



CONSULTANTS
Occupational Hygiene & Environment

BID DOCUMENTS

DECOMMISSIONING, REMEDIATION AND DEMOLITION

Hayhoe Generating Station

Hayhoe Lane
Vaughan, Ontario

Prepared for:

City of Vaughan
Infrastructure Development
2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1

Prepared by:

OHE Consultants
311 Matheson Blvd. East
Mississauga, Ontario
L4Z 1X8

OHE Project No.: 29055

March 2024

Project:

Decommissioning, Remediation and Demolition

Hayhoe Generating Station
Hayhoe Lane
Vaughan, Ontario

Owner:

City of Vaughan, Infrastructure Development

2141 Major Mackenzie Dr.
Vaughan, Ontario
L6A 1T1

Consultant:

OHE Consultants

Occupational Hygiene & Engineering
311 Matheson Boulevard East
Mississauga, Ontario
L4Z 1X8

Table of Contents

<u>Divisions</u>	<u>Title</u>	<u>No. of Pages</u>
Division 1		
1.0	General Requirements	5
Division 2		
1.0	Specifications	12
01000	General Requirements	1
02000	Site Work – Protection	1
02000	Site Work – Demolition	1
02000	Site Work – Disposal of Waste Materials	1
02000	Site Work – Remediation	1
02000	Site Work – Excavation and Backfill	2
02000	Site Work – Site Grading	1
03000	Fencing	1
Attachments		
Drawings:		
Drawing A1	Site Plan	1
Drawing E1	Site Grading Plan	1
Drawing S1	Demolition Site Plan	1
Drawing S2	Elevations	1
Drawing S3	Section and Roof Plan	1
	Structural Demolition Report	10
	Pre-Demolition Hazardous Building Materials Survey	43

DIVISION 1

GENERAL REQUIREMENTS

PART 1 – GENERAL

1.0 General Requirements

1.1 General Conditions and Instructions

1.1.1 This section forms a part of the Contract Document and shall be read in conjunction with all other Sections and Divisions in order to comply with the requirements of the General Conditions of the Contract.

1.1.2 The Contractor acknowledges that before submitting the tender, they thoroughly examined the Tender Documents including all Specifications. The Contractor also acknowledges that they visited and examined the sites to determine the nature of all circumstances that could affect the execution of the work.

1.1.3 The Contractor shall verify the actual site conditions prior to submitting a tender. Bid price shall be based on actual site conditions since they may vary from the conditions described in the tender documents.

1.1.4 The Contractor shall not hold the Owner or the Consultant responsible for additional costs resulting from errors and/or omissions found in the Bidding Documents provided to the Contractor.

1.2 Compliance with Standards and Codes

1.2.1 Unless otherwise specifically noted, the Contractor shall be responsible for all matters related to permits, health and safety, fees and labour, etc. Comply with the requirements of all authorities having jurisdiction and obtain and pay for all required assessments. Deviation from applicable standards and codes due to lack of knowledge or possession is not permitted.

1.2.2 In case of conflict between applicable codes and/or standards and the Contract Document, the more stringent requirements shall apply.

1.3 Contractor Responsibilities

1.3.1 The Contractor shall be solely responsible for the overall planning of the Project and control of the Project site in order to provide a continuous flow of work to meet the Project completion schedule. This requirement shall include, but is not limited to, delivery of equipment and materials to the site, coordination of sub-trades, fabrication and construction and all other aspect of specified work.

1.3.2 Cooperation: Coordinate and cooperate with other Contractors who will be working on the site during the same period. Coordinate the use of the Project site with the Consultant and cooperate with the Owner where access to the site is required.

1.3.3 Protection of Property and Work: The Contractor shall be fully responsible for the protection of products and persons under this Contract and shall:

1.3.3.1 Supply, build, and maintain all necessary barriers, hoarding, lighting, etc. as may be required by law or as necessary to perform the specified work.

1.3.3.2 Become familiar with the location of services and utilities (electrical, water, telephone, gas, etc.) within the site confines. Both public and private utility locates are required and must be kept current. Notify the Consultant about the location of such systems.

1.3.3.3 Supply all necessary protection to prevent damage by weather or other causes, in cases the job is stopped for any reason, until the Project can be safely completed.

1.3.3.4 Notify the Consultant by telephone and email immediately in case of an emergency on the site.

1.3.3.5 Take adequate precautions, maintain proper protection and follow the highest standards of safety to prevent damage to the subject and adjacent properties and to prevent injury to workers and the public.

1.3.3.6 Fully compensate affected individuals and return affected property to its original or an equivalent state all at the Contractor's expense without any additional charges to the Owner.

1.4 Work Schedule

- 1.4.1 An initial schedule shall be submitted to the Consultant (two (2) copies) for review and approval within two (2) calendar days from the time of award of the contract. The Consultant will review the schedule and will return a copy to the Contractor within two (2) days. Prepare the schedule in the form of a horizontal bar chart to reflect the requirements of the Decommissioning, Remediation and Demolition Specification document.
- 1.4.2 City of Vaughan determined the starting date for the project is **Monday July 1st, 2024** and delivery date is **Friday August 9, 2024**.
- 1.4.3 The project shall be completed within **30 working days** from the start date as indicated by the City of Vaughan. Formal documentation from the City of Vaughan and/or the Consultant will indicate the project start date. Exceptions to this date are noted for such things as Variance applications and regulatory approvals. It must be demonstrated in writing within the three (3) week period that these are being dealt with.
- 1.4.4 Contractor shall provide a weekly progress schedule to the City of Vaughan and the Consultant and attend weekly project meetings.
- 1.4.5 Revised copies of the progress schedule shall be submitted with each progress invoice.

1.5 Project Documents

- 1.5.1 Maintain proper records to document the location of equipment and objects that were moved to facilitate the construction activities.
- 1.5.2 Maintain copies of change orders, Specifications, addenda and drawings issued as part of the Contract and Specifications Documents. Maintain copies of inspection certificates and field test records and other documents as required by individual Sections of the Specification.
- 1.5.3 Obtain and maintain warranties and bonds executed by suppliers. List suppliers by name, address, telephone and fax numbers.

1.6 Temporary Water Supply

- 1.6.1 The Contractor shall be responsible for arranging a temporary water supply and paying the cost for all equipment and materials required for establishing the connections and the cost for installation and removal.

1.7 Temporary Power Supply

- 1.7.1 The Contractor shall be responsible for providing temporary power for the operation of all electrical equipment.

1.8 Site Parking and Access

- 1.8.1 Contractor personnel shall only be allowed to park in designated areas as specified by the Owner or their designate. The Contractor shall ensure that normal traffic to the site is not disrupted by the construction activities. Ensure that access to the work is always available by providing and maintaining ramps, access roads and sidewalk crossings.

1.9 Site Storage

- 1.9.1 Obtain the Consultant's authorization before storing equipment and materials on site. Tools, equipment and materials shall be stored in lockable temporary facilities and shall be maintained in clean and tidy condition. Place the temporary storage facilities in designated areas only. Ensure timely ordering of products to avoid unnecessary utilization of storage space. Obtain specific instructions and authorization from the Consultant in case storage of flammable materials inside the buildings is required.

1.10 Sanitary Facilities

- 1.10.1 The Contractor shall provide sanitary facilities for use by their work force as required by the health authorities having jurisdiction. Ensure that the facilities are maintained in clean condition. The

Owner's facilities are available for use by the Contractor forces. Improper maintenance of the facilities will result in loss of use.

1.11 Project Meetings

- 1.11.1 Project meetings shall be held on a weekly basis (as a minimum) throughout the duration of the Project. Meetings shall be attended by the Contractor (and sub-contractors as required), the Consultant and the Owner or his representative. Schedule additional meetings as required by the work to accelerate progress.
- 1.11.2 Advise all parties involved about the meeting at least 24 hours in advance. Ensure that copies of progress schedule are forwarded to all parties for review and comment.
- 1.11.3 Record meeting minutes, include significant decisions and identify actions by party. Distribute copies of meetings minutes to interested parties within two (2) working days after the meeting.
- 1.11.4 To avoid delays, the Contractor shall ensure that the Consultant is kept informed of potential delays, progress and delays during all phases of the Project.

1.12 Quality Control

- 1.12.1 The Consultant is authorized to examine or to order the examination of any part of the work if it is suspected that the work was not completed as specified in the Contract Documents. The Consultant shall have access to the work as required to carry out the inspections.
- 1.12.2 In case the work requires that inspections, tests or approval be obtained by the Contractor before proceeding, the Contractor shall give sufficient notice to the Consultant requesting the inspection to be made.
- 1.12.3 The Contractor shall be responsible for uncovering any work that has been designated for inspection, testing or approval in case the Contractor allows such work to be covered before the approval is obtained. The Contractor shall make good on all work after the required inspection and testing has been completed.
- 1.12.4 The Consultant may carry out the inspection themselves or may retain an independent testing agency to carry out the work. The hiring of an independent agency does not diminish the Contractor's responsibility to execute the work as specified. The Contractor shall cooperate fully and shall furnish any equipment and materials which may be required to carry out the inspections properly.
- 1.12.5 The Consultant, upon discovering defects in the work, may order additional testing and inspection to be carried out. The Contractor shall then be responsible for correcting all the defects at no additional cost to the Owner and shall pay the cost of retesting and re-inspection.

1.13 Safety And Security

- 1.13.1 All work shall be carried out in compliance with the requirements of:
 - 1.13.1.1 The federal, provincial and local building codes.
 - 1.13.1.2 Workplace Safety Insurance Board.
 - 1.13.1.3 The Occupational Health and Safety Act and Regulations.
 - 1.13.1.4 The Technical Standards and Safety Act, Regulations and adopted Codes.
 - 1.13.1.5 Director's orders.
 - 1.13.1.6 Manufacturers written instructions.
- 1.13.2 The most stringent requirement shall apply in case of conflict between the provisions of the various authorities.
- 1.13.3 As a minimum, the Contractor shall use standard safety equipment applicable to construction sites as required by occupational health and safety regulations. Such equipments include, but are not limited to, gloves, safety hats, eye protection, safety boots and respiratory protection.

- 1.13.4 Fully cooperate with the Ministry of Labour, the Ministry of the Environment, Conservation and Parks, and the Technical Standards and Safety Authority inspectors visiting the site and do not interfere, delay or obstruct their activities.
- 1.13.5 The Contractor shall be responsible for providing and maintaining first aid supplies, equipment and medications as applicable to work being carried out. A list of the Contractor's personnel who are qualified in first aid shall be submitted to the Consultant. Ensure that all workers are aware of the location of the first aid equipment and supplies.
- 1.13.6 All work shall be carried out within the time specified in the Contract Documents. Obtain authorization from the Consultant to carry out work at a time other than what is specified. Information on how to access the Project site outside the specified times shall be obtained from the Consultant.

1.14 Fire Safety

- 1.14.1 The Contractor shall prepare a fire safety plan for the site before the commencement of any work. Submit a copy of the plan for the Consultant for approval. Advise the local fire department in situations where work will affect or interfere with the operations of fire protection systems. Ensure that all Contractor and Sub-contractor forces are familiar with the plan.
- 1.14.2 Ensure that the fire protection systems are not tempered with, shut off or obstructed at any time during the Project. The use of fire hydrants and hose systems for activities other than fire fighting shall not be allowed. Ensure that portable fire extinguishers are available on site and are installed in locations and quantities to meet the requirements of the appropriate authorities.
- 1.14.3 All fires shall be reported immediately by activating the fire alarm closest to the fire location. If safe to do so, the person who activated the alarm shall remain close to the activation box to direct the fire department to the location of the fire. Immediately inform the Consultant about all fire incidents.
- 1.14.4 To ensure maximum cleanliness and safety, the Contractor shall make sure that approved receptacles are used for the storage of greasy and oily materials which are subject to spontaneous combustion.
- 1.14.5 The use of flammable liquids (which have a flash point below 38 degrees Celsius) as solvents or cleaning agent shall not be allowed. It is prohibited to transfer flammable liquids inside the buildings or in the vicinity of heat producing equipment or open flame. Ensure that flammable liquid waste is stored in approved containers in a well-ventilated area until disposed of by a firm that specializes in handling hazardous waste.

1.15 Cleaning and Contract Closeout

- 1.15.1 During the execution of work, the Contractor shall:
 - 1.15.1.1 Maintain the site in clean and tidy condition.
 - 1.15.1.2 Collect, handle and store hazardous materials and substances and other demolition and waste materials in appropriate waste bins at the end of every shift (use enclosed and lockable bins for the storage of hazardous waste).
- 1.15.2 Upon completion of work, the Contractor shall:
 - 1.15.2.1 Remove all equipment and machinery, tools, materials, products and supplies.
 - 1.15.2.2 Remove all waste products and debris which were generated by the Contractor forces and activities and leave the site clean for re-occupancy.
 - 1.15.2.3 Transport and dispose of the waste as specified in the Contract and Specifications Document.
- 1.15.3 The Contractor shall perform a final inspection of the work to identify deficiencies and defects. Once all deficiencies are corrected as required, the Contractor shall inform the Consultant in writing about the completion of the Contractor's inspection and shall request an Inspection by the Consultant.

- 1.15.4 An inspection shall be carried out by the Consultant in the presence of the Contractor. Any deficiencies and defects identified by the Consultant shall be rectified by the Contractor. The Consultant will re-inspect the work as required to ensure total completion.
- 1.15.5 The Contractor shall make an application for a certificate of Substantial Performance when the Consultant declares that all the requirements of the Contract have been substantially performed.
- 1.15.6 The Contractor shall make an application for a certificate of Total Performance when the Consultant declares that all the requirements of the Contract have been totally performed.
- 1.15.7 Unless required otherwise by the place of the work, the date of commencement of the Lien and Warranty periods shall be the same as the date the Owner accepted the submitted declaration of Total Performance. The Contractor may submit a claim for final payment in accordance with the General Conditions following completion of the lien period.

END OF SECTION

DIVISION 2

1.0 SPECIFICATIONS

1.1 Background

The Property that was formerly a generating station is scheduled for demolition. The City of Vaughan (Owner) is seeking a company for the demolition of the building, footings and other surface and sub-surface structures, removal and proper disposal of the generated waste and backfilling of the site (to restore it to a green space) with proper drainage.

The following site description is provided for information purposes only. It is the Contractor's responsibility to verify any information in this document.

The building superstructure consists of a corrugated steel deck supported by open web steel joists (OWSJ) which are then supported on the concrete masonry unit (CMU) block walls. The substructure consists of CMU foundation walls and a concrete slab on grade. The depth of the foundation walls are assumed to be 4 feet based on the Ontario Building Code. The flat roof was observed to be a Built-up roof assembly (BUR) with one roof drain. The wall composition is a brick veneer with header courses every 32" on center (O.C) as means of a tieback to the CMU blocks. One double metal door and one single metal door are the only forms of egress and ingress. There are two metal vents and no windows. Operational HVAC was not observed inside the building. The building has not been maintained and is in an abandoned condition.

The location of the building is shown on the attached Site Plan drawing.

1.2 Submittals

The Contractor shall submit records documenting materials diversion and recycling; including type of materials, quantities diverted, and destinations.

1.3 Restrictions on Open Burning

Open fires will not be permitted within the limits of this Contract.

1.4 Utilities, Fences and Private Properties

The Contractor shall be responsible for the protection of all utilities, fences and private property at or adjacent to the job site during the time of construction.

The Contractor shall comply with the Technical Standards & Safety Authority (TSSA)'s *Guidelines for Excavations in the Vicinity of Gas Lines* dated December 2008, the Electrical Safety Authority's *Guideline for Excavating in the Vicinity of Distribution Lines* and Bell Canada's *Guidelines for Excavation in the Vicinity of the Bell Canada Network*.

It is the responsibility of the Contractor to coordinate with the Owner, to ensure that all utilities are not in service prior to the commencement of the project and to contact utilities' providers to cancel services prior to the demolition phase of the project. The Contractor shall ensure Hydro and Enbridge is physically disconnected and capped at the road. No site work can commence until this is complete.

