



107 Park Street North

Peterborough, ON

HERITAGE IMPACT ASSESSMENT REPORT

September 4, 2025

Project # 23120

Prepared by MM/BH/SS/CR/KL/MTK

GE Vernova
107 Park Street North
Peterborough, ON K9J 3V6

PREPARED BY:

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1 STATEMENT OF PROFESSIONAL QUALIFICATIONS

ERA Architects Inc. (ERA) specializes in heritage conservation, architecture, planning and landscape as they relate to historical places. This work is driven by our core interest in connecting heritage issues to wider considerations of urban design and city building, and to a broader set of cultural values that provide perspective to our work at different scales.

In our 30 years of work, we've provided the highest level of professional services to our clients in both the public and private sector out of offices in Toronto, Montreal and Ottawa. We have a staff of more than 100, and our Principals and Associates are members of associations that include: the Ontario Association of Architects (OAA), the Canadian Association of Heritage Professionals (CAHP) and the Royal Architectural Institute of Canada (RAIC).

Michael McClelland OAA, FRAIC, CAHP is a registered architect and founding Principal of ERA Architects. Michael has specialized in heritage conservation, heritage planning, and urban design for over 30 years. Having begun his career in municipal government, most notably for the Toronto Historical Board, Michael continues to work with a wide range of public and private stakeholders to build culture through thoughtful, values-based heritage planning and design. His notable projects include Toronto's Distillery District and the Evergreen Brickworks.

Michael is a frequent contributor to the discourse surrounding architecture and landscape in Canada, and has edited a number of books on urban conservation including *East West – a Guide to where people live in Downtown Toronto*; *Concrete Toronto – a guidebook to concrete architecture from the fifties to the seventies*; *The Ward – the Life and Loss of Toronto's first Immigrant Neighbourhood*, and *The Ward Uncovered – the Archaeology of Everyday Life*.

Ben Huntley OAA, RAIC is an Associate at ERA and a registered Architect with the OAA. Ben has extensive experience in the alteration and adaptive re-use of existing buildings, including the detailing of alterations and new additions, as well as the repair and conservation of heritage materials. He has prepared condition assessments, heritage impact assessments and conservation plans. He has run large- and small-scale projects from schematic design through construction documentation to completion and has gained proven expertise in managing complex projects with challenging timelines.

Steven Shuttle OALA, RPP, CAHP is a landscape architect and planner at ERA. He contributes to a range of heritage planning, design, and conservation projects across Ontario. He holds a Master of Landscape Architecture from the University of Guelph, where he was named a 2022 LAF Olmsted Scholar. His SSHRC-supported research explored ways to strengthen cultural landscape adaptive reuse policy and practice in Ontario, emphasizing integrated and future-oriented approaches. Steven's work focuses on leading with landscape, and the intersections of planning, design, and stewardship for conservation through reactivation.

Katie Lee is an Intern Architect with the OAA and holds both a Bachelor of Science and Master of Architecture degree from McGill University in Montreal. Lee's community-oriented designs weave together the poetic and functional qualities of architecture, exploring how this interplay can inspire people and build meaningful relationships. This interest in community building has led to collaborations with various collectives, labs, and grassroots organizations across Canada in Calgary, Montreal, and Toronto.

Catherine Riddell is a graduate of Trinity College at the University of Toronto with a specialist Bachelor of Arts in Fine Art History. Catherine has experience managing provincial and municipal heritage projects and is an active member of the International Council of Monuments and Sites, the Society of Architectural Historians, and the Furniture History Society.

Mattia Thillaye-Kerr attended Willowbank School of Restoration Arts, where she was Student Representative to the Willowbank Board of Directors and participated in the King's Foundation Summer Program. She has a strong interest in heritage as a function of sustainability and circular economics leading her to collaborate with Ouroboros Deconstruction on the *Erin Project*. The project was featured at Design TO's TAS Circular Living Lab and received the Founders Award. Mattia was previously named as a Heritage Toronto Emerging Historian and is a current member of the ACO Education Committee.

2 EXECUTIVE SUMMARY

This Heritage Impact Assessment (HIA) was prepared by ERA Architects Inc. (ERA) for the property at 107 Park Street North in Peterborough, ON (the “Site”). The Site comprises a multi-layered industrial complex that began operations in 1891 as the Canadian Works of the Thomas Edison Company and later continued under General Electric. In April 2024, General Electric underwent a reorganization, creating GE Vernova, an independent, publicly traded industrial energy company. The Site is owned by GEPR Canada, Inc., a subsidiary company within GE Vernova which designs and manufactures various types of energy production and management systems. For the purposes of this report, references to GE Vernova should be understood to include all its corporate predecessors, as appropriate to the context.

Current Use

This Site has been operational in various capacities for over a century. Throughout this period, GE Vernova and its predecessors carried out manufacturing activities on the premises, progressively constructing and modifying a large group of custom buildings to support specific industrial functions. The Site includes a diverse range of purpose-built brick industrial and administrative buildings, constructed between the late 19th century and the late 20th century.

GE Vernova currently occupies two buildings on the Site as office space: Building 2A and Building 2, which are located within what is referenced throughout this HIA as the East Block of the Site. While GE Vernova no longer undertakes any manufacturing activities on the Site, it leases four buildings (Buildings 21, 24A, 26, and 28) on the western side of the Site (referenced throughout as the West Block) to BWX Technologies, Inc. (BWXT). BWXT, originally part of GE Vernova’s nuclear energy division, became an independent company in 2016 and now specializes in nuclear components and services for government and commercial clients.

The remaining buildings on the Site, comprising the Centre Block of buildings, have been unoccupied since 2018, and GE Vernova has no current or future use for these buildings. In 2024, a cost estimate was undertaken by WSP for the refurbishment of the Centre Block. WSP estimated the cost of refurbishing the Centre Block at an approximate rate of \$1,184-1,279/sq m equal to \$138.4 million-\$149.5 million, with further expenditures required for future occupancy. As such, GE Vernova has undertaken further assessments to inform future planning for the Site.

Proposal

The proposal for the Site involves the removal of the Centre Block of buildings to create an interim condition which supports GE Vernova's mandate to maintain a safe, secure, environmentally sustainable Site with flexibility for future uses, while retaining and conserving those buildings which best display the significant heritage attributes and cultural heritage value of the Site. The buildings proposed for removal have undergone substantial modifications and unsympathetic additions over time, including overbuilding and integration with one another into what is now one large, consolidated complex in the Centre Block, rather than a collection of independent buildings.

This proposal balances the continued employment uses on the Site, the ability to maintain a safe, secure, and environmentally sustainable Site, and the conservation of the property's cultural heritage value.

Heritage Analysis

The physical evolution of the Site was analyzed using historical maps, plans, and archival material and distinct periods of development were identified that can be typologically categorized as follows:

- Late Victorian + Edwardian (1891-1914)
- World War 1 + Interwar (1914-1938)
- World War 2 (1939-1945)
- Postwar + Modern (1946-1973)
- Late 20th Century + Early 21st Century (1974-Present)

These distinct periods are represented within two defined areas on the Site: The East Block, which contains notable Victorian+ Edwardian and World War 1 + Interwar buildings (2, 2A, 8A, 30) and the West Block, which contains the World War 2 and Postwar + Modern buildings (21, 24A, 26, and 28). The Late 20th + Early 21st Century marks a period of deconstruction and the gradual closure or repurposing of industrial facilities, reflecting broader shifts in economic priorities and technological change.

Mitigations of Impact

A range of strategies is proposed to mitigate the negative impacts of the proposed deconstruction on the cultural heritage value of the Site. These include: documentation, selective retention, conservation, and repair, and restoration, mothballing, and provisions for future adaptive reuse opportunities of selected buildings. As described in Sections 8

and 9 of this report, robust interpretation and commemoration strategy is also recommended as part of the proposed activities, to recognize and communicate the cultural heritage value of the Site to the public. This strategy will foster public awareness of the Site's contributions to industrial development and community life in Peterborough.

This HIA implements the City of Peterborough guidelines for a Heritage Impact Assessment (Appendix A) and its approach is directed by several guiding documents from the provincial, federal and international level. These include: the Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes by the Ministry of Citizenship and Multiculturalism (MCM), O. Reg 9/06 of the Ontario Heritage Act, the Ontario Heritage Tool Kit, the Standards and Guidelines for the Conservation of Historic Places in Canada and relevant material produced by the International Council on Monuments and Sites (ICOMOS) and The International Committee for the Conservation of the Industrial Heritage (TICCIH), particularly the *Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes* (Appendix D).

3 GENERAL INFORMATION

3.1 Property Owner

GEPR Energy Canada Inc.

650 Markland Street

Markham, ON L6C 0M1

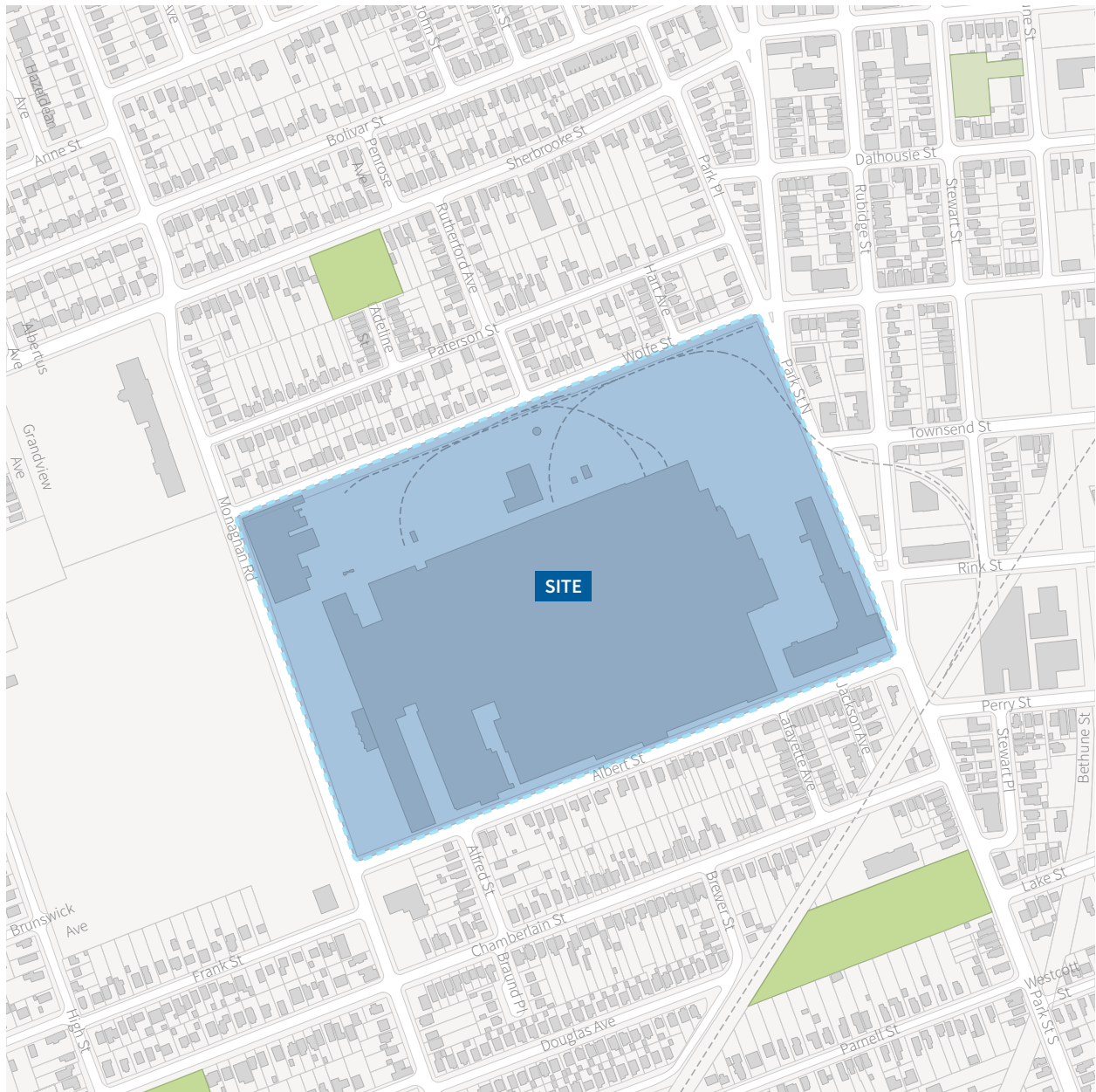
3.2 Address of the Property

107 Park Street North

Peterborough, ON K9J 3V6

4 CURRENT CONDITIONS AND INTRODUCTION TO DEVELOPMENT SITE

4.1 Location Plan



1:5,000



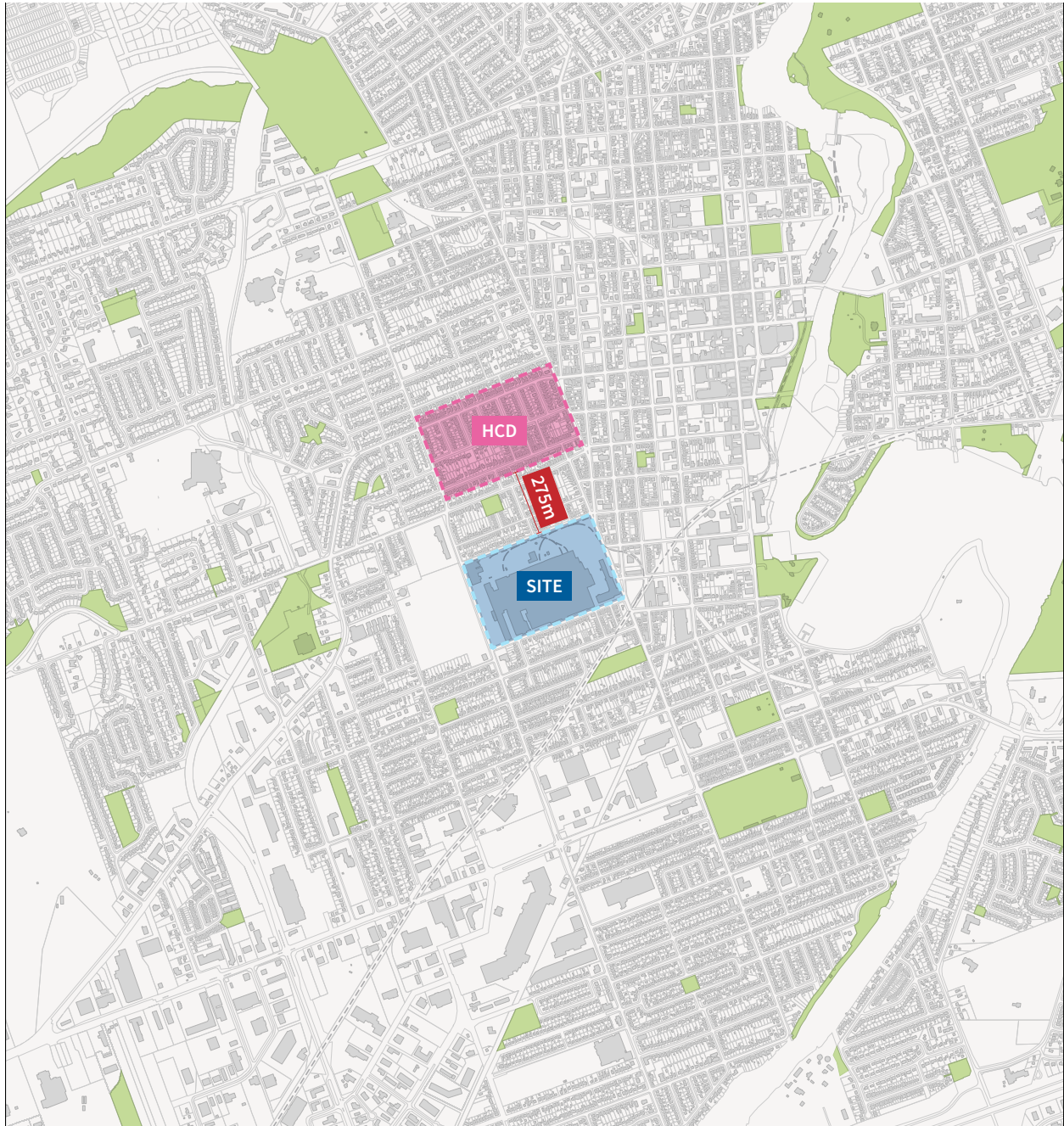
1. Property Data Map of the Site showing the GE Vernova complex, shaded in blue (City of Peterborough Open Data; annotated by ERA).



0 50 100 200 300 400 Meters
 1:5,000



2. Aerial image of the Site showing the GE Vernova complex, shaded in blue (City of Peterborough Open Data; annotated by ERA).

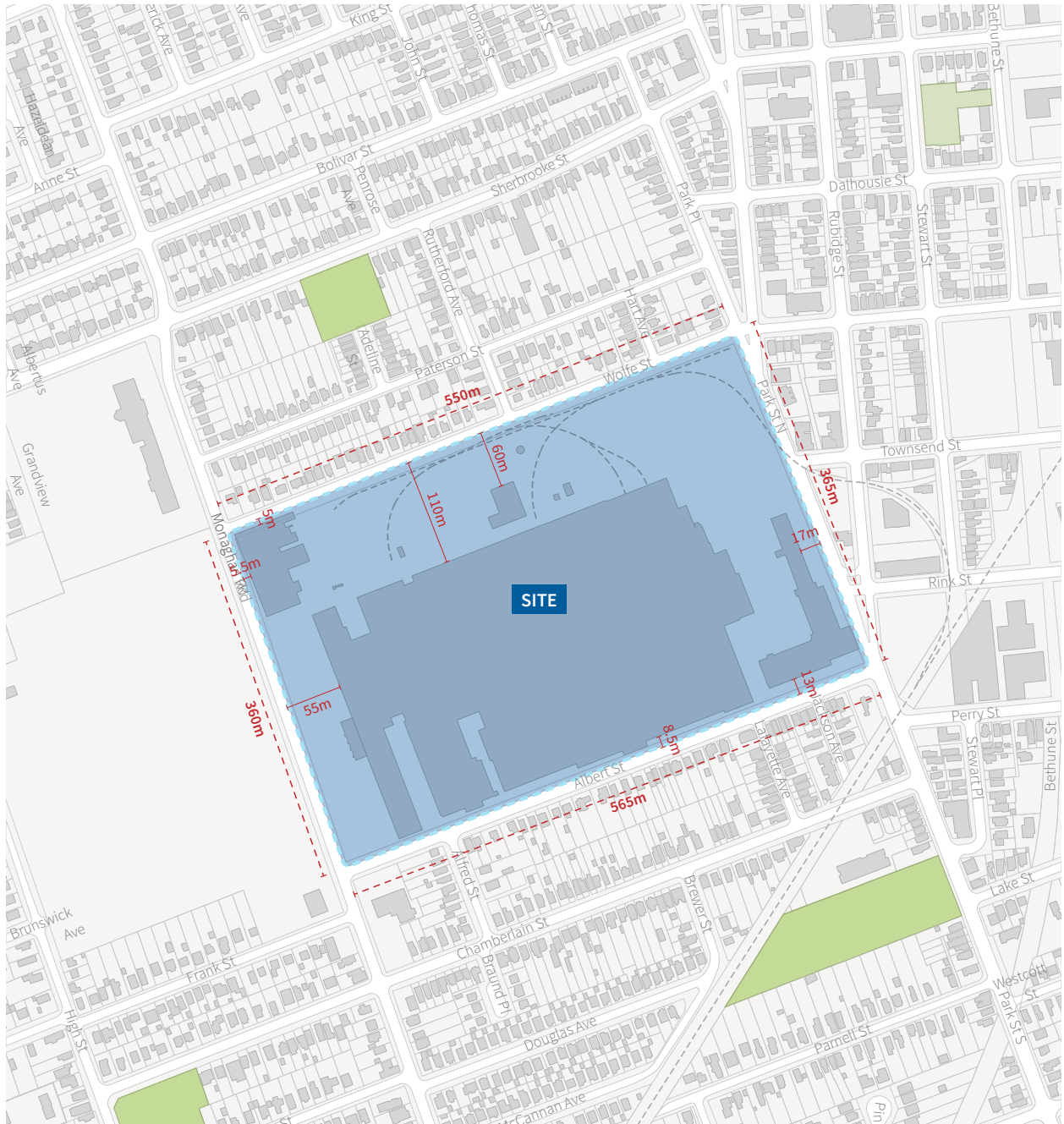


0 0.25 0.5 1 1.5 2 Kilometers



1:50,000

- Property Data Map of the Site showing the Site shaded in blue. Avenues and Neighbourhood Heritage Conservation District (HCD) shaded in red. (City of Peterborough Open Data; annotated by ERA).



0 50 100 200 300 400 Meters



1:5,000

4. Property Data Map of the Site showing the building setbacks of the GE Vernova complex, shaded in blue (City of Peterborough Open Data; annotated by ERA).

4.2 Site Context

The Site is located at 107 Park Road North in the City of Peterborough and is bordered by Wolfe Street to the north, Albert Street to the south, Monaghan Road to the west, and Park Street North to the east. The surrounding neighbourhood is of mixed use and located to the south and west of Peterborough's downtown.

The Site is approximately 50 acres in size and is currently occupied by a complex of 33 buildings, which historically were used for industrial manufacturing and ancillary purposes, and constructed between 1891 and 1981. In December 2018 General Electric ceased its manufacturing on the Site. Most of the buildings have since been decommissioned machinery and equipment have been removed. GE Vernova has maintained office space for 60 employees in the Site's East Block and leases several buildings in the West Block to BWXT. BWXT, originally part of GE Vernova's nuclear energy division, became an independent company in 2016 and now specializes in nuclear components and services for government and commercial clients.

The remaining and presently unused buildings on the Site were progressively interconnected and altered over time to support evolving industrial functions. These modifications resulted in an expansive and integrated facility, with conjoined hall spaces designed to accommodate large-scale manufacturing operations and equipment primarily located in the Centre Block on the Site. While these configurations were integral to the facility's former industrial use, they now pose considerable challenges in terms of access, circulation, and adaptive reuse.

Following the gradual winding down and eventual cessation of manufacturing activities, no new uses were identified for these buildings. As a result, these buildings were placed under a monitored maintenance program intended to safeguard their condition during vacancy; however, due to the age and conditions of the buildings and the associated costs, major capital repairs—such as roof replacements and structural upgrades—were not undertaken. Consequently, many of the unused buildings located in the Centre Block are in a deteriorated condition. Common issues include compromised structural systems (e.g., severe roof deterioration and corroded steel members), water infiltration, and material degradation.

As noted above, buildings on the Site have been constructed, altered, connected, and demolished over time to accommodate GE Vernova's evolving operations.

The existing buildings on the Site are organized numerically: 2A, 2, 6, 6B, 6D, 8, 8I, 8A, 8D, 8E, 10, 10A, 10B, 10C, 10D, 12, 12ext, 13, 13A, 14, 14 ext/A, 16, 16A, 18, 20, 20A, 21, 22, 22C, 24A, 26, 28, 30, 34, and 34A.

The complex can generally be understood as being comprised of three areas:

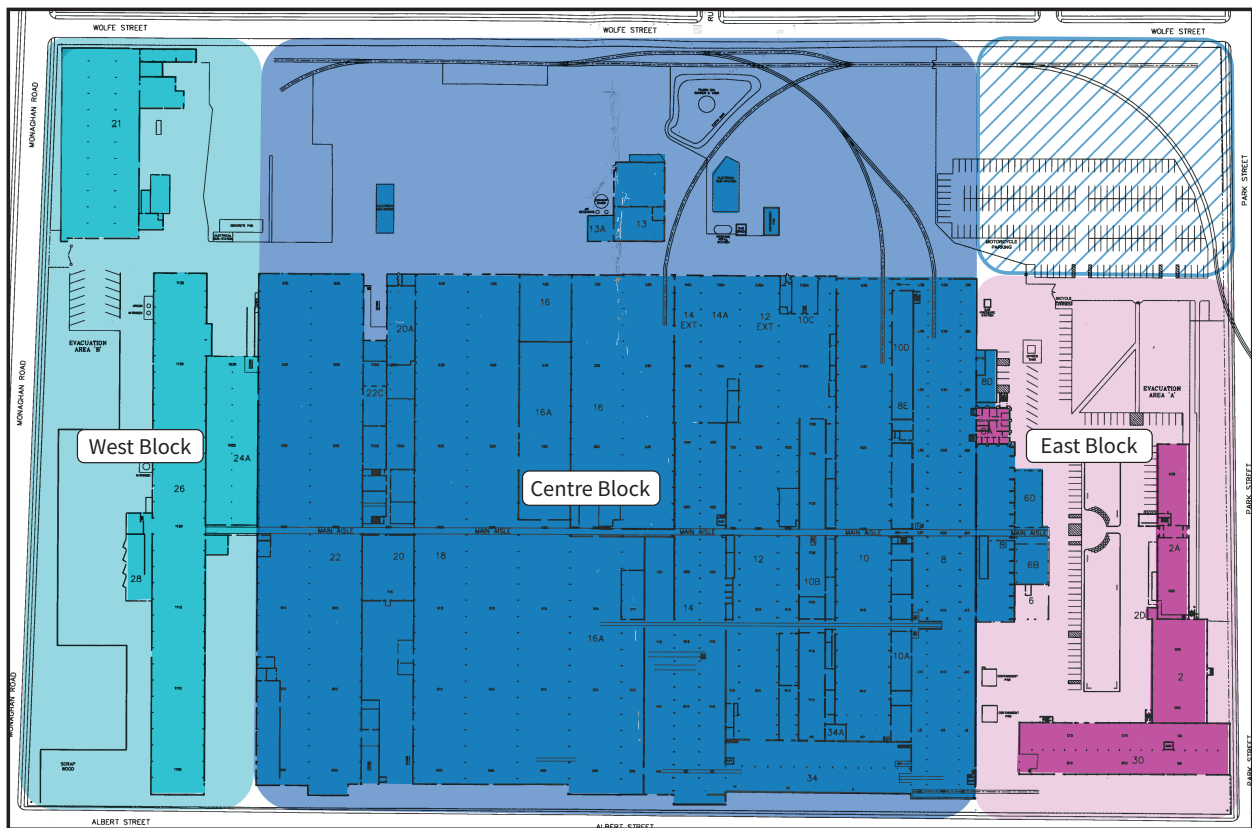
East Block: This portion of the Site contains GE Vernova's current operations in 2, 2A, and Buildings 8A and 30, which are currently not in use.

Centre Block: This portion of the Site is comprised of Buildings 6, 6B, 6D, 8, 8I, 8D, 8E, 10, 10A, 10B, 10C, 10D, 12, 12ext, 13, 13A, 14, 14ext/A, 16, 16A, 18, 20, 20A, 22, 22C, 34, and 34A, which were constructed at different times, with many of them being physically interconnected through the core of the facility. Many of these buildings are not legible from the public realm.

West Block: This portion of the Site consists of Buildings 21, 24A, 26, and 28. These buildings are currently leased to BWXT and are in current use for manufacturing purposes

The area surrounding the Site is primarily characterized by low-rise residential development, with a mix of commercial and light industrial uses located to the east. To the south, a railway line crosses Park Street North and connects directly to the Site via a series of rail spurs. These rail connections historically supported the Site's industrial operations by facilitating the transport of raw materials and finished goods.

5. Site Plan with Blocks Annotated (source: GE Vernova, ERA)



4.3 Existing Heritage Context

The Site is included as a listed property on the City of Peterborough's Heritage Register, pursuant to Section 27 of the Ontario Heritage Act. The Site is not designated under Part IV of the Ontario Heritage Act, nor is it included within the boundaries of a Heritage Conservation District (HCD), as described under Part V of the Ontario Heritage Act. The Site is not subject to any other heritage designations or easements by municipal, provincial, or federal bodies.

Listing on the Peterborough Heritage Register

The listing description on the City of Peterborough's Heritage Register is as follows:

The General Electric factory complex dates to 1891 and is an integral part of Peterborough's industrial heritage. Architecturally, the GE complex typifies late nineteenth and early-twentieth century factory design through its integration of late Victorian design features onto the exterior of its industrial spaces. The complex features work from a number of Ontario architects, including Walter Strickland, George Martel Miller, George Gouinlock, and John McIntosh Lyle.

The Peterborough Heritage Register further describes the Site's Heritage Attributes as follows:

Red brick construction; roofs; decorative brickwork; fenestration; large windows; entrances; all decorative elements; relationship of buildings to one another; relation of complex to the surrounding streets.

Heritage Adjacencies

There are no adjacent heritage properties, as defined by the City of Peterborough's Official Plan (June 2024). The closest designated heritage properties to 107 Park Street North are contained within the Avenues and Neighbourhood Heritage Conservation District, Peterborough's only Heritage Conservation District. The southern boundary of the Avenues and Neighbourhood HCD is approximately 275 metres north of the Wolfe Street property line of the Site.

Heritage Adjacencies:

Those lands contiguous to a protected heritage property or lands that are directly across from and near a protected heritage property; whose location has the potential to have an impact on a protected heritage property; or as otherwise defined in a Heritage Conservation District Plan

- *(Section 8.2) Peterborough Official Plan June, 2024*

Heritage Attributes as Noted in the Heritage Listing

Late Victorian Design Features



6. Building 8A Victorian Elements (ERA, 2024)



7. Building 30 Victorian Elements (ERA, 2024)

Red Brick Construction/Decorative Brickwork



8. Building 8A Decorative brick banding, keystone details (ERA, 2024)



9. Building 30 Decorative brick corbels and original wood windows (ERA, 2024)

Roofs



10. Gabled roof and brick corbels Building 30 (ERA, 2024)



11. Sawtooth roof Building 26 (ERA, 2023)

Fenestration



12. Building 26 fenestration (ERA, 2023)



13. Building 2 fenestration (ERA, 2023)



14. Machine-Age round windows Building 26 (ERA, 2023)



15. Wooden windows on Building 30 (ERA, 2024)

Entrances



16. Entrance Building 2 (ERA, 2023)



17. Entrance Building 2A (ERA, 2023)

Decorative Elements



18. Column capital, Building 8A (ERA, 2024)



19. Cornice, Building 8A (ERA, 2024)

Relationships of buildings to each other / complex to the surrounding streets



20. Left to Right: Buildings 2, 2A, and 30 (ERA, 2023)



21. Left to Right: Buildings 2A, and 2(ERA, 2023)

Relevant Heritage Planning Policies

Cultural heritage policies for the City of Peterborough are outlined in section 5.1 of the Official Plan, and are extracted below:

Policy 5.1.1.a *Peterborough's cultural heritage resources make a vital contribution to its unique sense of place, economic vitality and high quality of life for its residents. It is the objective of this Plan that the cultural heritage resources within the city be identified, conserved, promoted and enhanced and that development should occur in a manner which protects and complements the City's heritage.*

Policy 5.1.1.b. *The City recognizes the importance of cultural heritage resources and their contribution to fostering community identity across Peterborough, and particularly in the Central Area and other Strategic Growth Areas. Significant built heritage resources and cultural heritage landscapes will be identified and conserved so that they continue to be experienced and appreciated by residents, visitors and future generations.*

Policy 5.1.1.h. *All new development permitted by this Plan shall:*
i. Ensure the identification and protection of significant cultural heritage resources; ii. Be planned in a manner that conserves and enhances the context in which cultural heritage resources are situated; and, iii. Wherever possible, incorporate these resources into any new development plans.

Policy 5.1.1.i. *Cultural heritage resources may be identified and conserved using a variety of methods (...) including HIAs and Site Plan Approval.*

The proposed development for the Site presents an opportunity to align with and advance the City of Peterborough's heritage policy framework as outlined in the Official Plan.

- In accordance with Policy 5.1.1.a., the proposal recognizes and retains significant cultural heritage resources on the Site which illustrate the essential contributions of the Site to Peterborough's identity, economy, and livability, and seeks to integrate them meaningfully into the future redevelopment

- Consistent with Policy 5.1.1.b., the proposal acknowledges the importance of conserving built heritage and cultural landscapes, particularly given the Site's location within a Strategic Growth Area, ensuring that these significant built resources remain legible and experienced by the Peterborough community
- In accordance with Policy 5.1.1.h., the proposal will be planned to protect and enhance the Site's historical context, incorporating significant heritage elements into the new Site Plan wherever feasible
- This HIA supports the identification and conservation of cultural heritage features as part of the Site's transformation, ensuring both compliance and stewardship as the Site evolves, as required by Policy 5.1.1.i.

4.4 Current Conditions

The condition of buildings on the Site varies significantly according to their age, original construction, and historical or current use. In general, buildings that have remained in continuous use are in good condition, while those that have been decommissioned or are no longer in use are in fair to poor condition. The following section outlines the general construction methods, alterations, and current conditions of the Site's building stock.

The Site underwent multiple phases of accelerated development, most notably during the late 1930s and 1940s when the original late-19th-century Site was expanded to approximately twice its initial footprint. This period of large-scale wartime expansion integrated the original complex into a much larger industrial facility. In the Centre Block, this process of integration involved extensive overbuilding and the physical linking of once-independent structures. Over time, pragmatic alterations, including wall removals or insertions, amalgamated and mismatched roof assemblies, shared structural systems, and unsympathetic maintenance and repairs have compromised both the material fabric and the architectural legibility of these buildings.

As a result, many components of the Centre Block no longer read as distinct structures and have become physically and functionally entangled. The interdependence of structural systems, along with incompatible construction materials and detailing, presents significant challenges to any attempt to disentangle or isolate individual buildings without major intervention. These conditions have also contributed to accelerated deterioration,

particularly in unused areas, and have complicated the feasibility of selective conservation within this portion of the Site.

Structural Assessment

Barry Bryan Associates (BBA) was engaged by GE Vernova to undertake a structural assessment of the Site. Their findings are summarized below, and their report is included as Appendix B.

