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BUILDING CONDITION ASSESSMENT

96 JOHN ST. S, HAMILTON, ONTARIO

PREPARED FOR:

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25 MAIN ST WEST, SUITE 2025
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Executive Summary

This Executive Summary is subject to the limitations and discussions contained in the attached report and must be read in conjunction with the report. The report has been prepared at the request of Markland Property Management. This building condition assessment is limited to the building located on the property located at 96 John St. S, Hamilton, Ontario.

J.P. Samuel & Associates Inc. staff performed site review on January 08, 2025. This report contains our conclusions based on the observations made during our site review(s) and is based on the condition of the building(s) on the date of our site review(s). The staff that attended the site review completed a visual assessment with photographic record to document existing conditions and items of concern. No physical or destructive testing was performed.

The primary objective of this structural assessment is to evaluate the condition of the building at 96 John St. S., Hamilton, to determine whether structural deficiencies render it unsafe for occupancy. The assessment focuses on identifying signs of structural distress, deterioration, or failure that could compromise the building's integrity and stability. Compliance of any buildings or other elements on the property to existing or past building codes or any other regulations, statutes, requirements by law or similar matters is not under the scope of this assessment and report.

Within this report is a detailed review of the main framing components of the building that are relevant to the structural assessment. The report includes any items of concern identified by Markland Property Management, as well as those discovered during our on-site visual review

Based on our assessment, the building has extensive structural damage, with significant deterioration affecting critical load-bearing elements. The severity of these deficiencies compromises the building's stability and safety, making restoration technically challenging and financially unfeasible. ***The high cost of repairs, coupled with the uncertainty of long-term durability, makes demolition the most practical and cost-effective solution.*** Removing the structure eliminates safety risks associated with its continued deterioration and allows for redevelopment in compliance with modern building standards. This approach ensures public safety while providing an opportunity for more sustainable and efficient land use.

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1.0 General:

1.1 Introduction

This report presents the findings of our structural assessment of the building at 96 John St. S., Hamilton, Ontario. The purpose of the review was to evaluate the building's condition and identify structural deficiencies that may render it unsafe for occupancy. Authorization to proceed with the assessment was provided by Markland Property Management, and our site review was conducted on January 08, 2025.

1.2 Objective

The objective of this assessment is to determine whether the building's structural condition justifies demolition as the most practical and cost-effective solution. The evaluation focuses on identifying significant structural deficiencies that compromise stability and safety. The findings provide technical support for the demolition permit application by documenting deterioration in key structural elements.

1.3 Method of Review

A visual inspection of the building was conducted to assess its structural condition. The review involved a walk-through of accessible areas to identify visible signs of deterioration, such as cracks, deformations, or other structural distress. Observations were documented through a photographic record, and no physical or destructive testing was performed.

1.4 Statement of Limitations

This report is not an overall certification of the building's structural integrity but is based solely on visual observations made during our site review. It does not account for concealed conditions or elements not visible during the assessment. The responsibility for the original design of the building remains with the engineers and architects who designed it, and it is assumed that the construction was carried out in accordance with the original design documents, revisions, and instructions.

This report is the property of J.P. Samuel & Associates Inc. and has been prepared exclusively for Markland Property Management. It may not be shared, used, or transferred to any other party, including tenants, property managers, or building owners, without the written consent of J.P. Samuel & Associates Inc.

2.0 Observations:

2.1 Introduction

The building at 96 John St. S., Hamilton, is a three-storey, mixed-use structure located at the intersection of Hunter St. E. and John St. S. It is currently vacant but was previously occupied by a jewelry shop on the ground floor, with the upper floors appearing to have been used as residential space.

The structure is primarily wood-framed, with masonry exterior walls. The building's framing system consists of wood joists supporting the floors and roof, wood posts and beams providing vertical support, and wood stud walls forming the interior partitions. The floors are constructed with wood decking, and the ceilings are finished with drywall.

