A Heritage Impact Assessment
2175 Prince of Wales Drive, Ottawa

Prepared For: Zena Investment Corporation.

Prepared By: John Stewart, Commonwealth Historic Resource Management

Date: December 2023

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1.0 INTRODUCTION

1.1 Background and Scope

The City of Ottawa requested that a Heritage Impact Assessment (HIA) be prepared as part of a planning application for a Zoning Bylaw Amendment for the property known municipally as 2175 Prince of Wales Drive. The subject property is located on the east side of Prince of Wales Drive, just south of the intersection with Hunt Club Road and is flanked on the east by the Rideau River. The lands are approximately 3.23 hectares in size with 592 feet (180 metres) of frontage on Prince of Wales Drive. The site is north of Waterbend Lane, a short dead end road, which is occupied by single detached dwellings on public services. The subject property is within the Urban Boundary. It is the owner's intent to explore several options for the development of the site. The possible options include an automotive dealership and Myers Automotive Group headquarters, a nine (9) storey hotel, or a six (6) storey office building.

The purpose of the HIA is to identify and assess the potential impacts that may result from the planning application on the cultural heritage resources and values associated with the Rideau Canal National Historic Site, and the UNESCO World Heritage Inscription administered by Parks Canada. A review of potential impacts on the existing and proposed landscape and shoreline character are included in this assessment. There are no cultural heritage resources within or adjacent to the site that have been recognized under the Ontario Heritage Act.

The following documents were reviewed in the preparation of this report:

- Statement of Significance for the Rideau Canal National Historic Site of Canada {Parks Canada)
- Statement of Outstanding Universal Value for the Rideau Canal World Heritage Site (UNESCO)
- Standards and Guidelines for the Conservation of Historic Places in Canada, Second Edition,
- City of Ottawa, Official Plan Section 4.6.3- River and Canal Corridors;
- Parks Canada, Rideau Corridor Landscape Strategy: Landscape Character Assessment & Planning and Management Recommendations, [2012];
- Site Plan with Schematic Layout Myers Chevrolet Buick Gmc, Cadillac Tier 2a. Study 2.1 R. H. Carter Architects ND.
- Planning Overview Memorandum, 2175 Prince Of Wales Drive Planning Summary Job No. 117074, Novatech 2022.
- Slope Stability Analysis 2175 Prince of Wales Drive Ottawa, Ontario, Paterson Group Consulting Engineers 2010 and update 2017.
- Three Concepts for development – site plans and descriptions. Novatech 2023.

Owner and Contact Information

Address: 2175 Prince of Wales Drive, Ottawa, Ontario

Owner: Zena Investment Corporation

Contact: Dave Johnston, Director of Real Estate djohnston@myers.ca
1200 Baseline Road, Ottawa K2C 0A6.

1.2 Development Site

The property is within the City's urban area between Prince of Wales Drive to the west and the Rideau River to the east, with a water course ravine, and Hunt Club Road and bridge abutment to the north and Waterbend Lane to the south. There are no buildings on the site. Most of the site is open former agricultural land/pasture with a mixture of deciduous trees and shrubs along the top of the slope fronting onto the Rideau River and following a tributary along the north property line. There is roughly a 10 metre grade change between the high water line of the river and the upper site.
The area to the west of Prince of Wales Drive is a mix of institutional, commercial, and office uses with large areas of surface parking.

The area south of the subject lands fronts onto Waterbend Lane, a dead end lane with six older residences overlooking the river. North of the subject property is the Hunt Club Road Bridge abutment, and a canopy of mixed growth (mainly deciduous) following the tributary ravine. On the east side of the River is a large commercial development with surface parking along West Hunt Club Road and the Ottawa airport runway.

Conceptual plans outlining three potential options are being considered. A Heritage Impact Assessment has been requested as part of this application in order to assess any negative impacts on the Rideau Canal World Heritage Site and proposed mitigation measures if there are defined impacts.

Figure 1: Context plan showing the property at 2175 Prince of Wales Drive at the intersection of West Hunt Club Road. Source: Novatech. 2022

1.3 Context

The development site is located on the west shore of the Rideau River, which is part of the Rideau Canal World Heritage Site. The cultural heritage values and character-defining features of the site are summarized in the '*Statement of Significance for the Rideau Canal National Historic Site of Canada {Parks Canada)'* and the '*Statement of Outstanding Universal Value for the Rideau Canal World Heritage Site (UNESCO)* (See Section 3.0).

Parks Canada developed a landscape strategy and character assessment of the Rideau Corridor in 2012 to guide planning and management. The development site is in Section 2a The Hog's Back Lock Section of the Rideau Corridor where the Rideau River is the dominant feature in the area, with a variety of land uses, including residential, some industrial to the west and the Ottawa Airport east of the Rideau River (See Figure 2). There are institutional operations to the southwest in the South Merivale Business Park, and residences along both sides of Prince of Wales Drive and adjacent roads. The landscape character is described within Section 2a as generally *'steep sided, narrow, and sinuous'.*

