pinchin Ltd.

Date: 2025.02.07
10:55:11-05'00'

new pin is promo - 1/30/25

Analyst: *AW*
Reviewed by: *[Signature]*
Report Sent by: *CA*

remaining samples to SA

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Special Instructions:

6331410

Client Name:	Town of Hanover	Project Address:	341 10th Street Hanover ON
Portfolio/Building No:		Pinchin File:	351392 352142 <i>per Brenda</i>
Submitted by:	Brandon Jones	Email:	bjones@pinchin.com
CC Results to:	Ryan Farnsworth	CC Email:	rfarnsworth@pinchin.com
Date Submitted:	January 29 2025	Required by:	February 5 2025
# of Samples:	3 S 1/2	Priority:	5 Day Turnaround
Year of Building Construction (Mandatory, Years ONLY):	1937		
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company (Mandatory Field):			Pinchin
HMIS2 Building Reference #:			145269/202502750558222

To be Completed by Lab Personnel Only:

Lab Reference #:	6331410 <i>CA</i>	Time:	24 hour clock
Received by:	JAN 30 2025	Date:	Month Day Year
Name(s) of Analyst(s):	AW Feb 7 / 25		

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0001	A	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:12, Bay 2
S	0002	A	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	B	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	C	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1

1954

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0021	A	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0021	B	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0021	C	Floor,Epoxy,Grey,Loc:11,Bay 2
S	0022	A	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0022	B	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0022	C	Caulking,Biege Caulking On Window Frames,Loc:15,Exterior
S	0023	A	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0023	B	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0023	C	Structure,Mortar,Brick Mortar,Loc:15,Exterior
S	0024	A	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0024	B	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0024	C	Caulking,Grey Caulking On Door Frames,Loc:15,Exterior
S	0025	A	Built up roofing, Upper Roof (Tower), Location 15, Roof a)NP b)ND c)ND
S	0025	B	Built up roofing, Upper Roof (Tower), Location 15, Roof a)NP b)ND
S	0025	C	Built up roofing, Upper Roof (Tower), Location 15, Roof a)NP b)NP



Pinchin Ltd. Asbestos Laboratory *Certificate of Analysis*

Project Name:	Town of Hanover, 341 10th St, Hanover, ON		
Project No.:	0352142.000		
Prepared For:	B. Jones		
Lab Reference No.:	b331411		
Analyst(s):	A. Di Giulio		
Date Received:	January 30, 2025	Samples Submitted:	3
Date Analyzed:	February 7, 2025	Phases Analyzed:	12

The Pinchin Ltd. Mississauga asbestos laboratory is accredited by the National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP Lab Code 101270-0) for the 'EPA – 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples,' and the 'EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials'; and meets all requirements of ISO/IEC 17025:2017. The Pinchin asbestos laboratory uses the aforementioned methods of analysis for all bulk materials. Please be advised that bulk materials do not include debris, dust, and tape-lift samples, and the analysis and reporting of these materials does not conform with Pinchin Ltd.'s NVLAP accreditation.

Bulk samples are checked visually and scanned under a stereomicroscope. Slides are prepared and observed under a Polarized Light Microscope (PLM) at magnifications of 40X, 100X or 400X as appropriate. Asbestos fibres are identified by a combination of morphology, colour, refractive index, extinction, sign of elongation, birefringence and dispersion staining colours. A visual estimate is made of the percentage of asbestos present. A reported concentration of less than (<) the regulatory threshold indicates the presence of confirmed asbestos in trace quantities, limited to only a few fibres or fibre bundles in an entire sample. This method complies with provincial regulatory requirements where applicable. Multiple phases within a sample are analyzed and reported separately.

All bulk samples submitted to this laboratory for asbestos analysis are retained for a minimum of three months. Samples may be retrieved, upon request, for re-examination at any time during that period.

This report relates only to the items tested.

This report relates only to the items tested and is valid only when signed with a protected, authorized, electronic signature. This report may not be reproduced, except in full, without the written approval of Pinchin Ltd. The client may not use this report to claim product endorsement by NVLAP or any agency of the U.S. Government. Internal verification studies, quality assurance / control data and laboratory documentation on measurement uncertainty are available upon request.



Pinchin Ltd. Asbestos Laboratory Certificate of Analysis

Project Name: Town of Hanover, 341 10th St, Hanover, ON
Project No.: 0352142.000
Prepared For: B. Jones

Lab Reference No.: b331411
Date Analyzed: February 7, 2025

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0026A Built up roofing, Lower Roof (Main), Location 15, Roof	4 Phases:		
	a) Homogeneous, black, tar material between cellulose.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	c) Homogeneous, black, tar material with fibres.	None Detected	Man-Made Vitreous Fibres 0.5-5% Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, black, layered, roofing material.	None Detected	Synthetic Fibres 10-25% Tar and other Non-Fibrous Material > 75%
Comments:	This sample was analyzed from interior to exterior, with phase a) as the innermost layer (or bottom where identified on sample). Cellulose is present on the surface of this sample.		
S0026B Built up roofing, Lower Roof (Main), Location 15, Roof	4 Phases:		
	a) Homogeneous, black, tar material between cellulose.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	c) Homogeneous, black, tar material with fibres.	None Detected	Man-Made Vitreous Fibres 0.5-5% Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, black, layered, roofing material.	None Detected	Synthetic Fibres 10-25% Tar and other Non-Fibrous Material > 75%
Comments:	This sample was analyzed from interior to exterior, with phase a) as the innermost layer (or bottom where identified on sample). Cellulose is present on the surface of this sample.		



Pinchin Ltd. Asbestos Laboratory
Certificate of Analysis

Project Name: Town of Hanover, 341 10th St, Hanover, ON
Project No.: 0352142.000
Prepared For: B. Jones

Lab Reference No.: b331411
Date Analyzed: February 7, 2025

BULK SAMPLE ANALYSIS

SAMPLE IDENTIFICATION	SAMPLE DESCRIPTION	% COMPOSITION (VISUAL ESTIMATE)	
		ASBESTOS	OTHER
S0026C Built up roofing, Lower Roof (Main), Location 15, Roof	4 Phases:		
	a) Homogeneous, black, layered, tar material between cellulose.	None Detected	Tar and other Non-Fibrous Material > 75%
	b) Homogeneous, black, tar material.	None Detected	Tar and other Non-Fibrous Material > 75%
	c) Homogeneous, black, tar material with fibres.	None Detected	Man-Made Vitreous Fibres 0.5-5% Tar and other Non-Fibrous Material > 75%
	d) Homogeneous, black, layered, roofing material.	None Detected	Synthetic Fibres 10-25% Tar and other Non-Fibrous Material > 75%
Comments:	This sample was analyzed from interior to exterior, with phase a) as the innermost layer (or bottom where identified on sample). Cellulose is present on the surface of this sample.		

Reviewed by:

Digitally signed
by Pinchin Ltd.
Date: 2025.02.07
15:23:22-05'00'

Reporting Analyst:

Digitally signed
by Pinchin Ltd.
Date: 2025.02.07
15:36:28-05'00'

new pn promo - 1/30

AD 2/17/25
Report Sent by: [Signature]
Report Sent by: [Signature]

Remaining samples to 81

Pinchin Ltd. - Asbestos Laboratory
Internal Asbestos Bulk Sample Chain of Custody

Special Instructions:

Client Name:	Town of Hanover	Project Address:	341 10th Street Hanover ON
Portfolio/Building No:		Pinchin File:	351392 352142 per Brander
Submitted by:	Brandon Jones	Email:	bjones@pinchin.com
CC Results to:	Ryan Farnsworth	CC Email:	rfarnsworth@pinchin.com
Date Submitted:	January 29 2025	Required by:	February 5 2025
# of Samples:	35212	Priority:	5 Day Turnaround
Year of Building Construction (Mandatory, Years ONLY):	1937		
Do NOT Stop on Positive (Sample Numbers):			
Pinchin Group Company (Mandatory Field):	Pinchin		
HMIS2 Building Reference #:	145269/202502750558222		

To be Completed by Lab Personnel Only:			
Lab Reference #:	b331411	Time:	24 hour clock
Received by:	JAN 30 2025	Date:	Month Day Year
Name(s) of Analyst(s):			

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0001	A	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:1, Bay 1
S	0001	B	Structure, Mortar, Masonry Block Mortar, Loc:12, Bay 2
S	0002	A	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	B	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1
S	0002	C	Structure, Mortar, Textured Masonry Block Mortar, Loc:1, Bay 1

Sample Prefix	Sample No.	Sample Suffix	Sample Description/Location (Mandatory)
S	0026	A	Built up roofing, Lower Roof (Main), Location 15, Roof AND bND cND dND
S	0026	B	Built up roofing, Lower Roof (Main), Location 15, Roof AND bND cND dND
S	0026	C	Built up roofing, Lower Roof (Main), Location 15, Roof AND bND cND dND

APPENDIX II-B
Lead & PCB Analytical Certificates



Your Project #: 352142
Site Location: 341 10TH STREET HANOVER, ON
Your C.O.C. #: N/A

Attention: Brandon Jones

Pinchin Ltd
225 Labrador Drive
Unit #1
Waterloo, ON
CANADA N2K 4M8

Report Date: 2025/02/05
Report #: R8481771
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C510337

Received: 2025/01/30, 10:10

Sample Matrix: Solid
Samples Received: 10

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Metals in Paint	1	2025/02/03	2025/02/04	CAM SOP-00408	EPA 6010D m
Metals in Paint	1	2025/02/04	2025/02/04	CAM SOP-00408	EPA 6010D m
Metals in Paint	2	2025/02/04	2025/02/05	CAM SOP-00408	EPA 6010D m
Metals in Paint	4	2025/02/05	2025/02/05	CAM SOP-00408	EPA 6010D m
Polychlorinated Biphenyl in Solids (1)	2	2025/02/02	2025/02/03	CAM SOP-00309	EPA 8082A m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Analysis was conducted according to Bureau Veritas method CAM SOP-00309 and modified where applicable based on the sample matrix. This test is not Standards Council of Canada accredited for this matrix.



Your Project #: 352142
Site Location: 341 10TH STREET HANOVER, ON
Your C.O.C. #: N/A

Attention: Brandon Jones

Pinchin Ltd
225 Labrador Drive
Unit #1
Waterloo, ON
CANADA N2K 4M8

Report Date: 2025/02/05
Report #: R8481771
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C510337

Received: 2025/01/30, 10:10

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Elora Di Bratto, Project Manager
Email: Elora.Di-Bratto@bureauveritas.com
Phone# (905) 817-5700

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

**ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)**

Bureau Veritas ID		ANQT02	ANQT02			ANQT03		
Sampling Date		2025/01/25 10:00	2025/01/25 10:00			2025/01/25 10:00		
COC Number		N/A	N/A			N/A		
	UNITS	L0001,FLOOR,CONCRETE(POURED)GREY PAINT ON CONCRETE FLOOR	L0001,FLOOR,CONCRETE(POURED)GREY PAINT ON CONCRETE FLOOR Lab-Dup	RDL	QC Batch	L0002,STRUCTURE,MASONRY,GREY ON MASONRY,LOC:1,BAY 1	RDL	QC Batch

Metals

Lead (Pb)	%	0.00088	0.00081	0.00010	9869321	0.0010	0.00029	9870510
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas ID		ANQT04		ANQT05		ANQT06		
Sampling Date		2025/01/25 10:00		2025/01/25 10:00		2025/01/25 10:00		
COC Number		N/A		N/A		N/A		
	UNITS	L0003,STRUCTURE,MASONRY,WHITE PAINT ON MASONRY,LOC:1,BAY 1	RDL	L0004,CEILING METAL,WHITE,LOC:2, MEZZANINE 1	RDL	L0005,CEILING,DRYWALL AND JOINT COMPOUND,LIGHT GREY,LOC:3	RDL	QC Batch

Metals

Lead (Pb)	%	0.00095	0.00058	<0.00061	0.00061	<0.0015	0.0015	9870510
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Bureau Veritas ID		ANQT07	ANQT07			ANQW72		
Sampling Date		2025/01/25 10:00	2025/01/25 10:00			2025/01/25 10:00		
COC Number		N/A	N/A			N/A		
	UNITS	L0006,WALL,DRYWALL AND JOINT COMPOUND,BEIGE,LOC:4,KITCHEN	L0006,WALL,DRYWALL AND JOINT COMPOUND,BEIGE,LOC:4,KITCHEN Lab-Dup	RDL	QC Batch	L0007,CEILING,DRYWALL AND JOINT COMPOUND,PURPLE,LOC:9,OFF	RDL	QC Batch

Metals

Lead (Pb)	%	0.00034	0.00036	0.00010	9869758	<0.00032	0.00032	9870510
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RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Lab-Dup = Laboratory Initiated Duplicate



BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

ELEMENTS BY ATOMIC SPECTROSCOPY (SOLID)

Bureau Veritas ID		ANQW73		
Sampling Date		2025/01/25 10:00		
COC Number		N/A		
	UNITS	L0008,STRUCTURE,MASONRY,BROWN,LOC:11,BAY 2	RDL	QC Batch
Metals				
Lead (Pb)	%	0.029	0.00018	9870510
RDL = Reportable Detection Limit				
QC Batch = Quality Control Batch				



BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

POLYCHLORINATED BIPHENYLS BY GC-ECD (SOLID)

Bureau Veritas ID		ANQT00		ANQT01		
Sampling Date		2025/01/25 10:00		2025/01/25 10:00		
COC Number		N/A		N/A		
	UNITS	P0001,GREY CAULKING ON FLOOR JOINTS,BAY 1,LOCATION 1	RDL	P0002,GREY CAULKING ON DOOR FRAMES,EXTERIOR,LO CATION 15	RDL	QC Batch
PCBs						
Aroclor 1262	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1016	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1221	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1232	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1242	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1248	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1254	ug/g	0.2	0.1	<0.6	0.6	9868792
Aroclor 1260	ug/g	<0.1	0.1	<0.6	0.6	9868792
Aroclor 1268	ug/g	<0.1	0.1	<0.6	0.6	9868792
Total PCB	ug/g	0.2	0.1	<0.6	0.6	9868792
Surrogate Recovery (%)						
Decachlorobiphenyl	%	78		90		9868792
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

TEST SUMMARY

Bureau Veritas ID: ANQT00
Sample ID: P0001,GREY CAULKING ON FLOOR JOINTS,BAY 1,LOCATION 1
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Solids	GC/ECD	9868792	2025/02/02	2025/02/03	Farag Mansour

Bureau Veritas ID: ANQT01
Sample ID: P0002,GREY CAULKING ON DOOR FRAMES,EXTERIOR,LOCATION 15
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Solids	GC/ECD	9868792	2025/02/02	2025/02/03	Farag Mansour

Bureau Veritas ID: ANQT02
Sample ID: L0001,FLOOR,CONCRETE(POURED)GREY PAINT ON CONCRETE FLOOR
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9869321	2025/02/03	2025/02/04	Medhat Nasr

Bureau Veritas ID: ANQT02 Dup
Sample ID: L0001,FLOOR,CONCRETE(POURED)GREY PAINT ON CONCRETE FLOOR
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9869321	2025/02/03	2025/02/04	Medhat Nasr

Bureau Veritas ID: ANQT03
Sample ID: L0002,STRUCTURE,MASONRY,GREY ON MASONRY,LOC:1,BAY 1
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/05	2025/02/05	Medhat Nasr

Bureau Veritas ID: ANQT04
Sample ID: L0003,STRUCTURE,MASONRY,WHITE PAINT ON MASONRY,LOC:1,BAY 1
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/05	2025/02/05	Medhat Nasr

Bureau Veritas ID: ANQT05
Sample ID: L0004,CEILING METAL,WHITE,LOC:2,MEZZANINE 1
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/05	2025/02/05	Medhat Nasr



BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

TEST SUMMARY

Bureau Veritas ID: ANQT06
Sample ID: L0005,CEILING,DRYWALL AND JOINT COMPOUND,LIGHT GREY,LOC:3
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/04	2025/02/05	Medhat Nasr

Bureau Veritas ID: ANQT07
Sample ID: L0006,WALL,DRYWALL AND JOINT COMPOUND,BEIGE,LOC:4,KITCHEN
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9869758	2025/02/04	2025/02/04	Medhat Nasr

Bureau Veritas ID: ANQT07 Dup
Sample ID: L0006,WALL,DRYWALL AND JOINT COMPOUND,BEIGE,LOC:4,KITCHEN
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9869758	2025/02/04	2025/02/04	Medhat Nasr

Bureau Veritas ID: ANQW72
Sample ID: L0007,CEILING,DRYWALL AND JOINT COMPOUND,PURPLE,LOC:9,OFF
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/04	2025/02/05	Medhat Nasr

Bureau Veritas ID: ANQW73
Sample ID: L0008,STRUCTURE,MASONRY,BROWN,LOC:11,BAY 2
Matrix: Solid

Collected: 2025/01/25
Shipped:
Received: 2025/01/30

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	9870510	2025/02/05	2025/02/05	Medhat Nasr



GENERAL COMMENTS

Sample ANQT03 [L0002,STRUCTURE,MASONRY,GREY ON MASONRY,LOC:1,BAY 1] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ANQT04 [L0003,STRUCTURE,MASONRY,WHITE PAINT ON MASONRY,LOC:1,BAY 1] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ANQT05 [L0004,CEILING METAL,WHITE,LOC:2,MEZZANINE 1] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ANQT06 [L0005,CEILING,DRYWALL AND JOINT COMPOUND,LIGHT GREY,LOC:3] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ANQW72 [L0007,CEILING,DRYWALL AND JOINT COMPOUND,PURPLE,LOC:9,OFF] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Sample ANQW73 [L0008,STRUCTURE,MASONRY,BROWN,LOC:11,BAY 2] : Metals Analysis: Due to limited amount of sample available for analysis, a smaller than usual portion of the sample was used. Detection limits were adjusted accordingly.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

QUALITY ASSURANCE REPORT

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9868792	Decachlorobiphenyl	2025/02/03	83	30 - 130	109	30 - 130	99	%				
9868792	Aroclor 1016	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1221	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1232	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1242	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1248	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1254	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1260	2025/02/03	102	30 - 130	126	30 - 130	<0.1	ug/g	6.8	50		
9868792	Aroclor 1262	2025/02/03					<0.1	ug/g				
9868792	Aroclor 1268	2025/02/03					<0.1	ug/g				
9868792	Total PCB	2025/02/03	102	30 - 130	126	30 - 130	<0.1	ug/g	6.8	50		
9869321	Lead (Pb)	2025/02/04	100	75 - 125			<0.00010	%	7.4	35	101	75 - 125
9869758	Lead (Pb)	2025/02/04	92	75 - 125			<0.00010	%	3.8	35	102	75 - 125
9870510	Lead (Pb)	2025/02/05	89	75 - 125			<0.00010	%	14	35	101	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.



BUREAU
VERITAS

Bureau Veritas Job #: C510337

Report Date: 2025/02/05

Pinchin Ltd

Client Project #: 352142

Site Location: 341 10TH STREET HANOVER, ON

Sampler Initials: BJ

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Louise Harding, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

C510337

2025/01/30 10:10



6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/5

CHAIN OF CUSTODY RECORD

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required								
Company Name: Pinchin Ltd.		Company Name:		Quotation #:		☒ Regular TAT (5-7 days) Most analyses								
Contact Name: Accounts Payable		Contact Name: Brandon Jones, Ryan Farnsworth		P.O. #/ AFER:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS								
Address:		Address:		Project #:	351392	Rush TAT (Surcharges will be applied)								
Phone:		Phone:		Site Location:	341 10th Street Hanover ON	☐ 1 Day	☐ 2 Days ☐ 3-4 Days							
Email: AP@Pinchin.com		Email: bjonas@pinchin.com, rfarnsworth@pinchin.com		Site #:		Date Required: Feb 5 2025								
USE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY				Site Location Province:	ON	Rush Confirmation #:								
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY								
☐ Table 1 ☐ Res/Park ☐ Med/ Fine		☐ CCME ☐ Sanitary Sewer Bylaw				CUSTODY SEAL Y / N								
☐ Table 2 ☐ Ind/Comm ☐ Coarse		☐ MISA ☐ Storm Sewer Bylaw				COOLER TEMPERATURES								
☐ Table 3 ☐ Agri/ Other		☐ PWQO ☐ Other (Specify)				Present	Intact							
☐ Table 4		☐ REG 558 (MIN. 3 DAY TAT REQUIRED)												
FOR RSC (PLEASE CIRCLE) Y / N		☐ REG 406 Table				COOLING MEDIA PRESENT: Y / N								
Include Criteria on Certificate of Analysis: Y / N						COMMENTS								
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS														
SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / Cu / Pb	STED / PFC / F1	PAC / F2 / F4	VOCS	REG 153 METALS & INORGANICS	REG 153 CPMS METALS	REG 153 METALS (Hg, Cu, Pb, CPMS Metals, HWS - B)	Lead (Pb) in Paints	PCBs	HOLD-DO NOT ANALYZE
P0001, Grey caulking on floor joints, Bay 1, Location 1	2025-01-25	10:00	BULK									X		report as ppb
P0002, Grey caulking on door frames, Exterior, Location 15	2025-01-25	10:00	BULK									X		report as ppb
L0001, Floor, Concrete (poured), Grey Paint On Concrete Floor	2025-01-25	10:00	BULK								X			report as %
L0002, Structure, Masonry, Grey On Masonry, Loc:1, Bay 1	2025-01-25	10:00	BULK								X			report as %
L0003, Structure, Masonry, White Paint On Masonry, Loc:1, Bay 1	2025-01-25	10:00	BULK								X			report as %
L0004, Ceiling, Metal, White, Loc:2, Mezzanine 1	2025-01-25	10:00	BULK								X			report as %
L0005, Ceiling, Drywall and joint compound, Light Grey, Loc:3	2025-01-25	10:00	BULK								X			report as %
L0006, Wall, Drywall and joint compound, Beige, Loc:4, Kitchen	2025-01-25	10:00	BULK								X			report as %
L0007, Ceiling, Drywall and joint compound, Purple, Loc:9, Office	2025-01-25	10:00	BULK								X			report as %
L0008, Structure, Masonry, Brown, Loc:11, Bay 2	2025-01-25	10:00	BULK								X			report as %
RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #								
Brandon Jones	2025-01-29	10:00	SUGAN SAWHANI	2025/01/30	10:10									

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <https://www.bvna.com/coc-terms-and-conditions>



NONT-2025-01-4538

APPENDIX III
Methodology



1.0 GENERAL

An investigation was conducted to identify the type of Hazardous Building Materials incorporated in the structure and its finishes.

Information regarding the location and condition of hazardous building materials encountered and visually estimated quantities were recorded. The locations of any samples collected were recorded on small-scale plans. As-built drawings and previous reports were referenced where provided.

Sample collection was conducted in accordance with our Standard Operating Procedures.

1.1 Asbestos

The investigation for asbestos included friable and non-friable asbestos-containing materials (ACM). A friable material is a material that when dry can be crumbled, pulverized or powdered by hand pressure, or a material that has already become crushed, pulverized, or powdered.

A separate set of samples was collected of each type of homogenous material suspected to contain asbestos. A homogenous material is defined by the US EPA as material that is uniform in texture and appearance, was installed at one time, and is unlikely to consist of more than one type or formulation of material. The homogeneous materials were determined by visual examination and available information on the phases of construction and prior renovations.

Samples were collected at a rate that is in compliance with the requirements of local regulations and guidelines. The sampling strategy was also based on known ban dates and phase out dates of the use of asbestos; sampling of certain building materials is not conducted after specific construction dates. In addition, to be conservative, several years past these dates are added to account for some uncertainty in the exact start / finish date of construction and associated usage of ACM. In some cases, manufactured products such as asbestos cement pipe were visually identified without sample confirmation.

The asbestos analysis of select materials was completed using a stop-positive approach. Only one result meeting the regulated criteria was required to determine that a material is asbestos-containing, but all samples must be analyzed to conclusively determine that a material is non-asbestos. The laboratory stopped analyzing samples from a homogeneous material once a result equal to or greater than the regulated criteria is detected in any of the samples of that material. All samples of a homogeneous material were analyzed if no asbestos is detected. In some cases, all samples were analyzed in the sample set regardless of result.

The analysis was performed in accordance with Test Method EPA/600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials, July 1993.

Analytical results were compared to the following criteria:

Jurisdiction*	Friable	Non-Friable
Ontario	0.5%	0.5%

Where building materials are described in the report as “non-asbestos” or “does not contain asbestos”, this means that either no asbestos was detected by the analytical method utilized in any of the multiple samples or, if detected, it is below the lower limit of an asbestos-containing material in the applicable regulation. Additionally, these terms are used for materials which historically are known to not include asbestos in their manufacturing.

Asbestos materials were evaluated in order to make recommendations regarding any remedial work. The priority for remedial action was based on several factors:

- Friability (friable or non-friable)
- Condition (good, fair, poor, debris)
- Accessibility (ranking from accessible to all building users to inaccessible)
- Visibility (whether the material is obscured by other building components)
- Efficiency of the work (for example, if damaged ACM is being removed in an area, it may be most practical to remove all ACM in the area even if it is in good condition)

1.2 Lead

Samples of distinctive paint finishes, and surface coatings present in more than a limited application, where removal of the paint is possible were collected. The samples were collected by scraping the painted finish to include base and covering applications.

Analysis for lead in paints or surface coatings was performed in accordance with EPA Method No. 3050B/Method No. 7420; flame atomic absorption

Analytical results were compared to the following criteria.

Jurisdiction*	Units (%)	Units (ppm) / (mg/kg)
Ontario	0.009	90

Other lead building products (e.g. batteries, lead sheeting, flashing) were identified by visual observation only.

1.3 Silica

Building materials known to contain crystalline silica (e.g. concrete, cement, tile, brick, masonry, mortar) were identified by visual inspection only. Pinchin did not perform sampling of these materials for laboratory analysis of crystalline silica content.

1.4 Mercury

Building materials, products or equipment (e.g. thermostats, barometers, pressure gauges, lamp tubes), suspected to contain mercury were identified by visual inspection only. Dismantling of equipment suspected of containing mercury was not performed. Sampling of these materials for laboratory analysis of mercury content was not performed.

1.5 Polychlorinated Biphenyls

The potential for light ballast and oil filled transformers to contain PCBs was based on the age of the building, a review of maintenance records, and examination of labels or nameplates on equipment, where present and accessible. The information was compared to known ban dates of PCBs and Environment Canada publications.

Dry type transformers were presumed to be free of dielectric fluids and hence non-PCB.

Fluids (mineral oil, hydraulic, Aroclor or Askarel) in transformers or other equipment were not sampled for PCB content.

Sample results are compared to the criteria of 50 mg/kg for solids as stated in the PCB Regulation, SOR/2008-273.

1.6 Visible Mould

The presence of mould or water damage was determined by visual inspection of exposed building surfaces. If any mould growth or water damage was concealed within building cavities it was not addressed in this assessment.

Template: Methodology for Hazardous Building Materials Assessment, HAZ, November 13 2024

APPENDIX IV
Location Summary Report

Client: Town Of Hanover

Site: 341 10th Street, Hanover, ON

Building Name: Old Firehall

Survey Date:

Last Re-Assessment:

Building Phases: A: 1937

Location No.	Name or Description	Area ft ²	Floor No.	Bldg. Phase	Notes
1	Bay 1	1500	1	A	
2	Mezzanine 1	200	2	A	
3	Storage	100	1	A	
4	Kitchen	100	1	A	
5	Meeting Room	500	1	A	
6	Women's Washroom	50	1	A	
7	Mens Washroom	75	1	A	
8	Office	500	1	A	
9	Office	300	1	A	
10	Exit Corridor	250	1	A	Includes middle vestibule
11	Bay 2	2000	1	A	
12	Mezzanine 2	300	2	A	Above office
13	Mezzanine 3	300	2	A	Above washrooms
14	Hose Tower	100	1	A	
15	Exterior	0		A	
16	Roof	5700		A	

APPENDIX V

Hazardous Materials Summary Report / Sample Log

Client: Town Of Hanover

Site: 341 10th Street, Hanover, ON

Building Name: Old Firehall

Survey Date:

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	S0001 ABC	Structure All Mortar Masonry Block Mortar	1,2,11	A	0	3200	0	0	None Detected	No	
Asbestos	S0002 ABC	Structure Mortar Textured Masonry Block Mortar	1,2	A	0	1600	0	0	None Detected	No	
Asbestos	S0003 ABC	Other Caulking Grey Caulking On Floor Joints	1	A	40	0	0	0	None Detected	No	
Asbestos	S0004 ABC	Other Fireproofing (cementitious) Grey At Wall Penetration	1	A	0	10	0	0	None Detected	No	
Asbestos	S0005 ABCDEFG	Ceiling, Wall, Ceiling, Wall Drywall And Joint Compound	3,4,6,7,8,9	A	0	1925	0	0	None Detected	No	
Asbestos	S0006 ABC	Floor Vinyl Floor Tile And Mastic 12x12 Grey With Grey Fleck	4	A	0	0	0	0	None Detected	No	
Asbestos	S0007 ABC	Other Sink Mastic, Gold Sink Mastic	4	A	0	0	2	0	Chrysotile	Yes	NF
Asbestos	S0008 ABC	Floor Vinyl Floor Tile And Mastic 12x12 Biege Mottled	5,6	A	0	550	0	0	None Detected	No	
Asbestos	S0009 ABC	Floor Vinyl Floor Tile And Mastic 12x12 Biege With Brown Fleck	7	A	0	0	0	0	None Detected	No	
Asbestos	S0010 ABC	Wall Base Black Base	6	A	30	0	0	0	None Detected	No	
Asbestos	S0011 ABCDE	Wall Plaster Smooth	6,7,9	A	0	240	0	0	None Detected	No	
Asbestos	S0012 ABC	Floor Thin-set 1x1	7	A	0	30	0	0	None Detected	No	
Asbestos	S0013 ABC	Wall Thin-set 4x4	7	A	0	40	0	0	Chrysotile	Yes	PF
Asbestos	S0014 ABC	Floor Mastic Carpet Mastic	8,9	A	0	500	0	0	None Detected	No	
Asbestos	S0015 ABC	Wall Base Brown	8	A	40	0	0	0	None Detected	No	
Asbestos	S0016 ABC	Other Putty Black Butyl Sealant On Window Pane	8	A	20	0	0	0	None Detected	No	
Asbestos	S0017 ABC	Wall Cement Product Transite Panels	11	A	0	260	0	0	Chrysotile	Yes	NF
Asbestos	S0018 ABC	Structure Texture Coat Texture Coat	11	A	0	100	0	0	Chrysotile	Yes	F
Asbestos	S0019 ABC	Wall Paint Block Filler	11	A	0	1000	0	0	None Detected	No	
Asbestos	S0020 ABC	Ceiling Drywall And Joint Compound	12,13	A	0	600	0	0	None Detected	No	
Asbestos	S0021 ABC	Floor Epoxy Grey	11	A	0	2000	0	0	None Detected	No	
Asbestos	S0022 ABC	Other Caulking Biege Caulking On Window Frames	15	A	40	0	0	0	None Detected	No	
Asbestos	S0023 ABC	Structure Mortar Brick Mortar	15	A	0	0	0	0	None Detected	No	
Asbestos	S0024 ABC	Other Caulking Grey Caulking On Door Frames	15	A	60	0	0	0	None Detected	No	
Asbestos	S0025 ABC	Structure Roofing Material	16	A	0	100	0	0	None Detected	No	
Asbestos	S0026 ABC	Structure Roofing Material	16	A	0	5600	0	0	None Detected	No	
Asbestos	V9500	Duct Mastic, Black	16	A	12	0	0	0	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other Caulking Presumed Caulkings	16	A	0	0	0	100	Presumed Asbestos	Yes	NF

HAZMAT	Sample No	System/Component/Material/Sample Description	Locations	Bldg. Phase	LF	SF	EA	%	Type	Positive	Friability
Asbestos	V9500	Other Mastic Presumed Mastics	16	A	0	0	0	100	Presumed Asbestos	Yes	NF
Asbestos	V9500	Other Tar Presumed Tars.	16	A	0	0	0	100	Presumed Asbestos	Yes	NF
Asbestos	V0000	Ceiling Ceiling Tiles (lay-in)	5,8	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Ceiling All Metal	1,2	A	0	1700	0	0	Non Asbestos	No	
Asbestos	V0000	Duct All Not Insulated	1,5,16	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Floor All Concrete (poured)	1,3	A	0	1500	0	0	Non Asbestos	No	
Asbestos	V0000	Floor All Wood	2	A	0	200	0	0	Non Asbestos	No	
Asbestos	V0000	Piping Fibreglass	5	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Piping Fifth Not Insulated Pvc	1	A	0	0	0	0	Non Asbestos	No	
Asbestos	V0000	Structure All Concrete Block	1	A	0	3000	0	0	Non Asbestos	No	
Asbestos	V0000	Wall All Wood	1,3,4,5,8	A	0	0	0	0	Non Asbestos	No	
Paint	L0001	Floor Concrete (poured) Grey Paint On Concrete Floor	1	A	0	1500	0	0		No	-
Paint	L0002	Structure Masonry Grey On Masonry	1	A	0	1500	0	0		No	-
Paint	L0003	Structure Masonry White Paint On Masonry	1	A	0	1500	0	0		No	-
Paint	L0004	Ceiling Metal White	2	A	0	200	0	0		No	-
Paint	L0005	Ceiling Drywall And Joint Compound Light Grey	3	A	0	100	0	0		No	-
Paint	L0006	Wall Drywall And Joint Compound Beige	4	A	0	400	0	0		No	-
Paint	L0007	Ceiling Drywall And Joint Compound Purple	9	A	0	640	0	0		No	-
Paint	L0008	Structure Masonry Brown	11	A	0	1000	0	0	Lead (Low)	Yes	-
PCB	P0001	Caulking Grey Caulking On Floor	1	A	40	0	0	0	-	No	-
PCB	P0002	Caulking Grey Caulking On Door Frames	15	A	60	0	0	0	-	No	-
PCB	V9500	Light Ballasts	2	A	0	0	12	0	Presumed PCB	Yes	-
Hg	V9500	Light Fixture	2	A	0	0	48	0	Presumed Hg	Yes	-
Hg	V9500	Thermostat	2	A	0	0	1	0	Presumed Hg	Yes	-

Legend:

Sample number		Units		
S####	Asbestos sample collected	SF	Square feet	NF Non Friable material.
L####	Paint sample collected	LF	Linear feet	F Friable material
P####	PCB sample collected	EA	Each	PF Potentially Friable material
M####	Mould sample collected	%	Percentage	
V####	Material visually similar to numbered sample collected			
V0000	Known non Hazardous Material			
V9000	Material is visually identified as Hazardous Material			
V9500	Material is presumed to be Hazardous Material			
[Loc. No.]	Abated Material			

APPENDIX VI
HMIS All Data Report

ALL DATA REPORT

Client: Town Of Hanover
Location: #1 : Bay 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 1500

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling ¹	All	Metal			C	Y		1500			SF	V0000	Non-Asbestos		None	
Duct	All	Not Insulated										V0000	Non-Asbestos		None	
Floor	All	Concrete (poured)			A	Y		1500			SF	V0000	Non-Asbestos		None	
Mechanical Equipment	Heating Ventilating Air Conditioning Unit	Not Insulated			B	Y		2			EA					
Other		Fireproofing (Cementitious), Grey at wall penetration			B	Y		10			SF	S0004ABC	None Detected	N.D.	None	
Other		Caulking, Grey caulking on floor joints			A	Y		40			LF	S0003ABC	None Detected	N.D.	None	
Piping	Fifth	Not Insulated, Pvc										V0000	Non-Asbestos		None	
Structure		Mortar, Masonry block mortar		Concrete Block	A	Y		1500			SF	S0001AB	None Detected	N.D.	None	
Structure		Mortar, Textured masonry block mortar		Concrete Block	A	Y		1500			SF	S0002ABC	None Detected	N.D.	None	
Structure	All	Concrete Block			A	Y		3000			SF	V0000	Non-Asbestos		None	
Wall	All	Wood			A	Y		300				V0000	Non-Asbestos		None	

1 - Deck

Client: Town Of Hanover
Location: #1 : Bay 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 1500

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Wall								No
Floor	Concrete (poured)	1500		SF	L0001	Grey paint on concrete floor	Pb: 0.00088 %	No
Structure	Masonry	1500		SF	L0002	Grey on masonry	Pb: 0.0010 %	No
Structure	Masonry	1500		SF	L0003	White paint on masonry	Pb: 0.00095 %	No

Client: Town Of Hanover
Location: #1 : Bay 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 1500

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture				

Client: Town Of Hanover
Location: #1 : Bay 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 1500

PCB							
Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Light Ballasts							No
Caulking	40		LF	P0001	Grey caulking on floor	0.2 mg/kg	No

ALL DATA REPORT

Client: Town Of Hanover
Location: #2 : Mezzanine 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 200

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling	All	Metal			C	Y		200			SF	V0000	Non-Asbestos		None	
Duct	All															
Floor	All	Wood			A	Y		200			SF	V0000	Non-Asbestos		None	
Mechanical Equipment	All	None Found														
Piping	All															
Structure		Mortar			A	Y		100			SF	V0002	None Detected	N.D.	None	
Structure	All	Mortar			C	N		200			SF	V0001	None Detected	N.D.	None	

Client: Town Of Hanover
Location: #2 : Mezzanine 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 200

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall								No	
Ceiling	Metal	200		SF	L0004	White	Pb: <0.00061 %	No	

Client: Town Of Hanover
Location: #2 : Mezzanine 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 200

MERCURY				
Component	Quantity	Unit	Sample	Hazard
Light Fixture				
Thermostat	1	EA	V9500	Presumed
Light Fixture	48	EA	V9500	Presumed

Client: Town Of Hanover
Location: #2 : Mezzanine 1
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 200

PCB						
Component	Good	Poor	Unit	Sample	Sample Description	Amount
Light Ballasts						No
Light Ballasts	12		EA	V9500		Presumed

ALL DATA REPORT

Client: Town Of Hanover
Location: #3 : Storage
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 100

ASBESTOS															
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard
Ceiling		Drywall and joint compound						100			SF	V0005	None Detected	N.D.	None
Floor		Concrete (poured)			A	Y					SF	V0000	Non-Asbestos		None
Wall		Wood										V0000	Non-Asbestos		None
Wall		Drywall and joint compound			A	Y		300			SF	S0005A	None Detected	N.D.	None

Client: Town Of Hanover
Location: #3 : Storage
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 100

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Floor	Concrete (poured)			SF	V			No	
Ceiling	Drywall and joint compound	100		SF	L0005	Light grey	Pb: <0.0015 %	No	

ALL DATA REPORT

Client: Town Of Hanover
Location: #4 : Kitchen
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 100

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			A	Y		100			SF	S0005C	None Detected	N.D.	None	
Floor		Vinyl Floor Tile and Mastic, 12x12 grey with grey fleck		Concrete (poured)	A	Y		100				S0006ABC	None Detected	N.D.	None	
Other	Sink	Mastic, Gold, Sink mastic						2(7)			EA	S0007ABC	Chrysotile	0.5-5%	Confirmed Asbestos	NF
Wall		Wood										V0000	Non-Asbestos		None	
Wall		Drywall and joint compound			A	Y		300			SF	S0005B	None Detected	N.D.	None	
Wall ¹	Base											V0000	Non-Asbestos		None	

1 - Rubber baseboard with silicone

Client: Town Of Hanover
Location: #4 : Kitchen
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 100

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Wall	Drywall and joint compound	300		SF	L0006	Beige	Pb: 0.00036 %	No	
Ceiling	Drywall and joint compound	100		SF	V0006	Beige	Pb: 0.00036 %	No	

ALL DATA REPORT

Client: Town Of Hanover
Location: #5 : Meeting Room
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 500

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling ¹		Ceiling Tiles (lay-in)										V0000	Non-Asbestos		None	
Duct		Not Insulated										V0000	Non-Asbestos		None	
Floor		Vinyl Floor Tile and Mastic			A	Y		500			SF	V0008	None Detected	N.D.	None	
Piping		Fibreglass										V0000	Non-Asbestos		None	
Wall		Wood		Concrete Block								V0000	Non-Asbestos		None	
Wall	Base											V0000	Non-Asbestos		None	

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ALL DATA REPORT

Client: Town Of Hanover
Location: #6 : Women's Washroom
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 50

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound						50			SF	V0005	None Detected	N.D.	None	
Floor		Vinyl Floor Tile and Mastic, 12x12 biege mottled			A	Y		50			SF	S0008ABC	None Detected	N.D.	None	
Wall		Plaster, Smooth			A	Y		100			SF	S0011AB	None Detected	N.D.	None	
Wall	Base	Black base			A	Y		30			LF	S0010ABC	None Detected	N.D.	None	

Client: Town Of Hanover
Location: #7 : Mens Washroom
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 75

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			A	Y		75			SF	S0005E	None Detected	N.D.	None	
Floor		Vinyl Floor Tile and Mastic, 12x12 biege with brown fleck			A	Y					SF	S0009ABC	None Detected	N.D.	None	
Floor		Thin-set, 1x1			B	Y		30			SF	S0012ABC	None Detected	N.D.	None	
Wall		Drywall and joint compound						75				S0005D	None Detected	N.D.	None	
Wall		Plaster			A	Y		100			SF	S0011C	None Detected	N.D.	None	
Wall		Thin-set, 4x4			B	Y		40(7)			SF	S0013ABC	Chrysotile	0.5-5%	Confirmed Asbestos	PF
Wall ¹	Base											V0000	Non-Asbestos		None	

1 - Rubber and silicone

ALL DATA REPORT

Client: Town Of Hanover
Location: #8 : Office
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 500

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling ¹		Ceiling Tiles (lay-in)										V0000	Non-Asbestos		None	
Floor		Mastic, Carpet mastic		Carpet	A	Y		200			SF	S0014ABC	None Detected	N.D.	None	
Other ²		Putty, Black butyl sealant on window pane			A	Y		20			LF	S0016ABC	None Detected	N.D.	None	
Wall		Wood										V0000	Non-Asbestos		None	
Wall ³		Drywall and joint compound			A	Y		500			SF	S0005F	None Detected	N.D.	None	
Wall ⁴	Base	Brown			A	Y		40			LF	S0015ABC	None Detected	N.D.	None	

- 1 - 1996
2 - At rear door
3 - At door
4 - 2 outside corner walls

Client: Town Of Hanover
Location: #9 : Office
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 300

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			A	Y		300			SF	S0005G	None Detected	N.D.	None	
Floor		Mastic		Carpet				300			SF	V0014	None Detected	N.D.	None	
Wall		Drywall and joint compound			A	Y		200			SF	V0005	None Detected	N.D.	None	
Wall		Plaster			A	Y		40			SF	S0011DE	None Detected	N.D.	None	

Client: Town Of Hanover
Location: #9 : Office
Survey Date: 2025-01-27

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 300

PAINT									
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard	
Ceiling	Drywall and joint compound	300		SF	L0007	Purple	Pb: <0.00032 %	No	
Wall	Drywall and joint compound	300		SF	V0007	Purple	Pb: <0.00032 %	No	
Wall	Plaster	40		SF	V0007	Purple	Pb: <0.00032 %	No	

ALL DATA REPORT

Client: Town Of Hanover
Location: #11 : Bay 2
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 2000

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Floor		Epoxy, Grey		Concrete (poured)	A	Y		2000			SF	S0021ABC	None Detected	N.D.	None	
Structure ¹		Texture Coat, Texture coat			A	Y		100(5)			SF	S0018ABC	Chrysotile	0.5-5%	Confirmed Asbestos	F
Structure		Concrete Block			A	Y		1500			SF	S0001C	None Detected	N.D.	None	
Wall ²		Cement Product, Transite panels			B	Y		260(7)			SF	S0017ABC	Chrysotile	10-25%	Confirmed Asbestos	NF
Wall		Paint, Block filler						1000			SF	S0019ABC	None Detected	N.D.	None	

1 - On ends of exposed block

2 - Top half of wall at mezzanine 3

Client: Town Of Hanover
Location: #11 : Bay 2
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor: 1

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 2000

PAINT								
System	Item	Good	Poor	Unit	Sample	Sample Description	Amount	Hazard
Structure ¹	Masonry	1000		SF	L0008	Brown	Pb: 0.029 %	Lead (Low)

1 - Concealed under Grey

ALL DATA REPORT

Client: Town Of Hanover
Location: #12 : Mezzanine 2
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 300

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			B	Y		300			SF	S0020AB	None Detected	N.D.	None	

Above office

Client: Town Of Hanover
Location: #13 : Mezzanine 3
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor: 2

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 300

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Ceiling		Drywall and joint compound			B	Y		300			SF	S0020C	None Detected	N.D.	None	

Above washrooms

ALL DATA REPORT

Client: Town Of Hanover
Location: #15 : Exterior
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor:

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 0

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Other		Caulking, Grey caulking on door frames			A	Y		60			LF	S0024ABC	None Detected	N.D.	None	
Other ¹		Caulking, Biege caulking on window frames			A	Y		40			LF	S0022ABC	None Detected	N.D.	None	
Structure		Mortar, Brick mortar		Masonry	A	Y		1000				S0023ABC	None Detected	N.D.	None	

1 - 1996

Client: Town Of Hanover
Location: #15 : Exterior
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor:

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 0

PCB							
Component	Good	Poor	Unit	Sample	Sample Description	Amount	PCB
Caulking ¹	60		LF	P0002	Grey caulking on door frames	<0.6 mg/kg	No

1 - 3 doors, front, side and rear

ALL DATA REPORT

Client: Town Of Hanover
Location: #16 : Roof
Survey Date: 2025-01-28

Site: 341 10th Street, Hanover, ON
Floor:

Building Name: Old Firehall
Room #:
Last Re-Assessment: 0000-00-00

Area (sqft): 5700

ASBESTOS																
System	Component	Material	Item	Covering	A*	V*	AP*	Good	Fair	Poor	Unit	Sample	Asbestos Type	Amount	Hazard	Friable
Duct ¹		Mastic, Black			C	Y		12(7)			LF	V9500	Presumed Asbestos		Presumed Asbestos	NF
Duct		Not Insulated										V0000	Non-Asbestos		None	
Other ²		Tar, Presumed tars.			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other ³		Caulking, Presumed caulking			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	NF
Other ⁴		Mastic, Presumed mastics			D	N		100(7)			%	V9500	Presumed Asbestos		Presumed Asbestos	NF
Structure ⁵		Roofing material			C	N		100			SF	S0025ABC	None Detected	N.D.	None	
Structure ⁶		Roofing material			B	N		5600			SF	S0026ABC	None Detected	N.D.	None	

1 - Presumed due to access restraints, at roofs edge.