Figure 1: Site Key Plan (Source: Google Maps)

Figure 2: Building at 96 John St N (Source: Google Maps)

2.2 Major Issues

The structural assessment identified critical deficiencies that render the main floor unsafe and compromise the overall stability of the building. Key concerns include foundation deterioration, extensive joist damage, inadequate bearing conditions, compromised load-bearing walls, and roof deflection. Additionally, cracks in structural wood columns and masonry deterioration indicate progressive weakening that could lead to structural failure if left unaddressed. While some issues may not pose an immediate risk, preventative measures are necessary to avoid further deterioration and potential collapse. These factors are explained in detail below.

2.2.1 Foundation and Water Infiltration:

The existing rubble foundation wall is not waterproofed from the exterior, resulting in significant water infiltration. Over time, this has led to deterioration of the foundation material, weakening the structural integrity of the building. Addressing these issues would require exterior excavation, installation of a proper waterproofing membrane, a weeping tile system to manage water drainage, and repointing of the stone wall to restore its stability. Without these measures, continued water penetration will accelerate deterioration and further compromise the foundation's load-bearing capacity.

Figure 3: Damaged Foundation wall

2.2.2 Extensive Ground Floor Joist Damage and Inadequate Bearing on Beams

Significant structural deficiencies were observed on the ground floor joists, primarily due to water infiltration from the exterior grade level. The ground floor is at the same elevation as the exterior, allowing moisture to penetrate and cause extensive damage at the joist support points. A load-bearing wall was introduced at some point to provide additional support, but it has since deteriorated, further reducing the floor system's overall stability.

Additionally, the ground floor joists lack proper bearing on the supporting beams, which does not comply with standard building code requirements. Approximately 90% of the floor joists spanning from the south wall to the middle beam either have insufficient bearing or are not properly secured to the main beam. As per structural standards, joists must either have a minimum bearing length on beams or be secured using joist hangers to ensure adequate load transfer. However, in this case, the joists appear to be loosely

resting on the beams or wedged between adjacent elements without proper support. This condition significantly increases the risk of joist movement, deflection, or even dislodgment under load.

The combined effects of moisture-related deterioration and improper bearing conditions severely compromise the stability of the ground floor system. Without corrective measures, these deficiencies could lead to localized floor failures or progressive structural weakening. To address these issues, damaged joists must be replaced or reinforced, proper bearing must be ensured on beams, and structural joist hangers should be installed where necessary. Additionally, waterproofing measures should be implemented at the foundation level to prevent further water infiltration and protect the integrity of the ground floor structure.

Figure 4: Inadequate Joist Bearing

2.2.3 Second Floor Joist Damage

All existing second-floor joists have been cut at their support points on top of the middle beam by a plumber to accommodate piping. This alteration has significantly weakened the structural integrity of the floor, as the joists are no longer able to provide adequate support. The removal of critical portions of the joists reduces their load-carrying capacity and increases the risk of localized failures, further compromising the overall stability of the building.

To restore structural integrity, proper reinforcement of the cut joists is necessary, either by installing sister joists or other structural strengthening measures. Without intervention, the weakened second-floor joists increase the likelihood of progressive structural failure.