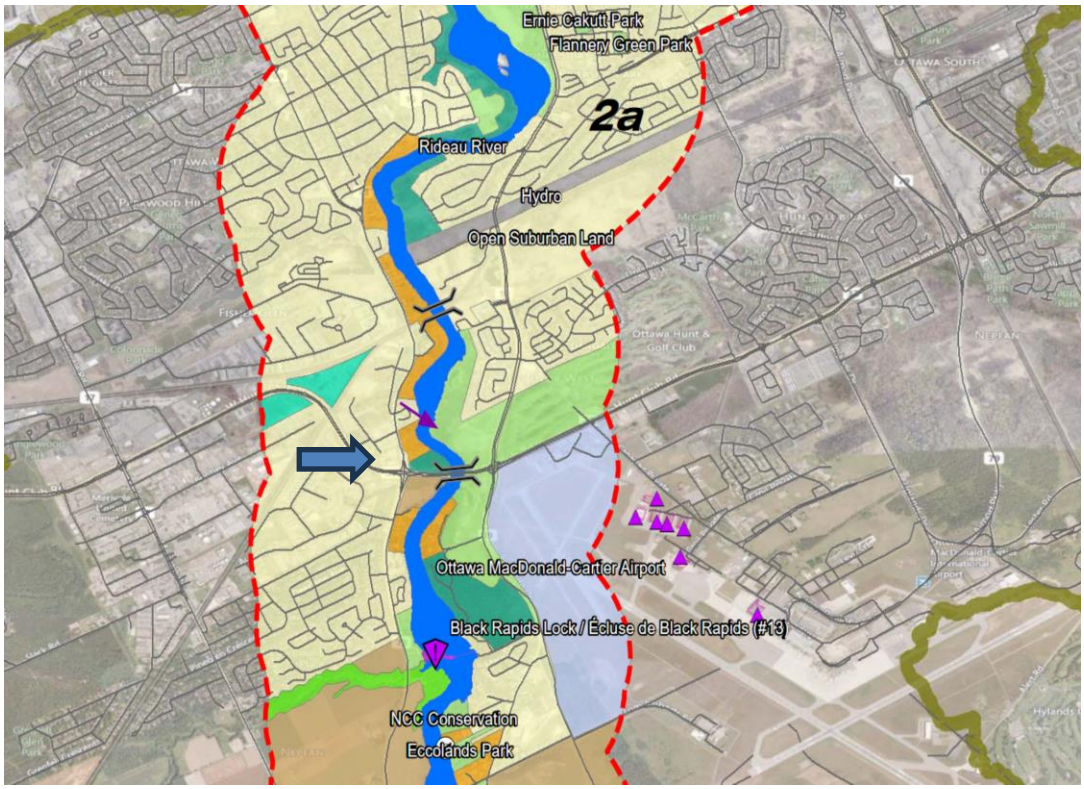


Figure 2: A portion of Section 2a Hogback Locks to Kars Rideau Corridor Landscape Character Assessment Map. Arrow identifying the development site. Source: Parks Canada 2012.

Current Conditions Topography and Landscape

The Slope Stability Analysis prepared by Paterson Group 2017 provides a detailed discussion of the site topography and slope stability. It identified the limit of hazard lands for the subject site that extends along the west side of the Rideau River and along the south side of a ravine containing a tributary watercourse to the Rideau River and the west corridor wall of the Rideau River. A copy of the report is available in Chapter 8 of this report.

The site is described as an undeveloped, open landscape with regenerating woody vegetation along the eastern edge of the property and along the vegetated ravine and sloped embankment of the bridge along the northern edge. The drainage ravine originates just south of the bridge abutment with a 2 to 3 m wide watercourse that meanders following the creek channel to discharge into the River. The water depth varies between approximately 0.2 to 0.3 m. There were signs of erosion occurring at several localized out bends in the watercourse/creek channel. The 2010 report notes the west valley corridor wall of the Rideau River along the east property boundary, is undergoing active erosion within several areas. The slope was noted to have been undercut at the toe. These issues were addressed as part of the 2017 Paterson report update (attached Appendix A).

It is expected that historical erosional activities have resulted in currently observed steep back scarp slope. The majority of the bank is vegetated with small brush and full grown trees (mainly deciduous). A slope remedial program was initiated in Summer 2003 and consisted of modifying the existing slope and reinstating with blast rock fill.