2 - concealed under ice.

3 - concealed under ice.

4 - concealed under ice.

5 - On upper tower roof

6 - Main roof. covered in ice and snow. Presumed caulking, mastics, tars concealed under ice.

Legend:

Sample number		Units		Other	
S####	Asbestos sample collected	SF	Square feet	A	Access
L####	Paint sample collected	LF	Linear feet	V	Visible
P####	PCB sample collected	EA	Each	AP	Air Plenum
M####	Mould sample collected	%	Percentage	F	Friable material
V####	Material is visually identified to be identical to S####	LF	Linear feet	NF	Non Friable material
V0000	Known non hazardous material			PF	Potentially Friable material
V9000	Material visually identified as a Hazardous Material			Pb	Lead
V9500	Material is presumed to be a hazardous material			Hg	Mercury
				As	Arsenic
				Cr	Chromium

Access	
A	Accessible to all building occupants
B	Accessible to maintenance and operations staff without a ladder
C	Accessible to maintenance and operations staff with a ladder. Also rarely entered, locked areas
D	Not normally accessible

Condition	
Good	No visible damage or deterioration
Fair	Minor, repairable damage, cracking, delamination or deterioration
Poor	Irreparable damage or deterioration with exposed and missing material

Visible	
Y	The material is visible when standing on the floor of the room, without the removal or opening of other building components (e.g. ceiling tiles or access panels).
N	The material is not visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceilings tiles or access panels) to view and access. Includes rarely entered crawlspaces, attic spaces, etc. Observations will be limited to the extent visible from the access points.
L	The material is partially visible to view when standing on the floor of the room and requires the removal of a building component (e.g. ceiling system or access panels) to view completely and access. Includes partially viewed access points to crawlspaces, attic spaces, etc. without entering. Observations are limited to the extent visible from the access points.

Air Plenum	
Yes or No	The material is in a return air plenum or in a direct airstream or there is evidence of air erosion (e.g. duct for heating or cooling blowing directly on or across an ACM). This field is only completed where Air Plenum consideration is required by regulation.

Colour Coding	
	The material is a hazardous material, either by analytical results or by visible identification.
	The material is presumed to be a hazardous material, based on visual appearance, and was not sampled due to limited access or the non-destructive nature of sampling.

Action					
(1)	Clean up of ACM Debris	(2)	Precautions for Access Which may Disturb ACM Debris	(3)	ACM removal
(4)	Precautions for Work Which may Disturb ACM in Poor Condition	(5)	Proactive ACM removal (Minimum repair required for fair condition)	(6)	ACM repair

(7) Management program and surveillance

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Related work specified elsewhere:
 - Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures
 - Section 02 82 00.03 Asbestos Abatement – Type 3 Procedures
 - Section 02 83 10 Lead Abatement – Class 1 Procedures
 - Section 02 84 00 Non-Liquid Polychlorinated Biphenyl Abatement
 - Section 02 84 16 Mercury Abatement
- .3 Site Conditions identifies all known hazardous building materials within the Project Area. The information provided is for general reference only. Contractors must confirm existing conditions on site prior to tender close.
 - .1 The specification fulfils the requirements of Section 30 of the Ontario Occupational Health and Safety Act.
 - .2 The specification fulfils the requirements of the Section 10 of Ontario Regulation 278/05.
- .4 The Outline of Work identifies the estimated location of hazardous building materials to be removed as part of this project.
 - .1 It is the intent that work prescribed this Section will result in the removal of all hazardous materials as outlined and the decontamination of all surfaces or materials which may have been or become contaminated by hazardous materials either during or prior to work of this Contract.

1.2 Site Conditions

- .1 Refer to the report entitled “*Hazardous Building Materials Assessment (Pre-Construction), Former Fire Hall, 341 10th Street, Hanover, Ontario*”, dated February 13, 2025, prepared by Pinchin Ltd., file number 352142.000 and the Hazardous Materials Bulk Letter Report entitled “*Hazardous Materials Test Letter, Old Fire Hall, 341 10th Street, Hanover, Ontario*” dated April 24, 2026, prepared by Pinchin Ltd. File number 352142.001.
- .2 Refer to Drawing 1 for the locations of identified hazardous materials and the locations of the various abatement work areas.

.3 Asbestos:

.1 The following materials have been confirmed to contain asbestos:

- .1 Texture coat, containing chrysotile asbestos, is present as follows:
 - .1 On masonry block columns in Bay 2 (Location 11).
- .2 Asbestos Cement board (Transite), containing chrysotile asbestos is present as follows:
 - .1 Wall finish in Bay (Location 11).
- .3 Gold antisweat mastic on the underside of sinks, containing chrysotile, is present in the following areas:
 - .1 Kitchen (Location 4).
- .4 Thin-set behind 4" x 4" ceramic wall tiles, containing chrysotile asbestos, is present in the following locations:
 - .1 Men's Washroom Shower (Location 7)

.2 The following materials have been confirmed to not contain asbestos, based on sampling or material composition:

- .1 Plaster finishes (finish and base coat)
- .2 Drywall with joint compound finishes.
- .3 Pipe insulations (fibreglass)
- .4 Duct insulations (fibreglass)
- .5 24" x 48" lay-in acoustic ceiling tiles
- .6 12" x 12" vinyl floor tiles and associated mastic
- .7 Vinyl baseboards and associated mastic
- .8 Fire stopping
- .9 Tar
- .10 Caulking
- .11 Butyl sealant
- .12 Built-up roofing systems
- .13 Masonry (block and brick) mortar
- .14 Thin-set under 1" x 1" ceramic floor tiles
- .15 Carpet mastic
- .16 Block filler paint
- .17 Floor epoxy

.4 Lead:

.1 The following paint finishes have been confirmed to contain elevated concentrations of lead:

- .1 Dark yellow paint on metal piping on roof

.2 The following paint finishes have been confirmed to contain low concentrations of lead:

- .1 Brown paint on masonry block walls
- .2 Yellow paint on metal piping on roof

- .3 The following paint finishes have been confirmed to contain insignificant concentrations of lead:
 - .1 Grey paint on concrete floor
 - .2 Grey paint on masonry block walls
 - .3 White paint on masonry block walls
 - .4 White paint on structural steel
 - .5 Light grey paint on drywall walls
 - .6 Beige paint on drywall walls
 - .7 Purple paint on drywall walls
- .4 The following building materials are presumed, or have been confirmed, to contain lead:
 - .1 Batteries in emergency lighting and fire control panels
 - .2 Electrical components, including wiring connectors, conductors and solder.
 - .3 Solder on pipe connections
 - .4 Glazing on ceramic tiles
- .5 Mercury:
 - .1 The following building materials are presumed, or have been confirmed, to contain mercury:
 - .1 Vapour present in fluorescent lamp tubes
 - .2 Thermostat ampules
- .6 Silica:
 - .1 The following building materials are presumed, or have been confirmed, to contain silica:
 - .1 Concrete
 - .2 Masonry and mortar
 - .3 Ceramic tiles and grout
 - .4 plaster
- .7 Polychlorinated Biphenyls:
 - .1 The following building materials are presumed, or have been confirmed, to contain PCBs:
 - .1 Oil filled light ballasts
- .8 Remaining designated substances including arsenic, acrylonitrile, benzene, coke oven emissions, ethylene oxide, isocyanates, vinyl chloride monomer, are not typically found in building materials in a composition/state that is hazardous and are not presumed to be present within the Work Areas.
- .9 General Building Conditions:
 - .1 Heat and smoke detectors to remain live throughout work.
 - .2 Sprinklers to remain live throughout work.

- .3 Fire detection and suppression systems in the Work Area are to be disabled and Contractor is responsible to provide fire watch when workers are not present in the Abatement Work Area.
- .4 Steam and condensate pipes to remain live throughout work.

1.3 Outline of Work

- .1 Coordinate the following items with the Owner's Project Manager and the Construction Manager, including but not limited to electrical isolations, GFI connection, water connections, HVAC and exhaust ventilation system isolation, bin placement, schedule, disconnects, etc.
- .2 Refer to the attached Drawing for the extent of the Abatement Work Area(s).
- .3 Remove and dispose of the following materials as clean waste prior to hazardous materials abatement work without disturbing asbestos-containing materials:
 - .1 Plumbing fixtures.
- .4 It is up to the Abatement Contractor to collect samples of the waste streams, prior to removal from site, and submit to a qualified laboratory to conduct a Toxicity Characteristic Leachate Procedure (TCLP) analysis to determine leachable parameters in the lead waste prior to transportation and disposal.
- .5 Using procedures prescribed in the Sections identified in Related Work, remove and dispose of the following:
 - .1 Asbestos-containing texture coat in the following locations:
 - .1 Bay 2 (Location 11)
 - .2 Asbestos-containing Cement (Transite) wall panels in the following locations:
 - .1 Bay 2 (Location 11)
 - .3 Asbestos-containing Thin-set under 4" x 4" ceramic wall tiles in the following locations:
 - .1 Men's Washroom Shower (Location 7)
 - .4 Asbestos-containing antisweat mastic on sink in the following locations:
 - .1 Kitchen (Location 4)
 - .5 Demolition of walls, with lead-containing finishes present in the following Locations:
 - .1 Bay 2 (Location 11)
 - .6 Lead-containing batteries present in emergency lighting throughout the building
- .6 Visit the site prior to tender close to confirm the location and extent of any hazardous building materials or materials contaminated by hazardous materials.
- .7 Protect surfaces, building fabrics and items remaining within the Abatement Work Area.

- .8 Without disturbing hazardous materials, perform removals where required, prior to abatement work.
 - .1 Maximize waste diversion by use of resale of building materials, or recycling.
- .9 Isolate the Abatement Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.
- .10 Maintain emergency and fire exits from Abatement Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction. Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit doors so as not to impede use of door during emergency evacuation.
- .11 Remove and dispose of as appropriate waste, building components, materials and items contaminated by hazardous materials that cannot be effectively cleaned.
- .12 Encapsulation will not be permitted where removal of building materials or structures scheduled for demolition will facilitate access to the asbestos materials in question.
- .13 Final clean work area to remove visible signs of asbestos-containing materials and other hazardous materials, other debris or settled dust.
- .14 Apply lock-down agent to exposed surfaces throughout the work area and to surfaces from which any hazardous materials have been removed.
- .15 Unless otherwise specified, the handling, removal, of hazardous materials or surfaces contaminated with hazardous materials is to be performed following wet removal techniques.

1.4 Schedule

- .1 Provide necessary manpower, supervision, equipment and materials to maintain and complete the project on schedule.
- .2 Work Hours:
 - .1 Normal Work Hours: 08:00 through 17:00 (Mon. - Fri.).
 - .2 Quiet Hours: As directed by Abatement Consultant.
 - .3 Duration for which HVAC systems may remain shutdown to accommodate quiet hours work will vary in accordance with outside weather conditions and internal demand. Duration of quiet hours work will have to be scheduled accordingly and in consultation with the Abatement Consultant and Owner.
- .3 Provide 48 hours written notice to the Abatement Consultant of any request to work outside normal working hours. Obtain written approval before proceeding.

1.5 Definitions

- .1 Abatement Consultant: Owner's Representative providing inspection and air monitoring.
- .2 Abatement Contractor: Contractor or sub-contractor performing work of this section.
- .3 Abatement Work Area: Area where work takes place which will, or may, disturb hazardous materials.
- .4 Amended Water: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of materials.
- .5 Asbestos: Any of the fibrous silicates defined in Regulation 278/05 including: actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite.
- .6 Asbestos-Containing Material (ACM): Material identified under Site Conditions including any debris, overspray, fallen material and settled dust.
- .7 Authorized Visitors: Building Owner, Abatement Consultant, or designated representative, and persons representing regulatory agencies.
- .8 Competent Worker: A worker who is qualified because of knowledge, training and experience to perform the work, is familiar with Regulation 278/05 and the Occupational Health and Safety Act and has knowledge of the potential or actual danger to health and safety in the work.
- .9 Contaminated Waste: Material identified under Site Conditions, including fallen material, settled dust, other debris and materials or equipment deemed to be contaminated by the Abatement Consultant.
- .10 Curtained Doorway: Doorway consisting of two (2) overlapping flaps of rip-proof polyethylene arranged to permit ingress and egress from one room to another while permitting minimal air movement between rooms.
- .11 DOP Test: A testing method used to determine the integrity of the Negative Pressure unit or vacuum. Refer to the Environmental Abatement Council of Canada (EACC) Performance Leak Testing Guideline for HEPA Filtered Equipment or ANSI/ASME N510-2007.
- .12 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.
- .13 Friable Material: Material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .14 HEPA: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

- .15 Lead-Containing: The Ontario Ministry of Labour (MOL) has not established a lower limit for concentrations of lead in paint, below which precautions do not need to be considered during construction projects. Pinchin follows the recommendations of the Environmental Abatement Council of Canada (EACC) Lead Guideline for Construction, Renovation, Maintenance or Repair. The Guideline suggests that 0.1% (1,000 ppm) lead in paint represents a de minimis concentration of lead in paint for construction hygiene purposes, that is a concentration below which the lead content is not the limiting hazard in any disturbance of leaded paint for non-aggressive disturbance of painted finishes, (hand powered demolition, chipping, scraping, light sanding, etc.).
- .16 Lead Waste: Waste generated from removal of lead-containing materials, or the substrate and paint finish where left intact.
- .17 Mercury Waste: Equipment, materials or items containing mercury or contaminated with mercury.
- .18 Milestone Site Review: Inspection of the Abatement Work Area at a defined point in the abatement operation.
- .19 Negative Pressure: A reduced pressure within the Abatement Work Area (e.g., > 0.02 inches of water column) established by extracting air directly from Abatement Work Area and discharging it to exterior of building.
- .20 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .21 Occupied Area: Any area of the building or adjoining space outside the Abatement Work Area.
- .22 Personnel: All Contractor's employees, sub-contractor's employees, supervisors.
- .23 PCBs: Monochlorinated or Polychlorinated Biphenyls (or any mixture of both).
- .24 PCB Material: means solid material containing PCBs at a concentration of more than fifty milligrams per kilogram (mg/kg) or 50 parts per million (ppm), or liquid with greater than 2 mg/kg or ppm.
- .25 PCB Waste: PCB Equipment, PCB Material, PCB Liquids and materials or items contaminated with PCBs.
- .26 PCM: Phase Contrast Microscopy.
- .27 Remove: Remove means remove and dispose of (as applicable type of waste) unless followed by other instruction (e.g. remove and turn over to Owner).
- .28 Toxicity Characteristic Leachate Procedure (TCLP): Laboratory analysis to determine leachable parameters in lead waste.
- .29 TEM: Transmission Electron Microscopy.

1.6 Regulations and Guidelines

- .1 Comply with Federal, Provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications, the more stringent requirements shall apply. Work shall be performed under regulations in effect at the time work is performed.
- .2 Regulations and Guidelines include but are not limited to the following:
 - .1 Ministry of Labour Occupational Health and Safety Act Regulations for Construction Projects including Revised Statutes of Ontario 1990, Chapter 0.1 and Ontario Regulation 278/05.
 - .2 Ministry of the Environment Regulation for the disposal of waste, including R.R.O. 1990, Reg. 347 as amended.
 - .3 PCB Regulations, SOR 2008-273 and R.R.O. 1990, Reg 362.
 - .4 Regulation 490/09 Designated Substances.
 - .5 Environmental Abatement Council of Canada (EACC), Lead Guideline For Construction, Renovation, Maintenance or Repair, January 2025.
 - .6 Ministry of Labour, Guideline, Silica on Construction Projects, 2011.

1.7 Quality Assurance

- .1 Removal and handling of hazardous materials is to be performed by persons trained in the methods, procedures and industry practices for Abatement.
- .2 Ensure work proceeds to schedule, meeting all requirements of this Specification.
- .3 Complete work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Abatement Work Area.
- .4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Abatement Work Area at no cost to the Owner.
- .5 All work involving electrical, mechanical, carpentry, glazing, etc., shall be performed by licensed persons experienced and qualified for the work required.

1.8 Supervision

- .1 Provide on site, an Overall Superintendent(s), who has authority to oversee all aspects of the work, including but not limited to, estimating and negotiation of changes to the contract, update of submission requirements, scheduling, manpower and equipment requirements, and direct communication and co-ordination with Abatement Consultant and Owner's representative.
- .2 Provide on site, in addition to the Overall Superintendent(s), and for each work shift, a Shift Superintendent, who has authority regarding all aspects related to manpower, equipment and production.

- .3 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2-day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of comparable size and complexity.
- .4 At all times during work, the Overall or Shift Superintendent(s) must be on site. Failure to comply with this requirement will result in a stoppage of all work, at no cost to the Owner.
- .5 Replace supervisory personnel, with approved replacements, within three (3) working days of a written request from the Owner. Owner reserves the right to request replacement of supervisory personnel without explanation.
- .6 Do not replace supervisory personnel without written approval from the Owner.

1.9 Instruction and Training

- .1 Instruction and training must be provided by a competent person.
- .2 All workers completing Type 1, 2 or 3 asbestos abatement must be trained in compliance with Section 19 of O.Reg. 278/05.
 - .1 For Type 3 asbestos abatement, workers and supervisors must be trained and certified per Section 20 of O.Reg. 278/05.

1.10 Notification

- .1 Before commencing work, notify orally and in writing, an inspector at the office of the Ontario Ministry of Labour nearest the project site, where required.
- .2 Inform all trades on site of the presence and location of hazardous materials identified in the Contract documents.
- .3 Notify the Owner or Owner's Representative, the Joint Occupational Health and Safety Committee and the Provincial Ministry of Labour, if suspected asbestos-containing materials not identified in the contract documents are discovered during the course of the work. Stop work in these areas immediately.
- .4 Notify Sanitary Landfill site as per O.Reg. 347/90 as amended.

1.11 Submittals

- .1 Submit prior to starting work:
 - .1 Provincial Workers' Compensation Board Clearance Certificate.
 - .2 Insurance certificates.
 - .3 Copy of Company Health and Safety Policy and applicable programs.
 - .4 Ministry of Labour Notice of Project and/or Notice of Asbestos Removal form.

- .5 Copy of Certificate of Approval for disposal of hazardous materials waste and location of landfill.
- .6 Pre-removal damage survey of the Abatement Work Area(s), waste transport routes, and bin storage areas
- .2 Submit the following information regarding personnel prior to starting work:
 - .1 Proof in the form of a certificate that supervisory personnel have been certified as supervisors under the Ministry of Training, Colleges and Universities course 253S.
 - .2 Proof in the form of a certificate that workers have been certified under the Ministry of Training, Colleges and Universities course 253W.
 - .3 Written statement that personnel have had instruction on hazards of exposure to hazardous materials identified within this scope, the use of respirator, protective clothing, worker and waste decontamination procedures, and all aspects of work procedures and protective measures.
 - .4 WHMIS training certificates for all personnel.
 - .5 Certificate proving that each worker on site has been fit tested for the respirator appropriate for the work being performed.
 - .6 Proof of training for the following site-specific hazards or conditions identified:
 - .1 Working at Heights
 - .2 Elevated Work Platform.
- .3 Submit the following information regarding HEPA filtered devices prior to construction of enclosure or asbestos abatement:
 - .1 Performance data on HEPA filtered vacuums including DOP tests no more than 3 months old.
 - .2 Performance data on negative air units including DOP tests which must be no more than 3 months old if the unit is vented outdoors or which must be performed on site immediately prior to initial usage and when HEPA filters are changed if the unit is vented indoors.
 - .3 DOP tests to be performed by an independent testing company.
 - .1 DOP testing company is required to submit a detailed technical report of testing protocol, including Introduction, Methodology, Results, Conclusions, and Recommendations, including results of the Air-Aerosol Mixing Uniformity test as per ASME N510-2007.
 - .2 DOP testing company must also provide calibration certificates from an independent calibration firm or from the manufacturer of the testing equipment for both the aerosol photometer and the pressure gauge on the aerosol generator dated within 1 calendar year from the on-site testing date.

- .3 DOP testing company must also provide the National Sanitation Foundation (NSF) certification name and number of the on-site technician performing the testing.
- .4 Proof of calibration of DOP testing equipment.
- .4 Submit the following prior to isolating the work area:
 - .1 Safety Data Sheets for chemicals or material used in the course of the Abatement Project.
- .5 Submit the following upon completion of the work.
 - .1 Manifests, waybills, bills of lading etc. as applicable for each type of waste.

1.12 Insurance

- .1 Maintain a Commercial General Liability Policy with an insurance company acceptable to Pinchin Ltd. And The Town of Hanover. The intent of this policy is to hold Pinchin Ltd. And The Town of Hanover harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Commercial General Liability insurance shall be provided on an “occurrence” basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period.
- .2 Maintain an Automobile or Fleet Policy, and Non-owned Automobile Policy with an insurance company acceptable to Pinchin Ltd. And The Town of Hanover. The intent of these policies is to hold Pinchin Ltd. And The Town of Hanover harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract.
- .3 Maintain a Pollution Liability Policy (or asbestos/lead liability policy or specific coverage under the CGL for asbestos/lead abatement) with an insurance company acceptable to Pinchin Ltd. And The Town of Hanover. The intent of this policy is to hold Pinchin Ltd. And The Town of Hanover harmless as it relates to claims for Bodily Injury or Property Damage or both, relating to the contract. Pollution Liability shall be provided on an “occurrence” basis to cover injury or damage (whether detected or not during the policy period) which happens during the policy period. Without limiting the generality of the foregoing, the policy shall insure the operations of abatement and shall not contain any environmental and/or health hazard exclusions relating to remediation operations.
- .4 Forward all certificates to Pinchin Ltd. And The Town of Hanover before work is commenced, showing Pinchin Ltd. And The Town of Hanover as additional insured as their interest may appear.
- .5 Pinchin Ltd. And The Town of Hanover may request a certified true copy of the policies.
- .6 The limits will not be less than:
 - .1 Commercial General Liability \$5,000,000.00
 - .2 Automobile \$2,000,000.00

.3 Pollution Policy \$5,000,000.00

1.13 Site Reviews

- .1 From commencement of work until completion of clean-up operations, the Abatement Consultant is empowered by the Owner to review for compliance with the requirements of governing authorities, adherence to specified procedures and materials, and to review for final cleanliness and completion.
- .2 The Abatement Consultant is empowered by the Owner to order a shutdown of work when leakage of hazardous materials from the controlled work area has occurred or is likely to occur.
- .3 Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of work, at no cost to the Owner.
- .4 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.
- .5 Site Reviews and air monitoring performed as a result of Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back charged to the Contractor.
- .6 Facilitate site reviews and provide access as necessary. Make good work disturbed by site reviews and testing at no cost to the Owner.
- .7 Refer to the Sections identified in Related Work for specified milestone site reviews which are to take place at defined points throughout the abatement operation specific to each phase or work area.
- .8 Provide 24 hours written notice to the Abatement Consultant of any request for scheduling of milestone site reviews.
- .9 The following Milestone Site Reviews may take place, at the Owner's cost, as outlined in each related specification section:
 - .1 Milestone Site Review - Clean Site Preparation
 - .1 Review of preparations and set-up prior to contaminated work in the Abatement Work Area.
 - .2 Milestone Site Review - Visual Clearance
 - .1 Review of Abatement Work Area after completion of all abatement, but prior to application of lock-down agents or dismantling of enclosure.
 - .3 Milestone Site Review – Clearance Sampling
 - .1 Air monitoring performed following removal of asbestos and application of slow drying sealer to ensure fibre levels inside the Abatement Work Areas are within the acceptable limits.

- .10 Refer to the Sections identified in Related Work for specified Milestone Site Reviews which are to take place at defined points throughout the abatement operation specific to each phase or work area.
- .11 Do not proceed with next phase of work until written approval of each Milestone Site Review is received from the Abatement Consultant.

1.14 Site Review

1.15 Air Monitoring - Asbestos

- .1 Air monitoring will be performed using Phase Contrast Microscopy (PCM) following the National Institute for Occupational Safety and Health Method 7400.
- .2 Results of PCM samples greater than 0.01 fibres per cubic centimeter of air (fibre/cc), collected within the Abatement Work Area enclosure after the site has passed a visual site review, and an acceptable coat of lock-down agent has been applied, will indicate asbestos contamination of these areas. Respond as follows:
 - .1 Maintain work area isolation and re-clean entire work area. Then apply another acceptable coat of lock-down agent to exposed surfaces throughout the work area.
 - .2 Repeat above measures until visually reviewed and air monitoring results are at a level equal to that specified.
 - .3 Alternate to items above, the Asbestos Abatement Contractor can pay for analysis of PCM samples by Transmission Electron Microscopy (TEM) at NVLAP accredited laboratory.
 - .1 Enclosure to remain sealed, with negative pressure maintained, and subject to required daily inspections until TEM results are received.
- .3 Additional labour or materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the Owner.
- .4 Cost of additional site reviews and sampling performed as a result of elevated fibre levels in areas outside the Abatement Work Area or from within the work area following completion of work, will be back charged to the Contractor.

1.16 Worker Protection

- .1 Instruct workers before allowing entry to the Abatement Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Abatement Work Area, and all other aspects of work procedures and protective measures.
- .2 Workers shall not eat, drink, chew gum or tobacco, vape or smoke in the Abatement Work Area.

- .3 Workers shall be fully protected at all times when possibility of disturbance of hazardous materials exists.
- .4 Provide soap, towels and facilities for washing of hands and face, which shall be used by all personnel when leaving the Abatement Work Area.
- .5 Respiratory Protection
 - .1 Refer to each particular Section of the Specification for specified type of respiratory equipment specific to each phase or work area.
 - .2 Respirators shall be:
 - .1 Certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the Ministry of Labour.
 - .2 Fitted so that there is an effective seal between the respirator and the worker's face. Ensure that no person required to enter an Abatement Work Area has facial hair which affects the seal between respirator and face.
 - .3 Assigned to a worker for their exclusive use.
 - .4 Maintained in accordance with manufacturer's specifications.
 - .5 Cleaned, disinfected and inspected by a competent person after use on each shift, or more often if required.
 - .6 Repaired or have damaged or deteriorated parts replaced.
 - .7 Stored in a clean and sanitary location.
 - .8 Provided with new filters as necessary, according to manufacturer's instructions.
 - .9 Worn by personnel who have been fit checked by qualitative or quantitative fit testing.
 - .10 Instruction on proper use of respirators must be provided by a competent person as defined by the Occupational Health and Safety Act.
 - .3 Provide protective clothing, to all personnel which:
 - .1 Is made of a material that does not readily retain nor permit penetration of asbestos fibres or lead/silica dust.
 - .2 Consists of head covering and full body covering that fits snugly at the ankles, wrists and neck.
 - .3 Once coveralls are worn, treat and dispose of as contaminated waste.
 - .4 Is replaced or repaired if torn or ripped.
 - .4 Use hard hats, safety footwear and other protective equipment and apparel required by applicable construction safety regulations.

1.17 Visitor Protection

- .1 Provide clean protective clothing and equipment to Authorized Visitors.
- .2 Instruct Authorized Visitors in the use of protective clothing and Abatement Work Area entry and exit procedures.
- .3 Authorized visitors are required to be fit tested on respirators, prior to entering Abatement Work Area.

1.18 Signage

- .1 Asbestos Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:
 - .1 There is an asbestos dust hazard.
 - .2 Access to the work area is restricted to persons wearing protective clothing and equipment.
- .2 Lead Abatement Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:
 - .1 There is a lead dust, fume or mist hazard.
 - .2 Access to the work area is restricted to authorized persons.
 - .3 Respirators must be worn in the work area.
- .3 Silica Warning Signs: Post signs at access points to the Abatement Work Area, stating at minimum, the following:
 - .1 There is a silica dust hazard.
 - .2 Access to the work area is restricted to authorized persons.
 - .3 Respirators must be worn in the work area.
- .4 Vehicles, Bins and Asbestos Waste Containers: Post signs on both sides of every vehicle used for the transportation of asbestos waste and on every asbestos waste container. Signs must display thereon in large, easily legible letters that contrast in colour with the background the word “CAUTION” in letters not less than ten centimetres in height and the words:
 - .1 CONTAINS ASBESTOS FIBRES
 - .2 Avoid Creating Dust and Spillage
 - .3 Asbestos May be Harmful To Your Health
 - .4 Wear Approved Protective Equipment.
- .5 Place placards in accordance with Transportation of Dangerous Goods Act.

1.19 Differential Pressure Monitoring

- .1 Provide and install differential pressure monitors as specified in each section.
- .2 Replace damaged or non-functional equipment at the request of the Abatement Consultant.

- .3 Record at minimum twice daily, and when damage to the enclosure is identified and repaired, the following information:
 - .1 Name of inspector.
 - .2 Date and time.
 - .3 Pressure reading.
 - .4 Repairs completed, if applicable.
- .4 Maintain specified differential pressure.
- .5 Stop contaminated work and take corrective action if pressure differential drops below the specified level. Notify the Abatement Consultant immediately.

1.20 Waste and Material Handling

- .1 Waste bins must be placed on grade and in a locations approved by the Town of Hanover.
- .2 All bins for hazardous materials must be covered and locked when waste transfer is not being performed.
- .3 Ensure redundant non-ACM, rubble, debris, etc. removed during contaminated work are treated, packaged, transported and disposed of as appropriate waste.
- .4 Clean, wash and apply Post Removal Sealant to metal waste prior to removal from Abatement Work Area. Recycle metals.
- .5 Clean, wash and apply Post Removal Sealant to non-porous materials prior to disposal as clean waste. Obtain prior written approval from the Abatement Consultant for each individual type of material.
- .6 Clean and wash equipment prior to removal from Abatement Work Area if removed prior to completion.
- .7 Place all equipment, tools and unused materials that cannot be cleaned in Abatement Waste Containers.
- .8 As work progresses, and at regular intervals, transport the sealed and labelled waste containers from the Abatement Work Area to waste bin.
- .9 Place items in bins according to waste classification. Place asbestos waste, lead waste, metals, non-asbestos waste, etc. in separate bins.
- .10 Removal of waste containers and decontaminated tools and materials from the Abatement Work Area shall be performed as follows:
 - .1 Remove any visible contamination from the surface of non-porous or cleanable waste being removed from the Abatement Work Area. If the item can be cleaned, remove it from the site as clean waste.
 - .2 Place waste or item in Waste Container and seal closed.
 - .3 Wet wipe outside of Waste Container.

- .4 Within Decontamination Facility, Transfer Room or at the perimeter of the Abatement Work Area, place in second Waste Container. Seal closed.
- .5 Remove waste containers and transport to appropriate bin.
- .11 Transport waste and materials via the predetermined routes and exits. Arrange waste transfer route with Owner. Use a closed, covered cart to transport through Occupied Areas.
- .12 Provide workers transporting waste with means to access full personal protective equipment and all tools required to thoroughly clean up spilled material in the case of a rupture of a Waste Container.
- .13 Pick-up and drop off of garbage bin shall be at pre-approved times and must not interfere with the Owners operations.
- .14 Transport hazardous waste to landfill or waste transfer station licensed by the provincial Ministry of the Environment.
- .15 Cooperate with the provincial Ministry of the Environment inspectors and immediately carry out instructions for remedial work at dump to maintain environment, at no additional cost to the Owner.

1.21 Re-establishment of Objects and Systems

- .1 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate work by this Section.
- .2 Make good at completion of work, all damage not identified in pre-removal survey.

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

- .1 Refer to the Sections identified in Related Work for specified materials, equipment or facilities specific to each phase or work area.
- .2 Materials and equipment must be in good condition and free of debris and fibrous materials. Disposable items must be of new materials only.
- .3 Airless Sprayer: AC powered pressure washer that allows wetting agent to mix with water, uses no air or compressed air, and has a nozzle to regulate power and pressure.
- .4 Amended Water: Water with wetting agent added for purpose of reducing surface tension to allow thorough wetting of materials.
- .5 Asbestos Waste Container: A container acceptable to disposal site, Ministry of the Environment, and Ministry of Labour, comprised of the following:
 - .1 Dust tight.

- .2 Suitable for the type of waste.
- .3 Impervious to asbestos.
- .4 Identified as asbestos waste.
- .6 Differential Pressure Monitor: a high precision instrument for measuring and controlling pressure differences in the low range, between the Abatement Work Area and Occupied Area. Calibrate regularly to manufacturer's instructions.
- .7 Discharge Ducting: Polyethylene Tubing. Reinforced with wire. Diameter to equal negative pressure machine discharge. Not to be longer than required, or so long that negative pressure is compromised.
- .8 Ground Fault Panel: Electrical panel as follows:
 - .1 Ground fault circuit interrupters of sufficient capacity to power temporary electrical equipment and lights in Asbestos Work Area.
 - .2 Interrupters to have a 5-mA ground fault protection.
 - .3 Necessary accessories including main switch disconnect, ground fault interrupter lights, test switch to ensure unit is working, and reset switch.
 - .4 Openings sealed to prevent moisture or dust penetration.
 - .5 Inspected by the Electrical Safety Authority.
 - .6 Panel uses CSA approved parts and been constructed, inspected and installed by a licensed electrician.
 - .7 Provide one Ground Fault Panel for each 5,000 square feet (500 square metres) of Abatement Work Area.
- .9 HEPA Filtered Negative Pressure Machine: Portable air handling system which extracts air directly from the Abatement Work Area and discharges the air to the exterior of the building. Equipped as follows:
 - .1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.
 - .2 Pressure differential gauge to monitor filter loading.
 - .3 Auto shut off and warning system for HEPA filter failure.
 - .4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.
- .10 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.

- .11 Hose: Leak-proof, minimum bursting strength of 500 PSI or greater if required, abrasion resistant covering, reinforcing, and machined-brass couplings. Maintained and tested. Hose to be temperature resistant if it is to carry domestic hot water.
- .12 Lead Waste Container: An impermeable container acceptable to disposal site and Ministry of the Environment, which is:
 - .1 Dust tight.
 - .2 Suitable for the type of waste.
 - .3 Evaluated for leachable lead content and disposed of in accordance with applicable regulations.
 - .1 Where lead waste exceeds 5.0 mg/L of lead in the TCLP analysis, label as lead waste and dispose of as leachate toxic hazardous waste.
 - .2 Where lead waste is below 5.0 mg/L of lead in the TCLP analysis, disposed of as construction waste.
- .13 OSB: Oriented Strand Board.
- .14 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints.
- .15 Post Removal Sealant (or Lockdown): Sealant that when applied to surfaces serves the function of trapping residual asbestos fibres or other dust. Product must have flame spread and smoke development ratings both less than 50. Product shall leave no stain when dry. Post Removal Sealant shall be compatible with replacement insulation or fireproofing where required and capable of withstanding service temperature of substrate. Apply to manufacturer's instructions.
- .16 Protective Clothing: Disposable coveralls complete with head covering and full body covering that fits snugly at the ankles, wrists and neck.
- .17 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal. In sheet size to minimize on-site seams and overlaps.
- .18 Shower Hose: Water lines for supply of hot & cold water to shower facilities to be rated for use at 200 PSI (1380 kPa) or twice the working pressure whichever is greater. Supply lines to be continuous and free of fittings, joints or couplings.
- .19 Sprayer: Garden type portable manual sprayer or water hose with spray attachment if suitable.
- .20 Tape: Duct tape or tape suitable for sealing polyethylene to surfaces under both dry and wet conditions in the presence of Amended Water.
- .21 Wetting Agent: Non-sudsing surfactant added to water to reduce surface tension and increase wetting ability.

PART 3 EXECUTION

- .1 Refer to the Sections identified in Related Work for specified procedures for work area preparation, maintenance, site dismantlement, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of hazardous materials specific to each phase or work area.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
 - .1 Section 02 81 00 Hazardous Materials – General Provisions
 - .2 Section 02 82 00.03 Asbestos Abatement – Type 3 Procedures
 - .3 Section 02 83 10 Lead Abatement – Class 1 Procedures
 - .4 Section 02 84 00 Non-Liquid Polychlorinated Biphenyl Abatement
 - .5 Section 02 84 16 Mercury Abatement

1.2 Outline of Work

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.
- .2 Refer to the attached Drawing 1 for the locations of asbestos-containing materials as well as the extent of the Type 1 Abatement Work Areas.
- .3 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 1 procedures, and Pinchin and Owner specific requirements.
- .4 Unless work is performed under a higher classification Abatement Work Area, the following work can be performed under this Section:
 - .1 Removing and dispoals of one sink with non-friable asbestos-containing antisweat mastic, if the material is removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.
 - .2 Removing and disposal of non-friable cement board (Transite) wall panels if the material is removed without being broken, cut, drilled, abraded, ground, sanded or vibrated.

1.3 Personal Protection

- .1 Provide non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters when requested by personnel.
- .2 When requested by personnel, provide protective clothing.
- .3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Site Reviews

- .1 Refer to Part 1.13 Site Reviews in Section 02 81 00 Hazardous Materials – General Provisions.
- .2 The following Milestone Site Reviews are to be scheduled:
 - .1 Milestone Site Review - Clean Site Preparation
 - .2 Milestone Site Review - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions.

PART 3 EXECUTION

3.1 Site Preparation

- .1 Remove stored or non-fixed items from the Abatement Work Area including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.
- .2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.
- .3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping.
- .4 Install one layer of polyethylene sheeting on floors and millwork remaining in the Abatement Work Area.
- .5 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .6 Provide power from ground fault interrupt circuits.
- .7 Provide amended water for wetting ACM, and adequate method of wetting (garden sprayers, airless sprayers, etc.).
- .8 Without disturbing asbestos-containing materials, remove and dispose of non-hazardous materials as clean waste prior to asbestos removal work, where possible.

3.2 Maintenance of Abatement Work Area

- .1 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.
- .2 Maintain Abatement Work Area in tidy condition.
- .3 Remove any standing water on polyethylene/floor at the end of every shift.
- .4 Turn off water supply to any hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Asbestos Removal - General

- .1 Do not use powered tools or non-handheld tools.
- .2 Do not use compressed air to clean or remove dust or debris.
- .3 Do not break, cut, drill, abrade, grind, sand or vibrate ACM if it cannot be wetted. Type 2 procedures would be required if the material cannot be wetted due to hazard or damage.
- .4 Wet ACM prior to work and keep ACM wet throughout the removal process.
- .5 Undo fasteners if necessary to remove material.
- .6 Use only non-powered hand-held tools to remove ACM.
- .7 Place removed ACM directly into an asbestos waste container.
- .8 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.
- .9 Frequently and at regular intervals, place all waste in asbestos waste containers.
- .10 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.
- .11 Wet all material to be disturbed.

3.4 Abatement Work Area Dismantling

- .1 Wash or HEPA vacuum equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.
- .2 Place tools and equipment used in contaminated work site but not cleaned in polyethylene bags prior to removal from Abatement Work Area.
- .3 Clean polyethylene sheeting which with HEPA vacuum or wet cleaning methods at completion of work.
- .4 Wet polyethylene sheeting.
- .5 Carefully roll polyethylene sheeting toward the centre. As polyethylene is rolled away, immediately remove visible debris beneath with a HEPA vacuum.
- .6 Remove remaining polyethylene sheeting and tape.
- .7 Place polyethylene sheeting, tape, disposal clothing and other contaminated waste in asbestos waste containers, wet wipe and place in second asbestos waste container.

3.5 Waste and Material Handling

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
 - .1 Section 02 81 00 Hazardous Materials – General Provisions
 - .2 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures
 - .3 Section 02 83 10 Lead Abatement – Class 1 Procedures
 - .4 Section 02 84 00 Non-Liquid Polychlorinated Biphenyl Abatement
 - .5 Section 02 84 16 Mercury Abatement

1.2 Outline of Work

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.
- .2 Refer to the attached Drawing 1 for the location of asbestos-containing materials and the extent of the Type 3 Abatement Work Areas.
- .3 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing materials following Type 3 procedures, and Pinchin and The Town of Hanover specific requirements.
- .4 The following work can be performed under this Section:
 - .1 The removal of asbestos-containing texture coat on masonry block columns
 - .2 The removal of asbestos-containing thin-set behind ceramic wall tiles on concrete block walls.

1.3 Personal Protection

- .1 Protect all personnel at all times when possibility of disturbance of ACM exists.
- .2 Provide the following respiratory protection to all personnel:
 - .1 Full-Face Air Purifying Respirators with P100 high efficiency (HEPA) cartridge filters during projects when performing wet abatement of sprayed applied surfacing materials containing chrysotile asbestos, or wet abatement of other non-surfacing asbestos-containing material specified in this section.
 - .2 Non-powered half-face respirators with P100 high efficiency (HEPA) cartridge filters for:
 - .1 Removing visible dust and friable material from surfaces in the work area prior to construction of enclosure.
 - .2 Dismantling of Type 3 (High Risk) enclosures, using Type 2 (Moderate Risk) Procedures.
- .3 Provide protective clothing, to all personnel entering the Abatement Work Area.
- .4 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.