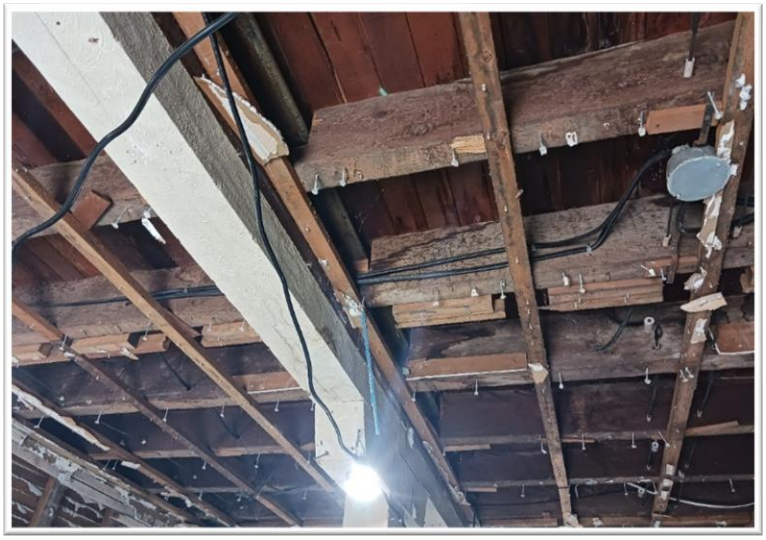

Figure 5: Compromised Joists Due to Top Cuts for Plumbing Installation

2.2.4 North Exterior Wall Issues

The north exterior wall was originally an interior wall but became an exterior wall after a portion of the building was demolished. However, it was never properly waterproofed, allowing water infiltration over time. The continuous exposure to moisture has led to material degradation, weakening the structural performance of the wall. Without proper waterproofing, the deterioration will persist, further jeopardizing the building's stability.

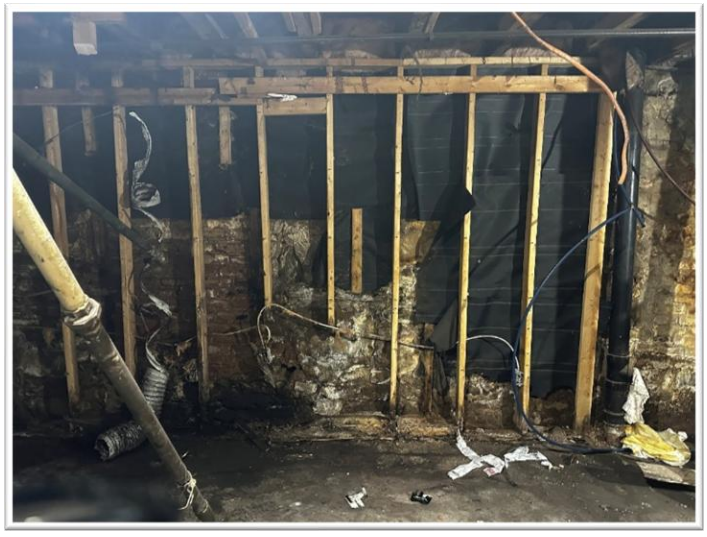

Figure 6: Improper Waterproofing

2.2.5 Load-Bearing Exterior Wall and Lintel Beam Cracking

Significant cracking was observed in the exterior masonry wall, which serves as a load-bearing element supporting the floor joists. The cracks, particularly around the window opening, indicate structural distress

and potential weakening of the wall's load-carrying capacity. A prominent vertical crack extends downward from the window, suggesting differential settlement or structural movement.

Additionally, the lintel beam above the window exhibits visible cracks, which may be attributed to excessive loading, material degradation, or insufficient reinforcement. Since this wall plays a critical role in supporting the floor system, any compromise in its integrity can lead to further structural instability. Water infiltration through these cracks can accelerate deterioration, weakening the masonry and increasing the risk of localized failure. Given the extent of damage, addressing these issues would require a detailed structural intervention rather than localized repairs to ensure the stability of the load-bearing wall and its supported elements.