The Contractor will be required to expose all buried natural gas lines prior to excavating or boring in the vicinity of natural gas lines. Further, the Contractor shall expect to find and be required to locate gas service pipes for every adjacent building.

The Contractor will be responsible for the relocation of utilities where required. However, no claims will be considered which are based on delays or inconvenience resulting from the relocation not being completed before the start of this Contract.

It is the Contractor's responsibility to contact the appropriate agencies for further information in regard to the exact location of all utilities, to exercise the necessary care in construction operations and to take such other precautions as are necessary to safeguard the utilities from damage. All utility locates are to be current at the time of excavation.

It is the Contractor's responsibility to locate and protect and disconnect where appropriate all existing services. Protect and properly cap existing services (i.e. natural gas, water, sewer and electrical services) as necessary. Ensure inspection is completed prior to covering.

It is the Contractor's responsibility to remove all services from the building scheduled for demolition to the main.

It is the Contractor's responsibility to cap and remove all storm water and sanitary sewer piping to the main.

The Contractor shall make all necessary arrangements and be responsible to ensure power is available through Utilities or emergency generators and is suitable for the specified work and for the duration of the contract.

The Contractor shall erect and assume all costs for temporary fencing to protect the site upon award of the project.

1.5 Maintenance of Traffic

Traffic control must be in accordance with the *Ontario Traffic Manual – Book 7*, and as approved by the Owner.

Access to the property shall be from Hayhoe Lane.

It is the responsibility of the Contractor to visit the site to become familiar with existing traffic volumes and patterns. The Contractor shall take into consideration all traffic into and out of the job site area as will occur during regular working hours.

The Contractor will be responsible for acquiring, at their expense, a **Temporary Use of Road Allowance** permit and **Temporary Road Closure/Lane Closure Application** permit, if required. No lanes on adjoining roads can be closed unless in accordance with municipal approval.

The Contractor shall be required to maintain a minimum of one lane through the construction area for local traffic and for emergency vehicles.

The widths of traffic lanes and pedestrian walkways to be maintained shall not be less than the following minimum requirements:

- a) Traffic lane 3.5 m
- b) Pedestrian walkway 1.0 m
- c) Clear of obstructions

To maintain access to all properties and parking lots may involve the work of constructing temporary entrances, or carrying out such work may be required to provide the minimum amount of disruption. The Contractor may be permitted to temporarily block normal vehicular access to the property and respective parking lots, as approved, if the Contractor can either provide alternative or limited access which is acceptable to the Owner. The Owner must approve all such arrangements and provisions in writing.

Any diversion to allowed pedestrian traffic shall be as per municipal approval and shall be carried out in a safe manner. Advanced detour signs for detouring through traffic movements around the construction site will be supplied, erected and maintained by the Contractor as directed by the Owner. All detour signs, delineators, barricades, lights, temporary snow-fence, sandbags, etc. shall be supplied, erected and maintained by the Contractor for the duration of his operations under this Contract.

1.7 Notification – Police, Fire, etc.

The Contractor shall notify in writing, prior to start of construction the Police, Fire Department, Ambulance Services, local transit and the School Boards of the start and duration of construction and schedule of road closures, if required.

It shall be the Contractor's responsibility to notify the Fire Department on a daily basis to advise of the locations where construction work is to be undertaken and the extent to which the roadway(s) will be restricted to vehicular traffic movements (if required).

The Fire Department shall also be advised of changes to the proposed daily construction working operations that will affect vehicular traffic movements, and the Contractor will provide the Fire Department with the Contractor's phone number for 24-hour emergency contact.

1.8 Ontario Provincial Specifications and Standards

The Ontario Provincial Standard General Conditions of Contract (November 2006), and applicable Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) form part of this Contract.

The texts of all OPSS's are contained in the Manual Ontario Provincial Standard Specifications:

Volume I - Construction

Volume 2 – Materials

The issues of OPSS 127 and 128, which are current at the time the work is performed, or material furnished shall govern.

The OPS Standard Drawings are contained in the Manual *Ontario Provincial Standard Drawings - Roads, Barriers, Drainage, Sanitary Sewers and Watermains*.

1.9 Spills Reporting

Spills or discharges of pollutants or contaminants under the control of the Contractor, and spills or discharges of pollutants or contaminants that are a result of the Contractor's operations that cause or are likely to cause adverse effects shall forthwith be reported to the appropriate legislative bodies and the Consultant. Such spills or discharges and their adverse effects shall be as defined in the Environmental Protection Act R.S.O. 1980.

All spills or discharges of liquid, other than accumulated rain water, from luminaries, internally illuminated signs, lamps, and liquid type transformers under the control of the Contractor, and all spills or discharges from this equipment that are a result of the Contractor's operations shall, unless otherwise indicated in the Contract, be assumed to contain PCBs and shall forthwith be reported to the appropriate legislative bodies and the Consultant.

This reporting will not relieve the Contractor of their overall legislated responsibilities regarding such spills or discharges.

1.10 Emergency and Maintenance Measures

Whenever the construction site is unattended by the general superintendent, the name, address and telephone number of a responsible official of the contracting firm, shall be given to the Owner. This official shall be available at all times and have the necessary authority to mobilize workmen and machinery and to take any action as directed in case emergency or maintenance measures are required regardless of whether the emergency or requirement for maintenance was caused by the Contractor's negligence, act of God, or any cause whatsoever.

Should the Contractor be unable to carry out immediate remedial measures required, the Owner will carry out the necessary repairs, the costs for which shall be charged to the Contractor.

1.11 Property Owner's Release of Privately Owned Land Used by the Contractor

Upon completion of the Contract, the Contractor shall provide the Owner with **two (2) copies** of a form of release signed by the Owner upon whose land they have entered for any purpose in conjunction with the Contract.

Final payment will not be released to the Contractor until all the applicable form(s) of release have been signed by the property owner(s) and received by the Owner.

Project Specifications

Section 01000 General Requirements

1. This section forms a part of the Contract Document and should be read in conjunction with all other Sections and Divisions in order to comply with the requirements of the General Conditions of the Contract.
2. It is the intent that work performed under this project will result in the complete removal and disposal of all the buildings and their associated equipment and materials (both above and below ground). The intent is to restore the site to a vacant piece of land. It is also the intent that work performed as outlined in this section will result in the decommissioning and, where applicable, removal of all site utilities in the immediate work area.
3. The city will arrange and host the mandatory Site Meeting date and time. It is the contractor's responsibility to confirm all quantities and measurements during the mandatory site meeting. The information presented should not be used as the only basis for submitting a bid.
4. All activities conducted on the site are to conform to the Ontario Building Code, Ontario Plumbing Code, Ontario Electrical Safety Code, the Occupational Health and Safety Act (including all regulations under the Act), the Environmental Protection Act (including all regulations made under the Act), and the requirements of all local Public Utilities and authorities having jurisdiction.
5. In case of conflict between applicable codes and/or standards and the Contact Document, the more stringent requirements shall apply.
6. The contractor shall be responsible for obtaining the appropriate Ministry of Environment, Conservation and Parks waste generator permit should it be necessary to remove and dispose of any contaminants that may arise as a result of the deconstruction of the buildings at the site.
7. The Contractor shall arrange for both private and public locates prior to the commencement of demolition and excavation work on the site. Documentation of the locates shall be provided to the Client for approval prior to the commencement of demolition and excavation work.
8. Recycle all materials which can be salvaged and are not designated substances which require specific disposal procedures. The contractor shall provide proof of recycling to the Client via weigh bills and disposal receipts.
9. The Contractor shall not disclose information regarding the Site to any personnel except for the Client. Communiqués shall be sent to residential properties through the Client only.
10. Provide a Ministry of Labour "Notice of Project".
11. Provide and maintain, in compliance with applicable regulations, codes and by-laws, sanitary temporary water closets and washbasins for use of workers.
12. No work above and beyond the defined scope of this document shall be undertaken without written authorization from the Owner and / or the Consultant.

Section 02000 Site Work – Protection

1. Provide, erect and maintain required hording, sidewalk sheds, catch platforms, lights and other protection around the site before commencing work. Maintain such areas free of snow, ice, mud, water and debris.
2. Provide flagmen where necessary or appropriate to provide effective and safe access to site to vehicular traffic and protection to pedestrian traffic (when required).
3. Ensure scaffolds, ladders, elevated platforms, and other such equipment are not accessible to the public. Protect with adequate fencing or remove and dismantle at end of each day or when no longer required.
4. Provide protection around floor and/or roof openings.
5. Do not interfere with use and activities of adjacent buildings against damages that might occur from falling debris or other causes due to work of this section (where present).
6. Where demolition operations prevent normal access to adjacent properties, provide and maintain suitable alternative access.
7. Where buildings directly abut neighbouring properties, this demolition work shall be conducted in such a way as to not disturb the neighbouring property in any way.
8. If, at any time safety of adjacent buildings appears endangered, cease operations and notify the Consultant. Take precautions to support buildings; do not resume operations until the Consultant grants permission.
9. Take precautions to guard against movement, settlement or collapse of adjacent services, sidewalks, driveways, or trees. The Contractor shall be liable for such movement, settlement or collapse caused by failure to take necessary precautions. The Contractor shall be responsible for repairs of such damage when instructed.
10. Erect and maintain partitions or barriers as required to prevent the spread of dust, fumes and smoke to surrounding buildings. Maintain fire exits from the site.
11. At the end of each shift, leave the site in a safe condition and erect safety barriers and lights as required. Ensure that no parts of the existing structure(s) are in danger of collapsing.
12. At the end of each shift, the site must be left free of debris, and garbage resulting from abatement and/or demolition of the site. Waste bins must be covered and locked at the end of each shift.
13. Protect the openings to all catch basins on the properties by appropriate means to prevent the inflow of solid material.

Section 02000 Site Work – Demolition

1. The building(s) to be demolished have been described above. This work shall consist of the total demolition of the building(s); foundations (including subsurface structures); curbs, sewers; utilities; stairs; concrete pavement and drive way up to the metal fence; and the subsequent removal of all materials and debris from the site. Ensure a competent foreman supervises the demolition work at all times.
2. Electrical Services: All workers involved in this work shall be fully trained in the management of electrical servicing and shall wear all appropriate PPE. Any electrical servicing to any Property buildings shall be removed. This includes any aboveground and any underground servicing. If a disconnection at the utility pole necessitates coordination with the electrical utility this coordination shall be carried out by the contractor. After the completion of the undertaking the work area shall be made electrically safe to all parties accessing the work area.
3. Gaseous Fuel Services: OHE did not find any evidence of a natural gas or propane service to the Generating station. The lack of such services, however, must be confirmed by the Contractor. Any such services, if found, are required to be decommissioned in a safe manner and with the full notification and approval of the public utility.
4. Sanitary Drains: All sanitary drains shall be removed from the ground. If the drains are found to be constructed of transite pipe both the Consultant and the City shall be immediately notified. The drains shall be capped at the maintenance hole.
5. Storm Drains: All storm drains shall be removed from the ground. If the drains are found to be constructed of transite pipe both the Consultant and the City shall be immediately notified.
6. Water Lines: All water lines shall be removed from the ground. Any connection to the water well shall be decommissioned by a licensed water well contractor.
7. All surface asphalt shall be stripped from the ground and removed from the site.
8. Catch basins and underground storm/sewer services shall be removed. Any buried sanitary sewer services shall be removed from the ground.
9. Protect and properly cap all existing services (i.e. natural gas, water, sewer and electrical services) as necessary at the street. Ensure inspection is completed prior to covering.
10. Hand and mechanical demolition shall be acceptable methods of work for the subject properties. Verify with the Consultant whether proposed methods of demolition are acceptable. Check City By-Laws and other applicable By-Laws/Regulations/Standards for prohibitions and restrictions on methods of demolition and ensure proposed method is suitable and acceptable.
11. The following methods of demolition will not be permitted during work of this contract:
 - a. Use of rapid failure methods (explosives).
 - b. Mechanical method of demolition whereby wrecking is accomplished by smashing walls or floors with heavy weight suspended by cable from boom or hoist.
12. Remove and dispose of all piping, ductwork, furniture, equipment, electrical and mechanical items and debris surrounding or within the project areas, prior to the demolition.
13. Remove and dispose of all designated substances, PCBs and other hazardous materials and waste as per applicable regulations and guidelines prior to the demolition.
14. Demolish the existing building(s) including slab and foundations.
15. Continuously wet down the project areas to minimize dust.
16. Provide enclosed chutes for disposal of debris from heights more than one (1) storey in accordance with applicable guidelines.
17. The Contractor shall confine all movements and operations to the limits of the designated property and shall not deposit materials, junk, debris, and rubbish or otherwise enter onto adjacent private property.

Section 02000 Site Work – Disposal of Waste Materials

1. All waste shall be disposed of following Ontario Regulation 102/94 *Waste Audits and Waste Reduction Work Plans* and Ontario Regulation 103/94 *Industrial, Commercial and Institutional Source Separation Programs*.
2. Ensure that the required Waste Audit and Waste Reduction Work Plan are completed prior to the start of the demolition work (as per Ontario Regulation 102/94).
3. If the final location of any excavated material is the Landfill, all costs are the responsibility of the Contractor. If it is another location, a release by the owner of the Property for accepting the building materials, excavated materials, or fill material, must be supplied to the Owner.
4. Separate all salvage and report on the end disposal location. Note the value of the salvage is to be retained by the Contractor, but receipts must be provided from the recipient.
5. If applicable, all asbestos-containing and asbestos-contaminated materials shall be disposed of as prescribed by Ontario Regulation 347/90 (as amended), Waste Management Regulation, made under the Environmental Protection Act and the provincial and federal regulations for the Transportation of Dangerous Goods.
6. If applicable, all lead-containing and lead-contaminated materials shall be disposed of as prescribed by Ontario R.R.O 1990, Regulation 347/90 (as amended), Waste Management Regulation, made under the Environmental Protection Act and the provincial and federal regulations for the Transportation of Dangerous Goods.
7. If applicable, all PCB-containing and PCB-contaminated materials shall be disposed of as prescribed by Ontario R.R.O 1990, Regulation 347/90 (as amended), Waste Management Regulation, made under the Environmental Protection Act and the provincial and federal regulations for the Transportation of Dangerous Goods.
8. All materials which do not require disposal methods prescribed by applicable City Bylaws, Provincial/Federal Regulations and Standards shall be recycled by the Contractor. The Contractor must report all recycled materials to the Owner.
9. Remove waste material and debris from site in accordance with local authorities having jurisdiction.
10. Provide manifests to the Owner for all contaminated materials transported off site. Manifests shall:
 - a. Indicate the type of product;
 - b. Volume collected;
 - c. Origin address;
 - d. Transporter's name, address, and license information;
 - e. Disposal facility's name, address, and license information;
 - f. Dates of transactions.

Section 02000 Site Work – Remediation

1. All requirements of the excess soil management regulation (Ontario Regulation 406/19) must be followed. It is assumed that all work will be completed in 2024. All soil must be properly disposed of.
2. Continuously wet down the project areas to minimize dust.
3. Any odour complaints shall be immediately reported to the Consultant and to the Owner.
4. Provide enclosed chutes for disposal of debris from heights more than one (1) storey in accordance with applicable guidelines.
5. The Contractor shall confine all movements and operations to the limits of the designated property and shall not deposit materials, junk, debris, and rubbish or otherwise enter onto adjacent private property.