East Block:

BBA's report concludes that the East Block, which includes Buildings 2, 2A, 30, and 8A, is structurally in fair to good condition. Buildings 2 and 2A are partially occupied and structurally sound. Building 30 requires roof repairs, and repairs at locations of water infiltration in the basement, to provide structural remediation to support its long-term retention and reuse. Building 8A was assessed for potential isolation from the Centre Block and it was determined that Building 8A can be safely separated and reused, if restoration of its façade and roof is undertaken. Moisture infiltration and aging materials across the East Block require targeted repairs, but the buildings are generally suitable for continued or future occupancy with appropriate upgrades to meet current building codes.

West Block:

BBA's report states that the West Block, comprising Buildings 21, 24A, 26, and 28, is currently occupied by BWXT and is generally in good structural condition. These buildings feature structural steel frames and built-up brick masonry walls with concrete foundations. Roofing systems vary between steel pan decking and haydite concrete panels, and both interior and exterior walls are well maintained. Building 24A, which connects to the Centre Block, was specifically reviewed for structural isolation. BBA concluded that with appropriate reinforcement, utility relocation, and envelope restoration, Building 24A can be safely separated from the adjacent structure. Overall, the West Block is deemed suitable for continued occupancy, with ongoing maintenance and renovations as required to support its ongoing operational use.

Centre Block:

BBA's report states that the Centre Block, which includes the main interconnected manufacturing buildings 6, 6B, 6D, 8, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D, 12, 12ext, 13, 13A, 14, 14A/ext, 16, 16A, 18, 20, 20A, 22, 22C, 34 and 34A, is in poor structural con-

dition and is currently decommissioned. The buildings exhibit significant deterioration, particularly in roofing systems, where collapsed sections, active leaks, and spalling of roof decking materials (comprised of wood, haydite concrete, and gypsum concrete) were observed. Structural steel and masonry elements show signs of corrosion and damage due to prolonged moisture exposure. Safety concerns have led to restricted access in several areas, with falling debris posing hazards. The complex interconnection of buildings, lacking proper expansion joints, means that lateral and vertical support is shared across structures, making selective demolition or retention impractical. BBA notes that due to the advanced deterioration and structural interdependence of the Centre Block, demolition is the most reasonable outcome.

ERA Condition Assessment

ERA performed a visual inspection of the property on October 23, 2024. All observations were carried out from grade: roof areas were not accessible in part due to deteriorated conditions noted by BBA.. Inspections were limited to visible exterior envelope features such as the brick façade, stone door surround, sills, lintels, windows, doors, flashings and concrete foundation. Interior visual inspection was limited to accessible spaces.

Further investigations of buildings proposed for retention were later undertaken to inform a conservation scope, and that information can be found in section 7 of this report. A general summary of conditions can be found below.

East Block:

The buildings in the East Block of the Site (2, 2A, 30, and 8A) were found to be in typically good condition as they are in use and receive maintenance and repair as needed. Building 30, which is not in current use, was found to be in fair condition, with some areas that are in poor condition.

Masonry: T: The building envelopes in the East Block consist of multi-wythe built-up brick masonry systems. Masonry on buildings which are currently in use are generally in better condition, with some areas of localized deterioration, areas of visible reconstruction/repair, and minor masonry staining. Stepped cracking is evident in certain locations. The exterior elevations have decorative masonry units embedded in the construction. The brick masonry facades of some of the buildings have been covered with over cladding in some areas.

The exterior brick masonry construction on many buildings is currently in fair condition. Some areas have undergone a variety of repairs, including cement-based mortar repointing. There is evidence of efflorescence build up, carbon staining, and spalling on some areas of the exterior brick units.

Steel Framing: The structural steel superstructure of many of the buildings is original and consists of light-grade structural steel with riveted connections. There were no areas of scaling on beams despite what appears to have been a prolonged roof leak in Building 30.

Windows & Doors: Window units date from various dates of construction on the property. The glazing units are more modern aluminum on Buildings 2 and 2A. There is a wider variety of glazing types on Building 30, which include original wooden windows, 1970s and 2001 inserts. The windows in the East Block are typically in fair condition. There are some areas on the buildings which have windows and/or doors which have been boarded up, bricked in and/or converted to entrances.

Decorative Elements: Most exterior elevations of buildings in the East Block have decorative masonry features embedded in the construction, more specifically brick pilasters and corbels below the soffits. These decorative details appear to be in good condition.

Roofs: The roofs of the currently occupied buildings are in good to fair condition. The roof of Building 30 was leaking towards the western portion of the building at the time of assessment. The roof canopy of Building 30 has some damage in the leaking area. Flashings are also found to be in fair condition throughout.

Centre Block:

The Centre Block of the Site consists of a series of industrial manufacturing buildings (6, 6B, 6D, 8, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D, 12, 12ext, 13, 13A, 14, 14A/ext, 16, 16A, 18, 20, 20A, 22, 22C, 34 and 34A) which have been interconnected and built-up over time.

Foundations: Concrete foundations are evident in much of the construction. In many buildings, these concrete foundations demonstrate extensive deterioration; and reinforcing steel is exposed in many locations.



22. Deteriorating concrete base (ERA, 2023)



23. Brick deterioration (ERA, 2023)



24. Brick deterioration and unsympathetic repair(ERA, 2023)



25. Brick deterioration at intersection of buildings ERA, 2023)

Masonry: The building envelopes of most buildings on Site consist of multi-wythe built-up brick masonry systems. Stepped cracking is evident in certain locations. The exterior elevations on some of the buildings have decorative masonry units and stone features embedded in the construction. The brick masonry facades of some of the buildings have been covered with over cladding in some areas.

The exterior brick masonry construction on many buildings is currently in poor condition and has undergone a variety of unsympathetic repairs, including cement-based mortar repointing. There is evidence of efflorescence build up, carbon staining, and spalling on many of the exterior brick units. These masonry issues are indicative of larger issues within the wall systems. There are cracked and open mortar joints near roof lines, window and door openings and foundations.

Steel Framing: The structural steel superstructure of many of the buildings is original and consists of light-grade structural steel with riveted connections. There are areas of scaling on several beams where there appear to be prolonged roof leaks.

Windows & Doors: Window units date from various dates of construction on the property. Many glazing units are cracked or broken, allowing moisture ingress into the buildings, while others are in fair condition. Many buildings have windows and/or doors which have been bricked in and/or converted to entrances.

Openings/Access Points: There are areas of some buildings that are open and vulnerable to the exterior environment, allowing for water ingress and subsequent moisture damage to various internal building systems. This also allows for the infiltration of pests.

Decorative Elements: Most exterior elevations of buildings from the Victorian/Edwardian period have decorative masonry units and stone features embedded in the construction. Some of these decorative elements have sustained damage over time and/or require specialized restorative measures to repair them. The lower cornice of 8A appears in fair condition, with some metal being stained and rusting at upper projections, and paint peeling evident at lower projections and the soffit. Flashings are in various states of condition ranging from fair to failing.

Roofs: Many of the roofs are leaking or failing, and access to



27. Masonry staining (ERA, 2023)



28. Masonry staining and efflorescence (ERA, 2023)



29. Infilled windows and entrances (ERA, 2023)



26. Infilled windows (ERA, 2023)

these areas is restricted as they present a safety concern. The roofs largely consist of a roofing membrane on decking material, which varied in composition (wood decking, haydite panels, metal pan, and gypsum concrete). Many roofs appear to be sprayed with insulation with a reflective coating. The coating and insulation are deteriorated and broken down, allowing moisture infiltration into many of the buildings. There is clear indication of water infiltration, apparent from deck staining, puddles on the ground, and tarping around electrical equipment. The roof deck in many buildings is in poor condition.

Interiors (floors, walls, ceilings, structural elements): The interior walls generally consist of painted, built-up multiwythe brick masonry units. Many building interiors are not accessible or compliant with current codes. This includes issues around existing work platforms, decommissioned machinery, wooden flooring, original fire suppression systems, accessible paths of travel etc.

West Block:

The West Block of the Site includes Buildings 21, 24A, 26, and 28, all of which remain in active use by BWXT. As a result of their ongoing occupancy, these buildings have benefited from regular maintenance and repairs as needed. Overall, they are functional and in good condition.

Masonry: The masonry appears to be in good condition. The brickwork is well maintained, with only minor areas of damage or chipping. There are no visible cracks or signs of spalling at the concrete lintels, although some light staining is present. Cement parging at the wall bases also appears to be intact and in good condition.

Windows: Windows throughout the buildings appear to be functional and generally in good condition. Some partial infill has been noted. The glazing within the sawtooth roof structures was not assessed.

Window openings: The ground floor openings are mostly maintained. There are some areas where windows have been partially infilled.

Exterior doors: All appear to be functional and in good condition.

Roof: Based on condition of flashings visible and continued



30. Cracked window sill (ERA, 2023)



31. Condition of wooden floors (ERA, 2023)



32. Interior water damage to ceiling (ERA, 2023)

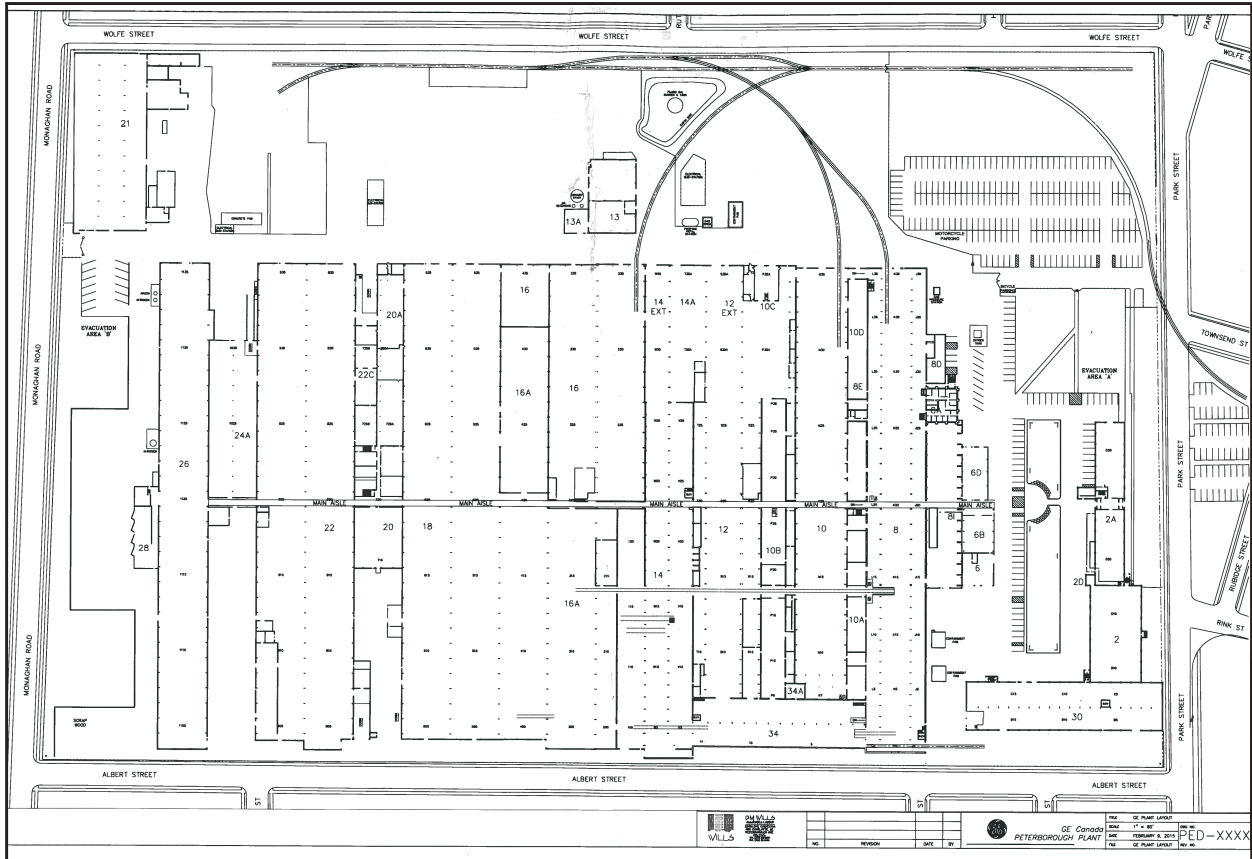


33. Area of roof leak damage, Building 30 (ERA, 2023)

use of interior space, expected to be in good condition.

Interior: Generally, the building interiors are in good condition.

4.5 Existing Site Plan



34. Site Plan (source: GE Vernova).

5 BACKGROUND RESEARCH AND ANALYSIS

5.1 Historical Context of the Site

The Site history was prepared from a non-Indigenous perspective and is based on written records. It does not reflect or represent the full, rich history of the Indigenous Peoples of this region.

The Peterborough area is situated within the traditional territory of the Michi Saagiig Anishinaabeg and continues to be home to several First Nations communities, including Hiawatha First Nation, Curve Lake First Nation, Alderville First Nation, and the Mississaugas of Scugog Island First Nation. First Nations peoples continue to live and work in the region, and cultural events, spaces, and places of significance remain integral to Peterborough's evolving cultural landscape. Evaluation of the area's heritage must recognize this continuity of Indigenous presence.

Before it became known as Peterborough, the area was called Nogojiwanong, Ojibwa for "place at the end of rapids". Peterborough is situated on territory ceded to the crown as part the 1818 Rice Lake Purchase, also known as Treaty 20, and the Williams Treaties of 1923 and 2018. The Rice Lake Treaty outlines the surrender of 1,951,000 acres of land encompassing regions including Lindsay and Peterborough, to the government of Upper Canada by the Michi- Saagiig. This was negotiated and signed on November 5, 1818, at Smith's Creek in the Township of Hope.

The Site is located within what was historically the Township of North Monaghan. This township was surveyed in 1818 following the signing of Treaty 20 (Rice Lake Purchase), which facilitated Euro-Canadian settlement in the region. By 1846, the Site had been subdivided into agricultural parcels, consistent with broader patterns of rural land use planning and colonization in Upper Canada

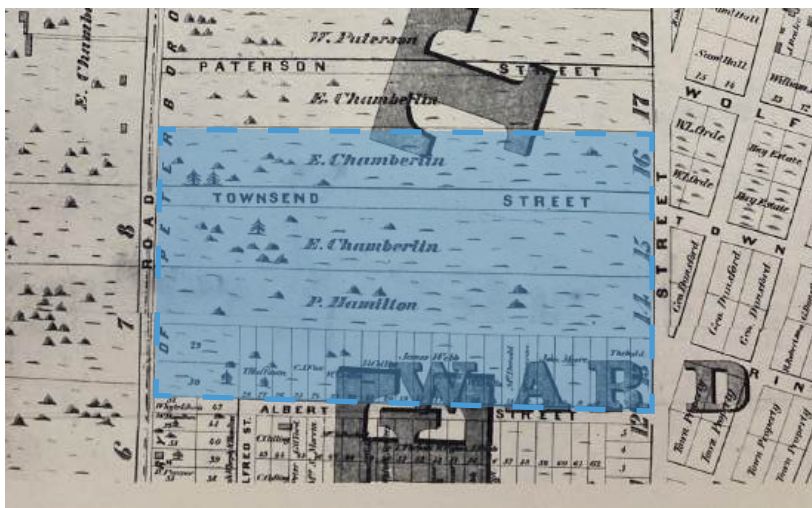
Prior to its incorporation in 1850, Peterborough formed part of North Monaghan Township. Settlement began shortly after the 1818 survey, with early arrivals, primarily of Scottish and English descent, establishing homesteads in the northern part of the township. The area became known as Scott's Plains. One of the earliest settlements was the Village of Springville, which developed basic community infrastructure, including a Presbyterian church, a hotel, a post office, and several small-scale commercial establishments serving the surrounding agricultural population.

A significant expansion of settlement occurred in 1825 under a government-assisted immigration program. Initiated by the British Parliament in 1822, the scheme aimed to relocate impoverished Irish families from North Cork to Upper Canada. The effort was led by Peter Robinson, a member of the Legislative Assembly, who was tasked with selecting families considered suitable for agricultural settlement. In recognition of Robinson's leadership, Scott's Plains was renamed Peterborough.

While the initial years of Irish settlement were marked by hardship, owing in part to limited local infrastructure, these difficulties were relatively short-lived. Productive agricultural operations were soon established, and the region attracted continued migration. Settlers arrived via established routes, including overland from Port Hope and Cavan, or via Rice Lake and the Otonabee River from Cobourg. The expansion of agriculture throughout the district served as a key driver of early development and land transformation.

By the 1840s, the area became an emerging industrial centre. In addition to agricultural production, early industries included sawmills, a tannery, three large flour mills, an extensive rake factory, and three iron foundries. The construction sector also expanded rapidly, resulting in the development of additional residential, commercial, and industrial buildings. This period marked a critical transition in land use and built form, from predominantly agrarian to increasingly urban-industrial—an important context for understanding the current built environment and the historical evolution of the Site.

In 1872, the Township of North Monaghan was annexed by the Town of Peterborough. By 1875, archival maps indicate that large



35. Atlas showing the lots before the General Electric complex. (source: Peterborough Archives, 1875)

portions of the Site were held by E. Chamberlin and P. Hamilton. The southern section of the Site, fronting Albert Street, had been subdivided into two smaller agricultural parcels and 23 residential lots, owned by individuals including John Moore, James Webb, H. Collins, C.J. Fox, and W. Griffin.

As Peterborough approached the turn of the 20th century, it experienced a period of rapid industrial growth. This expansion was driven by access to hydroelectric power, the extension of regional rail networks, and proactive municipal initiatives designed to attract industrial investment. These included the provision of tax incentives, site servicing, and the construction of rail sidings to support large-scale manufacturing.

With the expansion of the incorporated City of Peterborough southward and westward, residential suburbs began to develop on lands between Park Street and Monaghan Road, both north and south of the Site. In 1891, the land comprising the Site was formally subdivided for industrial development. Its large parcels and proximity to railway infrastructure made it a strategic location for industry. The Site also benefited from new connections to Peterborough's downtown core via a streetcar network, further reinforcing its suitability for manufacturing use. New infrastructure supported both industrial and residential development in the surrounding area, while additional manufacturing and service facilities took advantage of the rail access nearby.

In the early phases of its development, the Site was bounded by Townsend Street to the north, Park Street to the east, Albert Street to the south, and Monaghan Road to the west. Over time, the segment of Townsend Street between Park and Monaghan was subsumed within the growing complex, and its northern boundary extended to Wolfe Street. By the late 1920s, the area between Park Street and Monaghan Road had been largely developed. Aerial photographs from 1929 show that the streets immediately north and south of the Site (Wolfe Street and Albert Street) had been mostly built out with detached residential dwellings. To this day, the surrounding neighbourhood retains a primarily residential character.

History of Development on the Site

As noted, the buildings on the Site have evolved over time to serve the needs of GE Vernova’s changing operations. As industrial production and consumer demands changed, operational functions of the buildings were assigned, reassigned and updated, which is reflected in the demolitions and phases of new construction which occurred on the Site. The distinct periods of development on the Site have been typologically categorized as:

- Late Victorian + Edwardian (1891-1914)
- World War 1 + Interwar (1914-1938)
- World War 2 (1939-1945)
- Postwar + Modern (1946-1973)
- Late 20th Century + Early 21st Century (1974-Present)



36. Aerial image of the Site showing the GE Vernova complex, showing existing buildings in blue (City of Peterborough Open Data; annotated by ERA).

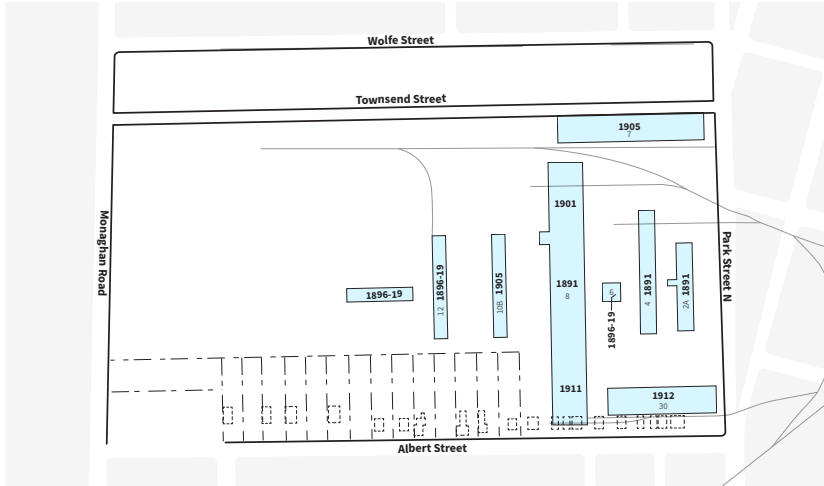
Late Victorian + Edwardian (1891-1914)

The company first established itself in Canada in 1882 as the Edison Electric Light Company of Canada, opening its initial Canadian operations in Hamilton and Montreal, and later expanding to Sherbrooke, Quebec. By 1889, the company had been renamed the Edison General Electric Company and was manufacturing motors, industrial lighting, and power systems which produced components to illuminate street lighting in cities across Canada.

In 1890, the company began searching for a new site to consolidate many of its Canadian operations and to accommodate future growth. Peterborough emerged as a strategic choice, and in 1891 the company expanded into the city under the name Canadian Works of the Thomas Edison General Electric Company.

Initial industrial development of the Site included the construction of three early buildings at its eastern end: Buildings 2A, 4, and a portion of Building 8. These supported the facility’s key manufacturing operations at the time, including the production of electrical wire, lamps, and motors. Building 2A housed the wire and lamp departments; Building 4 functioned as a car shop, compound shop, and brass foundry; and the southern portion of Building 8 accommodated machining and assembly.

The company continued to grow and was renamed the Peterborough Works of the Canadian General Electric Company Limited (CGE) in 1892. Expansion of the Site continued into the early 20th century, with the addition of the northern portion of Building 8 in 1901 and the construction of Building 7 for armature production. Building 8A was built in 1907 to serve as the plant’s central office, and Building 30 was constructed in 1912 to house the shipping department.



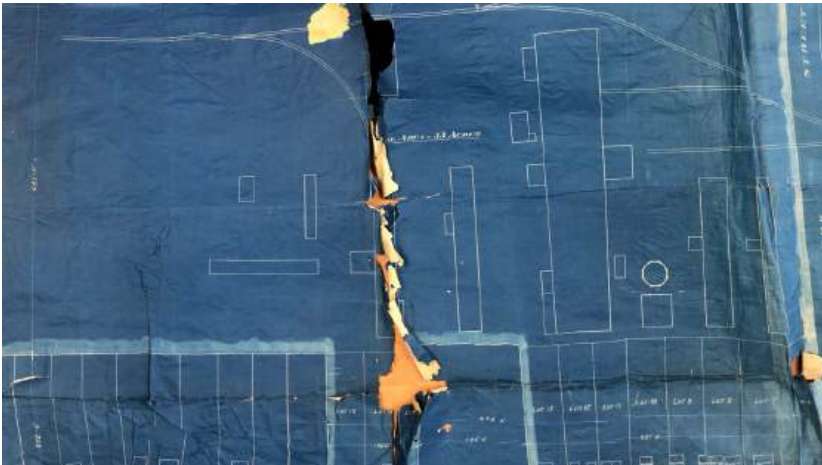
Legend
 ● Late Victorian + Edwardian (1891-1914)
 37. Late Victorian + Edwardian (1891-1914) (Source: ERA Architects)

To support the efficient movement of materials and products, railway spurs were introduced into the northern portion of the Site, connecting with several buildings, including the northern section of Building 8. These rail connections evolved alongside the plant and facilitated its continued expansion. The network also linked the Site to adjacent neighbourhoods and broader commercial trade routes.

During this early period of development, it is understood that several prominent Canadian architects contributed to the design and expansion of the Site. Historical records, including advertisements placed in Contract Record (a construction industry publication), indicate that the architectural firms of Walter Strickland (1841–1915), George Wallace Gouinlock (1861–1932), and George Martel Miller (1855–1933) were involved in sourcing contractors for projects on the Site. While there is evidence that they contributed buildings to the Site, no records have been located which confirms building details.

Buildings dating from this formative period that remain include: 2A (1891), 8 (1891-1911), 8A (1907), 30 (1912). Other early structures, such as Buildings 4, 4A, 4C, and 7, have been demolished over time.

Buildings on the Site from this period are characterized by their red brick construction, decorative brickwork, ornate brick window and entrance surrounds, and large windows. The spatial relationship of Buildings 2, 2A, 30, and 8A as a grouping at the east end of the property, and their orientation towards Park Street North and Albert Street, contribute to a prominent and cohesive architectural presence, especially at the southeast corner of the Site.



38. Blue Print of GE Vernova Site (Source: GE Vernova, 1907)

World War 1 + Interwar Period (1914-1938)

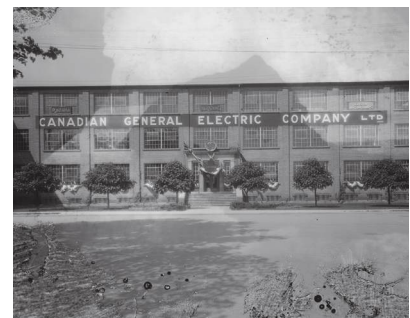
At the outbreak of the First World War, operations on the Site were significantly affected by order cancellations and supply chain disruptions. In response, production pivoted to support the war effort, with a focus on munitions and military equipment. Construction on the Site resumed during this period, and by 1915, buildings had been completed to accommodate manufacturing ovens, an armature department, and a punch press. In 1916, Building 8A was expanded vertically with the addition of two floors.

By 1917, dozens of Canadian companies were engaged in war-related manufacturing, and the period was marked by rapid technological innovation. The Site was well positioned to contribute to this national industrial effort. However, the workforce was strained by voluntary enlistment and conscription, which created ongoing labour shortages. To help meet production demands, women were actively recruited and played a vital role in the continued expansion of manufacturing on the Site.

Following the end of the First World War in 1918, the Site entered a new phase of growth to accommodate both increased domestic production and the reintegration of returning soldiers into the workforce. This period coincided with the broader societal and industrial shift into the “electric age,” and the Site expanded accordingly. Several new buildings were constructed in 1920, including Buildings 34 and 34A for motor assembly, and Building 10A for tool storage. By 1924, the northern portion of the Site underwent significant expansion to meet growing manufacturing and shipping needs. This work involved the integration of



40. Employees (Source: Peterborough Archives, 1928)



41. Exterior of Building 2A (Source: Peterborough Archives, 1929)



Legend

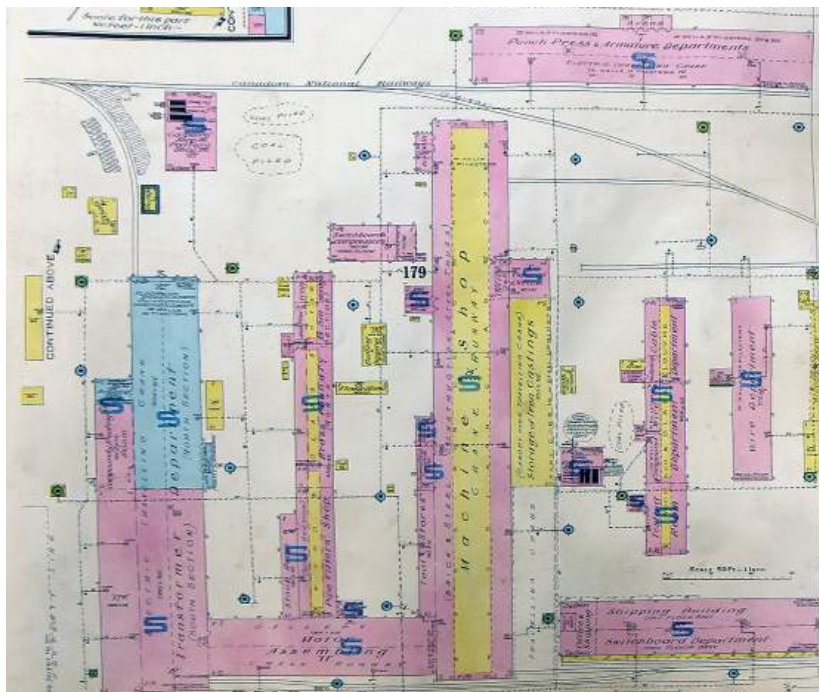
- Late Victorian + Edwardian (1891-1914)
- World War One + Interwar (1914-1938)

42. WW1 + Interwar (1914-1938)
(Source: ERA Architects)

multiple storage buildings and the further extension of the Site's rail infrastructure, strengthening its internal connectivity and links to broader distribution networks. Most of these buildings have been removed over time.

Following this period of growth, little new construction occurred, and the onset of the Great Depression brought a general economic downturn. While work hours and shift availability were reduced, some construction continued. This included a powerhouse in Building 13, and Building 16 for assembly, punch pressing, and structural steel work.

Between 1931 and 1939, investment in the Site slowed significantly, though limited construction activity persisted. During this time, Buildings 10C, 10B, and 15 were completed. Additionally, many plant workers were seconded to assist in the construction of municipal buildings and community amenities. Notably, workers contributed to the development of the Kawarthas Golf and Country Club, which maintained an affiliation with GE Vernova until 1983. Remaining buildings from this period include Buildings 2, 8, 10A, 10B, 10C, 12 (Centre), 12 (South), 13, 13A, and 14. Several buildings from this period have since been demolished, including Building 4B (constructed in 1921 as the southern section of Building 4) Buildings 7, 11, and 24.



43. Fire Map of GE Vernova Site (Source: Peterborough Archives, 1929).

World War 2 (1939-1945)

With the outbreak of the Second World War, the General Electric Peterborough Works was identified as a key location for the manufacturing of wartime materials. The facility was already producing a range of products with military applications, and its capacity made it well suited to support the national war effort. During this time, Genelco, a secondary plant on the Site, was constructed. Operated by CGE, but owned by the Crown, Genelco played a critical role in wartime production.

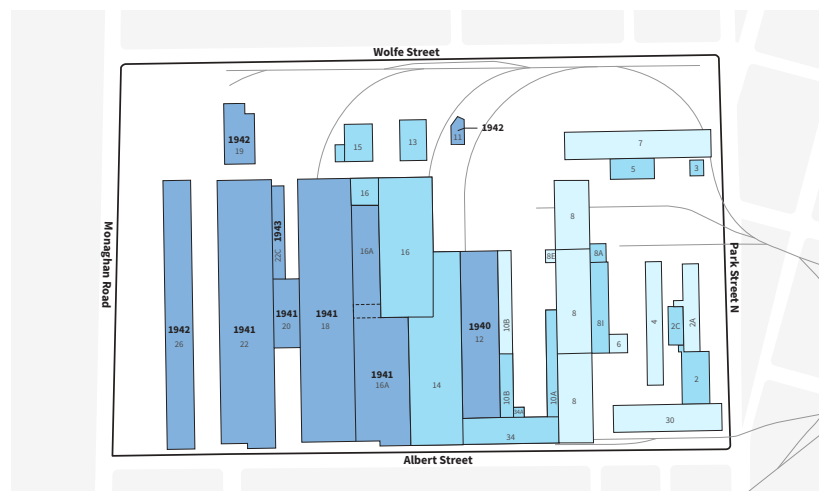
Wartime contracts ushered in a period of significant growth for CGE, both in workload and workforce. It was reported that the plant's workforce had doubled. To meet the demands of the conflict, the Works nearly doubled its floor area, expanding rapidly westward toward Monaghan Road during the winter of 1940–1941.

In addition to continuing traditional manufacturing, the Site began producing anti-tank weaponry, machine guns, signals, anti-aircraft weapons, searchlights, wire and cable, aircraft instruments, and landing gear. Labour shortages posed ongoing challenges for both Genelco and CGE. Many able-bodied men enlisted and were deployed overseas. In their absence, women entered the workforce in unprecedented numbers, marking a profound social shift. Women filled vital roles as inspectors, welders, heavy machine operators, and assembly line workers—making a critical contribution to the war effort and to the expansion of manufacturing on the Site.

The expansion during the war years marked a turning point for



44. Wartime Manufacturing (Source: Peterborough Archives, 1942)



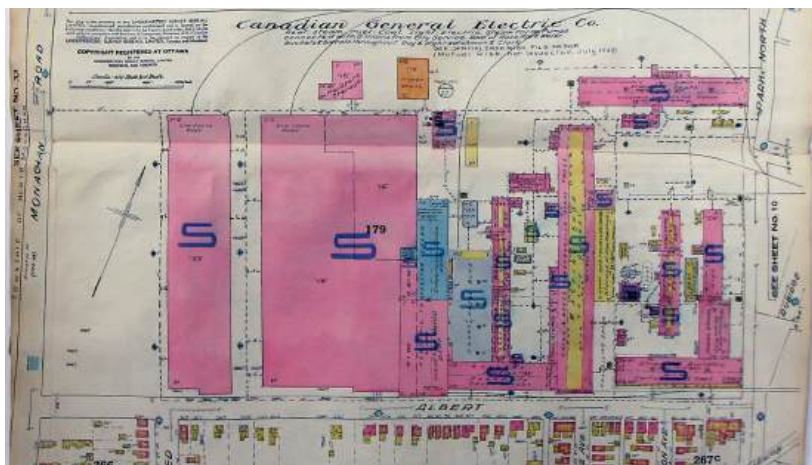
the Site. Postwar, the surge in production continued, driven by the growing demand for a wide range of electrical goods. With rapid advancements in domestic and industrial electrification, markets for electrical appliances, industrial motors, generators, and transportation equipment expanded significantly. The plant manufactured everything from electrical wire and large rotating machinery to household refrigerators.

Buildings constructed between 1939 and 1945 are generally less architecturally ornate than their Victorian and Edwardian predecessors, which is reflective of the economic constraints imposed by two world wars and the Great Depression.