1.4 Differential Pressure Monitoring

- .1 Install differential pressure monitor at a location acceptable to the Abatement Consultant.

- .2 Co-operate with the Abatement Consultant in collection of pressure monitoring data.
- .3 Maintain specified differential pressure at monitoring location. Negative air pressure is to be -0.02 inches of water, relative to the area outside the enclosed area.

1.5 Site Reviews

- .1 Refer to Part 1.13 Site Reviews in Section 02 81 00 Hazardous Materials – General Provisions.
- .2 The following Milestone Site Reviews are to be scheduled:
 - .1 Milestone Site Reviews - Clean Site Preparation
 - .2 Milestone Site Reviews - Visual Clearance
 - .3 Milestone Site Reviews – Clearance Sampling

PART 2 PRODUCTS AND FACILITIES

2.1 Materials and Equipment

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions.

2.2 Hoarding Walls

- .1 Type A Hoarding Wall: One layer of rip-proof polyethylene sheeting installed floor to ceiling, secured with telescopic poles, clips, or other suitable methods.
- .2 Type B Hoarding Wall: 38 mm x 89 mm wood or metal studs at 400 mm o/c with continuous sill and top plate, covered with one layer of rip-proof polyethylene sheeting on each side of wall.
- .3 Windows: Install sufficient transparent windows in hoarding walls to allow observation of entire work area from outside the enclosure where existing solid walls do not make up the perimeter.

2.3 Decontamination Facilities

- .1 Workers' Decontamination Facility: A decontamination facility comprised of three linked rooms, Contaminated Change Room, a Shower Room, and a Clean Change Room.
 - .1 Rooms, Occupied Areas and Abatement Work Areas, shall be separated by curtained doorways at each door.
- .2 Contaminated Change Room: Room between Shower Room and Abatement Work Area.
 - .1 Locate on contaminated side of Shower Room.
 - .2 Install asbestos waste container for asbestos contaminated protective clothing.
 - .3 Install storage facilities for any personal protective equipment to be reused in Abatement Work Area including boots, hard hats, etc., but excluding respirators.
 - .4 Install hooks and shelves as required for personal protective equipment.
 - .5 Minimum size of generally 2 m x 2 m. Increase size accordingly to accommodate number of workers.
- .3 Shower Room: Room between Clean Change Room and Contaminated Change Room.
 - .1 Install one walk through shower unit for every six workers.
 - .2 Install constant supply of hot and cold water, controllable at each shower. Water supply must be sufficient to provide water at a minimum temperature of 40 degrees Celsius (maximum 50 degrees) in a volume required for all workers to properly decontaminate.

- .1 Install individual hot and cold shut-off valves on water supply located on clean side of Shower Room. Connect shower to these valves.
 - .2 Install individual controls inside the shower to regulate water flow and temperature.
 - .3 Install rigid piping or Shower Hose with watertight connections for supply and drains.
 - .4 Install a sealed drip pan under and around the showers, 150 mm deep.
 - .5 Install sump pumps, sufficient for volume of waste shower water from showers and drip pan. Direct waste shower water to sanitary drains.
 - .6 Install ground fault protected power switch on clean side of shower for sump pumps, or timed for shut off.
 - .7 Provide adequate quantity of soap, shampoo, clean towels
 - .8 Install an Asbestos Waste Container for disposal of used respirator filters, on the contaminated side of the Shower Room.
- .4 Clean Change Room: A room between the Shower Room and Occupied Areas.
 - .1 Install hooks and shelves on clean side of shower in clean Change Room for storage of respirators.
 - .2 Install electric hot water tank for showers in decontamination facility if hot water source is not available.
 - .3 Provide ground fault protected power supply to hot water tanks, sump pump, battery chargers.
 - .4 Install a fire extinguisher, mount to wall.
 - .5 Minimum size of generally 2m x 2m. Increase size accordingly to accommodate number of workers.
- .5 Waste and Equipment Decontamination Facility: Waste and Equipment Decontamination Facility comprised of three linked rooms: a Container Cleaning Room, a Holding Room and a Transfer Room.
 - .1 Purpose of Waste and Equipment Decontamination Facility is to provide a means to decontaminate asbestos waste containers, scaffolding, vacuums, and other tools and equipment and materials required in the Abatement Work Area.
 - .2 Rooms, Occupied Areas and Abatement Work Areas, shall be separated by curtained doorways at each door.
- .6 Construction of Decontamination Facilities
 - .1 Install floor protection as follows:
 - .1 Install one layer of rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting beneath entire decontamination facility.
 - .2 Turn 600 mm of polyethylene up the sides of the decontamination facility and overlap with the polyethylene sheeting covering the walls.
 - .2 Install walls as follows:
 - .1 Around all rooms, between all rooms, at entrance to Abatement Work Area and at entrance to Occupied Area.
 - .2 Install 38 x 89 mm wood framing at 610 mm o/c with continuous top and sill plates.

- .3 Install one layer rip-proof polyethylene sheeting on interior walls of Decontamination Facility.
- .4 Install one layer rip-proof polyethylene sheeting both sides on interior dividing walls of Decontamination Facility.
- .5 Install one layer rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting on walls exposed to the Abatement Work Area.
- .6 Install one layer rip-proof polyethylene sheeting over one layer of 6 mil polyethylene sheeting on walls exposed to the Occupied Area.
- .3 Install roof as follows:
 - .1 Install joists. Size of joists is to be determined by clear span. Consult Provincial Building Code. For clear spans up to 2850 mm use SPF Select 38 x 140 mm wood joist at 400 mm o/c with continuous 38 x 140 mm wood headers, and install strapping beneath joists.
 - .2 Where roof is not exposed to the Abatement Work Area, install one layer rip-proof polyethylene sheeting over joists.
 - .3 Turn 600 mm of polyethylene down the sides over polyethylene on the perimeter walls.
 - .4 At underside of joists in all rooms, install one layer of polyethylene sheeting.
 - .5 Minimum interior clear height 2000 mm to underside of joist.
- .7 Curtained Doorways
 - .1 Construct as follows:
 - .1 Install two flap doors, full width and height of door opening at all doors between chambers, facilities and Abatement Work Area.
 - .2 Construct each flap door of two layers of polyethylene sheeting with all edges reinforced with tape. Use wood strapping to securely fasten flap doors to head and alternate jambs.
 - .3 Install weights attached to bottom edge of each door flap.
 - .4 Provide direction arrows on flaps to indicate opening.

2.4 Platforms

- .1 Install a framework, on top of which the working platform is to be placed by use of metal scaffolding or equivalent. The working platform shall consist of scaffold boards over which plywood (of sufficient thickness to support personnel and equipment as required by provincial Occupational Health and Safety Act) is fastened in place.
- .2 Submit Engineered Shop drawings where required.
- .3 Install platform supports in and around existing fixtures, walls and equipment so as not to interfere with the operating, use, or maintenance of space or equipment.
- .4 Install platform to accommodate door swings and to maintain exit routes.
- .5 Install support bases of dimension and strength to protect floors. Repair or replace damage caused by erection, weight or dismantling of platform.
- .6 Install platform to maintain a minimum clear height of 2000 mm.

PART 3 EXECUTION

3.1 Clean Site Preparation

- .1 Remove stored or non-fixed items from the Abatement Work Area, including but not limited to equipment, furniture, waste etc. Store in area provided by Owner.
- .2 Moving of equipment, tools, supplies, and stored materials that can be performed without disturbing ACM will be performed by others.
- .3 Remove visible dust and friable material from all surfaces in the work area including those to be worked on, using HEPA Vacuums or wet wiping using Type 2 (Moderate Risk) Procedures.
- .4 Without disturbing asbestos-containing materials:
 - .1 Remove specified items and turn-over to Owner.
 - .2 Remove specified items and dispose as clean waste.
- .5 Install Hoarding Walls between Abatement Work Area and Occupied Area.
- .6 Install platforms in areas specified.
- .7 Install Decontamination facilities.
 - .1 Worker Decontamination Facility to be located within the Abatement Work Area.
 - .2 Waste Decontamination Facility to be located within the Abatement Work Area.
- .8 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting so as to protect all equipment and finishes in the Abatement Work Area that may be damaged. Items to remain include but are not limited to:
 - .1 Millwork.
 - .2 Toilet Partitions.
- .9 Seal openings in walls below ceiling level using polyethylene, tape, caulking, etc. including but not limited to windows, doors, vents, diffusers, etc.
- .10 Seal openings in ceiling, using polyethylene, tape, caulking, etc. including diffusers, grills, etc.
- .11 Install one layer of rip-proof polyethylene sheeting over two layers of 6 mil polyethylene sheeting, on floor surfaces in Abatement Work Area.
 - .1 Extend floor protection a minimum of 300 mm up all vertical surfaces in the Abatement Work Area.
- .12 On walls within and forming the perimeter of the Abatement Work Area install two layers of 6 mil polyethylene sheeting.
 - .1 At junction of floor and wall surface overlap floor polyethylene with wall polyethylene by a minimum of 300 mm at each layer. One layer of wall polyethylene must always overlap the top layer of floor polyethylene.
- .13 Establish negative pressure in Abatement Work Areas as follows:
 - .1 Discharge HEPA filtered negative pressure machines as follows:
 - .1 To building exterior.
 - .1 Remove existing glazing where necessary and replace with a 19 mm plywood panel.

- .2 Install panel securely on the exterior side of the window frame and make weather-tight with caulking.
- .3 For each negative pressure unit, provide a 300 mm diameter, duct opening through panel.
- .4 Cover duct opening with wire screen and/or chicken wire or extruded metal screen to prevent insect and animal entry.
- .5 Direct discharge away from building access points.
- .6 Store glazing for reinstallation upon completion of work.
- .14 Install Ground Fault Panel.
- .15 Isolate, at panel, and disconnect existing power supply to Abatement Work Area. Power supply to remaining areas of building must not be disrupted during work of this section.
 - .1 Lock-out/tag-out power at electrical panels.
 - .2 Mark/tag any items within or passing through the Abatement Work Area that are to remain live including but not limited to cable, conduit, wire, fixtures, equipment panels, etc.
- .16 Shut down HVAC systems serving the Abatement Work Area.
 - .1 Disable any exhaust/return systems at induction units, washrooms, etc.
 - .2 Seal and protect any induction units with one layer of 6 mil polyethylene sheeting.
- .17 Perform clean demolition of non-asbestos materials as specified.
- .18 Install signage in clearly visible locations and in sufficient numbers to adequately warn of an asbestos dust hazard.
- .19 Post Ministry of Labour Notice of Project.

3.2 Maintenance Of Contaminated Abatement Work Area

- .1 Inspect Abatement Work Area at the beginning and end of each working period and once on each day work does not take place. Inspection must be performed by competent person.
- .2 Inspect HEPA filtered negative pressure machines including discharge ducting at the beginning and end of each working period. Inspection must be performed by competent person.
- .3 Perform Differential Pressure Monitoring on a frequent basis and record pressure at start and end of shift at a minimum.
- .4 Inspect polyethylene sheeting and ensure it is effectively sealed and taped. Repair damage and remedy defects immediately.
- .5 Inspect electrical panels and ensure locks and tags are on panels prior to entering the Abatement Work Area.
- .6 Maintain Abatement Work Area in tidy condition.
- .7 Remove waste and debris frequently.
- .8 Remove standing water on polyethylene/floor at the end of every shift.
- .9 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

- .10 Turn off water supply to showers, at the end of every shift.
- .11 Ensure shower pans are pumped out at the end of every use and shift.

3.3 Wet Removal

- .1 Do not use compressed air to clean or remove dust or debris.
- .2 Remove and dispose of remaining non-asbestos items before, during or after wet removal.
- .3 Spray asbestos-containing materials with Amended Water using airless spray equipment prior to removal. Saturate ACM to prevent release of airborne fibres during removal.
- .4 Remove asbestos-containing texture coat and thin-set material specified to be removed, clean substrate.
 - .1 Fully saturated ACM may be scraped directly into waste containers or may be allowed to fall to floor.
 - .2 ACM cannot be allowed to fall from one level to the next.
- .5 Remove obstructions as required to remove the ACM.
 - .1 Notify Abatement Consultant if item is not specified to be removed and inhibits removal of ACM.
 - .2 Do not demolish any existing walls etc. that form the perimeter of the Abatement Work Area without prior written permission from Abatement Consultant.
- .6 All dislodged ACM shall be maintained in wet state until placed in asbestos waste containers for disposal.
- .7 As work progresses, and at regular intervals, place waste in asbestos waste containers and remove from the Abatement Work Area.
- .8 After completion of gross asbestos removal work, perform the following:
 - .1 Wet clean surfaces from which ACM has been removed with stiff bristle brushes, vacuums, wet-sponges etc. to remove all visible residue and asbestos-containing materials.
 - .2 Wet clean surfaces which ACM has fallen on using stiff bristle brushes, vacuums, wet-sponges etc. to remove all visible residue and asbestos-containing materials
 - .3 Wet clean other surfaces in the Abatement Work Area, including the decontamination facilities, scaffolding, equipment, polyethylene sheeting on floor and walls surfaces, etc., ducts and similar items not covered with polyethylene sheeting.
 - .4 Remove wash water as contaminated waste.
 - .5 Remove waste.
 - .6 Level of cleanliness must be acceptable to Abatement Consultant.
 - .7 Remove and dispose of the pre-filters from all negative air units as asbestos-contaminated waste.
- .9 Notify Abatement Consultant to the need for Milestone Site Review - Visual Clearance.

3.4 Waste and Material Handling

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions.

3.5 Application Of Post Removal Sealant

- .1 Wet Removal
 - .1 Obtain Abatement Consultant's written permission to proceed.
 - .2 Apply one coat of Post Removal Sealant with an airless sprayer, in accordance with Manufacturer's Instructions, to cover all surfaces on all items in the Abatement Work Area, including but not limited to polyethylene, ACM substrate, structural steel, and surfaces scheduled for demolition.
 - .1 Do not apply post removal sealant to materials that will be damaged by its application.
 - .3 Notify Abatement Consultant to the need for Milestone Site Review – Clearance Sampling.

3.6 Air Clearance Monitoring

- .1 Site must be dry prior to Air Clearance Monitoring.
- .2 Restrict access to Abatement Work Area and operate negative air units for a 12 hour period prior to Milestone Site Review – Clearance Sampling.
- .3 The HEPA filtered negative pressure machines shall be in operation during clearance air monitoring.
- .4 The number of Air Clearance Monitoring samples will be as follows:
 - .1 2 samples for less than 10 square metres.
 - .2 3 samples for 10 to 500 square metres.
 - .3 5 samples for more than 500 square metres.
- .5 In the presence of the Abatement Consultant, immediately prior to air clearance monitoring, use a leaf blower to dislodge loose fibre.
 - .1 Direct leaf blower against walls, ceilings, floors, and other surfaces.
 - .2 Perform this for at least five minutes per 1,000 sq. ft. of Abatement Work Area.
- .6 PCM samples will be collected as per Air Monitoring Section.

3.7 Abatement Work Area Dismantling

- .1 Use Type 2 worker precautions during dismantling.
- .2 Operate negative air units during dismantling.
- .3 Polyethylene, tape, cleaning material, etc. to be treated as asbestos waste.
- .4 Wash remaining equipment and tools used in contaminated Abatement Work Area to remove all asbestos contamination, or place in Asbestos Waste Containers prior to being removed from Abatement Work Area.
- .5 Clean Abatement Work Area, Equipment and Access area, washing/Showering Room.
- .6 Remove upper seals, and seals over tops of walls, on deck, at columns, etc. within the Abatement Work Area.
- .7 Remove top layer of polyethylene on walls and finishes.
- .8 Remove remaining polyethylene sheeting.
- .9 Remove water hoses and shut off at source.
- .10 Remove Signs, Hoarding Walls, Decontamination Facilities.

- .11 Seal vacuum hoses and fittings, flexible ductwork and all tools used in contaminated work site in 6 mil polyethylene bags prior to removal from Work Area.
- .12 Remove negative air unit prefilters. Dispose of as asbestos contaminated waste.
- .13 Remove HEPA-filtered negative pressure machines and discharge ducting.
- .14 Immediately upon shutting down negative air units, seal air inlet grill and exhaust vent with polyethylene and tape.
- .15 Place contaminated materials including polyethylene sheeting, drop sheets, seals, tape, disposable coveralls, and other contaminated waste in asbestos waste containers.

3.8 Re-Establishment of Items

- .1 Upon completion of work:
 - .1 Remove and disconnect Ground fault Panel, tags and locks from electrical panels and re-energize equipment and items.
 - .2 Remove hose bibs installed and repair pipe.
 - .3 Remove negative air discharge panel and reinstall glazing to match existing.
 - .4 Clean, mop and vacuum Abatement Work Area and area beneath any tunnels, platform and Decontamination Facilities.
 - .5 Enable building air handling systems.

END OF SECTION

PART 1 GENERAL

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
 - .1 Section 02 81 00 Hazardous Materials – General Provisions
 - .2 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures
 - .3 Section 02 82 00.03 Asbestos Abatement – Type 3 Procedures
 - .4 Section 02 84 00 Non-Liquid Polychlorinated Biphenyl Abatement
 - .5 Section 02 84 16 Mercury Abatement

1.2 Outline of Work

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work.
- .2 Refer to Section 02 81 00 Hazardous Materials – General Provisions for the Outline of Work, identifies the location, and condition of hazardous building materials to be removed as part of this project.
- .3 The intent of this Section is to provide safe work practices and procedures to govern the handling, removal, clean-up and disposal of lead-containing materials following Class 1 or Low Risk procedures, and Pinchin and Owner specific requirements.
- .4 Comply with requirements of this Section when performing following Work:
 - .1 Operating construction equipment (i.e., excavator, bulldozer) during building demolition or renovation where lead-containing surface coatings are present.
 - .2 Removal of batteries in emergency lighting, electrical components, solder or similar.

1.3 Instruction and Training

- .1 Provide instruction and training to all workers including the following:
 - .1 Hazards of lead.
 - .2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during abatement work, including:
 - .1 Limitations of equipment.
 - .2 Site Review and maintenance of equipment.
 - .3 Proper fitting of equipment.
 - .4 Disinfecting and cleaning of equipment.
 - .3 Personal hygiene to be observed when performing the work.
 - .4 The measures and procedures prescribed by this section including decontamination of the worker.
- .2 Instruction and training must be provided by a competent person.

1.4 Personal Protection

- .1 Provide non-powered half-face respirators with P100 high efficiency cartridge filters when requested by personnel.
- .2 Provide protective clothing, when requested by personnel, entering the Abatement Work Area, including:
 - .1 Disposable protective clothing that does not readily retain or permit skin contamination, consisting of full body covering including head covering with snug fitting cuffs at wrists, ankles, and neck.
- .3 Wear hard hats, safety shoes and other personal protective equipment required by applicable construction safety regulations.
- .4 Lead-specific soaps and hygiene indicators are recommended to be provided for shower and hand-wash stations.

1.5 Site Reviews

- .1 Refer to Part 1.13 Site Reviews in Section 02 81 00 Hazardous Materials – General Provisions.
- .2 The following Milestone Site Reviews are to be scheduled:
 - .1 Milestone Site Review - Clean Site Preparation
 - .2 Milestone Site Review - Visual Clearance

PART 2 PRODUCTS AND FACILITIES

- .1 Refer to Section 02 81 00 Hazardous Materials – General Provisions.

PART 3 EXECUTION

3.1 Site Preparation - General

- .1 Provide washing facilities consisting of a wash basin, clean water, soap and towels.
 - .1 Workers are to use washing facilities each time leaving the Abatement Work Area.
- .2 Provide amended water for wetting materials, and adequate method of wetting (garden sprayers, airless sprayers, etc.).
- .3 Do not use compressed air to clean or remove dust or debris.
- .4 Frequently and at regular intervals during the work, clean up dust and waste using HEPA vacuums and/or wet sweeping or mopping.
- .5 Frequently and at regular intervals, place all waste in waste containers.
- .6 Immediately upon completion of work, clean area with HEPA vacuum and/or wet sweeping or mopping.

3.2 Site Preparation – No Enclosure Required

- .1 Isolate Abatement Work Area with barrier tape.
- .2 Protect floor surfaces covered from wall to wall with polyethylene sheets.
- .3 Maintain Abatement Work Area in tidy condition.

- .4 Remove waste and debris frequently.
- .5 Remove standing water on polyethylene/floor at the end of every shift.
- .6 Turn off water supply to hoses and reduce pressure in hose, prior to leaving the Abatement Work Area at end of shift.

3.3 Lead-Containing Paint Abatement

- .1 Removal methods minimizing dust generation should be used wherever possible.
 - .1 Wet methods are to be used to reduce dust generation.
 - .2 Wetting agents should be used where possible.
 - .3 Wet methods are not to be used if it creates a hazard or cause damage to equipment or to project.
- .2 Waste water from cleaning or removal operations must be contained, for treatment or disposal.
- .3 Remove sections of building materials with lead-containing paint in small sections and pack as it is being removed in sealable lead waste containers.
- .4 Once the section of building materials with lead-containing paint has been demolished and is deemed safe to do so, work area soil has been skimmed, have abatement workers walk the area with a lead waste container and pick-up any remaining lead debris present.
- .5 Seal filled containers. Clean external surfaces thoroughly by wet sponging. Remove from immediate working area to staging area. Clean external surfaces thoroughly again by wet sponging. Wash containers thoroughly pending removal to outside.

3.4 Bulk Lead Removal

- .1 Lead-containing batteries should be removed, and recycled in appropriate programs.
- .2 Cast-iron pipes with bell and spigot joints should be removed with joint intact, and metal pipe recycled.

3.5 Waste Management and Disposal

- .1 Per Section 02 81 00 Hazardous Materials – General Provisions.

3.6 Final Cleaning

- .1 Clean demolition machinery used for demolition at the end of every shift.
 - .1 Clean bucket, claw, arm and operator cab with the use of wet wiping and HEPA vacuuming techniques.
- .2 Remove polyethylene sheet by rolling it away from walls to centre of work area. Vacuum visible lead containing particles observed during cleanup, immediately, using HEPA vacuum.
- .3 Place polyethylene sheets, tape, cleaning material, clothing, and contaminated waste in plastic bags and sealed labelled waste containers for transport.
- .4 Conduct final check to ensure no dust or debris remains on surfaces as result of dismantling operations.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
 - .1 Section 02 81 00 Hazardous Materials – General Provisions
 - .2 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures
 - .3 Section 02 82 00.03 Asbestos Abatement – Type 3 Procedures
 - .4 Section 02 83 10 Lead Abatement – Class 1 Procedures
 - .5 Section 02 84 16 Mercury Abatement

1.2 Outline of Work

- .1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the removal and destruction of:
 - .1 PCB-containing ballasts and capacitors
- .2 All Work shall be performed in strict accordance with the Project Documents and all governing codes, rules, and regulations. Where conflicts occur between the Project Documents and applicable codes, rules, and regulations, the more stringent shall apply.

1.3 Quality Assurance

- .1 Use qualified contractors to isolate electrical services prior to the removal of lamp ballasts.
- .2 Ensure the removal and handling of PCBs is performed by persons experienced in the methods, procedures and industry practices.
- .3 Complete work so that at no time do PCBs contaminate the building or environment.

1.4 Instruction and Training

- .1 Instruction and training must be provided to all workers and supervisors. Instruction and training include the following:
 - .1 Hazards of PCBs.
 - .2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that would be used and worn during work, including:
 - .1 Limitations of equipment.
 - .2 Site Review and maintenance of equipment.
 - .3 Proper fitting of equipment.
 - .4 Disinfecting and cleaning of equipment.

- .3 Personal hygiene to be observed when performing the work.
- .4 The measures and procedures prescribed by this section.
- .2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

- .1 Workers handling PCB-containing materials are advised to avoid skin and eye contact.
- .2 During removal of PCBs, personnel are to wear personal protective equipment appropriate to the task.

1.6 Site Reviews

- .1 Refer to Part 1.13 Site Reviews in Section 02 81 00 Hazardous Materials – General Provisions.
- .2 The following Milestone Site Reviews are to be scheduled:
 - .1 Milestone Site Review - Visual Clearance

PART 2 PRODUCTS

2.1 Materials

- .1 Containment Drums: new, not used double bung 45-gallon No. 16 gauge cold rolled steel drums with removable steel lid, PCB resistant gasket (nitrile rubber, cork or Teflon), and 12-gauge compression type ring closure with 5/8" bolt and forged lug. Drums shall be newly painted inside and out with bright white rust-resistant enamel. Metal pail of 16-gauge steel with removal steel lid, are also acceptable for smaller quantities of waste.
- .2 Decontamination Area: An established area for the purpose of decontaminating personnel and equipment.
 - .1 Of sufficient size to accommodate cleaning of equipment and removing personal protective equipment.
 - .2 Install PCB warning signs / tape at the entrance to the decontamination area.
 - .3 The floor shall be covered with polyethylene sheeting.
 - .4 Include a hand-washing station complete with soap and towels and 6 mil polyethylene bags for disposal of PCB-contaminated items such as gloves, Tyvek suite rags etc.
 - .5 All personnel must enter and exit the Abatement Work Area through the decontamination area.
 - .6 All equipment and surfaces of waste containers must be cleaned prior to removing them from the decontamination room or area.
 - .7 Work clothing must be cleaned with a HEPA vacuum before it is removed.
- .3 Drum liners: clear polyethylene bag, 36" x 60", 6 mil thick. Open one 36" end.

- .4 Label: appropriate PCB Labels and Placards of sufficient size to be clearly legible, for display on waste containers (bags, boxes, roll offs or drums) which will be used to contain or transport PCB contaminated material, in accordance with TDG regulations.
- .5 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints. New materials only.

PART 3 EXECUTION

3.1 General

- .1 Do not contaminate building surfaces with PCBs.
- .2 Should visible PCB debris be observed outside the Work Area, immediately stop Work notify the Consultant and Owner; institute emergency procedures as directed. All costs incurred in decontaminating such non-Work Areas and the contents thereof shall be borne by the Contractor, at no additional cost to the Owner.
- .3 Notify Owner's Representative of any spills immediately.
 - .1 Any spills of PCBs are to be cleaned to the satisfaction of the Owner's Representative at the contractor's cost. This includes removal and replacement of building materials as required.
- .4 Conduct PCB removal operations in a manner that fully protects Contractor's and Subcontractor's employees, the general public, other building occupants and the environment from exposure to PCB.

3.2 Removal of Ballasts

- .1 Contractor is responsible for determining the actual quantity of ballasts to be disposed as PCB waste.
- .2 Prior to removing any fixtures, ensure electrical service is isolated at panel, and disconnect existing power supply to electrical equipment.
 - .1 Lock-out/tag-out power at electrical panels.
- .3 Remove the following:
 - .1 Lenses at light fixtures.
 - .2 Mercury vapour lamps (refer to Section 02 87 00).
 - .3 Light fixtures.
 - .4 Ballasts.
- .4 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.
- .5 Avoid rough handling of PCB ballasts. Do not drop or throw.
- .6 Identify ballasts as either non-PCB or PCB containing.
 - .1 All ballasts not clearly labelled as "NO PCB" are to be treated as PCB containing.

- .2 Non-PCB ballasts to be recycled or disposed as solid non-hazardous waste.
- .7 Place PCB waste on polyethylene drop sheets immediately after removal.
- .8 Package PCB-containing ballasts in Containment Drums, or on wood skids.
 - .1 Place ballasts on end in Containment Drum. When full:
 - .1 Seal liner bag with duct tape.
 - .2 Seal drum with lid, gasket and compression ring.
 - .3 Affix specified and completed label.
 - .4 Do not leave liner bags or drums open overnight.
 - .2 Shrink wrap ballasts and wood skid to prevent movement during transport.
- .9 Transport packaged PCB waste to a Ministry of the Environment approved incineration facility and destroy.

3.3 Equipment and Area Decontamination

- .1 When removal of PCB materials is completed, the decontamination process shall consist of HEPA vacuuming, wet wiping/mopping and a repeated HEPA vacuuming of the entire work area. All surfaces in and around the work area must be free of dust generated during the work.
- .2 Decontaminate all tools and equipment before removal from the work area.
- .3 If dust or debris has migrated to areas of the building other than the immediate work area, those areas shall be incorporated into the work area and thoroughly decontaminated to ensure all visible dust generated by the activity is eliminated.
- .4 Uncontaminated protective sheeting shall be placed in disposable construction bags and disposed of as normal trash.
- .5 Visually inspect the area for any remaining dust or debris. HEPA vacuum and wet wipe until space is clean. Dispose of vacuum contents as PCB waste.
- .6 Upon completion of decontamination and removing sheeting, a final Site Review shall be performed by the Contractor.
- .7 Failure of any visual Site Review by the Consultant, the Contractor will clean the affected areas at no additional expense to the Owner.

3.4 Transportation and Reporting

- .1 All waste containers shall be fully enclosed and lockable (i.e. enclosed dumpster, trailer, etc.).
 - .1 While on-site, the container shall be labelled with PCB Warning Labels and as required by Federal and Provincial regulations.
- .2 All waste generated as part of the PCB project shall be removed from the site within ten (10) calendar days after successful completion of all PCB abatement work.

- .3 The Hauler, with the Abatement Contractor and the Abatement Consultant, shall inspect the transport container prior to the Hauler taking possession and signing the Hazardous Waste Manifests.
- .4 A Hazardous Waste Manifest shall be utilized solely as the waste Manifest for transportation. A hauler billing form or bill of lading may be used if the hauler needs an independent record but shall not be used as a shipping document.
 - .1 The Manifest shall be completed by the Contractor and verified by the Consultant that all the information and amounts are accurate, and the proper signatures are in place.
 - .2 The Manifest shall have the appropriate signatures of the Owner's Representative (the Generator) and the Hauler representative prior to any waste being removed from the site.
 - .3 Upon arrival at the Disposal Site, the Manifest shall be signed by the Disposal Facility operator to certify receipt of PCB materials covered by the manifest.
 - .4 The Disposal Facility operator shall return the original Manifest to the Owner's Representative (the Generator) as required by the Ministry of Environment, Conservation and Parks.
 - .5 Provide a copy of the completed waste manifest proving receipt of the PCB waste by the Disposal Facility.
- .5 Transport materials following Transportation of Dangerous Goods Act.
 - .1 Transport PCBs to approved incineration site for destruction and ensure materials are destroyed.
- .6 The facility used to process the PCBs shall be approved by the Ministry of the Environment and shall have valid Certificates of Approval to carry out the work outlined herein.
 - .1 The facility must issue a Certificate of Destruction identifying types and quantities of PCBs generated from the project.

3.5 Fire and Explosion Response

- .1 PCBs ballasts do not present an inhalation hazard when handled appropriately and contained within ballasts.
- .2 PCBs are relatively non-flammable. However, if exposed to flame or hot surfaces, a higher vapour concentration will result. At high temperatures PCBs may decompose and chemically rearrange to produce highly toxic gases, vapours, and soot.
- .3 Contractor is to include procedures for response to Fire and Explosion regarding PCBs in Site Specific Safety.

END OF SECTION

PART 1 GENERAL

1.1 General and Related Work

- .1 Read this Section in conjunction with all drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.
- .2 Requirements specified elsewhere:
 - .1 Section 02 81 00 Hazardous Materials – General Provisions
 - .2 Section 02 82 00.01 Asbestos Abatement – Type 1 Procedures
 - .3 Section 02 82 00.03 Asbestos Abatement – Type 3 Procedures
 - .4 Section 02 83 10 Lead Abatement – Class 1 Procedures
 - .5 Section 02 84 00 Non-Liquid Polychlorinated Biphenyl Abatement

1.2 Outline of Work

- .1 Unless otherwise shown or specified it is the intent that work performed as per this section will result in the identification, removal, preparation for disposal, transportation, and disposal of mercury-containing fluorescent and mercury vapour lamps and thermostats.

1.3 Quality Assurance

- .1 Use qualified contractors to isolate mechanical/electrical services prior to the removal of lamps or other mercury-containing equipment.
- .2 Ensure the removal and handling of mercury-containing equipment is performed by persons experienced in the methods, procedures and industry practices.
- .3 Complete work so that at no time does mercury contaminate the building or environment.

1.4 Instruction and Training

- .1 Instruction and training must be provided to all workers and supervisors. Instruction and training includes the following:
 - .1 Hazards of mercury.
 - .2 Use, care and disposal of protective equipment (including but not limited to respirators and filters) and clothing that may be used during work, including training on:
 - .1 Limitations of equipment.
 - .2 Inspection and maintenance of equipment.
 - .3 Proper fitting of equipment.
 - .4 Disinfecting and cleaning of equipment.
 - .3 Personal hygiene to be observed when performing the work.
 - .4 The measures and procedures prescribed by this section.
- .2 Instruction and training must be provided by a competent, qualified person.

1.5 Personal Protection

- .1 During removal of equipment containing mercury, personnel are to wear personal protective equipment appropriate to the work being performed.
- .2 The following personal protection is to be available on site in the event of a spill or leak:
 - .1 Non-powered half-face respirators with combined P100 and mercury cartridge.
 - .2 Protective clothing.
 - .3 Rubber, nitrile or latex gloves.

PART 2 PRODUCTS

2.1 Materials

- .1 Containment Drums: new metal pails or steel drums with removable steel lid. Drums shall be newly painted inside and out with bright white rust-resistant enamel.
- .2 Drum liners: clear polyethylene bag, 0.15mm thick.
- .3 Label: Mercury warning labels.
- .4 Lamp Storage Container: Cardboard box that lamps were originally packaged within, or plastic or cardboard totes for recycling lamps. Intent is to package lamps so that they are not broken during shipping. Container to be designed for lamps of that size.
- .5 Mercury Sponge: A plated metal-wool pad for the pick-up of mercury spills.
- .6 Mercury Vacuum: Nilfisk VT Mercury Vacuum or equal. Vacuum used to collect liquid mercury and granular mercury compounds with an internal HEPA filter and an activated carbon adsorbent filter to purify exhaust air of mercury vapours.
- .7 Neutralizing Agent: Mercon X or similar. Mercury neutralizing solution such as 20% calcium polysulfide or sodium thiosulphate.
- .8 TSP: Tri Sodium Phosphate, or other strong cleaner

PART 3 EXECUTION

3.1 Equipment Removal

- .1 Prior to removing any fixtures or equipment, ensure associated services is isolated and de-energized.
- .2 Locate and remove the following materials designated to be disposed of:
 - .1 Fluorescent and mercury vapour lamps
 - .2 Thermostats
- .3 Place all mercury-containing equipment into containers to prevent breakage.
- .4 Provide an accurate inventory of the contents of each container including number of light tubes and lamps and an estimate of the total weight of the container in kilograms.

3.2 Packaging

- .1 Do not contaminate building surfaces mercury.
- .2 Notify Owner's Representative of any spills immediately.
 - .1 Any spills of mercury are to be cleaned to the satisfaction of the Owner's Representative at the contractor's cost. This includes removal and replacement of building materials as required.
- .3 Install polyethylene drop sheets in packaging area to protect surfaces and finishes.
- .4 Package lamps in lamp storage containers. Do not break lamps.
- .5 Package mercury-containing equipment as follows:
 - .1 Place polyethylene liner in metal drum or pail.
 - .2 Carefully place mercury-containing equipment in pails, to prevent breakage.
 - .3 When full, or all items placed in container, seal liner bag with duct tape, seal lid, and place appropriate label on outside of container.

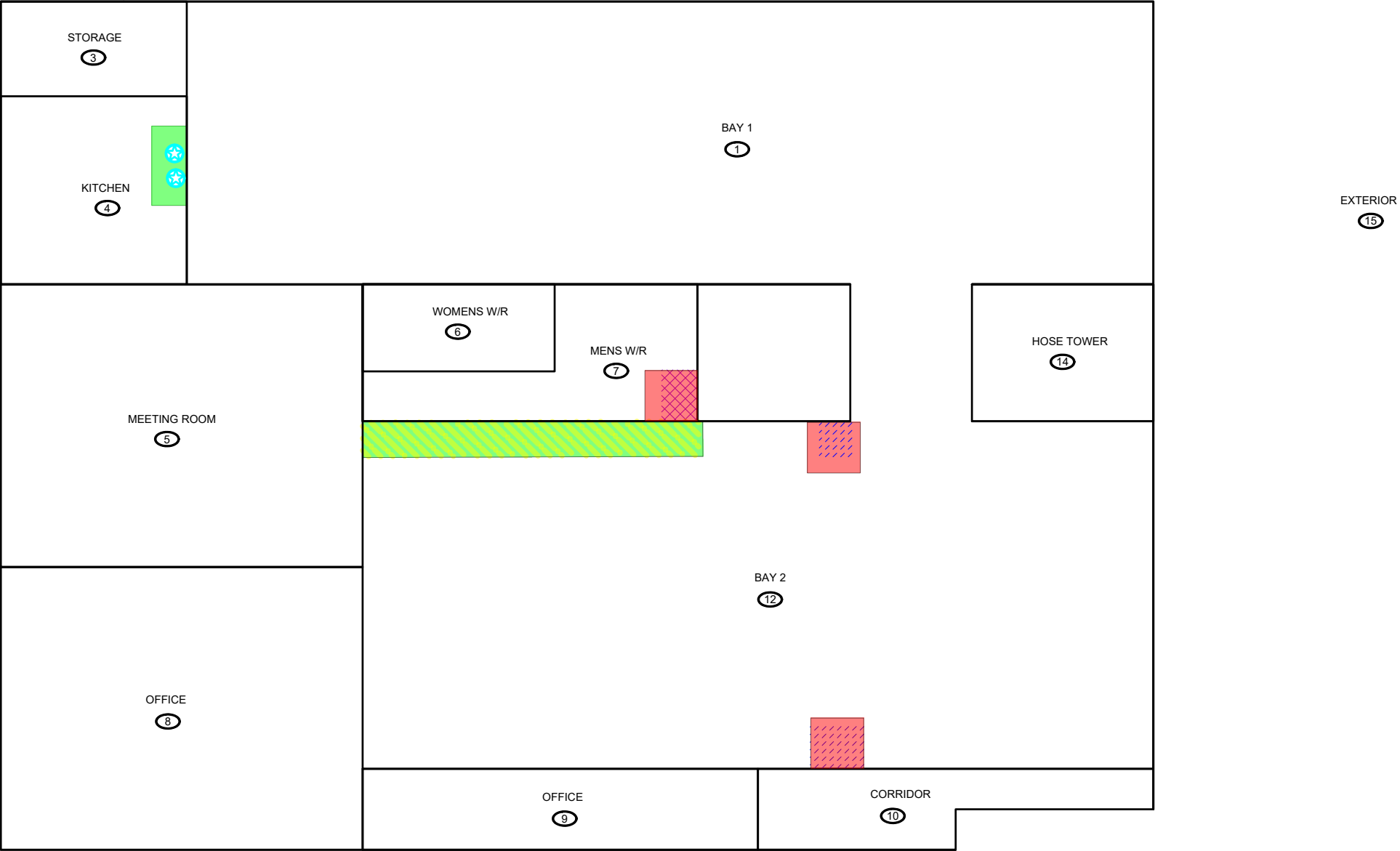
3.3 Emergency Response for Spills

- .1 For small spills:
 - .1 Evacuate area. Only personnel using the specified personal protective equipment are to be in spill area.
 - .2 Open windows or provide ventilation to area.
 - .3 Clean mercury and broken glass with mercury vacuum.
 - .4 Clean horizontal surfaces impacted by spill with TSP or approved alternative cleaner.

3.4 Transportation and Reporting

- .1 Transport materials following Transportation of Dangerous Goods Act.
 - .1 Transport Mercury Materials and Waste to approved site for recycling, including mercury vapour in lamps, and ensure materials are recycled.
- .2 The facility used to process and recycle the mercury shall be approved by the Ministry of the Environment, Conservation and Parks, or local jurisdictional authority, and shall have valid Certificates of Approval to carry out the work outlined herein.
 - .1 The facility must issue a Certificate of Recycling identifying types and quantities of materials generated from the project. The facility must also provide a Certificate of Recycling for the mercury generated from the project.
- .3 Provide the Abatement Consultant a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION



- LEGEND**
-  PINCHIN LOCATION NUMBER
- ASBESTOS-CONTAINING MATERIALS:**
-  TEXTURE FINISH
-  TRANSITE BOARD
-  SINK MASTIC
-  THIN-SET BEHIND CERAMIC WALL TILES
- ASBESTOS ABATEMENT AREAS**
-  TYPE 1 WORK AREA
-  TYPE 3 WORK AREA

NOT ALL KNOWN OR SUSPECTED HAZARDOUS BUILDING MATERIALS MAY BE DEPICTED ON THE DRAWING. REFER TO THE HAZARDOUS BUILDING MATERIALS ASSESSMENT REPORT FOR A COMPLETE LIST OF KNOWN AND SUSPECTED HAZARDOUS BUILDING MATERIALS.

LEGEND IS COLOUR DEPENDENT. NON-COLOUR COPIES MAY ALTER INTERPRETATION.

BASE PLAN PROVIDED BY CLIENT.



PROJECT NAME:
HAZARDOUS BUILDING MATERIALS ASSESSMENT (PRE-DEMOLITION)

CLIENT NAME:
TOWN OF HANOVER

PROJECT LOCATION:
341 10TH STREET
HANOVER, ONTARIO

FIGURE NAME:
ACM & ABATEMENT WORK AREAS
GROUND FLOOR

PROJECT NUMBER: 352142.001	SCALE: NOT TO SCALE
DRAWN BY: BJ	REVIEWED BY: AW
DATE: APRIL 2026	FIGURE NUMBER: 1 OF 1



April 24, 2026

Town of Hanover
341 10th Street
Hanover, Ontario, N4N

Re: Hazardous Materials Test Results
Old Fire Hall - 341 10th Street, Hanover, Ontario
Pinchin File: 352142.001

Pinchin Ltd. (Pinchin) was retained by Town of Hanover (Client) to collect samples of building materials to identify hazardous materials present on the roof of the building located at 341 10th Street, Hanover, Ontario. The sampling Pinchin performed the work April 7, 2026.

The purpose of this sample collection was to facilitate renovations to the building and are the results of this letter are to be viewed as supplementary to the findings presented in the HBMA report entitled "*Hazardous Building Materials Assessment (Pre-Construction), Former Fire Hall, 341 10th Street, Hanover, Ontario*" Dated February 13, 2025. Project No. 352142.000. These two documents should be read as one complete Hazardous Building Materials Assessment report.

Sample collection included materials caulking's, tars, mastics and paints present on the roof. The extent of the assessed area is indicated on the drawings appended [NOTE: Ensure you clearly show the extent of the assessed area. Use clouding or hatching.] to this letter. Initial emergency response activities had been initiated by (Remediation Company Name). At the time of the site visit (describe: removal of water-impacted material type; containment set-up, drying of water-impacted materials) had been conducted.

1.0 **METHODOLOGY**

The following test methods were utilized for samples collected.

Material	Test Method
Asbestos	EPA/600/R-93/116, Polarized Light Microscopy (PLM)
Lead in Paint	Flame Atomic Absorption (FAA) OR Inductively Coupled Plasma (ICP)
PCBs in Caulking	Ultrasonic Extraction – Gas Chromatography

2.0 **RESULTS AND FINDINGS**

The following tables describe the samples collected, the locations, descriptions, and results.

The laboratory results are attached as Appendix I. A drawing, indicating the sample locations, has been attached as Appendix II. Photographs have been included in Appendix III.