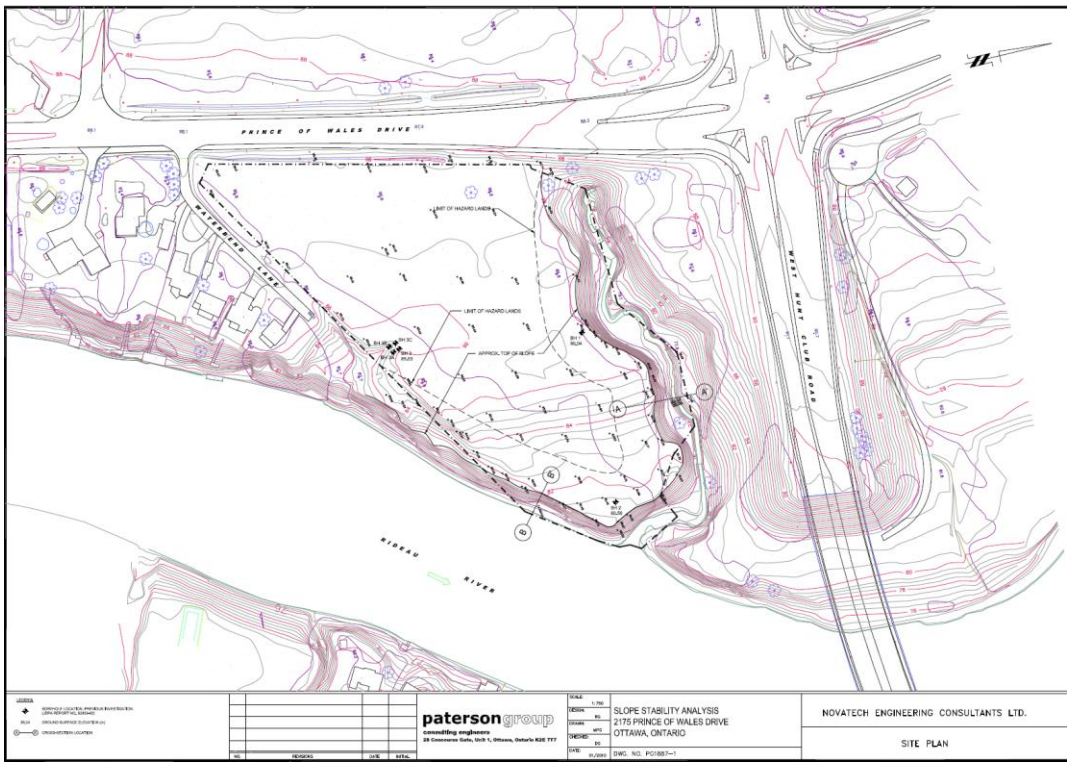
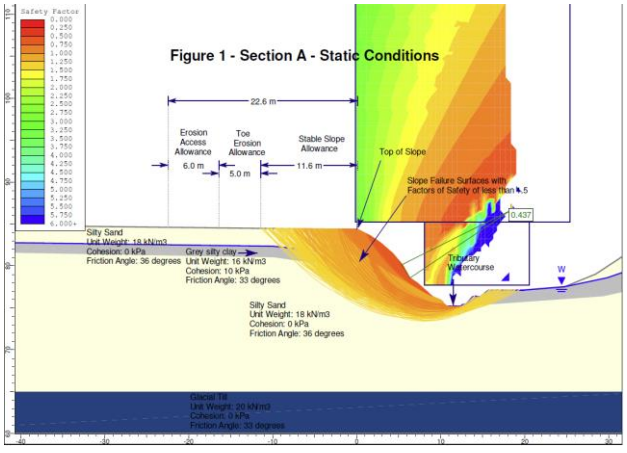
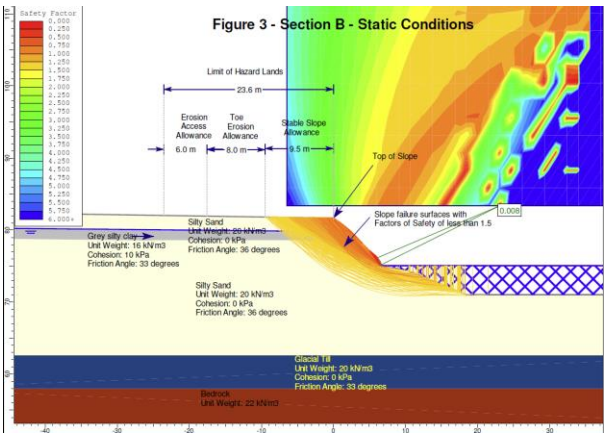


Figure 3: Slope Stability Analysis Survey Plan of 2175 Prince of Wales Drive and a topographic survey were completed by Paterson to provide spot grade elevations across the subject site and three (3) slope cross sections were completed for Paterson's slope stability analysis. One slope cross section was completed for the area that has undergone a slope remedial repair after slope toe erosion activities caused slip failures. Source: Paterson Group Consulting Engineers 2017.





Figures 4 and 5: Selected illustrations of the slope condition and the recommend setbacks as shown in cross section A-A with a limit of hazard lands of 22.6m from top of slope; and B-B with a limit of hazard lands of 23.6m from the top of slope. Source: Paterson Group Consulting Engineers.

1.4 Relevant Information from Council Approved Documents

Official Plan Summary (Council Adopted)

- Outer Urban Transect" on Schedule A (see discussion on Land Use and Building Height)
- Neighbourhood" on Schedule B-3 (see discussion on Land Use and Building Height)
- Hunt Club Road is a "Transit Priority Corridor" on Schedule C-2 (Minimal impact as the Subject Property is separated from Hunt Club Road by a minor tributary)
- Prince of Wales Drive is identified as having a "Major Urban Pathway" on Schedule C-3 (requires design considerations and the accommodation of a Multi-Use Pathway along the frontage of Prince of Wales Drive)
- Prince of Wales Drive and Hunt Club Road are both "Arterial – Existing" on Schedule C-4 (required design considerations)
- Partially covered by "Natural Heritage Features Overlay" on Schedule C-11-A (requires that development be supported by an Environmental Impact Statement)
- Abutting an identified "Water Linkage" along Rideau River on Schedule C-12 (requires design considerations)
- Prince of Wales Drive identified as "Scenic Capital Entry Route" on Schedule C-13 (requires design considerations)
- Hunt Club Road identified as "Scenic Entry Route" on Schedule C-13 (requires design considerations)
- Property is within the "Airport Operating Influence Zone" on Schedule C-14 (will limit the permitted uses to non-residential uses only)
- Riverbank of Rideau River is identified as an "Unstable Slope" on Schedule C-15 (requires that development be supported by a Slope Stability Study)
- Schedule 16 identifies an unequal 40 to 48 metre ROW corridor requirement for Prince of Wales Drive based on an approved ESR. (A road widening may be required if not yet taken)

Official Plan Section 4.5 Cultural Resources and Archaeology

The City of Ottawa Official Plan includes policies for Cultural Heritage Resources in Section 4.5.2

2) Where development or an application under the Ontario Heritage Act is proposed on, adjacent to, from or within 30 metres of a protected heritage property, the City will require a Heritage Impact Assessment if there is potential to adversely impact the heritage resource. The HIA will be completed according to the Council approved guidelines for HIAs, as amended from time to time.