The architect John McIntosh Lyle is credited in the Biographical Dictionary of Architects in Canada ("BDAC") with designing "additions to [a] factory" in Peterborough in 1940 and 1941. However, the specific buildings to which this refers have not been identified.

Many surviving structures from this period have been substantially altered over time to accommodate changing industrial requirements. While red brick construction and large industrial windows remain common, other defining architectural elements include Art Moderne and Machine Age features, such as round windows and saw-tooth roof lines, which are characteristic of the period's industrial design vocabulary.

A number of buildings were constructed during this period to accommodate growing production needs. Remaining buildings from this period include Buildings 16A and 18, and 20 (1941), 22 (1942) 26 (1942), 22C (1943), 13A (1944), and additions to Building 20 (1945), which are now conjoined and read as one structure within the Centre Block. Buildings from this period which have been demolished include Buildings 11 and 19.



46. Fire Map of GE Vernova (Source: Peterborough Archives, 1943).

Postwar + Modern (1946-1973)

Following the Second World War, CGE experienced a period of continued prosperity and technological advancement. With expanded hydroelectric capabilities, CGE was well-positioned to capitalize on the growing demand for hydro generators and steam turbines, while maintaining its leadership in the production of electric motors in a wide range of sizes and functions. During this period, Peterborough became a national leader in electric motor technology and production.

The company also expanded its work in the development of integrated power systems and services. This included the manufacture of relays, capacitors, switchgear, circuit breakers, and other control technologies critical to the evolving energy sector.

By the 1950s, nuclear power had become central to global discussions surrounding both energy generation and national defense. With Canada home to some of the world's largest uranium deposits, there was significant national interest in developing nuclear technology for peaceful energy purposes.

CGE created its Atomic Power Department in 1955. The department made significant and lasting contributions to the design, manufacturing, testing, and commissioning of nuclear power equipment for reactors in Ontario, Manitoba, Quebec, and New Brunswick. CGE was selected as the prime contractor for the first Nuclear Power Demonstration plant in 1955. They partnered with Atomic Energy of Canada Ltd and Ontario Hydro (now the Ontario Power Generation) in the design and commissioning of the 20MW reactor that became the basis for the entire CANDU fleet.



As the company's focus shifted away from hydroelectricity in the 1970s, CGE redirected resources toward modernization, investing in digital and analog computer systems for in-house design development and product optimization. However, by the mid-1970s, the cost of upgrading aging machinery and infrastructure increasingly posed challenges for the feasibility of daily operations.

Buildings from this period conform to modern industrial design principles, including clean, parallel lines, and simple fenestration using right angles. Over this postwar period, ten new buildings and additions were constructed on the Site, the majority during the 1950s and 1970s.

Many of these structures were purpose-built to support specific manufacturing processes and have since been demolished as those processes became obsolete or production was discontinued. Nevertheless, the buildings from this era reflect GE Vernova's postwar industrial strength and its role in Canada's emergence as a global leader in electrical and nuclear power innovation. Part of Building 24 was been removed, as well as Buildings 3 and 5A. The remaining buildings from this period are 6B, 6D, 8E, 10, 10D, 12N, 14 EXT/14A, 20A, 21, and 24A.

Arthur Hunter Eadie and John Jackson Beck are known to have designed several buildings for General Electric plants, including factory buildings in Peterborough, Oakville, and Barrie. They are attributed as having designed buildings on the Site between 1944 and 1947, including the designs for Building 26.

Late 20th Century + Early 21st Century (1974-Present)

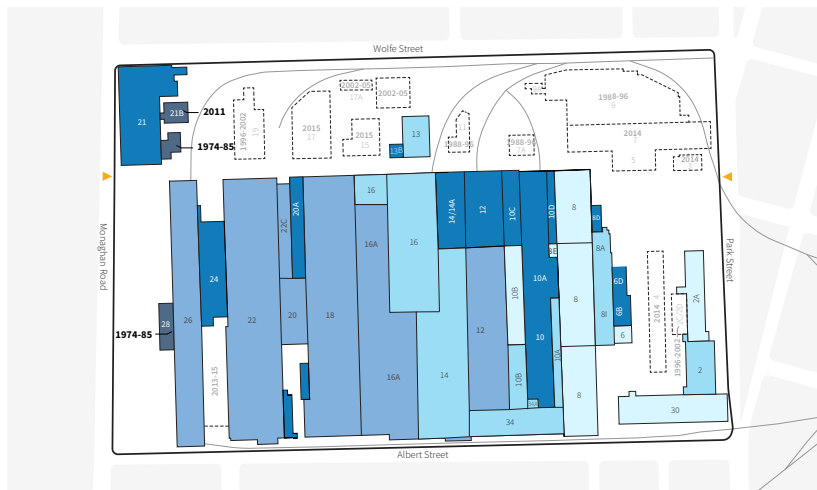
Following the 1970s, operations at the Site began to slow incrementally. During the 1980s and 1990s, CGE underwent several rounds of downsizing, reflecting broader shifts in Canadian manufacturing practices. The demand for in-house engineers and machinists declined, and the business model transitioned toward assembly-based production, relying increasingly on components manufactured off-site. This period was characterized by a reduction in operations and manufacturing output, and by the deconstruction of buildings rather than the construction of new facilities.

In the early 2000s, the predecessor to GE Vernova initiated further downsizing and consolidation of operations. Redundant buildings were removed, including Buildings 9, 11, and 19. In

the 2010s, the complex underwent a significant retrofitting effort aimed at enhancing its competitiveness in international manufacturing markets. This initiative led to the demolition of Buildings 3, 4, 5, 7, 15, 17 and 24.

Some efforts were made to commemorate buildings that were demolished during this period. Notably, in 2015, photographer Wayne Eardley conducted a photo-documentation project of the deconstruction, and the footprint of Building 4 was marked within the landscape to acknowledge its historical presence.

Today, manufacturing operations are concentrated on the western portion of the Site, which is leased from GE Vernova by BWXT. In 2016, GE Vernova sold its nuclear division to BWXT, which has been operating in Peterborough since 2015. BWXT currently produces nuclear fuel bundles and employs approximately 300 people at the Site.



- Legend
- Late Victorian + Edwardian (1891-1914)
 - World War One + Interwar (1914-1938)
 - World War Two (1939-1945)
 - Postwar + Modern (1946-1973)
 - Demolished
48. Late 20th Century + Early 21st Century (1974-Present) (Source: ERA Architects)

6 STATEMENT OF SIGNIFICANCE

Description of the Property

The property at 107 Park Road North ("the Site") is located in the City of Peterborough and is bordered by Wolfe Street to the north, Albert Street to the south, Monaghan Road to the west, and Park Street North to the east. The surrounding neighbourhood is largely residential and located to the east of Peterborough's downtown. The Site is an industrial site first developed and occupied by Canadian General Electric (now GE Vernova) in 1891. Manufacturing took place on most of the Site between 1891-2018 and is now limited to the West Block of the Site. Development on the Site reflects four distinct periods:

- Late Victorian + Edwardian (1891-1914)
- World War 1 + Interwar (1914-1938)
- World War 2 (1939-1945)
- Postwar + Modern (1946-1973)

No significant development occurred on the Site during the Late 20th Century + Early 21st Century period (1974-Present). This period was marked by deconstruction and a winding down of manufacturing activities by GE Vernova.

Design or Physical Value

The Site has design and physical value as it embodies multiple phases of industrial architecture spanning from 1891 to the early 1970s. The complex includes buildings from the Victorian and Edwardian periods that demonstrate a high degree of craftsmanship and design merit, particularly in their masonry, fenestration, and structural detailing. These early buildings were designed to accommodate both administrative functions and large-scale industrial production. Representative buildings of the Victorian and Edwardian periods include Buildings 2, 2A, 8A, and 30.

The Site also contains representative examples 20th-century industrial architecture, illustrating the evolution of industrial design and construction technologies over nearly a century. The scale, massing, and construction methods employed reflect the needs of successive periods of heavy manufacturing, while retaining integrity of form and function across building eras.

Historical or Associative Value

The Site holds significant historical and associative value due to its role in advancing major industrial, scientific, and technological achievements and is closely associated with General Electric and its predecessors Canadian General Electric and General Electric Company of Canada. The Site played a key role in the widespread application of electricity and contributed to the development of public transit infrastructure (including trains and streetcars), military munitions and artillery, small motors, and large-scale power generation.

The Site has historical and associative value for its long-standing role in Peterborough's industrial development. It is associated with significant periods of industrial production, including World War I, World War II, and the postwar industrial boom. The Site reflects broader patterns of urban and economic growth in the city and contains remnants of industrial activity such as rail spurs, manufacturing equipment mounts, and artifacts, which reinforce its working history.

Its evolution from an early manufacturing hub to a modern industrial facility reflects broader economic transitions and contributes to the understanding of Peterborough's industrial heritage and workforce history.

The Site was also central to Canada's nuclear research history through partnerships with Ontario Hydro and Atomic Energy of Canada, supporting the development of the CANDU reactor technology. During World War II, the complex expanded to accommodate arms manufacturing under Genelco, a Crown corporation. This era marked a significant social shift with the entry of Canadian women into industrial manufacturing roles, including at the Site. As a major employer for more than a century, the Site has deep community associations within Peterborough. Known as a cornerstone of Peterborough's economic and social life, it contributed to the city's identity as "The Electric City." The plant fostered strong community ties and inter-generational employment, with many local families connected to the Site through work or familial legacy.

Sources attribute the involvement of prominent Canadian architects and architectural firms in the development of the Site, including Walter Strickland, George Wallace Gouinlock, John M. Lyle, J. Jackson Beck, and Arthur H. Eadie. No specific buildings have been directly attributed to these architects and may have been demolished or altered over time.

Contextual Value

The Site holds contextual value as a defining feature of its surrounding neighbourhood. The scale and layout of the Site have shaped the surrounding street grid and land use patterns and the built form of the Site, and its surrounding neighbourhood reflect over a century of industrial and residential co-development.

The layout of the East and West Blocks, with various materials, scale, and setbacks, reflects historic patterns of factory planning and includes significant built heritage resources which are understood as representative of the distinct periods in the evolution of the Site.

The Site, and the collection of buildings to be retained in the East and West Block, are a tangible reminder of Peterborough's identity as a manufacturing centre, and their visibility, massing, and continuity of use contribute to the area's industrial character.

Heritage Attributes

The cultural heritage value of the Site is expressed through the following heritage attributes, which reflect significant periods of industrial development on the Site and contribute to its overall historical, architectural, and contextual significance:

Late Victorian + Edwardian Industrial Period (1891–1913)

- Red brick construction of Buildings 2A, 8A, and 30, characteristic of early industrial building materials and techniques
- Decorative brickwork on Buildings 2A, 8A, and 30, including corbelling and patterned detailing
- All decorative architectural elements on Building 8A, including ornamental masonry and cornice treatment
- Large, segmental-arched and flat-headed industrial window openings on Buildings 2A, 8A, and 30
- The form and massing of Buildings 2A, 8A, and 30, including their low-rise height, footprints, and rooflines
- The main entrance of Building 2A, including its original opening size and detailing
- Surviving rail spurs on the Site, representing historical industrial transportation infrastructure
- The spatial relationship and alignment of buildings in the East Block of the Site, indicative of the site's original industrial layout
- Surviving industrial artifacts and equipment that reflect the Site's early manufacturing use
- The existing green space at the east and north of Building 2A
- The landscaped footprint of deconstructed Building 4

World War 1 + Interwar Period (1914-1938)

- Red brick construction of Building 2, continuing the material tradition of earlier industrial phases
- Decorative brickwork on Building 2, including coursing and lintel detailing
- Large industrial window openings on Building 2, consistent with early 20th-century daylight factory design

World War II Period (1939–1945)

- Red brick construction of Building 26, representing mid-century industrial materials and wartime construction
- Large steel-framed windows on Building 26, designed for interior daylighting and ventilation
- Distinctive round window openings on Building 26, uncommon in earlier phases and indicative of evolving industrial design
- Sawtooth roof profile of Building 26, characteristic of WWII-era factory design
- Industrial artifacts, fixtures, or remnants associated with wartime production

Postwar + Modern Industrial Period (1946–1973)

- Red brick construction of Building 21, with variations reflecting the postwar industrial aesthetic
- The form and massing of Building 21, including its two-storey scale, flat roof, and long horizontal profile
- Large, steel-framed rectangular windows of Building 21, including the continuous rows of original rectangular ground-floor windows and smaller square second-storey windows
- The spatial relationship between buildings in the West Block of the Site, reflecting expansion and modernization of industrial operations
- Surviving artifacts, equipment bases, and fittings that reflect the continuity of industrial use on the property
- The Site's long-standing continuity as a site of manufacturing and industry from the late 19th century through the 20th century

7 DESCRIPTION OF THE PROPOSAL FOR THE SITE

The following section describes the proposal for the Site. It elaborates on how the proposed retention, deconstruction, repair, and mothballing of buildings balance GE Vernova's mandate to maintain a safe, secure, and environmentally sustainable Site, while allowing flexibility for future uses and ensuring the conservation of the Site's cultural heritage values. In implementing the proposal, GE Vernova seeks to:

- Maintain current operations (for both GE Vernova and BWXT) and provide flexibility for future uses on the Site
- Provide stormwater management which meets the standards of the Ministry of Environment Conservation and Parks and the City of Peterborough
- Ensure safety and security on the Site through a boundary treatment to secure the perimeter
- Reduce greenhouse gas emissions on the Site
- Support long-term environmental management activities on the Site
- Undertake work on the Site in a manner which respects the surrounding community and the broader City of Peterborough

All proposed activities will be undertaken in accordance with the *Standards and Guidelines for the Conservation of Historic Places in Canada*, particularly those related to demolition (*Standard 1, 3, 10*), materials conservation, and interpretation and commemoration (*Guideline 6.5.2, Interpretive Programs*). The approach prioritizes the protection of heritage attributes, and the respectful treatment of the site's cultural heritage value

7.1 Deconstruction of Buildings

The proposal involves the full deconstruction and removal of a group of vacant buildings on the Site to ensure Site safety and to facilitate future site planning and operations.

The buildings proposed for removal are located in the Centre Block and identified as: 6, 6B, 6D, 8, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D, 12, 12ext, 13, 13A, 14, 14A, 16, 16A, 18, 20, 20A, 22, 22C, and 34¹.

¹ In February 2020 the Council of the City of Peterborough approved a request for a permit to demolish the chimney stack associated with Building 13. The permit was the subject of a report by City Heritage Staff which

Where buildings proposed for removal are physically connected or structurally adjoined to heritage buildings slated for retention, including Buildings 8A and 24A, deconstruction activities will be planned and executed in accordance with the *Standards and Guidelines for the Conservation of Historic Places in Canada*, particularly the standards for *Preservation* and *Rehabilitation*. Care will be taken to ensure that the heritage value of adjacent retained structures is not compromised during the process. Protective measures and construction management protocols will be implemented to mitigate risks such as vibration damage, water infiltration, or structural destabilization, consistently with best practices for ensuring minimal intervention and the protection of character-defining elements during adjacent work.

The condition and structural entanglements of buildings proposed for removal have been reviewed to inform this approach. Where appropriate, temporary stabilization of shared walls or roof systems may be undertaken to ensure the long-term integrity of retained structures. Select building components and materials of interpretive or contextual value will be identified, documented, and salvaged for potential reuse or incorporation into a site-wide interpretation strategy. Means and methods for the deconstruction activities will be fully described in a forthcoming Conservation Plan, in consultation with the City of Peterborough.

7.2 Building Retention

Several significant buildings on the Site will be retained including Buildings 2, 2A, 8A, 21, 24A, 26, 28, and 30. These buildings are located within the East and West Blocks of the Site and reflect distinct construction periods and architectural value which contribute to the understanding of the property's overall heritage significance.

Buildings 2, 2A, 21, 24A, 26, and 28 are currently in active use and will remain occupied throughout the retention and conservation process. The ongoing use of these buildings supports *Standard 14* of the *Standards and Guidelines for the Conservation of Historic Places in Canada*, which encourages the continued or new use of a historic place that requires minimal change to its character-defining elements. Conservation interventions in these buildings to be undertaken over time will focus on repair and stabilization of original materials, with any alterations being minimal, reversible

recommended approval of the demolition permit in part because the chimney stack had been a later addition to the Site and was deemed not to hold heritage value. Reference: https://www.thepeterboroughexaminer.com/news/peterborough-region/general-electric-smokestack-demolition-approved-by-city-council/article_2f6a9bc6-a3b4-58fd-b906-fcf0de7ed209.html

where feasible, and clearly distinguishable from the historic fabric, as outlined in *Standards 9 and 10*.

Buildings 8A and 30, which are currently unoccupied, will be retained and mothballed pending the identification of appropriate future uses. In accordance with *Standard 7*, the mothballing strategy will include measures to protect the buildings from further deterioration. These include securing building envelopes, ensuring adequate ventilation, and monitoring. Restoration work, which will be undertaken over time, will prioritize the preservation and repair of original materials and assemblies using recognized conservation methods. Where replacement is unavoidable due to existing material failure, new elements will be physically and visually compatible with the originals, and documented accordingly, in keeping with the *Standards and Guidelines* direction for *Materials and Exterior Form*.

The conservation approach proposed to be undertaken on the Site for the retained buildings is guided by the retention of character-defining elements, as outlined within the *Standards and Guidelines*. All work will respect the historic integrity of the retained buildings, ensuring their long-term conservation and adaptability for future use, and reinforcing their contribution to the heritage value of the Site as a whole. A detailed scope of work and long-term maintenance plan will be provided in the forthcoming Conservation Plan, in consultation with the City of Peterborough.

7.3 Conservation of Buildings which are Currently in Use

Buildings 2, 2A, 21, 24A, 26, and 28 are currently in use and will be retained. Buildings 2 and 2A are occupied by GE Vernova and will be restored and rehabilitated over time and in response to the on-going occupancy in those buildings. All interventions will respect the heritage character and integrity of the buildings. Restoration and rehabilitation activities will focus on preserving significant heritage attributes while accommodating necessary upgrades to maintain their functionality and sustainability. Specific details are outlined below, and timing for the conservation work will be further developed and described in a forthcoming Conservation Plan.

Building 2

This 3.5-storey building features a symmetrical design centered

Conservation:

All actions or processes that are aimed at safeguarding the character defining elements of a cultural resource so as to retain its heritage value and extend its physical life. This may involve “Preservation,” “Rehabilitation,” “Restoration,” or a combination of these actions or processes.

on a main entrance, constructed in common bond red brick with large windows and a simple portico above the primary door. The roof is distinctive, incorporating clerestory elements that represent the Victorian + Edwardian industrial typology. The main entrance is approached by a set of stairs leading to a door framed by a plain surround, unadorned pilasters, and sidelights. The following conservation activities are recommended:

Masonry: The brickwork is generally in good condition; however, the stone surround at the entrance requires repair. Grilles below windows should be infilled where necessary.

Window Openings: On the courtyard side, window openings will be reinstated, where possible, and windows will be replaced. Some sills may require replacement, pending condition beneath existing metal flashing.

Windows: Consider replacement of windows throughout the building to improve performance and appearance.

Security Grilles: Repaint the security grilles on basement windows to protect the metal and extend their lifespan.

Building 2A

Part of the original industrial complex, this two-storey building also displays a symmetrical design centered on its main entrance. It features a gabled roof with decorative brick corbeling along the roof line. Constructed in common bond red brick, the building is distinguished by its large segmental-arched windows.

In recognition of its preserved architectural character, Building 2A received a letter of commendation from the Peterborough Architectural Conservation Advisory Committee in 1981.

The following conservation activities are recommended for both Buildings 2 and 2A:

Masonry: Clean areas of efflorescence and repoint the stone base. Remove any pipes, wires, or fixtures affixed directly to the brick to protect the masonry fabric.

Window Openings: Where possible, reopen window openings



49. Building 2 East Elevation (Google, 2018)



50. Building 2A East Elevation (ERA, 2023)



51. Building 2 North Elevation (ERA, 2023)

on the courtyard side adjacent to Building 2 and in the projecting courtyard section. Window sills may need replacement based on their condition under the existing metal flashing.

Windows: Assess and replace windows throughout to match the building’s historical style and improve overall performance.

Entrances: Reopen the main entrances on both sides of the building and install new glazing where appropriate.

Canopy: Clean the canopy at the connection point between Building 2 and Building 2A.

West Block Buildings

Buildings 21, 24A, 26, and 28 are leased to BWXT and used for industrial purposes. They receive regular maintenance to preserve their condition and thus do not require specialized conservation work at this time.

As the buildings remain in active use for industrial processes and employment, they are subject to regular maintenance. Accordingly, no specialized conservation or restoration work is currently recommended.

Building 21

Building 21 is illustrative of postwar industrial development on the Site. It displays Mid-century Transitionalist features, including rows of original rectangular windows at the ground floor and smaller square windows at the second level.



52. North West corner of building 21
(Source: Google, 2023)

Building 24A

Building 24A is an infill structure that connects Building 24 to Building 26. Its exterior is clad in metal siding, with the southern elevation appearing more recent and consistent with the east façade of Building 26 and the west façade of Building 22.



53. North Elevation Building 24A
(Source: ERA, 2023)

Building 26

Representative of wartime industrial construction, Building 26 features characteristic elements such as two rows of three round Art Moderne or Machine Age-style windows, with one row each on the north and south elevations, paired with original 5x4-pane rectan-

gular windows below. The building is topped with a sawtooth roof.

Building 28

Building 28 is a garage-type structure attached to Building 26. It has a concrete base and overhead loading doors. Two sets of exterior metal stairs are located on the west and south sides. The exterior walls are clad in metal siding, with visible variations in materials suggesting ongoing maintenance and repairs over time. The building is not considered noteworthy in relation to the assessment of the Site's cultural heritage value.

7.4 Conservation of Additional, Currently Vacant Buildings - 8A and 30

Buildings 8A and 30 are presently vacant and do not have any specific identified use. These buildings have both been identified as having particular significance in understanding the scale and historical use of the Site as a whole. Over time, these buildings will be restored and rehabilitated through the following activities:

Building 8A

Building 8A is an architecturally ornate masonry building featuring decorated columns, large windows, and an architectural cornice. The building is currently integrated with adjacent Building 8, and conservation activities will allow for the disentanglement of the two buildings, and the restoration of 8A's original features and attributes.

When Building 8A was integrated into the extension of Building 8, its central staircase was removed to accommodate expanded floor plates. Two new staircases were then introduced: one, shared with Building 8, located within the main structure; and another, on the north façade of 8A, constructed with incompatible materials. Both existing staircases will be removed, and a new complementary external staircase and fire egress will be built to service the building and ensure compliance with the Ontario Building Code. Removing the incompatible additions will conserve the building's cultural



55. West Elevation Building 26
(Source: ERA, 2023)



56. South Elevation Building 28
(Source: ERA, 2023)



57. Building 8A (Source: Peterborough Archives, 1913)



58. East Elevation Building 8A
(Source: ERA, 2023)

heritage attributes and enhance its integrity as a legible, independent structure.

The following conservation activities are recommended to conserve the cultural heritage value of Building 8A:

- Demolish the stairs and walkway on north elevation to expose the original heritage facade
- Remove paint from brick on north, west and south elevations
- Demolish concrete masonry unit window infill on north and south elevations
- Infill superfluous openings on west elevation
- Provide new windows and exterior doors throughout the building
- Infill lower cornice at demolished stair on the north elevation
- Repair parapet and cornices on each elevation
- Build new exit stair and fire escape on west elevation of building and maintain barrier-free exit requirements
- Maintain and retrofit existing elevator
- Repair and/or replace roofing
- Repair damaged floor structure below area of leaking roof
- Repair at connections to adjacent/attached buildings which are proposed for removal, following deconstruction
- Mothball the building until a future use is identified

Building 30

Building 30 contains Edwardian industrial elements including round-headed windows, decorative brick corbels and a gabled clerestory roof. It fronts onto Park Street, and is attached directly to Building 2, constructed as an addition in 1924. It has a secondary entrance onto Park Street. It has two loading bays and additional door openings that face Albert Street which are not accessible to the public. Many of its original openings have been bricked in or boarded up over time. In some cases, bricked-in windows have had smaller modern windows inserted. To restore its cultural heritage attributes, it is proposed that these openings be returned to their original state through removing the various material infills, where possible. The original windowsills have been removed over time in many areas and



60. Building 30 under construction (Source: Peterborough Archives, 1912)



61. North East corner of Building 30 (Source: ERA, 2024)

should be replaced. The remaining original windows should be refurbished where possible, and openings that are bricked in, without original windows, or infilled with unsympathetic modern replacements, should be fitted with new windows matching the originals. It is proposed that the exterior doors be replaced with more appropriate alternatives, and the overhead doors be refurbished or replaced with glazing.

The following conservation activities are recommended to conserve the cultural heritage value of Building 30:

- Undertake general masonry cleaning and some sympathetic replacement of damaged units, especially near grade
- Refurbish remaining original windows and replace all other windows with new to match original
- Unbrick infilled windows openings and replace removed sills
- Replace existing exterior doors and overhead doors with more sympathetic doors.
- Repair roof leak at west end
- Repair eaves at northwest corner
- Replace wood decking and membrane
- Mothball the building until a future use is identified

7.5 Mothballing of Buildings 8A and 30

Buildings 8A and 30 are currently vacant with no future use identified at this time. Both buildings are proposed to be retained and mothballed until an appropriate future use is determined. Mothballing is a short- to medium-term preservation strategy that involves securing a building and stabilizing its features so that it can safely remain vacant. Mothballing protects buildings while allowing time to identify future uses and/ or rehabilitation plans. It also works to prevent irreversible decay.

Mothballing will be undertaken following industry best practices, including guidance from the National Park Service's Preservation Brief 31: Mothballing Historic Buildings (Appendix D). These measures will ensure the long-term protection and stabilization of the buildings until a future use is identified and protecting for potential future redevelopment of the Site. These

measures include:

Confirming Buildings Condition

- Document all existing conditions

Securing the Buildings

- Undertake roof repairs and/or install temporary roofing as described in Section 7.4
- Board up doors and windows with ventilated coverings
- Secure against pests, vandals, and moisture infiltration
- Ensure that utilities are maintained where necessary (e.g., heat to prevent freezing in pipes)

Implementing a Maintenance and Monitoring Plan

- Create a maintenance and monitoring plan for the buildings
- Set a schedule for regular inspections (e.g., every 6 months)
- Document any changes in condition
- Adjust protective measures as needed to address evolving risks (e.g., weather damage or trespass)

Specific Mothballing Requirements - Building 8A

- Repair damaged floor structure below area of leaking roof
- Repair damaged masonry and undertake localized repair at any connection points to demolished buildings
- Fill in exterior door openings on north and west elevations
- Remove the unsympathetic stair addition on the north facade and replace with a new exit stair, elevator, and fire egress

All mothballing activities will be undertaken to ensure that future uses can be accommodated, and activities will be reversible and complementary to the existing heritage fabric of the buildings to be retained.

7.6 Implementation of the Site Plan

Concurrent to the removal of buildings on the Site, the proposal contemplates improvements to the conditions on the property to address security and on-going operations in a manner respectful of the existing surrounding neighbourhood context to mitigate the changes on the Site.

Through a site plan approval process with the City of Peterborough, the proposal includes maintaining existing perimeter fencing and introducing new internal fencing to frame the BWXT area in the West Block. Existing parking and vehicular access points will be maintained.

Additional interventions to the Site are proposed, including:

Enhanced Landscaping

Current landscaped area on the Site will be retained to preserve existing vegetative buffers. In addition, enhanced planting areas are proposed along existing fence lines in two key locations at the north and south of the Site to mitigate the visual impact of building removal and contribute to the overall integration of the Site into its surrounding context.

Along the northern frontage of Wolfe Street, and along the southern frontage on Albert Street, specifically between the portion of the West Block of the Site and the Park Street fence line, new layered plantings will be introduced. These will incorporate a mix of trees, shrubs, and low-maintenance perennials and ground covers selected for their seasonal interest, hardiness, and screening potential.

These measures are intended to improve the visual cohesion with the surrounding community and to respect the experience of the immediate neighbours.

Fence Screening Panels

To further mitigate the visual impact of building removal and improve the overall experience of the Site from the public realm, new graphic panels are proposed to be installed on existing fencing at key perimeter locations. These panels will provide an additional layer of screening, enhancing Site privacy by reducing direct views into vacant or transitional areas, particularly from adjacent pedestrian pathways and residential properties.

In addition to their all-season screening function, the panels offer an opportunity to be programmed thematically, supporting displays that reflect the Site's historical and cultural significance.

These panels will be designed to include artistic elements and graphics that speak to the Site's evolution and industrial past and will be developed as part of the Interpretation Plan with input from the City of Peterborough.

Additional Screening Areas

A Groundwater Extraction and Treatment System (GETS) is located on the Site to provide hydraulic containment in order to mitigate offsite migration of contaminants in groundwater. The GETS is currently located inside the south end of Building 14. It is proposed that the GETS be relocated approximately 3 meters east of the existing location. The new location will allow connection to the existing extraction wells and sanitary sewer discharge. Site grading will generally be unchanged compared to existing conditions.

To minimise any visual impact on the surrounding streetscape, it is proposed that the GETS be concealed with additional screening. The design of this screen will be determined at the Conservation Plan stage in consultation with City of Peterborough staff.

Commemoration and Interpretation Areas

As part of the strategy to acknowledge and commemorate the Site's history within the community, two publicly accessible interpretation and commemorative zones are proposed—one located at the East Block of the Site and the other at the West Block. Potential locations are identified in Figure 67 and will be further explored as part of the Commemoration and Interpretation Strategy to be developed (as per below). These spaces are intended to support meaningful engagement with the Site's history and to ensure that its cultural significance remains legible within the changing landscape.

The installations will be designed to be visually integrated with the surrounding environment and will serve as touchpoints for heritage interpretation, reflection, and learning. Their development will be informed by consultation with community members and City staff, ensuring that the approach reflects local values, priorities, and perspectives.

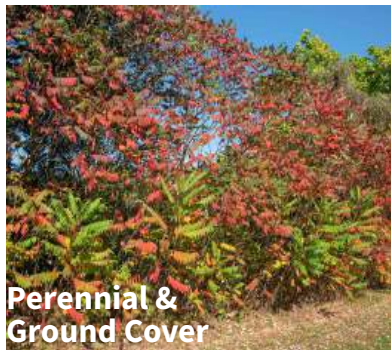
Each area will be designed in accordance with best practices for commemoration and interpretation of former industrial sites, including:

- Clear and accessible communication of its historical significance
- Inclusive and respectful design, accommodating a range of users
- Use of durable, context-sensitive materials suited to outdoor public settings
- Opportunities for future expansion or integration with broader site planning and redevelopment initiatives

Together, these two interpretation areas will provide a balanced and respectful recognition of the Site's past, while contributing to its ongoing relevance and identity within the public realm.

Implementation of these enhancements to the Site post deconstruction are intended to be secured as conditions of site plan approval and further defined with input from the City of Peterborough through that process.

Proposed Planting Zones Plant Palette



62. Proposed Planting Palette, Trees, Shrubs and Small Trees, Perennial and Ground Cover (Source: ERA)

Proposed Planting Approach - Illustrative Examples



63. Precedent PARK(ing) D.I.R.T. Studio, Detroit, 2023 (Source: D.I.R.T. Studio, 2023)

Graphic Panel Approach - Illustrative Examples



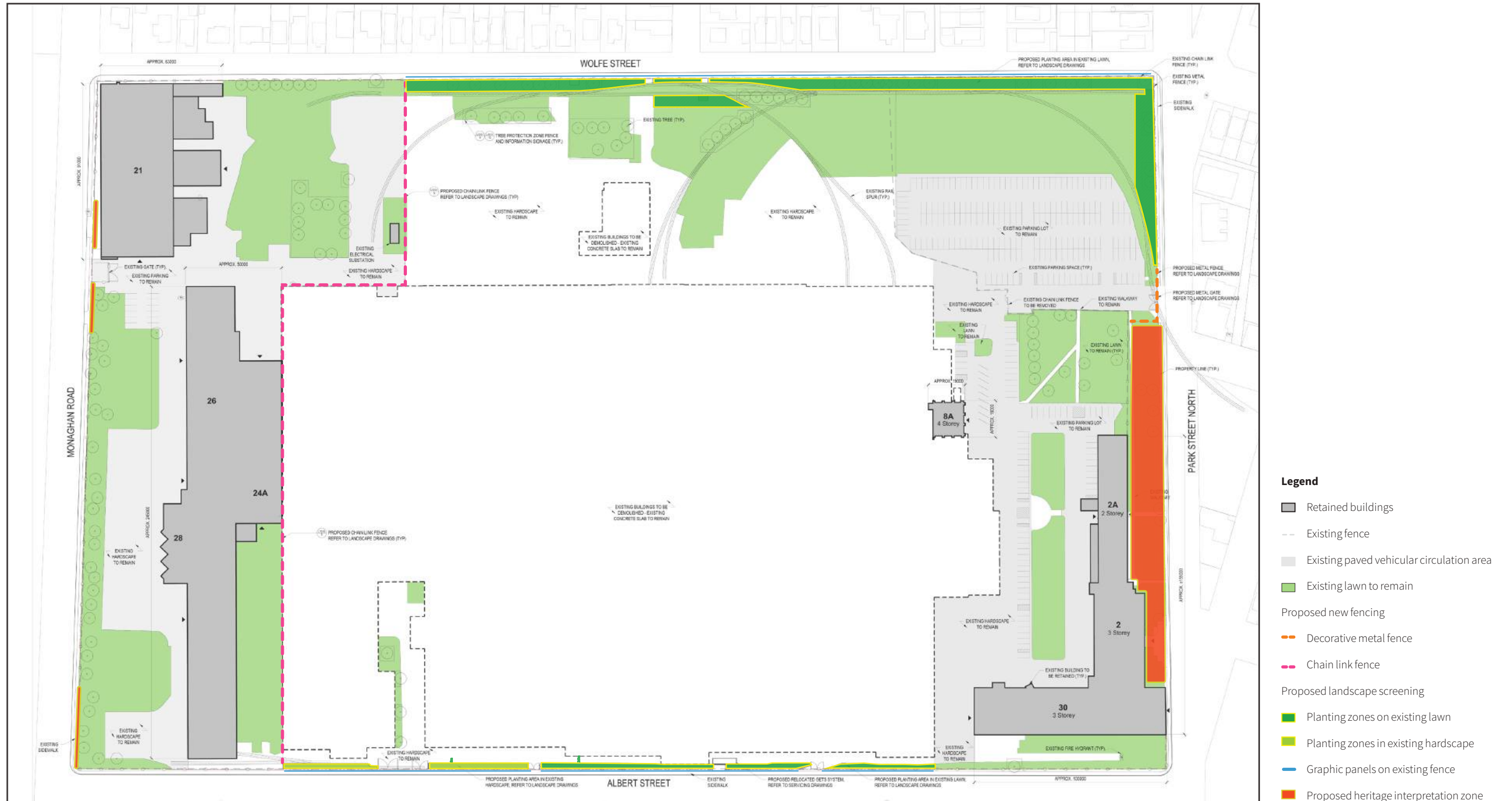
64. Lansdowne Fence Streetscape (Source: Marianne Lovink & Scott Eunson, 2010)

Proposed Interpretation Approach - Illustrative Examples





65. Examples of Interpretation Approaches



66. Implementation of Site Plan Conceptual Approach (source: ERA Architects).

8 IMPACT OF THE PROPOSED DEVELOPMENT

The following impact assessment is based on the cultural heritage value and attributes of the Site, as outlined in the City of Peterborough's Listing Description and the Statement of Cultural Heritage Value included in Section 6 of this HIA. The proposed retention and continued use of Buildings 2, 2A, 8A, 21, 24A, 26, and 28, along with the restoration and mothballing of Buildings 8A and 30 will conserve the cultural heritage attributes of the Site as the employment function of the Site is maintained through the operations of GE Vernova and BWXT on the East and West Blocks of the Site, respectively.