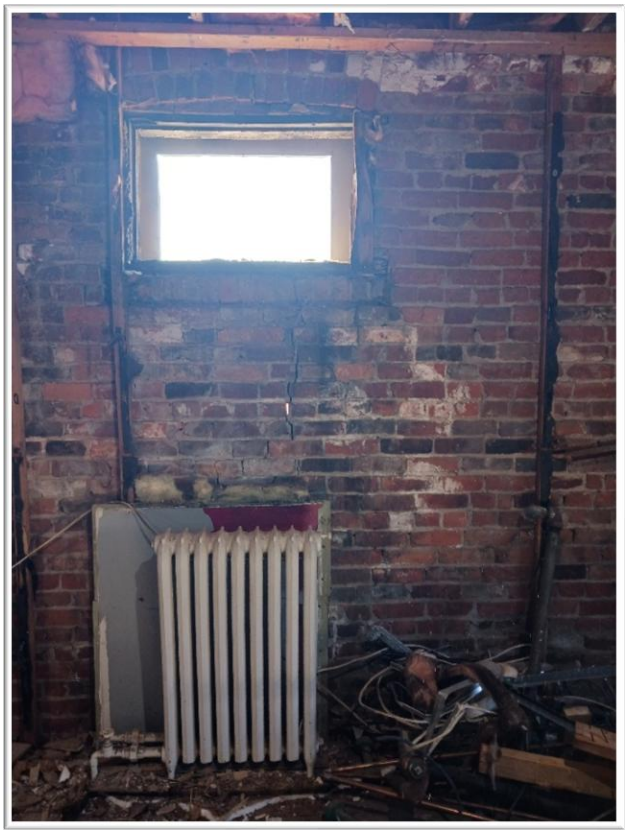

Figure 7: Crack on Exterior Load Bearing Wall and Lintel

2.2.6 Inadequate Joist Bearing on Load-Bearing Wall

The floor joists exhibit inadequate bearing conditions on load-bearing walls, compromising structural stability. In one instance, a joist had been cut at the top near its support, reducing its effective bearing area and weakening its load transfer capacity. Additionally, a visible gap between the joist and the wall suggests either differential settlement or localized material loss at the bearing point, further reducing structural support.

As shown in the image, several joists lack proper bearing on the exterior load-bearing wall, appearing to rest partially on deteriorated material. The absence of sufficient bearing prevents effective load transfer, increasing the risk of localized failures and excessive deflection over time. The weakened condition of the bearing points further reduces the structural integrity of the floor system.

To restore stability, joist connections must be reinforced, and proper bearing conditions must be reestablished. Where joists do not fully seat on the exterior wall, corrective measures such as extending the joists, installing ledger boards, or using engineered joist hangers must be implemented. Addressing these deficiencies is essential to prevent further structural weakening and ensure the long-term integrity of the floor system.

Figure 8: Inadequate Joist Bearing on Load-Bearing Wall

2.2.7 Extensive Floor Joist and Load-Bearing Wall Deterioration Due to Water Infiltration

Severe deterioration of the floor joists is evident in multiple areas throughout the building, primarily due to prolonged water infiltration. These joists, which are critical structural components, rest on a load-bearing masonry wall and are responsible for transferring floor loads to the supporting structure. Visible signs of damage include wood decay, discoloration, and partial material loss, indicating long-term moisture exposure. In some locations, sections of the joists appear to have weakened significantly or rotted away, reducing their ability to provide proper support. Additionally, the floor panels above show water infiltration marks, confirming widespread moisture damage. The continuous exposure to water has severely compromised the structural integrity of both the floor system and its supporting elements.

The load-bearing masonry wall beneath the joists also exhibits significant distress, further compounding the structural issues. Signs of deterioration include missing mortar joints, crumbling bricks, and localized material loss at the upper section where the joists are supported. Moisture infiltration has weakened the masonry bond, reducing its ability to provide stable support. In several areas, gaps are visible between the joists and the wall, likely due to settlement, displacement, or material deterioration at the bearing points. The compromised condition of both the joists and the masonry wall affects the overall load transfer, increasing the risk of structural failure.

To restore stability, the damaged sections of the load-bearing wall must be repaired by replacing deteriorated bricks and mortar, ensuring proper load distribution. Additionally, affected joists will require

reinforcement or replacement to restore their structural capacity. Addressing the root cause of water infiltration is also essential to prevent further deterioration and ensure the long-term stability of the structure.