Any quantities listed in this report or data tables are estimated based on visual approximations only and are subject to variation.

2.1 Asbestos

Sample No.	Location	Description	Asbestos Result (Type and %)
S0001A-C	Roof (Location 16)	Yellow Caulking on Flashing	None Detected
S0002A-C		Black caulking at pipe penetrations	None Detected
S0003A-C		Dark grey caulking at pipe penetrations	None Detected
S0004A-C		Black mastic on exhaust motor	None Detected
S0005A-C		Grey mastic at pipe penetrations	None Detected
S0006A-C		Black tar at roof penetrations	None Detected

2.2 Lead Paint

Sample No.	Location	Description	Lead Result (%)
L0001	Roof (Location 16)	Yellow paint on metal piping	0.042
L0002	Roof (Location 16)	Dark yellow paint on metal piping	0.44

Results above 0.1% (1,000 mg/kg) are considered lead-containing, in accordance with the EACC guideline.

Results greater than 0.009% (90 mg/kg) but less than or equal to 0.1% (1,000 mg/kg) are considered low-level lead paints or surface coatings in accordance with the EACC guideline.

2.3 PCB

Sample No.	Location	Description	PCB Result (mg/kg)
P0001	Roof (Location 16)	Black caulking at roof penetrations	<0.1
P0002	Roof (Location 16)	Grey caulking at roof penetrations	<0.1
P0003	Roof (Location 16)	Yellow caulking on flashing	<0.1

Results greater less than 50 mg/kg are considered to be non-PCB solids.



3.0 RECOMMENDATIONS

3.1 General

Provide this report to the contractor prior to bidding or commencing work.

If suspected hazardous building materials are discovered during the planned work, which are not identified in this report, do not disturb, and arrange for further testing and evaluation.

Retain a qualified consultant to specify, observe and document the successful removal of hazardous materials.

3.2 Lead

For lead-containing (i.e., greater than the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints), construction disturbance may result in over-exposure to lead dust or fumes. The need for work procedures, engineering controls and personal protective equipment should be assessed on a site-specific basis to comply with applicable regulations, and/or guidelines.

For paints identified as having low levels of lead (i.e., greater than 0.009% (90 mg/kg) but less than or equal to the EACC guideline of 0.1% (1,000 mg/kg) for lead-containing paints) special precautions are not recommended unless aggressive disturbance (grinding, blasting, torching) is planned.

Items painted with paints containing elevated levels of lead may be a hazardous waste. Test lead-painted materials for leachable lead and other metals prior to disposal. Metallic components coated with lead paint do not require leachate testing and can be disposed of as non-hazardous construction and demolition (C&D) waste.

4.0 TERMS AND LIMITATIONS

This work was performed subject to the Terms and Limitations presented or referenced in the proposal for this project.

Information provided by Pinchin is intended for Client use only. Pinchin will not provide results or information to any party unless disclosure by Pinchin is required by law. Any use by a third party of reports or documents authored by Pinchin or any reliance by a third party on or decisions made by a third party based on the findings described in said documents, is the sole responsibility of such third parties. Pinchin accepts no responsibility for damages suffered by any third party as a result of decisions made or actions conducted. No other warranties are implied or expressed.



5.0 CLOSURE

Should you have any questions or concerns regarding the contents of this letter, please contact the Project Manager, Ryan Farnsworth at rfarnsworth@pinchin.com.

Yours truly,

Pinchin Ltd.

Prepared by:

Reviewed by:

Brandon Jones, B.A. (Hons), Dipl. Tech. (Env)
Project Manager, Hazardous Materials

Dustin Copeland, C. Tech.
Director, Hazardous Materials

Appendices: Appendix I: Laboratory Report
Appendix II: Photographs

APPENDIX I
Laboratory Report

Laboratory Analysis Report

To:

Brian Dubeau/ Brandon Jones

Pinchin Ltd.

2360 Meadowpine Boulevard - Unit 2

Mississauga, Ontario

L5N 6S2

EMC LAB REPORT NUMBER: A133603

Job/Project Name: Hanover Roof

Analysis Method: Polarized Light Microscopy – EPA 600

Date Received: Apr 17/26

Date Analyzed: Apr 17/26

Analyst: Fabio Anunciacao

Reviewed By: Malgorzata Sybydlo

Job No: 0352142.002

Number of Samples: 18

Date Reported: Apr 17/26

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
S0001A	A133603-1	Yellow caulking, roof- side flashing	Yellow and colourless, caulking	ND			100
S0001B	A133603-2	Yellow caulking, roof- side flashing	Yellow and colourless, caulking	ND			100
S0001C	A133603-3	Yellow caulking, roof- side flashing	Yellow and colourless, caulking	ND			100
S0002A	A133603-4	Black caulking- roof- pipe penetrations	Black, tar with fibres	ND		10	90
S0002B	A133603-5	Black caulking- roof- pipe penetrations	Black, tar with fibres	ND		10	90
S0002C	A133603-6	Black caulking- roof- pipe penetrations	Black, tar with fibres	ND		10	90
S0003A	A133603-7	Dark grey caulking- roof- pipe penetrations	2 Phases: a) Brown, caulking b) Black, tar	ND ND			100 100
S0003B	A133603-8	Dark grey caulking- roof- pipe penetrations	Brown, caulking	ND			100
S0003C	A133603-9	Dark grey caulking- roof- pipe penetrations	Brown, caulking	ND			100
S0004A	A133603-10	Black mastic- roof- exhaust motor	Black, caulking	ND			100
S0004B	A133603-11	Black mastic- roof- exhaust motor	Black, caulking	ND			100
S0004C	A133603-12	Black mastic- roof- exhaust motor	Black, caulking	ND			100
S0005A	A133603-13	Grey mastic- roof- pipe penetrations, vents	Grey and silver, caulking	ND			100

EMC LAB REPORT NUMBER: A133603

Client's Job/Project Name/No.: 0352142.002

Analyst: Fabio Anunciacao

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)			
				Asbestos Fibres		Non-asbestos Fibres	Non-fibrous Material
S0005B	A133603-14	Grey mastic- roof- pipe penetrations, vents	Grey and silver, caulking	ND			100
S0005C	A133603-15	Grey mastic- roof- pipe penetrations, vents	Grey and silver, caulking	ND			100
S0006A	A133603-16	Black tar- roof- base of pipe penetrations at roof deck	2 Phases: a) Black, tar b) Black, tar with fibres	ND ND		20	100 80
S0006B	A133603-17	Black tar- roof- base of pipe penetrations at roof deck	2 Phases: a) Black, tar b) Black, tar with fibres	ND ND		20	100 80
S0006C	A133603-18	Black tar- roof- base of pipe penetrations at roof deck	2 Phases: a) Black, tar b) Black, tar with fibres	ND ND		20	100 80

Note:

1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with App. E to Sub. E of 40 CFR Part 763 and EPA/600/R-93/116.
2. The results are only related to the samples analyzed. **ND** = None Detected (no asbestos fibres were observed), **NA** = Not Analyzed (analysis stopped due to a previous positive result).
3. This report may not be reproduced, except in full without the written approval of EMC Scientific Inc. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.
4. The Ontario Regulatory Threshold for asbestos is 0.5%. The limit of quantification (LOQ) is 0.5%.



Your Project #: 352142.002
Site Location: 341 10TH STREET , HANOVER
Your C.O.C. #: N/A

Attention: Brandon Jones

Pinchin Ltd
225 Labrador Drive
Unit #1
Waterloo, ON
CANADA N2K 4M8

Report Date: 2026/04/20
Report #: R8726862
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C640581

Received: 2026/04/16, 15:53

Sample Matrix: Bulk
Samples Received: 5

Analyses	Date		Date Analyzed	Laboratory Method	Analytical Method
	Quantity	Extracted			
Metals in Paint	2	2026/04/20	2026/04/20	CAM SOP-00408	EPA 6010D m
Polychlorinated Biphenyl in Solids (1)	3	2026/04/18	2026/04/19	CAM SOP-00309	EPA 8082A m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Analysis was conducted according to Bureau Veritas method CAM SOP-00309 and modified where applicable based on the sample matrix. This test is not Standards Council of Canada accredited for this matrix.



Your Project #: 352142.002
Site Location: 341 10TH STREET , HANOVER
Your C.O.C. #: N/A

Attention: Brandon Jones

Pinchin Ltd
225 Labrador Drive
Unit #1
Waterloo, ON
CANADA N2K 4M8

Report Date: 2026/04/20
Report #: R8726862
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C640581

Received: 2026/04/16, 15:53

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:

Daria Lisova, Project Manager
Email: daria.lisova@bureauveritas.com
Phone# (905) 817-5700

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.



BUREAU
VERITAS

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

ELEMENTS BY ATOMIC SPECTROSCOPY (BULK)

Bureau Veritas ID		BBVT25	BBVT26		
Sampling Date		2026/04/07	2026/04/07		
COC Number		N/A	N/A		
	UNITS	L0001, METAL, LIGHT YELLOW PAINT ON PIPING. LOC: ROOF	L0002, METAL, DARK YELLOW PAINT ON PIPING. LOC: ROOF	RDL	QC Batch
Metals					
Lead (Pb)	%	0.042	0.44	0.0010	A135733
RDL = Reportable Detection Limit					
QC Batch = Quality Control Batch					



**BUREAU
VERITAS**

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

POLYCHLORINATED BIPHENYLS BY GC-ECD (BULK)

Bureau Veritas ID		BBVT27	BBVT28	BBVT29		
Sampling Date		2026/04/07	2026/04/07	2026/04/07		
COC Number		N/A	N/A	N/A		
	UNITS	P0001,BLACK CAULKING,PIPE PENETRATIONS.LOC:R OOF	P0002,DARK GREY CAULKING,PIPE PENETRATIONS.LOC:R OOF	P0003,YELLOW CAULKING,FLASHING AGAINST BRICK WALL: LOC:ROOF.	RDL	QC Batch
PCBs						
Aroclor 1262	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1016	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1221	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1232	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1242	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1248	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1254	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1260	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Aroclor 1268	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Total PCB	ug/g	<0.1	<0.1	<0.1	0.1	A135405
Surrogate Recovery (%)						
Decachlorobiphenyl	%	64	56	87		A135405
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						



BUREAU
VERITAS

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

TEST SUMMARY

Bureau Veritas ID: BBVT25
Sample ID: L0001, METAL, LIGHT YELLOW PAINT ON PIPING. LOC: ROOF
Matrix: Bulk

Collected: 2026/04/07
Shipped:
Received: 2026/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	A135733	2026/04/20	2026/04/20	Japneet Gill

Bureau Veritas ID: BBVT26
Sample ID: L0002, METAL, DARK YELLOW PAINT ON PIPING. LOC: ROOF
Matrix: Bulk

Collected: 2026/04/07
Shipped:
Received: 2026/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Metals in Paint	ICP	A135733	2026/04/20	2026/04/20	Japneet Gill

Bureau Veritas ID: BBVT27
Sample ID: P0001,BLACK CAULKING,PIPE PENETRATIONS.LOC:ROOF
Matrix: Bulk

Collected: 2026/04/07
Shipped:
Received: 2026/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Solids	GC/ECD	A135405	2026/04/18	2026/04/19	Svitlana Shaula

Bureau Veritas ID: BBVT28
Sample ID: P0002,DARK GREY CAULKING,PIPE PENETRATIONS.LOC:ROOF
Matrix: Bulk

Collected: 2026/04/07
Shipped:
Received: 2026/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Solids	GC/ECD	A135405	2026/04/18	2026/04/19	Svitlana Shaula

Bureau Veritas ID: BBVT29
Sample ID: P0003,YELLOW CAULKING,FLASHING AGAINST BRICK WALL: LOC:ROOF.
Matrix: Bulk

Collected: 2026/04/07
Shipped:
Received: 2026/04/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Polychlorinated Biphenyl in Solids	GC/ECD	A135405	2026/04/18	2026/04/19	Svitlana Shaula



BUREAU
VERITAS

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

GENERAL COMMENTS

PCB analysis: Values were calculated on a wet weight basis.

Sample BBVT25 [L0001, METAL, LIGHT YELLOW PAINT ON PIPING. LOC: ROOF] : Metal Analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Sample BBVT26 [L0002, METAL, DARK YELLOW PAINT ON PIPING. LOC: ROOF] : Metal Analysis: Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

QUALITY ASSURANCE REPORT

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
A135405	Decachlorobiphenyl	2026/04/19	118	30 - 130	86	30 - 130	86	%				
A135405	Aroclor 1016	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1221	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1232	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1242	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1248	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1254	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1260	2026/04/19	129	30 - 130	96	30 - 130	<0.1	ug/g	12	50		
A135405	Aroclor 1262	2026/04/19					<0.1	ug/g				
A135405	Aroclor 1268	2026/04/19					<0.1	ug/g				
A135405	Total PCB	2026/04/19	129	30 - 130	96	30 - 130	<0.1	ug/g	12	50		
A135733	Lead (Pb)	2026/04/20	NC	75 - 125			<0.00010	%	31	35	103	75 - 125

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)



BUREAU
VERITAS

Bureau Veritas Job #: C640581

Report Date: 2026/04/20

Pinchin Ltd

Client Project #: 352142.002

Site Location: 341 10TH STREET , HANOVER

Sampler Initials: BD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

C640581
2026/04/16 15:53



6740 Campbell Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

Received In
WATERLOO

CHAIN OF CUSTODY RECORD

Page ____ of ____

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: Pinchin Ltd.	Company Name: Pinchin Ltd	Quotation #: _____	☐ Regular TAT (5-7 days) Most analyses				
Contact Name: Accounts Payable	Contact Name: Brian Dubeau/Brandon Jones	P.O. #/ A/E#: _____	☐ PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS				
Address: _____	Address: _____	Project #: 352142.002	☐ Rush TAT (Surcharges will be applied)				
Phone: _____ Fax: _____	Phone: 226.971.9969 Fax: _____	Site Location: 341 10th Street, Hanover	☐ 1 Day ☒ 2 Days ☐ 3-4 Days				
Email: ap@pinchin.com	Email: bdubeau@pinchin.com, b.jones@pinchin.com	Site #: _____	Date Required: _____				
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Site Location Province: _____ ON	Rush Confirmation #: _____				
Sampled By: Brian Dubeau		LABORATORY USE ONLY					
Regulation 153 ☐ Table 1 ☐ Res/Park ☐ Med/ Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/ Other ☐ Table _____ FOR RSC (PLEASE CIRCLE) Y / N		Other Regulations ☐ CCME ☐ Sanitary Sewer Bylaw ☐ MISA ☐ Storm Sewer Bylaw ☐ PWQO ☐ Region _____ ☐ Other (Specify) _____ ☐ REG 558 (MIN. 3 DAY TAT REQUIRED) ☐ REG 406 Table _____					
Include Criteria on Certificate of Analysis: Y / N		Analysis Requested					
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS		COOLER TEMPERATURES					
SAMPLE IDENTIFICATION		CUSTODY SEAL Y / N					
DATE SAMPLED (YYYY/MM/DD)		Present Intact					
TIME SAMPLED (HH:MM)		COOLING MEDIA PRESENT: Y / N					
MATRIX		COMMENTS					
L0001, Metal, Light Yellow Paint on Piping. Loc: Roof		4/7/2026 BULK					
L0002, Metal, Dark Yellow Paint on Piping. Loc: Roof		4/7/2026 Bulk					
P0001, Black Caulking, Pipe Penetrations. Loc: Roof		4/7/2026 Bulk					
P0002, Dark Grey Caulking, Pipe Penetrations. Loc: Roof		4/7/2026 Bulk					
P0003, Yellow Caulking, Flashing against brick wall. Loc: Roof		4/7/2026 Bulk					
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)					
DATE: (YYYY/MM/DD)		TIME: (HH:MM)					
TIME: (HH:MM)		RECEIVED BY: (Signature/Print)					
RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)					
DATE: (YYYY/MM/DD)		TIME: (HH:MM)					
TIME: (HH:MM)		BV JOB #					
Brian Dubeau 4/16/2026		Aayush Go AAIVUSHI 2026/04/16 15:53					



WAT-2026-04-179

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <https://www.bvna.com/coc-terms-and-conditions>

APPENDIX II
Photographs



Photo 1 - Non-asbestos black tar and grey caulking at roof penetrations



Photo 2 - Non-asbestos grey caulking at pipe penetrations



Photo 3 - Non-asbestos yellow caulking on flashing



Photo 4 - Yellow paint on metal piping (low lead) and Dark Yellow paint on metal piping (elevated lead)

PART 1 GENERAL

1.1 DESCRIPTION

1. Refer to the attached report prepared for the Town of Hanover. The report is titled "**Geotechnical Investigation Proposed Police Building 443 10th Avenue, Hanover, Ontario**". Prepared by Chung & Vander Doelen, File No. 3163G-1v0 dated August 10, 2026.
2. This information given in this report was obtained for the use of the Owner in the execution of the design. It is presented in good faith to assist the Contractors and their subcontractors.
3. Any information pertaining to soils, and borehole logs are furnished by the Architect and Geotechnical Engineer as a matter of general information only and borehole descriptions of logs are not to be interpreted as descriptive of conditions at locations other than those described by the boreholes themselves.
4. It is incumbent upon the Contractors to make whatever additional soils investigation they feel may be required for the proper execution of the Contract at no additional cost to the Owner.
5. **All work, testing, inspections, procedures, depths and recommendations described in the report noted in Item 1 above shall be included in the base bid tender for all excavation and fill work.** Where the work included in the specifications exceeds the recommendations of the Geotechnical Investigation report these specification sections shall govern. All work called for in the drawings and specifications shall be performed whether or not it is included in the Geotechnical Investigation report.
6. Adhere to O.Reg. 406/19 MECP On-Site and Excess Soil Management Regulation.
6. Examine the conditions on the site, confirm the present site conditions prior to starting work.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION Not Used

END OF SECTION



CHUNG & VANDER DOELEN
ENGINEERING LTD.

**GEOTECHNICAL INVESTIGATION
PROPOSED POLICE BUILDING**

443 10th Avenue
Hanover, Ontario

SUBMITTED TO:

Town of Hanover
341 10th Street
Hanover, ON
N4N 1P5

ATTENTION:

Mr. Andrew Wilken



CHUNG & VANDER DOELEN
ENGINEERING LTD.

311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1
519-742-8979

August 10, 2026
File No.: 3163G-1v0

Town of Hanover
341 10th Street
Hanover, ON
N4N 1P5

Attention: Mr. Andrew Wilken

RE: Geotechnical Investigation
Proposed Police Building
443 10th Avenue, Hanover, Ontario

We take pleasure in enclosing one (1) copy of our Geotechnical Investigation Report carried out at the above-referenced Site.

If you have any questions or clarifications are required, please contact the undersigned at your convenience.

We thank you for giving us this opportunity to be of service to you.

Yours truly,
CHUNG & VANDER DOELEN ENGINEERING LTD.

Eric Y. Chung, M.Eng., P.Eng.
Principal Engineer

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LIST OF APPENDICES AND ENCLOSURES

Appendix A	Limitations of Report
Appendix B	Soil Chemistry Results
Appendix C	Comparison of the Soil Chemistry Results to the Excess Soil Quality Standards
Appendix D	Shear Wave Velocity Survey Report
Enclosure A	Soil Abbreviations and Terms Used on Record of Borehole Log Sheets
Enclosures 1 to 5	Borehole Log Sheets
Enclosures 6 and 7	Grain Size Distribution Charts
Drawing No. 1	Borehole Location Plan



1.0 INTRODUCTION

CHUNG & VANDER DOELEN ENGINEERING LTD. (CVD) has been retained by the Town of Hanover to carry out a geotechnical investigation for the new police building to be constructed at 443 10th Avenue in Hanover, Ontario.

It is understood that the existing old fire hall will be demolished, and a new 2-storey high police building is proposed in the area. Basement is not proposed underneath the new police building. New asphalt paved parking lot and drive lane are proposed on the south side of the new building. The finished floor elevation (FFE) is not available at the time of this report; however, it is anticipated that the FFE will be similar to the existing building.

The purpose of this investigation was to determine the subsurface soil and groundwater conditions at the site and, based on the findings, to make geotechnical recommendations for:

- Foundation design recommendations
- Limited State design parameters, bearing capacities, and settlements (as per OBC 2024)
- Engineered fill construction
- Excavation condition and groundwater control during and following construction
- Foundation soil classification for seismic design
- Slab on grade design
- Pavement design and construction
- Infiltration rate of soil deposits for storm water management features
- Preliminary assessment on excess soil disposal

2.0 FIELD WORK

A total of five (5) boreholes were drilled and sampled to depths ranging from 2.90 to 6.70 m below existing grade on June 8, 2026 to investigate the subsurface conditions at the site. The borehole locations are illustrated on the appended Borehole Location Plan, Drawing No. 1.

The field work for these boreholes was carried out under the supervision of a member of our engineering team, who logged the boreholes in the field, effected the subsurface sampling and monitored the groundwater conditions. Underground utilities were located prior to commencing the field work program, by contacting Ontario-One-Call and a private locator.

The boreholes were advanced using a track-mounted drill rig, supplied, and operated by a specialist drilling contractor. The drill rig was equipped with continuous flight hollow stem augers and standard soil sampling equipment.

Standard penetration tests (SPTs) in accordance with ASTM Specification D1586, were carried out at frequent intervals of depth, and the results are shown on the Borehole Logs as Penetration Resistance or "N"-values. The compactness condition of the soil strata has been inferred from the test results.



Groundwater conditions were monitored during advancement of the borehole augering and immediately following the withdrawal of drilling augers at each borehole location.

In addition, Dynamic Cone Penetration Testing (DCPT) were conducted in Boreholes 1 to 3 below the conventional drilling depths, extending to depths of 7.60 to 9.15 m below existing grade, to further assess the extent and compactness condition of the “apparent” loose silt deposit.

The borehole locations and associated ground surface elevations were surveyed by CVD for the purpose of this report using a Network RTK Global Navigation Satellite System (GNSS) Receiver. The survey data was collected using The UTM Zone 17N Projection, NAD83(CSRS)v7-2010 datum and Canada Geoid Model HT2_2010v70 (CGVD28).

3.0 LABORATORY TESTING

3.1 Geotechnical Laboratory Testing

Soil samples obtained from the in-situ tests were examined in the field and subsequently brought to our laboratory for visual and tactile examination to confirm field classification. Moisture content of all retrieved samples was determined.

Two (2) grain size distribution analyses were carried out on representative soil samples of the major soil deposits to confirm field identification and to provide information on the soil hydraulic conductivity and engineering characteristics.

3.2 Analytical Laboratory Testing

Three (3) soil samples were submitted to AGAT Laboratories (AGAT) in Mississauga, Ontario for analysis of Metals and Inorganics, Petroleum Hydrocarbons (PHCs) fractions F1-F4, and Benzene-Toluene-Ethylbenzene-Xylene (BTEX). The chemical testing was conducted to provide a preliminary assessment of the environmental quality of potential excess soil which may be generated and removed off-site during construction.

The following table presents the location, depth, soil description, and parameters analysed for each soil sample collected and submitted.

Sample I.D.	Sample Depth (mbgs)*	Sample Description	Parameters Analysed
BH2 - SS1	0.10 – 0.70	Granular Base and Sand Fill	Metals and Inorganics, PHCs F1-F4 and BTEX



Sample I.D.	Sample Depth (mbgs)*	Sample Description	Parameters Analysed
BH3 - SS1	0.10 – 0.70	Granular Base and Sand Fill	Metals and Inorganics, PHCs F1-F4 and BTEX
BH4 - SS1	0.10 – 0.70	Granular Base and Sandy Silt to Sand Fill	Metals and Inorganics, PHCs F1-F4 and BTEX

mbgs– denotes metres below ground surface

The laboratory certificates of chemical analysis and results provided by AGAT are enclosed in Appendix B.

4.0 EXISTING SITE CONDITIONS

The project site is located at the town centre and is currently occupied by an old fire hall, which is being used as a garage for town vehicles.

The site is immediately surrounded by the Town's Civic Centre, Public Library, Civic Theatre, two churches, as well as some commercial and residential lots to the west. The terrain is generally flat. Ground surface elevations at the borehole locations range between 276.50 m and 276.92 m.

5.0 SUBSURFACE CONDITIONS

The detailed subsurface conditions encountered in the five (5) boreholes were advanced as part of this investigation are shown on the Borehole Log Sheets, Enclosures 1 to 5. The following sections provide descriptions of the major soil deposits encountered in the boreholes. Enclosure A provides explanations of the various soil abbreviations and terms used on these borehole log sheets.

The stratigraphic boundaries shown on the borehole logs are inferred from non-continuous sampling conducted during advancement of the borehole drilling procedures and, therefore, represent transitions between soil types rather than exact planes of geologic change. The subsurface conditions will vary between and beyond the borehole locations.

5.1 Pavement Structure

Asphalt pavement and granular base materials were encountered at the ground surface at all five (5) borehole locations with measured asphalt thicknesses ranging between 50 and 65 mm and granular base thicknesses ranging between 300 and 340 mm.



5.2 Fill

Fill materials in composition from sand to sandy silt were encountered beneath the pavement structure in Boreholes 1 to 4 and extended to depths between 0.70 and 1.45 m below existing grade. Traces of gravel were generally encountered within the fill materials. Buried topsoil and organic staining were observed within the fill at Boreholes 1, 2 and 4.

The SPT “N”-values measured within the fill ranged from 2 to 14 blows per 300 mm of penetration, indicating a variable very loose to compact compactness condition. Natural moisture contents were measured between 4 and 14%, indicating a damp to moist moisture condition. Elevated moisture contents also reflect the presence of topsoil/organics.

5.3 Sand

A layer of fine to coarse grained sand deposit was encountered below the fill or pavement structure at all five (5) borehole locations. The sand deposit extended to depths between 3.70 and 4.95 m below existing grade at Boreholes 1 to 3. Boreholes 4 and 5 were terminated within the sand deposit at depths of 5.00 and 2.90 m below existing grade, respectively. The sand deposit generally contained trace to some gravel and trace silt.

One (1) grain size distribution analysis was conducted on a representative sample of the sand deposit collected from Borehole 5, and the results are graphically presented on Enclosure 7.

The SPT “N”-values measured within the sand deposit ranged from 2 to 28 blows per 300 mm of penetration, indicating a very loose to compact compactness condition. The very loose condition was encountered locally in Borehole 3 to a depth of 3.5± m below ground surface. Natural moisture content was measured between 3 and 11%, indicating a moist to wet moisture condition.

5.4 Silt

The sand deposit at Boreholes 1 to 3 were further underlain by a layer of silt deposit which extended to at least the borehole termination depths between 5.20 and 6.70 m below existing grade. The silt deposit contained trace sand and trace clay. Occasional clayey seams/layers were encountered within the deposit at Borehole 3.

One (1) grain size distribution analysis was conducted on a representative sample of the silt deposit collected from Borehole 1 and the results are graphically presented on Enclosure 6.

The SPT “N”-values measured within the silt deposit ranged from 2 to 12 blows per 300 mm of penetration. DCPTs were conducted in all three (3) boreholes below the conventional drilling depths, extending to depths of 7.60 to 9.15 m below existing grade, to further assess the extent and compactness condition of the “apparent” loose silt deposit. The DCPT values generally ranged from 8 to 19 blows per 300 mm of penetration, with lower blow counts recorded immediately below the sampled



borehole intervals. The lower blow counts were likely due to disturbance caused by the sampling operations, as the clayey content may have made the deposit more sensitive to disturbance. Based on the above results, the silt deposit is considered to have a loose to compact compactness condition. Natural moisture contents were measured between 20 and 26%, indicating a saturated moisture condition.

5.5 Groundwater

Groundwater conditions were monitored during and immediately following the withdrawal of the drilling augers at each borehole location. Upon auger withdrawal, wet/saturated soil cave-in or free water was measured in Boreholes 2 to 4 at depths between 3.95 and 4.55 m below existing grade. Boreholes 1 and 5 remained dry and open upon withdrawal of the drilling augers.

Based on the field observations and measured moisture contents, the groundwater table is expected to lie within the silt deposit. The water levels measured within the sand deposit likely represent a “perched” condition above the relative impermeable silt deposit.

It is noted that the observed groundwater table will fluctuate seasonally and in response to major weather events.



6.0 DISCUSSION AND RECOMMENDATIONS

6.1 General

It is understood that the existing old fire hall will be demolished, and a new 2-storey high police building is proposed in the area. Basement is not proposed underneath the new police building. New asphalt paved parking lot and drive lane are proposed on the south side of the new building. The finished floor elevation (FFE) is not available at the time of this report; however, it is anticipated that the FFE will be similar to the existing building.

In general, very loose to compact fill materials were encountered at Boreholes 1 to 4 and extended to depths between 0.70 and 1.45 m below existing grade. Very loose to compact sand deposit was encountered below the fill or surficial pavement structure at all five (5) borehole locations to depths of 5.00 and 2.90 m below existing grade at Boreholes 4 and 5, respectively. Boreholes 1 to 3 were terminated within loose to compact silt depths at depths between 5.20 and 6.70 m below existing grade.

Based on the field observations and measured moisture contents, the groundwater table is expected to lie within the silt deposit. The water levels measured within the sand deposit likely represent a “perched” condition above the impermeable silt deposit.

It is noted that the observed groundwater table will fluctuate seasonally and in response to major weather events.

6.2 Engineered Fill Construction

The fill materials and very loose native sand deposit encountered at Borehole 3 (to a depth of 3.5± m) are not suitable to support the floor slab and footing foundations in their present condition. Removal of these materials and constructing engineered fill could prove to be an effective and economical method to repair poor bearing soil areas to provide suitable bearing at more desirable elevations.

It is noted that the area extent of the very loose sand encountered at Borehole 3 has not been determined and should be confirmed with test pits during demolition of the existing building or at the commencement of the engineered fill.

Imported sand and gravel or approved excavated inorganic materials (native sand deposit) can be used to construct the engineered fill under controlled and supervised conditions. The existing fill which contains topsoil/organics is not considered suitable for re-use as engineered fill. The moisture content of the soil requires to be within 3% dry of its optimum moisture condition to achieve the specified degree of compaction.

Engineered fill should be constructed in accordance with the following procedures in order to support building foundations and floor slabs:

1. All existing pavement structure, fill materials, service trench backfill, concrete floor and foundations, **very loose sand deposit at Borehole 3** and other deleterious materials are to be



removed from beneath the future building to expose the underlying competent native subgrade;

2. The exposed subgrade surface is to be thoroughly recompacted by large heavy compaction equipment (10 tonne recommended) and inspected by qualified geotechnical personnel. Any loose or soft areas identified should be excavated to the level of competent soil;
3. Where saturated and unstable subgrade condition is encountered (likely in the area of Borehole 3), the initial lift should consist of 450 to 600 mm thick coarse pit run sand and gravel, and statically compacted to construct a “bridging” layer over the unstable subgrade;
4. The required grades can then be achieved by placing approved salvaged granular soil (as described above) or imported well graded sand and gravel (similar to the gradational requirements of OPSS Granular “B” Type I) in maximum 300 mm thick loose lifts and compacting to a minimum of 100% Standard Proctor maximum dry density (SPMDD) in areas to support building foundations and 98% SPMDD in areas to support floor slabs.
5. Engineered fill used to support future building foundations and floor slabs must be placed such that the fill pad extends horizontally outwards from all footings at least the same distance as how thick the engineered fill pad will exist between the underside of future footings and the approved native earth subgrade;
6. All fill placement and compaction operations must be supervised on a full-time basis by qualified geotechnical personnel to approve fill material and ensure the specified degrees of compaction have been achieved.

Vibration could be generated from various construction equipment, such as compactors and rollers, which could be harmful to potential surrounding structures and buildings during construction. Peak particle velocity (PPV) of ground motion is widely accepted as the best descriptor of potential for vibration damage to structures. The safe vibration limit can be set to 8 to 25 mm/s PPV, depending on the sensitivity of any potential surrounding structures to vibration.

Vibration monitoring can be carried out to measure the PPV of ground motion from vibration generated from typical compaction equipment at the beginning of the project in the potentially critical areas. This will set criteria and establish the type of equipment to be used for this project.

A pre-construction condition survey should be conducted to document the condition of the existing structures within the possible zone of influence, if necessary.



6.3 Footing Foundations

Conventional strip and spread footing foundations can be used to support the proposed police building. Footings constructed on approved engineered fill (see Section 6.2, Engineered Fill Construction) and/or competent native sand deposit can be designed using a net Geotechnical Reaction at SLS of 150 kPa. The SLS value given above is based on a maximum settlement of 25 mm under the footing foundations. The Factored net Geotechnical Resistance at ULS is 225 kPa.

The following table summarizes the highest founding level and elevation for the footing at each borehole location:

Borehole No.	Existing Ground Elevation (m)	Highest Founding Depth (m)	Highest Founding Elevation (m)
1	276.54	2.04	274.50
2	276.68	1.18	275.50
3	276.67	3.77	272.90
4	276.92	0.92	276.00

These bearing pressures can be achieved provided that the founding subgrade is undisturbed during construction.

The maximum total and differential settlements of footings designed to the above recommended soil bearing pressure are expected to be less than 25 and 20 mm, respectively, and these are considered tolerable for the structure being contemplated. The majority of the settlements will take place during construction and the first loading cycle of the building.

New footings are to be founded below any existing fill and to at least the underside level of previous or existing footings on competent native undisturbed soils, unless if engineered fill is adopted. Spacing between adjacent footing steps should not be steeper than 10H to 7V.

Exterior footings and footings in unheated portions of the building should be provided with a soil cover of not less than 1.2 m or equivalent synthetic thermal insulation for adequate frost protection. The founding subgrade soils must be protected from frost penetration during winter construction.

It is recommended that a lean concrete mat be placed over approved footing subgrade in wet or saturated areas to prevent further disturbance to the bearing soils resulting from construction activities.

CVD recommends that the footing excavations be inspected by the geotechnical engineer to ensure adequate soil bearing and proper subgrade preparation.



6.4 Earthquake Considerations

In accordance with The Ontario Building Code 2024 (OBC), the proposed structure should be designed to resist earthquake load and effects as per Subsection 4.1.8.

A site-specific shear wave velocity survey was conducted at the site by CVD. The average Vs30 value was measured at 496 m/s, and the site is classified as **Site Class C** in accordance with OBC Table 4.1.8.4.B. For detailed information regarding the site-specific shear wave velocity survey, refer to the report provided in Appendix D.

6.5 Floor Slab Construction

The floor slabs can be constructed as conventional slab-on-grade on approved engineered fill (constructed per procedures given in Section 6.2, Engineered Fill Construction) or native competent soil deposits. The exposed subgrade should be proof-rolled with a heavy roller in conjunction with an inspection by the geotechnical engineering at the time of floor slab construction. Any soft and/or unstable areas should be replaced with granular fill which should be compacted to at least 98% SPMDD.

It is recommended that a minimum 150 mm thick layer of 19 mm clear stone (OPSS 1004) be placed and thoroughly compacted beneath the concrete floor slabs to provide uniform support.

The floor slabs should be separated structurally from the columns and foundation walls. Sawcut control joints should be provided at regular spacing (less than 30 times the concrete slab thickness) and to depths between one-third to one-quarter of the slab thickness.

Moisture migration from the underlying soils through the concrete slab-on-grade will take place via “Capillary action” and “diffusion” (due to vapour pressure differential). Although, the Granular “A” layer will provide a capillary break, the low permeance of the concrete slab and floor coverings will result in 100% humidity under the concrete slab and, consequently, the moisture in the concrete will increase over time. The potential effect of the soil moisture should be considered in selecting the floor coverings. A vapour retarder material (such as a 15-mil poly, ASTM E-1745) can be placed to reduce soil moisture migration. Reference is made to ACI 302.

Care should be taken to ensure that the backfill against foundation walls, interior piers/columns and concrete pits are placed in thin layers and each layer compacted to at least 98% SPMDD. These types of confined areas should be backfilled with the excavated sand or imported granular soils such as OPSS Granular “B” Type I.

6.6 Radon Mitigation Rough-In System

The 2024 Ontario Building Code, effective January 1, 2025, requires that buildings containing components that separate interior conditioned space from exterior space, interior space from the ground, or environmentally dissimilar interior spaces, be constructed in a manner that minimizes the ingress of airborne radon and other soil gases from the ground, with the objective of controlling indoor



concentrations to acceptable levels.

Radon mitigation is typically achieved through the installation of a rough-in for a subfloor depressurization system, together with a continuous membrane beneath and at the perimeter of the slab and flexible sealant at construction joints and penetrations to limit soil-gas entry.

Consistent with the recommendations in Section 6.5, a minimum 150 mm layer of 19 mm clear stone (OPSS 1004) beneath the slab-on-grade is recommended to facilitate soil-gas movement, together with appropriate radon piping rough-in installed in accordance with the Ontario Building Code.

Radon concentrations cannot be determined as part of the geotechnical investigation. Indoor radon levels should be assessed following construction through long-term radon testing under normal occupied conditions, in accordance with Health Canada guidelines.

Testing should be completed using approved measurement devices and, where required, by a Canadian National Radon Proficiency Program (C-NRPP) certified professional. If measured radon concentrations exceed the Health Canada guideline of 200 Bq/m³, the radon rough-in system may be activated or supplemented with additional mitigation measures.

6.7 Open Cut Excavation and Groundwater Control

Excavations are expected to be up to 3.8± m deep for engineered fill construction, foundation construction and site servicing installations (if required). The excavations are expected to penetrate pavement structure, very loose to compact fill, and very loose to compact native sand deposits. These materials are generally considered to be Type 3 soils in accordance with the latest Occupational Health and Safety Act.

Excavations in Type 3 Soils are expected to remain stable during the construction period provided that the side slopes are cut to 1H : 1V from the bottom of the excavation. Where excessively loose soils and/or seepage zones or groundwater are intersected, side slopes should be cut to more stable angles of 3H : 1V. The side slopes should be suitably protected from erosion processes.

Uncontrollable groundwater flows are not expected to be encountered within the anticipated construction excavations. Subsurface seepage and surface water runoff into the excavations may be controlled by conventional sump pumping techniques, as and where required. It is recommended that excavation for the future development be done during the typically drier summer months when ground water conditions would be expected to lie at lower elevations.

6.8 Lateral Earth Pressure

The unbalanced foundation walls and any other soil retaining structures should be designed to resist the lateral earth pressure acting against these walls. The following formula may be used to calculate the unfactored earth pressure distribution.



The designer should apply appropriate load factors to earth pressures and surcharges, and apply applicable resistance factors to sliding resistance, in accordance with the governing design standard.

$$P = K (\gamma H + q)$$

Where:

P=	Lateral earth pressure	kPa
K =	earth pressure coefficient, 0.5 for non-yielding foundation wall earth pressure coefficient, 0.3 for yielding retaining wall	
γ =	unit weight of granular backfill, compacted to 95% SPMDD	21 kN/m ³
H =	unbalanced height of wall	m
q =	surcharge load at ground surface	kPa

The backfill for the foundation walls and retaining walls should be free-draining granular materials which should have less than 8% silt particles (OPSS Granular “B” Type I). The backfill should be placed in thin layers and compacted to 95% SPMDD.

Over-compaction adjacent to the foundation/retaining walls should be avoided. Compaction should be carried out with hand operated equipment within 1 m of the foundation wall or retaining wall. Weeping tiles leading to a frost-free outlet or weep holes should be installed to effect drainage behind the retaining wall.

The sliding resistance of the retaining wall footings should be checked. The unfactored horizontal resistance against sliding between cast-in-place concrete and the various soils can be calculated using a friction coefficient as follows:

Soil	Unit Weight (kN/m ³)	Friction Coefficient
Well-compacted granular backfill	21.0	0.45
Very loose to compact sand deposit	19.0	0.35



6.9 Pavement Design and Construction

The following flexible pavement structures are recommended based on assumed CBR values, groundwater conditions, frost susceptibility of subgrade soils and estimated traffic volumes.

Component	Light Duty (mm)	Heavy Duty (mm)
Asphaltic Concrete HL3	40	40
Asphaltic Concrete HL8	50	50
Granular "A" Base	150	150
Granular "B" Sub-base	300	400

Where native sand deposit is encountered at the subgrade level, the thickness of the Granular "B" Sub-base layer may be reduced by 100 mm. Grain size distribution analysis should be conducted on representative samples to confirm the percentage of fines.

A light-duty pavement structure is recommended for all car parking areas, while a heavy-duty pavement structure should be implemented for access driveways, bay areas and zones subjected to heavier loads, such as loading/unloading box trucks, fire trucks, garbage trucks, and delivery vehicles.

The pavement design considers that pavement construction will be carried out during the drier time of the year and that the earth subgrade is stable, not heaving under construction equipment traffic. If the subgrade is wet or unstable following proof-rolling, additional granular sub-base and/or placement of a geogrid/geotextile material may be required.

Existing grades within the pavement construction limits should be lowered to the earth subgrade levels reflective of the recommended pavement profiles and the proposed finished grades. Preparation will also include full removal of topsoil and otherwise deleterious materials to expose competent stable subgrade soil. The exposed subgrade is to be thoroughly recompact with a minimum 10 tonne vibratory compactor to a density of no less than 95% SPMDD in conjunction with an inspection by the geotechnical engineer prior to the placement of pavement base and subbase materials. Any soft and/or unstable spots or soils containing appreciable topsoil should be removed and replaced with suitable granular soil compacted to at least 95% SPMDD.

The Granular "A" and Granular "B" materials should be produced in accordance with current OPSS specifications and placed and uniformly compacted to at least 100% SPMDD. The placing and rolling of the asphalt mixture should conform to OPSS.MUNI 310 Table 10 and should be compacted to no less than 92% of the Marshall density (MRD).

Frequent in situ density testing by this office should be carried out to verify that the specified degree of compaction is being achieved and maintained.



SS-1 or SS-1HH tack coat should be applied to all binder course surfaces and vertical surfaces (i.e., curbs, pavement joints, etc.) prior to placement of asphalt. Refer to OPSS 310 and OPSS 1101 for additional details.

It is noted that even well compacted trench backfill could settle for a period of time after construction. In this regard, the surface course of the asphaltic concrete should be placed at least one (1) year after trench backfill is completed to allow any minor settlements to occur within the trench backfill. The incomplete pavement structure may not be capable of supporting construction traffic. Consequently, minor repairs of the sub-base, base and asphaltic concrete may be required prior to paving with the base course and/or the surface course asphaltic concrete.

The prepared earth subgrade and final pavement surfaces should be graded to direct water runoff away from buildings, sidewalks, and other similar pertinent structures. Positive drainage outlets should be provided at all low points of the prepared earth subgrade, such as stub drains and/or longitudinal sub-drains extended from the catch-basins. Systematic drainage of the granular base materials will promote the longevity of the pavement structures.

6.10 Hydraulic Conductivity and Infiltration Rates

Based on the results of grain size analyses and our experience, the hydraulic conductivity and infiltration rate of the native inorganic soil types encountered at the boreholes are estimated and provided in the following table and may be used for storm water management purposes:

Material	Hydraulic Conductivity (K) (cm/sec)	Factored Infiltration Rate (mm/hr)
Silt (Enclosure 6)	4×10^{-6}	8
Fine to Coarse Sand (Enclosure 7)	3×10^{-2}	80



7.0 GEOENVIRONMENTAL CONSIDERATIONS

Excess soil may be generated and removed off-site during the construction activities associated with the proposed site works. The management of excess soil is now governed by Ontario Regulation 406/19 (O. Reg. 406/19), MECP document titled “On-Site and Excess Soil Management Regulation”.

In accordance with the regulation, the Project Leader is responsible for the handling, storage, reuse, transportation, and removal of all soil. Furthermore, the analytical results must be disclosed with and approved by the owner(s) of the receiving site before exporting the soil.