8.1 Retention of Buildings

Buildings 2, 2A, 8A, 30, 21, 24A, 26, and 28 will be retained in situ on Site. Most of these buildings are still in use and many of them are architecturally significant. Where necessary, as in the case of Building 8A, careful removal of unsympathetic additions and building extensions will be undertaken to restore the legibility and integrity of the structure.

The retention of these buildings will have a positive impact on the identified cultural heritage value of the Site. While these buildings will no longer be read within their full existing context, they will retain their relationship to adjacent buildings from related periods of construction.

It is recommended that the retained buildings be restored and that their period features are carefully conserved through the development of a Conservation Plan.

8.2 Deconstruction of Buildings

Buildings 6B, 6D, 8, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D, 12 EXT, 13, 13A, 14, 14A, 16, 16A, 18, 20, 20A, 22, 22C, and 34 will be deconstructed and removed from the Site.

The buildings proposed for removal have been vacant since 2018. They do not meet the requirements for contemporary manufacturing processes and would require extensive and costly interventions to be compatible with any new uses. Additionally, there is a limited market for additional large-scale manufacturing facilities in Peterborough.



67. Building 2 (ERA, 2024)



68. Building 2A (ERA, 2023)



69. Building 8A (ERA, 2024)



70. Building 30 (ERA, 2024)

Many of the buildings proposed for removal have undergone heavy modifications and unsympathetic additions over time. Located within the area known as the Centre Block, the legibility of these buildings as independent structures has been significantly eroded over time. The heritage attributes of many of these buildings have similarly been compromised from repairs, overbuilding and extensions.

It is understood that the removal of these buildings will require careful disentanglement from any retained adjacent buildings. The disentanglement process and methods will be detailed in a conservation plan prepared for the Site. Careful monitoring of the retained buildings should also be undertaken during the deconstruction process to mitigate any negative impacts.

The impact of removals will be mitigated through Site interpretation and strategies outlined in Section 9 of this HIA.

8.3 Conservation of Buildings 2, 2A, 21, 24A, 26, 28

Buildings 2, 2A, and 21, 24A, 26, 28 are currently in use and will be fully retained to continue Site operations. These buildings will be conserved within their original locations and restored using period specific methods and materials as outlined in Section 7 of this HIA. This work will have a positive impact on the retained buildings and the cultural heritage value of the Site as a whole.

The conservation scope of work is not anticipated to have any negative impacts on the cultural heritage value of the Site and will be fully described in the forthcoming Conservation Plan.

8.4 Conservation of Additional, Currently Vacant Buildings: - 8A and 30

In addition to the buildings which are currently in use, Buildings 8A and Building 30 will be retained because of their locations and architectural interest. These buildings will be conserved and restored using period specific methods and materials as outlined in Section 7 of this HIA. This work will have a positive impact on the retained buildings and the cultural heritage value of the Site as a whole.



71. Building 21 (ERA, 2023)



73. Building 24A (ERA, 2023)



72. Building 26 (ERA, 2023)



74. Building 28 (ERA, 2023)

The conservation scope of work is not anticipated to have any negative impacts on the cultural heritage value of the Site and will be fully described in the forthcoming Conservation Plan.

8.5 Mothballing of Additional, Currently Vacant Buildings: - 8A and 30

In addition to being conserved, several mothballing activities are proposed for retained buildings which don't have an identified future use but have significant architectural value. These are set out in Section 7 of this HIA. Mothballing activities will protect and secure the buildings until such a time when a new use is identified. In this manner, the mothballing of Buildings 8A and 30 will be a positive impact on the cultural heritage value of the Site.

8.6 Implementation of the Site Plan

The proposed Site Plan will secure further mitigation of the impacts of building deconstruction on the Site.

Enhanced Landscaping

Enhanced landscaping including trees, shrubs, and native plants and grasses will provide a tiered screening and seasonal interest. The increased vegetation will provide several benefits:

- **Visual screening:** Dense, strategically placed plantings will help soften views into the Site from adjacent public areas and residential properties, reducing the visual presence of open or altered spaces where buildings have been removed
- **Environmental resilience:** The new plantings will provide habitat for local birds and pollinators, contributing to biodiversity and the local ecosystem
- **Sense of continuity:** By maintaining and expanding green edges, the landscape will offer a sense of completeness and continuity during the interim period before potential future redevelopment or reuse, helping to frame the Site

Fence Screening Panels

By integrating thoughtful, well-designed graphics, new fence screening panels will visually soften the fencing, but will also create a more engaging and informed pedestrian experience, contributing positively to the streetscape. They will contribute to the identity of the Site during its transitional phase, while helping to ensure that it remains visually coherent, secure, and respectful of surrounding residential uses.

Additional Screening Areas

The relocated GETS is proposed to be concealed with additional screening to minimize its visual impact on the surrounding streetscape. The design of this screen will be determined at the Conservation Plan stage, in consultation with Peterborough City Staff and is proposed to be compatible with the retained buildings and new landscaping on the Site.

Interpretation and Commemorative Areas

The introduction of two dedicated Interpretation and Commemorative Areas at the east and west ends of the Site will have a positive cultural and contextual impact, supporting the long-term conservation of the Site's heritage value even in the absence of selected built features. These installations are not only mitigative in nature but also tools for continuity, ensuring that the Site's history remains visible, accessible, and meaningful to the public. This intervention will have positive impacts and allow for the following:

- **Preservation of Cultural Memory:** By embedding interpretation into the landscape, the commemorative areas will sustain and communicate the Site's industrial legacy. The strategy will honour the Site's historical function, the people who worked there, and its broader social and economic role within the community
- **Mitigation of Deconstructed Buildings:** In light of the removal of select buildings, these installations will help offset the loss of physical fabric by maintaining a clear, publicly accessible narrative of the Site's past. They will provide a structured means to interpret the former built environment, supporting an understanding and appreciation of what once stood on the Site

- **Support for Future Planning:** These installations will also help set the tone for potential future redevelopment or reuse of the Site, by embedding cultural significance into the Site’s ongoing evolution. Their presence signals that heritage is a guiding value in the Site’s transformation, helping to shape future design in ways that are informed, respectful, and rooted in place.
- **Enhancement of the Public Realm:** The commemorative areas will offer new opportunities for public engagement, passive learning, and community gathering, while enhancing the pedestrian experience along the Site’s edges. They will serve as landmarks within the landscape and reinforce a sense of place and identity prioritizing authenticity, inclusivity, accessibility, and long-term stewardship of cultural values
- **Alignment with Best Practices:** Developed through engagement with the City and local community, the interpretive strategy will reflect best practices in commemorating former industrial sites—

9 ALTERNATIVES AND MITIGATION STRATEGIES

9.1 Alternatives

The proposed activities and approach to the conservation of the Site, as described in Section 8 of this HIA, have been developed to accommodate the on-going employment use of the Site, while facilitating potential future uses. In developing this proposal, alternative options were contemplated, and subsequent mitigation measures were considered. These are described in detail below.

Alternative 1: Continued Industrial Use of the Entire Property by GE Vernova or Other Tenants

This option contemplates GE Vernova expanding its operations on the Site for its current industrial operational purposes or leasing additional space to existing or other industrial tenants.

This alternative was determined to not be reasonably foreseeable for the following reasons:

- GE Vernova does not have continued use or business case for future expanded industrial operations on the Site
- GE Vernova is a dedicated industrial energy business and does not operate as a commercial landlord. As a newly formed energy business, commercial leasing is not consistent with GE Vernova's core mission
- BWXT is a tenant of the Site because it is a former GE Vernova business and was given a long-term lease in 2016 when it was sold by GE Vernova. It is a specific and historical outlier rather than a precedent for leasing portions of the Site to other parties
- Due to the condition of many of the existing buildings on the Site, new industrial uses would require a significant investment and extensive retrofitting to accommodate any future GE Vernova uses, of which there are none
- Cost estimates prepared by WSP in 2024 put the cost of renovation of the Centre Block of buildings in a range from \$138.4 million-\$149.5 million and at an approximate rate of \$1,184-1,279/sq m.

- Current market conditions in Peterborough do not support the industrial uses of buildings of this size and footprint
- The Site has been identified by the City of Peterborough as a Key strategic development and investment area (City of Peterborough Official Plan, Section 3.3.2 f. ii.). Sustained industrial use of additional buildings is extremely unlikely given the current conditions of the buildings in the Centre Block, and the current market for industrial buildings of this scale in Peterborough. Removing the Centre Block buildings would allow for potential future intensification and redevelopment in accordance with the City's Official Plan.

Alternative 2: Adaptive Reuse of Currently Vacant Buildings on the Site for Non-Industrial Uses

This option contemplates GE Vernova retaining and adaptively reusing additional existing buildings on the Site and/or leasing them for other uses to external tenants for uses and operations that are unrelated to GE Vernova or BWXT. This alternative is not reasonably foreseeable for the following reasons:

- GE Vernova does not have continued use or a business case for future uses on the Site beyond its current operations that are housed in Buildings 2 and 2A.
- Buildings 8A and 30 have been identified as the only additional buildings which can practically and reasonably be retained and mothballed for possible future uses.
- Due to the condition of many of the existing buildings on the Site, any new uses would require a significant investment and extensive retrofitting to accommodate any future uses. Cost estimates prepared by WSP in 2024 put the cost of rehabilitation of the Centre Block of buildings in a range from \$138.4 million-\$149.5 million, and at an approximate rate of \$1,184-1,279/sq m. Adaptive re-use, when combined with rehabilitation costs, would result in a substantial additional expenditure.

- Current market conditions in Peterborough do not support the adaptive reuse of buildings of this size and footprint.
- The Site has been identified by the City of Peterborough as a key strategic development and investment area (City of Peterborough Official Plan, Section 3.3.2 f. ii.). Sustained adaptive reuse of additional buildings is extremely unlikely given the current conditions of the buildings in the Centre Block, and the current market for industrial buildings of this scale in Peterborough

Alternative 3: Mothballing Additional Buildings on the Property

Following their conservation, Buildings 8A and 30 have been identified to be mothballed for future adaptive reuse. These buildings are candidates for adaptive reuse and mothballing due to their design value, condition, and locations.

Considerations for the mothballing of additional buildings were made, which would involve GE Vernova retaining additional buildings and mothballing them in anticipation of future use. This alternative is not reasonably foreseeable for the following reasons:

- GE Vernova does not have any foreseeable future uses for these buildings
- The additional vacant buildings on the Site could not be maintained and adaptively reused without a significant investment into their disentanglement, repair and conservation

9.2 Mitigation Strategies

Based on the assessment of the impact of the proposed demolition in Section 9 of this HIA and the alternatives considered in Section 10.1 above, ERA Architects recommends the following mitigation strategies to address the proposal for the Site which includes deconstruction of buildings, retention and continued use of certain buildings and retention and mothballing of additional buildings so as to mitigate potential impacts on its cultural heritage value. These measures will guide and steward conservation work in a manner consistent with:

The Province of Ontario's *Eight Guiding Principles in the Conservation of Historic Properties*

- *The Standards and Guidelines for the Conservation of Historic Places in Canada*
- *The Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes*, developed by ICOMOS and TICCIH

The mitigation strategies outlined below align with GE Vernova's stated objectives to:

- Maintain current operations (for both GE Vernova and BWXT) and provide flexibility for future uses on the Site
- Provide stormwater management which meets the standards of the Ministry of Environment Conservation and Parks and the City of Peterborough
- Provide safety and security on the Site through a boundary treatment to secure the perimeter
- Reduce greenhouse gas emissions on the Site
- Support long-term environmental management activities on the Site
- Undertake work in a manner which respects the surrounding community and the broader City of Peterborough

ERA Architects recommends the following mitigation strategies to address the proposed interventions:

Mitigation Strategy 1: Property Documentation

Prior to any deconstruction or demolition work, comprehensive documentation of all buildings slated for removal will be undertaken and consolidated with existing site materials, including architectural drawings, photography, and archival records.

This documentation process follows key international and national conservation standards:

- Section 4.4.1 of the *Standards and Guidelines* recommends documenting the operation and maintenance of constructed elements, particularly at industrial sites, so that their functional characteristics remain understood even if the structures are altered or removed. The Guidelines also emphasize that interventions at industrial sites should always be accompanied by detailed records.
- The *Dublin Principles* acknowledge the inevitable transformation of former industrial sites and the importance of recording these changes thoroughly. In accordance with these principles, exhaustive documentation is recommended in cases where heritage fabric will be lost
- This strategy also draws from GE Vernova’s precedent of heritage documentation, such as the 2010s photo-documentation project by Wayne Eardley, undertaken during the deconstruction of Building 7

Documentation will create a visual record of all of the built structures on the Site, as well as their current functional arrangements and interrelationships. The documentation will also capture and represent all existing structures in their current condition.

This will be undertaken through the following methods:

Creation of a Digital 3D Model

Using LiDAR or Matterport technology, individual buildings will be scanned to generate accurate, navigable digital models. This 3D record will permanently capture the architectural form, spatial configuration, and current condition of all buildings slated for deconstruction. The model will serve as a visual and dimensional reference for future interpretation and potential reconstruction.

Collection of all existing Site drawings, Photographs, and Maps

Archival materials, including original GE Vernova engineering drawings, municipal records, historical photographs, and fire insurance plans, will be gathered from corporate and public repositories. These materials will be organized and maintained

to support both the Conservation Plan and the broader interpretation strategy.

Full Photo-Documentation of the Site

A comprehensive photographic survey will be conducted by a professional photographer prior to any work on the Site related to the proposal. The survey will include both interior and exterior views of each building, contextual images, and elevation-based photo sets. This contemporary record will augment the historical archive and provide a clear visual baseline of the site at the point of change.

All documentation, including the 3D model, photographs, and assembled archival records, will be securely stored in a designated archival repository, and made available for future reference, research, and public interpretation initiatives.

Mitigation Strategy 2: Selective Retention and Considered Deconstruction

The retention strategy for the buildings on the Site prioritizes buildings which are:

- Part of the ongoing operations of GE Vernova
- Part of the ongoing operations of GE Vernova's former business, BWXT
- Of architectural significance and are representative of significant periods of development on the Property:
 - Late Victorian + Edwardian (1891-1913)
 - World War 1 + Interwar (1914-1938)
 - World War 2 (1939-1945)
 - Postwar + Modern (1946-1973)

The retained buildings illustrate the heritage attributes described in the Statement of Significance (located in Section 6 of this HIA) and in the City of Peterborough's Heritage Register's listing description of 107 Park Street North. These buildings have been identified as being structurally sound and are legible as individual buildings which can be appropriately and effectively dis-entangled from surrounding structures.

As Buildings 6D, 6B, 8I, 8D, 8, 10D, 8E, 10A, 10, 10C, 10B, 34, 12, 14, 14A, 16A, 16, 18, 20, 20A, 22C, 22, 13, and 13A, 34 are deconstructed, those few that are connected to retained buildings will be carefully dismantled. Some original materials from the decon-

structed buildings may be salvaged for future use where possible and stored on Site. The full details of the deconstruction process and any plans for material salvage will be fully explored and described in a forthcoming Conservation Plan.

Mitigation Strategy 3: Conservation, Repair, and Restoration

Buildings 2, 2A, 8A, 24A, 26, 21, 24A, 28, and 30 will be conserved, repaired, and restored in-situ on the Site. Particular attention will be given to buildings 8A and 30, which have been vacant since 2018. and will be mothballed according to best practices until a future use and user(s) is identified.

Windows will be repaired and replaced as required with windows of a similar construction and material, or by introducing an acceptable period appropriate alternative. All conservation work will be undertaken according to heritage best practices and industry standards.

Building 8A

Building 8A will be conserved and undergo localized repairs prior to its mothballing. The conservation scope of Building 8A will include:

- Maintenance of power connections and the introduction of separate metering.
- Roof flashing repairs
- Masonry repairs
- Window repairs
- Repairs at intersection of 8A and adjacent buildings
- Removal of the unsympathetic stair addition on the north facade, and within Building 8, and replacement with a new exit stair, elevator, and fire egress.

Building 30

Building 30 will be conserved and localized repairs will be undertaken prior to its mothballing. The conservation scope of Building 30 will include:

- Maintenance of power connections and the introduction of separate metering
- Roof and flashing repairs
- Masonry repairs

- Window repairs
- Basement repairs

Full details regarding this scope are described in Section 7 of this HIA.

Buildings 2, 2A and 24A, 26, 21,21D, 24A, 28

As these buildings are currently in use, the scope of the proposed conservation or restoration work is more limited. This scope is suggested to address some issues, typical to age and use, on buildings which are in fair to good condition. This includes the following items:

- An assessment of all windows to confirm required upgrades
- Masonry cleaning to remove efflorescence and staining that is evident on some buildings
- Repointing sections of the masonry buildings which have previously been repointed with unsympathetic mortars
- Replacement of select masonry units, both stone and brick, with appropriate new-to-match units

Mitigation Strategy 4: Mothballing

Following the conservation, repair, and restoration measures outlined above, Buildings 8A and 30 will be mothballed until suitable adaptive reuses are identified. Mothballing is a recognized conservation strategy intended to stabilize and protect vacant heritage buildings from deterioration, vandalism, and weather-related damage while plans for future use are developed.

The proposed mothballing approach is informed by established best practices, including those outlined in the *U.S. National Park Service's Preservation Brief 31: Mothballing Historic Buildings* (Appendix C). It also aligns with the principles and guidance provided in the *Standards and Guidelines*, which define mothballing as a reversible intervention undertaken to protect a place until it can be rehabilitated or reused. In particular, the approach responds to *Section F of the Eight Guiding Principles in the Conservation of Historic Properties*, which calls for timely and appropriate stabilization measures when new uses cannot be secured within a reasonable time frame.

All proposed mothballing activities will be carefully designed to be reversible, in order to support the future conservation and

adaptive reuse of the buildings. Detailed descriptions of the mothballing measures for Buildings 8A and 30 are provided in Section 7 of this HIA.

Mitigation Strategy 5: Commemoration and Site Interpretation

An interpretation and commemoration strategy should be developed and implemented to communicate the Site's cultural heritage value to the public. A permanent interpretive installation is proposed for the lawn east of Buildings 2 and 2A, adjacent to GE Vernova's active operations, as well as at the West Block of the Site near the occupied industrial buildings. These installations will support public understanding of the Site's layered history and ongoing evolution, and provide accessible, on-site opportunities to engage with its heritage significance.

The interpretive installations will reflect the Site's cultural heritage value and heritage attributes, and explore key themes such as architectural evolution, industrial innovation, wartime manufacturing, and workers. They will also illustrate the distinct periods of growth on the Site, supported by archival and contemporary photographs and narrative content. The installations will include information about the buildings being retained in situ, providing context for their architectural and functional roles on the Site.

Content development and implementation will be carried out in collaboration with the City of Peterborough and an art and installation specialist and will follow best practices in heritage interpretation. This strategy aligns with the *Standards and Guidelines*, which encourage interpretation as a key tool in communicating cultural heritage value. It also responds to the *Dublin Principles* which emphasize the importance of interpretation in reinforcing the meaning of industrial heritage and ensuring its relevance to future generations.

Mitigation Strategy 6: Adaptive Reuse

As described in Section 7 of this HIA, options for adaptive reuse on the Site are limited; however, two buildings have been identified for their adaptive reuse potential. The in-situ retention, conservation, repair, and restoration of Buildings 8A and 30, including careful deconstruction of all adjacent buildings and the maintenance of power access and entry points to all floors of both buildings, will facilitate adaptive reuse of these buildings in future.

10 CONSERVATION PLAN

A Conservation Plan is recommended for the Site which should contain the following information:

- A description of how the cultural heritage value of on-Site resources (Buildings 2, 2A, 8A, 21, 26, and 30) will be protected during the deconstruction and implementation of the Site Plan
- A summary of conservation principles, and how they will be applied to conserve the cultural heritage value of the Site. Conservation principles may be found in publications such as Parks Canada's *Standards and Guidelines for the Conservation of Historic Places in Canada* and Ontario's *Eight Guiding Principles in the Conservation of Historic Properties*
- Conservation recommendations which correspond to appropriate conservation treatment categories (*preservation, rehabilitation, restoration, etc.*) for the identified cultural heritage values of the Site
- An outline of how identified cultural heritage resources (Buildings 2, 2A, 8A, 21, 26, and 30) are to be managed after the completion of the proposal
- Current information on the condition of the buildings to be retained on the Site and recommendations for mothballing and on-going maintenance. These recommendations will be based on the *Standards and Guidelines*
- Conservation drawings and proposed sequencing for the proposed conservation work on the Site

The full scope and contents of the Conservation Plan will be developed with input from City of Peterborough Heritage Staff.

11 COMMEMORATION AND INTERPRETATION PLAN

As described in Sections 8 and 9 of this HIA, a thoughtful and robust commemoration and interpretation strategy is recommended as part of the proposal, to recognize and communicate the cultural heritage value of the Site. The commemoration strategy should reflect the Site's cultural heritage value, as articulated in the Statement of Significance in Section 6, and foster public awareness of the contributions to industrial development, architectural history, and community life in Peterborough.

The interpretation plan should be developed with input from the City of Peterborough, and in consultation with community stakeholders, including former employees and their families. The engagement process will ensure that the history of the Site is accurately represented and meaningfully commemorated.

The commemoration and interpretation strategy should express the Site's key themes, including:

- **Industrial Evolution:** The Site's development from the late 19th century to present, including periods of major expansion, shifts in production focus, and its transformation from a hydroelectric equipment manufacturer to a nuclear technology facility
- **Architectural Significance:** The form and function of industrial buildings on the Site as best illustrated in Buildings 2, 2A, 8A, 30 and the design evolution of the complex over time
- **Workforce and Community Impact:** The vital contributions of employees to the operation and success of the facility, as well as the Site's role in shaping the surrounding community through employment and civic engagement
- **Scientific and Technological Achievement:** The Site's involvement in key technological developments, including its role in Canada's nuclear energy sector, and its historical association with CGE and the production of CANDU reactor components

To support these themes, interpretative installations are proposed at two publicly visible locations: in the East Block along

Park Street and adjacent to retained Buildings 2 and 2A, and in the West Block near the western grouping of retained Buildings along Monaghan Road.

These installations could include text and imagery relating to the Site's history, supported by archival and contemporary photographs. Content will reflect both architectural and social history, and may also incorporate oral history from former workers.

Digital interpretation tools, such as web-based content, QR codes embedded in signage that allow for interactive engagement with the Site's evolution, will also be considered. Other opportunities for commemoration could include scaled models or visual timelines showing the transformation of the Site across its key phases of development.

The interpretation and commemoration strategy will be implemented in accordance with:

- *The Standards and Guidelines for the Conservation of Historic Places in Canada*, which recommends interpretation as an integral component of heritage conservation
- The Province of Ontario's *Eight Guiding Principles in the Conservation of Historic Properties*, which underline the importance of understanding and communicating cultural heritage value
- The TICCIH *Dublin Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes* (Appendix D), which promote public education, documentation, and interpretation as core tenets of industrial heritage conservation.

The implementation of a this strategy will ensure that the Site remains legible from the public realm, even as aspects of its physical fabric are altered or removed. This strategy supports the long-term conservation of the cultural heritage value of the Site by embedding memory, meaning, and recognition into both the landscape and the public realm.

In addition to on-site commemoration and interpretation, consolidated archival records (including fire insurance plans, historic drawings and photographs) and documentation activities (including 3D digital modeling, as described in Mitigation Strategy 1) will be assembled. This collection should be preserved in a public archive or repository for ongoing access and reference.

12 STATEMENT OF PROFESSIONAL OPINION

Based on the findings of this Heritage Impact Assessment, ERA concludes that the proposed development for the Site appropriately conserves the cultural heritage value and attributes identified in the City of Peterborough's heritage listing and in the Statement of Cultural Heritage Value prepared by ERA in this report. The retention, conservation, and mothballing strategy for the East Block, West Block, and Building 8A responds directly to the heritage significance of these resources and reflects best practice in Canadian heritage conservation.

The East and West Blocks are comprised of intact and legible groupings of buildings that clearly illustrate the historic development and evolution of the Site. Building 8A, although currently attached to the Centre Block, is historically and functionally related to the East Block and can be separated in a manner that preserves its structural stability and heritage integrity.

Conversely, the Centre Block has been substantially altered through unsympathetic, incremental interventions that have compromised its integrity and legibility as a collection of individual buildings. Most structures within the Centre Block are in poor condition, and present serious structural challenges as documented by BBA. The costs to stabilize and rehabilitate these components are prohibitive, and no future uses have been identified.

The proposed approach aligns with the City of Peterborough's Official Plan heritage policies, the Parks Canada *Standards and Guidelines for the Conservation of Historic Places in Canada*, the Province of Ontario's *Eight Guiding Principles in the Conservation of Historic Properties*, and internationally recognized industrial heritage conservation principles. In ERA's professional opinion, the development represents an appropriate response to the Site's cultural heritage value, balancing heritage conservation objectives with the practical realities of condition, integrity, and future use.

APPENDICES

APPENDIX A: CITY OF PETERBOROUGH HIA TERMS OF REFERENCE

APPENDIX B: BARRY BRYAN ASSOCIATES STRUCTURAL REPORT

APPENDIX C: *NATIONAL PARKS PRESERVATION BRIEF 31*

APPENDIX D: *TICCIH DUBLIN PRINCIPLES FOR THE CONSERVATION OF INDUSTRIAL HERITAGE SITES, STRUCTURES, AREAS AND LANDSCAPES*

APPENDIX E: PROPOSED SITE PLAN

**APPENDIX A: CITY OF
PETERBOROUGH HIA
TERMS OF REFERENCE**

1.0 Introduction

This document has been prepared to provide clarity regarding the requirements of Heritage Impact Assessment (HIA) for those preparing them as a requirement of the City of Peterborough's land use planning approvals process. An HIA is an arm's length, independent study to determine the impacts of proposed future development on cultural heritage resources.

2.0 When is an HIA required?

The purpose of an HIA is to evaluate the impact of a proposed intervention (alteration, addition, partial demolition, demolition, relocation or new construction) on previously identified or potential cultural heritage resources.

3.0 Purpose of an HIA

The HIA should:

- identify the presence and significance of cultural heritage resources and landscapes on or adjacent to a proposed development site;
- describe the positive and adverse impacts on the heritage resources that may reasonably be expected to result from the proposed development;
- describe the actions that may reasonably be required to prevent, minimize or mitigate the adverse impacts;
- demonstrate that the proposal will not adversely impact the defined cultural heritage value of the property, Heritage Conservation District, its streetscape/neighbourhood, or a cultural heritage landscape.

An HIA is intended to provide an independent professional opinion regarding the impact of proposed developments on cultural heritage resources; it is not intended to form the City's professional opinion.

Land use planning policies, and guidelines, such as those contained within Secondary Plans, Community Design Plans, the Official Plan and documents such as infill guidelines etc. are not addressed in an HIA. When an HIA is prepared as part of an application under the *Planning Act*, the impact of the proposed application on cultural heritage resources will be addressed.

4.0 Contents of an HIA

An HIA will provide a full documentation of the site including an overview of the development site, background research and analysis, a statement of the significance of existing cultural heritage resources, a full description of the proposed development and the impact it will have on cultural heritage resources including mitigation strategies.

An HIA does not typically include archaeological assessment. The requirements pertaining to archaeological investigation are outlined in the City's Archaeology Policy and Procedures.

4.1 General Information

- The address of the property;
- The current owner's contact information.

4.2 Current Conditions/ Introduction to Development Site

- A location plan indicating the subject property (map and aerial photo);
- A concise written and visual description of previously identified cultural heritage values of the development site and/or the cultural heritage value of adjacent sites, noting whether the site has: a heritage easement, designation under Part IV or V of the OHA, inclusion on the "Municipal Register," designation as a "Recognized" or "Classified" building by the Federal Heritage Buildings Review Office, a National Historic Site of Canada, or inclusion on the Canadian Register of Historic Places;

Existing heritage descriptions should be included:

- A concise written description of the context including adjacent heritage properties and their recognition (as above);
- Digital images documenting all cultural heritage attributes;
- Site plan showing lot dimensions and the location/setbacks of all existing buildings;
- Relevant information from Council-approved documents such as "Heritage District Plans" or "Heritage Guidelines." This information should include the guidelines contained within the "Heritage District Plans" and any "Heritage Guidelines" that currently apply to the proposed project.

4.3 Background Research and Analysis

- Comprehensive written and visual research and analysis related to the cultural heritage value or interest of the site, including physical or design, historical or associative, and contextual value;
 - A pre-contact history of the site including acknowledgement that the site is part of the traditional territory of the Anishinaabe Mississauga and in the territory of the Williams Treaty First Nations. Note: this section should not include statements regarding archaeological significance, nor does it constitute archaeological assessment pursuant to Part 6 of the Ontario Heritage Act.
-

- A development history of the site including original construction dates, additions and alterations;
- Primary research material consulted may include relevant historic maps and atlases, drawings, photographs, sketches/renderings, permit records, land records, assessment rolls, city directories, etc;
- Secondary sources may include surveys and evaluation forms undertaken by the City of Peterborough, FHBRO reports, Historic Sites and Monuments Board of Canada papers, Commemorative Integrity Statements, CHRP listing etc;
- Analysis should reference Parks Canada's "Standards and Guidelines for the Conservation of Historic Places in Canada," which were approved as the City's standards by Council in 2007.

4.4 Statement of Significance

A Statement of Significance identifying the cultural heritage value and heritage attributes of the cultural heritage resource(s). In some cases, this statement will be the Statement of Reasons for Designation or the Statement of Cultural Heritage Value that forms part of a designation by-law (Part IV buildings) or the description of the attributes of the heritage conservation district (Part V districts).

4.5 Description of the Proposed Development

A written and visual description of the proposed development.

4.6 Impact of Proposed Development

An assessment identifying any positive and adverse impacts the proposed development may have on the heritage value of cultural heritage resource(s), as listed in Section 2, above.

Positive impacts of a development on cultural heritage resources districts include, but are not limited to:

- restoration of a building, including replacement of missing attributes;
- restoration of an historic streetscape or enhancement of the quality of the place;
- adaptive re-use of a cultural heritage resource to ensure its ongoing viability;
- access to new sources of funds to allow for the ongoing protection and restoration of the cultural heritage resource.

Adverse impacts include, but are not limited to:

- Demolition of any, or part of any, heritage attributes or features;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance of a building;
- Shadows created that obscure heritage attributes or change the viability of the associated cultural heritage landscape;
- Isolation of a heritage resource or part thereof from its surrounding environment, context or a significant relationship;
- Obstruction of significant identified views or vistas of, within, or from heritage conservation districts or identified cultural landscapes;
- Obstruction of significant identified views or vistas of, within, or from individual cultural heritage resources;
- A change in land use where the change affects the property's cultural heritage value;
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect a cultural heritage resource.

4.7 Alternatives and Mitigation Strategies

The HIA must assess alternative development options and mitigation measures in order to avoid or limit the adverse impact on the heritage value of cultural heritage resources. Methods of minimizing or avoiding an adverse impact on a cultural heritage resource(s) include but are not limited to:

- Alternative development approaches that result in compatible development and limit adverse impacts;
- Separating development from significant cultural heritage resources to protect their heritage attributes including, but not limited to, their settings and identified views and vistas;
- Limiting height and density or locating higher/ denser portion of a development in a manner that respects the existing individual cultural heritage resources or the heritage conservation district;
- Including reversible interventions to cultural heritage resources.

4.8 References

The HIA will include a bibliography and a list of people contacted during the study.