Figure 9: Joist deterioration due to water infiltration and load bearing wall cracks

2.2.8 Roof Deflection Indicating Joist Failure

A noticeable dip is present on the roof, indicating failure of the underlying roof joists. This deflection suggests that the joists have bowed under excessive loading or weakened due to long-term deterioration. When joists fail, they lose their ability to maintain a level surface, resulting in a sagging roof structure.

Additionally, the roof drainage system is located to the left of the dip, meaning water will not naturally flow toward the drain. Instead, water is likely to accumulate in the depressed area, leading to water ponding issues during rainfall. Prolonged moisture exposure can further weaken the joists, accelerating structural deterioration and increasing the risk of further deflection or collapse.

To restore the structural integrity of the roof, the failed joists must be reinforced or replaced, and the roof slope should be corrected to ensure proper drainage. Additionally, the drainage system should be evaluated to determine whether repositioning or additional drains are required to prevent further structural issues.

Figure 10: Significant Dip on the Roof

2.2.9 Cracked Structural Wood Column

A significant vertical crack is visible on the structural wood column, extending from the top to approximately midway down its length. This column plays a critical role in supporting the beam above, which in turn carries floor and ceiling loads. While the crack may not pose an immediate structural concern, continued expansion of the crack over time could severely compromise the column's stability, ultimately leading to failure of the structure it supports.

Vertical cracks in a wood column typically develop due to excessive loading, drying shrinkage, or material defects. If the crack continues to widen, it will reduce the column's effective cross-section, weakening its capacity to transfer loads. Over time, if left unaddressed, this damage could lead to further splitting, increased deflection in the supported beam, and potential structural failure. This issue was also observed at another location in the building, reinforcing the need for preventative action before the cracks progress further.

To prevent future failure, reinforcement or replacement of the column should be considered. If reinforcement is pursued, methods such as steel plate wrapping or bolted splints could be used to improve the column's load-bearing capacity and prevent further cracking. However, if the crack continues to grow and significantly compromises the column's strength, complete replacement will be necessary to ensure the structural integrity of the building.

Figure 11: Cracked Structural Column

2.2.10 Deflected Lintel and Compromised Wall Integrity

The masonry wall in the image exhibits severe structural distress, with visible cracking, material loss, and a compromised lintel. The wood lintel above the opening appears to be significantly deflected, indicating that it is no longer providing adequate support. This deformation suggests prolonged material deterioration, excessive loading, or moisture-induced weakening over time.

Additionally, the bearing conditions of the lintel on both sides are compromised. The masonry supporting the lintel has deteriorated, with visible cracks and displacement at the bearing points. The left side of the opening shows a clear separation between the concrete and masonry, indicating differential movement that further weakens the structure. On the right side, the masonry at the lintel support has also deteriorated, reducing its capacity to carry loads effectively.

Although this is a non-load-bearing wall, its current condition poses a significant risk of localized collapse. The extensive damage to both the lintel and its supports means that the entire section needs to be demolished and rebuilt to restore structural integrity. Proper reconstruction with a reinforced lintel and stable bearing conditions will ensure long-term durability and prevent further structural instability.

Figure 12: Deflected Lintel with Compromised Supports and Cracked Masonry Wall

3.0 Discussion/Recommendations

Based on the structural assessment, several corrective measures are required to address the significant deficiencies identified in the building. The following actions are recommended to prevent further deterioration and restore structural integrity:

3.1 Foundation Waterproofing and Drainage System:

The rubble foundation has experienced extensive deterioration due to prolonged water infiltration. The lack of waterproofing has allowed moisture to seep into the foundation walls, weakening their load-bearing capacity and accelerating material degradation.