4) Ottawa is the site of the Rideau Canal World Heritage Site, many National Historic Sites, and both privately- and publicly owned buildings designated by the Federal Heritage Buildings Review Office. Development including or adjacent to these sites shall have regard for their cultural heritage value, as defined in Federal designation documentation and the City may require demonstration that development does not adversely impact these resources.

2.0 DEVELOPMENT SITE HISTORY

2.1 Development Site History

The site is within the City's urban area between Prince of Wales Drive to the west and abuts the Rideau River to the east and a small tributary to the north with Hunt Club Road and bridge to the north. (Figure 1.) Slope stability setbacks have been assessed by Paterson Group previously to establish a developable area.

Today the site is an open landscape with regenerated woody vegetation along the upper edge and the slope down to the River and a creek tributary cutting across the north edge of the site. Historically, the property served as agricultural pasture lands. It has never been developed. A series of air photos document the site with the maturing of the wooded areas along the creek and the upper slope along the Rideau River. (Figures 6, 7, and 8)

Figure 6: Aerial view 1958 is one of the earliest views prior to the West Hunt Club bridge over the River. Source: Geo Ottawa

Figure 7: Aerial view 1991 with the bridge in place, the abutment on the east side of the bridge appears as newly installed just north of the tributary ravine. Source: Geo Ottawa

Figure 8: Aerial view 2022. As illustrated with the earlier aerial photos, residential properties have traditionally fronted onto both sides of the River. Source: Geo Ottawa.

3.0 STATEMENT OF CULTURAL HERITAGE VALUE

The following Statement of Cultural Heritage Value identifies the primary heritage values and attributes of the Rideau Canal National Historic Site and the Rideau Canal World Heritage Site.

3.1 Statement of Cultural Heritage Value Rideau Canal National Historic Site

Rideau Canal National Historic Site of Canada is a federal recognition. The Statement of Significance for the National Historic Site commemoration is:

Description of Historic Place

Rideau Canal National Historic Site of Canada is a 200 km man-made waterway running through a corridor of communities from Ottawa River to Lake Ontario. It was built in the mid-19th century. The designation includes lands alongside the canal, which are administered by Parks Canada.

Heritage Value

Rideau Canal was designated a national historic site of Canada because of the significance of:

- the construction of the canal system,
- the survival of a high number of original canal structures, including locks, blockhouses, dams, weirs, and original lock masters' houses plus the integrity of most lock stations,
- the unique historical environment of the canal system.

The heritage value of the Rideau Canal lies in the health and wholeness of its cultural landscape, as a witness of the early 19th-century forms, materials, and technologies of the waterway, and as a dynamic reflection of the longstanding human and ecological inter- relationships between the canal and its corridor. The Rideau Canal was built for the British government by Lieutenant-Colonel John By as a defensive work in 1826-1837. Canada assumed responsibility for its management in 1855, and the waterway served as a commercial transportation route through most of the 19th and 20th centuries. Parks Canada acquired the canal to sustain its recreational operation in 1972.

Character-Defining Elements

The Character Defining Elements refer to the entire canal system. Aspects of this site which contribute to its heritage values are highlighted and include:

- **the completeness of the cultural landscape as a longstanding system of transportation facilities,** including the waterway, locks, blockhouses, dams, weirs, and lock stations with lock masters' houses, associated shore lands and communities, extensive wetlands, and lakes,
- the canal bed and its subdivision into lock stations,
- the original built resources, in particular, the form, craftsmanship, materials and locations of its early blockhouses, lock masters' houses, and lockstation buildings canal walls, locks, dams and weirs,
- defensive siting, materials and functional design of blockhouses, lock masters' houses and lock station landscapes, and remnants such as the guardhouses at Jones Falls and Morton's Dam,

- archaeological remnants of construction, including the ruin of the engineers' building, the remains of the lime kilns, the Sapper's Bridge and blacksmith shop at the Ottawa Locks, the construction camp at Newboro,
- remnants of engineering design, including the canal route, walls, locks, weirs, bridges such as the remains of Ottawa's Sapper's Bridge and submerged bridge at the Jones' Falls dam, and dams (especially the stone arch dams at Long Island and Jones Falls, and the underwater site of the original dam at Merrickville), and the operational technologies, including the manual operation of all locks except Newboro, Black Rapids and Smiths Falls Combined Locks,
- the wetlands and lakes created by the canal construction,
- **on-going operation of the canal and all evidence of its continuous seasonal operation since 1832** (particularly the integral role of its engineering works in the sustained operation of the navigation system as witnessed by facilities at all locks except Locks 29, 30 & 31at Smiths Falls Combined, the surviving historic layout and configuration of lock stations including their patterns of open space and circulation),
- **the continuity of historic, ecological and visual associations with shore lands and communities along the route,** particularly pathways, view sheds from the canal locks and channel to the central core of Ottawa between the Mackenzie King Bridge and the Ottawa River, view sheds between the canal, the fortifications, the harbour in the landscape of Kingston's harbour, views from the canal shore lands and communities between Becketts Landing and Kilmarnock lock station, along Newboro channel, at Chaffeys Locks, and at the lockstations at Davis Locks, Jones Falls, Upper and Lower Brewers and Kingston Mills.

3.2 UNESCO Statement of Outstanding Universal Value

The Rideau Canal is a large strategic canal constructed for military purposes, which played a crucial contributory role in allowing British forces to defend the colony of Canada against the United States of America, leading to the development of two distinct political and cultural entities in the North of the American continent, which can be seen as a significant stage in human history.

Criterion (i): The Rideau Canal remains the best-preserved example of a slackwater canal in North America demonstrating the use of European slackwater technology in North America on a large scale. It is the only canal dating from the great North American canal-building era of the early 19th century that remains operational along its original line with most of its original structures intact.