5.0 Conservation Plan

A Conservation Plan may be required. The applicant will be informed that a Conservation Plan is required early in the process. They may be required for projects involving complex sites with a number of cultural heritage resources.

A Conservation Plan should:

- Describe how the heritage value of a resource will be protected during the development process;
- Include a summary of conservation principles, and how they will be used, must be included. Conservation principles may be found in publications such as Parks Canada's "Standards and Guidelines for the Conservation and Guidelines for the Conservation of Historic Places in Canada" and "Eight Guiding Principles in the Conservation of Historic Properties," published by the Ontario Ministry of Tourism, Culture and Sport (both publications are available online);
- As necessary, recommend a conservation treatment category (preservation, rehabilitation, restoration, etc) appropriate to each resource of heritage value within the property, including the landscape;
- Outline how any identified cultural heritage resources are to be managed after the completion of the project;
- Contain current information on the condition of the building and recommendations on its ongoing maintenance. These recommendations will be based on the "Standards and Guidelines for the Conservation of Historic Places in Canada" as amended from time to time, and adopted City Council in 2007.

A Conservation Plan may also contain guidance on the following, where appropriate: public access, signage, lighting, interpretation, landscaping, heritage recording and recommended use.

6.0 Process

Notice that an HIA is required will be given at the pre-consultation stage and applicants should wait until they are notified that an HIA is required before retaining a consultant. When an HIA is deemed by the City to be a requirement of a planning application, that application will not be considered complete if the HIA does not accompany the application. Upon receipt of the HIA, City heritage staff will review the document in order to determine if it is complete. If the HIA does not meet City requirements as described above, the application will not be processed until the HIA meets City standards. City staff reserves the right to require further information and analysis and will provide clear instructions regarding necessary changes.

The HIA is a public document and will be available for consultation.

7.0 Qualifications

AN HIA is intended to provide an independent professional opinion and thus the report must be prepared by a heritage professional and who is not the applicant or in the employ of the applicant. The qualifications and background of the person(s) completing the HIA will be included in the report. The author will be a member of the Canadian Association of Heritage Professionals.

8.0 Glossary

Adjacent lands: Are those lands contiguous to a *protected heritage property* or otherwise defined in the Official Plan. Contiguous is understood to include those properties located directly across municipal right of ways.

Adversely impact- A project has the potential to “adversely impact” the cultural heritage value of a project if it: requires the removal of heritage attributes; requires the destruction of a cultural heritage resource; obscures heritage attributes; is constructed in such a way that it does not respect the identified cultural heritage value of a resource.

Built Heritage- Includes buildings, structures, sites, landscapes, artificial landforms, ruins and evidence of human occupation identified by a community, including an Aboriginal community which contribute to an understanding of cultural heritage and are valued for their representation of that heritage. They may reveal architectural, cultural, or socio-political patterns of history or may be associated with specific events or people(s) who have shaped that history.

Cultural Heritage Resources- Includes four components: Built Heritage, Cultural Heritage Landscapes, Archaeological Resources, and Documentary Heritage left by people.

Cultural Heritage Landscape- Any defined geographic area that has been modified, influenced, or given special cultural meaning by people, including an Aboriginal community, and is valued for its meaning, historical significance or demonstrated associations. Cultural Heritage Landscapes provide the contextual and spatial information necessary to preserve and interpret historical settings, changes to past patterns of land use, and cultural associations. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; sacred aboriginal sites, villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways, viewsheds, natural areas and industrial complexes of heritage significance; and areas recognized by federal or international designation authorities (e.g. a National Historic Site or District designation, or a UNESCO World Heritage Site).

Conserved: means the identification, protection, management and use of *built heritage resources*, *cultural heritage landscapes* and *archaeological resources* in a manner that ensures their cultural heritage value or interest is retained. This may be achieved by the implementation of recommendations set out in a conservation plan, archaeological assessment, and/or heritage impact assessment. Mitigative measures and/or alternative

development approaches can be included in these plans and assessments.

Heritage attributes: means the features or elements that contribute to the property's cultural heritage value or interest, and may include the property's built or manufactured elements, as well as natural landforms, vegetation, water features, and its visual setting, including significant views or vistas to or from the site.

Protected heritage property: means property designated under Parts IV, V or VI of the *Ontario Heritage Act*, property subject to a heritage conservation easement under Parts II or IV of the *Ontario Heritage Act*, property identified by the Province and prescribed public bodies as provincial heritage property under the Standards and Guidelines for Conservation of Provincial Heritage Properties; property protected under federal legislation, and UNESCO World Heritage Sites

**APPENDIX B: BARRY
BRYAN ASSOCIATES
STRUCTURAL
REPORT**



**BARRY BRYAN
ASSOCIATES**

Architects
Engineers
Project Managers

September 4, 2025

GE Vernova
107 Park Street North,
Peterborough, Ontario

Attention: Mr. John Jankowski, P. Eng, Site Operations Leader

Re: **GE Peterborough Structural Condition Review and Preservation Assessment of the Existing Facility Buildings at the GE Peterborough Facility Located at 107 Park Street North, Peterborough, Ontario
BBA Project No. 19135.5**

Dear Mr. Jankowski:

Barry Bryan Associates Architects, Engineers, and Project Managers (BBA) were requested by GE Vernova (GEV) to complete a series of site visits to the Peterborough Facility. The purpose of the site reviews was to visually assess the structural condition of the facility buildings and determine the feasibility of the preservation of some buildings throughout the plant. Doug McLaughlin of BBA attended the site and walked the facility buildings' interior and exterior components on multiple occasions with Mr. Russell Nash and John Jankowski of GE Vernova.

BACKGROUND

The site comprises of a series of stand-alone buildings at the east and west ends of the site with a main interconnected manufacturing plant structure that consists of multiple interconnected building structures that were added onto the facility as operations evolved. We have attached a key plan of the facility buildings to this report for reference. Each of the buildings on the campus has been categorized into three (3) blocks that are outlined below and identified on the key plan:

West Block - Buildings 21, 24A, 26, and 28

Centre Block - Buildings 6, 6B, 6D, 8, 8I, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D 12, 12 EXT, 13, 13A, 14, 14ext/A, 16, 16A, 18, 20, 20A, 22, 22C, and 34, 34A

East Block - Buildings 2, 2A, 8A, and 30

The plant facility was previously significantly renovated since the initial construction of the buildings in each block, resulting in many elements of the original construction being modified to suit the facility process requirements over time. The facility was utilized by GEV to support its evolving operations to suit the consumer demands of the industrial market over the course of continued operations. Some apparent modifications at the time of the visits included, but are not limited to, brick in-fills of existing openings, plywood covering on windows, hoisting and crane systems, interior partitions, new doors, new overhead doors, replacement of original windows with new, over-cladding on the building facades with metal siding, new cut door openings in exterior facades, and addition of trenches, pits, and structures to the floors where necessary to support the process operations. We understand that the buildings' construction was completed over many different eras, and some of the buildings may be listed on the City of Peterborough's Heritage Registrar. Additionally, GEV continues to perform ongoing building maintenance of the plant buildings in the unoccupied state to try and maintain the buildings' envelope and shell from advanced deterioration and unwanted pest and animal infiltration.

The existing plant consists of three main blocks of buildings, which we have generally summarized below:

West Block

The west block of buildings consists of Buildings 21, 24A, 26, and 28. The buildings in the west block are currently leased and occupied by an industrial tenant. Building 21 is a standalone structure isolated from the main plant superstructure, and Buildings 24A, 26, and 28 are interconnected to the main manufacturing building.



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Centre Block

The main plant buildings consist of Buildings 6, 6B, 6D, 8, 8I, 8D, 8E, 8I, 10, 10A, 10B, 10C 10D, 12, 12 EXT, 13, 13A, 14ext/A, 16, 16A, 18, 20, 20A, 22, 22C, 34, and 34A. These buildings were all constructed at varying times and are interconnected, forming one main central manufacturing plant through the spine of the facility. Building 22 is interconnected to Building 24A, which forms the connection to the west block of buildings.

East Block

The east block of buildings consists of Buildings 2, 2A, 8A, and 30. Buildings 2, 2A, and 30 are interconnected but were built at different periods of time. Building 8A is located at the north west end of the centre block of the building and provides an established appearance for the plant from Park Street.

BBA has been requested to complete the structural review for the plant blocks identified above. The review for each of the blocks will summarize the general structural condition along with providing observations and recommendations for areas of possible concern or deterioration that were identified during the on-site visual assessments. We have provided comments related to the structural stability of the superstructures as part of the structural review.

OBSERVATIONS

We have summarized the observations from the on-site visual review for the plant blocks as identified below.

Centre Block

The existing buildings superstructures throughout the centre block which consists of a combination of structural steel frames and built-up brick masonry wall systems with concrete foundations. The roofs largely consisted of a roofing membrane on decking material, which varied in composition (wood decking, haydite panels, metal pan, and gypsum concrete). The interior walls generally consisted of painted, built-up, multi-wythe brick masonry units. The exterior of the buildings appeared to generally consist of built-up, multi-wythe brick masonry units. We did not observe major separations and/or clear expansion joints between the interconnected manufacturing buildings, indicating that support laterally and/or vertically may be provided by multiple superstructures for each individual building.

We have summarized general structural observations for the centre block below.

Roof Structure / Envelope:

BBA completed an initial review of the roofing in 2015. BBA was also involved in completing periodic follow-up reviews of the roof in the centre block areas to assess continued deterioration from the underside of the decking. To date a complete roof replacement program has not been undertaken through the central block. However, stop gap remedial repair work and localized replacements continue as part of on-going maintenance programs. BBA continues to work with the facility staff to review the roof condition and provide administrative controls for restricted and permitted access where deterioration is severe throughout the centre block, where stop gap remedial repairs cannot be undertaken or are too extensive.

The existing roofing at GEV centre block generally consists of a spray-applied reflective coating and insulation material that is located on a roof membrane. There are some buildings that have had the roof replaced with a pre-finished metal roofing. The roofing material is supported on decking materials that vary based on the building (wood decking, haydite panels, metal pan, and gypsum concrete). We completed a general review of the roofing throughout the buildings and have outlined issues observed at the time of the site visit.

- The roofing appears to be sprayed insulation with a reflective coating on many of the core buildings. The coating and insulation are deteriorated and broken down, allowing moisture infiltration into many of the buildings (Photos 001 and 002). There was ponding apparent at most of the monitor truss



valleys during previous reviews (Photo 003); it was reported by GEV and observed during our visit that there is continued moisture infiltration through the valleys in localized areas at the monitor trusses. A clear indication of water infiltration was apparent from deck staining, puddles on the ground, and tarping around electrical equipment exposed to roof leaks (Photos 004 and 005). GEV has attempted to complete yearly maintenance on the roofs in an effort to maintain them. However, a complete roof replacement program is required due to the age of the roof and decking system. This condition was initially observed in 2015 and continues to be monitored with administrative access controls implemented to suit on-going assessment observations. The full roof replacement of decking and roofing requires significant capital funding and phasing due to the extensive scope of work, likely requiring complete roofing and decking replacement in localized areas.

- The roof deck in many of the core buildings was in poor condition. GEV has enforced in localized areas of the facility the use of additional personal protective equipment (PPE), routine ceiling inspection programs, installation of localized debris netting, and the implementation of restricted access areas to mitigate risks of falling debris and active deterioration of localized roof decking. The haydite roof deck panels are deteriorating along the underside of the roof deck because of moisture infiltration from the roof, which is causing the embedded reinforcing steel to corrode and the surrounding concrete spall (Photos 006, 007, 008). We observed fresh spalled concrete on the slab-on-grade that had recently fallen to the floor at the time of the site visit (Photos 009 and 010). The deteriorating haydite roof panels require extensive reinforcing or a complete replacement program with a new roof deck.
- During the follow-up site visit inside Building 14, there was an apparent failure in the roof membrane and decking, which appeared to have fully collapsed at a localized area. The roof deck had locally collapsed, and there was extensive water staining on the floor where water had infiltrated through the open roof membrane and into the plant (Photos 011 and 012).
- Building 12 could not be accessed below the lightweight gypsum concrete deck because the deck has been classified as a collapse area and is considered unsafe for occupancy. This roof deck was previously identified as a concern during the 2015 and 2022 reviews. The conditions have not changed, with evidence of new debris on the ground where the light-weight gypsum roof decking was located. The light-weight gypsum concrete decking was also observed from the mezzanine of Building 34, where apparent new fallen sections of the gypsum material were observed on the floor (Photos 013, 014, 015, and 016). This roof deck requires a complete replacement with a new structural decking system.
- We observed staining and deterioration on the underside of the wood decking throughout the facility (Photos 017, 018, 019, and 020). Localized areas where the decking has deteriorated will require restoration or complete replacement with new. The wood staining was so severe on the mezzanine wood floor areas that it had fully warped and buckled in areas, creating a trip and fall hazard (Photos 021, 022).
- The wood decking serving as floor structures at mezzanines and the 2nd floor will require further review to assess the required loading for future occupancies and assess the suitability of combustible materials for future uses within an occupied space if a fit out to the current Building Code is considered. The wood floor decking is primarily observed at mezzanines, 2nd floors, and 3rd floors throughout the centre block.
- During the previous close-up review (2015 roofing assessment completed for overhead lifts), there was deterioration observed on some of the supporting structural framing where prolonged exposure to moisture had been occurring. The steel will require further review and likely reinforcing depending on the severity of the deterioration (Photo 023). This condition is consistent in various locations throughout the plant.
- There are vertical wood cladding panels on the ends of the monitor trusses that are deteriorating and failing at localized areas throughout the plant. The deteriorated wood plank paneling was observed on the floor in many of the areas throughout the plant (Photos 024, 025, and 026).



- Safe access to many of the roofs needs to be reviewed. Most of the vertical access ladders do not comply with current Occupational Health and Safety requirements and require replacement.
- The exterior roof flashings, soffits, and fascia are incomplete in many areas and require replacement where full deterioration has occurred, allowing moisture and rodents/animals into the buildings that are currently not occupied. These building elements will need to be replaced to re-establish a building envelope and prevent more advanced deterioration of the supporting structural framing resulting from prolonged exposure to exterior elements.
- The windows on the monitor trusses and side lights in many locations appear to be original single-pane wood or steel sash glazing units. Many glazing units are cracked or broken, allowing moisture and water infiltration into the building. This condition continues to deteriorate as continued weathering occurs.

Building Envelope:

The building envelope at some buildings consisted of a multi-wythe built-up brick masonry system. Most exterior elevations had decorative masonry units and stone features embedded in the construction. The brick masonry facades at some buildings had been concealed with over cladding in some areas. We have summarized our general observations for the building envelopes below:

- The structural steel superstructure of many of the buildings is original and consists of light-grade structural steel with riveted connections. Localized close-up visual review connections of the steel should be reviewed where past moisture exposure has occurred to confirm the condition of the riveted connections. We observed areas of scaling/deterioration from a distance on several beams where prolonged roof leaks appear to be occurring (Photos 028, 029, and 030). These conditions have remained generally similar to what was observed in the 2022 review.
- The exterior brick masonry construction remains in poor condition at the time of the site visit on many core buildings. This condition remained generally consistent with the observations from the 2022 condition review. Throughout the core buildings, we observed the following concerns:
 - o Deteriorated (cracked or open mortar joints), especially at the roof lines, around windows, doors, and foundation walls (Photos 031, 032, 033, 034, 035, and 036).
 - o Rain water leaders are still terminating flush to grade; brick units at these locations were extensively deteriorated (Photos 037, 038, and 039). All rainwater leaders should be connected into the storm sewer connection or directed positively away from the brick masonry walls and concrete foundations to prevent deterioration.
 - o Poorly repointed mortar joints with cement-based mortar and no consideration for historic repointing procedures are consistent and in many areas throughout the site. The poorly repointed joints will need to be routed out, backpointed, and repointed.
 - o The addition of exterior structural framing bolted through the exterior walls to support interior suspended structures needs to be reviewed for structural stability and removed where not required for support of current structural elements.
 - o Fully deteriorated column / pier based in multiple locations (Photo 040).
 - o Spalled brick units where moisture exposure is consistent at the multi-wythe brick masonry at grade will need to be assessed in areas of extensive deterioration, and a remedial repair or localized replacement program established to restore the structural integrity of the multi-wythe brick masonry wall system. Additionally, grading where bricks extend below the asphalt hard surfacing should be reviewed, and grading considered to mitigate risk with the structural brick masonry extending below grade (Photos 031, 032, 033, 034, 035, and 036).
- We observed significant amounts of what appeared to be transite paneling on the exterior of several buildings (Photos 041 and 042). The transite will need to be reviewed from an environmental standpoint; removal and replacement is likely necessary to accommodate current building code design loads and the longevity of the building superstructure.



- Concrete foundations show extensive deterioration; reinforcing steel is exposed in many locations along the south elevations. The deteriorated concrete should be cleaned to a sound structure and repaired with a repair mortar. The deteriorated bricks could be replaced with new to match existing and surrounding mortar joints repointed (Photo 043).
- We observed areas where the exterior walls are not closed to the exterior environment. The cladding should be closed against a proper foundation wall to limit weather infiltration into the buildings (Photos 044, and 045). This condition still remained; we understand it is an ongoing challenge to remove pests from the building (Photo 046).
- The perimeter walls in most areas appear to be a mass brick masonry wall assembly; there is little to no insulation present in the walls. The buildings that do not comply with current energy design requirements should be considered as an upgrade with new sustainability design requirements. Extensive modifications to the buildings would be required to improve the energy usage and greenhouse gas consumption.

Building Interiors:

- Crane systems throughout the plants need to be re-certified or decommissioned (Photo 047).
- There are wood second floor and mezzanine structures throughout several of the plant areas. The use of the mezzanines constructed with combustible materials may not meet current Building Code Regulations and needs to be reassessed for suitable load rating (Photo 048). Note: Should removals of the non-compliant mezzanines or second floor systems be considered, a structural review to ensure that the stability of the building superstructure will be necessary to confirm it is not affected or adequate reinforcing is implemented.
- There are extensive pits/recessed slabs/elevated work platforms that will need to be modified for future use (Photos 049, 050, and 051). These slabs may need to be modified or altered to accommodate the new use in the plants.
- Most of the interior areas, including brick masonry walls, soffits, roof decks, and second-floor structures, are painted. Based on previously completed projects, the interior paint consisted of multiple coatings (Photo 050). Consideration of new paint bonding to the existing paint may need to be explored, or the existing paint stripped and the condition of the masonry reviewed to ensure stripping or the removals do not impact the overall structural condition of the masonry. Face shell weakness after the removals are completed may be caused because of the age of the brick masonry units.
- Many of the buildings appear to have been constructed at varying times and added to during subsequent additions to the block of industrial buildings. We observed interconnection between the building for utility services, structural framing, process equipment, and interconnection of the superstructures. Further investigation will be required to assess the impacts of the removal of the buildings during demolition since the overall stability of the block of buildings will be altered and become potentially unstable when one or multiple components of the large block superstructure are removed. We observed multiple conditions throughout the centre block where one building has been constructed over and/or onto an adjacent building. The interconnection between these buildings without extensive reinforcing or likely full build superstructure replacement would not be practical structurally.

Exterior Site Works:

- We observed multiple service pits throughout the site that appear to have deteriorated as road plates were placed over the pit walls. The structural condition of the pits will require further review and likely structural stabilization or repair (Photos 053 and 054).
- There are service bridges between buildings throughout the plant. Many of the bridges are in poor condition and need to be structurally reviewed to confirm if reinforcing is required to suit the intended use (Photo 055).



- We observed an area where the exterior hard surfacing was depressed at a pressure indicator valve (PIV); the subbase around the pressure indicators is likely being eroded as a result of a leak in the PIV (Photo 056). The eroded grades need to be restored.

Overall, the centre block buildings are in poor to fair condition at the time of the site visit. There is evidence of more advanced structural deterioration and building envelope performance at various locations throughout the plant buildings. The current building condition has been acknowledged by facility staff with the current restricted access requirements and additional safety measures that have been put in place through some of the buildings resulting from actively deteriorating roof debris falling to the ground.

The buildings in this facility mostly exceed 50 years in age and are likely at the end of their useful service life expectancy, meaning more extensive repairs/replacements and restoration programs are required beyond a standard maintenance plan. Based on the current condition, the buildings require extensive restoration work to make them safe for any re-occupancy. Additionally, due to the complex interconnection of the superstructures between the centre block buildings, isolated separation would likely result in nearly a complete replacement or reinforcement of the superstructures and lateral bearing elements of the buildings should isolated retention be considered within this block of buildings.

Occupied Buildings

We understand that based on the ongoing partial occupancy and condition of the East and West Blocks of the facility, GEV is considering continued occupancy of the East and West Blocks. These buildings generally consist of Buildings 2, 2A, 21, 24A, 26, and 28. The retention of these buildings will require an isolation of the proposed demolished plant buildings on the interface between Building 24A and Building 20 if demolition of the centre block is considered.

Although not currently occupied on site, GEV is also considering retention of Building 8A, which is located at the north west corner of the main plant centre block and is interconnected into various sections of Buildings 8i and 8.

We have summarized our findings for each of the areas for the east and west block building which are primarily occupied buildings and being considered for retention based on our visual assessment of the site where accessible during our visits to the plant.

West Block

The west block of buildings was currently occupied during the time of the site visits. The buildings generally consist of a combination of structural steel frames and built-up brick masonry wall systems with concrete foundations similar to the main plant. The roofs largely consisted of a roofing membrane on decking material, which varied in composition between steel pan deck and haydite panels. The interior walls generally consisted of painted, built-up, multi-wythe brick masonry and concrete masonry block units. The exterior of the buildings appeared to generally consist of built-up, multi-wythe, and cavity wall brick masonry units.

BBA has not undertaken detailed site reviews of each of the buildings. However, BBA has been inside the buildings for various assignments in the past. The buildings based on past site visits are generally in good condition and support continued occupancy in all areas. We understand that facility maintenance is ongoing by the current tenant within the occupied buildings, and building improvements/renovations are ongoing as the tenant requires to suit the growing business requirements.

BBA completed a more comprehensive review of the required isolation of Building 24A to obtain an understanding of the structural implications of whether structural stability is possible for the Building 24A superstructure if demolition of the centre block buildings is considered. BBA completed a structural review and concluded that Building 24A, after being separated from Building 22, would be structurally stable if various reinforcing, utility relocations, and envelope restoration are completed along the separation line. It





**BARRY BRYAN
ASSOCIATES**

Architects
Engineers
Project Managers

September 4, 2025

GE Vernova
107 Park Street North,
Peterborough, Ontario

Attention: Mr. John Jankowski, P. Eng, Site Operations Leader

Re: **GE Peterborough Structural Condition Review and Preservation Assessment of the Existing Facility Buildings at the GE Peterborough Facility Located at 107 Park Street North, Peterborough, Ontario
BBA Project No. 19135.5**

Dear Mr. Jankowski:

Barry Bryan Associates Architects, Engineers, and Project Managers (BBA) were requested by GE Vernova (GEV) to complete a series of site visits to the Peterborough Facility. The purpose of the site reviews was to visually assess the structural condition of the facility buildings and determine the feasibility of the preservation of some buildings throughout the plant. Doug McLaughlin of BBA attended the site and walked the facility buildings' interior and exterior components on multiple occasions with Mr. Russell Nash and John Jankowski of GE Vernova.

BACKGROUND

The site comprises of a series of stand-alone buildings at the east and west ends of the site with a main interconnected manufacturing plant structure that consists of multiple interconnected building structures that were added onto the facility as operations evolved. We have attached a key plan of the facility buildings to this report for reference. Each of the buildings on the campus has been categorized into three (3) blocks that are outlined below and identified on the key plan:

West Block - Buildings 21, 24A, 26, and 28

Centre Block - Buildings 6, 6B, 6D, 8, 8I, 8D, 8E, 8I, 10, 10A, 10B, 10C, 10D 12, 12 EXT, 13, 13A, 14, 14ext/A, 16, 16A, 18, 20, 20A, 22, 22C, and 34, 34A

East Block - Buildings 2, 2A, 8A, and 30

The plant facility was previously significantly renovated since the initial construction of the buildings in each block, resulting in many elements of the original construction being modified to suit the facility process requirements over time. The facility was utilized by GEV to support its evolving operations to suit the consumer demands of the industrial market over the course of continued operations. Some apparent modifications at the time of the visits included, but are not limited to, brick in-fills of existing openings, plywood covering on windows, hoisting and crane systems, interior partitions, new doors, new overhead doors, replacement of original windows with new, over-cladding on the building facades with metal siding, new cut door openings in exterior facades, and addition of trenches, pits, and structures to the floors where necessary to support the process operations. We understand that the buildings' construction was completed over many different eras, and some of the buildings may be listed on the City of Peterborough's Heritage Registrar. Additionally, GEV continues to perform ongoing building maintenance of the plant buildings in the unoccupied state to try and maintain the buildings' envelope and shell from advanced deterioration and unwanted pest and animal infiltration.

The existing plant consists of three main blocks of buildings, which we have generally summarized below:

West Block

The west block of buildings consists of Buildings 21, 24A, 26, and 28. The buildings in the west block are currently leased and occupied by an industrial tenant. Building 21 is a standalone structure isolated from the main plant superstructure, and Buildings 24A, 26, and 28 are interconnected to the main manufacturing building.



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Centre Block

The main plant buildings consist of Buildings 6, 6B, 6D, 8, 8I, 8D, 8E, 8I, 10, 10A, 10B, 10C 10D, 12, 12 EXT, 13, 13A, 14ext/A, 16, 16A, 18, 20, 20A, 22, 22C, 34, and 34A. These buildings were all constructed at varying times and are interconnected, forming one main central manufacturing plant through the spine of the facility. Building 22 is interconnected to Building 24A, which forms the connection to the west block of buildings.

East Block

The east block of buildings consists of Buildings 2, 2A, 8A, and 30. Buildings 2, 2A, and 30 are interconnected but were built at different periods of time. Building 8A is located at the north west end of the centre block of the building and provides an established appearance for the plant from Park Street.

BBA has been requested to complete the structural review for the plant blocks identified above. The review for each of the blocks will summarize the general structural condition along with providing observations and recommendations for areas of possible concern or deterioration that were identified during the on-site visual assessments. We have provided comments related to the structural stability of the superstructures as part of the structural review.

OBSERVATIONS

We have summarized the observations from the on-site visual review for the plant blocks as identified below.

Centre Block

The existing buildings superstructures throughout the centre block which consists of a combination of structural steel frames and built-up brick masonry wall systems with concrete foundations. The roofs largely consisted of a roofing membrane on decking material, which varied in composition (wood decking, haydite panels, metal pan, and gypsum concrete). The interior walls generally consisted of painted, built-up, multi-wythe brick masonry units. The exterior of the buildings appeared to generally consist of built-up, multi-wythe brick masonry units. We did not observe major separations and/or clear expansion joints between the interconnected manufacturing buildings, indicating that support laterally and/or vertically may be provided by multiple superstructures for each individual building.

We have summarized general structural observations for the centre block below.

Roof Structure / Envelope:

BBA completed an initial review of the roofing in 2015. BBA was also involved in completing periodic follow-up reviews of the roof in the centre block areas to assess continued deterioration from the underside of the decking. To date a complete roof replacement program has not been undertaken through the central block. However, stop gap remedial repair work and localized replacements continue as part of on-going maintenance programs. BBA continues to work with the facility staff to review the roof condition and provide administrative controls for restricted and permitted access where deterioration is severe throughout the centre block, where stop gap remedial repairs cannot be undertaken or are too extensive.

The existing roofing at GEV centre block generally consists of a spray-applied reflective coating and insulation material that is located on a roof membrane. There are some buildings that have had the roof replaced with a pre-finished metal roofing. The roofing material is supported on decking materials that vary based on the building (wood decking, haydite panels, metal pan, and gypsum concrete). We completed a general review of the roofing throughout the buildings and have outlined issues observed at the time of the site visit.

- The roofing appears to be sprayed insulation with a reflective coating on many of the core buildings. The coating and insulation are deteriorated and broken down, allowing moisture infiltration into many of the buildings (Photos 001 and 002). There was ponding apparent at most of the monitor truss



valleys during previous reviews (Photo 003); it was reported by GEV and observed during our visit that there is continued moisture infiltration through the valleys in localized areas at the monitor trusses. A clear indication of water infiltration was apparent from deck staining, puddles on the ground, and tarping around electrical equipment exposed to roof leaks (Photos 004 and 005). GEV has attempted to complete yearly maintenance on the roofs in an effort to maintain them. However, a complete roof replacement program is required due to the age of the roof and decking system. This condition was initially observed in 2015 and continues to be monitored with administrative access controls implemented to suit on-going assessment observations. The full roof replacement of decking and roofing requires significant capital funding and phasing due to the extensive scope of work, likely requiring complete roofing and decking replacement in localized areas.

- The roof deck in many of the core buildings was in poor condition. GEV has enforced in localized areas of the facility the use of additional personal protective equipment (PPE), routine ceiling inspection programs, installation of localized debris netting, and the implementation of restricted access areas to mitigate risks of falling debris and active deterioration of localized roof decking. The haydite roof deck panels are deteriorating along the underside of the roof deck because of moisture infiltration from the roof, which is causing the embedded reinforcing steel to corrode and the surrounding concrete spall (Photos 006, 007, 008). We observed fresh spalled concrete on the slab-on-grade that had recently fallen to the floor at the time of the site visit (Photos 009 and 010). The deteriorating haydite roof panels require extensive reinforcing or a complete replacement program with a new roof deck.
- During the follow-up site visit inside Building 14, there was an apparent failure in the roof membrane and decking, which appeared to have fully collapsed at a localized area. The roof deck had locally collapsed, and there was extensive water staining on the floor where water had infiltrated through the open roof membrane and into the plant (Photos 011 and 012).
- Building 12 could not be accessed below the lightweight gypsum concrete deck because the deck has been classified as a collapse area and is considered unsafe for occupancy. This roof deck was previously identified as a concern during the 2015 and 2022 reviews. The conditions have not changed, with evidence of new debris on the ground where the light-weight gypsum roof decking was located. The light-weight gypsum concrete decking was also observed from the mezzanine of Building 34, where apparent new fallen sections of the gypsum material were observed on the floor (Photos 013, 014, 015, and 016). This roof deck requires a complete replacement with a new structural decking system.
- We observed staining and deterioration on the underside of the wood decking throughout the facility (Photos 017, 018, 019, and 020). Localized areas where the decking has deteriorated will require restoration or complete replacement with new. The wood staining was so severe on the mezzanine wood floor areas that it had fully warped and buckled in areas, creating a trip and fall hazard (Photos 021, 022).
- The wood decking serving as floor structures at mezzanines and the 2nd floor will require further review to assess the required loading for future occupancies and assess the suitability of combustible materials for future uses within an occupied space if a fit out to the current Building Code is considered. The wood floor decking is primarily observed at mezzanines, 2nd floors, and 3rd floors throughout the centre block.
- During the previous close-up review (2015 roofing assessment completed for overhead lifts), there was deterioration observed on some of the supporting structural framing where prolonged exposure to moisture had been occurring. The steel will require further review and likely reinforcing depending on the severity of the deterioration (Photo 023). This condition is consistent in various locations throughout the plant.
- There are vertical wood cladding panels on the ends of the monitor trusses that are deteriorating and failing at localized areas throughout the plant. The deteriorated wood plank paneling was observed on the floor in many of the areas throughout the plant (Photos 024, 025, and 026).



- Safe access to many of the roofs needs to be reviewed. Most of the vertical access ladders do not comply with current Occupational Health and Safety requirements and require replacement.
- The exterior roof flashings, soffits, and fascia are incomplete in many areas and require replacement where full deterioration has occurred, allowing moisture and rodents/animals into the buildings that are currently not occupied. These building elements will need to be replaced to re-establish a building envelope and prevent more advanced deterioration of the supporting structural framing resulting from prolonged exposure to exterior elements.
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Building Envelope:

The building envelope at some buildings consisted of a multi-wythe built-up brick masonry system. Most exterior elevations had decorative masonry units and stone features embedded in the construction. The brick masonry facades at some buildings had been concealed with over cladding in some areas. We have summarized our general observations for the building envelopes below:

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 - o Deteriorated (cracked or open mortar joints), especially at the roof lines, around windows, doors, and foundation walls (Photos 031, 032, 033, 034, 035, and 036).
 - o Rain water leaders are still terminating flush to grade; brick units at these locations were extensively deteriorated (Photos 037, 038, and 039). All rainwater leaders should be connected into the storm sewer connection or directed positively away from the brick masonry walls and concrete foundations to prevent deterioration.
 - o Poorly repointed mortar joints with cement-based mortar and no consideration for historic repointing procedures are consistent and in many areas throughout the site. The poorly repointed joints will need to be routed out, backpointed, and repointed.
 - o The addition of exterior structural framing bolted through the exterior walls to support interior suspended structures needs to be reviewed for structural stability and removed where not required for support of current structural elements.
 - o Fully deteriorated column / pier based in multiple locations (Photo 040).
 - o Spalled brick units where moisture exposure is consistent at the multi-wythe brick masonry at grade will need to be assessed in areas of extensive deterioration, and a remedial repair or localized replacement program established to restore the structural integrity of the multi-wythe brick masonry wall system. Additionally, grading where bricks extend below the asphalt hard surfacing should be reviewed, and grading considered to mitigate risk with the structural brick masonry extending below grade (Photos 031, 032, 033, 034, 035, and 036).
- We observed significant amounts of what appeared to be transite paneling on the exterior of several buildings (Photos 041 and 042). The transite will need to be reviewed from an environmental standpoint; removal and replacement is likely necessary to accommodate current building code design loads and the longevity of the building superstructure.