To address this issue, the foundation must be excavated, cleaned, and waterproofed to prevent further moisture penetration. A waterproof membrane should be applied to the exterior foundation wall to create a sealed barrier against water infiltration. Additionally, a weeping tile system must be installed at the base of the foundation to effectively redirect groundwater away from the structure. Repointing of deteriorated mortar joints and stone replacements will be necessary to restore structural integrity. These measures will reduce water-induced deterioration and enhance the long-term stability of the foundation

3.2 Extensive Ground Floor Joist Damage and Inadequate Bearing on Beams

The ground floor joists have deteriorated significantly due to moisture infiltration and lack of proper bearing conditions on the beams. The absence of secure connections between the joists and beams increases the risk of movement, deflection, and localized failure.

To correct these deficiencies, all damaged ground floor joists must be replaced or reinforced. Joists that have lost material integrity at their support points should be removed and replaced with properly sized members. Additionally, secure bearing conditions must be established by ensuring that the joists meet the minimum bearing length on beams or by installing code-compliant joist hangers. Structural reinforcement of the supporting beams may also be required to improve overall load distribution and floor stability.

3.3 Second-Floor Joist Strengthening

The second-floor joists have been severely compromised due to modifications where the tops of the joists were cut at their bearing points to accommodate plumbing installations. This alteration has significantly weakened their ability to carry loads, increasing the risk of localized failures.

To restore their load-bearing capacity, additional support joists must be installed alongside the compromised members to strengthen the existing structure. These new joists must be properly fastened and secured to ensure effective load distribution. If the extent of damage is severe, full replacement of the affected joists may be necessary. Additionally, any future mechanical or plumbing modifications must be carefully planned to avoid further weakening of structural components. Proper review and coordination should be conducted to ensure that essential load-bearing elements remain intact.

3.4 North Exterior Wall Waterproofing and Stabilization

The north exterior wall was originally an interior partition and was not designed to withstand continuous moisture exposure. The absence of waterproofing has led to material deterioration, weakening the overall stability of the wall.

To prevent further degradation, the wall must be properly waterproofed using a moisture barrier and sealants. If sections of the masonry show severe material loss, localized repairs or reinforcement will be necessary to restore its structural integrity. Ensuring proper waterproofing and drainage will prevent recurring water damage and improve long-term durability.

3.5 Load-Bearing Exterior Wall and Lintel Beam Reconstruction

The exterior load-bearing masonry wall exhibits significant structural distress, with visible cracks around a window opening. These cracks indicate differential settlement or material failure, reducing the wall's ability to carry floor loads. Additionally, the wood lintel above the window has cracked and deflected, suggesting material degradation or excessive loading.

Given the extent of damage, a localized repair approach is not sufficient. To ensure long-term structural stability, the damaged sections of the wall must be rebuilt, and the compromised lintel must be replaced with a properly reinforced structural member. The masonry at the bearing points of the lintel must also be reconstructed to restore adequate load distribution.

3.6 Inadequate Joist Bearing on Load-Bearing Wall

A floor joist was found to have been cut at the top near its support on a load-bearing wall. Additionally, a visible gap between the joist and the wall suggests differential settlement or material loss at the bearing point.

To restore proper load transfer, the bearing area must be repaired, and the joist connection must be reinforced. If settlement is a contributing factor, additional structural stabilization measures may be required to prevent further displacement.

3.7 Extensive Floor Joist and Load-Bearing Wall Deterioration Due to Water Infiltration

The floor joists and load-bearing masonry wall have been severely affected by water infiltration, resulting in wood decay, material loss, and weakened structural performance. The masonry wall supporting these joists has also suffered significant deterioration, with crumbling mortar joints and missing sections.

To restore stability, the damaged floor joists must be reinforced or replaced. Any joists that show signs of advanced material loss must be replaced with structurally sound members. Additionally, the load-bearing masonry wall must be repaired by replacing deteriorated bricks and repointing mortar joints to restore its load-carrying capacity. Waterproofing the surrounding areas is critical to prevent future water-related deterioration.