Criterion (iv): The Rideau Canal is an extensive, well preserved, and significant example of a canal which was used for a military purpose linked to a significant stage in human history - that of the fight to control the north of the American continent.

The nominated property includes all the main elements of the original canal together with relevant later changes in the shape of watercourses, dams, bridges, fortifications, lock stations and related archaeological resources. The original plan of the canal, as well as the form of the channels, has remained intact. The Rideau Canal has fulfilled its original dynamic function as an operating waterway without interruption since its construction. Most of its lock gates and sluice valves are still operated by hand-powered winches.

All the elements of the nominated area (canal, associated buildings, and forts) are protected as national historic sites under the Historic Sites and Monuments Act 1952-3. A buffer zone has been established. Repairs and conservation of the locks, dams, canal walls and banks are carried out directly under the control of Parks Canada. Each year one-third of the canal's assets are thoroughly inspected by engineers. A complete inventory thus exists of the state of conservation of all parts of the property. A Management Plan exists for the canal (completed in 1996 and updated in 2005), and plans are nearing completion for Fort Henry and the Kingston fortifications. The Canal Plan is underpinned by the Historic Canals Regulations, which provide an enforcement mechanism for any activities that might impact on the cultural values of the monument.

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT

4.1 Design Intent

The OP policies allow for both small-scale and limited large-scale non-residential uses. There are a range of non-residential uses that could be considered for this property. The highest and best use will be dependent on the ability to produce a supporting Transportation Impact Study to address access and transportation issues. Non-residential uses that the group are considering include concept plans for **office, hotel, and automotive dealership.** The current zoning (Development Reserve) does not permit the desired uses.

As well as transportation issues there is a requirement for a fair portion of the site to be dedicated to surface parking. All three options need to consider the impact on the World Heritage Site in terms of visual impact as well as environmental concerns.

4.2 Three Potential Approaches to Site Development

Concept # 1 6-Storey Office Complex

The Office Concept for 2175 Prince of Wales Drive consists of a single, basic rectangular-shaped, 6-storey building with a floor plate of approximately 2040 square metres (21960 square feet). The total square footage for the Office Concept is approximately 12,240 square metres (131,750 square feet). The building height is estimated to be in the order of 18 metres.

Building size for the Office Concept is limited in part by the availability of developable land for parking. There are a total of 533 parking spaces proposed with this concept. This meets the Zoning By-law requirement of 527 parking spaces (2.4 spaces per 100 square metres of gross floor area).
The proposed location and floorplate of the proposed office building has been selected to represent a traditional suburban appearance with opportunities for extensive landscaping to be implemented in the areas of unstable slopes, increasing the tree coverage.