Section 02000 Site Work – Excavation and Backfill

1. Locate services and utilities by contacting each respective utility. Conduct physical locates where utility company or Owner provides written information. All utility locates must be kept current.
2. Excavate for foundations as indicated. Remove any organic material within the building perimeter as authorized by the Owner or the Consultant. Dispose of any surplus or unsuitable material off-site. Do not obstruct the flow of surface drainage. Earth bottoms of excavations are to be undisturbed soil, free from loose, soft or organic matter, water or frost.
3. Furnish all necessary labour, supervision, materials, and equipment and services required for the excavation and disposal of the specified area as specified in this document and as required by applicable regulations.
4. Notify the Owner and the Consultant, or designate, when the bottom of the excavation is reached, for review by the Consultant. Remove unsuitable material from excavation bottom as directed.
5. Immediately notify the Consultant if potentially impacted material is encountered during any excavation work. Also, immediately notify the Consultant if any material of potential geotechnical concern is found. Such material may include soil with a high degree of organic contents. The removal of any such material shall be determined by the Owner and the Consultant.
6. Backfill and compaction of any open excavations is required to grade and to restore the land to a naturalized state.
7. Backfill materials details:
 - a. Collect and dispose of general debris to leave site in a reasonably clean and clear state.
 - b. Take sufficient photographs on a daily basis to document the progress of the work, any utilities uncovered, problems encountered and any additional requirements as deemed necessary by the Consultant.
 - c. The excavations and decommissioned structures shall be backfilled using fill materials that is free from roots, organic material, building debris, and rocks larger than 75 mm (3") diameter.
 - d. The Contractor shall use acceptable imported fill materials in accordance with municipal and provincial standards.
 - e. The imported fill materials shall meet the Table 1 Standards, as detailed in the applicable Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act as detailed in Ontario Regulation 511/09 and dated April 15, 2011.
 - f. Backfill within the building perimeter and the other excavated areas with Granular B topped with a minimum of 15 cm of top soil and the application of hydro-seeding or sod. The Contractor shall perform the first two (2) cuts of grass upon successful growth satisfactory to the City of Vaughan.
 - g. Compact by rolling, or mechanically tamping with a suitable compaction unit, the sub-grade material encountered to achieve required compaction. Compaction shall be achieved in minimum 0.3 m lifts. It is the Contractor's responsibility to supply sufficient water to achieve the required levels of compaction and to ensure that excess water is not applied to the backfill.
 - h. Execute compaction within 1,200 mm (4'-0") of concrete walls with hand machines and simultaneously with backfill where practicable to prevent side pressures on foundation work.
 - i. Compaction to result in the minimum percentages of Maximum Proctor Density listed for each layer placed where tested in accordance with ASTM D698-91 or ASTM D1557-91 to suit the material being tested.

Element	Maximum Depth of Lifts	Standard Proctor Density
Against foundation walls and footings	450 mm (18")	95%
Under slabs	450 mm (18")	95%

- j. Soil compaction shall be verified by a third party geotechnical consultant, to be retained by the Contractor at the Contractor's expense.

- k. Approval of test results may be verbal if required to expedite the work but subsequently confirmed in writing. Depending on site conditions, the Client may modify the above backfilling specifications as required.
 - l. Material or workmanship failing tests will be rejected and defective material or workmanship replaced.
 - m. Retesting of any rejected work will be done at the Contractor's expense.
8. Soil samples shall be collected by the Consultant for analysis (if required).
- a. If found, excavate and remove contaminated soil as directed by the Consultant.
 - b. If found, pump out and dispose of contaminated ground water as directed by the Consultant.
 - c. Ensure slopes are proper and shoring is in place for the Consultant to collect confirmatory samples from excavation walls and floor (if required).
 - d. Work will cease until results are made known.
 - e. If any soil is contaminated in appearance or by olfactory detection, then this soil shall be removed as contaminated and placed in the appropriate lugger box.
 - f. Secure excavation site with visible and secure hoarding while soil samples are being sent to an analytical laboratory for chemical testing.
 - g. When the results of soil analysis are known, the Consultant shall notify the Contractor to continue with soil removal or commence with site restoration.
 - h. The Contractor acknowledges that time is required for the laboratory analysis of soil samples. Any such project delays will not be considered as justification for additional compensation.
9. Grading shall be conducted so as to allow for any water to drain away to the street.
10. Ensure that the backfilled excavation will not become a source of dust.

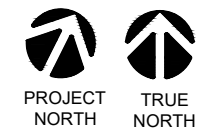
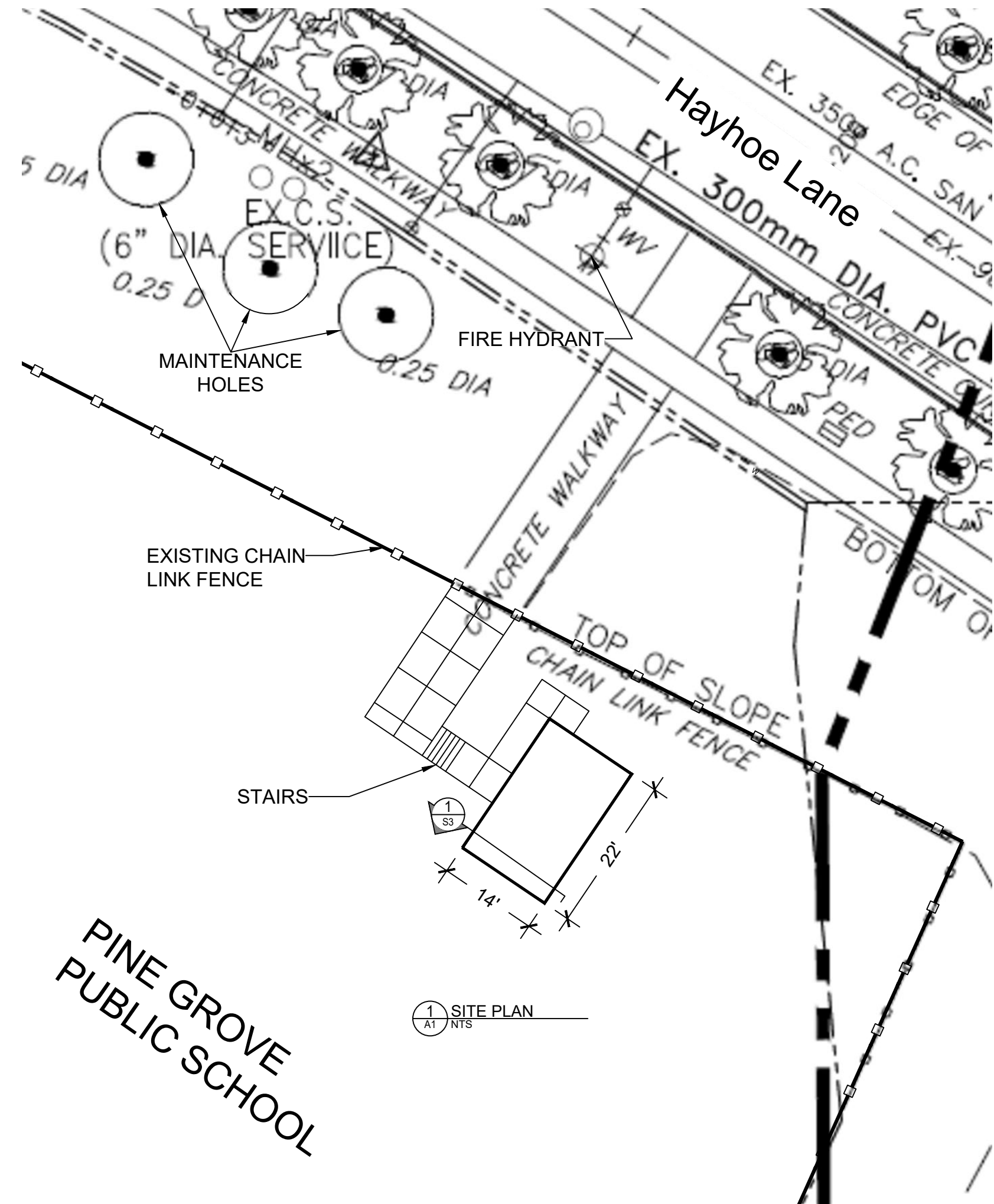
Section 02000 Site work – Site Grading

1. Grade site to drain away to the street wherever possible.
2. Grade site to drain away from adjacent buildings wherever possible.

Section 03000 Fencing

1. Supply and install complete fencing around the perimeter of the property consistent with the material already on site. Fencing shall be 6 ft safety fencing, moduloc style.

DRAWING



LEGEND:
 — Existing Fence Line

Note:
 Contractor must check and verify all dimensions and job site conditions and report any discrepancies to the appropriate authority prior to commencing construction.
 All drawings and specifications and related documents are the copyright properties of The City of Vaughan

03/15/2024	IFP
DATE	ISSUED FOR

GENERAL NOTES:
 - LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
 - CONTRACTOR TO VERIFY QUANTITIES AND DIMENSIONS AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING.
 - THIS DRAWING IS NOT TO BE SCALED

JH CONSULTANTS
 Occupational Hygiene & Environment
 311 MATHESON BOULEVARD EAST
 MISSISSAUGA, ONTARIO L4Z 1X8
 TEL: (905) 890 - 9000 FAX: (905) 890 - 9005

CLIENT ADDRESS:
 The Corporation of the City of Vaughan
 2141 Major Mackenzie Drive
 Vaughan, ON

PROJECT NAME:
 Demolition of Hayhoe Generating Station
 79 Hayhoe Lane
 Woodbridge, ON

DRAWING TITLE:
 SITE PLAN

PROJ. NO.: 29055	DRAWING NO.:
DRW. BY: AF	A1
CHK. BY: AS	
SCALE: AS NOTED	
DATE: MAR 2024	

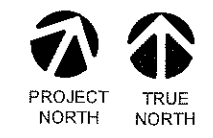
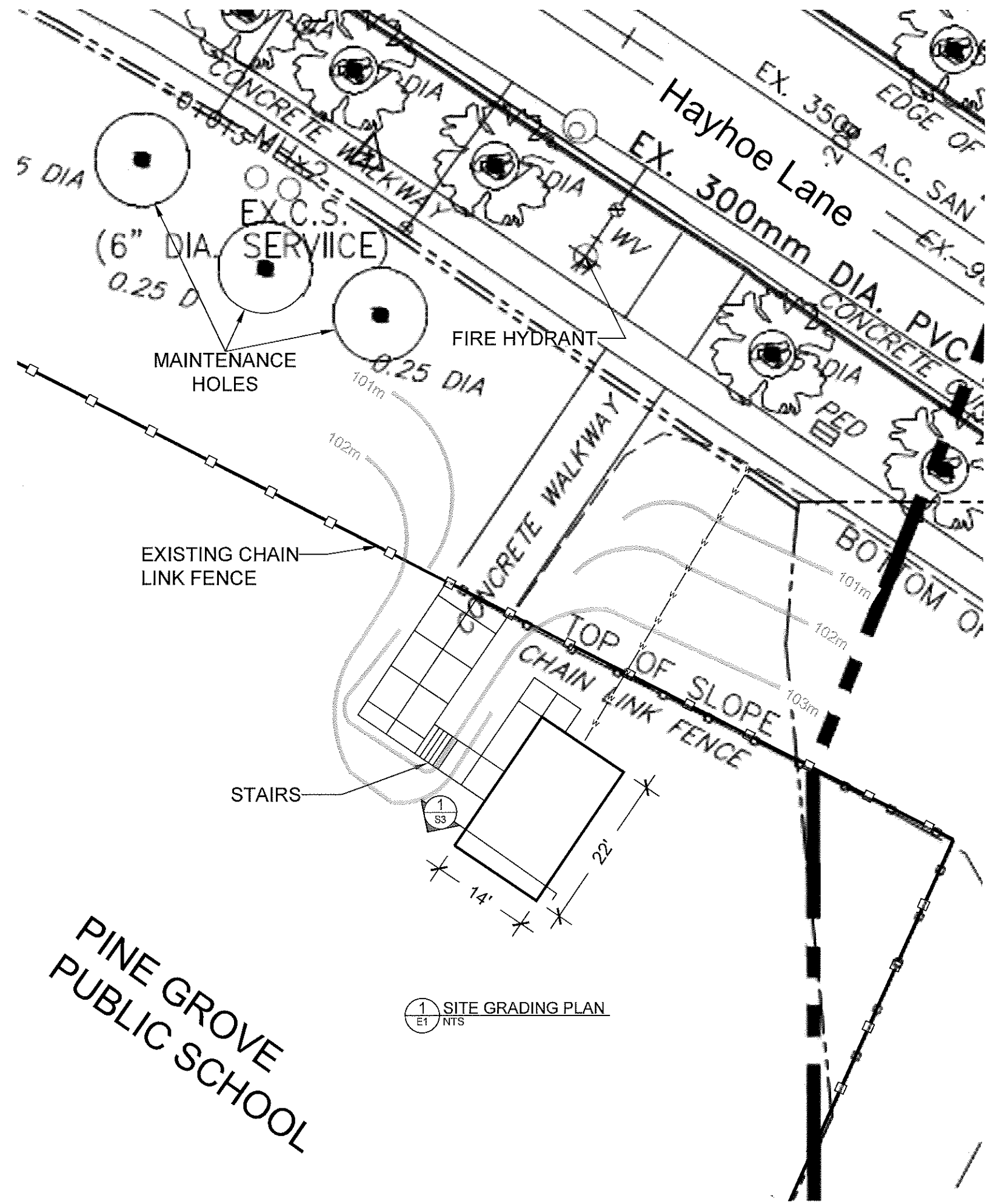
PINE GROVE PUBLIC SCHOOL

NOTE:

1. Backfill and compaction of any open excavations is required to grade and to restore the land to a naturalized state.
2. Backfill materials details:
 - a. Collect and dispose of general debris to leave site in a reasonably clean and clear state.
 - b. Take sufficient photographs on a daily basis to document the progress of the work, any utilities uncovered, problems encountered and any additional requirements as deemed necessary by the Consultant.
 - c. The excavations and decommissioned structures shall be backfilled using fill materials that is free from roots, organic material, building debris, and rocks larger than 75 mm (3") diameter.
 - d. The Contractor shall use acceptable imported fill materials in accordance with municipal and provincial standards.
 - e. The imported fill materials shall meet the Table 1 Standards, as detailed in the applicable Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act as detailed in Ontario Regulation 511/09 and dated April 15, 2011.
 - f. Backfill within the building perimeter and the other excavated areas with Granular B topped with a minimum of 15 cm of top soil and the application of hydro-seeding or sod. The Contractor shall perform the first two (2) cuts of grass upon successful growth satisfactory to the City of Vaughan.
 - g. Compact by rolling, or mechanically tamping with a suitable compaction unit, the sub-grade material encountered to achieve required compaction. Compaction shall be achieved in minimum 0.3 m lifts. It is the Contractor's responsibility to supply sufficient water to achieve the required levels of compaction and to ensure that excess water is not applied to the backfill.
 - h. Execute compaction within 1,200 mm (4'-0") of concrete walls with hand machines and simultaneously with backfill where practicable to prevent side pressures on foundation work.
 - i. Compaction to result in the minimum percentages of Maximum Proctor Density listed for each layer placed where tested in accordance with ASTM D698-91 or ASTM D1557-91 to suit the material being tested.

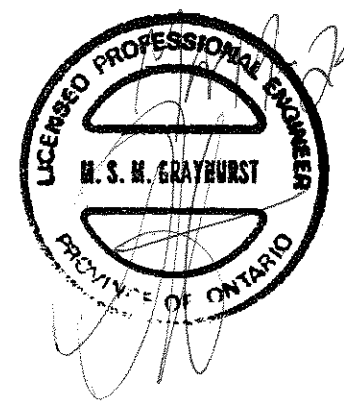
Element	Maximum Depth of Lifts	Standard Proctor Density
Against foundation walls and footings	450 mm (18")	95%
Under slabs	450 mm (18")	95%

- j. Soil compaction shall be verified by a third party geotechnical consultant, to be retained by the Contractor at the Contractor's expense.
 - k. Approval of test results may be verbal if required to expedite the work but subsequently confirmed in writing. Depending on site conditions, the Client may modify the above backfilling specifications as required.
 - l. Material or workmanship failing tests will be rejected and defective material or workmanship replaced.
 - m. Retesting of any rejected work will be done at the Contractor's expense.
3. Grading shall be conducted so as to allow for any water to drain away to the street.
 4. Ensure that the backfilled excavation will not become a source of dust.
 5. Grade site to drain away from adjacent buildings wherever possible.