- Concrete foundations show extensive deterioration; reinforcing steel is exposed in many locations along the south elevations. The deteriorated concrete should be cleaned to a sound structure and repaired with a repair mortar. The deteriorated bricks could be replaced with new to match existing and surrounding mortar joints repointed (Photo 043).
- We observed areas where the exterior walls are not closed to the exterior environment. The cladding should be closed against a proper foundation wall to limit weather infiltration into the buildings (Photos 044, and 045). This condition still remained; we understand it is an ongoing challenge to remove pests from the building (Photo 046).
- The perimeter walls in most areas appear to be a mass brick masonry wall assembly; there is little to no insulation present in the walls. The buildings that do not comply with current energy design requirements should be considered as an upgrade with new sustainability design requirements. Extensive modifications to the buildings would be required to improve the energy usage and greenhouse gas consumption.

Building Interiors:

- Crane systems throughout the plants need to be re-certified or decommissioned (Photo 047).
- There are wood second floor and mezzanine structures throughout several of the plant areas. The use of the mezzanines constructed with combustible materials may not meet current Building Code Regulations and needs to be reassessed for suitable load rating (Photo 048). Note: Should removals of the non-compliant mezzanines or second floor systems be considered, a structural review to ensure that the stability of the building superstructure will be necessary to confirm it is not affected or adequate reinforcing is implemented.
- There are extensive pits/recessed slabs/elevated work platforms that will need to be modified for future use (Photos 049, 050, and 051). These slabs may need to be modified or altered to accommodate the new use in the plants.
- Most of the interior areas, including brick masonry walls, soffits, roof decks, and second-floor structures, are painted. Based on previously completed projects, the interior paint consisted of multiple coatings (Photo 050). Consideration of new paint bonding to the existing paint may need to be explored, or the existing paint stripped and the condition of the masonry reviewed to ensure stripping or the removals do not impact the overall structural condition of the masonry. Face shell weakness after the removals are completed may be caused because of the age of the brick masonry units.
- Many of the buildings appear to have been constructed at varying times and added to during subsequent additions to the block of industrial buildings. We observed interconnection between the building for utility services, structural framing, process equipment, and interconnection of the superstructures. Further investigation will be required to assess the impacts of the removal of the buildings during demolition since the overall stability of the block of buildings will be altered and become potentially unstable when one or multiple components of the large block superstructure are removed. We observed multiple conditions throughout the centre block where one building has been constructed over and/or onto an adjacent building. The interconnection between these buildings without extensive reinforcing or likely full build superstructure replacement would not be practical structurally.

Exterior Site Works:

- We observed multiple service pits throughout the site that appear to have deteriorated as road plates were placed over the pit walls. The structural condition of the pits will require further review and likely structural stabilization or repair (Photos 053 and 054).
- There are service bridges between buildings throughout the plant. Many of the bridges are in poor condition and need to be structurally reviewed to confirm if reinforcing is required to suit the intended use (Photo 055).



- We observed an area where the exterior hard surfacing was depressed at a pressure indicator valve (PIV); the subbase around the pressure indicators is likely being eroded as a result of a leak in the PIV (Photo 056). The eroded grades need to be restored.

Overall, the centre block buildings are in poor to fair condition at the time of the site visit. There is evidence of more advanced structural deterioration and building envelope performance at various locations throughout the plant buildings. The current building condition has been acknowledged by facility staff with the current restricted access requirements and additional safety measures that have been put in place through some of the buildings resulting from actively deteriorating roof debris falling to the ground.

The buildings in this facility mostly exceed 50 years in age and are likely at the end of their useful service life expectancy, meaning more extensive repairs/replacements and restoration programs are required beyond a standard maintenance plan. Based on the current condition, the buildings require extensive restoration work to make them safe for any re-occupancy. Additionally, due to the complex interconnection of the superstructures between the centre block buildings, isolated separation would likely result in nearly a complete replacement or reinforcement of the superstructures and lateral bearing elements of the buildings should isolated retention be considered within this block of buildings.

Occupied Buildings

We understand that based on the ongoing partial occupancy and condition of the East and West Blocks of the facility, GEV is considering continued occupancy of the East and West Blocks. These buildings generally consist of Buildings 2, 2A, 21, 24A, 26, and 28. The retention of these buildings will require an isolation of the proposed demolished plant buildings on the interface between Building 24A and Building 20 if demolition of the centre block is considered.

Although not currently occupied on site, GEV is also considering retention of Building 8A, which is located at the north west corner of the main plant centre block and is interconnected into various sections of Buildings 8i and 8.

We have summarized our findings for each of the areas for the east and west block building which are primarily occupied buildings and being considered for retention based on our visual assessment of the site where accessible during our visits to the plant.

West Block

The west block of buildings was currently occupied during the time of the site visits. The buildings generally consist of a combination of structural steel frames and built-up brick masonry wall systems with concrete foundations similar to the main plant. The roofs largely consisted of a roofing membrane on decking material, which varied in composition between steel pan deck and haydite panels. The interior walls generally consisted of painted, built-up, multi-wythe brick masonry and concrete masonry block units. The exterior of the buildings appeared to generally consist of built-up, multi-wythe, and cavity wall brick masonry units.

BBA has not undertaken detailed site reviews of each of the buildings. However, BBA has been inside the buildings for various assignments in the past. The buildings based on past site visits are generally in good condition and support continued occupancy in all areas. We understand that facility maintenance is ongoing by the current tenant within the occupied buildings, and building improvements/renovations are ongoing as the tenant requires to suit the growing business requirements.

BBA completed a more comprehensive review of the required isolation of Building 24A to obtain an understanding of the structural implications of whether structural stability is possible for the Building 24A superstructure if demolition of the centre block buildings is considered. BBA completed a structural review and concluded that Building 24A, after being separated from Building 22, would be structurally stable if various reinforcing, utility relocations, and envelope restoration are completed along the separation line. It



is our opinion that the structural isolation of this block from the centre block is feasible with minimal impacts to the overall superstructures.

Based on our limited information from previous site visits inside the west block buildings, it is our opinion that the west block buildings are structurally in good condition and suitable for continued occupancy.

East Block

Building 2 is a three (3) storey office/administration building with a full basement and is located between Building 2A and Building 30. Building 2 in general consists of a gross floor area of 39,690 square feet and 13,230 square feet of basement area. The building is currently occupied by GEV staff on the ground, 2nd floor, and 3rd floors, and the basement is used as a storage space. (Photos 058, 059)

Building 2A is a two (2) storey office/administration building located at the north end of the three buildings. Building 2A generally consists of 26,776 square feet of gross floor area. The building's ground floor is currently being partially used for facility administration and security work. However, the second floor and mezzanine, along with parts of the ground floor, are unoccupied. The unoccupied sections of the building generally have had finishes removed and are in a shell condition, exposing the original heavy timber and wood framed superstructure (Photo 057).

Building 30 is a three (3) storey office/industrial building with a full basement and is located on the south side of Building 2. Building 30 generally consists of 62,339 square feet of gross floor area and 24,871 square feet of basement area. The building is currently not occupied and has been stripped to the building envelope and structural shell (Photos 059, and 060).

We have summarized our structural observations for the east block as follows:

Building Envelope

- The roof of Building 30 is in poor condition and is actively leaking (Photos 061, 062, and 063).
- The exterior brick façade will require repointing and localized restoration (Photos 064, 065, and 066).
- Abandoned loading docks that are in poor condition at Building 30 and at-grade approaches will need to be re-purposed or removed (Photos 067 and 068).
- If window and glazing units are replaced, structural lintels and sills / jambs at existing openings will need to be reviewed and reinforced (Photos 069, 070, and 071).

Interiors

- Load ratings and fire separations between floors will need to be established. Note: most of the floor is constructed with combustible construction (Photo 075) which may be considered heavy timber.
- There appears to be moisture infiltration evidence on the interior below grade walls in the basement (Photo 076). The basement walls may require waterproofing and structural stabilization locally where isolated deterioration is occurring.

It is our general opinion that Buildings 2, 2A, and 30 are in fair to good condition. Remedial work in the form of general maintenance is ongoing for the building areas, especially where they continue to provide an occupancy for ongoing site operations. It is our general opinion that the building superstructures for Buildings 2, 2A, and 30 are suitable to provide stability for the current ongoing industrial office use and can continue to provide a future level of occupancy.

Building 8A

Building 8A generally consists of an exterior brick and stone façade with decorative architectural stone features. The structural framing for the floor and roof was reviewed from openings in the deteriorated ceiling finishes at each floor. The floor framing consisted of laminated wood decking that spans between heavy timber beams that are supported on wood columns. An exit stair was added to the north side of the building that partially enclosed the original exterior brick and stone façade. Additionally, Buildings 8I and 8D were



is our opinion that the structural isolation of this block from the centre block is feasible with minimal impacts to the overall superstructures.

Based on our limited information from previous site visits inside the west block buildings, it is our opinion that the west block buildings are structurally in good condition and suitable for continued occupancy.

East Block

Building 2 is a three (3) storey office/administration building with a full basement and is located between Building 2A and Building 30. Building 2 in general consists of a gross floor area of 39,690 square feet and 13,230 square feet of basement area. The building is currently occupied by GEV staff on the ground, 2nd floor, and 3rd floors, and the basement is used as a storage space. (Photos 058, 059)

Building 2A is a two (2) storey office/administration building located at the north end of the three buildings. Building 2A generally consists of 26,776 square feet of gross floor area. The building's ground floor is currently being partially used for facility administration and security work. However, the second floor and mezzanine, along with parts of the ground floor, are unoccupied. The unoccupied sections of the building generally have had finishes removed and are in a shell condition, exposing the original heavy timber and wood framed superstructure (Photo 057).

Building 30 is a three (3) storey office/industrial building with a full basement and is located on the south side of Building 2. Building 30 generally consists of 62,339 square feet of gross floor area and 24,871 square feet of basement area. The building is currently not occupied and has been stripped to the building envelope and structural shell (Photos 059, and 060).

We have summarized our structural observations for the east block as follows:

Building Envelope

- The roof of Building 30 is in poor condition and is actively leaking (Photos 061, 062, and 063).
- The exterior brick façade will require repointing and localized restoration (Photos 064, 065, and 066).
- Abandoned loading docks that are in poor condition at Building 30 and at-grade approaches will need to be re-purposed or removed (Photos 067 and 068).
- If window and glazing units are replaced, structural lintels and sills / jambs at existing openings will need to be reviewed and reinforced (Photos 069, 070, and 071).

Interiors

- Load ratings and fire separations between floors will need to be established. Note: most of the floor is constructed with combustible construction (Photo 075) which may be considered heavy timber.
- There appears to be moisture infiltration evidence on the interior below grade walls in the basement (Photo 076). The basement walls may require waterproofing and structural stabilization locally where isolated deterioration is occurring.

It is our general opinion that Buildings 2, 2A, and 30 are in fair to good condition. Remedial work in the form of general maintenance is ongoing for the building areas, especially where they continue to provide an occupancy for ongoing site operations. It is our general opinion that the building superstructures for Buildings 2, 2A, and 30 are suitable to provide stability for the current ongoing industrial office use and can continue to provide a future level of occupancy.

Building 8A

Building 8A generally consists of an exterior brick and stone façade with decorative architectural stone features. The structural framing for the floor and roof was reviewed from openings in the deteriorated ceiling finishes at each floor. The floor framing consisted of laminated wood decking that spans between heavy timber beams that are supported on wood columns. An exit stair was added to the north side of the building that partially enclosed the original exterior brick and stone façade. Additionally, Buildings 8I and 8D were



added to the north and south sides of this building, partially enclosing the façades of Building 8A. There is an elevator shaft located on the west side of the building that appears to have been added after the original building construction. It was reported that the elevator in the shaft was decommissioned in 2021 when the building became no longer occupied.

BBA completed a review of the existing structure and determined that it is feasible to isolate 8A from the remainder of the demolished Building 8 buildings. The building has undergone multiple renovations since the original construction, primarily the enclosure with surrounding industrial plant occupancy buildings. We understand that there is a consideration for the adaptive reuse of Building 8A. However, possible future occupancies have not yet been considered or established. There are immediate improvements required to support the current facility and any future occupancy. We believe the following structural issues must be resolved prior to considering an occupancy of the building:

1. The exterior walls require restoration:
 - a. Repointing completed on both stone and brick units. Replace damaged brick units beyond repair and cut in replacement stone at severely damaged stones (Photos 080, and 081).
 - b. Restore or replace exterior window units (Photos 082, and 083).
 - c. Extend down spouts for positive drainage from the foundation walls.
 - d. Repair cracked and deteriorated brick that may be a debris hazard (Photo 084).
2. The roof needs to be made water-tight and likely localized areas of the wood decking will need to be reinforced or replaced. Additionally, isolated areas of the wood decking will require repair or replacement. We recommend further close-up review of the wood decking be completed to confirm the condition and extent of deterioration (Photos 085, 086, and 87).
3. Review roof parapets and flashings to ensure that they are generally in sound condition and suitable for the intended purpose. It is recommended that all cap flashings be reviewed to make sure adequate fasteners are installed to prevent structural displacement from the supporting parapet structure.
4. Foundations for the elevator need to be confirmed if they are established into an exterior condition should adjacent building demolition be considered.
5. The interior foundations for 8A, if the servicing is discontinued, must be improved by providing insulation for the necessary frost cover.
6. We recommend all windows, glazing, seals, and sashes be reviewed with associated flashing to provide a water-tight and weather-tight condition along the building envelope.
7. Cleaning and painting of the interior walls and structure is required. We recommend designated substances are reviewed to implement any necessary abatement programs prior to completing the work (Photos 088, 089, and 090).

It is our opinion that Building 8A is in fair to good condition. It is our opinion that the Building Superstructure can be safely isolated from the remainder of Buildings 6 & 8 in the event demolition is considered with remedial work and stabilization. The building appears to be constructed as a focal point for the GE Peterborough campus and constructed with architectural features that are unique from the centre block plant buildings that have been built around the building.

The building superstructure for Building 8A, based on our visual assessment, is in our opinion structurally suitable to provide stability for future plant industrial office use or could support an office-based adaptive reuse with upgrades as part of an adaptive reuse program to meet current Ontario Building Code and other applicable standards and regulations.

RECOMMENDATION

Based on our review of the West, Central, and East Blocks of Buildings at the GE Peterborough Facility, it is our opinion that the main centre block plant buildings are considered to be in poor condition. It is our opinion that the extensive amount of interconnection between buildings, along with poor condition of the buildings through centre block structures, that demolition should be considered. We do not believe the isolated salvage of buildings integrated within the centre block are suitable for selective retention because of the integrated complexity and negative effect on the adjacent or remaining superstructures after isolation is completed.



The East and West Block buildings at the facility currently are in fair to good condition. The majority of the buildings in these blocks are currently occupied or are planned for retention by GEV. It is our opinion that restoration and stabilization are feasible for all of the buildings to support continued or new occupancies, including Building 8A, which is located at the north western edge of the Centre Block of Buildings.

Should you have any questions or concerns, please do not hesitate to contact our office.

Yours very truly,

Barry Bryan Associates

Architects, Engineers, Project Managers



Doug McLaughlin, P.Eng.



DM/sm

Attachments: BBA Photo Sheets
BBA Key Plan S100

(23 pages)
(1 page)





Photo 001



Photo 002



Photo 003



Photo 004



Photo 005



Photo 006



Photo 007



Photo 008



Photo 009



Photo 010



Photo 011

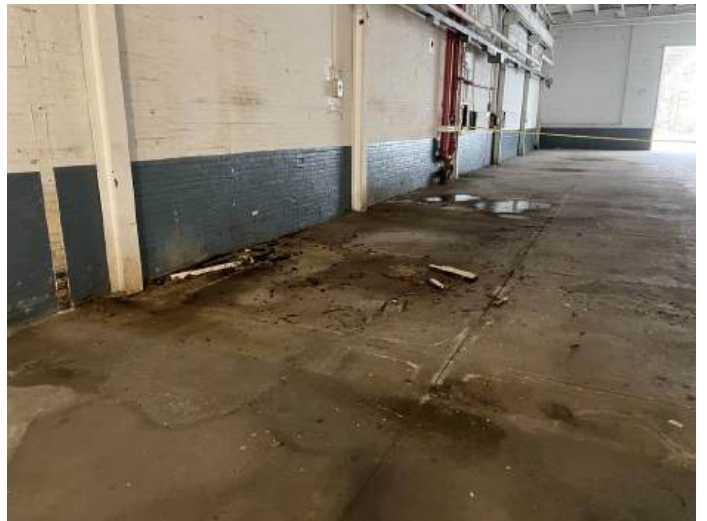


Photo 012



Photo 013



Photo 014



Photo 015



Photo 016



Photo 017



Photo 018



Photo 019



Photo 020



Photo 021



Photo 022



Photo 023



Photo 024



Photo 025



Photo 026



Photo 028



Photo 029



Photo 030



Photo 031



Photo 032



Photo 033



Photo 034



Photo 035



Photo 036



Photo 037



Photo 038

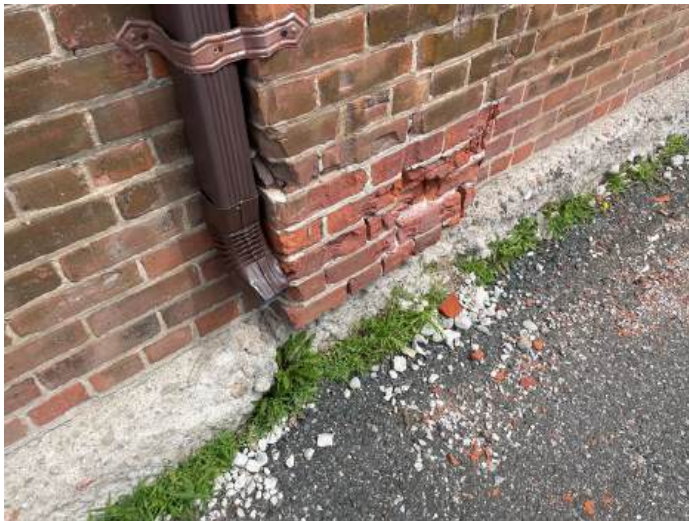


Photo 039



Photo 040



Photo 041



Photo 042



Photo 043



Photo 044



Photo 045



Photo 046

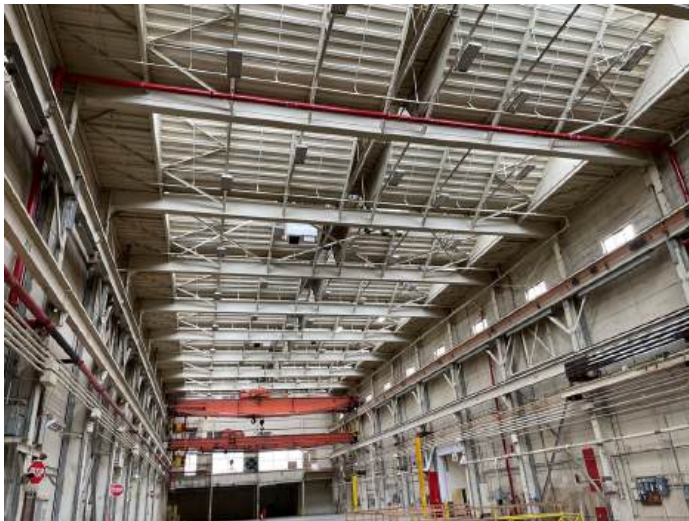


Photo 047

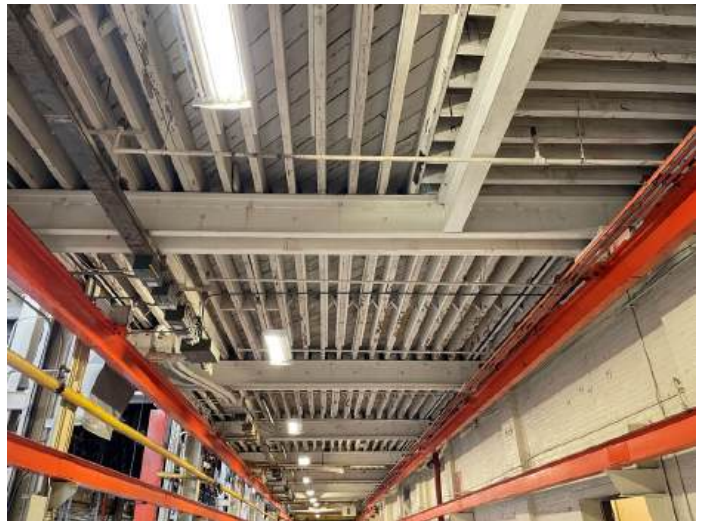


Photo 048



Photo 049



Photo 050



Photo 051

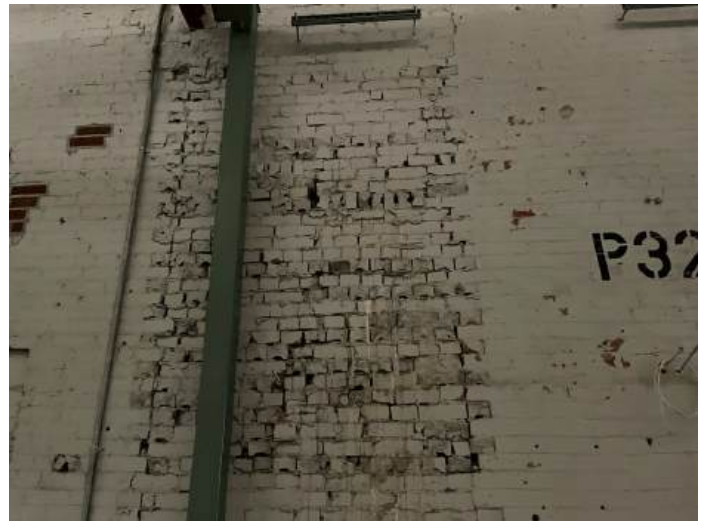


Photo 052



Photo 053



Photo 054

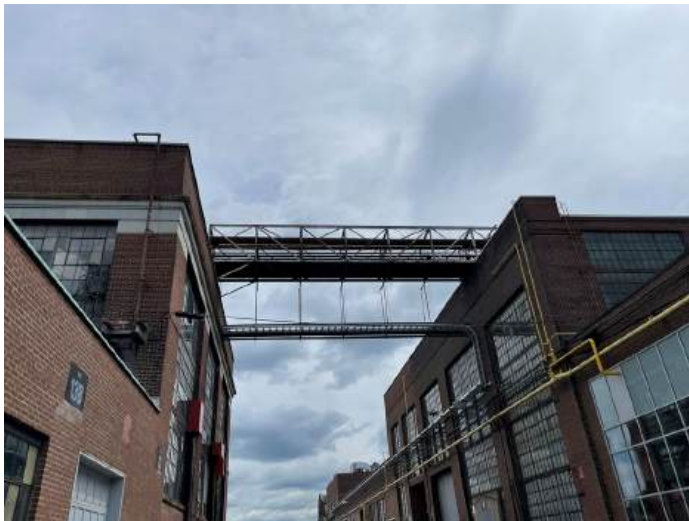


Photo 055



Photo 056



Photo 057



Photo 058

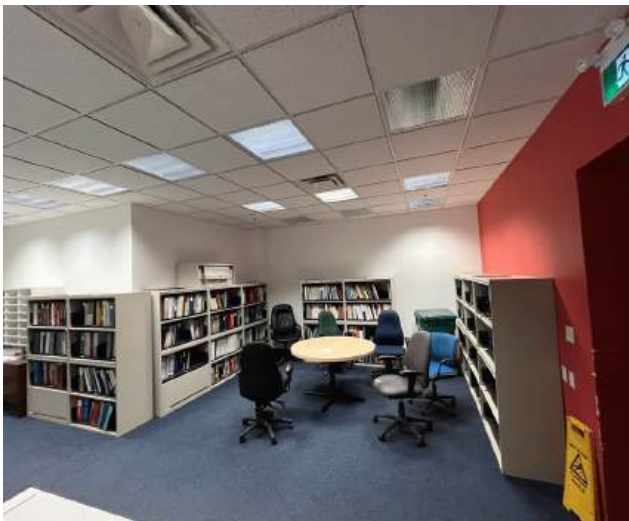


Photo 059



Photo 060



Photo 061



Photo 062



Photo 063



Photo 064



Photo 065



Photo 066



Photo 067



Photo 068



Photo 069



Photo 070



Photo 071



Photo 075



Photo 076



Photo 080



Photo 081



Photo 082



Photo 083



Photo 084



Photo 085



Photo 086



Photo 087



Photo 088



Photo 089



Photo 090

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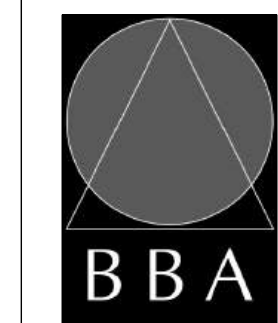


NO.	ISSUES	DATE	BY
1	BUILDING KEY PLAN	SEP. 04, 2025	BBA

NO.	REVISIONS	DATE	BY

PROJECT:
STRUCTURAL CONDITION ASSESSMENT
107 PARK STREET NORTH
PETERBOROUGH, ONTARIO
GENERAL ELECTRIC COMPANY

DRAWING:
BUILDING KEY PLAN



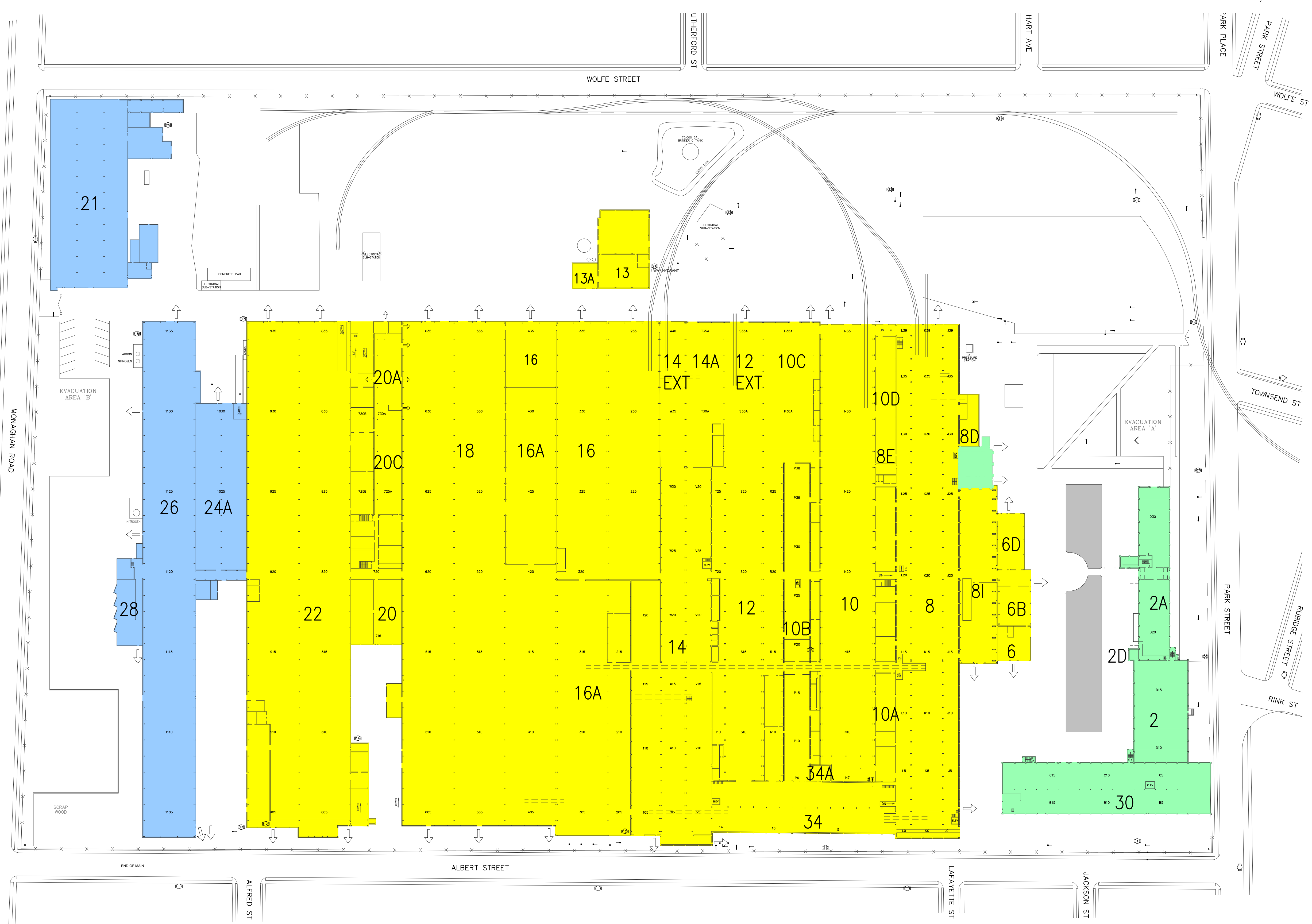
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DESIGN BY: DM	DOC. CONTROL: DATE:
DRAWN BY: LS	% COMPLETE:
CHECKED BY: DM	INITIAL:
DATE: SEPTEMBER 2025	
SCALE: AS NOTED	
FILE:	

PROJECT NO: **19135.15** DRAWING NO: **S100**

LEGEND:

- EAST BLOCK
- CENTRE BLOCK
- WEST BLOCK



1
S100 BUILDING KEY PLAN
1/80"=1'-0"

**APPENDIX C:
NATIONAL PARKS
PRESERVATION
BRIEF 31**

31 PRESERVATION BRIEFS

Mothballing Historic Buildings

Sharon C. Park, AIA



U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services

When all means of finding a productive use for a historic building have been exhausted or when funds are not currently available to put a deteriorating structure into a useable condition, it may be necessary to close up the building temporarily to protect it from the weather as well as to secure it from vandalism. This process, known as mothballing, can be a necessary and effective means of protecting the building while planning the property's future, or raising money for a preservation, rehabilitation or restoration project. If a vacant property has been declared unsafe by building officials, stabilization and mothballing may be the only way to protect it from demolition.

This Preservation Brief focuses on the steps needed to "deactivate" a property for an extended period of time. The project team will usually consist of an architect, historian, preservation specialist, sometimes a structural engineer, and

a contractor. Mothballing should not be done without careful planning to ensure that needed physical repairs are made prior to securing the building. The steps discussed in this Brief can protect buildings for periods of up to ten years; long-term success will also depend on continued, although somewhat limited, monitoring and maintenance. For all but the simplest projects, hiring a team of preservation specialists is recommended to assess the specific needs of the structure and to develop an effective mothballing program.

A vacant historic building cannot survive indefinitely in a boarded-up condition, and so even marginal interim uses where there is regular activity and monitoring, such as a caretaker residence or non-flammable storage, are generally preferable to mothballing. In a few limited cases when the vacant building is in good condition and in a location where it can be watched and checked regularly, closing and locking the door, setting heat levels at just above freezing, and securing the windows may provide sufficient protection for a period of a few years. But if long-term mothballing is the only remaining option, it must be done properly (see fig. 1 & 2). This will require stabilization of the exterior, properly designed security protection, generally some form of interior ventilation - either through mechanical or natural air exchange systems - and continued maintenance and surveillance monitoring.

Comprehensive mothballing programs are generally expensive and may cost 10% or more of a modest rehabilitation budget. However, the money spent on well-planned protective measures will seem small when amortized over the life of the resource. Regardless of the location and condition of the property or the funding available, the following 9 steps are involved in properly mothballing a building:



Figure 1. Proper mothballing treatment: This building has been successfully mothballed for 10 years because the roof and walls were repaired and structurally stabilized, ventilation louvers were added, and the property is maintained. Photo: Charles E. Fisher, NPS.



Figure 2. Improper treatment: Boarding up without adequate ventilation, lack of maintenance, and neglect of this property have accelerated deterioration. Photo; NPS file.

Documentation

1. Document the architectural and historical significance of the building.
2. Prepare a condition assessment of the building.

Stabilization

3. Structurally stabilize the building, based on a professional condition assessment.
4. Exterminate or control pests, including termites and rodents.
5. Protect the exterior from moisture penetration.

Mothballing

6. Secure the building and its component features to reduce vandalism or break-ins.
7. Provide adequate ventilation to the interior.
8. Secure or modify utilities and mechanical systems.
9. Develop and implement a maintenance and monitoring plan for protection.

These steps will be discussed in sequence below. Documentation and stabilization are critical components of the process and should not be skipped over. Mothballing measures should not result in permanent damage, and so each treatment should be weighed in terms of its reversibility and its overall benefit.

Documentation

Documenting the historical significance and physical condition of the property will provide information necessary for setting priorities and allocating funds. The project team should be cautious when first entering the structure if it has been vacant or is deteriorated. It may be advisable to shore temporarily areas appearing

to be structurally unsound until the condition of the structure can be fully assessed (see fig. 3). If pigeon or bat droppings, friable asbestos or other health hazards are present, precautions must be taken to wear the appropriate safety equipment when first inspecting the building. Consideration should be given to hiring a firm specializing in hazardous waste removal if these highly toxic elements are found in the building.

Documenting and recording the building. Documenting a building's history is important because evidence of its true age and architectural significance may not be readily evident. The owner should check with the State Historic Preservation Office or local preservation commission for assistance in researching the building. If the building has never been researched for listing in the National Register of Historic Places or other historic registers, then, at a minimum, the following should be determined:

- The overall historical significance of the property and dates of construction;
- the chronology of alterations or additions and their approximate dates; and,
- types of building materials, construction techniques, and any unusual detailing or regional variations of craftsmanship.

Old photographs can be helpful in identifying early or original features that might be hidden under modern materials. On a walk-through, the architect, historian, or preservation specialist should identify the architecturally significant elements of the building, both inside and out (see fig.4).



Figure 3. Buildings seriously damaged by storms or deterioration may need to be braced before architectural evaluations can be made. Jethro Coffin House. Photo: John Milner Architects.