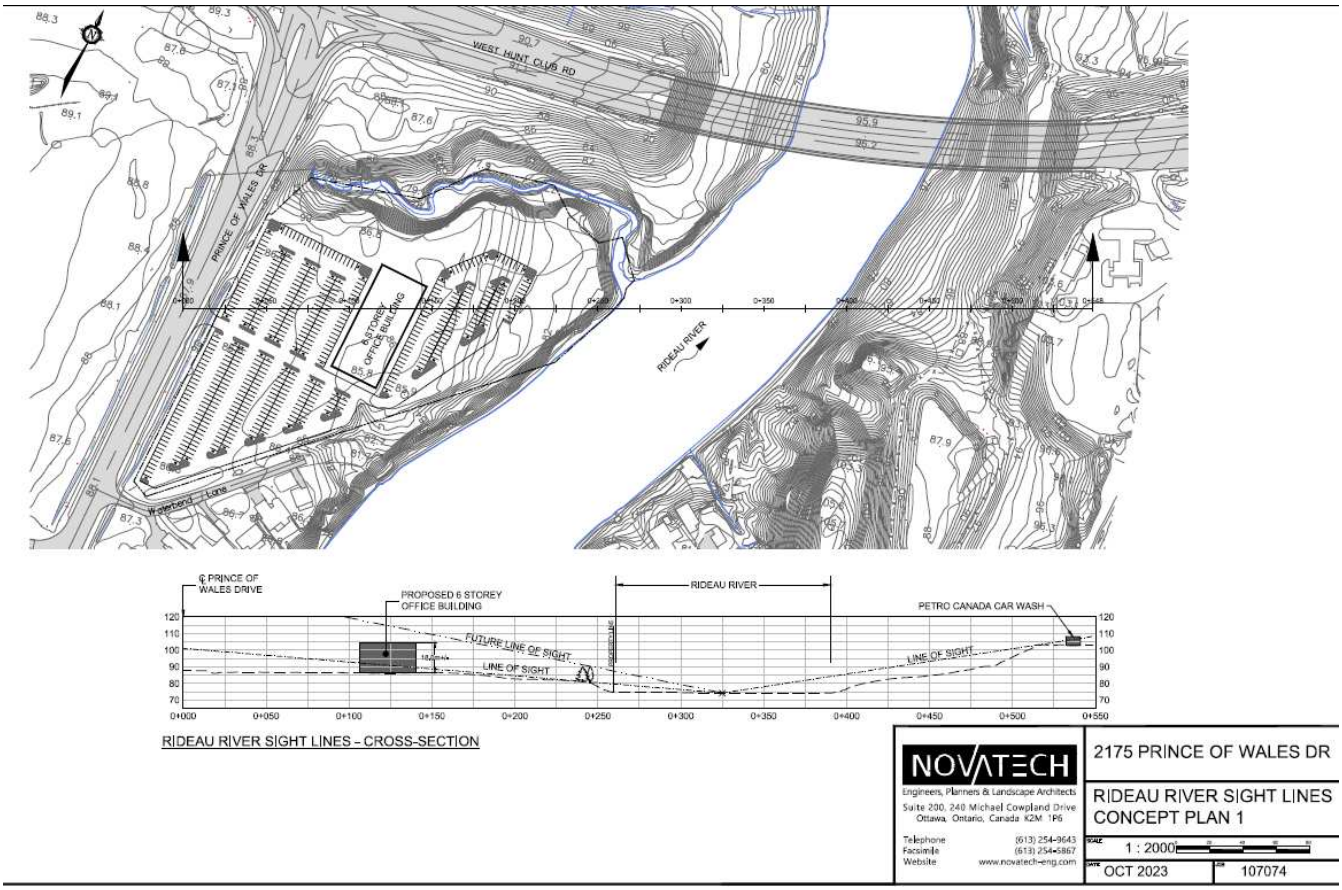


Figure 9: Plan view of Concept #1 a 6-storey office building with a cross section establishing the lines of sight from the Rideau River without trees and a future line of site with trees. Source: Novatech 2023.

Concept # 2 9-Storey Hotel

The Hotel Concept for 2175 Prince of Wales Drive consists of a single, L-shaped building with traditional central corridors. The concept is for a 9-storey building which would accommodate up to 44 guest units per floor, for a total of 396 guest units. The building height is estimated to be in the order of 28 metres. Building size for the Hotel Concept is limited in part by the availability of developable land for parking. There are a total of 427 parking spaces provided for the estimated 396 guest units with this concept. This meets the Zoning By-law requirement of 396 parking spaces (1 per guest unit).

The proposed location and floorplate of the proposed hotel has been selected to represent a traditional suburban appearance with opportunities for extensive landscaping to be implemented in the areas of unstable slopes, increasing the tree coverage.

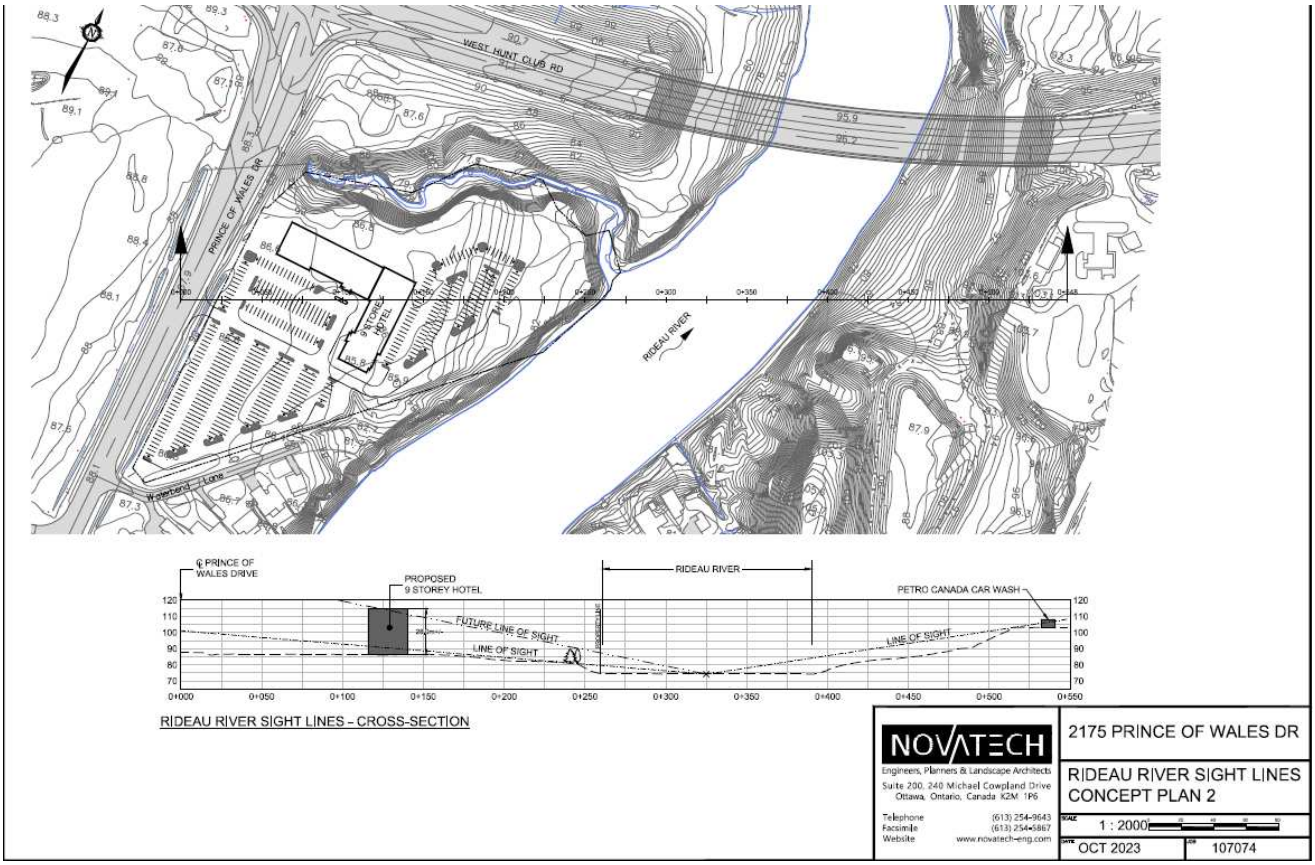


Figure 10: Plan view of Concept #2 a nine-storey Hotel with a cross section establishing line of sight from the centre point of the Rideau River without trees and a future line of sight with trees.. Source: Novatech 2023.