The following planning documents may be required for on-site and excess soil management:

- Planning Documentation
 - Assessment of Past Uses
 - Sampling and Analysis Plan
 - Soil Characterization Report
 - Excess Soil Destination Assessment Report
- Tracking
- Registry
- Record Keeping

An initial testing program was conducted during the geotechnical investigation, and the analytical results are discussed in the following sections of this report. Additional soil sampling and analysis may be required as per the above-noted MECP document and/or as per the requirement of the receiving site owner(s), depending on the volume of excess soil generated during construction.

Any soils identified during construction to have been environmentally impacted are to be separately stockpiled and analysed to determine the appropriate measures for handling and disposal. Waste characterization testing (TCLP) to classify the material for disposal as prescribed in O.Reg. 347/558 is required. Leachate analysis (mSPLP) is to be carried out if the excess soil is to be disposed to receiving sites under O.Reg. 406/19. Similarly, groundwater encountered during construction works must also be suitably assessed and handled.

7.1 Applicable Regulatory Standards

The Soil, Ground Water and Sediment Standards for Use Under the New Soil Rules and Excess Soil Quality Standards established in accordance with the O. Reg. 406/19 as amended were consulted in the assessment of the soil at the project site.

The analytical results for soils were compared to the following O. Reg. 406/19 regulatory standards:

- Table 1 (Full Depth Background Site Condition Standards) for Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use (Table 1 RPIICC ESQS)



- Table 2.1 (Full Depth Generic Excess Soil Quality Standards in a Potable Ground Water Condition) for Residential/Parkland/Institutional Property Use (Table 2.1 RPI ESQS)
- Table 2.1 (Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition) for Industrial/Commercial/Community Property Use (Table 2.1 ICC ESQS)

7.2 Handling of Excess Soil

In support of on-site and excess soil management, an initial chemical testing program was conducted as part of this geotechnical investigation. Three (3) soil samples were submitted to AGAT for analysis of Metals and Inorganics, Petroleum Hydrocarbons (PHCs) fractions F1-F4, Benzene-Toluene-Ethylbenzene-Xylene (BTEX). The table below outlines a summary of the sample submitted for chemical analysis and all exceedances:

Sample ID	Table 1 RPIICC ESQS	Table 2.1 RPI ESQS	Table 2.1 ICC ESQS
BH2 – SS1	✓	Exceeds – SAR	✓
BH3 – SS1	✓	✓	✓
BH4 - SS1	Exceeds – SAR and EC	Exceeds – SAR and EC	Exceeds – SAR and EC

✓- Meets applicable standard for all parameters analyzed

It is noted that the soil conditions may differ between and beyond the sample locations. If environmentally impacted soil is encountered during construction, the soil should be segregated, stockpiled and CVD should be contacted for further assessment of the impacted soils.

CVD further recommends that a disposal plan for excess soils be established to manage the quantity, as well as where and how the excess soils can be disposed of off-site.

Management of Salt-Impacted Soils

The salt-impacted excess soil from the Project Area can be reused for beneficial reuse under the following conditions:

- The excess soil is finally placed at one of the following locations:
 - Where it is reasonable to expect that the soil will be affected by the same chemicals as a result of continued application of a substance for the safety of vehicular or pedestrian traffic under conditions of snow or ice



- At industrial or commercial property use and to which non-potable standards would be applicable
- At least 1.5 m below the surface of the soil
- The excess soil is not finally placed at any of the following locations:
 - Within 30 m of a waterbody
 - Within 100 m of a potable water well or area with an intended property use that may require a potable water well
 - At a location that will be used for growing crops or pasturing livestock unless the excess soil is placed 1.5 m or greater below the soil surface (at a Stratified Site)

The results and laboratory certificates of chemical analysis provided by AGAT are enclosed in Appendix B. A comparison of the soil chemistry results to the applicable regulatory standard is included in Appendix C.



8.0 CLOSURE

The Limitations of Report, as quoted in Appendix A, is an integral part of this report.

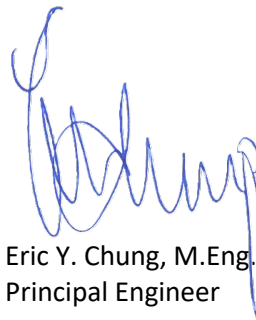
We trust that the information presented in this report is complete within our terms of reference. If there are any further questions concerning this report, please do not hesitate to contact our office.

Yours truly,

CHUNG & VANDER DOELEN ENGINEERING LTD.



Nandou Zhao, M.Eng., P. Eng.
Manager – Geotechnical Services



Eric Y. Chung, M.Eng., P.Eng.
Principal Engineer



APPENDIX A

Limitations of Report



APPENDIX “A”

LIMITATIONS OF REPORT

The conclusions and recommendations given in this report are based on information determined at the testhole locations. Subsurface and groundwater conditions between and beyond the testholes may differ from those encountered at the testhole locations, and conditions may become apparent during construction which could not be detected or anticipated at the time of the site investigation. It is recommended practice that the Soils Engineer be retained during construction to confirm that the subsurface conditions throughout the site do not deviate materially from those encountered in the testholes.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of testholes and their respective depths may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusion as to how the subsurface conditions may affect their work.

The benchmark and elevations mentioned in this report were obtained strictly for use in the geotechnical design of the project and by this office only, and should not be used by any other parties for any other purposes.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. CHUNG & VANDER DOELEN ENGINEERING LIMITED accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final design stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

This report does not reflect the environmental issues or concerns unless otherwise stated in the report.



APPENDIX B

Soil Chemistry Results



CLIENT NAME: CHUNG AND VANDER DOELEN
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ATTENTION TO: NANDOU ZHAO

PROJECT: 3163

AGAT WORK ORDER: 26T444838

SOIL ANALYSIS REVIEWED BY: Chuandi Zhang, Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jun 23, 2026

PAGES (INCLUDING COVER): 12

VERSION+: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

+Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Services Representative for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- Any certificate of analysis issued by AGAT shall not be altered or reproduced except in full, without the written consent of the laboratory. Interpretation and use of the test results are the sole responsibility of the Client. AGAT will not be liable for any manipulation or alteration of the results or information contained within certificates of analyses by the Client or third party.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information is available on request from AGAT Laboratories, in accordance with ISO/IEC 17025:2017, ISO/IEC 17025:2005 (Quebec), DR-12-PALA and/or NELAP Standards.
- This document is signed by an authorized signatory who meets the requirements of the MELCCFP, CALA, SCC and NELAP.
- For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized



Certificate of Analysis

AGAT WORK ORDER: 26T444838

PROJECT: 3163

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CLIENT NAME: CHUNG AND VANDER DOELEN

SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover

ATTENTION TO: NANDOU ZHAO

SAMPLED BY: Rade Soknic

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2026-06-12

DATE REPORTED: 2026-06-23

Parameter	Unit	SAMPLE DESCRIPTION:					BH3 (SS1)	BH4 (SS1)	BH2 (SS1)
		SAMPLE TYPE:					Soil	Soil	Soil
		DATE SAMPLED:					2026-06-11 15:05	2026-06-11 15:10	2026-06-11 15:15
		G / S: A	G / S: B	G / S: C	G / S: D	RDL	7831672	7831676	7831677
Antimony	µg/g	1.3	40	7.5	40	0.8	<0.8[<A]	<0.8[<A]	<0.8[<A]
Arsenic	µg/g	18	18	18	18	1	2[<A]	8[<A]	3[<A]
Barium	µg/g	220	670	390	670	2.0	14.7[<A]	78.2[<A]	19.8[<A]
Beryllium	µg/g	2.5	8	4	8	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]
Boron	µg/g	36	120	120	120	5	8[<A]	8[<A]	7[<A]
Boron (Hot Water Soluble)	µg/g	NA	2	1.5	2	0.10	0.10[<C]	0.25[<C]	0.12[<C]
Cadmium	µg/g	1.2	1.9	1.2	1.9	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]
Chromium	µg/g	70	160	160	160	5	6[<A]	16[<A]	6[<A]
Cobalt	µg/g	21	80	22	80	0.8	1.8[<A]	4.2[<A]	2.0[<A]
Copper	µg/g	92	230	140	230	1.0	6.4[<A]	14.4[<A]	8.3[<A]
Lead	µg/g	120	120	120	120	1	5[<A]	35[<A]	26[<A]
Molybdenum	µg/g	2	40	6.9	40	0.5	<0.5[<A]	0.6[<A]	<0.5[<A]
Nickel	µg/g	82	270	100	270	1	3[<A]	8[<A]	4[<A]
Selenium	µg/g	1.5	5.5	2.4	5.5	0.8	<0.8[<A]	<0.8[<A]	<0.8[<A]
Silver	µg/g	0.5	40	20	40	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]
Thallium	µg/g	1	3.3	1	3.3	0.5	<0.5[<A]	<0.5[<A]	<0.5[<A]
Uranium	µg/g	2.5	33	23	33	0.50	<0.50[<A]	<0.50[<A]	<0.50[<A]
Vanadium	µg/g	86	86	86	86	2.0	8.2[<A]	21.9[<A]	8.7[<A]
Zinc	µg/g	290	340	340	340	5	12[<A]	68[<A]	40[<A]
Chromium, Hexavalent	µg/g	0.66	8	8	8	0.2	<0.2[<A]	<0.2[<A]	<0.2[<A]
Cyanide, WAD	µg/g	0.051	0.051	0.051	0.051	0.040	<0.040[<A]	<0.040[<A]	<0.040[<A]
Mercury	µg/g	0.27	0.27	0.27	0.27	0.10	<0.10[<A]	<0.10[<A]	<0.10[<A]
Electrical Conductivity (2:1)	mS/cm	0.57	1.4	0.7	1.4	0.005	0.243[<A]	1.41[>D]	0.300[<A]
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	12	5	12	N/A	0.78[<A]	14[>D]	5.2[C-B]
pH, 2:1 CaCl2 Extraction	pH Units					NA	8.05	7.75	8.11

Certified By:



AGAT Laboratories

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CLIENT NAME: CHUNG AND VANDER DOELEN

ATTENTION TO: NANDOU ZHAO

SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover

SAMPLED BY: Rade Soknic

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2026-06-12

DATE REPORTED: 2026-06-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind, C Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - RP, D Refers to O. Reg. 406/19 TABLE 3.1: Full Depth Non-Potable Ground Water Condition Volume Independent - Ind/Com/Community
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

7831672-7831677 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl₂ extract prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

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SAMPLED BY: Rade Soknic

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2026-06-12

DATE REPORTED: 2026-06-23

							SAMPLE DESCRIPTION:	BH3 (SS1)	BH4 (SS1)	BH2 (SS1)
							SAMPLE TYPE:	Soil	Soil	Soil
							DATE SAMPLED:	2026-06-11 15:05	2026-06-11 15:10	2026-06-11 15:15
Parameter	Unit	G / S: A	G / S: B	G / S: C	G / S: D	RDL		7831672	7831676	7831677
Benzene	µg/g	0.02	0.02	0.02	0.034	0.02	<0.02[<A]	<0.02[<A]	<0.02[<A]	<0.02[<A]
Toluene	µg/g	0.2	0.2	0.2	7.8	0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]
Ethylbenzene	µg/g	0.05	0.05		0.05	0.05	<0.05[<B]	<0.05[<B]	<0.05[<B]	<0.05[<B]
m & p-Xylene	µg/g					0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g					0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	0.05	0.091	0.091	3	0.05	<0.05[<A]	<0.05[<A]	<0.05[<A]	<0.05[<A]
F1 (C6 to C10)	µg/g	25				5	<5[<A]	<5[<A]	<5[<A]	<5[<A]
F1 (C6 to C10) minus BTEX	µg/g	25	25	25	25	5	<5[<A]	<5[<A]	<5[<A]	<5[<A]
F2 (C10 to C16)	µg/g	10	26	10	26	10	<10[<A]	<10[<A]	<10[<A]	<10[<A]
F3 (C16 to C34)	µg/g	240	240	240	1700	50	<50[<A]	<50[<A]	<50[<A]	<50[<A]
F4 (C34 to C50)	µg/g	120	3300	2800	3300	50	<50[<A]	<50[<A]	<50[<A]	<50[<A]
Gravimetric Heavy Hydrocarbons	µg/g	120				50	NA[B]	NA[B]	NA[B]	NA[B]
Moisture Content	%					0.1	2.9	10.9	5.5	
Surrogate	Unit	Acceptable Limits								
Toluene-d8	% Recovery			60-140			78	78	72	
Terphenyl	%			60-140			95	95	87	

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O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2026-06-12

DATE REPORTED: 2026-06-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: A Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use, B Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - Com/Ind, C Refers to O. Reg. 406/19 TABLE 2.1: Full Depth Potable Ground Water Condition Volume Independent - RP, D Refers to O. Reg. 406/19 TABLE 3.1: Full Depth Non-Potable Ground Water Condition Volume Independent - Ind/Com/Community
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

7831672-7831677 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6-C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

**Exceedance Summary**

AGAT WORK ORDER: 26T444838

PROJECT: 3163

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
<http://www.agatlabs.com>

CLIENT NAME: CHUNG AND VANDER DOELEN

ATTENTION TO: NANDOU ZHAO

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
7831676	BH4 (SS1)	ON 406/19 T2.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	1.4	1.41
7831676	BH4 (SS1)	ON 406/19 T2.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	14
7831676	BH4 (SS1)	ON 406/19 T2.1 RP	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.7	1.41
7831676	BH4 (SS1)	ON 406/19 T2.1 RP	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	14
7831676	BH4 (SS1)	ON 406/19 T3.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	1.4	1.41
7831676	BH4 (SS1)	ON 406/19 T3.1 IC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	12	14
7831676	BH4 (SS1)	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Electrical Conductivity (2:1)	mS/cm	0.57	1.41
7831676	BH4 (SS1)	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	14
7831677	BH2 (SS1)	ON 406/19 T2.1 RP	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	5.2
7831677	BH2 (SS1)	ON T1 S RPI/ICC	O. Reg. 153(511) - Metals & Inorganics (Soil)	Sodium Adsorption Ratio (2:1) (Calc.)	N/A	2.4	5.2



Quality Assurance

CLIENT NAME: CHUNG AND VANDER DOELEN

AGAT WORK ORDER: 26T444838

PROJECT: 3163

ATTENTION TO: NANDOU ZHAO

SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover

SAMPLED BY: Rade Soknic

Soil Analysis

Report Date: Jun 23, 2026

PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
							Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	7836222		<0.8	<0.8	NA	< 0.8	103%	70%	130%	99%	80%	120%	83%	70%	130%
Arsenic	7836222		2	2	NA	< 1	98%	70%	130%	96%	80%	120%	95%	70%	130%
Barium	7836222		65.3	65.4	0.2%	< 2.0	106%	70%	130%	101%	80%	120%	100%	70%	130%
Beryllium	7836222		<0.5	<0.5	NA	< 0.5	87%	70%	130%	93%	80%	120%	85%	70%	130%
Boron	7836222		7	7	NA	< 5	77%	70%	130%	98%	80%	120%	90%	70%	130%
Boron (Hot Water Soluble)	7831599		<0.10	<0.10	NA	< 0.10	96%	60%	140%	102%	70%	130%	100%	60%	140%
Cadmium	7836222		<0.5	<0.5	NA	< 0.5	104%	70%	130%	97%	80%	120%	100%	70%	130%
Chromium	7836222		13	14	NA	< 5	86%	70%	130%	95%	80%	120%	94%	70%	130%
Cobalt	7836222		4.6	4.7	2.7%	< 0.8	85%	70%	130%	97%	80%	120%	90%	70%	130%
Copper	7836222		10.1	9.9	2.2%	< 1.0	84%	70%	130%	95%	80%	120%	84%	70%	130%
Lead	7836222		4	4	NA	< 1	98%	70%	130%	101%	80%	120%	99%	70%	130%
Molybdenum	7836222		<0.5	<0.5	NA	< 0.5	105%	70%	130%	99%	80%	120%	103%	70%	130%
Nickel	7836222		9	9	2.8%	< 1	85%	70%	130%	90%	80%	120%	85%	70%	130%
Selenium	7836222		<0.8	<0.8	NA	< 0.8	99%	70%	130%	103%	80%	120%	102%	70%	130%
Silver	7836222		<0.5	<0.5	NA	< 0.5	97%	70%	130%	96%	80%	120%	96%	70%	130%
Thallium	7836222		<0.5	<0.5	NA	< 0.5	107%	70%	130%	96%	80%	120%	94%	70%	130%
Uranium	7836222		0.54	0.57	NA	< 0.50	98%	70%	130%	95%	80%	120%	97%	70%	130%
Vanadium	7836222		20.7	20.5	0.7%	< 2.0	92%	70%	130%	94%	80%	120%	98%	70%	130%
Zinc	7836222		24	25	NA	< 5	91%	70%	130%	95%	80%	120%	89%	70%	130%
Chromium, Hexavalent	7827932		<0.2	<0.2	NA	< 0.2	83%	70%	130%	99%	80%	120%	99%	70%	130%
Cyanide, WAD	7836186		<0.040	<0.040	NA	< 0.040	95%	70%	130%	99%	80%	120%	111%	70%	130%
Mercury	7836222		<0.10	<0.10	NA	< 0.10	94%	70%	130%	91%	80%	120%	92%	70%	130%
Electrical Conductivity (2:1)	7842612		0.288	0.278	3.6%	< 0.005	82%	80%	120%	NA			NA		
Sodium Adsorption Ratio (2:1) (Calc.)	7831777		4.1	3.9	5.4%	NA	NA								
pH, 2:1 CaCl2 Extraction	7836186		7.19	7.32	1.8%		100%	80%	120%						

Comments: NA signifies Not Applicable.

pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Duplicate NA: results are under 5X the RDL and will not be calculated.

Certified By:

Quality Assurance

CLIENT NAME: CHUNG AND VANDER DOELEN

AGAT WORK ORDER: 26T444838

PROJECT: 3163

ATTENTION TO: NANDOU ZHAO

SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover

SAMPLED BY: Rade Soknic

Trace Organics Analysis

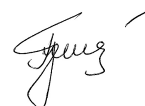
Report Date: Jun 23, 2026			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

Benzene	7831632		<0.02	<0.02	NA	< 0.02	106%	60%	140%	93%	60%	140%	67%	60%	140%
Toluene	7831632		<0.05	<0.05	NA	< 0.05	83%	60%	140%	93%	60%	140%	75%	60%	140%
Ethylbenzene	7831632		<0.05	<0.05	NA	< 0.05	81%	60%	140%	101%	60%	140%	84%	60%	140%
m & p-Xylene	7831632		<0.05	<0.05	NA	< 0.05	87%	60%	140%	109%	60%	140%	94%	60%	140%
o-Xylene	7831632		<0.05	<0.05	NA	< 0.05	73%	60%	140%	118%	60%	140%	111%	60%	140%
F1 (C6 to C10)	7831632		<5	<5	NA	< 5	90%	80%	120%	86%	60%	140%	119%	60%	140%
F2 (C10 to C16)	7831676	7831676	< 10	< 10	NA	< 10	85%	80%	120%	89%	60%	140%	82%	60%	140%
F3 (C16 to C34)	7831676	7831676	< 50	< 50	NA	< 50	87%	80%	120%	81%	60%	140%	84%	60%	140%
F4 (C34 to C50)	7831676	7831676	< 50	< 50	NA	< 50	89%	80%	120%	84%	60%	140%	86%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:



Method Summary

CLIENT NAME: CHUNG AND VANDER DOELEN
AGAT WORK ORDER: 26T444838
PROJECT: 3163
ATTENTION TO: NANDOU ZHAO
SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover
SAMPLED BY: Rade Soknic

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl ₂ Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

Method Summary

CLIENT NAME: CHUNG AND VANDER DOELEN

AGAT WORK ORDER: 26T444838

PROJECT: 3163

ATTENTION TO: NANDOU ZHAO

SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover

SAMPLED BY: Rade Soknic

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 to C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

Accreditations and Associations

CLIENT NAME: CHUNG AND VANDER DOELEN**PROJECT: 3163****SAMPLING SITE: 10th Ave. (Victoria At.) and 10th St. (Durham Rd.), Hanover****AGAT WORK ORDER: 26T444838****ATTENTION TO: NANDOU ZHAO****SAMPLED BY: Rade Soknic**

Accreditations

AGAT Laboratories is accredited, certified, or licensed to applicable standards for specific tests, parameters, and matrices, as listed in the individual laboratory's current scope(s) of accreditation by the following organizations:

Standards Council of Canada (SCC)

Canadian Association for Laboratory Accreditation (CALA)

Canadian Council of Independent Laboratories (CCIL)

American Association for Laboratory Accreditation (A2LA)

ANSI National Accreditation Board (ANAB)

Arizona Department of Health Services (ADHS) – Tempe AZ0851 / AZR000526095, Calgary 2910 AZ0845 / CN00931, Calgary 2420 AZ0843 / CN00932, Mississauga Coopers AZ0847 / CN00929, Mississauga McAdam AZ0848 / CN00930

Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP)

Ontario Ministry of the Environment, Conservation and Parks (MECP)

New York State Department of Health (NYS DOH)

The tests on this report may not necessarily be included on the scope of accreditation, which are available at the websites for the individual organizations listed above, or linked on our Accreditations page.

Associations

As a leader in science and technology, AGAT Laboratories is proud to hold a number of professional partnerships with key industry organizations and associations. Following is a list of just some of the organizations with which we are currently involved. Association memberships may be limited to specific locations and/or personnel. Please contact AGAT Laboratories for specifics regarding association memberships.

Association des firmes de génie-conseil du Québec (AFG)

Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Association Québécoise de Vérification (AQVE)

British Columbia Environmental Industry Association (BCEIA)

Canadian Energy Geoscience Association (CEGA)

Canadian Land Reclamation Association (CLRA)

Conseil des entreprises en technologies environnementales du Québec (CETEQ)

Conseil Patronal de l'Environnement du Québec (CPEQ)

Energy NL

Environmental Services Association of Alberta (ESAA)/ Environmental Services Association Maritimes (ESAM)

Ontario Environmental Industry Association (ONEIA)

Réseau Environnement

The NELAC Institute (TNI)



26T444838

Turnaround Time (TAT) Required:

Regular TAT

☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days

☐ 2 Business Days

☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CSR

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: CVD ENGINEERING LTD.
Contact: NANDOLU ZHAO
Address: 311 VICTORIA STREET NORTH,
KITCHENER, ON
Phone: _____ Fax: _____
Reports to be sent to: NANDOLU.ZHAO@CVDENGINEERING.COM
1. Email: _____
2. Email: _____

Project Information:

Project: 3163
Site Location: 10th AVE. (VICTORIA ST.) and 10th ST. (DUNHILL RD.), HANOVER
Sampled By: RADE SOKNIC
AGAT Quote #: _____ PO: _____
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company: _____
Contact: _____
Address: _____
Email: _____

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04

Table 1

☒ Ind/Com

☒ Res/Park

☐ Agriculture

Soil Texture (Check One)

☐ Coarse

☐ Fine

☒ Regulation 406

Table 2.1.3.1

☒ Ind/Com

☒ Res/Park

☒ Agriculture

☐ Regulation 558

☐ CCME

☐ Sewer Use

☐ Sanitary ☐ Storm

Region _____

☐ Prov. Water Quality Objectives (PWQO)

☐ Other

Indicate One

Is this submission for a Record of Site Condition (RSC)?

☐ Yes

☒ No

Report Guideline on Certificate of Analysis

☒ Yes

☐ No

Legal Sample ☐

Sample Matrix Legend

GW Ground Water SD Sediment
O Oil SW Surface Water
P Paint R Rock/Shale
S Soil

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Y/N	Field Filtered - Metals, Hg, CrVI, DOC	Metals & Inorganics	Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	BTEX, FL-F4 PHCs	VOC	PAHs	PCBs: Aroclors ☐	Regulation 406 Characterization Package pH, Metals, BTEX, FL-F4	EC, SAR	Regulation 406 SP,LP Rainwater Leach mSP,LP: ☐ Metals ☐ VOCs ☐ SVOCs ☐ OC	Landfill Disposal Characterization TCLP: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B&P ☐ PCBs	Corrosivity: ☐ Moisture ☐ Sulphide	Potentially Hazardous or High Concentration (Y/N)
1. BH3 (SSI)	JUN 11	3:05 AM	2	S		N		☒		☒									
2. BH4 (SSI)	JUN 11	3:10 AM	2	S		N		☒		☒									
3. BH2 (SSI)	JUN 11	3:15 AM	2	S		N		☒		☒									
4.		AM																	
5.		PM																	
6.		PM																	
7.		PM																	
8.		PM																	
9.		PM																	
10.		PM																	
11.		PM																	

Samples Relinquished By (Print Name and Sign):

RADE SOKNIC RS

Date

JUN 11

Time

4 PM

Samples Received By (Print Name and Sign):

Dawson

Date

6/12/26

Time

4pm

Samples Relinquished By (Print Name and Sign):

Date

Time

Samples Received By (Print Name and Sign):

Date

Time

Page _____ of _____

Samples Relinquished By (Print Name and Sign):

Date

Time

Samples Received By (Print Name and Sign):

Date

Time

Nº: T-168822

APPENDIX C

Comparison of the Soil Chemistry Results to the Applicable Regulatory Standards



ANALYTICAL RESULTS FOR SOIL

3163G

Ontario Regulation 406/19 (as amended) - Excess Soil Quality Standards

		Sample ID			BH2 - SS 1	BH3 - SS1	BH4 - SS1
		Depth (m)			0.10 - 0.70	0.10 - 0.70	0.10 - 0.70
		Date			8-Jun-2025	8-Jun-2025	8-Jun-2025
		Lab Sample ID			7831677	7831672	7831676
		T1 RPIICC ¹	T2.1 RPI ²	T2.1 ICC ³			
General	Electrical Conductivity (EC)	0.57	0.7	1.4	0.3	0.243	1.41
	pH	-	-	-	8.11	8.05	7.75
	Cyanide	0.051	0.051	0.051	<0.040	<0.040	<0.040
	Sodium Adsorption Ratio (SAR)	2.4	5	12	5.2	0.78	14
Metals & Inorganics	Antimony (Sb)	1.3	7.5	40	<0.8	<0.8	<0.8
	Arsenic (As)	18	18	18	3	2	8
	Barium (Ba)	220	390	670	19.8	14.7	78.2
	Beryllium (Be)	2.5	4	8	<0.5	<0.5	<0.5
	Boron (B)	36	120	120	7	8	8
	Boron, Hot Water Soluble	-	1.5	2	0.12	0.1	0.25
	Cadmium (Cd)	1.2	1.2	1.9	<0.5	<0.5	<0.5
	Chromium (Cr)	70	160	160	6	6	16
	Cobalt (Co)	21	22	80	2	1.8	4.2
	Copper (Cu)	92	140	230	8.3	6.4	14.4
	Lead (Pb)	120	120	120	26	5	35
	Mercury (Hg)	0.27	0.27	0.27	<0.10	<0.10	<0.10
	Molybdenum (Mo)	2	6.9	40	<0.5	<0.5	0.6
	Nickel (Ni)	82	100	270	4	3	8
	Selenium (Se)	1.5	2.4	5.5	<0.8	<0.8	<0.8
	Silver (Ag)	0.5	20	40	<0.5	<0.5	<0.5
	Thallium (Tl)	1	1	3.3	<0.5	<0.5	<0.5
	Uranium (U)	2.5	23	33	<0.50	<0.50	<0.50
	Vanadium (V)	86	86	86	8.7	8.2	21.9
	Zinc (Zn)	290	340	340	40	12	68
	Chromium, Hexavalent - Cr(VI)	0.66	8	8	<0.2	<0.2	<0.2
BTEX	Benzene	0.02	0.02	0.02	<0.02	<0.02	<0.02
	Toluene	0.2	0.2	0.2	<0.05	<0.05	<0.05
	Ethylbenzene	0.05	0.05	0.05	<0.05	<0.05	<0.05
	Xylenes (Total)	0.05	0.091	0.091	<0.05	<0.05	<0.05
Petroleum Hydrocarbons (F1-F4)	F1 (C6-C10)	25	25	25	<5.0	<5.0	<5.0
	F2 (C10-C16)	10	10	26	<10	<10	<10
	F3 (C16-C34)	240	240	240	<50	<50	<50
	F4 (C34-C50)	120	2800	3300	<50	<50	<50
	F4G-SG (GHH-Silica)	120	2800	3300	N/A	N/A	N/A

NOTES:

¹ Table 1: Full Depth Background Site Condition Standards for Residential / Parkland / Institutional / Industrial / Commercial / Community Uses

² Table 2.1: Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition (Volume Independent) for Residential / Parkland / Institutional Uses

³ Table 2.1: Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition (Volume Independent) for Industrial / Commercial / Community Uses

1. Units = ug/g (excluding pH/EC/SAR)

2. "-" = Parameter not included in chemical analysis

3. Test results exceed Table 1 RPIICC ESQS

4. Test results exceed Table 2.1 RPI ESQS

5. Test results exceed Table 2.1 ICC ESQS

APPENDIX D

Shear Wave Velocity Testing Report





June 5, 2026
File: 3163G

Mr. John E. Pepper
Town of Hanover c/o RPL Architects Inc.
1491 Yonge Street
Toronto, Ontario
M4T 1Z4

Re: Shear Wave Velocity Sounding for Seismic Site Classification
Proposed Hanover Police Station
437 10th Avenue, Hanover, Ontario

CHUNG & VANDER DOELEN ENGINEERING LTD. (CVD) was retained by the Town of Hanover to perform a shear wave velocity survey for the proposed Hanover Police Station to be constructed at 437 10th Avenue in Hanover, Ontario. The purpose of the investigation was to determine the seismic site classification, based on the average shear wave velocity (V_{s30}) within the upper 30 m of the subsurface, using the Multi-Channel Analysis of Surface Waves (MASW) method. Field work was completed on May 25, 2026.

Background on MASW Method

Multichannel Analysis of Surface Waves (MASW) is a surface-wave geophysical method used to estimate subsurface shear wave velocity (V_s) profiles by analyzing the dispersive propagation characteristics of Rayleigh waves recorded along a linear geophone array. The technique is based on the principle that surface wave velocity is frequency-dependent and varies with depth, allowing for non-invasive, depth-resolved characterization of soil stiffness.

General Procedure

MASW surveys typically involve two complementary types of data acquisition: **active** and **passive**.

- **Active MASW** involves generating surface waves using an impact source (e.g., sledgehammer striking a shot plate) at various offsets from a linear array of geophones. This method is effective for resolving shallow to intermediate depths.
- **Passive MASW** relies on recording ambient seismic noise, i.e., traffic, machinery, and / or natural sources, over longer periods. It captures lower-frequency energy, enabling greater depth resolution and complements the active-source data.

When used together, active and passive MASW techniques provide a broader frequency bandwidth and a more comprehensive V_s profile, typically extending to 30 m depth or more depending on site conditions and array geometry.

Data Processing and Interpretation

Data processing and interpretation were performed using SeisImagerSW™ software developed by Geometrics Inc.

Dispersion Curve Generation

- Active-source records were processed to generate dispersion images for each shot point. The fundamental mode of the Rayleigh wave was manually picked from each image to establish active dispersion curves.
- Passive data was processed using the Spatial Autocorrelation (SPAC) method to derive phase velocities at a range of frequencies, which were similarly used to construct dispersion curves.

The resulting active and passive dispersion curves were combined to produce an average composite dispersion curve representative of the site's subsurface conditions.

Data quality was assessed based on signal coherence, consistency of dispersion trends across multiple shot points, and agreement between active and passive MASW results.

Inversion and Shear Wave Velocity Profile Development

The average dispersion curve was inverted using a layered-earth model to develop a one-dimensional shear wave velocity profile. The model comprised a series of horizontal layers, each characterized by thickness and shear wave velocity. During the inversion process, layer thickness and velocity parameters were iteratively adjusted to minimize the misfit between the theoretical dispersion curve and the observed dispersion data.

Refraction Analysis

First-arrival travel times were analyzed from the active-source MASW records to assess subsurface velocity trends and layering characteristics. The interpreted refraction response was used as an independent check on the MASW inversion results, including the reasonableness of velocity contrasts and interpreted layer boundaries. Where applicable, the refraction analysis may also be used to help constrain the subsurface model, such as in the presence of shallow bedrock.

This correlation provides additional confidence in the interpreted shear wave velocity profile and the resulting V_{s30} calculation.

Survey Design and Equipment

The MASW survey was conducted using an array of 24 geophones with a natural frequency of 4.5 Hz, connected to a Geometrics Geode seismograph.

For active-source acquisition, two array configurations were utilized: a 23 m spread with 1 m geophone spacing and a 46 m spread with 2 m spacing. Data was collected using three (3) source points positioned off both ends of the spread. Active data was recorded with a sampling interval of 0.25 milliseconds. The seismic energy was generated using 10 lb and 16 lb sledgehammers as impact sources.



The passive MASW survey utilized the same 46 m linear array comprising 24 geophones spaced at 2 m intervals. Ambient seismic noise was recorded for approximately twenty-five (25) minutes at a sampling interval of 2 milliseconds.

The MASW array lines are shown on Figure No. 2, appended.

MASW Test Results

Overall, the MASW data quality was assessed to be good. First-arrival energy was clear and suitable for refraction analysis, and ambient seismic noise levels were low.

The MASW test results are presented graphically in Figure No. 1, which shows the average shear wave velocity (V_s) values versus depth from ground surface to a depth of 30 m. Tabulated results are provided in Table 1. The resulting shear wave velocity profile represents an interpreted average subsurface condition along the MASW array.

Figure No. 1
Shear Wave Velocity Profile
437 10th Avenue, Hanover, Ontario

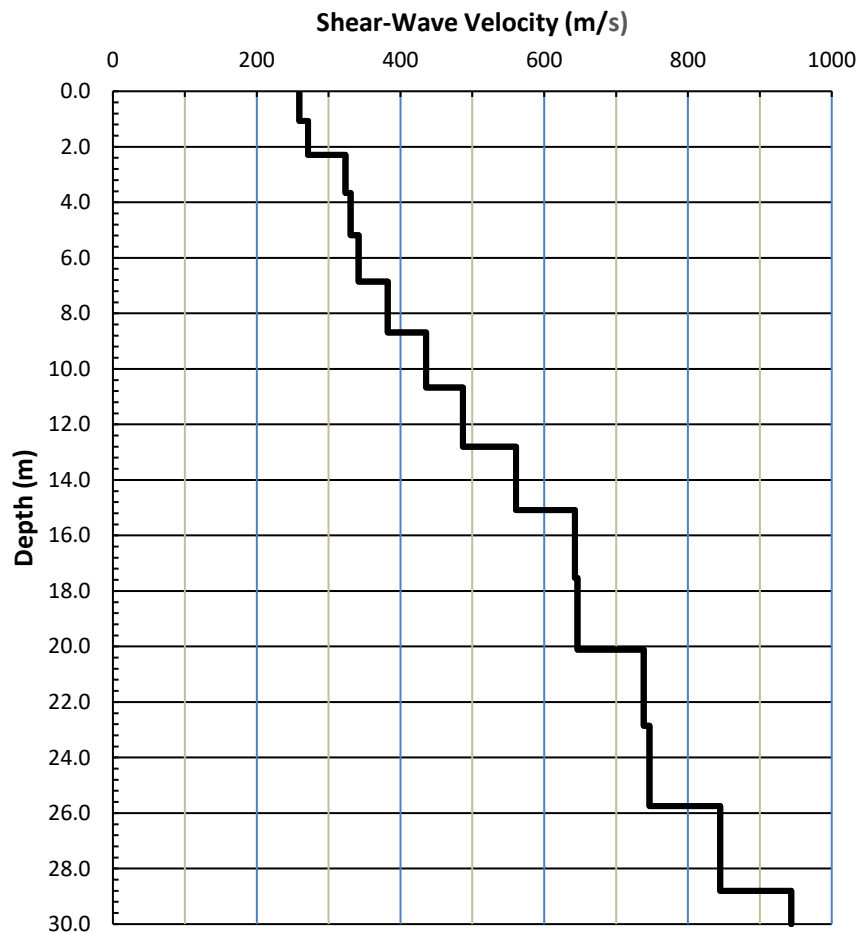


Table 1 – Shear Wave Velocity Profile			
Depth Interval (m)		Layer Thickness d_i , (m)	Shear Wave Velocity V_{s_i} , (m/s)
From	To		
0.0	1.1	1.1	259
1.1	2.3	1.2	271
2.3	3.7	1.4	323
3.7	5.2	1.5	331
5.2	6.9	1.7	342
6.9	8.7	1.8	382
8.7	10.7	2.0	436
10.7	12.8	2.1	487
12.8	15.1	2.3	561
15.1	17.5	2.4	643
17.5	20.1	2.6	646
20.1	22.9	2.8	738
22.9	25.8	2.9	746
25.8	28.8	3.0	845
28.8	30.0	1.2	944

The average shear wave velocity in the upper 30 metres of the soil profile (V_{s30}), used for seismic site classification, is calculated using the following equation:

$$V_{s30} = 30 / \sum (d_i / V_{s_i})$$

Where d_i is the thickness of the i -th soil layer (in metres), and V_{s_i} is the shear wave velocity (in m/s) corresponding to that layer.

The calculated average V_{s30} value, corresponding seismic site classification, and site designation derived from the MASW survey are summarized in the table below:

Table 2		
Average V_{s30} (m/s)	Seismic Site Classification Table 4.1.8.4.-B, OBC 2024	Site Designation
496	C	X_{496}

Based on the calculated average V_{s30} value of **496 m/s**, the site is classified as **Site Class C** ($360 \text{ m/s} < V_{s30} \leq 760 \text{ m/s}$) in accordance with Table 4.1.8.4.-B of the 2024 Ontario Building Code (OBC 2024). The corresponding site designation is X_{496} , as per Clause 4.1.8.4-(2b).



As with all surface-wave methods, MASW results represent an interpreted shear wave velocity model that provides a laterally averaged representation of subsurface conditions beneath the array and should be considered in conjunction with available geotechnical and geological information. Seismic site classification in accordance with the Ontario Building Code may be superseded by soil behaviour considerations not captured by V_{s30} alone, including the presence of 3.0 m or more of soft cohesive soils characterized by a plasticity index greater than 20, natural moisture content of 40% or greater, and undrained shear strength less than 25 kPa (Site Class E), or the presence of potentially liquefiable soils (Site Class F), where applicable. Refer to the geotechnical report text for additional information.

Closure

If you have any questions, please do not hesitate to contact the undersigned.

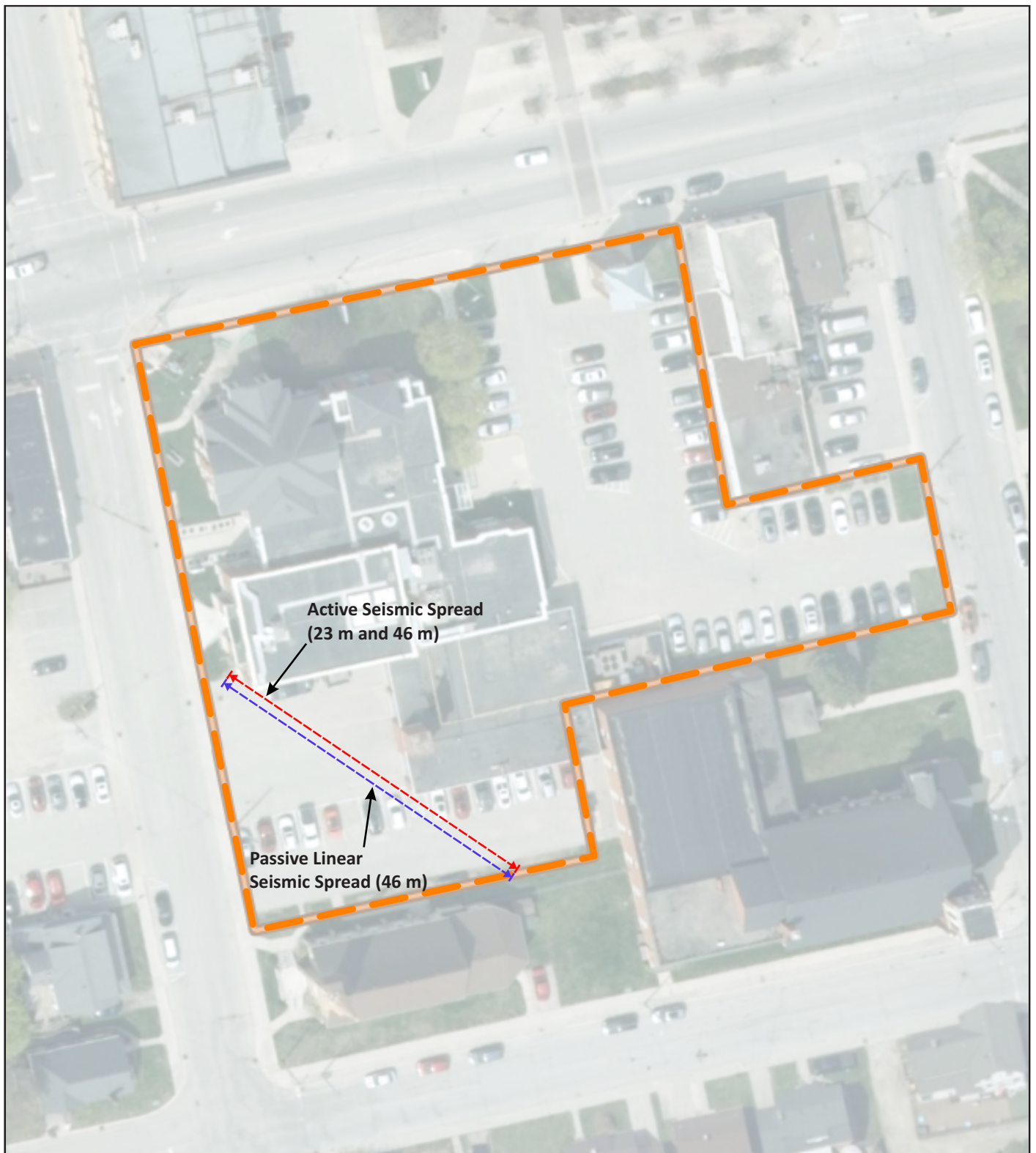
Yours truly,

CHUNG & VANDER DOELEN ENGINEERING LTD.



Andrew Dale, P.Eng.
Senior Project Engineer





LEGEND

-  Location of Active Seismic Array
-  Location of Passive Seismic Array
-  Site Location

Map Ref.: County of Grey; Grey County GIS; Retrieved: May 2026



0 m 15 30
Scale 1:750

Figure 2 - MASW Test Location Plan

Shear Wave Velocity Sounding
for Seismic Site Classification

437 10th Avenue
Hanover, ON

Drawn By: YC

Date: May 2026

File No.: 3163G



CHUNG & VANDER DOELEN
ENGINEERING LTD.