Figure 4. Documenting the building's history, preparing schematic plans, and assessing the condition of the building will provide necessary information on which to set priorities for stabilization and repair prior to securing the building. Photo: Frederick Lindstrom, HABS.

By understanding the history of the resource, significant elements, even though deteriorated, may be spared the trash pile. For that reason alone, any materials removed from the building or site as part of the stabilization effort should be carefully scrutinized and, if appearing historic, should be photographed, tagged with a number, inventoried, and safely stored, preferably in the building, for later retrieval (see fig. 5).

A site plan and schematic building floor plans can be used to note important information for use when the building is eventually preserved, restored, or rehabilitated. Each room should be given a number and notations added to the plans regarding the removal of important features to storage or recording physical treatments undertaken as part of the stabilization or repair.

Because a mothballing project may extend over a long period of time, with many different people involved, clear records should be kept and a building file established. Copies of all important data, plans, photographs, and lists of consultants or contractors who have worked on the property should be added to the file as the job progresses.



Figure 5. Loose or detached elements should be identified, tagged and stored, preferably on site. Photo: NPS files.

Recording all actions taken on the building will be helpful in the future.

The project coordinator should keep the building file updated and give duplicate copies to the owner. A list of emergency numbers, including the number of the key holder, should be kept at the entrance to the building or on a security gate, in a transparent vinyl sleeve.

Preparing a condition assessment of the building. A condition assessment can provide the owner with an accurate overview of the current condition of the property. If the building is deteriorated or if there are significant interior architectural elements that will need special protection during the mothballing years, undertaking a condition assessment is highly recommended, but it need not be exhaustive.

A modified condition assessment, prepared by an architect or preservation specialist, and in some case a structural engineer, will help set priorities for repairs necessary to stabilize the property for both the short and long-term. It will evaluate the age and condition of the following major elements: foundations; structural systems; exterior materials; roofs and gutters; exterior porches and steps; interior finishes; staircases; plumbing, electrical, mechanical systems; special features such as chimneys; and site drainage.

To record existing conditions of the building and site, it will be necessary to clean debris from the building and to remove unwanted or overgrown vegetation to expose foundations. The interior should be emptied of its furnishing (unless provisions are made for mothballing these as well), all debris removed, and the interior swept with a broom. Building materials too deteriorated to repair, or which have come detached, such as moldings, balusters, and decorative plaster, and which can be used to guide later preservation work, should be tagged, labeled and saved.

Photographs or a videotape of the exterior and all interior spaces of the resource will provide an invaluable record of "as is" conditions. If a videotape is made, oral commentary can be provided on the significance of each space and architectural feature. If 35mm photographic prints or slides are made, they should be numbered, dated, and appropriately identified. Photographs should be cross-referenced with the room numbers on the schematic plans. A systematic method for photographing should be developed; for example, photograph each wall in a room and then take a corner shot to get floor and ceiling portions in the picture. Photograph any unusual details as well as examples of each window and door type.

For historic buildings, the great advantage of a condition assessment is that architectural features, both on the exterior as well as the interior, can be rated on a scale of their importance to the integrity and significance of the building. Those features of the highest priority should receive preference when repairs or protection measures are outlined as part of the mothballing process. Potential problems with protecting these features should be identified so that appropriate interim solutions can be selected. For example, if a building has always been heated and if murals, decorative plaster walls, or examples of patterned wall paper are identified as highly significant, then special care should be taken to regulate the interior climate and to monitor it adequately during the

mothballing years. This might require retaining electrical service to provide minimal heat in winter, fan exhaust in summer, and humidity controls for the interior.

Stabilization

Stabilization as part of a mothballing project involves correcting deficiencies to slow down the deterioration of the building while it is vacant. Weakened structural members that might fail altogether in the forthcoming years must be braced or reinforced; insects and other pests removed and discouraged from returning; and the building protected from moisture damage both by weatherizing the exterior envelope and by handling water run-off on the site. Even if a modified use or caretaker services can eventually be found for the building, the following steps should be addressed.

Structurally stabilizing the building. While bracing may have been required to make the building temporarily safe for inspection, the condition assessment may reveal areas of hidden structural damage. Roofs, foundations, walls, interior framing, porches and dormers all have structural components that may need added reinforcement. Structural stabilization by a qualified contractor should be done under the direction of a structural engineer or a preservation specialist to ensure that the added weight of the reinforcement can be sustained by the building and that the new members do not harm historic finishes (see fig. 6). Any major vertical post added during the stabilization should be properly supported and, if necessary, taken to the ground and underpinned.



Figure 6. Interior bracing which will last the duration of the mothballing will protect weakened structural members. Jethro Coffin House. Photo: John Milner Architects.

If the building is in a northern climate, then the roof framing must be able to hold substantial snow loads. Bracing the roof at the ridge and mid-points should be considered if sagging is apparent. Likewise, interior framing around stair openings or under long ceiling spans should be investigated. Underpinning or bracing structural piers weakened by poor drainage patterns may be a good precaution as well. Damage caused by insects, moisture, or from other causes should be repaired or reinforced and, if possible, the source of the damage removed. If features such as porches and dormers are so severely deteriorated

that they must be removed, they should be documented, photographed, and portions salvaged for storage prior to removal.

If the building is in a southern or humid climate and termites or other insects are a particular problem, the foundation and floor framing should be inspected to ensure that there are no major structural weaknesses. This can usually be done by observation from the crawl space or basement. For those structures where this is not possible, it may be advisable to lift selective floor boards to expose the floor framing. If there is evidence of pest damage, particularly termites, active colonies should be treated and the structural members reinforced or replaced, if necessary.

Controlling pests. Pests can be numerous and include squirrels, raccoons, bats, mice, rats, snakes, termites, moths, beetles, ants, bees and wasps, pigeons, and other birds. Termites, beetles, and carpenter ants destroy wood. Mice, too, gnaw wood as well as plaster, insulation, and electrical wires. Pigeon and bat droppings not only damage wood finishes but create a serious and sometimes deadly health hazard.

If the property is infested with animals or insects, it is important to get them out and to seal off their access to the building. If necessary, exterminate and remove any nests or hatching colonies. Chimney flues may be closed off with exterior grade plywood caps, properly ventilated, or protected with framed wire screens. Existing vents, grills, and louvers in attics and crawl spaces should be screened with bug mesh or heavy duty wire, depending on the type of pest being controlled. It may be advantageous to have damp or infected wood treated with insecticides (as permitted by each state) or preservatives, such as borate, to slow the rate of deterioration during the time that the building is not in use.

Securing the exterior envelope from moisture penetration. It is important to protect the exterior envelope from moisture penetration before securing the building. Leaks from deteriorated or damaged roofing, from around windows and doors, or through deteriorated materials, as well as ground moisture from improper site run-off or rising damp at foundations, can cause long-term damage to interior finishes and structural systems. Any serious deficiencies on the exterior, identified in the condition assessment, should be addressed.

To the greatest extent possible, these weatherization efforts should not harm historic materials. The project budget may not allow deteriorated features to be fully repaired or replaced in-kind. Non-historic or modern materials may be used to cover historic surfaces temporarily, but these treatments should not destroy valuable evidence necessary for future preservation work. Temporary modifications should be as visually compatible as possible with the historic building.

Roofs are often the most vulnerable elements on the building exterior and yet in some ways they are the easiest element to stabilize for the long term, if done correctly. "Quick fix" solutions, such as tar patches on slate roofs, should be avoided as they will generally fail within a year or so and may accelerate damage by trapping moisture. They are difficult to undo later when more permanent repairs are undertaken. Use of a tarpaulin over a leaking roof should be thought of only as a very temporary



Figure 7. Non-historic materials are appropriate for mothballing projects when they are used to protect historic evidence remaining for future preservation. This lightweight aluminum channel frame and roofing covers the historic wooden shingle roof. Galvanized mesh panels secure the window openings from intrusion by raccoons and other unwanted guests. Photo: Williamsport Preservation Training Center, NPS.

emergency repair because it is often blown off by the wind in a subsequent storm.

If the existing historic roof needs moderate repairs to make it last an additional ten years, then these repairs should be undertaken as a first priority. Replacing cracked or missing shingles and tiles, securing loose flashing, and reanchoring gutters and downspouts can often be done by a local roofing contractor. If the roof is in poor condition, but the historic materials and configuration are important, a new temporary roof, such as a lightweight aluminum channel system over the existing, might be considered (see fig. 7). If the roofing is so deteriorated that it must be replaced and a lightweight aluminum system is not affordable, various inexpensive options might be considered. These include covering the existing deteriorated roof with galvanized corrugated metal roofing panels, or 90 lb. rolled roofing, or a rubberized membrane (refer back to cover photo). These alternatives should leave as much of the historic sheathing and roofing in place as evidence for later preservation treatments.

For masonry repairs, appropriate preservation approaches are essential. For example, if repointing deteriorated brick chimneys or walls is necessary to prevent serious moisture penetration while the building is mothballed, the mortar should match the historic mortar in composition, color, and tooling. The use of hard portland cement mortars or vapor-impermeable waterproof coatings are not appropriate solutions as they can cause extensive damage and are not reversible treatments (see fig. 8).

For wood siding that is deteriorated, repairs necessary to keep out moisture should be made; repainting is generally warranted. Cracks around windows and doors can be beneficial in providing ventilation to the interior and so should only be caulked if needed to keep out bugs and moisture. For very deteriorated wall surfaces on wooden frame structures, it may be necessary to sheathe in plywood panels, but care should be taken to minimize installation damage by planning the location of the nailing or screw

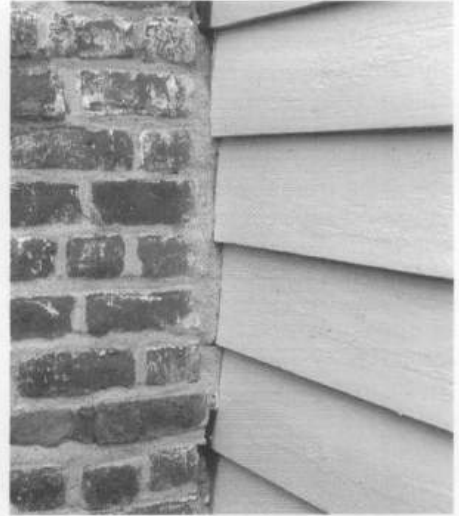


Figure 8. Appropriate mortar mixes should be used when masonry repairs are undertaken. In this case, a soft lime based mortar is used as an infill between the brick and wooden elements. When full repairs are made during the restoration phase, this soft mortar can easily be removed and missing bricks replaced.

patterns or by installing panels over a frame of battens (see fig. 9). Generally, however, it is better to repair deteriorated features than to cover them over.

Foundation damage may occur if water does not drain away from the building. Run-off from gutters and downspouts should be directed far away from the foundation wall by using long flexible extender pipes equal in length to twice the depth of the basement or crawl space. If underground drains are susceptible to clogging, it is recommended that the downspouts be disconnected from the drain boot and attached to flexible piping. If gutters and downspouts are in bad condition, replace them with inexpensive aluminum units.



Figure 9. Severely deteriorated wooden siding on a farm building has been covered over with painted plywood panels as a temporary measure to eliminate moisture penetration to the interior. Foundation vents and loose floor boards allow air to circulate inside.

If there are no significant landscape or exposed archeological elements around the foundation, consideration should be given to regrading the site if there is a documented drainage problem (see fig. 10). If building up the grade, use a fiber mesh membrane to separate the new soil from the old and slope the new soil 6 to 8 feet (200 cm-266 cm) away from the foundation making sure not to cover up the dampcourse layer or come into contact with skirting boards. To keep vegetation under control, put down a layer of 6 mil black polyethylene sheeting or fiber mesh matting covered with a 2"-4" (5-10 cm.) of washed gravel. If the building suffers a serious rising damp problem, it may be advisable to eliminate the plastic sheeting to avoid trapping ground moisture against foundations.



Figure 10. Regrading around the Booker Tenement at Colonial Williamsburg has protected the masonry foundation wall from excessive damp. This building has been successfully mothballed for over 10 years. Note the attic and basement vents, the temporary stairs, and the informative sign interpreting the history of this building.

Mothballing

The actual mothballing effort involves controlling the long-term deterioration of the building while it is unoccupied as well as finding methods to protect it from sudden loss by fire or vandalism. This requires securing the building from unwanted entry, providing adequate ventilation to the interior, and shutting down or modifying existing utilities. Once the building is de-activated or secured, the long-term success will depend on periodic maintenance and surveillance monitoring.

Securing the building from vandals, break-ins, and natural disasters. Securing the building from sudden loss is a critical aspect of mothballing. Because historic buildings are irreplaceable, it is vital that vulnerable entry points are sealed. If the building is located where fire and security service is available then it is highly recommended that some form of monitoring or alarm devices be used.

To protect decorative features, such as mantels, lighting fixtures, copper downspouts, iron roof cresting, or stained glass windows from theft or vandalism, it may be advisable to temporarily remove them to a more secure location if they cannot be adequately protected within the structure.

Mothballed buildings are usually boarded up, particularly on the first floor and basement, to protect fragile glass windows from breaking and to reinforce entry points (see fig. 11). Infill materials for closing door and window openings include plywood, corrugated panels, metal grates, chain fencing, metal grills, and cinder or cement blocks (see fig. 12). The method of installation should not result in the destruction of the opening and all associated sash, doors, and frames should be protected or stored for future reuse.



Figure 11. Urban buildings often need additional protection from unwanted entry and graffiti. This commercial building uses painted plywood panels to cover expansive glass storefronts and chain link fencing is applied on top of the panels. The upper windows on the street sides have been covered and painted to resemble 19th century sash. Photo: Thomas Jester, NPS.

Generally exterior doors are reinforced and provided with strong locks, but if weak historic doors would be damaged or disfigured by adding reinforcement or new locks, they may be removed temporarily and replaced with secure modern doors (see fig. 13). Alternatively, security gates in a new metal frame can be installed within existing door openings, much like a storm door, leaving the historic door in place. If plywood panels are installed over door openings, they should be screwed in place, as opposed to nailed, to avoid crowbar damage each time the panel is removed. This also reduces pounding vibrations from hammers and eliminates new nail holes each time the panel is replaced.

For windows, the most common security feature is the closure of the openings; this may be achieved with wooden or pre-formed panels or, as needed, with metal sheets or concrete blocks. Plywood panels, properly installed to protect wooden frames and properly ventilated, are the preferred treatment from a preservation standpoint.

There are a number of ways to set insert plywood panels into window openings to avoid damage to frame and sash (see fig. 14). One common method is to bring the upper and lower sash of a double hung unit to the mid-point of the opening and then to install pre-cut plywood panels using long carriage bolts anchored into horizontal wooden bracing, or strong backs, on the inside face of the window. Another means is to build new wooden blocking frames set into deeply recessed openings, for example in an industrial mill or warehouse, and then to affix the plywood panel to

the blocking frame. If sash must be removed prior to installing panels, they should be labeled and stored safely within the building.

Plywood panels are usually 1/2"-3/4" (1.25-1.875 cm.) thick and made of exterior grade stock, such as CDX, or



Figure 12. First floor openings have been filled with cinderblocks and doors, window sash and frames have been removed for safe keeping. Note the security light over the windows and the use of a security metal door with heavy duty locks. Photo: H. Ward Jandl, NPS.

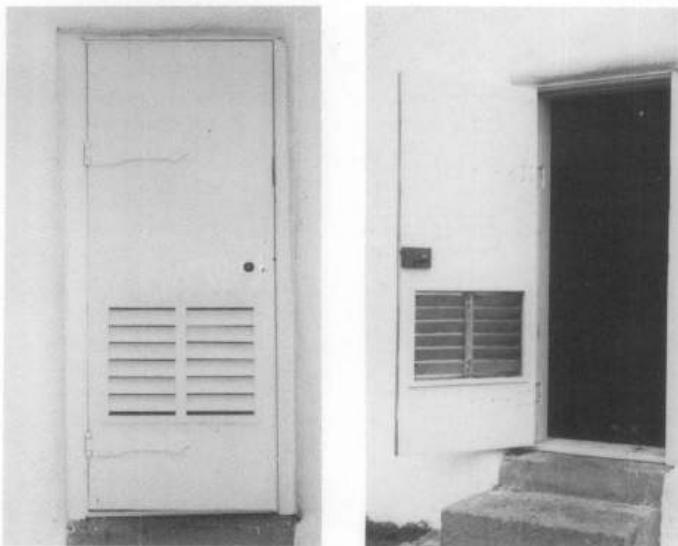


Figure 13. If historic doors would be damaged by adding extra locks, they should be removed and stored and new security doors added. At this lighthouse, the historic door has been replaced with a new door (seen both inside and outside) with an inset vent and new deadbolt locks. The heavy historic hinges have not been damaged. Photo: Williamsport Preservation Training Center, NPS.

marine grade plywood. They should be painted to protect them from delamination and to provide a neater appearance. These panels may be painted to resemble operable windows or treated decoratively (see fig. 15). With extra attention to detail, the plywood panels can be

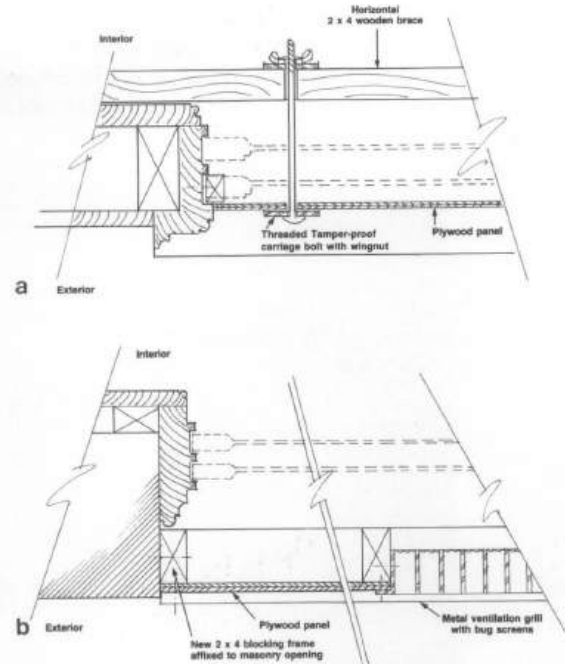


Figure 14. A: Plan detail showing plywood security panel anchored with carriage bolts through to the inside horizontal bracing, or strong backs. B: Plan detail showing section of plywood window panel attached to a new pressure treated wood frame set within the masonry opening. Ventilation should be included whenever possible or necessary.

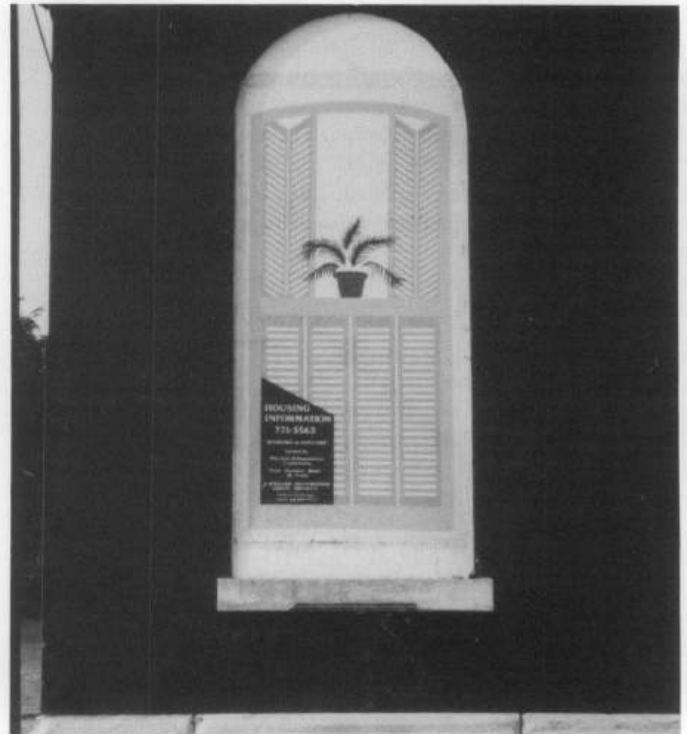


Figure 15. Painting trompe l'oeil scenes on plywood panels is a neighborhood friendly device. In addition, the small sign at the bottom left corner gives information for contacting the organization responsible for the care of the mothballed building. Photo: Lee H. Nelson, FAIA.

trimmed out with muntin strips to give a shadow line simulating multi-lite windows. This level of detail is a good indication that the building is protected and valued by the owner and the community.

If the building has shutters, simply close the shutters and secure them from the interior (see fig. 16). If the building had shutters historically, but they are missing, it may be appropriate to install new shutters, even in a modern material, and secure them in the closed position. Louvered shutters will help with interior ventilation if the sash are propped open behind the shutters.



Figure 16. Historic louvered shutters make excellent security closures with passive ventilation.

There is some benefit from keeping windows unboarded if security is not a problem. The building will appear to be occupied, and the natural air leakage around the windows will assist in ventilating the interior. The presence of natural light will also help when periodic inspections are made. Rigid polycarbonate clear storm glazing panels may be placed on the window exterior to protect against glass breakage. Because the sun's ultraviolet rays can cause fading of floor finishes and wall surfaces, filtering pull shades or inexpensive curtains may be options for reducing this type of deterioration for significant interiors. Some acrylic sheeting comes with built-in ultraviolet filters.

Securing the building from catastrophic destruction from fire, lightning, or arson will require additional security devices. Lightning rods properly grounded should be a first consideration if the building is in an area susceptible to lightning storms. A high security fence should also be installed if the property cannot be monitored closely. These interventions do not require a power source for operation. Since many buildings will not maintain electrical power, there are some devices available using battery packs, such as intrusion alarms, security lighting, and smoke detectors which through audible horn alarms can alert nearby neighbors. These battery packs must be replaced every 3 months to 2 years, depending on type and usage. In combination with a cellular phone, they can also provide some level of direct communication with police and fire departments.

If at all possible, new temporary electric service should be provided to the building (see fig. 17). Generally a telephone

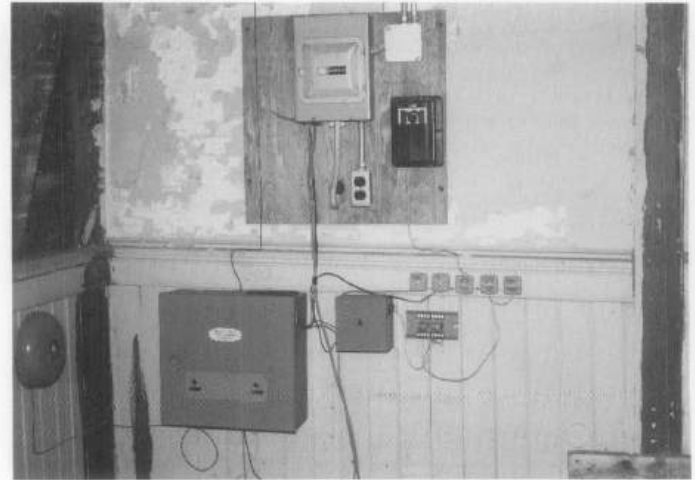


Figure 17. Security systems are very important for mothballed buildings if they are located where fire and security services are available. A temporary electric service with battery back-up has been installed in this building. Intrusion alarms and ionization smoke/fire detectors are wired directly to the nearby security service.

line is needed as well. A hard wired security system for intrusion and a combination rate-of-rise and smoke detector can send an immediate signal for help directly to the fire department and security service. Depending on whether or not heat will be maintained in the building, the security system should be designed accordingly. Some systems cannot work below 32°F (0°C). Exterior lighting set on a timer, photo electric sensor, or a motion/infrared detection device provides additional security.

Providing adequate ventilation to the interior. Once the exterior has been made weathertight and secure, it is essential to provide adequate air exchange throughout the building. Without adequate air exchange, humidity may rise to unsafe levels, and mold, rot, and insect infestation are likely to thrive (see fig. 18). The needs of each historic resource must be individually evaluated because there are so many variables that affect the performance of each interior space once the building has been secured. A

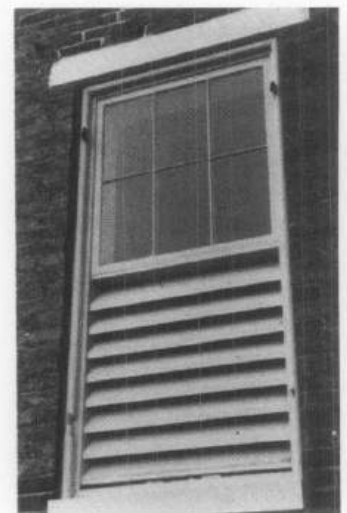
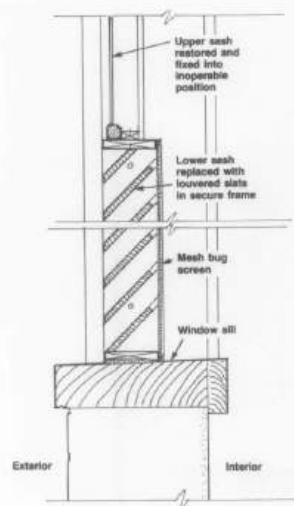


Figure 18. Heavy duty wooden slated louvers were custom fabricated to replace the deteriorated lower sash. The upper sash were rebuilt to retain the historic appearance and to allow light into this vacant historic building. Refer back to Fig. 1 for a view of the building. Photo: Charles E. Fisher, NPS. Drawing by Thomas Vitanza.

mechanical engineer or a specialist in interior climates should be consulted, particularly for buildings with intact and significant interiors. In some circumstances, providing heat during the winter, even at a minimal 45° F (7°C), and utilizing forced-fan ventilation in summer will be recommended and will require retaining electrical service. For masonry buildings it is often helpful to keep the interior temperature above the spring dew point to avoid damaging condensation. In most buildings it is the need for summer ventilation that outweighs the winter requirements.

Many old buildings are inherently leaky due to loose-fitting windows and floorboards and the lack of insulation. The level of air exchange needed for each building, however, will vary according to geographic location, the building's construction, and its general size and configuration.

There are four critical climate zones when looking at the type and amount of interior ventilation needed for a closed up building: hot and dry (southwestern states); cold and damp (Pacific northwest and northeastern states); temperate and humid (Mid-Atlantic states, coastal areas); and hot and humid (southern states and the tropics). (See fig. 19 for a chart outlining guidance on ventilation.)

Once closed up, a building interior will still be affected by the temperature and humidity of the exterior. Without proper ventilation, moisture from condensation may occur and cause damage by wetting plaster, peeling paint,

staining woodwork, warping floors, and in some cases even causing freeze thaw damage to plaster. If moist conditions persist in a property, structural damage can result from rot or returning insects attracted to moist conditions. Poorly mothballed masonry buildings, particularly in damp and humid zones have been so damaged on the interior with just one year of unventilated closure that none of the interior finishes were salvageable when the buildings were rehabilitated.

The absolute minimum air exchange for most mothballed buildings consists of one to four air exchanges every hour; one or two air exchanges per hour in winter and often twice that amount in summer. Even this minimal exchange may foster mold and mildew in damp climates, and so monitoring the property during the stabilization period and after the building has been secured will provide useful information on the effectiveness of the ventilation solution.

There is no exact science for how much ventilation should be provided for each building. There are, however, some general rules of thumb. Buildings, such as adobe structures, located in hot and arid climates may need no additional ventilation if they have been well weatherized and no moisture is penetrating the interior. Also frame buildings with natural cracks and fissures for air infiltration may have a natural air exchange rate of 3 or 4 per hour, and so in arid as well as temperate climates may need no additional ventilation once secured. The most difficult

VENTILATION GUIDANCE CHART

CLIMATE	AIR EXCHANGES		VENTILATION				
	Winter air exchange per hour	Summer air exchange per hour	Frame Buildings passive louvering		Masonry Buildings passive louvering		Masonry Buildings fan combination
			% of openings louvered	% of openings louvered	% of openings louvered	% of openings louvered	one fan + % louvered
			winter	summer	winter	summer	summer
hot and dry Southwestern areas	less than 1	less than 1	N/A	N/A	N/A	N/A	N/A
cold and damp Northeastern & Pacific northwestern areas	1	2-3	5%	10%	10%	30%	20%
temperate/humid Mid-Atlantic & coastal areas	2	3-4	10%	20%	20%	40%	30%
hot and humid Southern states & tropical areas	3	4 or more	20%	30%	40% or more	80%	40% or more

Figure 19. This is a general guide for the amount of louvering which might be expected for a medium size residential structure with an average amount of windows, attic, and crawl space ventilation. There is currently research being done on effective air exchanges, but each project should be evaluated individually. It will be noticed from the chart that summer louvering requirements can be reduced with the use of an exhaust fan. Masonry buildings need more ventilation than frame buildings. Chart prepared by Sharon C. Park, AIA and Ernest A. Conrad, PE.

buildings to adequately ventilate without resorting to extensive louvering and/or mechanical exhaust fan systems are masonry buildings in humid climates. Even with basement and attic vent grills, a masonry building may not have more than one air exchange an hour. This is generally unacceptable for summer conditions. For these buildings, almost every window opening will need to be fitted out with some type of passive, louvered ventilation.

Depending on the size, plan configuration, and ceiling heights of a building, it is often necessary to have louvered opening equivalent to 5%-10% of the square footage of each floor. For example, in a humid climate, a typical 20'x30' (6.1m x 9.1m) brick residence with 600 sq. ft.(55.5 sq.m) of floor space and a typical number of windows, may need 30-60 sq. ft.(2.75sq.m-5.5 sq. m) of louvered openings per floor. With each window measuring 3'x5'(.9m x 1.5 m) or 15 sq. ft. (1.3 sq.m), the equivalent of 2 to 4 windows per floor may need full window louvers.

Small pre-formed louvers set into a plywood panel or small slit-type registers at the base of inset panels generally cannot provide enough ventilation in most moist climates to offset condensation, but this approach is certainly better than no louvers at all. Louvers should be located to give cross ventilation, interior doors should be fixed ajar at least 4" (10cm) to allow air to circulate, and hatches to the attic should be left open.

Monitoring devices which can record internal temperature and humidity levels can be invaluable in determining if the internal climate is remaining stable. These units can be powered by portable battery packs or can be wired into electric service with data downloaded into laptop computers periodically (see fig. 20). This can also give long-term information throughout the mothballing years. If it is determined that there are inadequate air exchanges to keep interior moisture levels under control, additional passive ventilation can be increased, or, if there is electric service, mechanical exhaust fans can be installed. One fan in a small to medium sized building can reduce the amount of louvering substantially.

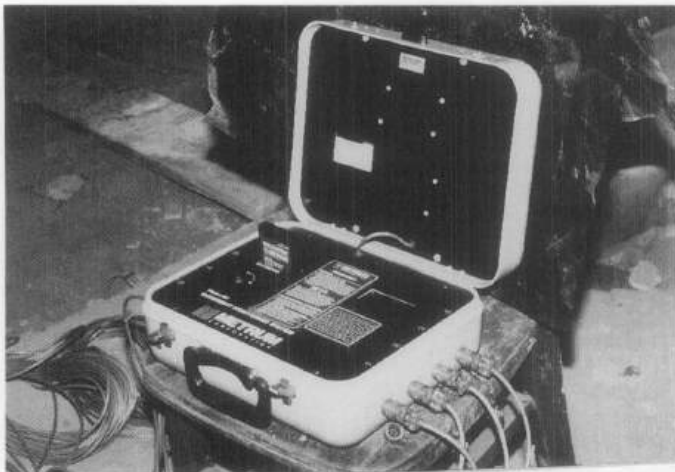


Figure 20. Portable monitors used to record temperature and humidity conditions in historic buildings during mothballing can help identify ventilation needs. This data can be downloaded directly into a lap top computer on site. These monitors are especially helpful over the long term for buildings with significant historic interiors or which are remaining furnished. If interiors are remaining damp or humid, additional ventilation should be added or the source of moisture controlled.

If electric fans are used, study the environmental conditions of each property and determine if the fans should be controlled by thermostats or automatic timers.

Humidistats, designed for enclosed climate control systems, generally are difficult to adapt for open mothballing conditions. How the system will draw in or exhaust air is also important. It may be determined that it is best to bring dry air in from the attic or upper levels and force it out through lower basement windows (see fig. 21). If the basement is damp, it may be best to zone it from the rest of the building and exhaust its air separately. Additionally, less humid day air is preferred over damper night air, and this can be controlled with a timer switch mounted to the fan.

The type of ventilation should not undermine the security of the building. The most secure installations use custom-made grills well anchored to the window frame, often set in plywood security panels. Some vents are formed using heavy millwork louvers set into existing window openings (refer back to fig.18). For buildings where security is not a primary issue, where the interior is modest, and where there has been no heat for a long time, it may be possible to use lightweight galvanized metal grills in the window openings (refer back to fig.7). A cost effective grill can be made from the expanded metal mesh lath used by plasterers and installed so that the mesh fins shed rainwater to the exterior.

Securing mechanical systems and utilities. At the outset, it is important to determine which utilities and services, such as electrical or telephone lines, are kept and which are cut off. As long as these services will not constitute a fire



Figure 21. This electric thermostat/humidistat mounted in the attic vent controls a modified ducted air/fan system. The unit uses temporary exposed sheet metal ducts to pull air through the building and exhaust it out of the basement. For over ten years this fan system in combination with 18" x 18" preformed louvers in selective windows has kept the interior dry and with good air exchanges.

hazard, it is advisable to retain those which will help protect the property. Since the electrical needs will be limited in a vacant building, it is best to install a new temporary electric line and panel (100 amp) so that all the wiring is new and exposed. This will be much safer for the building, and allows easy access for reading the meter (see fig. 22).

Most heating systems are shut down in long term mothballing. For furnaces fueled by oil, there are two choices for dealing with the tank. Either it must be filled to the top with oil to eliminate condensation or it should be drained. If it remains empty for more than a year, it will likely rust and not be reusable. Most tanks are drained if a newer type of system is envisioned when the building is put back into service. Gas systems with open flames should be turned off unless there is regular maintenance and frequent surveillance of the property. Gas lines are shut off by the utility company.