3.8 Roof Deflection and Drainage Correction

The noticeable dip in the roof indicates that the underlying roof joists have failed. This deflection prevents proper drainage, increasing the risk of water ponding and accelerating deterioration.

To correct this issue, all failed roof joists must be replaced or reinforced. Additionally, the roof slope must be adjusted to ensure that water flows toward the drainage system rather than accumulating in depressed areas. The existing drainage system should be reevaluated, and if necessary, repositioned or supplemented with additional drains to prevent future water-related structural issues.

3.9 Cracked Structural Wood Column Reinforcement

A significant vertical crack was observed in a primary structural wood column, reducing its ability to effectively transfer loads. While the crack may not pose an immediate failure risk, continued widening could lead to loss of column stability.

To prevent progressive failure, the cracked column should be reinforced using steel plate wrapping or bolted splints. If the crack continues to expand, full replacement will be required to ensure long-term structural stability.

3.10 Deflected Lintel and Compromised Wall Integrity

The wood lintel above an opening has visibly deflected, while the supporting masonry has developed severe cracks. The masonry supporting the lintel has deteriorated on both sides, reducing its ability to provide adequate bearing.

Given the extent of the deterioration, the entire lintel and its supporting masonry must be rebuilt. A new reinforced lintel should be installed, and the surrounding wall sections must be reconstructed to restore load-bearing capacity. These measures will ensure long-term structural stability and prevent further localized failures.

3.11 Feasibility of Repairs vs. Demolition

Given the extensive structural deficiencies observed throughout the building, the feasibility of repairs must be critically evaluated. While structural reinforcements and waterproofing improvements could address some of the issues, the cost and complexity of restoration would be significant. Many critical load-bearing elements have suffered irreversible material loss, requiring widespread reconstruction efforts.

Even with full repairs, the long-term performance of the structure remains uncertain. The financial investment required to restore the foundation, replace joists, reinforce walls, and rebuild compromised sections is disproportionate to the benefits of retaining the structure. Given these factors, demolition and reconstruction remain the most practical and cost-effective solution. Instead of expensive repairs with no guarantee of future stability, demolition would allow for the redevelopment of the site with a structurally sound, code-compliant building that ensures long-term safety.

4.0 Conclusion:

As outlined in this report, the structural assessment of the building at 96 John St. S., Hamilton, has revealed severe structural deficiencies that make repairs both costly and impractical. The foundation, floor joists, walls, and roof structure have all suffered significant deterioration due to long-term moisture infiltration, poor bearing conditions, and past modifications that have weakened critical load-bearing elements. Addressing these deficiencies would require major reconstruction efforts, including foundation excavation, floor and roof joist replacements, lintel and masonry wall repairs, and comprehensive waterproofing improvements. Even with extensive repairs, the overall stability of the structure remains uncertain due to the widespread material degradation and structural distress.

The cost and complexity of restoring the structure far exceed the feasibility of repairs. The building's age, history of structural modifications, and ongoing deterioration suggest that any repair strategy would only serve as a temporary solution, requiring ongoing maintenance and future interventions. The interconnected nature of the structural issues means that localized repairs would not be sufficient, and extensive reconstruction across multiple areas would be necessary, further increasing costs.

Given these factors, demolishing and reconstructing the building is the most practical and cost-effective solution. A newly constructed structure would ensure compliance with modern building codes, provide long-term durability, and significantly reduce future maintenance costs. Attempting to salvage the deteriorated structure would result in a substantial financial investment with no guarantee of long-term stability. Therefore, full demolition and rebuilding present the safest, most sustainable, and financially viable course of action. Should you have any concerns or questions regarding the contents of this document, please do not hesitate to contact our office.

Report prepared by:
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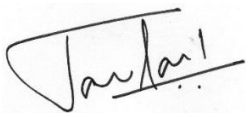

James Samuel, P. Eng.

March 03rd, 2025