311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 2E1 / 519-742-8979

ENCLOSURES



Soil Abbreviations and Terms Used on Record of Borehole Sheets

TERMINOLOGY DESCRIBING COMMON SOIL TYPES:

Topsoil	-	mixture of soil and humus capable of supporting vegetation
Peat	-	mixture of visible and invisible fragments of decayed organic matter
Till	-	unstratified glacial deposit which may range from clay to boulders
Fill	-	soil materials identified as being placed anthropologically

CLASSIFICATION (UNIFIED SYSTEM)

Clay	<0.002mm
Silt	0.002 to .075mm
Sand	0.075 to 4.75mm
	Fine 0.075 to 0.425 mm
	Medium 0.425 to 2.0 mm
	Coarse 2.0 to 4.75 mm
Gravel	4.75 to 75mm
	Fine 4.75 to 19 mm
	Coarse 19 to 75 mm
Cobbles	75 to 300mm
Boulders	>300mm

TERMINOLOGY

Soil Composition	% by Weight
"traces"	<10%
"some"(eg. some silt)	10-20%
Adjective (eg. sandy)	20-35%
"and"(eg. sand and gravel)	35-50%

Standard Penetration Resistance (SPT): Standard Penetration Resistance ('N' Values) refers to the number of blows required to advance a standard (ASTM D1586) 51 mm Ø (2 inch) split-spoon sampler by the use of a free falling, 63.5 Kg (140lbs) hammer. The number of blows from the drop weight is recorded for every 15 cm (6 inches). The hammer is dropped from a distance of 0.76m (30 inches) providing 474.5 Joules per blow. When the sampler is driven a total of 45 cm (18 inches) into the soil, the standard penetration index ('N' Value) is the total number of blows for the last 30 cm (12 inches).

Dynamic Cone Penetration Resistance (DCPT): Dynamic Cone Penetration Resistance is similar to a SPT with the 474.5 Joule/blow impulse provided by the free falling hammer where the split-spoon sampler is replaced by a 51 mm Ø, 60° conical point and the number of blows is recorded continuously for every 30 cm (12 inches).

COHESIVE SOILS CONSISTENCY

	(kPa)	(P.S.F.)	Nominal 'N' Value
Very Soft	<12	<250	0-2
Soft	12-25	250-500	2-4
Firm	25-50	500-1000	4-8
Stiff	50-100	1000-2000	8-15
Very Stiff	100-200	2000-4000	15-30
Hard	>200	>4000	>30

RELATIVE DENSITY OF COHESIONLESS SOIL

	'N' Value
Very Loose	0-4
Loose	4-10
Compact	10-30
Dense	30-50
Very Dense	>50

MOISTURE CONDITIONS:

Cohesive Soil
DTPL- Drier than plastic limit
APL- About plastic limit
WTPL- Wetter than plastic limit
MWTPL- Much wetter than plastic limit

Cohesionless Soil
Damp
Moist
Wet
Saturated

SAMPLE TYPES AND ADDITIONAL FIELD TESTS

SS	Split Spoon Sample (obtained from SPT)	GS	Grab Sample	PP	Pocket Penetrometer
AS	Auger Sample	BS	Bulk Sample	VANE	Peak & Remolded shear
		TW	Thin Wall Sample or Shelby Tube	DMT	Flat Plate Dilatometer

LABORATORY TESTS

SG	Specific Gravity	S	Sieve Analysis	W	Water Content
H	Hydrometer	P	Field Permeability	K	Lab Permeability
W_p	Plastic Limit	W_L	Liquid Limit	I_p	Plasticity Index
GSA	Grain Size Analysis	C	Consolidation	UNC	Unconfined compression

FILE No: 3163G**BOREHOLE No. 1**Client: **Town of Hanover**Project: **Proposed Police Building**Location: **443 10th Avenue, Hanover****EQUIPMENT DATA**Machine: **Diedrich D-70 Turbo**Method: **HSA**Size: **83 mm I.D.**Date: **Jun 08 - 26 TO Jun 08 - 26**

SOIL LITHOLOGY				SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				W _P W W _L ↗ ○ ↖					
							PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80									
											10 20 30					
275.34 1.20 																

borehole dry and open
upon withdrawal of the
drilling augersPROJECT MANAGER: **NZ****CHUNG & VANDER DOELEN
ENGINEERING LTD.**311 Victoria Street North
Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739

FILE No: 3163G**BOREHOLE No. 2**Client: **Town of Hanover**Project: **Proposed Police Building**Location: **443 10th Avenue, Hanover****EQUIPMENT DATA**Machine: **Diedrich D-70 Turbo**Method: **HSA**Size: **83 mm I.D.**Date: **Jun 08 - 26 TO Jun 08 - 26**

SOIL LITHOLOGY				SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS	
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				W _P W W _L						
							PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80										
											10 20 30						
275.98 0.70	50 mm ASPHALT 325 mm GRANULAR BASE compact, brown, FILL, sand, trace gravel, trace silt, organic staining, contains asphalt fragments, moist	0.5		1	SS	14	●						○				
	compact, brown Fine to Coarse SAND trace gravel, trace silt damp to moist	1.0		2	SS	11	●						○				
		1.5															
		2.0		3	SS	28			●				○				
		2.5															
		3.0															
	272.73 3.95	compact to very loose brown to grey SILT trace sand, trace clay saturated	3.5	4	SS	17							○				
4.0	5		SS	18								○					
4.5																	
271.48 5.20	compact to very loose brown to grey SILT trace sand, trace clay saturated	4.0		6	SS	14								○			
		4.5															
		5.0		7	SS	3	●								○		
	End of Borehole Start of DCPT	5.5															
		6.0															
		6.5															
		7.0															
		7.5															
		8.0															
		8.5															
267.53 9.15	End of DCPT	9.0															
		9.5															

∇
saturated soil cave-in at a
depth of 3.95 m upon
withdrawal of drilling
augers

PROJECT MANAGER: **NZ**
**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

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 Kitchener, Ontario N2H 5E1
 ph. (519) 742-8979, fx. (519) 742-7739

FILE No: 3163G**BOREHOLE No. 3**Client: **Town of Hanover**Project: **Proposed Police Building**Location: **443 10th Avenue, Hanover****EQUIPMENT DATA**Machine: **Diedrich D-70 Turbo**Method: **HSA**Size: **83 mm I.D.**Date: **Jun 08 - 26 TO Jun 08 - 26**

SOIL LITHOLOGY			SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)				WELL DATA	DEPTH (m)	REMARKS	
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80						
							W _p	W	W _L								
Ground Elevation: 276.67 m																	
275.22 1.45	65 mm ASPHALT 300 mm GRANULAR BASE	0.5		1	SS	14	●						○				
	compact to very loose brown FILL, sand trace to some silt, trace gravel damp	1.0		2	SS	2	●						○				
	271.92 4.75	very loose to loose brown Medium to Coarse SAND trace to some gravel trace silt damp to wet	1.5		3	SS	3	●						○			
2.0																	
2.5			4		SS	2	●						○				
3.0																	
3.5			5		SS	3	●						○				
4.0			6		SS	7	●						○				
269.97 6.70	very loose to loose brown to grey SILT trace sand, trace clay occ. clayey seams/layers saturated	4.5		7	SS	9	●							○			
		5.5		8	SS	5	●							○			
		6.5		9	SS	2	●							○			
267.82 8.85	End of Borehole Start of DCPT	7.0					○										
		7.2					○										
		7.5					○										
		7.8					○										
		8.2					○										
267.82 8.85	End of DCPT	8.5					○										
		8.8					○										
		9.0					○										
		9.5															

∇
wet soil cave-in at a depth
of 3.95 m upon
withdrawal of drilling
augers

PROJECT MANAGER: **NZ**
**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

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FILE No: 3163G**BOREHOLE No. 4**Client: **Town of Hanover**Project: **Proposed Police Building**Location: **443 10th Avenue, Hanover****EQUIPMENT DATA**Machine: **Diedrich D-70 Turbo**Method: **HSA**Size: **83 mm I.D.**Date: **Jun 08 - 26 TO Jun 08 - 26**

SOIL LITHOLOGY				SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)			WELL DATA	DEPTH (m)	REMARKS
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				W _P W W _L ↗ ○ ↖					
							PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80									
											10 20 30					
276.12 0.80	55 mm ASPHALT 300 mm GRANULAR BASE compact, dark brown, FILL, sandy silt to sand some silt, trace gravel, contains buried topsoil, moist	0.5	⊗	1	SS	10	●						○			
	sand and silt layer trace gravel ----- compact, brown Medium to Coarse SAND trace to some gravel trace silt damp	1.0	⊗	2	SS	15	●						○			
		1.5														
		2.0											○			
		2.5											○			
		3.0														
		3.5											○			
271.92 5.00	----- fine sand, saturated	4.0											○			
		4.5														
		5.0												○		
		5.5														
		6.0														
		6.5														
	End of Borehole	5.0														

borehole open and water level was measured at a depth of 4.55 m upon withdrawal of drilling augers

borehole open and water level was measured at a depth of 4.55 m upon withdrawal of drilling augers

PROJECT MANAGER: **NZ**

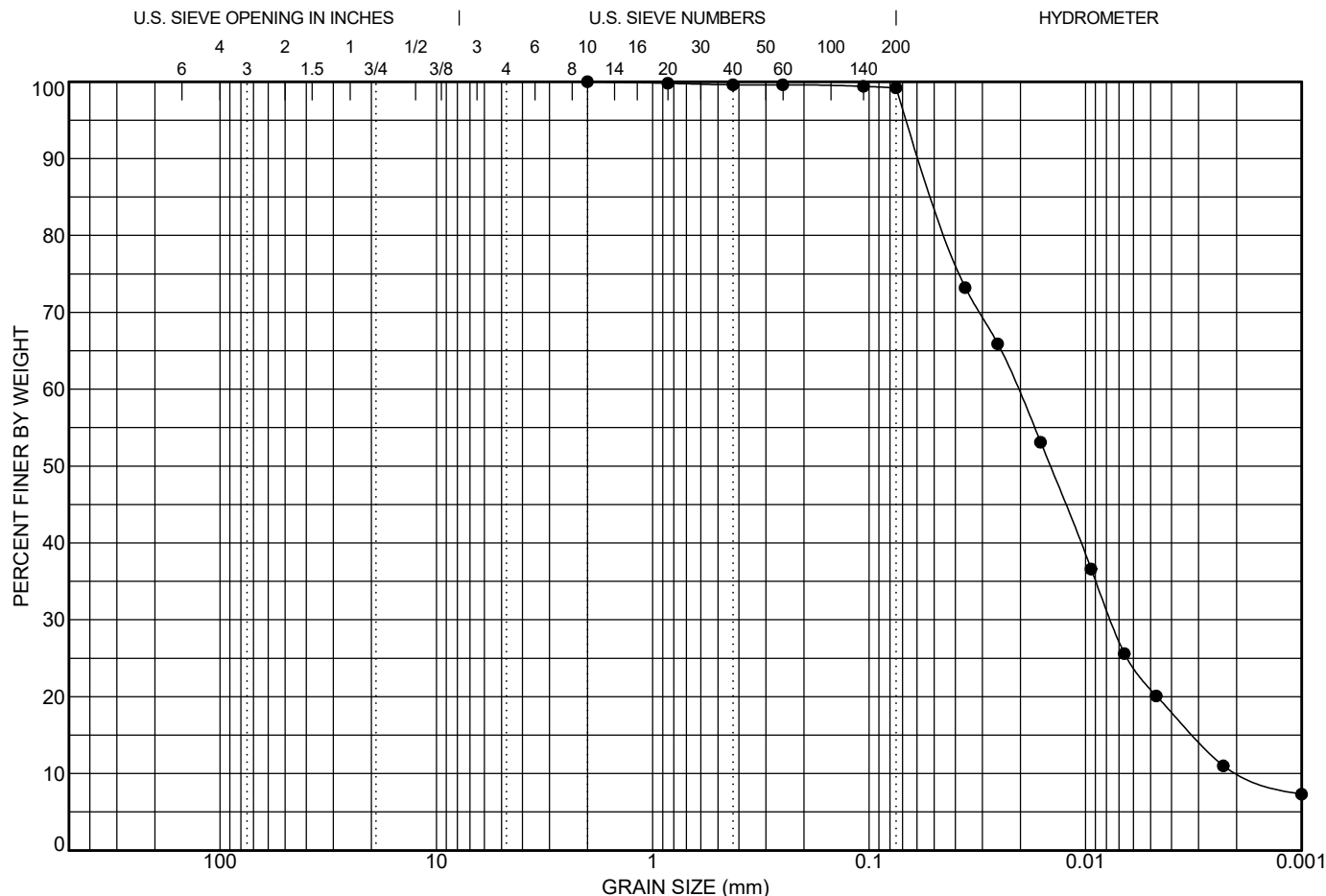
**CHUNG & VANDER DOELEN
ENGINEERING LTD.**

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Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739

FILE No: 3163G**BOREHOLE No. 5**Client: **Town of Hanover**Project: **Proposed Police Building**Location: **443 10th Avenue, Hanover****EQUIPMENT DATA**Machine: **Diedrich D-70 Turbo**Method: **HSA**Size: **83 mm I.D.**Date: **Jun 08 - 26 TO Jun 08 - 26**

SOIL LITHOLOGY				SAMPLE			SHEAR STRENGTH (kPa)				WATER CONTENT (%)				WELL DATA	DEPTH (m)	REMARKS				
ELEV./ DEPTH (m)	DESCRIPTION	DEPTH (m)	SYMBOL	SAMPLE ID	TYPE	N-VALUE	FIELD VANE: Peak ⊗ Rem. × LAB TEST: Unc. ■ P.P. □ 50 100 150 200				PENETRATION RESISTANCE STANDARD ● DYN. CONE ○ 20 40 60 80							W _p W W _L 10 20 30			
276.10 0.41	65 mm ASPHALT 340 mm GRANULAR BASE	0.5		1	AS	15	●														
	compact, brown Medium to Coarse SAND trace to some gravel trace silt damp	1.0					●						○								
1.5																					
2.0		3		SS	19			●					○								
2.5																					
273.60 2.90	End of Borehole	3.0		4	SS	18							○				borehole dry and open upon withdrawal of drilling augers				
		3.5																			
		4.0																			
		4.5																			
		5.0																			
		5.5																			
		6.0																			
		6.5																			
		7.0																			
		7.5																			
		8.0																			
		8.5																			
		9.0																			
		9.5																			

borehole dry and open
upon withdrawal of
drilling augersPROJECT MANAGER: **NZ****CHUNG & VANDER DOELEN
ENGINEERING LTD.**311 Victoria Street North
Kitchener, Ontario N2H 5E1
ph. (519) 742-8979, fx. (519) 742-7739



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.53	11.21	2	0.021	0.008	0.002	0.0	0.8	99.2	

Date: Aug. 07 - 2026
Client: Town of Hanover
Contractor:
Source:
Sampled From: BH1 - SA7, 4.55 to 5.15 m depth
Sample No.: 1-7
Date Sampled: Jun. 08 - 2026
Sampled By: RP
Lab No.: 570
Date Tested: Jun. 15 - 2026
Type of Material: Silt, trace clay

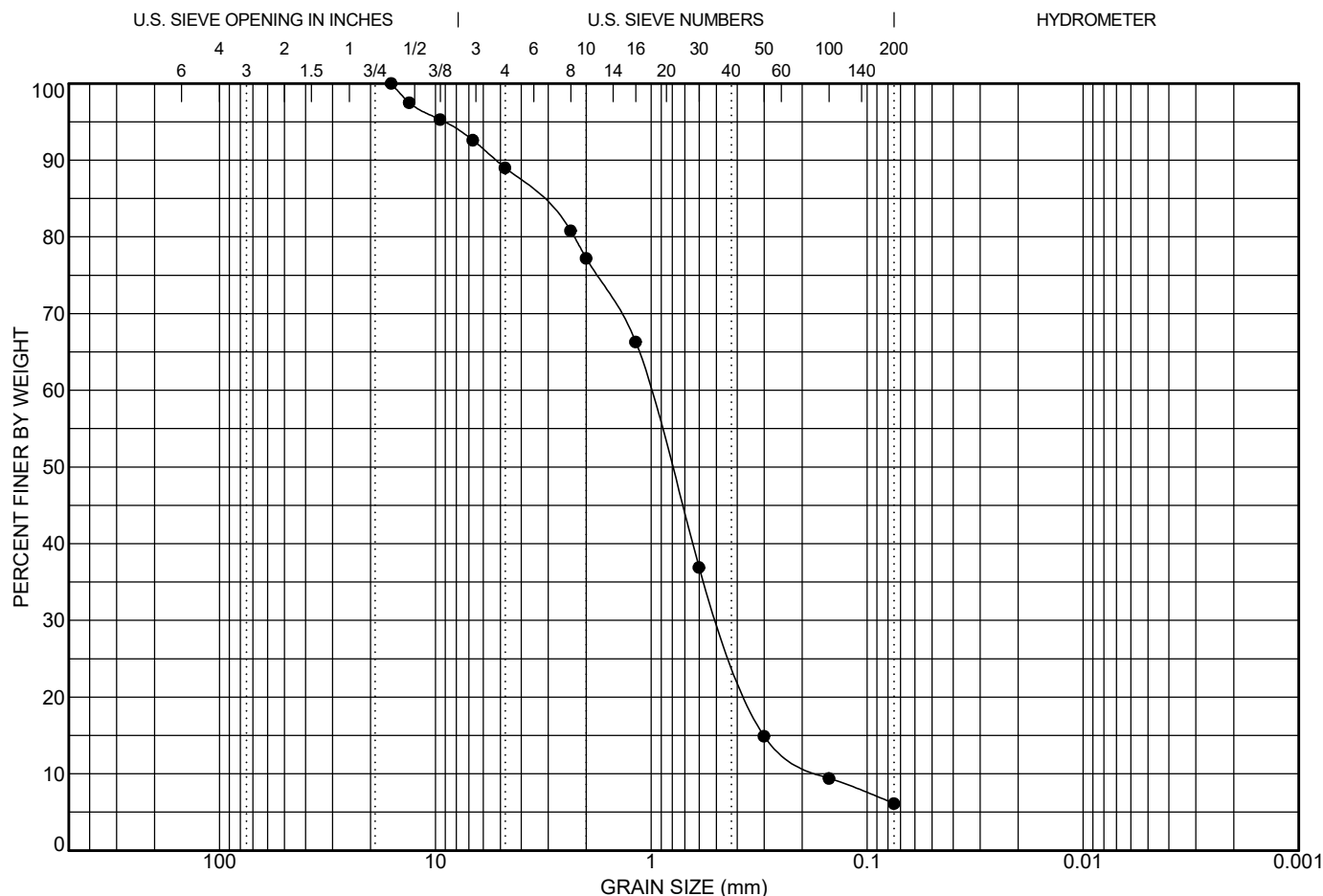
Sieve Size (mm)	Percent Passing	No Specifications



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 Fax: 519-742-7739
 e-mail: info@cvdengineering.com

GRAIN SIZE DISTRIBUTION

Project: Proposed Police Building
Location: 443 10th Avenue, Hanover
File No.: 3163G
Enclosure No.: 6



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

LL	PL	PI	Cc	Cu	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
			1.41	6.31	16	1.021	0.483	0.162	11.0	82.9	6.1	

Date: Aug. 07 - 2026
Client: Town of Hanover
Contractor:
Source:
Sampled From: BH5 - SA3, 1.50 to 2.10 m depth
Sample No.: 5-3
Date Sampled: Jun. 08 - 2026
Sampled By: RP
Lab No.: 571
Date Tested: Jun. 15 - 2026
Type of Material: Fine to Medium Sand, some gravel, trace silt

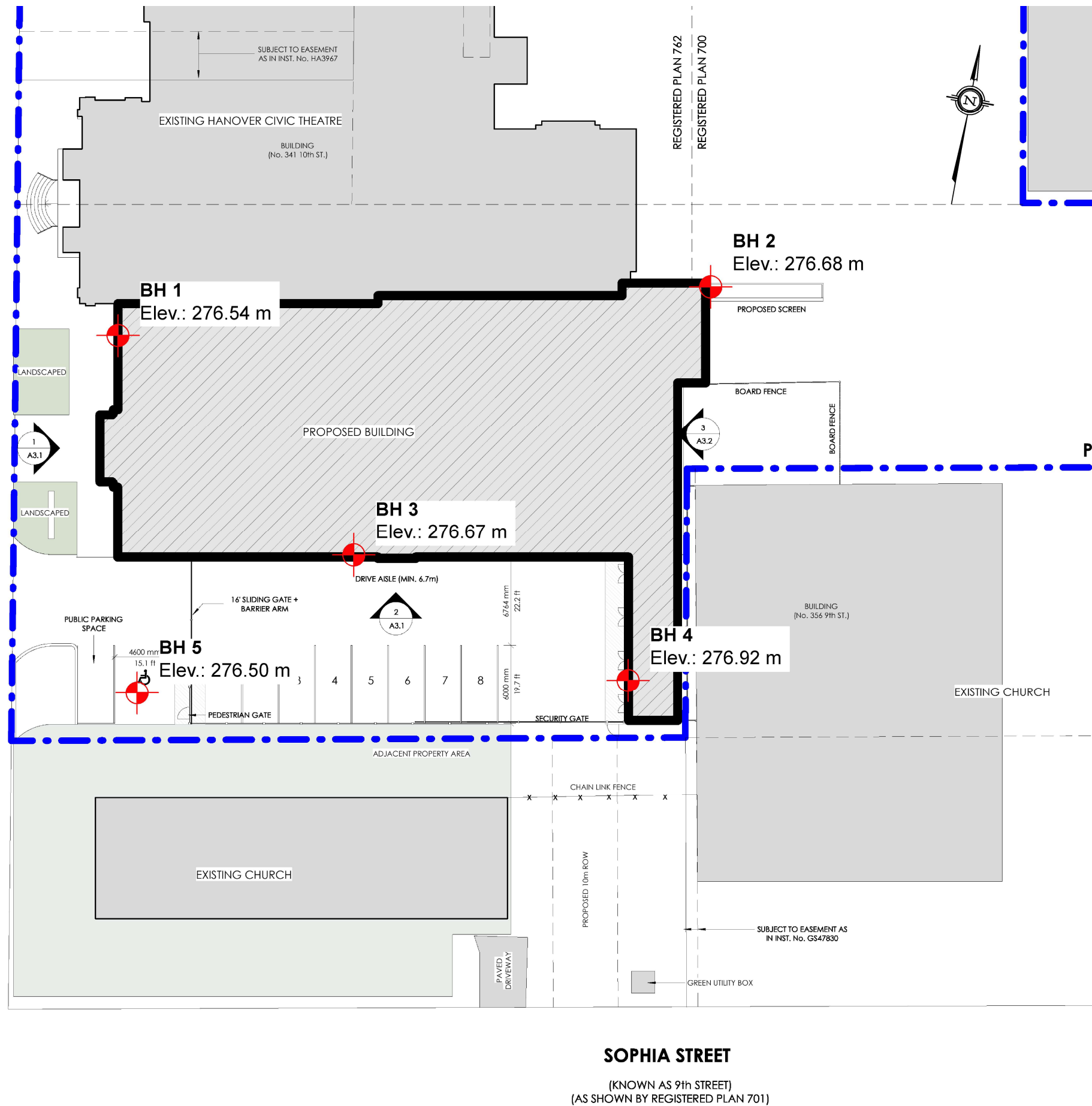
Sieve Size (mm)	Percent Passing	No Specifications



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 Fax: 519-742-7739
 e-mail: info@cvdengineering.com

GRAIN SIZE DISTRIBUTION

Project: Proposed Police Building
Location: 443 10th Avenue, Hanover
File No.: 3163G
Enclosure No.: 7



KEY PLAN **SOURCE:** Google Earth

LEGEND



Elev. Ref.: CVD borehole locations and associated ground surface elevations were surveyed using a Network RTK Global Navigation Satellite System (GNSS) Receiver. The survey data was collected using UTM Zone 17N Projection, NAD83(CSRS)v7-2010 datum and Canada Geoid Model HT2_2010v70 (CGVD28).

DWG. Ref.: +VG Architects The Ventin Group Ltd; "Architectural Site Plan", Hanover Civic Theater, 433 10th Ave, Hanover, Ontario. ;
Drawing No.: A1.1; Rev No.: 1; Dated: 2025, 11, 25.

BOREHOLE LOCATION PLAN

Proposed Police Building

433 10th Avenue
Hanover, Ontario



CHUNG & VANDER DOELEN
ENGINEERING LTD.

**311 VICTORIA STREET NORTH
KITCHENER / ONTARIO / N2H 5E1 / 519-742-8979**

Drawn By: RP

Date:
August 2026

File No.: 3163G

Checked By: NZ

Scale: NTS

Drawing No.: 1

1. CASH ALLOWANCES

1. Include the following Cash Allowances in the Contract Price. These allowances shall be expended in whole or in part, when authorized by the Architect in writing. The unused portion of the Allowances shall be credited to the Owner.
2. The Contract Price and not the cash allowance, includes the Contractor's overhead and profit in connection with such cash allowance.

No refund of overhead and profit will be expected on any unspent portion of Cash Allowances. Likewise, no overhead and profit will be allowed on total amount by which all Cash Allowances are exceeded.

3. Expend cash allowance as directed by the Consultant in writing. Allowance will be adjusted to actual cost but no adjustment will be made to Contractor's charges including overhead and profit which are included in the Contract Price.
4. Cash allowances are designed for work and services deemed to be necessary by the Owner, from time to time, throughout the execution of the Work. Where a cash allowance refers to an item or category of work already included in the Contract Documents, it shall be assumed to cover work or services in addition to that included, unless specifically indicated otherwise.
5. Contractor may be required from time to time, to assist in tendering of certain items of work or services covered by allowance, as directed by Consultant.
6. Material Supply Items:

1. Scope for material supply items covered by Cash Allowance includes:
 1. Net cost of material.
 2. Applicable taxes and duties.
 3. Delivery to site.
2. In addition to above scope covered by Cash Allowance include in Contract Price costs for:
 1. Handling at site, including unloading, uncrating, storage and hoisting.
 2. Protection from elements, from damage.
 3. Labour, installation and finishing.
 4. Other expenses required to do cash allowance work (i.e. contract co-ordination).
 5. Overhead and Profit.

8. Material and Installation Items:

1. Scope of each material and installation item covered by Cash Allowance includes:
 1. Net cost of material.
 2. Applicable taxes and duties.
 3. Delivery to site.

4. Handling at site, including unloading, uncrating, storage and hoisting.
 5. Labour, installation and finishing.
2. In addition to above scope covered by Cash Allowance include in Contract Price costs for:
 1. Protection from elements, from damage.
 2. Overhead and Profit.
 3. Other expenses required to do cash allowance work (i.e. contract co-ordination).
9. Inspection and Testing Work:
 1. Scope for inspecting and testing covered by Cash Allowance includes:
 1. Net cost of testing laboratory services and field inspection.
 2. In addition to above scope covered by Cash Allowance include in Contract Prices for:
 1. Overhead and Profit.
 2. Supply of material tested, patching and completion of work tested.
 3. Other testing on re-testing work specified in Section 01400.
 4. Other expenses required to do cash allowance work (i.e. contract co-ordination).
10. The following is a breakdown of the Cash Allowance Items **to be included** in the Contract Price:

NO.	ITEM	VALUE + HST
1	Utility telecommunications pedestal	\$10,000.00
2	Inspection and Testing • testing of compacted fill • other soils compaction testing • concrete inspection/testing • rebar inspection • structural steel inspection/testing • mortar testing • Roof Inspection (3rd party) • building envelope - air barrier, insulation, flashings	\$40,000.00

ALLOWANCES

3	Interior/Exterior Signage/Glazing Film - major and minor signage - room names/numbers - accessibility - door signage - bulkhead signage - supply and install - interior glazing film (vision strips, privacy) - traffic signage where not shown on drawings	\$40,000.00
4	Exterior Illuminated Ground Mounted Sign - Prefabricated box sign/graphics - Light from interior - Programmable message board/controls - including 4000mm high x 150mm dia. Painted steel pole & concrete base on compacted granular - All required wiring, control wiring	\$30,000.00
5	Exterior Illuminated Wall Mounted Sign - Prefabricated illuminated wall mounted sign with graphics - Electrical wiring & connections	\$10,000.00
6	Gas Service Connection • local utility charges related to gas service & meter	\$25,000.00
7	Main Electrical Service and Connections • supply and install of equipment and connections performed by Utility	\$60,000.00
8	Access Control Devices and Wiring • supply and install of access control devices and wiring/cabling/connection, programming, commissioning at all card reader locations. • Access control at doors throughout where indicated including intercoms, door release buttons. • Access control at sliding gate to rear parking including remote gate release. • All conduit, boxes rough-in are included in base bid and NOT part of this cash allowance.	\$35,000.00
9	Security/CCTV/Monitoring Devices and Wiring • supply and install of security, CCTV cameras, monitors and other devices including cabling/connection, programming, commissioning at Detention area and interview rooms. • All wiring for power, conduit, boxes rough-in are included in base bid and NOT part of this cash allowance.	\$100,000.00
	Subtotal of Above Cash Allowances (Item 2.10) (Not Including Contingency Allowance) +HST	\$350,000.00

This above figure \$350,000.00 is to be included in the Base Bid Amount for cash allowances.

11. Progress payments on accounts of work authorized under cash allowances shall be included in the Consultant's monthly certificate for payment. Copies of invoices are to be submitted to substantiate claims.

END OF SECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

1. Substrate preparation
2. Sheathing over deck surface.
3. Vapour retarder.
4. Insulation.
5. Membrane roofing.
6. Membrane Accessories
7. Membrane Flashings
8. Roofing Accessories.

1.2 REFERENCES

1. ASTM C578-13 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
2. ASTM C612-10 - Standard Specification for Mineral Fiber Block and Board Insulation
3. ASTM C726-12 - Standard Specification for Mineral Fiber Roof Insulation Board.
4. ASTM C1002-07(2013) - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
5. ASTM C1177/C1177M-13 - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
6. ASTM C1396/C1396M-13 - Standard Specification for Gypsum Board.
7. ASTM D6878/D6878M-13 - Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.
8. CSA-A231.1-06/A231.2-06 (R2010 - Precast Concrete Paving Slabs/Precast Concrete Pavers.
9. CAN/ULC-S107-10 - Methods of Fire Tests of Roof Coverings.
10. CAN/ULC-S701-11 - Standard for Thermal Insulation, Polystyrene, Boards and Pipe Covering.
11. CAN/ULC-S702-09 - Standard for Mineral Fibre Thermal Insulation for Buildings (Includes Amendment 1, 2012).

12. CAN/ULC-S704-11 - Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.
13. CRCA (Canadian Roofing Contractors' Association) - CRCA Roofing Specifications Manual.
14. FM (Factory Mutual) - Roof Assembly Classifications.
15. Province of Ontario Roofing Contractors Association - Roofing Specifications Manual.
16. ULC-BM-14 - Building Materials Directory (2014 Edition).

1.3 SYSTEM DESCRIPTION

1. Assembly of components include TPO Adhesive Adhered Roofing System with vapour barrier, fully adhered insulation, and adhesive applied membrane, as well as all related roofing accessories in strict accordance with specifications and details approved by the roof system manufacturer.
2. Note: this section is for the Alternate Price Option as per the Supplementary Tender Form. The Base Bid amount is not to include this product.

1.4 ADMINISTRATIVE REQUIREMENTS

1. Related Documents

1. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this Section.

2. Coordination:

1. Coordinate with other work having a direct bearing on work of this section.
2. Coordinate the work with the installation of associated metal flashings, as the work of this section proceeds.

3. Pre-installation Meetings:

1. Convene 2 weeks before starting work of this section.
2. Review preparation and installation procedures and coordinating and scheduling required with related work.

1.5 SUBMITTALS

1. Section 01300
2. Product Data: Provide characteristics on membrane materials, flashing materials, insulation, vapour retarders, [protective coating].
3. Samples: Submit two (2), 300 x 300 mm in size.
4. Shop Drawings:

1. Tapered insulation, roof cricket infill, setting plan layout, and details.
2. Membrane layout on detailed roof plan, complete with full assembly section, vertical parapet details, joint or termination detail conditions, and conditions of interface with other materials.
5. Manufactures field reports: Indicate procedures followed; ambient temperatures, humidity, wind velocity during application.

1.6 QUALITY ASSURANCE

1. Roofing Contractor shall be an approved applicator of the roofing system supplier.
2. Workmen shall be trained and experienced in the installation of this type of roofing system and shall be under full time competent supervision.
3. Comply with all industry recommended safety practices during construction.
4. Perform Work to CRCA Roofing Specifications Manual and manufacturer's written instructions. Maintain one (1) copy of document on site.

1.7 DESIGN REQUIREMENTS

1. Conform to applicable code for roof assembly fire hazard requirements.
 1. CAN/ULC-S107: Class A Fire Hazard Classification.
2. The specified roofing assembly must have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to
 1. ANSI/SPRI WD-1 "Wind Design Standard Practice for Roofing Assemblies" American Society of Civil Engineers (ASCE 7) International Building Code (IBC).
 - or
 2. FM: Roof Assembly Classification, Class [1] Construction, wind uplift requirement of [1-60] [1-90], in accordance with FM 1-28 "Design Wind Loads" and complies with FMG Property Loss Prevention Data Sheet 129 for enhancements at the perimeter and corners.
 3. CSA A123.21 and Provincial Building Code wind uplift requirements; obtain applicable wind isotachs and Building Code hourly wind velocity pressure for 1 in 50 year return value, necessary for the selection of the proper roof system design specific to this project.

1.8 DELIVERY, STORAGE, AND PROTECTION

1. Deliver all roofing materials in original, unopened containers, complete with labels indicating brand name, contents, usage instructions and safety

precautions. Membrane rolls are to be left in their unopened packaging until prior to install.

2. Protect membranes from cuts, abrasion or other abuse that might adversely affect performance in service.
3. Adhesives, sealants and flashing accessories are to be stored in a clean, dry area at a temperature between 5°C and 27°C. When the temperature is expected to fall below 5°C, outside heated storage boxes should be provided on the roof for temporary storage of adhesives and sealants.
4. Protect insulation, vapour retarder and other materials subject to water damage while stored on the job-site by covering them with a weatherproof tarpaulin and keeping them a minimum 15 cm (6") off of the deck or ground.

1.9 SITE CONDITIONS

1. Ambient Conditions:
 1. Do not apply roofing membrane during inclement weather or when ambient temperature falls below -5 degrees C or above 30 degrees C.
 2. Install each roof layer on a dry substrate, free of snow and ice. Use only dry materials and apply only during weather that will not introduce moisture into the system.
 3. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
2. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed section of the membrane system.

1.10 WARRANTY

1. Contractor's Warranty: Provide two (2) year warranty on roofing, dated from time of Substantial Performance. The contractor will repair, at their expense, any leaks in the roofing membrane and membrane flashing including any related Sheetmetal work.
2. Manufacturer's Warranty: Roof System Manufacturer shall provide a written warranty on supplier's standard form for a period of twenty (20) years from the date of roofing system completion.
3. All membrane and accessory components must be Lexsuco Corporation products or approved equal by Firestone or Carlisle Roofing.

PART 2 PRODUCTS

2.1 VAPOUR RETARDER SUPPORT PANELS

1. Glass faced Gypsum Board:

1. Panels composed of gypsum core, reinforced, faced with glass mat conforming to ASTM C1177, Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.

1. Thickness: 12.7 mm (½ in).
2. Specified product: non-coated Georgia-Pacific Gypsum LLC; DensDeck or comparable product as supplied by Lexsuco Corporation.

2. Lightweight Cementitious Panels: Low density, fibre reinforced, water resistant cement support panels.

1. Thickness: 11.1 mm (7/16 in)
2. Specified product: Dexcell Cement Roof Board or comparable product as supplied by Lexsuco Corporation.

2.2 VAPOUR RETARDER

1. Primer Adhesive: Synthetic elastomeric based liquid adhesive used to bond self-adhesive membrane to wood deck.

1. Specified product: Lexcor Multigrip Fire Retardant Primer by Lexsuco Corporation.

2. Textured Polyethylene Self-Adhered Vapour Retarder: Reinforced membrane with weaved polypropylene laminated to a non-weaved polyester top layer: moisture vapour transmission rate less than 2.4 ng/Pa•s• m² (0.04 perms) when tested in accordance with ASTM E-96, procedure B Construction.

1. Thickness: 0.15 mm (6 mil)
2. Specified product: Lexcor Permaste Stick Peel n' Stick Type 1 Vapour Barrier by Lexsuco Corporation.

2.3 INSULATION

1. Polyisocyanurate Insulation : A rigid foam insulation produced from a chemical reaction between polyol and polymeric isocyanate that results in closed cells containing captive blowing agents. The foam core is integrally laminated to [organic felt paper, or inorganic fibreglass-reinforced facers]. Insulation shall conform to CAN/ULC S-704, Standard for Thermal Insulation, Polyurethane and Polyisocyanurate Boards, Faced.

1. Thickness: As required to provide minimum R35. [Base Layer Board Size]: [(1220mm x 2440mm), (1220mm x 1220mm) (4' - 0" x 8' - 0"), (4' - 0" x 4' - 0")] fully adhered. Thickness, [2 LAYERS] R35.

2. Specified product: [Lexcor Isolex™, Lexcor Isolex™ II] manufactured by Lexsuco Corporation or approved alternative by Firestone or Carlisle.
3. Tapered (cricket) Insulation: Insulation panels are to measure 1220 mm (4') square and are to slope at the rate of 2%, with a minimum thickness of [50mm, 101.6 mm (4", 2") inches at the drains. Ship lapped edge 2"x 2", panels are to be positioned and installed in accordance with the shop drawings.
1. Specified product: [Bizon R+ (2 in 1) prefabricated insulation panel by Fransyl Ltd.], [Lexcor Isolex™, Lexcor Isolex™ II] manufactured by Lexsuco Corporation or approved alternative by Firestone or Carlisle.

2.4 COVERBOARDS

1. High-density Polyisocyanurate Panel: High density panels composed of high density closed cell polyisocyanurate foam core with coated fibreglass facers. Panel shall be compliant with ASTM C 1289, Type II, Class 4, Grade 1, 2 and 3. Panels shall conform to CAN/ULC S-704, Standard for Thermal Insulation, Polyurethane, and Polyisocyanurate Boards, Faced.
2. Thickness: 6.4 mm (1/4 in)
3. Specified product: Lexcor Lexboard by Lexsuco Corporation or approved alternative by Firestone or Carlisle.

2.5 MEMBRANE MATERIALS - Thermoplastic Polyolefin (TPO) Membrane

1. Description: (White, Grey, Tan) Reinforced TPO roofing membrane. Formulated for long-term, direct exposure to the elements. Prefabricated membrane, conforming to ASTM D-6878, Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.
2. Thickness: 1.5 mm (60 mil)
3. Specified product: Lexcan Hi-Tuff TPO Reinforced Membrane by Lexsuco Corporation or approved alternative by Firestone or Carlisle.

2.6 ADHESIVE MATERIALS

1. Specified Product: Lexcan Hi-Tuff TPO Bonding Adhesive by Lexsuco Corporation or approved alternative by Firestone or Carlisle.
2. Water-Based Bonding Adhesive: Water-based, formulated for compatibility with TPO membrane and substrate materials
 1. Specified Product: Lexcan BA-160 Bonding Adhesive by Lexsuco Corporation or approved alternative by Firestone or Carlisle.
3. Low-rise Polyurethane Foam: A low rise polyurethane foam used to attach insulation to manufacturers approved substrates. Consult membrane manufacturer for application rates.

1. Specified Product: Lexcor Lexphalt Foamed Polyurethane Adhesive by Lexsuco Corporation or approved alternative by Firestone or Carlisle.

2.7 INSULATION FASTENERS

1. Description: Insulation securement screws are to be Factory Mutual listed and approved #12 diameter with round or flat head, corrosion treated to withstand 30 cycles of the Kesternich test with only a minimum amount of red rust showing. Fasteners must penetrate a minimum 19 mm (3/4") into steel decks or 25 mm (1") into wood decks. Holes for concrete anchors must be pre-drilled not less than 21 mm (1/2") deeper than the penetration depth of the fastener, with a drill bit recommended by the fastener manufacturer. Stress plates are to be 76 mm (3") diameter galvalume metal to fit screw.
2. Specified Product: Lexcor Lexgrip™ Insulation Fasteners or [Lexcor Lexgrip™ Pre-Assembled Insulation Fasteners] treated with Cx-5 coating, complete with metal stress plate.

2.8 WOOD NAILER

1. Description: Blocking and rough framing. No.1 Spruce conforming to National Grades Authority, Standard Grading Rules for Canadian Wood to CSA 0141-05. Wood for roofing to be pressure treated to CSA 080-97, Series (R2002). Plywood Sheathing to be exterior grade conforming to CSA 0121-M1978 or CSA 0151-M1978, select grade, good one side, thickness as indicated.

2.9 ACCESSORIES

1. Parapet / Wall Flashing: TPO membrane as described in 2.5 cut to appropriate widths and lengths.
2. Flashing: Lexcan Hi-Tuff TPO Un-reinforced Membrane by Lexsuco Corporation.
3. Perimeter Securement: Lexcan Hi-Tuff TPO Stripbond II by Lexsuco Corporation
4. Coverstrip: Lexcan Hi-Tuff TPO PS Coverstrip by Lexsuco Corporation.
5. Primer: Lexcan Hi-Tuff TPO Primer by Lexsuco Corporation.
6. Membrane Cleaner: Lexcan Weathered Membrane Cleaner by Lexsuco Corporation.
7. Cut Edge Sealant: Lexcan Hi-Tuff TPO Cut Edge Sealant by Lexsuco Corporation.
8. WATER CUT OFF MASTIC: Lexcan Universal Single Ply Sealant by Lexsuco Corporation.
9. Pourable Sealer: Lexcan Thermoplastic Pourable Sealer by Lexsuco Corporation.
10. Termination Sealer Tape: Lexcan Water Cut-Off Tape by Lexsuco Corporation.
11. Termination Bar: Lexcan Termination Bar by Lexsuco Corporation.

12. Pipe Flashing: Lexcan Hi-Tuff TPO Pre-formed Pipe Boots or Split Pipe Boots by Lexsuco Corporation.
13. Irregular Roof Protrusions: Lexcan Hi-Tuff TPO Molded Sealant Pockets and Lexcan Thermoplastic Pourable Sealer by Lexsuco Corporation.
14. Traffic Pads: Lexcan Hi-Tuff TPO Walkways by Lexsuco Corporation.
15. Roof Edge and Flashing Metal: Lexcan Hi-Tuff TPO Metal, matching the colour of the membrane by Lexsuco Corporation.

2.10 ROOF SYSTEM FLASHING ACCESSORIES

1. Vent Stack Flashing: Vent caps shall be sealed to the pipe with Lexcor Flash-Tite™ Drain and Vent Seals. Vent pipes shall be flashed to the roof membrane with two part, telescoping vent stack covers featuring an 18" high base flange and a 127mm (5") Cap. Vent Stack flashing shall be fabricated from seamless spun aluminum. Caps and base flanges are to match the size of vent pipe. Install in strict accordance with manufacturer's directions and flash into the roof membrane in accordance with the roofing membrane manufacturer's directions and good roofing practice. Vent Stack Flashing as supplied by Lexsuco Corporation, Lexcor Flash-Tite™ Standard Vent Stack Covers (Seamless spun mill finish VB-418-Cap model SCA-4).
2. Vent Stack Flashing (B Vent): B-Vent Flashings shall be fabricated from a single piece of spun aluminum metal this is free from joints. Flashing stack is to be fourteen inches (12,14,18") high complete with Rain Collar. Base flanges are to match the size of vent pipe. Install in strict accordance with manufacturer's directions and flash into the roof membrane in accordance with the roofing membrane manufacturer's directions and good roofing practice. BVent Stack Flashing as supplied by Lexsuco Corporation, Lexcor Flash-Tite™ BVent Flashings.
3. Roof Drains: New Construction drain hoppers shall be 2 mm thick seamless spun aluminum and feature a 430 mm (17") diameter flashing flange, 250 mm (10") downspout, membrane stop and clamping ring studs. [Drains shall also include an integral deck clamp assembly composed of a 65 mm thick cast aluminum hopper reinforcement ring welded to the hopper and adjustable aluminum deck clamp mounted on 4 stainless steel rods]. Drains shall come complete with separable cast aluminum membrane clamping ring, 178 mm (7") high cast aluminum strainer [and spun aluminum Flow Control Insert].
 1. Specified Product: Lexcor Flash-Tite™ NC Aluminum Super Drains [with: Flash-Tite™ Integral Deck Clamp; Flash-Tite™ Flow Control Insert; Mechanical Joint Connector] by Lexsuco Corporation. Drain sizes to match drain pipe diameters.
4. Supports: for Gas pipes; Structural Support Base shall consist of a Pressure moulded using a one or two part mix, utilising milled, sieved and graded Styrene Butadiene Rubber (SBR-Recycled Rubber). Accessory must be complete with 40mm x 20mm Aluminium Channel supplied recessed and bonded into the top

face of the foot and BBJ insulclamps to support piping. Specified Product: Fix-it Foot Low 250 (250mm x 130mm x 50mm) supplied by Lexsuco Corporation.