If a hot water radiator system is retained for low levels of heat, it generally must be modified to be a self-contained system and the water supply is capped at the meter. This



Figure 22. All systems except temporary electric have been shut off at this residence which has been mothballed over 20 years. An electric meter and 100 amp panel box have been set on a plywood panel at the front of the building. It is used for interior lighting and various alarm systems. The building, however, is showing signs of moisture problems with efflorescent stains on the masonry indicating the need for gutter maintenance and additional ventilation for the interior. The vegetation on the walls, although picturesque, traps moisture and is damaging to the masonry. Photo: H. Ward Jandl, NPS.

recirculating system protects the property from extensive damage from burst pipes. Water is replaced with a water/glycol mix and the reserve tank must also be filled with this mixture. This keeps the modified system from freezing, if there is a power failure. If water service is cut off, pipes should be drained. Sewerage systems will require special care as sewer gas is explosive. Either the traps must be filled with glycol or the sewer line should be capped off at the building line.

Developing a maintenance and monitoring plan. While every effort may have been made to stabilize the property and to slow the deterioration of materials, natural disasters, storms, undetected leaks, and unwanted intrusion can still occur. A regular schedule for surveillance, maintenance, and monitoring should be established: (See fig. 23 for maintenance chart).

MAINTENANCE CHART	
periodic	
<input type="checkbox"/>	regular drive by surveillance
<input type="checkbox"/>	check attic during storms if possible
monthly walk arounds	
<input type="checkbox"/>	check entrances
<input type="checkbox"/>	check window panes for breakage
<input type="checkbox"/>	mowing as required
<input type="checkbox"/>	check for graffiti or vandalism
enter every 3 months to air out	
<input type="checkbox"/>	check for musty air
<input type="checkbox"/>	check for moisture damage
<input type="checkbox"/>	check battery packs and monitoring equipment
<input type="checkbox"/>	check light bulbs
<input type="checkbox"/>	check for evidence of pest intrusion
every 6 months; spring and fall	
<input type="checkbox"/>	site clean-up; pruning and trimming
<input type="checkbox"/>	gutter and downspout check
<input type="checkbox"/>	check crawlspace for pests
<input type="checkbox"/>	clean out storm drains
every 12 months	
<input type="checkbox"/>	maintenance contract inspections for equipment/utilities
<input type="checkbox"/>	check roof for loose or missing shingles
<input type="checkbox"/>	termite and pest inspection/treatment
<input type="checkbox"/>	exterior materials spot repair and touch up painting
<input type="checkbox"/>	remove bird droppings or other stains from exterior
<input type="checkbox"/>	check and update building file

Figure 23. Maintenance Chart. Many of the tasks on the maintenance chart can be done by volunteer help or service contracts. Regular visits to the site will help detect intrusion, storm damage, or poor water drainage.

The fire and police departments should be notified that the property will be vacant. A walk-through visit to familiarize these officials with the building's location, construction materials, and overall plan may be invaluable if they are called on in the future.

The optimum schedule for surveillance visits to the property will depend on the location of the property and the number of people who can assist with these activities. The more frequent the visits to check the property, the sooner that water leaks or break-ins will be noticed. Also, the more frequently the building is entered, the better the air exchange. By keeping the site clear and the building in good repair, the community will know that the building has not been abandoned (see fig. 24). The involvement of neighbors and community groups in caring for the property can ensure its protection from a variety of catastrophic circumstances.

The owner may utilize volunteers and service companies to undertake the work outlined in the maintenance chart.

Service companies on a maintenance contract can provide yard, maintenance, and inspection services, and their reports or itemized bills reflecting work undertaken should be added to update the building file.



Figure 24. Once mothballed, a property must still be monitored and maintained. The openings in this historic barn has been modified with a combination of wood louvers and metal mesh panels which require little maintenance. The grounds are regularly mowed, even inside the chain link security fence. Photo: Williamsport Preservation Training Center, NPS.

Components of a Mothballing Project

Document: Brearley House, New Jersey; 2½ story center hall plan house contains a high degree of integrity of circa 1761 materials and significant early 19th century additions. Deterioration was attributable to leaking roof, unstable masonry at gables and chimneys, deteriorating attic windows, poor site drainage, and partially detached gutters. Mothballing efforts are required for approximately 7-10 years.

Stabilize: Remove bat droppings from attic using great caution. Secure historic chimneys and gable ends with plywood panels. Do not take historic chimneys down. Reroof with asphalt shingles and reattach or add new gutters and downspouts. Add extenders to downspouts. Add bug screens to any ventilation areas. Add soil around foundation and slope to gain positive drain; do not excavate as this will disturb archeological evidence.

Mothball: Install security fence around the property. Secure doors and windows with plywood panels (½" exterior grade). Install preformed metal grills in basement and attic openings. Add surface mounted wiring for ionization smoke and fire detection with direct wire to police and fire departments. Shut off heat and drain pipes. Add window exhaust fan set on a thermostatic control. Provide for periodic monitoring and maintenance of the property.

Figure 25. Above is a summary of the tasks that were necessary in order to protect this significant property while restoration funds are raised. Photographs: Michael Mills; Ford Farewell Mills Gatsch Architects.



a. A view showing the exterior of the house in its mothballed condition.



b. Plywood panels stabilize the chimneys. Note the gable vents.



c. The exhaust fan has tamper-proof housing.

MOTHBALLING CHECKLIST

Mothballing Checklist In reviewing mothballing plans, the following checklist may help to ensure that work items are not inadvertently omitted.	Yes	No	Date of action or comment.
<i>Moisture</i> <ul style="list-style-type: none"> • Is the roof watertight? • Do the gutters retain their proper pitch and are they clean? • Are downspout joints intact? • Are drains unobstructed? • Are windows and doors and their frames in good condition? • Are masonry walls in good condition to seal out moisture? • Is wood siding in good condition? • Is site properly graded for water run-off? • Is vegetation cleared from around the building foundation to avoid trapping moisture? 			
<i>Pests</i> <ul style="list-style-type: none"> • Have nests/pests been removed from the building's interior and eaves? • Are adequate screens in place to guard against pests? • Has the building been inspected and treated for termites, carpenter ants, and rodents? • If toxic droppings from bats and pigeons are present, has a special company been brought in for its disposal? 			
<i>Housekeeping</i> <ul style="list-style-type: none"> • Have the following been removed from the interior: trash, hazardous materials such as inflammable liquids, poisons, and paints and canned goods that could freeze and burst? • Is the interior broom-clean? • Have furnishings been removed to a safe location? • If furnishings are remaining in the building, are they properly protected from dust, pests, ultraviolet light, and other potentially harmful problems? • Have significant architectural elements that have become detached from the building been labeled and stored in a safe place? • Is there a building file? 			
<i>Security</i> <ul style="list-style-type: none"> • Have fire and police departments been notified that the building will be mothballed? • Are smoke and fire detectors in working order? • Are the exterior doors and windows securely fastened? • Are plans in place to monitor the building on a regular basis? • Are the keys to the building in a secure but accessible location? • Are the grounds being kept from becoming overgrown? 			
<i>Utilities</i> <ul style="list-style-type: none"> • Have utility companies disconnected/shut off or fully inspected water, gas, and electric lines? • If the building will not remain heated, have water pipes been drained and glycol added? • If the electricity is to be left on, is the wiring in safe condition? 			
<i>Ventilation</i> <ul style="list-style-type: none"> • Have steps been taken to ensure proper ventilation of the building? • Have interior doors been left open for ventilation purposes? • Has the secured building been checked within the last 3 months for interior dampness or excessive humidity? 			

Figure 26.. MOTHBALL CHECKLIST. This checklist will give the building owner or manager a handy reference guide to items that should be addressed when mothballing a historic building. Prepared by H. Ward Jandl, NPS.

Conclusion

Providing temporary protection and stabilization for vacant historic buildings can arrest deterioration and buy the owner valuable time to raise money for preservation or to find a compatible use for the property. A well planned mothballing project involves documenting the history and condition of the building, stabilizing the structure to slow down its deterioration, and finally mothballing the structure to secure it (See fig. 25). The three highest priorities for the building while it is mothballed are 1) to protect the building from sudden loss, 2) to weatherize and maintain the property to stop moisture penetration, and 3) to control the humidity levels inside once the building has been secured. See Mothballing Checklist Figure 26.

While issues regarding mothballing may seem simple, the variables and intricacies of possible solutions make the decision-making process very important. Each building must be individually evaluated prior to mothballing. In addition, a variety of professional services as well as volunteer assistance are needed for careful planning and repair, sensitively designed protection measures, follow-up security surveillance, and cyclical maintenance (see fig. 27).

In planning for the future of the building, complete and systematic records must be kept and generous funds allocated for mothballing. This will ensure that the historic property will be in stable condition for its eventual preservation, rehabilitation, or restoration.

Acknowledgements

This publication has been prepared pursuant to the National Historic Preservation Act of 1966, as amended, which directs the Secretary of the Interior to develop and make available information concerning historic properties. Comments on the usefulness of this publication may be directed to H. Ward Jandl, Deputy Chief, Preservation Assistance Division, National Park Service, P.O. Box 37127, Washington, D.C. 20013-7127. This publication is not copyrighted and can be reproduced without penalty. Normal procedures for credit to the author and the National Park Service are appreciated.

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All photographs and drawings are by the author unless otherwise noted.

Cover photograph: Mothballing of this historic house involved a new membrane roof covering over the historic roof and slatted window covers for security and ventilation. Photo: Williamsport Preservation Training Center, NPS.

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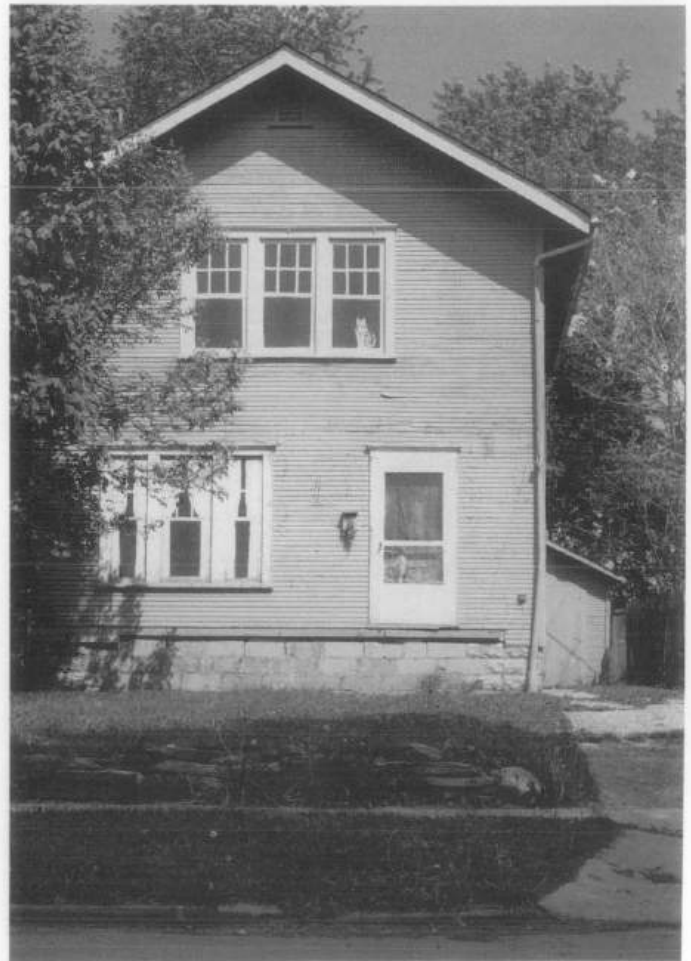


Figure 27. This residential building blends into its neighborhood even though all the windows have been covered over and the front steps are missing. The grounds are maintained and the special attention to decoratively painting the window panels shows that the property is being well cared for until it can be rehabilitated. Photo: Ohio Historical Society.

Further Reading

- Cotton, J. Randall. "Mothballing Buildings." *The Old House Journal*. July/August, 1993.
- Fisher, Charles E. and Thomas A. Vitanza. "Temporary Window Vents in Unoccupied Historic Buildings." Preservation Tech Note (Windows, No. 10). Washington, DC: National Park Service, 1985.
- Frazier Associates. "Mothballing Historic Buildings." Preserving Prince William, 2. County of Prince William, VA, 1990.
- Michell, Eleanor. *Emergency Repairs for Historic Buildings*. London: Butterworth Architecture, 1988.
- "Mothballing Vacant Buildings," *An Anti-Arson Kit for Preservation and Neighborhood Action*. Washington, DC: Federal Emergency Management Agency, 1982.
- Nelson, Lee H. *Preservation Briefs 17. Architectural Character-Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington, DC: Government Printing Office, 1988.
- Solon, Thomas E. "Security Panels for the Foster-Armstrong House." *Association for Preservation Technology Bulletin*. Vol XVI no. 3 & 4, 1984. (note the design of the panels, but be aware that additional louvering may be needed on other projects).

**APPENDIX D:
TICCIH DUBLIN
PRINCIPLES FOR THE
CONSERVATION OF
INDUSTRIAL HERITAGE
SITES, STRUCTURES,
AREAS AND LANDSCAPE**

Joint ICOMOS – TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes

«The Dublin Principles»

Adopted by the 17th ICOMOS General Assembly on 28 November 2011

Preamble

Around the World, a great diversity of sites, structures, complexes, cities and settlements, areas, landscapes and routes bear witness to human activities of industrial extraction and production. In many places, this heritage is still in use and industrialisation is still an active process with a sense of historical continuity, while in other places it offers archaeological evidence of past activities and technologies. Besides the tangible heritage associated with industrial technology and processes, engineering, architecture and town-planning, it includes many intangible dimensions embodied in the skills, memories and social life of workers and their communities.

The global process of industrialisation observed over the past two centuries constitutes a major stage of human history, making its heritage particularly important and critical to the Modern World. Precursors and beginnings of industrialisation can be recognized in many parts of the world well back into ancient times through active or archaeological sites, and our attention extends to any examples of such process and its heritage. However, for our purposes, these joint principles' primary interests coincide with the common notions of the Modern Era Industrial Revolution, marked by distinctive and dedicated production, transportation and power-generating or harnessing processes and technologies, trade and commercial interactions, and new social and cultural patterns.

Principes conjoints ICOMOS-TICCIH pour la conservation des sites, constructions, aires et paysages du patrimoine industriel

«Les principes de Dublin»

Adoptées par la 17e Assemblée générale de l'ICOMOS le 28 novembre 2011

Préambule

À travers le monde, la vaste diversité de sites, de constructions, de complexes, de villes et d'établissements, d'aires, de paysages ou de routes témoignent d'activités humaines d'extraction et de production industrielles. En de nombreux endroits, ce patrimoine est en opération et l'industrialisation constitue un processus actif chargé de continuité historique ; ailleurs, des ressources archéologiques révèlent les activités et technologies passées. Au patrimoine matériel lié aux procédés et techniques de l'industrie, du génie civil, de l'architecture ou de l'urbanisme, s'ajoute un patrimoine immatériel lié aux savoir-faire, à la mémoire ou à la vie sociale des ouvriers et de leurs communautés.

Le processus global d'industrialisation observé au cours des deux derniers siècles constitue une étape majeure de l'histoire humaine et son patrimoine revêt une importance significative dans le monde contemporain. En plusieurs parties du monde, les précurseurs et les débuts de l'industrialisation sont reconnus, remontant aux périodes anciennes, par des sites archéologiques ou actifs. Ces Principes conjoints s'intéressent à tout exemple de ce processus et de son patrimoine. Toutefois, l'intérêt premier de ces principes conjoints correspond aux concepts reconnus de Révolution industrielle de l'ère moderne, marquée par le développement et l'utilisation de processus et de technologies en matière de production, de transport et de génération d'énergie, d'échanges commerciaux et de pratiques sociales ou culturelles.

The industrial heritage is highly vulnerable and often at risk, often lost for lack of awareness, documentation, recognition or protection but also because of changing economic trends, negative perceptions, environmental issues or its sheer size and complexity. Yet, by extending the life-cycle of existing structures and their embodied energy, conservation of the built industrial heritage, can contribute to achieving the goals of sustainable development at the local, national and international levels. It touches the social as well as the physical and environmental aspects of development and should be acknowledged as such.

Over the past decades, growing research, international and interdisciplinary cooperation as well as community initiatives have greatly contributed to a better appreciation of the industrial heritage and increased collaboration between stewards, stakeholders and professionals. This progress has benefitted from the development of a corpus of international references and guidelines by ICOMOS – the International Council on Monuments and Sites, and the implementation of international recommendations and instruments such as the World Heritage Convention adopted by UNESCO in 1972. In 2003, The International Committee for the Conservation of Industrial Heritage (TICCIH) adopted its Nizhny Tagil Charter for the Industrial Heritage, a first international reference text of such recognition to guide protection and conservation in the field.

Acknowledging the particular nature of the industrial heritage and the issues and threats affecting it as a result of its relation to the contemporary economic, legal, cultural and environmental contexts, ICOMOS and TICCIH wish to expand their cooperation by adopting and promoting the dissemination and use of the following Principles to assist in the documentation, protection, conservation and appreciation of industrial heritage as part of the heritage of human societies around the World.

1 Definition: The industrial heritage consists of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing industrial processes of production, the extraction of raw materials, their transformation into goods, and the related energy and transport infrastructures. Industrial heritage reflects the profound connection between the cultural and natural environment, as industrial processes – whether ancient or

Le patrimoine industriel est très vulnérable, menacé de disparaître faute de sensibilité, de connaissance, de reconnaissance ou de protection, sous l'effet d'une économie en mutation, de perceptions négatives, d'enjeux environnementaux ou de sa propre taille ou complexité. La conservation du patrimoine bâti industriel prolonge pourtant la vie utile des constructions et de l'investissement énergétique qu'elles représentent. Sa contribution à la réalisation des objectifs du développement durable local, national et international, à ses dimensions sociales, physiques ou environnementales du développement doit être reconnue.

Au cours des dernières décennies, les progrès de la recherche, de la coopération internationale et interdisciplinaire et les initiatives communautaires ont contribué à valoriser le patrimoine industriel et la collaboration entre les détenteurs, les intéressés et les experts pour sa conservation. Ce progrès a bénéficié d'un corpus de références et d'orientations internationales élaboré par l'ICOMOS (Conseil international des monuments et des sites) et de la mise en œuvre d'instruments internationaux dont la Convention du patrimoine mondial adoptée par l'UNESCO en 1972. En 2003, le Comité international pour la conservation du patrimoine industriel (TICCIH) adoptait la Charte de Nizhny Tagil, un premier texte de référence international pour aider à la protection et la conservation du patrimoine industriel.

Reconnaissant la nature particulière du patrimoine industriel et des enjeux et menaces qui l'affectent de par sa relation avec l'économie, les lois, la culture ou les questions environnementales actuelles, l'ICOMOS et le TICCIH étendent leur coopération en adoptant ces Principes conjoints et en encourageant leur application et leur dissémination pour aider à la connaissance, la protection, la conservation et la mise en valeur du patrimoine industriel comme partie du patrimoine des sociétés humaines à travers le monde.

1 Définition : Le patrimoine industriel comprend les sites, les constructions, les complexes, les territoires et les paysages ainsi que les équipements, les objets ou les documents qui témoignent des procédés industriels anciens ou courants de production par l'extraction et la transformation des matières premières ainsi que des infrastructures énergétiques ou de transport qui y sont associées. Il exprime une relation étroite entre l'environnement culturel et naturel puisque les procédés industriels – anciens ou

modern – depend on natural sources of raw materials, energy and transportation networks to produce and distribute products to broader markets. It includes both material assets – immovable and movable –, and intangible dimensions such as technical know-how, the organisation of work and workers, and the complex social and cultural legacy that shaped the life of communities and brought major organizational changes to entire societies and the world in general.

modernes – dépendent de ressources naturelles, d'énergie et de voies de communication pour produire et distribuer des biens sur les marchés. Ce patrimoine comporte des dimensions immatérielles comme les savoir-faire techniques, l'organisation du travail et des travailleurs ou un héritage complexe de pratiques sociales et culturelles résultant de l'influence de l'industrie sur la vie des communautés et sur la mutation des sociétés et du monde en général.

2 Industrial heritage sites are very diversified in terms of their purpose, design and evolution over time. Many are representative of processes, technologies as well as regional or historical conditions while others constitute outstanding achievements of global influence. Others are complexes and multiple site operations or systems whose many components are interdependent, with different technologies and historical periods frequently present. The significance and value of industrial heritage is intrinsic to the structures or sites themselves, their material fabric, components, machinery and setting, expressed in the industrial landscape, in written documentation, and also in the intangible records contained in memories, arts and customs.

2 La grande diversité des sites du patrimoine industriel découle de leurs fonctions, de leurs formes et de leur évolution. Beaucoup illustrent des procédés, des technologies ou des conditions régionales ou historiques. Certains constituent des réalisations exceptionnelles ou influentes. Les complexes industriels, les opérations réparties sur de multiples sites ou les systèmes regroupent des composantes souvent d'époques ou de technologies différentes. L'intérêt du patrimoine industriel réside dans les constructions et les sites, dans leurs composantes matérielles et équipements, dans leur contexte et le paysage industriel qu'il forme, dans les documents ainsi que dans les dimensions immatérielles portées par la mémoire, les arts et les coutumes.

I - Document and understand industrial heritage structures, sites, areas and landscapes and their values

I - Étudier et comprendre les constructions, sites, aires et paysages industriels et leur valeur patrimoniale

3 Researching and documenting industrial structures, sites, landscapes and the related machinery, equipment, records or intangible aspects is essential to their identification, conservation, and the appreciation of their heritage significance and value. Human skills and knowledge involved in old industrial processes are a critically important resource in conservation and must be considered in the heritage evaluation process.

3 L'étude et la documentation des constructions, des sites et paysages industriels ainsi que des machines, des équipements, des archives ou de leurs dimensions immatérielles est nécessaire à leur identification, leur conservation et l'appréciation de leur intérêt et de leur valeur patrimoniale. Les savoir-faire liés aux anciens procédés industriels sont d'une grande importance dans la conservation et doivent être pris en compte par les processus d'évaluation patrimoniale.

4 Researching and documenting industrial heritage sites and structures must address their historical, technological and socio-economical dimensions to provide an integrated base for conservation and management. It requires an interdisciplinary approach supported by interdisciplinary research and educational programmes to identify the significance of

4 L'étude et la documentation des constructions et des sites du patrimoine industriel doivent examiner leurs dimensions historiques, technologiques et socio-économiques afin de fonder leur conservation et leur gestion sur une connaissance intégrée alimentée par une approche interdisciplinaire et par des recherches et des programmes éducatifs qui

industrial heritage sites or structures. It should benefit from a diversity of sources of expertise and information including site surveys and recording, historical and archaeological investigation, material and landscape analysis, oral history and/or research in public, corporate or private archives. Research and preservation of documentary records, company archives, building plans, and specimens of industrial products should be encouraged. The evaluation and assessment of documents should be undertaken by an appropriate specialist in the industry to which they relate to determine their heritage significance. The participation of communities and other stakeholders is also an integral part of this exercise.

- 5 Thorough knowledge of the industrial and socio-economic history of an area or country or their links to other parts of the world is necessary to understand the significance of industrial heritage sites or structures. Single industry context, typological or regional studies, with a comparative component, aimed at key industrial sectors or technologies are very useful in recognizing the heritage values inherent in individual structures, sites, areas or landscapes. They should be accessible and searchable by the public, scholars as well as managers.

aident à énoncer leurs valeurs patrimoniales. Cette approche doit bénéficier de l'apport d'une diversité de sources d'expertise et d'information dont les études et relevés de site, les études historiques et archéologiques, les analyses matérielles ou paysagères ainsi que la consultation des archives publiques, d'entreprises ou privées. L'examen et la conservation des archives industrielles, des plans et d'échantillons ou d'exemples de production doivent être encouragés et leur évaluation devrait être menée par des spécialistes du type d'industrie auquel ils sont associés. La participation des citoyens, des communautés et d'autres intéressés est une partie intégrale de cette activité.

- 5 Une connaissance approfondie de l'histoire industrielle et socio-économique d'une ville, d'une région ou d'un pays ainsi que de leurs liens avec d'autres parties du monde est nécessaire pour comprendre l'intérêt patrimonial des constructions ou des sites industriels. Des études comparatives, typologiques ou régionales sur certains secteurs industriels ou certaines technologies sont utiles pour évaluer l'intérêt de constructions, de sites ou de paysages particuliers. Elles devraient être accessibles au public, aux chercheurs comme aux gestionnaires.

II - Ensure effective protection and conservation of the industrial heritage structures, sites, areas and landscapes

- 6 Appropriate policies, legal and administrative measures need to be adopted and adequately implemented to protect and ensure the conservation of industrial heritage sites and structures, including their machinery and records. These measures have to address the close relation between the industrial heritage, industrial production and the economy, in particular with respect to rules for corporations and investments, trades or intellectual property such as patents, and standards applicable to active industrial operations.
- 7 Integrated inventories and lists of structures, sites, areas, landscapes their setting and associated objects, documents, drawings and archives or intangible heritage should be developed and used as part of these effective

II - Assurer la protection et la conservation efficaces des constructions, sites, aires et paysages du patrimoine industriel

- 6 L'adoption et la mise en œuvre de politiques et de mesures légales et administratives adéquates sont nécessaires à la protection et à la conservation des constructions et des sites du patrimoine industriel y compris leurs équipements et documents. Ces mesures doivent tenir compte de la relation étroite entre le patrimoine industriel, la production et l'économie notamment quant aux règles sur les entreprises et sur les investissements, aux métiers, aux éléments de propriété intellectuelle comme les brevets et aux normes régissant les activités industrielles.
- 7 Des inventaires intégrés des constructions, sites, aires et paysages, leur contexte ainsi que des objets, documents, dessins, archives et patrimoine immatériel associés à l'industrialisation doivent être faits et utilisés

management and conservation policies and protection measures. These should benefit from a legal recognition, adequate conservation and management to ensure that their significance, integrity and authenticity are maintained. In the case of industrial heritage identified through fortuitous discovery, temporary protection should be granted to allow time necessary for proper heritage documentation and research.

pour assurer l'efficacité des politiques et des protections. Les biens ainsi inventoriés devraient bénéficier d'une reconnaissance légale et de mesures qui en assurent le maintien de l'intérêt patrimonial, de l'intégrité et de l'authenticité. Dans le cas de découvertes fortuites, des protections temporaires devraient être accordées pour donner le temps nécessaire à une évaluation patrimoniale adéquate.

8 In the case of active industrial structures or sites of heritage significance, it must be recognized that their continued use and function might carry some of their heritage significance and provide adequate conditions for their physical and economic sustainability as a living production or extraction facilities. Their specific technical characteristics and features need to be respected while implementing contemporary regulations such as building codes, environmental requirements or risk reduction strategies to address hazards of natural or human origin.

8 Pour les sites ou ensembles industriels actifs, la continuité de leur usage peut fonder en partie leur intérêt patrimonial et justifier le maintien de conditions adéquates pour leur conservation physique et leur viabilité économique à titre d'installations opérationnelles de production ou d'extraction. Leurs caractéristiques techniques propres doivent alors être respectées en appliquant les normes, exigences ou mesures contemporaines en matière de bâtiment, d'environnement ou de réduction des risques de catastrophes d'origine naturelle ou humaine.

9 Protection measures should apply to buildings and their contents since completeness or functional integrity is especially important to the significance of industrial heritage structures and sites. Their heritage value may be greatly jeopardized or reduced if machinery or other significant components are removed, or if subsidiary elements which form part of a whole site are destroyed. Legal and administrative frameworks should be developed to enable authorities to respond quickly to the closure of operating industrial heritage sites and complexes to prevent removal or destruction of significant elements such as machinery, industrial objects or related records

9 Les mesures de protection devraient s'appliquer aux bâtiments et à leur contenu puisque l'intégrité fonctionnelle constitue un facteur majeur d'intérêt patrimonial pour les constructions et sites industriels. Cette valeur patrimoniale peut être lourdement menacée ou diminuée par l'enlèvement ou la démolition d'équipements ou de parties d'intérêt d'un ensemble. Les cadres légaux et administratifs doivent permettre aux autorités d'intervenir promptement quand des sites ou des complexes industriels patrimoniaux cessent leurs activités pour prévenir le démantèlement ou la destruction de machines, objets, documents ou autres éléments d'intérêt.

III - Conserve and maintain the industrial heritage structures, sites, areas and landscapes

III - Conserver les constructions, les sites, les aires et les paysages du patrimoine industriel

10 Appropriate original or alternative and adaptive use is the most frequent way and often the most sustainable way of ensuring the conservation of industrial heritage sites or structures. New uses should respect significant material, components and patterns of circulation and activity. Specialist skills are necessary to ensure that the heritage significance is taken into account and respected in managing the sustainable use of these industrial heritage sites and structures.

10 Le maintien de l'usage d'origine ou d'un nouvel usage compatible est le mode de conservation le plus commun et souvent le plus viable pour les sites et les constructions industrielles. Les nouveaux usages devraient respecter les éléments d'intérêt du site comme les équipements, les circulations ou la distribution des activités. L'apport d'experts est nécessaire pour voir à ce que la valeur patrimoniale de constructions et de sites industriels soit

Building codes, risk mitigation requirements, environmental or industrial regulations, and other standards should be implemented in an adapted way to take heritage dimensions into account when they are enforced through physical interventions.

respectée dans la gestion de leur usage viable. L'application des codes de construction, des mesures de réduction des risques de sinistre, des réglementations environnementales ou industrielles et d'autres normes devrait être adaptée pour respecter les dimensions patrimoniales lorsqu'elle exige des interventions.

11 Wherever possible, physical interventions should be reversible, and respect the age value and significant traces or marks. Changes should be documented. Reverting to a previous known state may be acceptable under exceptional circumstances for educational purposes, and must be based on thorough research and documentation. Dismantling and relocating are only acceptable in extraordinary cases when the destruction of the site is required by objectively proved overwhelming economic or social needs.

11 Les interventions physiques devraient être réversibles et respecter le caractère historique et les traces qui y contribuent. Les transformations devraient être documentées. Le rétablissement d'un état antérieur connu pourrait être recevable dans des cas exceptionnels à des fins éducatives ; il devrait reposer sur des recherches et une documentation complètes. Le démontage et le déplacement ne sont acceptables que lorsque des besoins impératifs économiques ou sociaux démontrés avec objectivité exigent la destruction du site.

12 In case of prospective redundancy, decommissioning, and / or adaptation of industrial heritage sites or structures, the processes should be recorded including, for example, where components have to be demolished and machinery has to be removed. Their material form as well as their functioning and location as part of the industrial processes should be exhaustively documented. Oral and / or written stories of people connected with work processes should also be collected.

12 En cas d'obsolescence de sites ou de constructions industriels d'intérêt patrimonial, les procédés devraient être documentés, notamment lorsque des composantes sont appelées à être démolies ou des machines retirées. Leur forme, leur fonctionnement et leur position et leur rôle dans le procédé industriel doivent être documentés exhaustivement. L'histoire orale ou les récits de personnes associées à ces procédés et le travail de l'industrie doivent aussi être colligés.

IV - Present and communicate the heritage dimensions and values of industrial structures, sites, areas and landscapes to raise public and corporate awareness, and support training and research

IV - Présenter et communiquer les valeurs patrimoniales des constructions, sites, aires et paysages du patrimoine industriel pour sensibiliser le public et les entreprises et soutenir l'éducation et la recherche

13 The industrial heritage is a source of learning which needs to be communicated in its multiple dimensions. It illustrates important aspects of local, national and international history and interactions over times and cultures. It demonstrates the inventive talents related to scientific and technological developments, as well as social and artistic movements. Public and corporate awareness and understanding for the industrial heritage are important means for its successful conservation.

13 Le patrimoine industriel est une source d'enseignements qui doivent être partagés dans leurs multiples dimensions. Il met en lumière des pans importants de l'histoire locale, nationale et internationale et les échanges de longue durée entre les cultures. Il témoigne des talents et de l'ingéniosité associés au progrès des sciences et des techniques ainsi que de l'évolution de la société ou des arts. L'éveil d'une conscience du patrimoine industriel dans la population et dans les entreprises contribue au succès de sa conservation.

- 14 Programmes and facilities such as visits of active industrial heritage sites and the presentation of their operations as well as the stories and intangible heritage associated with their history, machinery and industrial processes, industrial or city museums and interpretation centres, exhibitions, publications, websites, regional or trans-boundary itineraries should be developed and sustained as means to raise awareness and appreciation for the industrial heritage in the full richness of its meaning for contemporary societies. These should ideally be located at the heritage sites itself where the process of industrialisation has taken place and can be best communicated. Wherever possible, national and international institutions in the field of research and conservation of heritage should be empowered to use them as educational facilities for the general public and the professional communities.
- 14 La création et le maintien de programmes et d'équipements de mise en valeur du patrimoine industriel doivent être encouragés ; par exemple, les visites de sites en activité qui exposent le fonctionnement et les récits ou le patrimoine immatériel associés à leur histoire, leurs machines ou leurs procédés, les musées de ville et les centres d'interprétation industriels, les expositions et les publications, le web ou des itinéraires régionaux ou transfrontaliers. Préféablement, ces programmes et équipements de diffusion devraient être situés sur le site patrimonial où le processus d'industrialisation s'est déroulé et où il peut être le mieux présenté. Autant que possible, les organisations nationales et internationales dans les domaines de l'étude et de la conservation du patrimoine devraient être en mesure d'utiliser ces sites à des fins éducatives pour le grand public et les milieux spécialisés.

**APPENDIX E:
PROPOSED SITE PLAN**