- LEGEND:**
- Existing Fence Line
 - Contour Lines
 - w- Water Service

- General Notes:**
1. Existing grades to be maintained as part of the undertaking. All excavations shall be backfilled and compacted to grade.
 2. Electrical service location not detected during utility locates.
 3. Elevations relative to temporary benchmark, arbitrarily assigned an elevation of 100.00m with west bolt, fire hydrant flange.



Note:
Contractor must check and verify all dimensions and job site conditions and report any discrepancies to the appropriate authority prior to commencing construction.
All drawings and specifications and related documents are the copyright properties of The City of Vaughan

03/15/2024	IFP
DATE	ISSUED FOR

- GENERAL NOTES:**
- LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
 - CONTRACTOR TO VERIFY QUANTITIES AND DIMENSIONS AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING.
 - THIS DRAWING IS NOT TO BE SCALED

HE CONSULTANTS
Occupational Hygiene & Environment
311 MATHESON BOULEVARD EAST
MISSISSAUGA, ONTARIO L4Z 1X8
TEL: (905) 890-9000 FAX: (905) 890-9005

CLIENT ADDRESS:
The Corporation of the City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

PROJECT NAME:
Demolition of Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

DRAWING TITLE:
SITE GRADING PLAN

PROJ. NO.: 29055	DRAWING NO.:
DRW. BY: AF	E1
CHK. BY: AS	
SCALE: AS NOTED	
DATE: MAR 2024	

NOTE:

1.1 Scope of Work

With the understanding that the City of Vaughn plans on demolishing the site building, our scope of work was to perform a visual review of the existing building structure. A structural demolition report will be issued in order to obtain a demolition permit to facilitate the tendering and demolition work. General reviews are required by OHE throughout the duration of work in accordance with Ontario Regulation 260/08 and 2012 Ontario Building Code Clause 1.3.1.1(3) Division C.

This report outlines the intended demolition work for the existing building and secondary structures at the aforementioned location. All structures related to the building are to be demolished including foundations as requested by the City of Vaughn.

1.2 Building Description

The site building is named "Hayoe Generating Station" and is a One-storey building without a basement. The date of construction is unknown at this time.

The building superstructure consists of a corrugated steel deck supported by open web steel joists (OWSJ) which are then supported on the concrete masonry unit (CMU) block walls. The substructure consists of CMU foundation walls and a concrete slab on grade. The depth of the foundation walls are assumed to be 4 feet based on the Ontario Building Code.

The flat roof was observed to be a Built-up roof assembly (BUR) with one roof drain. The wall composition is a brick veneer with header courses every 32" on center (O.C) as means of a tieback to the CMU blocks. One double metal door and one single metal door are the only forms of egress and ingress. There are two metal vents and no windows.

Operational HVAC was not observed inside the building. The building has not been maintained and is in an abandoned condition.

1. METHOD OF DEMOLITION

2.1 Safety Precautions

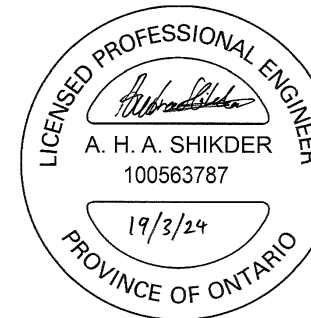
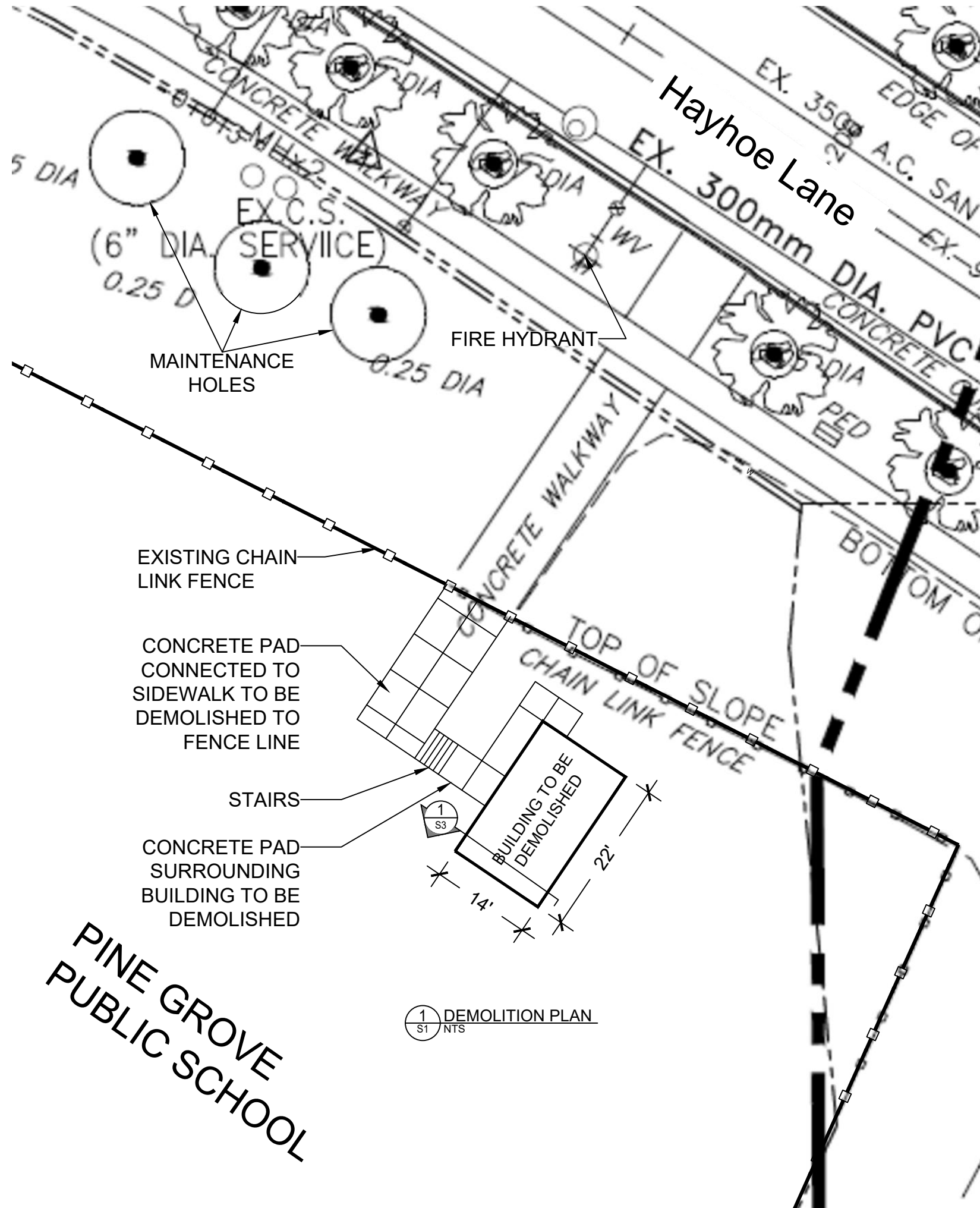
- The buildings and secondary structures are to be inspected for the presence of hazardous materials. All hazardous materials should be removed in accordance with the applicable regulations prior to commencement of the demolition;
- All existing utilities and served are to be located and decommissioned;
- A hoarding fence is to be site installed to prevent trespassers into the demolition site;
- All glass is to be removed prior to demolition;
- The buildings and structures to be demolished must remain vacant and securely hoarded prior to the start of the demolition;
- Contractor shall maintain all emergency service routes clear at all times.

2.2 Demolition Methods and Procedures

- CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures; and
- Occupational Health and Safety Act and Regulations for Construction Projects, O. Reg. 213/91, as amended by O. Reg. 145/00.

The following is a demolition procedure that must be implemented:

- The safety precautions noted in this report should be implemented prior to the start of demolition;
- Non-structural and salvageable components and materials shall be removed;
- All designated substances shall be removed and disposed off-site, to a suitable landfill, prior to the main demolition work;
- Acceptable demolition techniques include systematic hand demolition and mechanical demolition. Rapid progressive failure techniques, (including the use of explosives) must not be used. The structures are to be generally demolished in reverse order to that of construction. The sequence of demolition should be such that at no time will a wall or portion of wall be left standing unsupported in an unstable condition or in danger of accidental collapse;
- The existing building structures are to be fully demolished including foundations, secondary structures and landscaping features (stairs, pavers, concrete walkway, etc.);
- All recyclable waste material such as scrap metal, glass, timber, bricks, concrete blocks and concrete should be taken to a recycling facility. Un-recycled waste material should be disposed of at M. O. E. approved landfill sites; and,
- Demolition site to be left safe by backfilling excavated areas and keep hoarding fence in place.



LEGEND:
— Existing Fence Line

Note:
Contractor must check and verify all dimensions and job site conditions and report any discrepancies to the appropriate authority prior to commencing construction.

All drawings and specifications and related documents are the copyright properties of The City of Vaughan

03/15/2024	IFP
DATE	ISSUED FOR

GENERAL NOTES:

- LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
- CONTRACTOR TO VERIFY QUANTITIES AND DIMENSIONS AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING.
- THIS DRAWING IS NOT TO BE SCALED

JH CONSULTANTS
Occupational Hygiene & Environment

311 MATHESON BOULEVARD EAST
MISSISSAUGA, ONTARIO L4Z 1X8
TEL: (905) 890 - 9000 FAX: (905) 890 - 9005

CLIENT ADDRESS:

The Corporation of the City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

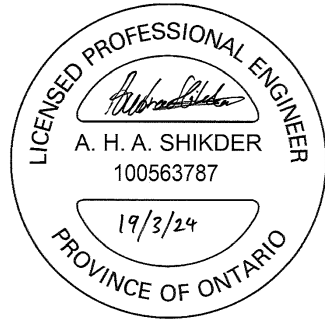
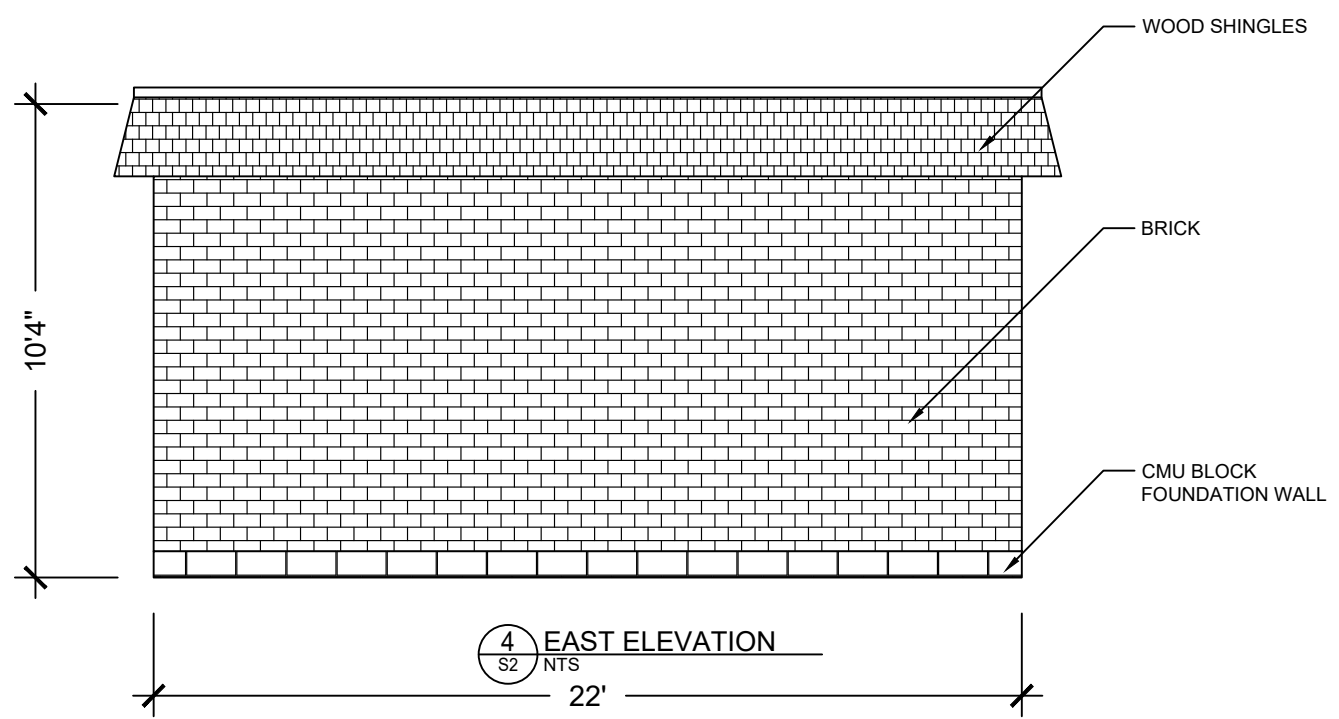
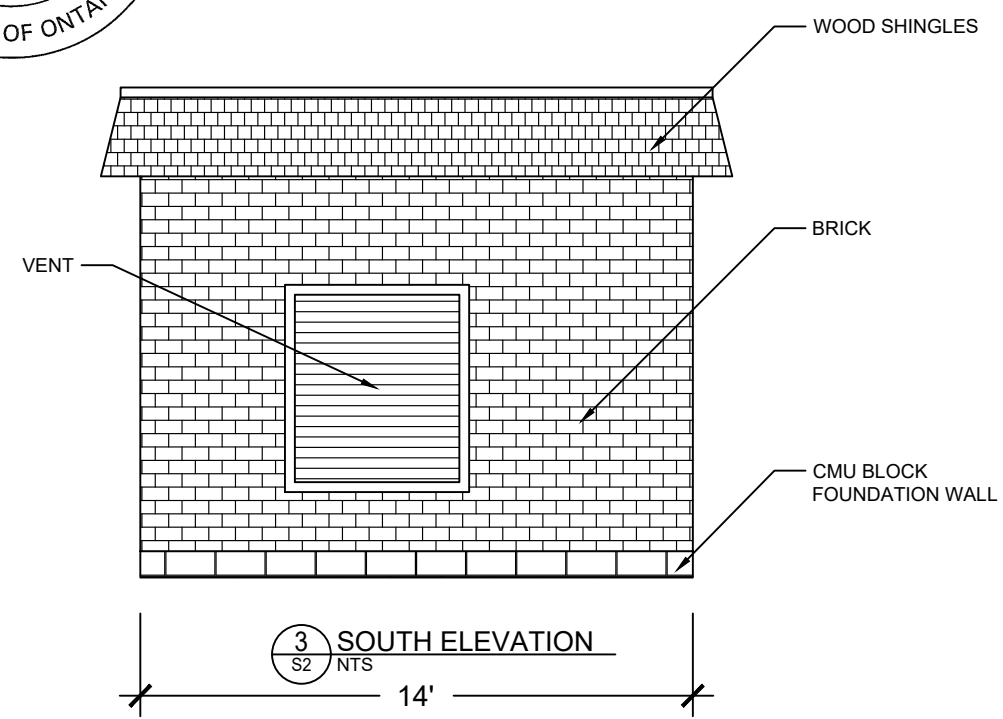
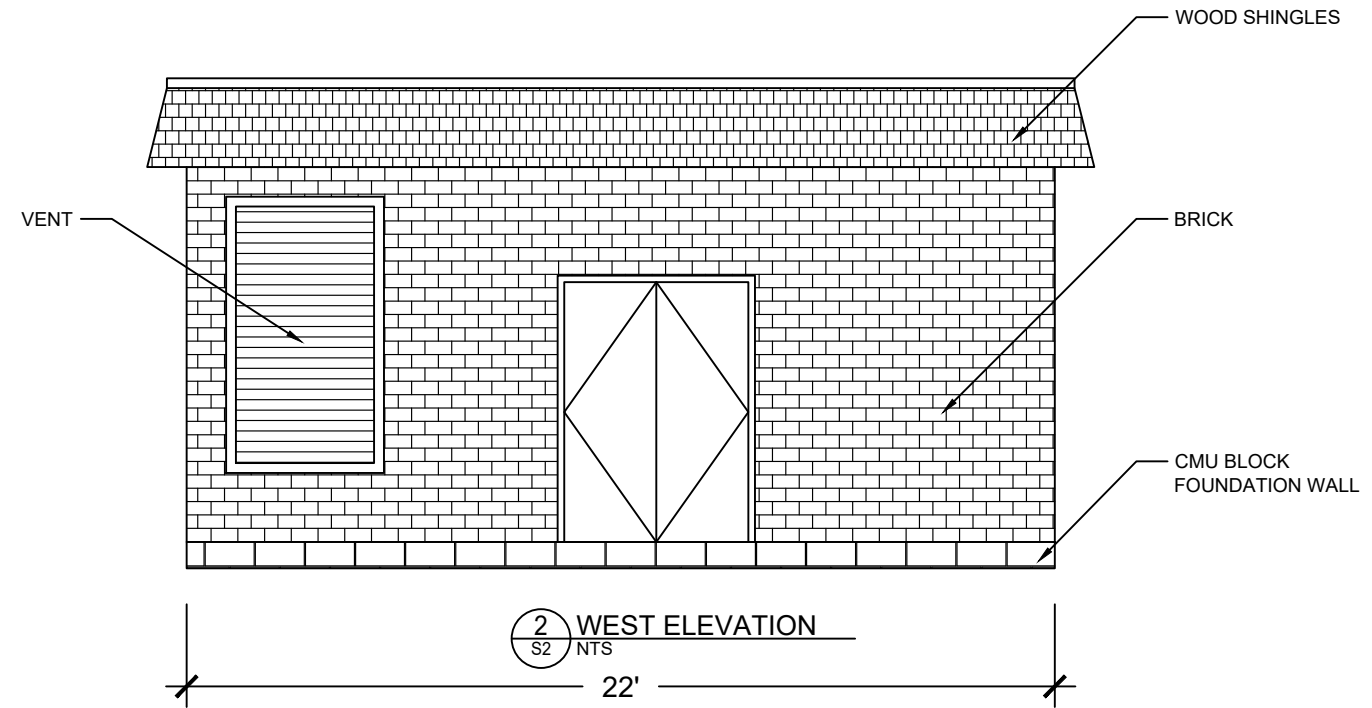
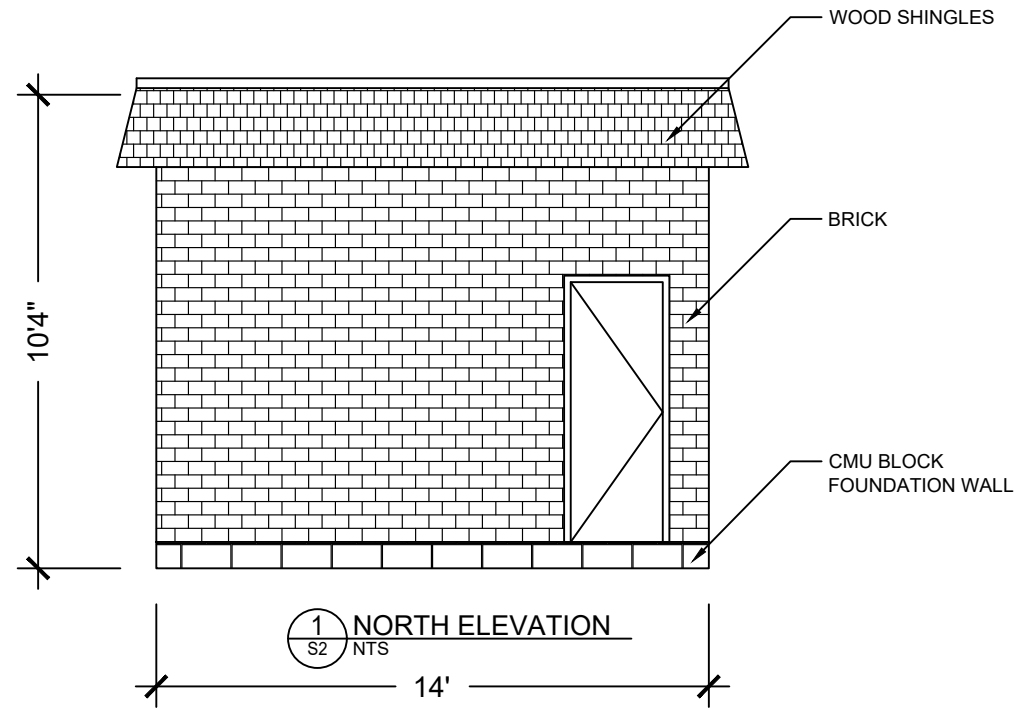
PROJECT NAME:

Demolition of Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

DRAWING TITLE:

DEMOLITION SITE PLAN

PROJ. NO.: 29055	DRAWING NO.:
DRW. BY: AF	S1
CHK. BY: AS	
SCALE: AS NOTED	
DATE: MAR 2024	



LEGEND:

Note:

Contractor must check and verify all dimensions and job site conditions and report any discrepancies to the appropriate authority prior to commencing construction.

All drawings and specifications and related documents are the copyright properties of The City of Vaughan

03/15/2024	IFP
DATE	ISSUED FOR

GENERAL NOTES:

- LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
- CONTRACTOR TO VERIFY QUANTITIES AND DIMENSIONS AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING.
- THIS DRAWING IS NOT TO BE SCALED

JH CONSULTANTS
Occupational Hygiene & Environment

311 MATHESON BOULEVARD EAST
MISSISSAUGA, ONTARIO L4Z 1X8
TEL: (905) 890 - 9000 FAX: (905) 890 - 9005

CLIENT ADDRESS:

The Corporation of the City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

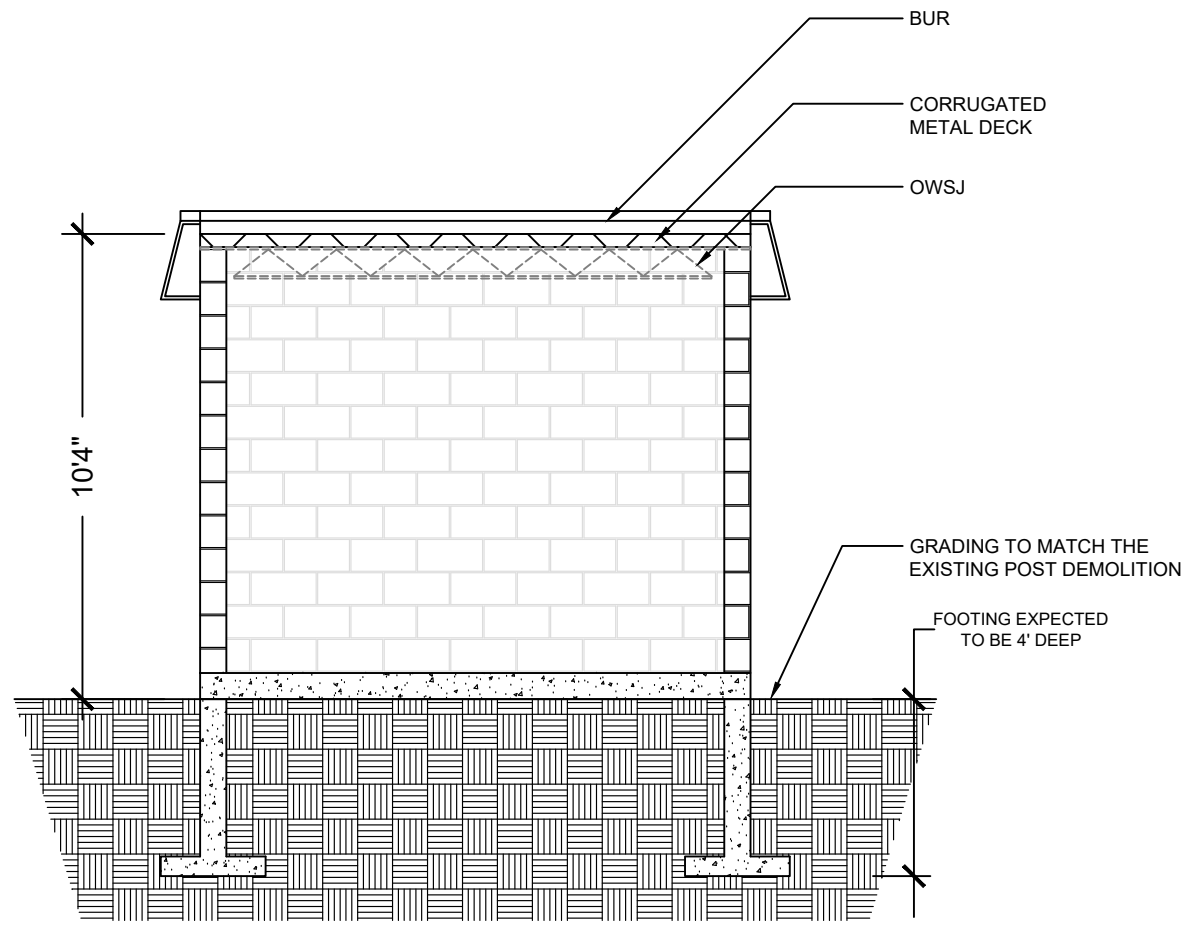
PROJECT NAME:

Demolition of Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

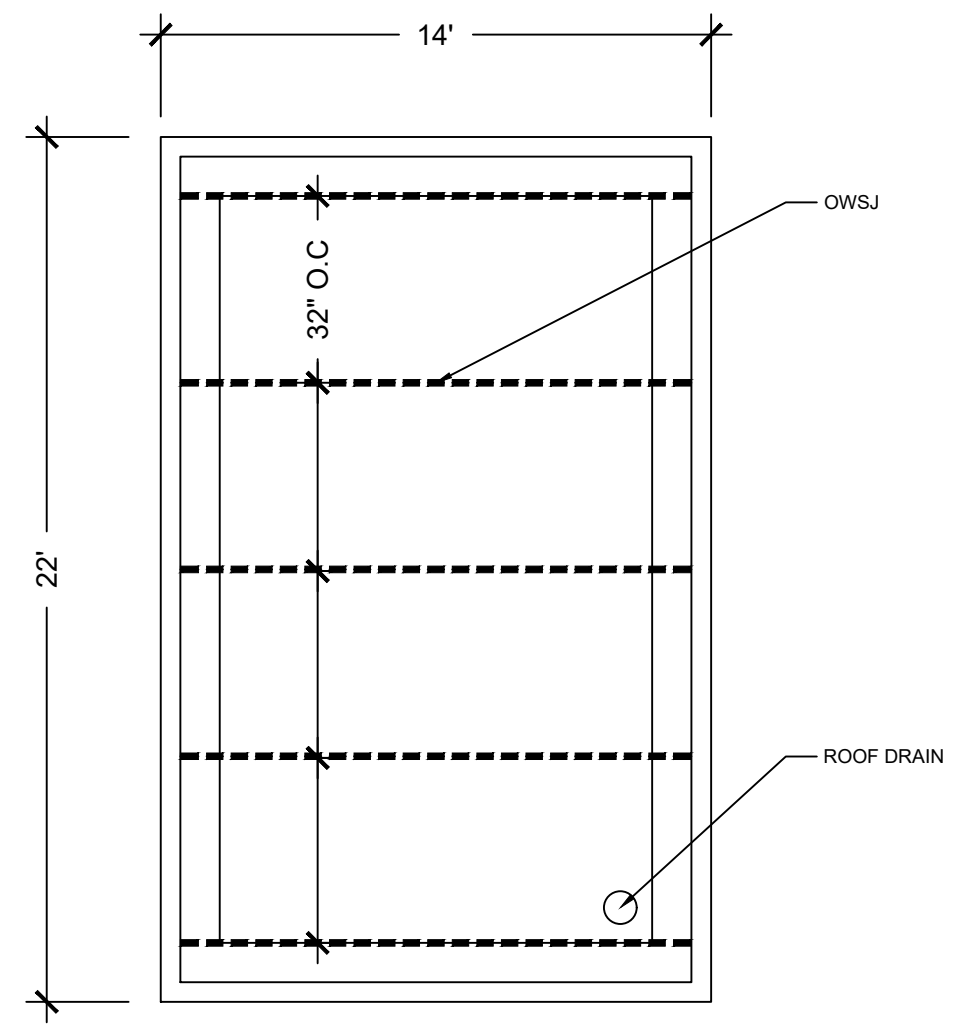
DRAWING TITLE:

ELEVATIONS

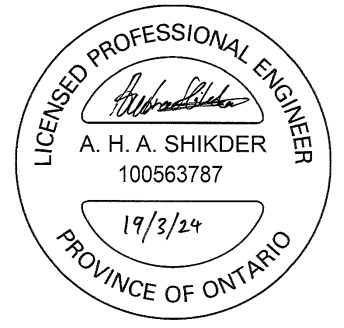
PROJ. NO.: 29055	DRAWING NO.:
DRW. BY: AF	S2
CHK. BY: AS	
SCALE: AS NOTED	
DATE: MAR 2024	



1 SECTION
S3 NTS



2 ROOF PLAN
S3 NTS



LEGEND:

Note:

Contractor must check and verify all dimensions and job site conditions and report any discrepancies to the appropriate authority prior to commencing construction.

All drawings and specifications and related documents are the copyright properties of The City of Vaughan

03/15/2024	IFP
DATE	ISSUED FOR

- GENERAL NOTES:**
- LOCATIONS OF SITE FEATURES ARE APPROXIMATE AND MAY VARY FROM THAT SHOWN.
 - CONTRACTOR TO VERIFY QUANTITIES AND DIMENSIONS AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING.
 - THIS DRAWING IS NOT TO BE SCALED

JH CONSULTANTS
Occupational Hygiene & Environment

311 MATHESON BOULEVARD EAST
MISSISSAUGA, ONTARIO L4Z 1X8
TEL: (905) 890 - 9000 FAX: (905) 890 - 9005

CLIENT ADDRESS:

The Corporation of the City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

PROJECT NAME:

Demolition of Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

DRAWING TITLE:

SECTION AND ROOF PLAN

PROJ. NO.: 29055	DRAWING NO.:
DRW. BY: AF	S3
CHK. BY: AS	
SCALE: AS NOTED	
DATE: MAR 2024	

ATTACHED REPORTS



CONSULTANTS
Occupational Hygiene & Environment

STRUCTURAL DEMOLITION REPORT

Hayhoe Generating Station

Hayhoe Lane
Vaughan, Ontario

Presented to:

City of Vaughan

2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1



January 2024

OHE Project No.: 29055

Submitted by:

OHE Consultants

Occupational Hygiene & Engineering
311 Matheson Blvd. East
Mississauga, Ontario
L4Z 1X8

TABLE OF CONTENTS

1. INTRODUCTION.....	2
1.1 SCOPE OF WORK.....	2
1.2 BUILDING DESCRIPTION	2
2. METHOD OF DEMOLITION	3
2.1 SAFETY PRECAUTIONS.....	3
2.2 DEMOLITION METHODS AND PROCEDURES.....	3
3. LIMITATIONS.....	5

APPENDIX A: Site Photographs

1. INTRODUCTION

OHE Consultants (OHE) was retained by the City of Vaughan. (Client) to conduct a Structural Demolition Report at Hayhoe Generating Station located at Hayhoe Lane, Vaughan, Ontario (herein referred to as the “Site”).

The field work was carried out on November 22, 2023, by Abdulkadeer Dudhiyawala, Project Specialist and Audree Shikder, Project Manager, of OHE. The survey consisted of a visual inspection of the structural components of the building, including, but not limited to the roof, framing, walls, and exposed foundation.

1.1 Scope of Work

With the understanding that the City of Vaughn plans on demolishing the site building, our scope of work was to perform a visual review of the existing building structure. A structural demolition report will be issued in order to obtain a demolition permit to facilitate the tendering and demolition work. General reviews are required by OHE throughout the duration of work in accordance with Ontario Regulation 260/08 and 2012 Ontario Building Code Clause 1.3.1.1(3) Division C.

This report outlines the intended demolition work for the existing building and secondary structures at the aforementioned location. All structures related to the building are to be demolished including foundations as requested by the City of Vaughn.

1.2 Building Description

The site building is named “Hayoe Generating Station” and is a One-storey building without a basement. The date of construction is unknown at this time.