5. Conduit Pipe Split Flashing: Two part stainless steel base and floating rain collar, complete with selvedge style seam, pre-applied seam sealant, stainless steel screws and nuts and EPDM rubber pipe seal strip. [Base flashing is to be insulated on the jobsite with moisture resistant rubber foam].
 1. Specified Product: Lexcor Flash-Tite™ Conduit (Split) Flashing by Lexsuco Corporation.
7. HVAC & Electrical Flashing: To be fabricated from seamless spun aluminum, complete with primer coated flanges. Use appropriate flashing for each application.
 1. Specified Products: Lexcor Flash-Tite™ Electrical Wire Outlet Post [30 cm; 46 cm] high base, complete with rigid PVC cap fitting by Lexsuco Corporation.
 2. Specified Products: Lexcor Flash-Tite™ Electrical Wire Socket or Switch Posts [30 cm; 46 cm] high base, complete with rigid PVC cap fitting by Lexsuco Corporation.
 3. Specified Products: Lexcor Flash-Tite™ B-Vent Flashing, diameter to match chimney diameter, complete with adjustable galvanized steel rain collar by Lexsuco Corporation.
 4. Specified Products: Lexcor Flash-Tite™ pre-fabricated mastic sealer pockets ("pitch pockets"). 230 mm (9") high x appropriate diameter to exceed diameter or width of protrusion by 50 mm (2"). Pockets to be sealed with Lexcan Pourable Sealer, a two-part urethane, self-levelling sealant by Lexsuco Corporation.

PART 3 EXECUTION

3.1 EXAMINATION

1. Verify actual site dimensions and location of adjacent materials prior to commencing work. Notify Consultant in writing of any conditions, which would be detrimental to installation.
2. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains.
3. Ensure mechanical and electrical systems have been co-ordinated and curbs have been constructed.
4. Examine substrate for compliance of conditions that affect installation and performance of the roof system.
5. Verify roof openings, curbs, pipes, conduit, sleeves, ducts, and vents through roof are solidly set, and wood nailing strips are in place.

3.2 PREPARATION - CONCRETE DECK

1. Fill surface honeycomb and variations with latex filler.

3.3 VAPOUR RETARDER APPLICATION

1. Application of Self Adhesive Vapour Retarder:
 1. Where the vapour retarder is applied to a support panel, use only vapour retarder support panels approved by the membrane manufacturer.
 2. Where the self-adhesive vapour retarder is to be adhered to a cementitious panel, apply a light coat of primer as recommended by the membrane manufacturers.
 3. All surfaces to be primed must be free of dust, or any residue that may hinder adhesion of the vapour retarder. Cover primed surfaces with vapour retarder as soon as possible.
 4. When applied directly to steel deck align the roll parallel to the flutes of the deck. Ensure that the vapour retarder overlaps are positioned on the top ribs of the deck and supported along their entire length.
 5. Beginning at the bottom of the slope and without adhering the membrane, unroll onto the substrate for alignment. Do not immediately remove the release sheet.
 6. Overlap each preceding sheet by 75 mm (3 in) at the side laps and 150 mm (6 in) at end laps. Stagger end laps by a minimum of 300 mm (12 in).
 7. Once aligned peel back one end of the release sheet and adhere the exposed membrane to the substrate. Peel back the remaining release sheet at a 45° angle to avoid wrinkles in the membrane.
 8. the membrane is not properly aligned, do not adjust it. Instead, cut the roll and start again, making sure that it is properly aligned and that it overlaps the end of the misaligned piece by 150 mm (6 in).
 9. Roll the self-adhesive vapour retarder onto the substrate with a 34 kg (75 lb) roller. Finish by aligning the edge of the roller with the lower end of the side laps and rolling up the membrane. Do not cut the membrane to remove air bubbles trapped under the laps. Squeeze out air bubbles by pushing the roller to the edge of the lap.

3.4 INSULATION APPLICATION

1. Insulation shall be installed according to the insulation manufacturer instructions.
2. Where there is no support panel, install insulation so that long dimensions of the board are parallel with the flutes of the steel deck and fully supported on the top rib.

3. Attach with low-rise (Lexcor Insultac II) insulation adhesive. Apply directly to the substrate using a ribbon style pattern. Make sure that substrate is clean and dry. Space 3/4", 1" (13mm, 19mm,) diameter beads on [6"] (150mm) centres to achieve proper coverage rates for insulation attachment. As adhesive is applied, immediately place the insulation board into wet adhesive. Do not allow the adhesive to skin over
4. Where more than one layer of insulation is used, stagger joints at least 300mm (12in) between layers.
5. Position Insulation Board in adhesive, ensuring panels are butt-edged together with a maximum separation of 2 mm. Walk the boards into the adhesive and roll using the 30" wide, 100 – 150 pound weighted steel roller to ensure full embedment. Optimal set up time should be approximately 5 to 10 minutes.
6. After the adhesive has dried, test each panel to ensure it is completely secured to the deck. If it is not 100% secure, the insulation panel must be removed and discarded. A new insulation panel must be adhered in its place. **The Contractor is responsible to ensure that all insulation panels are properly adhered to the substrate.**
7. Mechanically fasten composite layer of insulation through the vapour retarder and into the deck using fasteners and plates specified in 2.6. Mark out any conduit runs on the surface of insulation prior to fastening. Ensure that plates have been sufficient clamping force so as not to compromise the vapour retarder. Do not overdrive the screws.
8. Butt-edges together with a maximum separation of 2mm.
9. Insulation shall be neatly cut to fit around penetrations and projections.
10. Install tapered insulation around drains creating a drain sump.
11. Insulation shall be neatly cut to fit around penetrations and projections.
12. Do not install more insulation boards than can be covered with membrane by the end of the day or the onset of inclement weather.
13. Do not drive fasteners into any utility lines such as electrical, conduit or gas pipes.
14. Minimum penetration to fasten into a metal deck is 19 mm (3/4 in.), or [Minimum penetration to fasten into a concrete deck is (1)" (25.4mm).]
15. Minimum number of fasteners required per 4'x8' sheet is [4,6,8,10,12,16,20] in the field.
16. Attach any 4'x 4' tapered insulation with low-rise (Lexcor InsulTac II) insulation adhesive. Apply directly to the substrate using a ribbon style pattern. Make sure that substrate is clean and dry.

3.5 COVER BOARD APPLICATION

1. Attach with low-rise (Lexcor InsulTac II) insulation adhesive. Apply directly to the substrate using a ribbon style pattern. Make sure that substrate is clean and dry.
2. Stagger joints at least 300mm (12 in) between layers. All tapered insulation joints should be overlapped by the cover board.
3. Position Cover Board in adhesive, ensuring panels are butt-edged together with a maximum separation of 2 mm. Walk the boards into the adhesive and roll using the 30" wide, 100 – 150 pound weighted steel roller to ensure full embedment. Optimal set up time should be approximately 5 to 10 minutes.
4. After the adhesive has dried, test each panel to ensure it is completely secured to the deck. If it is not 100% secure, the insulation panel must be removed and discarded. A new insulation panel must be adhered in its place. Ensure all insulation panels are properly adhered to substrate

3.6 MEMBRANE APPLICATION

1. The contractor shall be responsible for the suitability of the substrate surface to accept the membrane. Ensure cover board surface or substrate is clean, flat and free from dirt, debris or sharp objects that might be detrimental to the performance of the membrane.
2. The ambient temperature should be +5° C and rising when fully adhering the membrane.
3. Unroll membrane sheets and position according to the approved shop drawings. For roofs with edge drainage, start at the low edge with the first sheet and install adjacent sheets by overlapping the lower sheets. For roofs with interior drainage, start with the first sheet centred on the drain valley and install adjacent sheets by overlapping the lower sheet. Outside perimeter sheets shall be brought to the base of the perimeter parapet or wall and turned up the wall (76.2mm) 3" and secured with a batten every 6" on center. Adjoining sheets are to overlap a minimum of 140 mm (5.5") on sides and wherever fasteners are included within the seam. End laps without fasteners are to be lapped a minimum of 140 cm (5.5").
4. Optionally, the membrane may be extended up and over a parapet wall or a roof edge, provided it is secured along the perimeter edge using the Stripbond II™ or Lexcan PS Batten Bar method of perimeter securement. As shown in Lexcan detail H-E-018.
5. Fold the sheet in half lengthwise to expose one-half of the sheet underside.
6. Apply Hi-Tuff TPO Bonding Adhesive with a plastic core, medium nap roller to the underside of the roofing membrane and to the substrate at the combined net coverage rate of 5.7 m² (60 Sq.Ft.) / gallon. Do not apply the Bonding Adhesives to areas on the membrane that are to be heat welded. Apply both adhesives evenly, without globs and puddles. Allow both adhesives to flash-off until they are tacky but do not string when touched with a dry finger.

7. If the adhesive becomes contaminated by blowing dust, moisture, walking in it, etc. it should be allowed to completely dry (no longer tacky) and new adhesive applied to both surfaces.
8. When the adhesives have sufficiently dried, carefully unroll the glued portion of the membrane back over the glued substrate, avoiding wrinkles, voids or air pockets. Immediately, roll with weighted steel roller or brush the membrane heavily with a push broom to ensure 100% complete contact.
9. Fold back the other half of the sheet and repeat steps .3 through .7
10. Layout subsequent sheets by positioning them so they overlap the previously adhered sheet by a minimum of 50 mm (3"). Seam overlaps should be overlapped downward (shingle fashion) to avoid catching water. Heat weld the subsequent sheet to the first sheet as per section [3.7] below. Once the weld has cooled, completely fold the subsequent sheet back over the splice to expose the entire underside of the subsequent sheet. Apply Hi-Tuff TPO Bonding Adhesive as per section [.6] above

3.7 SPLICING MEMBRANE SHEETS

1. Field's seams must be welded with an automatic hot air welder operated by an individual thoroughly trained and competent in the machine's operation. Small work and repairs can be done efficiently with a hand welder. However, hand-held welders are not an accepted means of field seaming.
2. Hot air weld all seams a minimum of 38 mm (1.5") wide.
3. Dirty, dusty or contaminated membrane or membrane exposed for more than seven days prior to welding must be cleaned with Lexcan Weathered Membrane Cleaner. With a clean scrub pad saturated with Cleaner, aggressively scrub the seam area of the roof membrane. Follow with a final one swipe pass, being careful not to re-deposit contaminants back onto the cleaned area. Ensure that the Seam Cleaner and adjacent Bonding Adhesive have completely flashed off before welding. Follow standard welding procedures with a 20% reduction in speed.
4. All splices are to be probed along their entire length with a seam probing tool to verify that the welder is operating effectively. The membrane must be allowed to cool prior to testing. In addition, there should be a destructive peel strength test performed at the start of each day and each time the robot welder is reused after being allowed to cool. The destructive test sample should be 5 cm (2") wide and should show membrane delamination from the scrim prior to weld failure. Roofing contractor must date the test samples and submit them to the system manufacture.
5. Cut membrane edges shall be sealed by applying Hi-Tuff TPO Cut Edge Sealant along the exposed edge.

3.8 . PERIMETER FLASHING AND SECUREMENT

1. Install the (roof edge system; gravel stop; drip edge) according to an approved Lexcan detail and in accordance with the manufacturer's directions. Nailers are required at all roof edges; gravel stops or drip edges.
2. Direct Fastener Perimeter Securement Method: Hi-Tuff TPO membrane shall be brought to roof edges, parapets, walls, expansion joints, curbs and all other roof penetrations that exceed 60 cm (24") in any dimension and turned up the wall (76.2mm) 3" and secured with a batten every 6" centered at the vertical plan to the parapet (12") centres with Lexcor Lexgrip Membrane Fasteners and Plates.
3. Reinforced Hi-Tuff TPO flashing membrane shall be extended up all parapet walls, curbs, roof edges, etc. If using the Direct Fastener Method of perimeter securement, the flashing membrane must extend a minimum of 140 mm (5-1/2") beyond the Perimeter edge out onto the flat area of the roof.
4. Hi-Tuff TPO membrane shall be used for all vertical flashings and shall extend from a seam just beyond the perimeter fastener row, up to the curb or parapet. Apply with Hi-Tuff TPO Bonding Adhesive as per sections 3.5.6 to 3.5.7. Be careful not to wrinkle the membrane or bridge it at the vertical / horizontal juncture (crease the membrane first). Brush the membrane heavily with a push broom to ensure complete contact.
5. Unless approved detail shows otherwise, membrane must either terminate in a reglet, be fastened according to paragraph .6 below, or be carried over the top of wall or parapet and counter-flashed with sheet metal or a stone cap. All metal work must be installed to be wind resistant and sealed and waterproofed in an acceptable manner.
6. If terminating membrane part way up to a wall or parapet, apply Lexcan Water Cut-Off Tape to the backside of membrane edge. Press membrane against wall and roll with a steel hand roller. Fasten Lexcan Termination Bar along the upper edge of the membrane into the wall, using appropriate fasteners on 15 cm (6") centres. Apply Lexcan Universal Single Ply Sealant along the upper edge of the Termination Bar and over the top of all fastener heads.

3.9 PROTRUSION AND CORNER FLASHINGS

1. Install pre-formed metal flashings; drain hoppers, etc. according to the manufacturer's installation instructions.
2. Flash all corners, vent pipes, posts, curbs and pre-formed flashings in strict accordance with current Lexcan installation instructions and details. Use Hi-Tuff TPO Bonding Adhesive as per section 3.6, above. Do not apply the Bonding Adhesives to areas on the Flashing that are to be seamed. Seam as per section 3.7 above.
3. All flashing shall be mechanically fastened at the top, under or through appropriate counterflashing with approved fasteners and in accordance with Lexcan details.

4. Membrane connections to drains are to be sealed with All-Purpose Sealant or Lexcan Water Cut-Off Tape and clamped with a clamping ring to ensure a 100% continuous seal, as per Lexcan details. Field seams shall not run through drains.

3.10 TRAFFIC WALKWAYS

1. Ensure membrane to receive traffic pads is clean and dry. If the membrane is not clean and dry, follow the steps in section 3.6.3 before proceeding with the remainder of this section.
2. Position the walkway pad and cut to desired length. Wherever possible, walkway pad shall not cover seams. When installed adjacent to a seam, the pad should be kept a minimum 50 mm (2") from the edge of the seam on the bottom sheet and 15 cm (6") away from the edge of the seam on the top sheet.
3. When covering seams is unavoidable; the lap seam should be completed per section 3.6 above and thoroughly probed, with any deficiencies corrected prior to pad installation.
4. Where drainage around the pads is desired, cut pads to a uniform length and space the sections 50 mm (2") apart.
5. Weld the perimeter of the walkway pad to the membrane following standard welding procedures. Leave 25 mm to 50 mm (1" to 2") gaps in the weld on the low slope edge every 60 cm (2 ft.) to prevent the accumulation of water under the pad.

3.11 METAL COUNTERFLASHING, CAP, SCUPPERS AND FASCIA FLASHINGS

1. Allow warranty inspector to inspect all membrane flashings and roofing before installation of metal counterflashing and fascia.
2. Install all metal counter-flashing and fascia in strict accordance with CRCA 'FL' specifications and good roofing practice.
3. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance and performance. Mitre all corners. Irregular or badly fabricated work will not be accepted. Hem all edges 12 mm (1/2") and cut corners of straight edges on a 45° angle. Remove all burrs and metal scrap.
4. Use concealed fastening and clamping (termination) bars to secure fascia and counter-flashing.
5. Use standard 2.44 m (8') metal lengths. Space joints symmetrically and evenly in relation to the module, columns, pre-cast panels or other distinguishing features of the building. Use tight-fitting S-lock joints. Fabricate joints to permit free movement of metal without leaking.
6. Apply isolation membrane or coating to separate dissimilar metals or metal from concrete.

3.12 TEMPORARY NIGHT SEAL

1. At the end of each day or at the threat or onset of inclement weather, the insulation shall be protected by extending the membrane beyond the insulation and sealing it to the deck with an approved temporary sealant. Ensure membrane edge is either mechanically fastened or sufficiently ballasted to protect against wind uplift.
2. When resuming works cut and dispose of the portion of membrane contaminated with the night sealant.

3.13 FIELD QUALITY CONTROL

1. Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and clearing of product.
2. The Manufacturer's representative will regularly review the fieldwork, to verify the satisfactory completion of the work in accordance with the Manufactures Membrane System Warranty.
3. Once the project is in progress work will be continuous, weather permitting, until completion.
4. Do not conceal or cover any phase of the work until after it has been inspected and approved by the Roof System Manufacture.
5. Roofing System Manufacturer (Lexcan) must be notified in writing that the project is ready for a Final Inspection within 120 days of substantial completion of the roofing system. All trades that have work to do on the roof must be completely
6. finished. All TPO seams and details will be probed and voids will be clearly marked with a red crayon. If a Final Inspection indicates that deficiencies are still outstanding, then additional Final Inspections will be conducted until all work has been completed to the Manufactures satisfaction.

3.14 CLEANING

1. In areas where finished surfaces are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their instructions.

3.15 PROTECTION OF FINISHED WORK

1. Protect building surfaces against damage from roofing work.
2. Where traffic must continue over finished roof membrane, protect surfaces.

END OF SECTION

PART 1 - GENERAL

.1 Related Documents

- .1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

.2 Summary

- .1 Section Includes: Kawneer Architectural Aluminum Skylight System, including perimeter trims, accessories, shims and anchors, and perimeter sealing of skylight framing.
 - .1 Type:
 - a. 2000 Skylight - 2.5" x 7.09" (63.5 x 180.0) nominal dimensions; outside glazed pressure plate system.
 - .2 Acceptable alternate manufacturers:
 - a. Kingspan
 - b. Velux Structural Systems
 - c. Approved alternate

.3 Definitions

- .1 Definitions: For fenestration industry standard terminology and definitions refer to American Architectural Manufacturers Association (AAMA) – AAMA Glossary (AAMA AG).

.4 Performance Requirements

- B. General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum curtain walls representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
 - .1 Glazed aluminum skylights shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Loosening or weakening of fasteners, attachments, and other components.
 - d. Failure of operating units.
- C. Delegated Design: Design glazed aluminum skylights, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- D. Wind loads: Provide Skylight system; include anchorage, capable of withstanding wind load design pressures to current Ontario Building Code requirements.
- E. Snow loads: Provide Sloped Glazing system; include anchorage, capable of withstanding snow load design pressures to current Ontario Building Code requirements.
- F. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft² (.0003 m³/s·m²) at a static air pressure differential of 6.24 PSF (300 Pa) or CAN/CSA-A440 fixed rating.
- G. Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 547. There shall be no leakage at static air pressure differentials of 15 PSF (718 Pa) minimum or CAN/CSA-A440 B7 rating.
- H. Uniform Load: A static air design load of 40 PSF (1916 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the

specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur or CAN/CSA-A440 C5 rating.

- I. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than: 0.43 (clear).
- J. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 67_{frame} and 65_{glass} (clear).
- K. Environmental Product Declarations (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.

.5 Submittals

- .1 Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- .1 Environmental Product Declaration (EPD):
 - a. Include a Type III Product-Specific EPD created from a Product Category Rule.
- .2 Shop Drawings: For glazed aluminum skylights. Include plans, elevations, sections, full-size details, and attachments to other work.
- .3 Samples for Initial Selection: For units with factory-applied color finishes.
- .4 Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- .5 Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency, for glazed aluminum curtain walls, indicating compliance with performance requirements.
- .6 Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed skylight systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:
 - .1 Joinery
 - .2 Glazing

.6 Quality Assurance

- .1 Installer Qualifications: Installer who has had successful experience with installation of the same or similar systems required for the project and other projects of similar size and scope.
- .2 Manufacturer Qualifications: A manufacturer capable of fabricating exterior sunshades, and glazed aluminum curtain wall and storefront systems, that meet or exceed performance requirements.
- .3 Source Limitations: Obtain glazed aluminum skylights, curtain wall systems and storefront systems through one source from a single manufacturer.
- .4 Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - .1 Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If revisions are proposed, submit comprehensive explanatory data to Architect for review.
- .5 Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - .1 Build mockups for type(s) of sunshade elevation(s) indicated, in location(s) shown on Drawings.
- .6 Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination".

.7 Project Conditions

- .1 Field Measurements: Verify actual locations of structural supports for sunshades by field measurements before fabrication and indicate measurements on Shop Drawings.

.8 Warranty

- .1 Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty.
- .1 Warranty Period: Two (2) years from Date of Substantial Completion of the project.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Basis-of-Design Product:
 - .1 Kawneer Company Inc.
 - .2 2000 Skylight
 - .3 System depth: 2.5" x 5.59" (63.5 x 142.0), 2.5" x 7.09" (63.5 x 180.0) and 2.5" x 8.34" (63.5 x 211.8); outside glazed pressure plate system.
- B. Acceptable alternate manufacturers:
 - 1. Kingspan
 - 2. Velux Structural Systems
 - 3. Approved alternate

2.2 Materials

- A. Aluminum Extrusions: Alloy and temper recommended by glazed aluminum skylight manufacturer for strength, corrosion resistance, and application of required finish and each framing member shall provide structural strength to meet specified performance requirements and complying with ASTM B 221: 6063-T6 alloy and temper.
- B. Aluminum sheet alloy: Shall meet the requirements of ASTM B209.
- C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.
- D. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
- E. Pressure Plate: Pressure plate shall be aluminum and fastened to the mullion with stainless steel screws.
- F. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.
- G. Sealant: For sealants required within fabricated skylight system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.
- H. Thermal Barrier: Thermal separator shall be extruded of a silicone compatible PVC (Poly Vinyl Chloride).
- I. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of glazed skylight members are nominal and in compliance with AA Aluminum Standards and Data.

2.3 Sloped Glazing Framing

- A. Framing Members: Manufacturer's standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Glazing System: 4 sided captured.
2. Glazing Plane: Front.
- B. Glass: 1" (25.4) insulating glass option. 1/4 " (6.3) or 1" (25.4) for Spandrel applications.
- C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.
- D. Framing Sealants: Shall be suitable for glazed aluminum skylight as recommended by sealant manufacturer.
- E. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.
- F. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
- G. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- H. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle skylight material and components to avoid damage. Protect skylight material against damage from elements, construction activities, and other hazards before, during and after installation.

2.4 Glazing

- A. Glazing: Comply with Division 08 Section "Glazing".
 1. 2000 Skylight Glazing: Outside glazed pressure plate format with 1" (25.4) double glazed insulating glass.
- B. Glazing Gaskets: Gaskets to meet the requirements of ASTM C864.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
- E. Glazing Sealants: As recommended by manufacturer for joint type.

2.5 Accessory Materials

- A. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762 mm) thickness per coat.
- B. Gaskets: Interior glazing gaskets shall comply with ASTM C864 and be extruded of a silicone compatible EPDM rubber. Exterior glazing gaskets to be Tremco Visionstrip®.

2.6 Fabrication

- A. Form or extrude aluminum shapes before finishing.
- B. Fabricate components that, when assembled, have the following characteristics:
 1. Profiles that are sharp, straight, and free of defects or deformations.
 2. Accurately fitted joints.
 3. Physical and thermal isolation of glazing from framing members.
 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 5. Provisions for field replacement of glazing from exterior.
 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
 7. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and moisture migrating within glazed aluminum skylight to exterior.
- C. 2000 Skylight Framing: Fabricate components for assembly following manufacturer's standard installation instructions.

- D. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.7 Aluminum Finishes

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Factory Finishing:
 - .1 Kawneer Permanodic® AA-M10C21A31, AAMA 611, Architectural Class II Clear Anodic Coating (Color #17 Clear) (Standard).

PART 3 - EXECUTION

3.1 Examination

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

- A. General: Install skylight systems plumb, level, and true to line, without warp or rack of frames with manufacturer's prescribed tolerances and installation instructions. Provide support and anchor in place.
 - 1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
 - 2. Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" (228.6) on center.
 - 3. Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.
- B. Related Products Installation Requirements:
 - 1. Sealants (Perimeter): Refer to Joint Treatment (Sealants) Section.
 - 2. Glass: Refer to Glass and Glazing Section.
 - a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual

3.3 Field Quality Control

- A. Field Tests: Architect shall select skylight units to be tested as soon as a representative portion of the project has been installed, glazed, perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.
 - 1. Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.
 - a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft², which ever is greater.
 - b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf (383 Pa).
- B. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 Adjusting, Cleaning and Protection

- A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum curtain wall system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.
- B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.
- C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

1 GENERAL

1.1 Conform to Sections of Division 1 as applicable.

1.2 Refer to enclosed Hardware List.

1.2 RELATED SECTIONS

1.2.1 Installation of Abloy locking hardware and padlock hasps: Section 06 41 00, Carpentry and Millwork;

1.2.2 Supply and installation of hardware for toilet partitions: Section 10 21 00, Stainless Steel Toilet Partitions.

1.2.3 Installation of hardware for aluminum entrance doors are outlined in Section 08 41 10, Aluminum Entrances and Screens. All other hardware for these doors to be under this Section.

1.2.4 Supply and wiring of hardware items such as door monitoring contacts, card reader door access and combination magnetic fire door holder and closing units by Electrical Division. Installation of such hardware items by Section 06 41 00, Carpentry and Millwork under the supervision of Electrical Division.

1.3 REFERENCES

CAN/CGSB 69.25 M90	Cabinet Hardware
ANSI/BHMA 156.9-1982	
CAN/CGSB-69.34-93	Materials and Finishes
ULC	Underwriters Laboratories of Canada
WH	Warnock Hersey

1.4 SYSTEM DESCRIPTION

1.4.1 Keying System

1.4.1.1 Keying schedule to be provided by Police Service. Keying system shall include keying alike, keying differently, keying in groups, sub-master keying and grand-master keying locks as required.

1.4.1.2 Prepare and submit keying chart and related explanatory data to Consultant for approval. Do not commence lock work until written confirmation of keying arrangements is received from Consultant.

1.4.1.3 Supply following keys:

- 3 grand-master keys.
- 3 sub-master keys.
- 2 change keys for each lock.

- 1.4.1.4 Grand-master and sub-master keys shall not be delivered to Site, but shall be forwarded via registered mail with covering letter to Owner:

OR

- 1.4.1.5 Hand over keys to Owner.

1.5 SUBMITTALS

1.5.1 Samples

- 1.5.1.1 Submit samples of complete line of hardware and finishes to Consultant for approval, if and when requested, to accompany any proposal for substitution.

- 1.5.1.2 Hardware shall not be ordered from manufacturer until samples have been approved by Consultant and hardware and finishes supplied shall be identical with approved samples.

1.6 DELIVERY, STORAGE AND HANDLING

- 1.6.1 Pack hardware in suitable wrappings and containers to protect it from injury during shipping and storage. Accessories, fastening devices and other loose items shall be enclosed with each applicable item of hardware. Mark packages for easy identification as indicated on approved delivery schedule.

- 1.6.2 Deliver to building finish hardware for door listed in Door Schedule and hardware for cabinet work. Hand hardware over to trades which are designated to install it.

1.7 WARRANTY

- 1.7.1 Warrant work of this Section against defects and deficiencies for period of 5 years for door closers, and 2 years for other hardware, in accordance with General Conditions of the Contract. Promptly correct defects and deficiencies which become apparent within warranty period, to satisfaction to Consultant and at no expense to Owner.

2 Products

2.1 MATERIALS

2.1.1 Hardware Schedule is based on following manufacturers':

Hinges: Hager Hinges Canada Ltd.
Stanley Hardware
Mont-Hard [Canada] Inc.

Locks/Stand-Alone Electronic Keypads: Best Universal Locks Ltd.
Sargent of Canada Ltd.
Schlage-Locks-Ingersoll-Rand
Door Hardware

- Exit Devices: Von Duprin Exit Devices – Ingersoll-Rand Door Hardware
Magnokrom Inc.
American Device Mfg. Co.
- Door Closers: LCN-Closers – Ingersoll-Rand Door Hardware
Sargent of Canada Ltd.
Dorma Door Controls Ltd.
- Door Holders: Magnokrom Inc.
Glynn-Johnson Ingersoll-Rand Door Hardware
Canadian Builders Hardware Manufacture Inc.
- Electric Strikes: Von Duprin
Folger Adam
ASSA Abloy
Hess (some models not acceptable on exterior applications)
- Cylinders, Keyways: Abloy Keyway (No Substitutions)
- Garage Door Opener: Commercial Grade – no remote access. Wall
mounted; no cables.
- Digital Scramble Keypad: Hirsch Electronics or approved equal. High-
Intensity keypads are required on exterior locations
complete with MB5 mounting. Mounting height of
keypads to be 1478 mm (58”) to centre above
ground.

2.2 **FABRICATION**

2.2.1 **Cabinet Abloy Locks and Padlock Hasp:**

- 2.2.1.1 Disc Tumbler Cam Lock: recessed fitting, left/right/vertical hand, nickel plated
steel finish, 7 disc size, cabinets and drawers where indicated) as manufactured
by Abloy. Type selected to approval of Tenant. All cabinet door and drawer
locks to be supplied by Hardware supplier and installed under Section 06 41 00
Finish Carpentry & Millwork.
- 2.2.1.2 Abloy Cam locks for **Millwork Lockers** to be supplied under this section and
installed under Section 06 41 00 Finish Carpentry & Millwork.
- 2.2.1.3 Padlock Hasp: PL204, non-handed locking plate with 12 mm shackle hole as
manufactured by Abloy.
- 2.2.1.4 Abloy locks for Constable lockers to be provided by Section 10 50 00 Lockers.

2.2.2 Strikes

2.2.2.1 Lock strikes shall be standard template box strikes, with extended lips to protect door frames and trim from marking with bolts, and shall be set flush in hollow metal door frames.

2.2.2.2 Blank standardized template strikes for hollow metal door frames shall be supplied as scheduled for such doors without locks.

2.2.3 Door Closers

2.2.3.1 Door closers shall be rack and pinion type with back checking feature and shall be of proper sizes to operate each respective door efficiently. Shaft packing shall be leak-proof.

2.2.4 Kick and Bumper Plates

2.2.4.1 Kick and bumper plates shall be as scheduled with edges cut square and smoothed off and shall have countersunk holes and oval head screws which shall be placed at each corner and symmetrically arranged at a maximum spacing of 200 mm (8") along edges.

2.2.4.2 Stainless steel kick plates shall be 1.27 mm (0.05") minimum thickness, satin finish, Type 304.

2.2.5 Thresholds

2.2.5.1 Supply thresholds complete with countersunk holes, and with screws and anchors as required for proper anchorage.

2.2.6 Fasteners

2.2.6.1 Supply hardware complete with screws, bolts, expansion shields and other fastening devices as required for satisfactory installation and operating of the hardware.

2.2.6.2 Supply fastening devices of same finish as hardware which is to be fastened.

2.2.6.3 Where pull is scheduled on one side of door, and push plate on other side, issue installation directions to trade responsible for fixing, so that the pull shall be secured through door from reverse side and push plate installed to cover screws. Flush pulls shall be supplied with machine screws for attaching as specified above.

2.2.7 Finishes

2.2.7.1 Type and finish of hardware shall be equal in all respects to samples of hardware and finishes approved by Consultant.

2.2.7.2 Metal finishes shall be free from defects, clean and unstained, and of uniform colour.

- 2.2.8 Finish hardware for fire rated doors shall meet requirements of ULC as part of fire rated door assembly and shall carry ULC or WH label.

3 EXECUTION

3.1 EXAMINATION

- 3.1.1 Before furnishing any hardware, carefully check all architectural Drawings of work requiring hardware, verify door swings, door and frame material and operating conditions, and assure that hardware will fit work to which it is to be attached.
- 3.1.2 Check shop drawings and frame and door lists affecting hardware type and installation, and certify to correctness thereof, or advise Consultant in writing of required revisions.
- 3.1.3 **Templates:** Check Hardware Schedule, Drawings and Specifications, and furnish promptly to applicable trades any templates, template information and manufacturer's literature, required for proper preparation for and application of hardware, in ample time to facilitate progress of work.
- 3.1.4 **Co-ordinate delivery of Abloy Locks and Padlock hasps provided under this Section with Millwork Supplier for installation under Section 06 41 00 Finish Carpentry and Millwork.**

3.2 LOCATION OF HARDWARE

3.2.1 Hinge Locations

- 3.2.1.1 Doors 1981 mm to 2286 mm (6'-6" to 7'-6") in height and requiring 3 hinges.
- Top Hinge: 298 mm (11-3/4") maximum from centreline of hinge to frame head rabbet.
 - Centre Hinge: equal distance from centre line of top and bottom hinge.
 - Bottom Hinge: 330 mm (13") maximum from centreline of hinge to bottom of frame.
- 3.2.1.2 Doors 2311 mm (7'-7") and over in height and requiring 4 or more hinges.
- Top Hinge: 298 mm (11-3/4") maximum from centreline of hinge to frame head of rabbet.
 - Centre Hinges: symmetrically spaced between top and bottom hinge.
 - Bottom Hinge: 330 mm (13") maximum from centreline of hinge to bottom of frame.
- 3.2.2 **Lock Location:** 1024 mm (40-5/16") from centreline of lock to bottom of frame.
- 3.2.3 **Deadlock Strike Location:** 1200 mm (48") from centreline of strike to bottom of frame.

3.2.4 **Door Pulls**

3.2.4.1 1065 mm (42") from centreline of grip or push bar to bottom of frame.

3.2.5 **Push Plates:** 1143 mm (45") from centreline of plate to bottom of frame.

3.2.6 **Kick Plate:** Within 6 mm (1/4") of door bottom.

- Single Door Width: Push side; less 50 mm (2") of door width.
Pull side; less 25 mm (1") of door width.
- Double Door Width: Push side; less 25 mm (1") of door width.
Pull side; less 25 mm (1") of door width.

3.3 **SCHEDULES**

3.3.1 **Abbreviations:** Abbreviations used in Hardware Schedule are as follows:

3.3.1.1 Finishes: CGSB BHMA

Prime Coat	CP	600
Bright Brass (polished)	C3	605
Bright Nickel (polished)	C14	618
Dull Nickel	C15	619
Dull Nickel on Steel (hinges)	C15	646
Bright Chrome (polished)	C26	625
Dull Chrome	C26D	626
Satin Aluminum Anodized	C28	628
Bright Stainless Steel (polished)	C32	629
Dull Stainless Steel	C32D	630
Silver Aluminum Lacquer	SB/EN	628

3.3.1.2 Doors:

HMD	Hollow Metal Door
PL	Plastic Laminate
Kal	Kalamein
WD	Wood Door

3.3.1.3 Frames:

CIF	Channel Iron Frame
PSF	Pressed Steel Frame

3.3.1.4 Fastenings:

ATMS	Arm Template Machine Screws
ATB	Arm Through Bolts
BS	Backset
MS Machine Screws	
NRP	Non-Removable Pin
STS	Self Tapping Screws
STMS	Strike Template Machine Screws

TBGN	Through Bolts & Grommet Nuts
TMS	Template Machine Screws
WS	Wood Screws
WS/LS	Wood Screws/Lead Shields

3.3.1.5 Keying:

CMK	Construction Master Keyed
EK	Emergency Key
GMK	Grand Master Keyed
KA	Keyed Alike
KD	Keyed Different
MK	Master Keyed
SMK	Sub Master Key

End of Section.

August 06, 2026

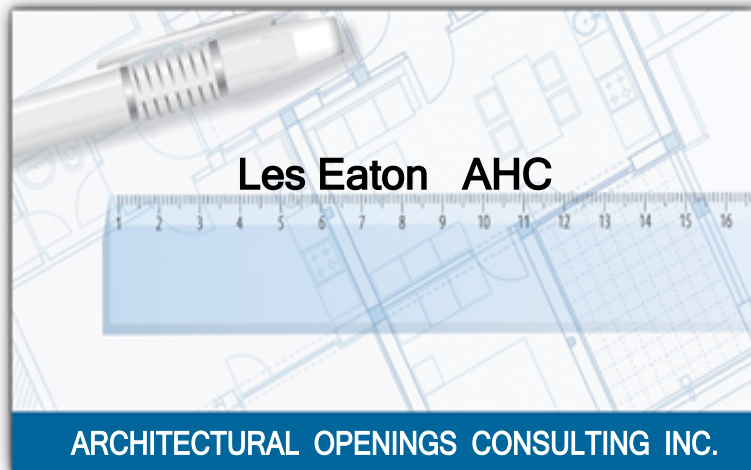
Revision: 7

Hardware List for:

Hanover Police Station

Architect:

+VG Architects



1 Pair of doors 101 Exterior

Aluminum frame

Aluminum door

2 x 965 x 2150 x 45

1	Continuous hinge	112XY x DH	628	Ives
1	Continuous hinge	112XY x EPT x DH	628	Ives
1	Power transfer	EPT 10	SP28	Von Duprin
1	Exit device	QEL-35A-NL-OP x 388 x DW	626	Von Duprin
1	Exit device	CD-35A-EO x DW	626	Von Duprin
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
2	Door pull	8190HD-0	630	Ives
1	Removable Mullion	5654	US28	Von Duprin
1	Automatic surface door operator	9542 Push side mounting)	689	LCN
1	Actuators	8310-852-876	630	LCN
1	Actuators	8310-852	630	LCN
1	Surface door closer	4040XP x 4040XP-18TJ	689	LCN
1	Overhead concealed door stop	GJ100S x ADJ x DW	630	Glynn Johnson
1	Overhead concealed door stop	GJ100S x DW	630	Glynn Johnson
1	Threshold	624A x DW	628	Zero International
2	Door sweep	8192AA x DW	Alum	Zero International
1	Power supply	PS902 x 2RS		Von Duprin
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

Balance of weatherseal complete by the aluminum door and frame supplier

1 Pair of doors 102A Vestibule

Aluminum frame

Aluminum door

2 x 965 x 2150 x 45

1	Continuous hinge	112XY x DH	628	Ives
1	Continuous hinge	112XY x EPT x DH	628	Ives
1	Power transfer	EPT 10	SP28	Von Duprin
1	Exit device	QEL-35A-NL-OP x 388 x DW	626	Von Duprin
1	Exit device	CD-35A-EO x DW	626	Von Duprin
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
2	Door pull	8190HD-0	630	Ives
1	Removable Mullion	5654	US28	Von Duprin
1	Automatic surface door operator	9542 Push side mounting)	689	LCN
1	Actuators	8310-852-876	630	LCN
1	Actuators	8310-852	630	LCN
1	Surface door closer	4040XP x 4040XP-18TJ	689	LCN
1	Overhead concealed door stop	GJ100S x ADJ x DW	630	Glynn Johnson
1	Overhead concealed door stop	GJ100S x DW	630	Glynn Johnson
1	Power supply	PS902 x 2RS		Von Duprin
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Single door 102B Circulation/Public Lobby

Pressed steel frame

Wood door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

Sound seal by door/frame supplier

1 Single door 103 Universal Washroom 103

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Automatic surface door operator	9131 (pull side mtg)	689	LCN
1	Washroom package	CX-WC13AXFM-PS		Camden
	<i>Complete with electric strike for a mortise lockset</i>			
1	Audible alarm/ light Package	CX-WEC10K2		Camden
1	Kick plate	8400 400mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 104 Prob Room

Pressed steel frame

PL wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Passage set	L9010 x 06B	626	Schlage
1	Floor stop	FS439	626	Ives
	<i>Sound seal by door/frame supplier</i>			

1 Single door 106A Interview

Pressed steel frame

Wood door

950 x 2150 x 45

STC50

4	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
	<i>Sound seal by door/frame supplier</i>			

1 Single door 106B Interview

Pressed steel frame

Wood door

950 x 2150 x 45

STC50

4	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

Sound seal by door/frame supplier

1 Single door 107A Front Desk

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

Sound seal by door/frame supplier

1 Single door 107B Front Desk

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1 127 x 114 NRP	652		Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Electric strike	6211-FSE-DS-24-S024	630		Von Duprin
1	Surface door closer	4040XP Rw/PA	689		LCN
1	Kick plate	8400 200mm x DW x B-NHA	630		Ives
1	Floor stop	FS439	626		Ives
1	Keypad	By Security			
1	Card reader & door contacts	By Security			

Sound seal by door/frame supplier

1 Single door 109 Multi-Purpose

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

3	Hinges	3CB1 127 x 114 NRP	652		Ives
1	Classroom function lockset	L9070L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

1 Single door 108 Administration

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1HW 127 x 114 NRP	630		Ives
1	Office function lockset	L9050L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

Sound seal by door/frame supplier

1 Single door 112 Sgt Office

Pressed steel frame

Wood door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Office function lockset	L9050L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

Sound seal by door/frame supplier

1 Single door 114 Evidence

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Single door 115 Use of Force

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 117 Monitor

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 116 Janitor

Pressed steel frame 0 Hour

Hollow metal door 0 Hour

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 118 Universal Washroom 118

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Automatic surface door operator	9131 (pull side mtg)	689	LCN
1	Washroom package	CX-WC13AXFM-PS		Camden
	<i>Complete with electric strike for a mortise lockset</i>			
1	Audible alarm/ light Package	CX-WEC10K2		Camden
1	Kick plate	8400 400mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 119A Police Garage (Exterior)

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Floor stop	FS439	626	Ives
1	Weatherseal/soundseal	188S x 2 x DH x 2 x DW	Install on a clean dry surface	Zero International
1	Threshold	624A x DW	628	Zero International
1	Door sweep	CT-730 x DW	628	KN Crowder
1	Release Button	By Security		

1 Single door 113 SOCO

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 119C Police Garage

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Single door 120 Boiler

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 122 Electrical

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Floor stop	FS439	626	Ives
1	Weatherseal/soundseal	188S x 2 x DH x 2 x DW	Install on a clean dry surface	Zero International
1	Threshold	624A x DW	628	Zero International
1	Door sweep	CT-730 x DW	628	KN Crowder

1 Single door 123 Booking Area

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
1	Keypad	By Security		
<i>Sound seal by door/frame supplier</i>				

1 Single door 124 Interview

Pressed steel frame

Hollow metal door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Office function lockset	L9050L x 06B	626	Schlage

1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Overhead surface door stay	GJ90S x DW	630	Glynn Johnson
Sound seal by door/frame supplier				

1 Single door 125 Interview/Breath

Pressed steel frame

Hollow metal door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Office function lockset	L9050L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives
Sound seal by door/frame supplier				

1 Single door 126 Storage

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Passage set	L9010 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives
Sound seal by door/frame supplier				

1 Single door 127 Phone Booth

Pressed steel frame

Hollow metal door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Office function lockset	L9050L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives
Sound seal by door/frame supplier				

1 Single door 128A Cell #4

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652		Ives
1	Classroom function lockset	L9070L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Surface door closer	4040XP Rw/PA	689		LCN
1	Kick plate	8400 200 mm x DW x B-NHA	630		Ives
1	Floor stop	FS439	626		Ives