Option # 3 2-Storey Automobile Dealership

The Automobile Dealership Concept for 2175 Prince of Wales Drive consists of two separate automobile dealership buildings. Each building would be 2-storeys in height, although the buildings will primarily only contain a smaller mezzanine area for the second floor in the front area of each building. The main building is proposed to have a floor plate of approximately 3140 square metres (33,800 square feet). The second building is proposed to have a floor plate of approximately 920 square metres (9,900 square feet). Building height for both buildings is estimated to be in the order of 8 metres.

The automobile dealerships proposed are traditional full-service operations, consisting of a sales and leasing component for new and used vehicles, multi-bay service facilities located to the rear and a privately-operated small car wash facility for customer vehicles.

Parking for the proposed automobile dealerships has been maximized to allow for vehicle inventory storage on-site. There are a total of 424 parking spaces proposed, which will be utilized for customer parking, employee parking and inventory storage.

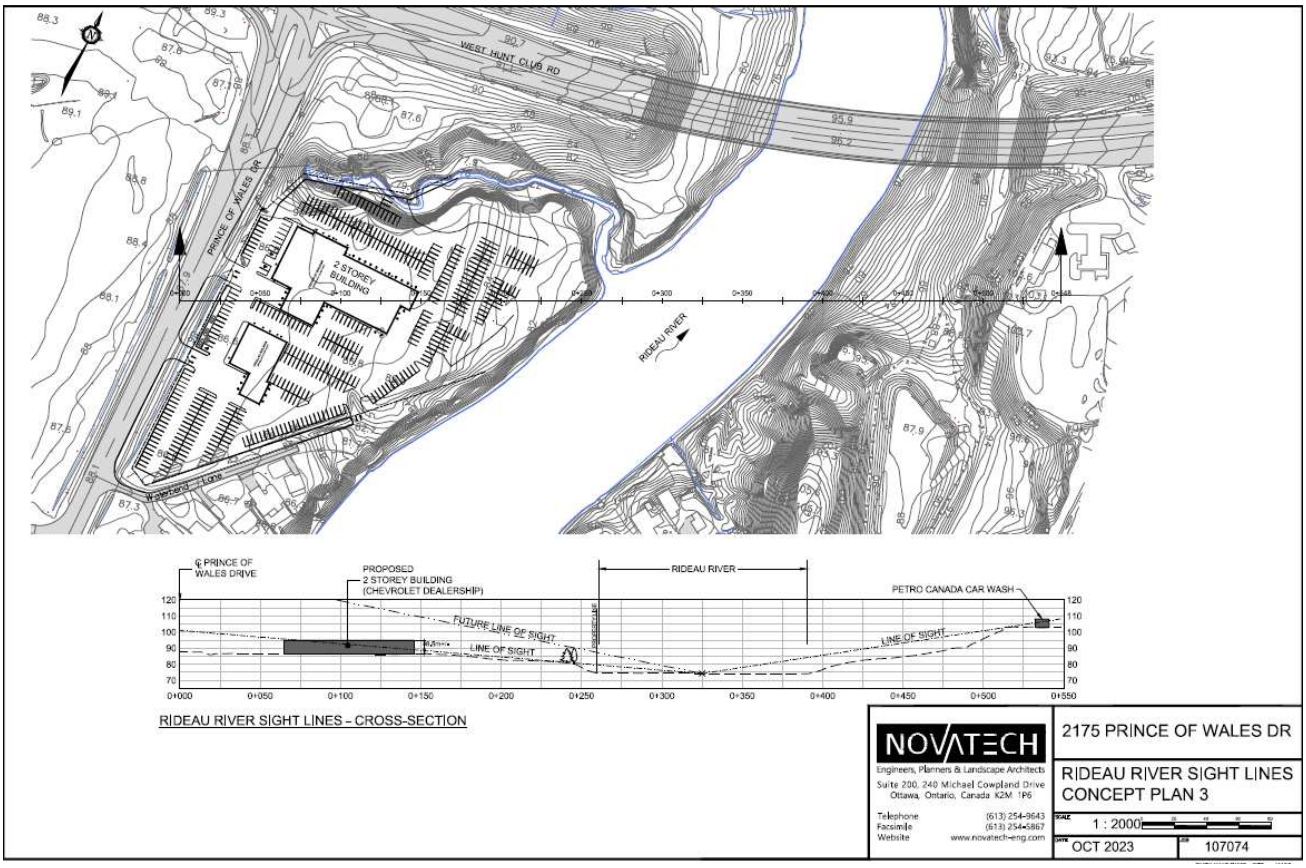


Figure 11: Plan view of Concept #3 Automobile Dealership with a cross section establishing line of sight from the centre of the Rideau River without trees and a future line of sight with trees. Source: Novatech 2023.

5.0 IMPACTS OF THE PROPOSED DEVELOPMENT

5.1 Purpose

The purpose of the HIA is to identify and assess the potential impacts that may result from the planning application on the cultural heritage resources and values associated with the Rideau Canal National Historic Site, and the UNESCO World Heritage Inscription administered by Parks Canada. A review of potential impacts on the existing and proposed landscape and shoreline character are included in this assessment. There are no cultural heritage resources within or adjacent to or within 30m of the site that have been recognized under the Ontario Heritage Act.