The building superstructure consists of a corrugated steel deck supported by open web steel joists (OWSJ) which are then supported on the concrete masonry unit (CMU) block walls. The substructure consists of CMU foundation walls and a concrete slab on grade. The depth of the foundation walls are assumed to be 4 feet based on the Ontario Building Code.

The flat roof was observed to be a Built-up roof assembly (BUR) with one roof drain. The wall composition is a brick veneer with header courses every 32” on center (O.C) as means of a tieback to the CMU blocks. One double metal door and one single metal door are the only forms of egress and ingress. There are two metal vents and no windows.

Operational HVAC was not observed inside the building. The building has not been maintained and is in an abandoned condition.

2. METHOD OF DEMOLITION

2.1 Safety Precautions

- The buildings and secondary structures are to be inspected for the presence of hazardous materials. All hazardous materials should be removed in accordance with the applicable regulations prior to commencement of the demolition;
- All existing utilities and served are to be located and decommissioned;
- A hoarding fence is to be site installed to prevent trespassers into the demolition site;
- All glass is to be removed prior to demolition;
- The buildings and structures to be demolished must remain vacant and securely hoarded prior to the start of the demolition;
- Contractor shall maintain all emergency service routes clear at all times.

2.2 Demolition Methods and Procedures

- CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures; and
- Occupational Health and Safety Act and Regulations for Construction Projects, O. Reg. 213/91, as amended by O. Reg. 145/00.

The following is a demolition procedure that must be implemented:

- The safety precautions noted in this report should be implemented prior to the start of demolition;
- Non-structural and salvageable components and materials shall be removed;
- All designated substances shall be removed and disposed off-site, to a suitable landfill, prior to the main demolition work;
- Acceptable demolition techniques include systematic hand demolition and mechanical demolition. Rapid progressive failure techniques, (including the use of explosives) must not be used. The structures are to be generally demolished in reverse order to that of construction. The sequence of demolition should be such that at no time will a wall or portion of wall be left standing unsupported in an unstable condition or in danger of accidental collapse;

- The existing building structures are to be fully demolished including foundations, secondary structures and landscaping features (stairs, pavers, concrete walkway, etc.);
- All recyclable waste material such as scrap metal, glass, timber, bricks, concrete blocks and concrete should be taken to a recycling facility. Unrecycled waste material should be disposed of at M. O. E. approved landfill sites; and,
- Demolition site to be left safe by backfilling excavated areas and keep hoarding fence in place.

3. LIMITATIONS

The information and opinions rendered in this report are for use exclusively by the Client and is subject to the terms, conditions and limitations as set out in the proposal/scope of work. OHE Consultants reserves the right to review and comment on any interpretation of the data or conclusions derived by the Client. OHE Consultants will not provide this report or other associated information to any party other than the Client unless the disclosure of the information is required by law or is requested in writing by the Client. Any required notifications (internal or external) about information contained in this report shall be the sole responsibility of the Client.

Nothing under the agreement (written or verbal) with the Client shall be construed to give any other rights or benefits to anyone other than the Client and OHE Consultants, and all duties and responsibilities undertaken pursuant to the agreement will be for the sole and exclusive benefit of the Client and OHE Consultants and not for the benefit of any other party. Client agrees not to disclose to any third party data, reports or information provided by OHE Consultants without prior written consent, and OHE Consultants shall have no liability to the Client for claims resulting from such disclosure. However, the Client may use the written report and associated documents to indicate the status of the property to current owners or government requiring the report.

OHE Consultants collected the information provided in this report for the benefit of its Client. OHE Consultants' Client may upon authorization release the information to third parties, who may use and rely upon this report to their discretion. Any use of, or reliance upon, the information by a party other than the Client shall be solely at the risk of the third party and without legal recourse against OHE Consultants.

Providing an environmental assessment or opinion on the presence of any environmental issues such as asbestos, hazardous wastes, toxic materials, the location and presence of wetlands and in-door air quality is beyond the scope of this report.

The conclusions as presented represent the judgement of OHE Consultants based on the visual observations of the accessible, exposed building elements, supplemented by information and data obtained by OHE Consultants and discussions with the Point of Contact and other representatives of the owner identified. Except as otherwise may be requested, OHE Consultants disclaims any obligation to update this report for events taking place, or with respect to

information that becomes available to OHE Consultants after the time during which OHE Consultants performed the visual review. Unless specifically described, no physical testing or intrusive investigations were performed, and no samples of building materials were collected to substantiate the observations made.

In evaluating the Site, OHE Consultants has relied in good faith on information provided by the Point of Contact and other representatives of the owner identified. OHE Consultants in certain instances has been required to assume that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the Point of Contact and other representatives of the owner identified. OHE Consultants accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

OHE Consultants exercised normal skills of a reasonably qualified structural engineer as part of obtaining the information presented in this report. The findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry at the time of the performance of the work utilizing trained technical staff and professionals.

The information are only representative of the time period when the actual work was carried out. It is possible, due to the nature of building construction, that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site investigation.

OHE Consultants makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation. These interpretations may change over time, thus any parties making use of this report should review these issues with appropriate legal counsel.

Our mandate excluded checking compliance with all fire, building code, accessibility requirements at construction, or retroactive requirements. Our mandate also excluded coordinating a search for outstanding Work Orders or Notices of Violation registered on title. We have also not included for any physical testing such as roof test cuts or core sampling in asphalt-paved areas.

No representation, warranties or guaranties, expressed or implied, are made with respect to any goods or services provided as part of this assessment/report, and any implied warranties or guaranties for a particular purpose are expressly disclaimed.

Should additional information become available with respect to the building elements or systems, OHE Consultants requests that this information be brought to our attention so that we may re-assess the conclusions presented herein.

Dated November 2023

OHE Consultants

Occupational Hygiene & Engineering

Original Signed by:

Prepared by:
Audree Shikder, P.Eng
Project Manager

Original Signed by:

Reviewed by:
Fred Atrash, M.H.Sc., CIH, ROH
President

Photo Log
OHE Project No.:29055







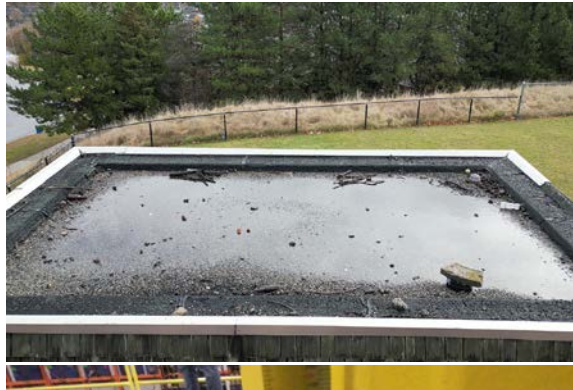

#	Description	
1	Photograph 1: General view of the site building.	 A wide-angle photograph of a small, single-story brick building with a dark roof. A concrete walkway with steps leads to the entrance. The building is surrounded by a grassy area and a yellow chain-link fence in the background under an overcast sky.
2	Photograph 2: Identifies the south-west corner of the site building.	 A closer view of the south-west corner of the brick building. The dark door is open, and a yellow chain-link fence runs along the side of the building. The sky is cloudy.
3	Photograph 3: Corrugated steel deck supported by OWSJ and CMU blocks.	 An interior view of the building's roof structure. It shows a corrugated steel deck supported by orange-painted steel joists (OWSJ) which are in turn supported by concrete masonry unit (CMU) blocks. A white pipe runs across the floor.
4	Photograph 4: Header courses and the roof drain leader.	 A close-up interior view of the roof structure, focusing on the header courses of the CMU blocks and a white roof drain leader pipe extending from the steel deck down the wall.

Photo Log
OHE Project No.:29055

#	Description	
5	Photograph 5: Existing materials in the site building.	 A photograph showing the interior of a site building. The walls are made of concrete blocks with a decorative red brick border. The floor is cluttered with various materials, including several cardboard boxes filled with green plastic bottles, some loose bottles, and other debris.
6	Photograph 6: Wood shingle cladding.	 A close-up photograph of a roof surface covered in dark, weathered wood shingles. The shingles are arranged in a traditional overlapping pattern.
7	Photograph 7: BUR roof with debris and water ponding.	 A photograph of a flat roof covered in a dark, granular material (BUR). The roof is heavily cluttered with debris, including leaves and twigs, and has a large area of water ponding in the center. The roof is surrounded by a grassy area and trees in the background.
8	Photograph 8: Aerial view of the property.	 An aerial photograph showing a large, rectangular, flat roof structure, likely a BUR roof, situated on a property. The roof is surrounded by grass and a concrete foundation. A yellow caution tape is visible on the ground near the roof.



CONSULTANTS
Occupational Hygiene & Environment

PRE-DEMOLITION HAZARDOUS BUILDING MATERIALS SURVEY

Hayhoe Generating Station

79 Hayhoe Lane
Woodbridge, Ontario
L5M 1H6

Presented to:

City of Vaughan

2141 Major Mackenzie Drive
Vaughan, Ontario
L6A 1T1



November 2023

OHE Project No.: 29055

Submitted by:

OHE Consultants

Occupational Hygiene & Environment
311 Matheson Blvd. East
Mississauga, Ontario
L4Z 1X8

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 SCOPE OF WORK.....	1
1.2 APPENDICES OUTLINE.....	2
1.3 BUILDING(S) DESCRIPTION.....	4
2. FINDINGS AND DISCUSSION.....	5
2.1 ACMS	5
2.2 LEAD	6
2.3 MERCURY	6
2.4 SILICA.....	6
2.5 ISOCYANATES	6
2.6 VINYL CHLORIDE.....	7
2.7 BENZENE.....	7
2.8 ACRYLONITRILE	7
2.9 COKE OVEN EMISSIONS	7
2.10 ARSENIC	7
2.11 ETHYLENE OXIDE	7
2.12 PCBs.....	7
3. RECOMMENDATIONS.....	8
4. GENERAL STATEMENT OF LIMITATIONS	9

APPENDIX A:	Drawings
APPENDIX B:	Results of Sampling and Testing for: Asbestos Lead
APPENDIX C:	Laboratory Analysis Report
APPENDIX D:	Site Photographs
APPENDIX E:	Background Information on Designated Substances
APPENDIX F:	Summary of Applicable Regulations and Guidelines
APPENDIX G:	Methodologies
APPENDIX H:	Limitations of the Project
APPENDIX I:	Historical Data

OHE Consultants (OHE) was retained by City of Vaughan. (Client) to conduct a pre-demolition Hazardous Building Materials Survey (HBMS) at Hayhoe Generating Station located at 79 Hayhoe Lane, Woodbridge, Ontario (herein referred to as the “Subject Location”).

The field work was carried out on October 24, 2023, by Mohammed Abdul Moid, Senior Project Specialist and Natalya Babayeva, Project Coordinator, of OHE. The survey consisted of a visual inspection for the presence of hazardous building materials, including designated substances, and testing and sampling of materials suspected to contain hazardous building materials, particularly asbestos and lead.

Should suspect hazardous materials be discovered in any of the areas which could not be accessed (as part of the survey) during the demolition activities, the work shall stop until such materials are assessed and sampled to determine the next course of action.

A summary of the hazardous building materials survey findings is presented below:

Asbestos

- Not found

Lead

- May be present in: wiring connectors
 electric cable sheathing
 solder joints on copper piping.

Mercury

- Presumed present: as vapour in fluorescent light bulbs
 as a component in electrical equipment, such as
 silent, position-dependent switches.

Silica

- Presumed present: as fillers for paints and mastic
 in bricks, ceramics, masonry, concrete and mortar.

PCBs

- Equipment suspected of containing PCBs was not observed at the Subject Location during the survey.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas should be treated as such until proven otherwise as per all applicable regulations and guidelines.

Hazardous building materials including asbestos are also assumed to be present in various building materials which were not sampled as part of the survey since they were excluded from the scope of work due to inaccessibility. These materials include, but are not limited to, fire-rated doors; high voltage wiring, transformers and associated equipment; and refractory materials within boilers and furnaces. All excluded materials shall be assumed asbestos-containing until proven otherwise by bulk sampling and analysis.

OHE's recommendations, based on the findings of the survey, are as follows:

- Provide a copy of this report to contractors bidding on or performing work within the Subject Location.
- Demolition operations that are likely to generate lead-containing dust shall be carried out in accordance with all applicable guidelines and regulations.
- Demolition operations that are likely to disturb mercury-containing materials or equipment shall be carried out in accordance with all applicable guidelines and regulations.
- Demolition operations that are likely to generate silica-containing dust shall be carried out in accordance with all applicable guidelines and regulations.
- Disposal of hazardous building materials shall be completed as per all applicable guidelines and regulations.
- Should suspect hazardous building materials be discovered during any demolition work in the Subject Location, the contractor shall stop all work in the vicinity of the suspect hazardous material and immediately notify personnel from both the Client and OHE Consultants.

This executive summary provides a brief overview of the survey findings. It is not intended to substitute for the complete survey report, nor does it discuss specific issues documented in the report. The executive summary should not be used as a substitute to reading the complete report.

This report is not a scope of work/specifications document for the abatement/remediation of hazardous materials and shall not be used for such purposes.

1. INTRODUCTION

OHE Consultants (OHE) was retained by City of Vaughan (Client) to conduct a pre-demolition Hazardous Building Materials Survey (HBMS) at Hayhoe Generating Station located at 79 Hayhoe Lane, Woodbridge, Ontario (herein referred to as the "Subject Location").

In accordance with Section 30 of the Ontario Occupational Health and Safety Act, Designated Substances and other potentially hazardous building materials must be identified prior to construction or demolition that may disturb such materials. The following is a list of designated substances:

Asbestos	Benzene
Lead	Acrylonitrile
Mercury	Coke Oven Emissions
Silica	Arsenic
Isocyanates	Ethylene Oxide
Vinyl Chloride	

In addition to the above listed designated substances, the scope of the survey also included visual inspection for the presence of the following:

Polychlorinated Biphenyls (PCBs)

The field work was carried out on October 24, 2023 by Mohammed Abdul Moid, Senior Project Specialist and Natalya Babayeva, Project Coordinator, of OHE.

The asbestos bulk samples were analyzed by EMC Scientific Incorporated, an independent and NVLAP accredited laboratory.

1.1 Scope of Work

The scope of work of the survey consisted of the following:

1. A review of previous environmental reports for the Subject Location (if provided prior to conducting the field work);
2. Meeting with key on-site personnel (if provided by the Client) to obtain information about the various operations and processes carried out at the Subject Location in the past;

3. Room-by-room inspection of accessible areas including spaces above suspended ceilings, access hatches, mechanical chases, or similar type locations. Minor demolition of walls, ceilings, floors, etc. to investigate concealed conditions was not part of the scope of work;
4. Bulk sampling and analysis of suspect materials for the presence of asbestos following the requirements of Ontario Regulation 278/05;
5. Testing of accessible painted surfaces for lead content. The lead survey also included an inventory of paint that is peeling off and require remediation;
6. Visual inspection for the presence of the other hazardous building materials listed above. If identified, such materials were reported as suspected until tested. Testing of these materials was not part of the scope of this survey; and
7. Preparation and provision of this report which includes the methodologies, drawings (if they were initially provided by the Client), results, findings, conclusions, recommendations and site photographs.

This report is not a scope of work/specifications document for the abatement/remediation of hazardous materials and shall not be used for such purposes.

1.2 Appendices Outline

The following is an outline of the appendices included in the report:

- Drawings showing sampling locations and the locations of asbestos-containing materials (if identified) are presented in Appendix A;
- The **results** of the survey for asbestos and lead in the form of summary tables for each of the materials are presented in Appendix B;
- The laboratory analysis reports are presented in Appendix C;
- Select site photographs are presented in Appendix D;
- Background information on hazardous building materials, including a brief discussion of the properties, uses, and hazards associated with exposure, is attached in Appendix E;

- A summary of applicable provincial regulations and guidelines pertaining to hazardous building materials is attached in Appendix F;
- Survey methodology including bulk samples analysis methodology and assessment of hazardous building materials methodology is attached in Appendix G;
- Limitations of the project are attached in Appendix H; and
- Historical data (if applicable) is attached in Appendix I.