1 Single door 128B Chase 3

Pressed steel frame 0 Hour

Hollow metal door 0 Hour

710 x1934 x 45

3	Hinges	3CB1 114 x 102 NRP	652		Ives
1	Storeroom function lockset	L9080L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Surface door closer	1461 Cush	689		LCN

1 Single door 129B Chase 2

Pressed steel frame 0 Hour

Hollow metal door 0 Hour

860 x1934 x 45

3	Hinges	3CB1 114 x 102 NRP	652		Ives
1	Storeroom function lockset	L9080L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Surface door closer	1461 Cush	689		LCN

1 Single door 131B Chase 1

Pressed steel frame 0 Hour

Hollow metal door 0 Hour

710 x1934 x 45

3	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Storeroom function lockset	L9080L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	1461 Cush	689	LCN

1 Single door 132A Sallyport

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Weatherseal/soundseal	188S x 2 x DH x 2 x DW	Install on a clean dry surface	Zero International
1	Threshold	624A x DW	628	Zero International
1	Door sweep	8192AA x DW	Alum	Zero International
2	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Single door 132C Cell Vestibule

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200 mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 133 Public Washroom

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Privacy set	L9456L 06B L583-363 L283-722	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Floor stop	FS439	626	Ives
1	Weatherseal/soundseal	188S x 2 x DH x 2 x DW	Install on a clean dry surface	Zero International
1	Threshold	624A x DW	628	Zero International
1	Door sweep	CT-730 x DW	628	KN Crowder

1 Single door 134A Vestibule

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Exit device	98L-06 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Floor stop	FS439	626	Ives
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives

1 Single door 134B Vestibule

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	630	Ives
1	Exit device	98L-06 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP SCUSH	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Threshold	624A x DW	628	Zero International
1	Weatherseal/soundseal	429A x 1 x DW x 2 x DH	628	Zero International
1	Door sweep	8192AA x DW	628	Zero International

1 Single door 134C Vestibule

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Exit device	98L-06 x DW Less dogging	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6300-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
2	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Single door 139 Vestibule

Aluminum frame

Aluminum door

965 x 2150 x 45

1	Continuous hinge	112XY x EPT x DH	628	Ives
1	Power transfer	EPT 10 SP28		Von Duprin
1	Exit device	QEL-35A-NL-OP x 388 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Door pull	8190HD-0	630	Ives
1	Automatic surface door operator	9542 Push side mounting)	689	LCN
1	Actuators	8310-852-876	630	LCN
1	Actuators	8310-852	630	LCN
1	Overhead concealed door stop	GJ100S x ADJ x DW	630	Glynn Johnson
1	Threshold	624A x DW	628	Zero International
1	Door sweep	8192AA x DW Alum		Zero International
1	Power supply	PS902 x 2RS		Von Duprin
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

Balance of weatherseal complete by the aluminum door and frame supplier

1 Single door 140A Vestibule

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	630	Ives
1	Exit device	98L-06 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP SCUSH	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Threshold	624A x DW	628	Zero International
1	Weatherseal/soundseal	429A x 1 x DW x 2 x DH	628	Zero International
1	Door sweep	8192AA x DW	628	Zero International

1 Single door 140B Vestibule

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Push bar	350 x DW	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 141A Cell Vestibule

Pressed steel frame

Hollow metal door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200 mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door S11A Stair 1

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	630	Ives
1	Exit device	98L-06 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP SCUSH	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Threshold	624A x DW	628	Zero International
1	Weatherseal/soundseal	429A x 1 x DW x 2 x DH	628	Zero International
1	Door sweep	8192AA x DW	628	Zero International

1 Single door S11B Stair 1

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Exit device	98L-06 x DW	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Floor stop	FS439	626	Ives
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives

1 Single door S21 Stair 2

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Passage set	L9010 x 06B	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 201A Traing/Briefing

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Overhead concealed door stop	GJ100H x DW	630	Glynn Johnson

1 Single door 201B Training/Briefing

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		
1	Card reader & door contacts	By Security		

1 Pair of doors 202A Storage

Pressed steel frame

Wood door

2-650 x 2150 x 45

6	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Set of flushbolts	457 x DP2	626	Ives
2	Overhead concealed door stop	GJ100H x DW	630	Glynn Johnson

1 Pair of doors 202B Storage

Pressed steel frame

Wood door

2-650 x 2150 x 45

6	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Set of flushbolts	457 x DP2	626	Ives
2	Overhead concealed door stop	GJ100H x DW	630	Glynn Johnson

1 Single door 203 Waiting Area

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Exit device	98L-06 x DW Less dogging	626	Von Duprin
1	Rim Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6300-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Keypad	By Security		

- 1 Card reader & door contacts By Security

1 Single door 204 Administration

Pressed steel frame

Wood door

950 x 2150 x 45

- | | | | | |
|---|-----------------------------|---|-----|------------|
| 3 | Hinges | 3CB1 127 x 114 NRP | 652 | Ives |
| 1 | Storeroom function lockset | L9080L x XL11-422 x 06B | 626 | Schlage |
| 1 | Mortise Cylinder | High Security, RC, CC, with permanent Classic Primus XP | 626 | Schlage |
| 1 | Electric strike | 6211-FSE-DS-24-S024 | 630 | Von Duprin |
| 1 | Surface door closer | 4040XP Rw/PA | 689 | LCN |
| 1 | Kick plate | 8400 200mm x DW x B-NHA | 630 | Ives |
| 1 | Floor stop | FS439 | 626 | Ives |
| 1 | Card reader & door contacts | By Security | | |
| 1 | Keypad | By Security | | |

1 Single door 205 Project Room

Pressed steel frame

Wood door

950 x 2150 x 45

STC 46

- | | | | | |
|---|----------------------------|---|-----|---------|
| 4 | Hinges | 3CB1HW 127 x 114 NRP | 630 | Ives |
| 1 | Classroom function lockset | L9070L x 06B | 626 | Schlage |
| 1 | Mortise Cylinder | High Security, RC, CC, with permanent Classic Primus XP | 626 | Schlage |
| 1 | Floor stop | FS439 | 626 | Ives |
- Sound seal by door/frame supplier**

1 Single door 206 Chiefs Office

Pressed steel frame

Wood door

950 x 2150 x 45

STC 50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
1	Keypad	By Security		

Sound seal by door/frame supplier

1 Single door 207 Deputy Chief

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Office function lockset	L9050L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

Sound seal by door/frame supplier

1 Single door 208 Detectives Office

Pressed steel frame

Wood door

950 x 2150 x 45

STC 50

4	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
1	Keypad	By Security		

Sound seal by door/frame supplier

1 Single door 209 IT Room

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
1	Keypad	By Security		

1 Single door 210 QM Storage

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652		Ives
1	Classroom function lockset	L9070L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

1 Single door 211 Records

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652		Ives
1	Classroom function lockset	L9070L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

1 Single door 212 Soft Interview

Pressed steel frame

Wood door

950 x 2150 x 45

STC50

4	Hinges	3CB1HW 127 x 114 NRP	630		Ives
1	Office function lockset	L9050L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

Sound seal by door/frame supplier

1 Single door 213 MHRT

Pressed steel frame

Wood door

950 x 2150 x 45

STC46

4	Hinges	3CB1HW 127 x 114 NRP	630		Ives
1	Office function lockset	L9050L x 06B	626		Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626		Schlage
1	Floor stop	FS439	626		Ives

Sound seal by door/frame supplier

1 Single door 214 Universal Washroom

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Automatic surface door operator	9131 (pull side mtg)	689	LCN
1	Washroom package	CX-WC13AXFM-PS		Camden
	<i>Complete with electric strike for a mortise lockset</i>			
1	Audible alarm/ light Package	CX-WEC10K2		Camden
1	Kick plate	8400 400mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 215 Closet

Pressed steel frame

Wood door

750 x2150 x 45

3	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Passage set	L9010 x 06B	626	Schlage
1	Overhead concealed door stop	GJ100S x DW	630	Glynn Johnson

1 Single door 216A Lunch Room

Pressed steel frame

LOCK

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 216B Lunch Room

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1HW 127 x 114 NRP	630	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP S Cush	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Threshold	624A x DW	628	Zero International
1	Weatherseal/soundseal	429A x 1 x DW x 2 x DH	628	Zero International
1	Door sweep	8192AA x DW	628	Zero International
1	Card reader & door contacts	By Security		
1	Keypad	By Security		

1 Single door 217 Womens Washroom

Pressed steel frame

LOCK

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Push plate	8200 100 mm x 400 mm x BHMA	Install over the top of the door pull through bolts	Ives
1	Door pull	8103EZHD-10"	630	Ives
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Pair of doors 218A Storage

Pressed steel frame

Wood door

2-650 x 2150 x 45

6	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Set of flushbolts	457 x DP2	626	Ives
2	Overhead concealed door stop	GJ100H x DW	630	Glynn Johnson

1 Pair of doors 218B Storage

Pressed steel frame

Wood door

2-650 x 2150 x 45

6	Hinges	3CB1 114 x 102 NRP	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Set of flushbolts	457 x DP2	626	Ives
2	Overhead concealed door stop	GJ100H x DW	630	Glynn Johnson

1 Single door 219 Mens Washroom

Pressed steel frame

LOCK

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Push plate	8200 100 mm x 400 mm x BHMA	Install over the top of the door pull through bolts	Ives
1	Door pull	8103EZHD-10"	630	Ives
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 220A Fitness Room

Pressed steel frame

LOCK

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Push plate	8200 100 mm x 400 mm x BHMA	Install over the top of the door pull through bolts	Ives
1	Door pull	8103EZHD-10"	630	Ives
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 Single door 220B Storage

Pressed steel frame

Wood door

750 x 2150 x 45

3	Hinges	3CB1 114 x 102	652	Ives
1	Classroom function lockset	L9070L x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Floor stop	FS439	626	Ives

1 Single door 222 Corridor

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Storeroom function lockset	L9080L x XL11-422 x 06B	626	Schlage
1	Mortise Cylinder	High Security, RC, CC, with permanent Classic Primus XP	626	Schlage
1	Electric strike	6211-FSE-DS-24-S024	630	Von Duprin
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives
1	Card reader & door contacts	By Security		
1	Keypad	By Security		

1 Single door S22 Stair 2

Pressed steel frame

Wood door

950 x 2150 x 45

3	Hinges	3CB1 127 x 114 NRP	652	Ives
1	Passage set	L9010 x 06B	626	Schlage
1	Surface door closer	4040XP Rw/PA	689	LCN
1	Kick plate	8400 200mm x DW x B-NHA	630	Ives
1	Floor stop	FS439	626	Ives

1 GENERAL

1.1 Conform to Sections of Division 1 as applicable.

1.1.1 The work of this Section is to form part of the base bid tender price is **NOT** part of the cash allowance. Work includes supply and installation of all components required to provide a complete power door operator at each location required including actuators.

1.1.2 Coordinate with Electrical for power and rough-in requirements.

1.1.3 Refer to Hardware List enclosed as part of Section 08 71 00 Finish Hardware.

1.2 RELATED SECTIONS

1.2.1 Supply of hinges and manual door closer: Section 08 71 00 - Finish Hardware; installation by this Section.

Electrical wiring to manufacturer's equipment: Division 16 – Electrical.

1.3 REFERENCES

ANSI/BHMA A156.19-90	Power Assist and Low-Energy Power-Operated Doors
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1.4 SYSTEM DESCRIPTION

1.4.1 Barrier free door operation system comprising of low energy power operator with optional push and go door system as defined in ANSI/BHMA A156.19.

1.5 SUBMITTALS

1.5.1 Submit shop drawings in accordance with Section 01330 Administrative Requirements.

1.5.2 Clearly indicate materials being supplied and shall have all connections, attachments, reinforcing, anchorage and location of exposed fastenings.

1.6 WARRANTY

1.6.1 Warrant work of this Section against defects and deficiencies in accordance with General Conditions of the Contract. Promptly make good defects and deficiencies which become apparent within warranty period, to satisfaction of Architect and at no extra cost to the Owner.

2 PRODUCTS

2.1 FABRICATION AND MANUFACTURER OF EQUIPMENT

Manufacturer

2.1.1.1 Interior Heavy Duty Door Operator: Design is based on low energy power operated door operating equipment, surface applied #9130/40 Series LCN. Following products are also acceptable provided they meet requirements of

those specified.

Besum of Canada surface mounted: 450 series

Stanley Magic Door Division
of Stanley Canada Inc. surface mounted: magic swing surface

Horton Automatics surface mounted: 4,000 series surface

Gyro, Tech. Inc. surface mounted: GT500 surface

2.1.1.2 Door operating equipment shall be complete with electro mechanical motor gear box. Provide 3 position (off-on) switch. System shall operate between -34 deg C and 71 deg C (-29 deg F and 160 deg F).

2.1.1.3 Provide housing of the same dimension and finish as the door operator housing and install to full width of the screen or frame in which the door operator is being installed. Install in-line at the same elevation as the door operator to create the appearance that the door operator housing extends the full width of the screen or frame in which it is installed.

2.1.2 Functional Requirements

2.1.2.1 Equipment shall be designed to operate swing doors up to weight of 102 kg (225 lbs).

2.1.2.2 Opening Speed:
- Door shall be field adjusted to back check as required in Table 1 of ANSI/BHMA A156.19.
- Opening speed to fully open shall be 4 seconds or longer.

2.1.3 Hold Open: Door shall be field adjusted to remain fully open for not less than 5 seconds or more than 30 seconds.

2.1.4 Closing Speed
- Doors shall be field adjusted to close 90° to 10° in 3 seconds or longer as required in Table 1 of ANSI/BHMA A156.19.
- Doors shall close from 10° to fully closed in not less than 1.5 seconds.
- Force required to prevent door from opening or closing shall not exceed 7 kg applied 25 mm (1") from latch edge of door at any point in opening or closing cycle.
- During power failure, doors shall open with manual pressure not exceeding 11.3 kg at point 25 mm (1") from latch edge of door.
- Doors shall be equipped with signs visible from either side, instructing user as to operation and function of door.

2.1.5 System Operation: Where 1 of push buttons on either side of door is actuated door shall open slowly to back check (80°) in 3 to 6 seconds and to full open position in 4 to 7 seconds. Door shall remain open for period set to suit requirements (period of 5 to 30 seconds). After time delay door shall close by spring in door operator from 90° to 10° in 3 to 6 seconds from 10° to fully closed in 1-1/2 to 2 seconds.

2.1.6 Requirements

2.1.6.1 Provide header complete with full housing, finish shall match door frame finish.

2.1.6.2 Operator shall be activated by push button switches on either sides as indicated. Switches shall be located no more than 1200 mm (48") from floor. Switches shall bear universal handicap logo visible to all types of traffic.

3 EXECUTION

3.1 INSTALLATION AND OPERATION

3.1.1 Provide automatic door operators, controls and accessories for doors indicated.

3.1.2 Doors shall operate manually as though equipped with manual door closers, without damage to automatic door components, in event of power failure or in event of power termination.

3.1.3 Door operators and accessories shall be installed in strict accordance with manufacturer's recommendations.

3.1.4 Power supply to each door operator and wiring shall be provided by Division 16 - Electrical. Make connections at operators and at control panel and supply and install each electrical work between operators and activating controls. Comply with requirements of Division 16 - Electrical. All wiring shall be concealed and where exposed shall be run in conduit. Location of exposed wiring shall be subject to Architect's approval.

3.2 ADJUST AND CLEAN

3.2.1 Test and adjust operators and controls smooth and proper operation.

3.2.2 Upon completion of Work of this Section, remove from Site all debris, equipment and excess material resulting from Work of this Section.

END OF SECTION

Part 1 General

1.1 REFERENCE STANDARDS

- .1 Aluminum Association (AA)
 - .1 AA DAF 45-03(R2009), Designation System for Aluminum Finishes.
- .2 ASTM International
 - .1 ASTM A167-99(R2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
 - .2 ASTM A480/480M-11b, Standard Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet and Strip.
- .3 British Standards Institution (BSI or BSI Group)
 - .1 BS EN 14179-1:2005, Glass in building B Heat soaked thermally-toughened soda lime silicate safety glass. Definition and Description, 2005.
- .1 Canadian Standards Association (CSA) (for several aspects)
 - .1 CSA S832(R2019), Seismic Risk Reduction of Operational and Functional Components (OFCs) of Buildings.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-12.1-M90, Tempered or Laminated Safety Glass.
- .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for door and partition panel materials and components. Include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by Professional Engineer registered or licensed in Province of Ontario.
 - .2 Indicate each type of guard, sizes, hardware locations, fittings, components and materials to conform to specified seismic design for post-disaster buildings, construction requirements of Contract Documents and CSA S832.
 - .3 Submit complete list of hardware indicating catalogue and reference identification to specified standards.
- .4 Samples:
 - .1 Submit for review and acceptance 150mm long samples of each component.
 - .2 Submit duplicate 100 x 100 mm samples of safety glass.
- .5 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.

1.4 CLOSEOUT SUBMITTALS

- .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2 Operation and Maintenance Data: submit maintenance data for incorporation into manual.

1.5 QUALITY ASSURANCE

- .1 Certifications: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect glass doors, partition panels, and guard panels from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.

Part 2 Products

1.1 GLASS

- .1 Laminated safety glass:
 - .1 Clear glass to requirements of CAN/CGSB 12.1 with minimum 1.52mm (0.60") thick interlayer.
 - .2 Construction: laminated glass with SGP interlayer. Final thickness of glass to be determined by the supplier's Engineer who shall engineer the glass guard system to suit the parameters of this project.
 - .3 Interlayer colour: clear.
 - .4 Each glass layer 6mm thick, minimum, to meet code requirements as confirmed by Engineer on shop drawings; Overall 13.52mm thick laminated glass, minimum.
 - .5 Glass type: fully tempered. Fully tempered glass to be heat soaked in accordance with BS EN 14179 1:2005. Tempering shall be performed using the horizontal tong free method. If roller lines are apparent within acceptable limits as specified, they shall be in horizontal direction after installation.
 - .6 Laminated glass products to be fabricated free of foreign substances and air or glass pockets in autoclave with heat plus pressure.
 - .7 All exposed edges of panels shall have slight arises and be polished with no sharp edges. Any exposed glass edges to be chamfered.
- .2 Glazing gasket: rubber or neoprene, purpose made gasket for dry glazing.

1.2 COMPONENTS;

- .1 Aluminum: Aluminum Association alloy AA6063-T5.
- .2 Brushed stainless steel 42" glass clamp post railing system by CRL or approved equal.
 - .1 50mm square brushed stainless steel posts with integral round square shape glass clamps.
 - .2 Compatible with 12.7mm to 16mm (1/2" to 5/8") glass, or glass thickness as required by supplier Design Engineer.
 - .3 Compatible with dry glazing system.
 - .4 Integral pre-drilled base plate with stainless steel cover canopy.
- .3 Cap Channel for Glass Guards:
 - .1 Compatible with glass thickness as required by Engineer.
 - .2 Stainless Steel.
 - .3 Installed in continuous length along top of entire glass guard with silicone as recommended by manufacturer.
 - .4 Acceptable material:
 - .1 Stainless Steel U-Channel.

1.3 FABRICATION

- .1 Cut glass to required sizes, polish all exposed edges, include cutouts for hardware and other attachments before heat treatment.
- .2 Attach fittings and components before shipping to site as recommended by manufacturer.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify conditions of substrates previously installed under other Sections or Contracts are acceptable for tempered glass guard and railing installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Consultant and General Contractor.
 - .2 Inform Consultant of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied.

3.2 INSTALLATION

- .2 Manufacturer's Instructions: comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheets.
- .3 Coordinate guard and railing anchorage with related work of other subcontractors.
- .4 Erect members and component parts plumb, level and true to building lines, in correct relation to the work of other sections and established lines and levels indicated.
- .5 Securely drill and tap or weld heavy-duty base shoe weld block to steel channels / angles, provided by Division 5, as indicated on drawings. Shim to true straight lines and levels.
- .6 Insulate between dissimilar metals or between metal and masonry or concrete with bituminous paint to prevent electrolytic action.

- .7 Glass shall be in lengths shown, cut to shapes and conditions indicated and to provide vertical joints. Set glass plumb and true to line with no variation in face plane between sections of glass at joints.

3.3 INSTALLATION - TOLERANCES

- .8 Install plumb, level, tight and secured.
- .9 Comply with the following maximum tolerances:
 - .1 Level and plumb: 3m min 3m (1/8" in 10'-0").
 - .2 Variation from indicated position: plus/minus 3mm (1/8").

3.4 CLEANING

- .3 Progress Cleaning: clean in accordance with Section 01 74 10 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Clean aluminum with damp rag and approved non-abrasive cleaner in accordance with manufacturer's instructions.
 - .3 Remove traces of primer, caulking; clean doors, partitions, and guards.
 - .4 Clean glass and glazing materials with approved non-abrasive cleaner.
- .10 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 10 - Cleaning.

3.5 PROTECTION

- .11 Protect installed products and components from damage during construction.
- .12 Repair damage to adjacent materials caused by installation.

END OF SECTION

1 GENERAL

1.1 Conform to Sections of Division 1 as applicable.

1.2	<u>Storage shelving to be anchored to perimeter walls where located along walls.</u>
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1.3 SUBMITTALS

1.3.1 Shop Drawings

1.3.1.1 Submit shop drawings in accordance with Section 01 33 00 Submittals..

1.3.1.2 Show all materials fabrication, manufacturer's data sheets in accordance Section 01 33 00 Submittals.

2 PRODUCTS

2.1 MATERIALS

2.1.1 **Shelving:** Products by the following manufacturers are acceptable.

Acceptable Manufacturers

Rousseau or equal,

SpaceSaver,

Global Industries,

Southwest Solutions

Spacefile/Altitude Storage Solutions

2.1.2 **Open Rack Shelving SH1, 2:** Standard parts consisting of 4 uprights per unit to which shelves are bolted or clip fastened. Provide side sway braces on the two exposed sides of each rack or bank and at alternate sections throughout the length of the bank. Provide back sway braces on the two end sections of each bank and on alternate sections.

2.1.3 **High Density Shelving SH3 – Rooms 114, 211:** High density full-height shelving system with fixed end units and manually moveable intermediate units as shown on the Drawings, complete with adjustable shelves.

- 42" wide x 16" deep with dividers for 3 banker boxes per shelf
- 72" nominal height – 4 adj. shelves in each
- Closed uprights
- Manual operation, no electric assist
- Surface mounted rails

2.1.4 **Shelves:** Minimum .91 mm (20 ga.) steel up to 460 mm x 900 mm (18" x 36") and minimum 1.21 mm (18 ga.) over that size. 3,000 lb. Shelf Cap. Shelves shall have formed flanges on 4 sides.

2.1.5 **Uprights:** 25 mm x 50 mm (1" x 2") formed steel angle, minimum 1.90 mm (14 ga.), punched at maximum 50 mm (2") intervals throughout the entire length. Uprights to be 2440 mm (96") high.

2.1.6 **Kickplate:** Minimum 1.21 mm (18 ga.) steel to close space between bottom shelf and floor at front and at exposed ends.

2.1.7 **Finish:** Manufacturer's standard finish selected by Consultant.

3 EXECUTION

3.1 INSTALLATION

3.1.1 Install units neatly aligned, plumb and level. Bolt adjacent units together to form an assembly. **Securely anchor to walls where located along perimeter walls.**

End of Section

1 GENERAL

- 1.1 Conform to Sections of Division 1 as applicable.
- 1.2 Coordinate with other sections as required for mounting.

1.3 SUBMITTALS

1.3.1 Shop Drawings

- 1.3.2 Submit Shop Drawings in accordance with Section 01 33 00 Submittals.
- 1.3.3 Shop Drawings shall indicate and describe in detail the work of this Section including large scale detail of members and materials, and of anchorage devices, dimensions, gauges, thickness, as well as other pertinent data and information.

2 PRODUCTS

2.1 MATERIALS

- 2.1.1 **Key Cabinet:** single tag key security control system for 8-730 keys, Hudson Lock 330 Unit KeKab, Steel, (508 mm x 419 x 127 mm); Wall Key Cabinet No. C-300, 300 key capacity (17-3/4" w x 25" h x 2-1/2" d) by Lund Key Cabinets or equal.
- 2.1.2 **Stainless Steel Workbench:** Aero Manufacturing, AS2460, 60" w x 24" D, 18 ga. Stainless Steel workbench with 4" backsplash, T9A300807, 430 Series with adjustable shelf; located where directed on site.
- 2.1.3 **Metal Upper cabinets:** AKB Plus Welded Wall Hung, T9AB0001945, 36" w x 12" d x 30" high, (2) required; Recessed handled, light grey, 20-22 ga. To be located where directed on site.
- 2.1.4 **TV Wall Mount:** Sanus, 40" – 84" Full motion TV Wall Mount, ten (10) required, supplied by Best Buy or equal. Locate where directed on site for monitor mounting. Blocking to be provided behind GWB in all wall-mounted monitor locations.
- 2.1.5 **Flammable Storage Cabinet:** Manual Doors, 45 gallon, 43" w x 18" d x 65" h, H-1564M, must be lockable, Yellow colour; by ULine or equal. To be located at Police Garage 119.
- 2.1.6 **Weapons Rack:** Single sided Expandable Weapon Rack as manufactured or supplied by Dasco, SpaceSaver or Altitude Storage Solutions, 84" H x 40" W x 15" D (2135mm H x 1015mm w x 380mm D); Located in Room 115.
- 2.1.7 **Ash Tray:** Rubbermaid Smoker's Pole – Black, 2 – required at exterior location as directed on site.
- 2.1.8 **Waste Receptacles for Exterior:** Ranger Trash Cans by Rubbermaid (2) required at exterior where directed on site.

- 2.1.9 **Handgun Lockers:** 2 bank of 6 lockers to be located as directed on site; All locker doors to swing in same direction. Hinge to be continuous. Locks: Police supplied Abloy Safety Deposit Lock. Provide manufactured base for each bank of lockers to suit the size. Finish: flat black. Provide rubber liner at bottom of each handgun locker (no tinslides to be included). Individual lockers to be numbered sequentially via adhesive backed engraved lamaroid plate. Manufactured by Canadian Safe Manufacturing, Adanac Security, Inkas or Altitude Storage Solutions. No alternates.
- 2.1.10 **Long Gun Vault:** Located as directed on site, Qty: two(2), ¼" thick steel plate door, 10 ga steel body, 4 locking bolts on open side and anti-pry on hinge side; Drill resistant hard plate to protect lock; two independent relockers; heavy duty hinges with brass washers (rate 600 opens per year or more); LaGuard 3000 keypad and 4200 lock; Interior compartment to accommodate 2 tiers of C8's and 1 tier of shotguns _ shelving where possible; Predrilled for anchoring to floor and base; Measurements 36" wide x 26" deep x 66" tall + base. Manufactured by Canadian Safe Manufacturing, Adanac Security, Inkas or Altitude Storage Solutions. No alternates.
- 2.1.11 **Prisoner's Bench (Anti-Ligature Wall Mounted Seat):** (1) located as directed on site. 6510-SS, 16" x 32" wall mount seat, 500 lbs. Load Test, Type 304 Stainless Steel, Seat weight – 36 lbs. exposed fasteners as manufactured by Brey Krause Manufacturing. No alternates. (12) 5/16" bolts recommended by manufacturer to be provided by GC for installation
- 2.1.12 **Exhibit Pass-Through Lockers:** Pass Through Cabinet Configuration: Three (3) located at SOCO 113/Evidence 114; as manufactured by Dasco or SpaceFile/Altitude Storage Solutions specifically for secure exhibit transfer. Each 72" x 36" x 18" (1830 x 915 x 455). Configuration to be total 18 compartments with 1 refrigerated compartment (4 internal compartments). Individual self-locking doors to intake side (SOCO 113), single door per unit on secure side (Evidence 114). One compartment to be set up with reverse operation for retrieval of items into room 113.
- 2.1.13 **Unloading/Loading Station:** supplied by Police installed under this contract. (2) to be located as directed on site, Total: 2
- 2.1.14 **Roof Hatch:**
1. Unit: equal to 3'-0" x 3'-0" (915 mm x 915 mm) type "E-50TB" by Bilco complete with thermally broken cover and curb, insulated R-18, EPDM gaskets, compression spring for smooth operation, automatic hold open arm for cover, slam latch with padlock hasps, corrosion resistant aluminum construction, powder coated to match roof flashings, Ladder Up Safety Post LU-1 and 'Bil-Guard' 2.0 Hatch Rail System RL2-ETB.
 2. Roof Hatch Fabrication and Installation:
 - .1 Fabricate free of visual distortion and defects. Weld corners and joints.
 - .2 Provide for removal of condensation.

.3 Provide weather tight assembly.

3. Install roof hatch in accordance with manufacturer's instructions using stainless steel screws to secure to roof deck. Co-ordinate with installation of roofing system and related flashings.

1. Install roof hatch unit(s) level. Complete installation to be secure and watertight.

3 EXECUTION

3.1 INSTALLATION

3.1.1 Install all manufactured furnishings in locations indicated on Drawings, plumb, level, straight and secured to building structure.

3.1.2 Coordinate with Rough Carpentry section to provide solid backing for wall mounted items.

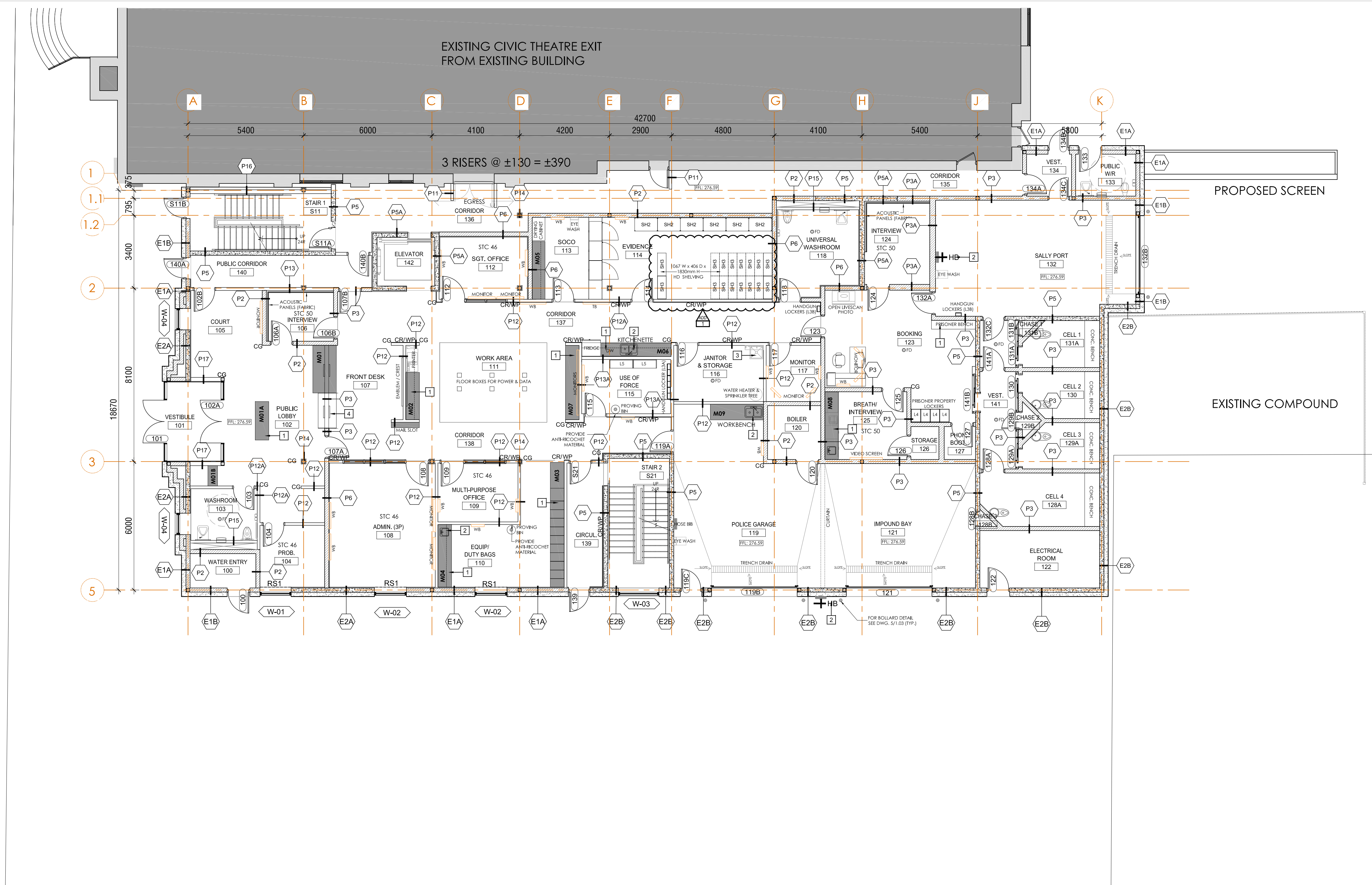
3.1.3 Provide additional bracing and reinforcing as required to suit partition heights.

3.1.4 Provide clips, bolts and other ancillaries required to complete the installation.

3.1.5 Touch-up damaged areas during transportation and installation.

3.1.6 Mount anti-ligature seat 18" above finished floor as recommended by manufacturer using 5/16" bolts with wall backing as may be required. **Security Sealant must be used between anchoring plates and wall, refer to Section 07 92 00 Sealants.**

End of Section



FLOOR PLAN GENERAL NOTES

- ALL GRID LINES ARE TO CENTERLINE OF STRUCTURE UNLESS NOTED OTHERWISE.
- DOOR FRAMES TO BE LOCATED 100mm FROM NEAREST ADJACENT WALL UNLESS NOTED OTHERWISE.
- ALL INTERIOR PARTITIONS ARE TO EXTEND TO UNDERSIDE OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE. BRACE AS REQUIRED.
- PARTITIONS WHICH ARE FIRE SEPARATIONS SHALL EXTEND TO UNDERSIDE OF STRUCTURE OR 100mm ABOVE FIRE RATED CEILING ASSEMBLY AND ARE TO FORM A SMOKE TIGHT JOINT AT TERMINATION. PROVIDE DEFLECTION JOINT.
- AT ALL FIRE SEPARATIONS ANY PENETRATIONS OR OPENINGS MUST BE SEALED WITH APPROVED FIRE STOPPING MATERIAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE INTEGRITY OF THE FIRE RATED ASSEMBLY IS MAINTAINED.
- PROVIDE ADEQUATE IN-WALL BLOCKING SUPPORT AT ALL WALL MOUNTED EQUIPMENT LOCATIONS (E.G. FIXTURE LOCATIONS, HANDRAILS & MILLWORK).
- SUBSTITUTE GYPSUM BOARD AROUND ALL SHOWER & MECHANICAL FIXTURE LOCATIONS WITH WATER RESISTANT GYPSUM BOARD OF THE SAME THICKNESS AND FIRE RESISTANCE RATING. REFER TO SPECIFICATION.
- REFER TO MECHANICAL & ELECTRICAL DRAWINGS & SPECIFICATIONS FOR TYPE OF RELATED FIXTURES.

DIMENSION PLAN SYMBOL LEGEND

E1	INDICATES CONSTRUCTION ASSEMBLY. REFER TO A0.02.
W-01	INDICATES TO EXTERIOR SCREEN TYPE. REFER TO A0.03.
S1	INDICATES TO INTERIOR SCREEN TYPE. REFER TO A0.05.
1001	INDICATES DOOR REFERENCE. REFER TO DOOR SCHEDULE.
	INDICATES CONCRETE BLOCK OR MASONRY VENEER
	INDICATES GYPSUM WALL BOARD PARTITION
HB	INDICATES HOSE BIBB. REFER TO ELEVATIONS FOR LOCATION. REFER TO MECHANICAL.
X	INDICATES LOCATION OF SIAMESE CONNECTION. REFER TO ELEVATIONS FOR LOCATION. REFER TO MECHANICAL DRAWINGS.
RS1	CHAIN OPERATED DUAL ROLLER WINDOW SUN CONTROL/BLACK-OUT (1/A0.08)
CR	CRASH RAIL (REFER TO DWG. 1/A0.08)
WP	LAMINATE WALL PROTECTION
CG	INDICATES STAINLESS STEEL CORNER GUARD
WB	DISPLAY SURFACE - WHITEBOARD (REFER TO DWG. A0.10)
TB	DISPLAY SURFACE - TACKBOARD (REFER TO DWG. A0.10)

DIMENSION PLAN CODE LEGEND

1	MILLWORK. REFER TO MILLWORK PLANS IN A0.00 SERIES
2	APPLIANCE. REFER TO SPECIFICATION
3	LOCATION OF JANITOR SINK. REFER TO MECHANICAL.
4	RECEPTION DESK. REFER TO 1/A0.01

REVISIONS		
No.	Date	Particular
1	2024.04.17	ISSUED FOR CLIENT DD REVIEW
2	2024.07.03	ISSUED FOR CLIENT CD REVIEW
3	2024.08.07	ISSUED FOR FINAL REVIEW
4	2024.08.13	ISSUED FOR TENDER
5	2024.08.24	ISSUED FOR ADDENDUM NO. 1



CLIENT
TOWN OF HANOVER

PROJECT:
22539

HANOVER POLICE STATION

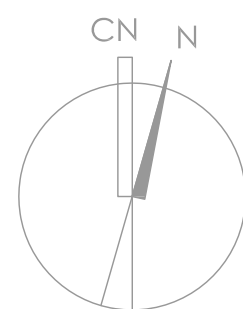
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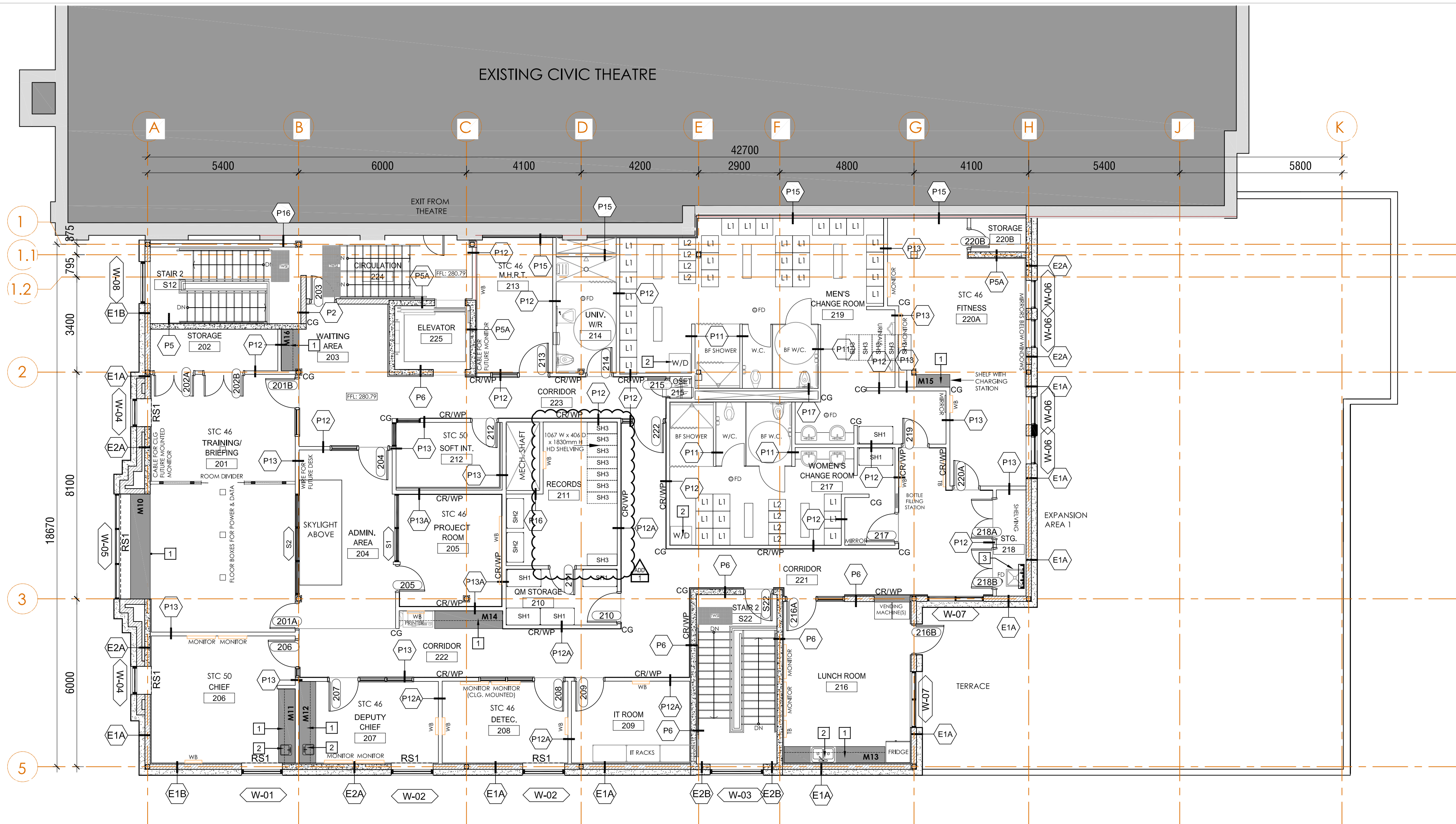
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FLOOR PLAN - LEVEL 1

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All drawings and measurements must be checked and verified by the General Contractor



1 FLOOR PLAN - LEVEL 2
A2.06
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- FLOOR PLAN GENERAL NOTES**
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 - AT ALL FIRE SEPARATIONS ANY PENETRATIONS OR OPENINGS MUST BE SEALED WITH APPROVED FIRE STOPPING MATERIAL. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THE INTEGRITY OF THE FIRE RATED ASSEMBLY IS MAINTAINED.
 - PROVIDE ADEQUATE IN-WALL BLOCKING SUPPORT AT ALL WALL MOUNTED EQUIPMENT LOCATIONS (E.G. FIXTURE LOCATIONS, HANDRAILS & MILLWORK).
 - SUBSTITUTE GYPSUM BOARD AROUND ALL SHOWER & MECHANICAL FIXTURE LOCATIONS WITH WATER RESISTANT GYPSUM BOARD OF THE SAME THICKNESS AND FIRE RESISTANCE RATING. REFER TO SPECIFICATION.
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 - X INDICATES LOCATION OF SIAMESE CONNECTION. REFER TO ELEVATIONS FOR LOCATION. REFER TO MECHANICAL DRAWINGS.
 - TWSI TACTILE WARNING SURFACE INDICATOR
 - RS1 CHAIN OPERATED DUAL ROLLER WINDOW SUN CONTROL/BLACK-OUT (REFER TO DWG. 1/A0.08)
 - CR CRASH RAIL (REFER TO DWG. 1/A0.08)
 - WP LAMINATE WALL PROTECTION
 - CG INDICATES STAINLESS STEEL CORNER GUARD
 - WB DISPLAY SURFACE - WHITEBOARD (REFER TO DWG. A0.10)
 - TB DISPLAY SURFACE - TACKBOARD (REFER TO DWG. A0.10)
- DIMENSION PLAN CODE LEGEND**
- 1 MILLWORK. REFER TO MILLWORK PLANS IN A0.00 SERIES
 - 2 APPLIANCE. REFER TO SPECIFICATION
 - 3 LOCATION OF JANITOR SINK. REFER TO MECHANICAL.
 - 4 RECEPTION DESK. REFER TO 1/A0.01

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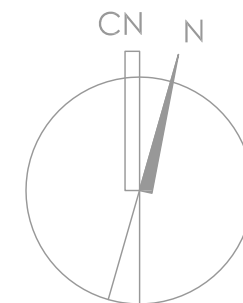
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FLOOR PLAN - LEVEL 2

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