1.3 Building(s) Description

	Building Description
Name	Hayhoe Generating Station
Address	79 Hayhoe Lane, Woodbridge, Ontario
Current usage	Vacant
Square footage	Approximately 200 sq.ft.
Number of Floors	One
Number of Units	One
Year Built	Unknown
Roof Mechanical penthouse (yes/no)	No
Number of underground levels	None
General interior finishes	Concrete, Concrete Block, Brick, Metal

NA = Not Applicable

2. FINDINGS AND DISCUSSION

2.1 ACMs

Material Description	Observed (yes/no)	Sample(s) Numbers	Asbestos % And Type	Friable/ Non-Friable	Condition	Location
Mortar	Yes	29055-1A-C	ND			Concrete Block Wall, Interior
Mortar	Yes	29055-2A-C	ND			Brick Wall, Exterior
Caulking, Grey	Yes	29055-3A-C	ND			Around Door Frames, Exterior
Roofing Material: Tar	Yes	29055-4A-C	ND			Roof
Tar Paper	Yes	29055-5A-C	ND			Under Wooden Shingles, Roof Siding

ND – None Detected

A summary of the analysis of the bulk samples is presented in Table B.1 found in Appendix B.

2.2 Lead

Lead-containing paint was not identified at the Subject Location. A detailed description of the colours and locations is presented in Table B.2 found in Appendix B. It is assumed that the results presented apply to all paint(s) of the same colour.

Lead may be present in wiring connectors and electric cable sheathing, in lead piping, in solder joints on copper piping, in ceramic building products such as floor or wall tiles.

Prior to disturbance of lead-containing materials, the materials must be abated in accordance with applicable guidelines and regulations.

Where lead has been identified to be in fair condition, the materials should be repaired or removed in accordance with applicable guidelines and regulations.

2.3 Mercury

Mercury-containing thermostats were not observed during the survey at the Subject Location.

Mercury is presumed to be present as a component in electrical equipment, such as silent, position dependent switches.

2.4 Silica

Silica is presumed to be present in materials such as fillers for paints and mastic and in bricks, ceramics, masonry, concrete and mortar.

Silica-containing materials should be handled in accordance with applicable guidelines and regulations. No adverse effects from exposure to silica are likely to occur unless silica in the material is reduced to a respirable size and the airborne concentrations exceed the 8-hour time-weighted average.

2.5 Isocyanates

The material was not identified at the site and is not expected to be found.

2.6 Vinyl Chloride

The material was not identified at the site and is not expected to be found.

2.7 Benzene

The material was not identified at the site and is not expected to be found.

2.8 Acrylonitrile

The material was not identified at the site and is not expected to be found.

2.9 Coke Oven Emissions

The material was not identified at the site and is not expected to be found.

2.10 Arsenic

The material was not identified at the site and is not expected to be found.

2.11 Ethylene Oxide

The material was not identified at the site and is not expected to be found.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel should be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas should be treated as such until proven otherwise as per all applicable regulations and guidelines.

2.12 PCBs

Equipment suspected of containing PCBs was not observed at the Subject Location.

3. RECOMMENDATIONS

OHE's recommendations, based on the findings of the survey, are as follows:

- Provide a copy of this report to contractors bidding on or performing work within the Subject Location.
- Demolition operations that are likely to generate lead-containing dust shall be carried out in accordance with the following guidelines and regulations:
 - Ontario Ministry of Labour Guideline: Lead on Construction Projects;
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Demolition operations that are likely to disturb mercury-containing materials or equipment shall be carried out in accordance with the following guidelines and regulations:
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Demolition operations that are likely to generate silica-containing dust shall be carried out in accordance with the following guidelines and regulations:
 - Ontario Ministry of Labour Guideline: Silica on Construction Projects;
 - Designated Substances Regulation, O. Reg. 490/09;
 - Regulation for Construction Projects, O. Reg. 213/91; and
 - General – Waste Management Regulation, O. Reg. 347/90.
- Disposal of hazardous materials shall be conducted in accordance with all applicable regulations and guideline.
- Should suspect hazardous building materials be discovered during any demolition or renovation work in the above mentioned location, the contractor shall stop all work and immediately notify personnel from the Client and OHE.

4. GENERAL STATEMENT OF LIMITATIONS

The information and opinions rendered in this report are for use exclusively by the Client and is subject to the terms, conditions and limitations as set out in the proposal/scope of work. OHE Consultants reserves the right to review and comment on any interpretation of the data or conclusions derived by the Client. OHE Consultants will not provide this report or other associated information to any party other than the Client unless the disclosure of the information is required by law or is requested in writing by the Client. Any required notifications (internal or external) about information contained in this report shall be the sole responsibility of the Client.

Nothing under the agreement (written or verbal) with the Client shall be construed to give any other rights or benefits to anyone other than the Client and OHE Consultants, and all duties and responsibilities undertaken pursuant to the agreement will be for the sole and exclusive benefit of the Client and OHE Consultants and not for the benefit of any other party. Client agrees not to disclose to any third party data, reports or information provided by OHE Consultants without prior written consent, and OHE Consultants shall have no liability to the Client for claims resulting from such disclosure. However, the Client may use the written report and associated documents to indicate the status of the property to current owners or government requiring the report.

OHE Consultants collected the information provided in this report for the benefit of its Client. OHE Consultants' Client may upon authorization release the information to third parties, who may use and rely upon this report to their discretion. Any use of, or reliance upon, the information by a party other than the Client shall be solely at the risk of the third party and without legal recourse against OHE Consultants.

The scope of this report is limited to possible hazardous building materials found within (or part of) the subject spaces included in the survey only. The survey only considered issues of the building structure, mechanical equipment, and their finishes. The survey did not consider current or past use of the property or occupant articles within the building (i.e. furniture, stock items, etc.), nor does it report on possible contaminants in the soil and groundwater of the site, vessels, drums, underground storage tanks, etc. The survey consisted of accessible areas only; samples were not collected if accessibility was restricted.

OHE Consultants exercised normal skills of a reasonably qualified environmental consultant as part of obtaining the information presented in this report. The findings and conclusions contained herein have been made in accordance with generally accepted evaluation methods in the industry at the time of the performance of the work utilizing trained technical staff and professionals.

The information are only representative of the time period when the actual work was carried out. It is possible, due to the nature of building construction, that conditions may exist which could not be reasonably identified within the scope of the assessment or which were not apparent during the site investigation.

The information presented in the report shall not be construed as legal opinion. In addition, the information shall not be used to evaluate health risks of building occupants associated with exposure to identified hazardous building materials – such evaluations shall be carried out by a licensed medical professional who specializes in such evaluations. Over time, the regulations, standards and guidelines which are outlined in the report could be amended/updated, and accordingly may not apply at a future date.

No representation, warranties or guaranties, expressed or implied, are made with respect to any goods or services provided as part of this assessment/report, and any implied warranties or guaranties for a particular purpose are expressly disclaimed.

Dated November 2023

OHE Consultants

Occupational Hygiene & Environment

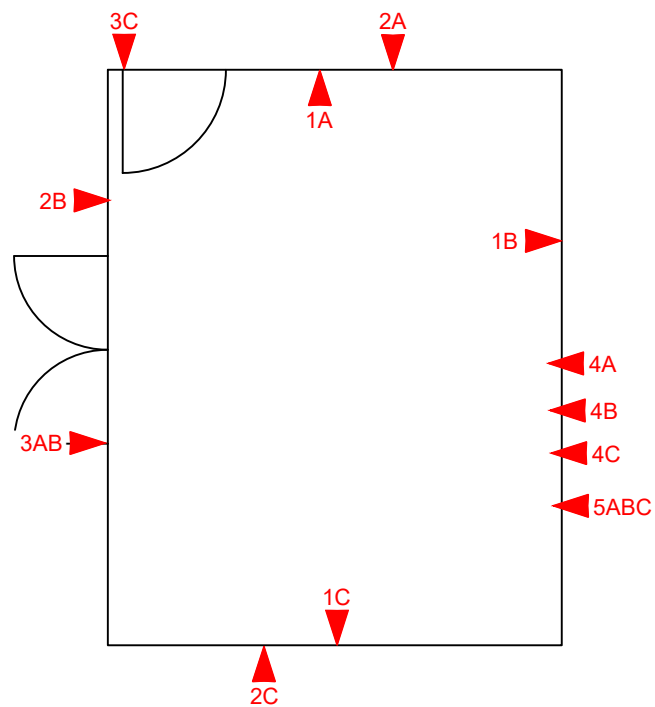
Prepared by:
Mohammed Abdul Moid
Senior Project Specialist

Reviewed by:
Natalya Babayeva, B.Eng.
Project Coordinator

Reviewed by:
Rabi Ammouri, B.Sc.
Senior Project Manager

Reviewed by:
Michal Zitnik, M.H.Sc., ROH, CIH
Vice President

DRAWINGS



Legend:

xx ▶ Asbestos Bulk Sample Location

Notes:

Locations of site features are approximate and may vary from that shown

Drawing Title:

Asbestos Bulk Sample Locations

Client Address:

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

Project Location:

Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

Project No: 29055



Date: Nov. 2023

Drawing No:

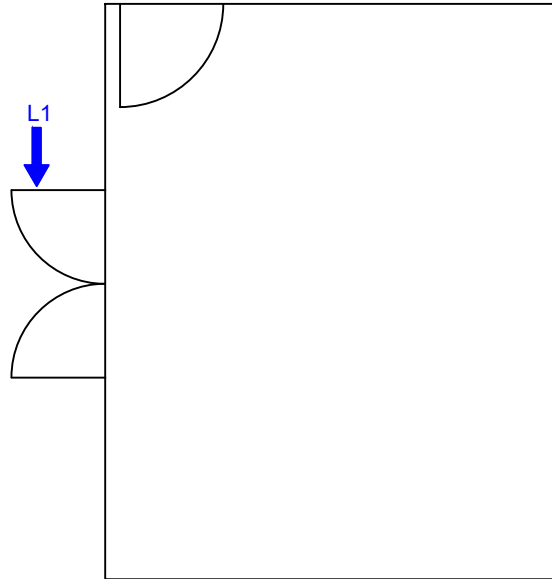
Scale: NTS

1.1

Drawn By: NB

Approved By: MZ





Legend:

Lx → XRF Spot Testing Location

Notes:

Locations of site features are approximate and may vary from that shown

Drawing Title:

XRF Spot Testing Locations

Client Address:

City of Vaughan
2141 Major Mackenzie Drive
Vaughan, ON

Project Location:

Hayhoe Generating Station
79 Hayhoe Lane
Woodbridge, ON

Project No: 29055



Date: Nov. 2023

Drawing No:

Scale: NTS

2.1

Drawn By: NB

Approved By: MZ



RESULTS

Table B.1

Summary of Bulk Sample Analysis Results for the Presence of Asbestos by Polarized Light Microscopy (PLM) with Dispersion Staining

Collected on October 24, 2023

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
29055-1A	Mortar	Block wall, North, Interior	None Detected
29055-1B	Mortar	Block Wall, East, Interior	None Detected
29055-1C	Mortar	Block Wall, South, Interior	None Detected
29055-2A	Mortar	Brick Wall, North, Exterior	None Detected
29055-2B	Mortar	Brick Wall, West, Exterior	None Detected
29055-2C	Mortar	Brick Wall, South, Exterior	None Detected
29055-3A	Caulking, Grey	North, Around Door Frame	None Detected
29055-3B	Caulking, Grey	North, Around Door Frame	None Detected
29055-3C	Caulking, Grey	East, Around Door Frame	None Detected
29055-4A	Roofing Material: Tar	Roof	None Detected
29055-4B	Roofing Material: Tar	Roof	None Detected
29055-4C	Roofing Material: Tar	Roof	None Detected
29055-5A	Tar Paper	Under Wooden Shingles, Roof	None Detected

OHE Sample Number	Sample Description	Sample Location	Analysis Results (% and Type of Asbestos)
29055-5B	Tar Paper	Under Wooden Shingles, Roof	None Detected
29055-5C	Tar Paper	Under Wooden Shingles, Roof	None Detected

Table B.2

Summary of Analysis of Lead in Paint

OHE Sample Number	Sample Description	Sample Location	Contains Lead Yes/No
29055-L1	Brown	Door	No

Note: Classification of lead results is based on the actual XRF readings. Positive results are expressed as the actual concentration of the lead in the paint (mg/cm²). Negative results are expressed as “No” and are indicative of lead concentration below the limit of detection of the XRF.

LABORATORY ANALYSIS REPORTS

Laboratory Analysis Report

To:

Fred Atrash
OHE Consultants Inc.
311 Matheson Boulevard East
Mississauga, Ontario
L4Z 1X8

EMC LAB REPORT NUMBER: A97226
Job/Project Name:
Analysis Method: Polarized Light Microscopy – EPA 600
Date Received: Oct 25/23 **Date Analyzed:** Nov 1/23
Analyst: Fabio Anunciacao
Reviewed By: Malgorzata Sybydlo

No. of Phases Analyzed: 18
Job No: 29055
Number of Samples: 15
Date Reported: Nov 1/23

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
29055-1A	A97226-1	Mortar/ block wall, north, interior	Off white, cementitious material	ND		100
29055-1B	A97226-2	Mortar/ block wall, east, interior	Off white, cementitious material	ND		100
29055-1C	A97226-3	Mortar/ block wall, south, interior	Off white, cementitious material	ND		100
29055-2A	A97226-4	Mortar/ brick wall, north, exterior	Grey, cementitious material	ND		100
29055-2B	A97226-5	Mortar/ brick wall, west, exterior	Grey, cementitious material	ND		100
29055-2C	A97226-6	Mortar/ brick wall, south, exterior	Grey, cementitious material	ND		100
29055-3A	A97226-7	Caulking/ grey/ north, around door frame	Grey, caulking	ND	1	99
29055-3B	A97226-8	Caulking/ grey/ north, around door frame	Grey, caulking	ND	1	99
29055-3C	A97226-9	Caulking/ grey/ east, around door frame	Grey, caulking	ND	1	99
29055-4A	A97226-10	Roofing material: tar/ roof	2 Phases: a) Black, tar b) Black, tar with fibres	ND ND	10	100 90
29055-4B	A97226-11	Roofing material: tar/ roof	2 Phases: a) Black, tar b) Black, tar with fibres	ND ND	10	100 90
29055-4C	A97226-12	Roofing material: tar/ roof	2 Phases:			

EMC LAB REPORT NUMBER: A97226

Client's Job/Project Name/No.: 29055

Analyst: Fabio Anunciacao

Client's Sample ID	Lab Sample No.	Description/Location	Sample Appearance	SAMPLE COMPONENTS (%)		
				Asbestos Fibres	Non-asbestos Fibres	Non-fibrous Material
			a) Black, tar b) Black, tar with fibres	ND		100
				ND	10	90
29055-5A	A97226-13	Tar paper/ under wooden shingles, roof	Black, tar with fibres	ND	20	80
29055-5B	A97226-14	Tar paper/ under wooden shingles, roof	Black, tar with fibres	ND	20	80
29055-5C	A97226-15	Tar paper/ under wooden shingles, roof	Black, tar with fibres	ND	20	80

Note:

1. Bulk samples are analyzed using Polarized Light Microscopy (PLM) and dispersion staining techniques. The analytical procedures are in accordance with EPA 600/R-93/116 method.
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%.

SITE PHOTOGRAPHS

Photograph 1. View of the Subject Location.



**BACKGROUND INFORMATION ON
HAZARDOUS BUILDING MATERIALS**

ASBESTOS

Asbestos is a term applied to a family of fibrous minerals divided into two geological groups, serpentine and amphibole. These minerals are naturally occurring and are found in every mountain formation throughout the world. Only six forms of asbestos were used commercially. These are chrysotile, the only serpentine asbestos type, and amosite, crocidolite, anthophyllite, tremolite and actinolite which are the amphibole asbestos type.

There are over 3,000 separate uses of asbestos identified in existing literature. Uses are dependent upon the physical and chemical properties of a particular asbestos type. The desirable properties of asbestos fibres differ with each type of asbestos and include:

Fire retardance	Resistance to acids and alkalis	High tensile strength
Filter action	Thermal insulating qualities	Friction and wear resistance
Cohesion	Reinforcement	Filler

Asbestos is rarely found in pure form in a product and all products are divided into two broad categories: "friable materials" and "non-friable materials or manufactured products". "Friable materials" are defined as materials that, when dry, can be crumbled, pulverized or powdered by hand pressure. This classification includes materials such as sprayed fireproofing, thermal insulation applications, acoustical texturized material and refractory or non-friable materials that have been made to become friable through degradation.

"Non-friable materials" are generally hard and do not readily release fibres. Most asbestos-containing materials (ACMs) are found in this category and are typically included in materials such as cement products, felts, cloths, floor and roof coverings, friction products and ceiling tiles.

Asbestos fibres, when inhaled, may cause various respiratory diseases primarily including Asbestosis, Mesothelioma and Lung Cancer which all can cause an early death. Based on the health effects of exposure to asbestos fibres, the use of asbestos has become regulated across Canada and some products are now prohibited. Essentially, the location of ACMs must be identified and a written report kept and maintained of the ACMs locations so that work undertaken on these materials is conducted in a safe manner and any damaged ACMs or debris is repaired or removed.

LEAD

For thousands of years lead has been used industrially because of its poor conductive property. Lead has been commonly used for electric storage batteries, pigments, paints, and rubber compounds.

Health effects associated with lead exposure can result in damage to the kidneys, gastrointestinal system, nervous system and reproductive system. Symptoms range from vomiting, and abdominal cramps to pains in joints and muscles.

MERCURY

At room temperature mercury is in the form of a silver coloured liquid. Mercury can exist in three forms: elemental (the pure form) organic or inorganic.

Mercury can be absorbed into the body by inhalation, ingestion or absorption through the skin. As a health hazard mercury can affect the respiratory system resulting in coughing and chest pains. Mercury poisoning can also cause kidney damage, skin irritation and may even harm the nervous system.

SILICA

Silica can be found naturally in two forms, crystalline or amorphous material. Crystalline silica is regulated due to its significant toxicity over the amorphous silica. The three most common forms of crystalline silica in the workplace are: quartz, cristobalite and tridymite. The physical properties of silica make it a valuable substance for use in a variety of different industries and processes such as an abrasive and scouring compound, fillers for paint and mastic and optical equipment. Health effects resulting from exposure to crystalline silica range from eye and skin irritation, coughing and sneezing to silicosis, a progressive lung disease.

breakdown of other substances such as trichloroethane, trichloroethylene, and tetrachloroethylene.

**SUMMARY OF APPLICABLE
REGULATIONS AND GUIDELINES**

APPLICABLE REGULATIONS AND GUIDELINES

The following is a list of applicable regulations and guidelines:

Designated Substances

A Designated Substances report is completed to fulfil the Owner's requirements under Section 30 of the Ontario Occupational Health and Safety Act. A copy of the report must be provided to the general contractor who in turn must submit the report to all subcontractors prior to the commencement of demolition, construction or renovations.

Ontario Regulation 490/09 "Designated Substances" (O. Reg. 490/09) provides guidance on exposure monitoring, permissible exposure levels, medical monitoring, etc. for all Designated Substances in an industrial setting. There are no specific Ministry of Labour (MOL) regulations for control of the Designated Substances, with the exception of asbestos, on construction projects; however, the MOL actively enforces the general duty clause of the OHS Act to take all reasonable precautions in the circumstances of protection of a worker. It is important to note that Ontario Regulation 213/91 "Construction Projects" (O. Reg. 213/91) applies to construction projects and provides instruction on general requirements, safe work practices, reporting, etc.

ASBESTOS

Three regulations govern the control, handling, transport and disposal of asbestos in Ontario:

- Ontario Regulation 278/05 "Asbestos on Construction Projects and in Buildings and Repair Operations" made under OHS Act (O. Reg. 278/05);
- Ontario Regulation 347/90 "General – Waste Management" (as amended) made under the Environmental Protection Act (O. Reg. 347/90); and
- The regulations respecting "The Handling and Offering for Transport and Transporting of Dangerous Goods".

Ontario Regulation 278/05

Ontario Regulation 278/05 applies to buildings with regards to maintenance, renovations or demolition work where Asbestos-Containing Materials (ACMs) are or may be disturbed.

Under O. Reg. 278/05 a building owner must instate an Asbestos Management Program (AMP) for the building. The major requirements for the AMP including the following:

- Preparation and maintenance of a record of the location of asbestos-containing materials in the building;
- Notification of the building's tenants of the location of such material;
- Establishment of a training program for those employees of the owner who may work in close proximity to and disturb the material;
- Periodic inspection of the material to determine its condition;
- Remedial action on material that has deteriorated following the precautions and procedures prescribed by the regulation as Type 1, Type 2 and Type 3; and
- Removal of asbestos-containing materials to the extent practicable prior to demolition of a building or part thereof.

The regulation prescribes work to be conducted according to three procedure types. The procedure to be followed depends on the type of material and the regulation provides instruction on how the work must be performed.

Ontario Regulation 347/90

Ontario Regulation 347/90 applies to the disposal of all hazardous materials, including asbestos waste, from the location of generation to a landfill site. The regulation also prescribes procedures on how the asbestos waste is to be buried at the landfill site.

The major requirements to the building owner are to ensure that:

- The waste is appropriately packaged and labelled;
- The transport vehicle has an appropriate placard;
- The asbestos waste is transported on the same day as received by the landfill site; and
- The route of travel is the most direct.

The building owners are held responsible for their asbestos waste as prescribed in the regulation until it is accepted by the waste disposal site.

The regulations respecting the Handling and Offering for Transport and Transporting of Dangerous Goods.

These regulations govern the packaging mode of transport labelling, placards and documentation of waste while in transport. The labelling requirements differ from O. Reg. 347/90.

The major requirement to the building owner is to ensure the waste meets the packaging requirements and that a bill of lading accompanies the shipment.

LEAD

As stated previously there are no specific regulations regarding lead on construction projects; however, the MOL published a guideline entitled “Lead on Construction Projects” to raise the awareness of employers and workers to the hazards posed by lead in construction and the measures and procedures that should be taken to control those hazards.

The document provides information on the following:

- Health effects associated with lead exposure;
- Methods for controlling the lead hazard;
- Classification of work; and
- Measure and procedures for working with lead.

The guideline classifies operations involving lead-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of lead generated during the operation, which is dependent on the type of work performed. The guideline also provides instruction on how the work must be performed.

SILICA

Again, there are no specific regulations regarding silica on construction projects; however, the MOL published a guideline entitled “Silica on Construction Projects” to raise the awareness of employers and workers to the hazards posed by silica in construction and the measures and procedures that should be taken to control those hazards.

- Health effects associated with silica exposure;
- Methods for controlling the silica hazard;
- Classification of work; and
- Measure and procedures for working with silica.

The guideline classifies operations involving silica-containing materials into three groups, Type 1, Type 2 and Type 3 operations. The procedure to be followed depends on the anticipated airborne concentration of silica generated during the operation, which is dependent on the type of work performed. The guideline also provides instruction on how the work must be performed.

METHODOLOGY

GENERAL SURVEY METHODOLOGY

The survey consisted of an extensive examination of accessible areas of the building to identify hazardous building materials. Suspected hazardous building materials were assessed based on the surveyor's knowledge regarding the historical use of hazardous building materials in buildings, through published data and through previous experiences.

Accessible is defined as an area above a suspended ceiling tile, within an access hatch or behind a closed door, not impeded by any structure, article or thing. An area enclosed by cement block, plaster, solid lumber, etc., where minor demolition is required to gain entry is considered non-accessible. The walkthrough survey was augmented with layout drawings where available.

OHE's surveyors completed a Room by Room sheet which details the findings in each room entered. The Room by Room sheet details the room number and/or room description including the materials observed in the room and the condition of the material. The Room by Room sheet also records sampling information, quantity of the material(s), accessibility of the material(s) and the recommended control action.

OHE's approach to the work followed accepted industry procedures as well as our own in-house protocols. The examination of materials was largely performed visually with some occasion where physical contact was necessary to assess the condition or examine for underlying layers.

ASBESTOS SURVEY METHODOLOGY

This following information summarizes the bulk sampling methodology, analysis methodology and the methodology used for the assessment of the condition of Asbestos-Containing Materials (ACMs).

Bulk Sampling Methodology

Bulk samples were collected for subsequent analysis during the building survey. A small volume of material (approximately one teaspoon full) was removed either from a damaged section of suspect material or cut out of intact material and then temporarily repaired by sealing with tape to prevent fibre release. Tools used in sample collection were washed after each use to prevent cross-contamination. Collected samples were placed in sealed plastic bags and shipped to an independent laboratory for analysis.

Bulk Sample Analysis Methodology

Bulk samples of suspect ACMs were analyzed in accordance with a US EPA method for the determination of asbestos content in bulk materials, EPA Method 600/R-93/116 as per requirements of O. Reg. 278 which specifies this method be used to establish

whether a material is considered to be an ACM (i.e., contains $\geq 0.5\%$ asbestos by dry weight) and for establishing its asbestos content and the type of asbestos.

The EPA Method requires that the samples be analyzed using the Polarized Light Microscopy (PLM) technique. The percentage of asbestos in the sample is measured as perceived by the analyst in comparison to standard area projections and is greatly influenced by the analyst's experience. The method is useful for the qualitative identification of asbestos (type) and the semi-quantitative (% estimates) determination of asbestos content in bulk samples.

The asbestos bulk samples were analyzed by an independent and NVLAP accredited laboratory. To ensure quality results, the independent laboratory chosen must successfully participate in an "Asbestos Proficiency Analytical Testing Program" and as such, this laboratory is responsible for their findings.

ASSESSMENT OF ACMS METHODOLOGY

The assessment of ACMs involves the evaluation of a number of factors by the surveyor including:

- Asbestos content
- Condition of the material
- Accessibility
- Water damage
- Activity and vibration
- Presence in air plenum/direct air stream

Where ACMs are found to be in good condition, firmly bound and not likely to deteriorate or fall, the recommended procedure is to evaluate the condition of the material on a periodic basis (which should be at least once every twelve-month period as required by O. Reg. 278/05 unless specified more frequently) in order to detect gradual deterioration. This process is referred to as an "Operation and Maintenance Program".

Damaged material is identified by surface crumbling, blistering, water stains, gouges, marring or being otherwise abraded. The accumulation of powder dust or debris similar in appearance to the suspect material can be used as confirmatory evidence.

In situations where the ACMs are found to have deteriorated or likely to fall, the following are the four abatement options that may be specified in this report:

Cleaning

The cleaning of asbestos-containing debris may be performed using a High Efficiency Particulate Air (HEPA) filter vacuum cleaner or by damp wiping techniques. All fallen asbestos material must be cleaned upon discovery. In situations where the material will

continue to fall due to deterioration, damage or abrasion, additional corrective work is required, i.e., the material must be repaired, permanently enclosed or removed.

Repairs

This option is usually selected in situations where damage to the ACMs are of a minor nature and is not likely to reoccur due to accessibility or activity. This method of repair is chosen in situations where performing the repair activities will not cause significant disturbance to the underlying material. Typical repairs include the repair of thermal insulation by the application of mastic (paint adhesive) to lagging (canvas cloth). The repair of sprayed fireproofing or acoustical texturized material can involve the application of an encapsulant to limited areas of abraded or damaged material. If this option is followed, the sprayed material must be capable of supporting the additional weight of the encapsulant.

Enclosure

An enclosure consists of the construction of a physical barrier, typically constructed from drywall or metal sheeting. This option is applicable in situations where the removal of materials with asbestos is not practicable, is of a high financial cost, or where damage is likely to occur without a protective barrier. Where the installation of the barrier is likely to disturb the ACMs, the work must be performed in isolation from the building's normal environment.

Removal

This option is recommended in situations where the ACMs are damaged beyond repair and the material is highly likely to be damaged due to nearby activities, by renovation or during demolition. The precautions employed may vary depending on the volume of the material to be removed and whether the material is friable or not. Typical programs can include the use of glove bags for limited amounts of thermal pipe insulation or minor amounts of fireproofing may be removed within a small polyethylene lined enclosure. For larger amounts of asbestos, more stringent protocols are used and consist of attached shower facilities, the establishment of a negative pressure differential, a filtration system for the air and monitoring for exposure to asbestos fibres.

LEAD-IN PAINT SURVEY METHODOLOGY

This following information summarizes the testing methodology used during the survey for lead in paint.

XRF Methodology

Testing for lead in paint was carried out using an X-ray Fluorescence (XRF) Spectrum Analyser. Painted surfaces contain concentrations of various elements which the XRF can detect using low-level radioactivity. The XRF unit is positioned against the exposed painted surface and the radiation from the XRF is directed at the painted surface. The radiation is absorbed by the painted surface and emits energy back to the analyzer as fluorescence. The level of fluorescence will be distinctive to a particular element present in the paint. Lead emissions are measured by the analyzer, and then converted into an electrical signal. The analyzer uses this electric signal to calculate and display the lead concentration in the paint surface. The low levels of radiation provide for accurate readings with the precision of ± 0.05 mg/cm² when measuring lead concentrations. The XRF is equipped with a depth index that indicates where the lead is located within the paint layers. The detection limit of the instrument varies with depth and ranges from 0.002 mg/cm² to 0.05 mg/cm². The analyzer used by OHE performs an automatic self-calibration/quality control check when the unit is switched on.

METHODOLOGY FOR THE INVESTIGATION OF PCB-CONTAINING EQUIPMENT

The investigation typically includes a representative and random examination of fluorescent lamp ballasts and transformers. Information collected from the labels of light ballasts is cross referenced with the Environment Canada publication entitled "Identification of Lamp Ballasts Containing PCBs" (Revised August 1991). The investigation is restricted to the equipment observed and excludes PCB-containing components that may be concealed. Due to safety precautions, only the exterior of electrical equipment is inspected. If the equipment labels do not provide enough information on the contents with respect to the subject substances, the findings are noted and recommendations regarding the next course of action are provided.

METHODOLOGY FOR THE INVESTIGATION OF OTHER HAZARDOUS SUBSTANCES

The scope of work for the subject survey also consisted of a visual inspection for the presence of other potentially hazardous building materials and substances including mercury, silica.

PROJECT LIMITATIONS

PROJECT LIMITATIONS

The survey was limited to the Roof Replacement Project, Phase 3C areas as per the drawings provided by the client.

Hazardous building materials may be present in areas not accessible for view and identification. In situations where hazardous building materials extend into a non-accessible area, the materials were assumed to also be present in those areas and have been reported as such. Contractors and maintenance personnel must be warned of the possibility of undisclosed hazardous building materials in enclosed areas. All hazardous building materials discovered in these areas must be treated as a hazardous building material until proven otherwise by sampling and analysis as per all applicable regulations and guidelines.

Asbestos is assumed to be present in various building materials which were not sampled as part of the survey since they were excluded from the scope of work. These materials include, but are not limited to vermiculite in solid block walls; materials located above solid ceilings and in manufactured wall panels; elevator and lift brakes; high voltage wiring; mechanical packing, ropes and gaskets; exterior cladding, soffit and fascia boards on building; and refractory materials within boilers. In cases of demolition and/or renovation, all excluded materials (i.e., suspected ACMs) shall be assumed asbestos-containing until proven otherwise by bulk sampling and analysis.

In cases where asbestos was identified in some but not all samples of similar materials, all such material was assumed and reported to contain asbestos. When a renovation is planned, we recommend a detailed sampling of suspected asbestos-containing material to confirm the presence of asbestos. Materials that are removed through renovations must be replaced with non-asbestos-containing materials only. This must be documented. Confirmatory sampling will not be required on any new products if the manufacturer supplies written confirmation that these materials are asbestos-free.

HISTORICAL DATA

INTENTIONALLY DELETED