With respect to the Parks Canada and UNESCO guidelines for development in the vicinity of the Rideau Canal, the Rideau Canal World Heritage Site Management Plan (2005) provides the reasons for its nomination as such a site. The Statement of Outstanding Universal Value is as follows:

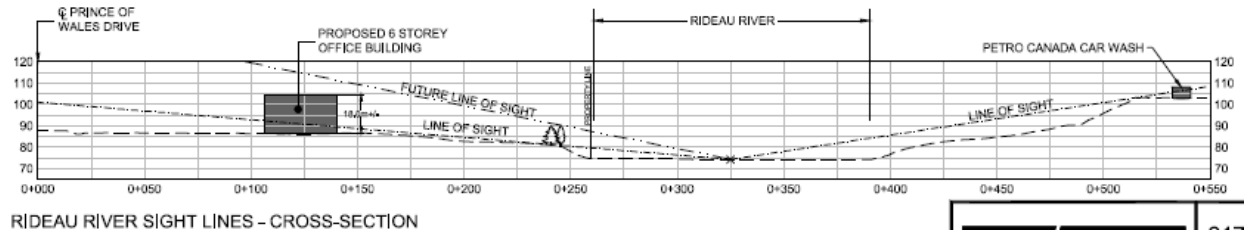
> "In concept, design and engineering, the Rideau Canal is the most outstanding surviving example of an early 19th century slackwater canal system in the world and one of the first canals designed specifically for steam powered vessels. It is an exceptional example of the transfer of European transportation technology and its ingenious advancement in the North American environment. A rare instance of a canal built primarily for strategic military purposes, the Rideau Canal, together with its ensemble of military fortifications, illustrates the significant stage of human history when Great Britain and the United States of America vied for the control of the northern portion of the American continent."

Discussion: It is within this context that the proposed zoning amendment permits a development that does not have a negative impact on cultural heritage resources. The zoning amendment complies with the relevant policies of the City's OP and responds appropriately to the development guidelines for Rideau Canal World Heritage Site as found in the Management Plan and Principles for Good Waterfront Development. It represents good heritage planning and will not have a negative impact on the cultural heritage resources of the subject property and vicinity.

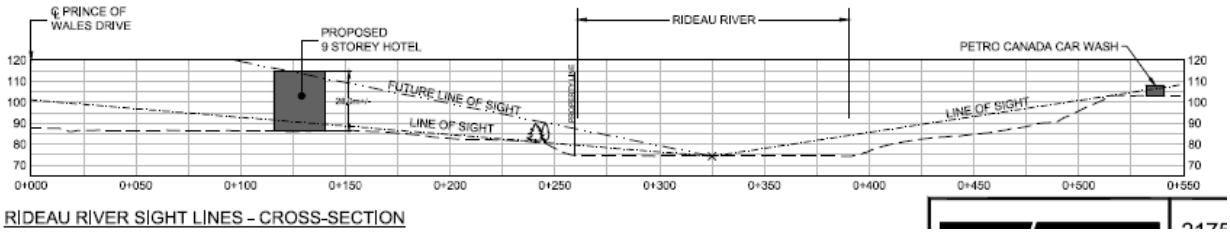
Parks Canada's Principle 7 for Good Waterfront Development

The document entitled "Principles for Good Waterfront Development" published by PC in 2014, particularly "Principle 7", states that new buildings should be designed to complement the landscape character and architectural style of the surrounding area and should be in proportion to the size and frontage of the property and fit in the surrounding built environment. **Furthermore, it provides that throughout most of the waterway, buildings should be low profile and not exceed the height of the tree canopy and that taller buildings may be appropriate in more urbanized areas.**

The three cross sections below document the response to Principle 7 illustrating the sightlines from the centre of the river looking towards the west shoreline and embankment and Prince of Wales Drive. For each of the concepts two sightlines are illustrated: one showing the line of sight if there were no trees along the embankment and a second illustrating the line of sight being deflected above the mature tree canopy.



RIDEAU RIVER SIGHT LINES – CROSS-SECTION



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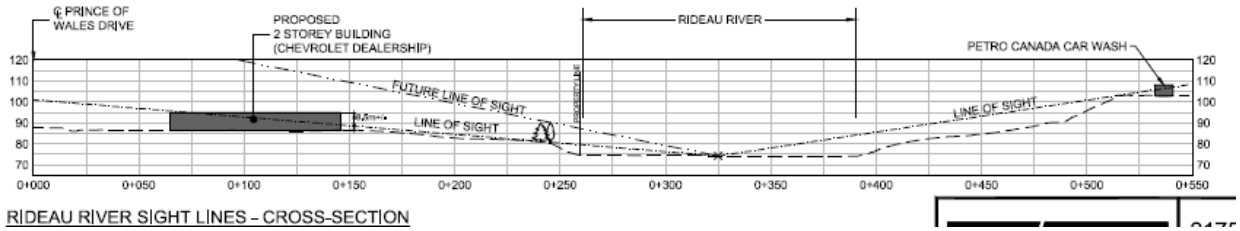

Figure 13: Cross Sections illustrating the Rideau River Sight Lines and the height of buildings Concept 1 Office Complex, Concept 2 Hotel, and Concept #3 Automobile Dealership.

5.2 General Impacts on the Rideau Canal National Historic Site:

New Construction / Existing Landscape / Shoreline character:
Discussion - New Construction: This section of the Rideau River includes representative landscapes characterized in the Parks Canada landscape strategy as a mix of intensive suburban and estate development that are visible on both shores along the river. The pattern of development began in the late 1940s and continues to this day. The proposed development is consistent with recent developments in the area. The construction will not adversely change the existing landscape/shoreline character of the waterway and will have no impact on views from the river.

Discussion - Shoreline Character: The existing shoreline character from the water's edge to the tributary rises steeply along the entire shoreline with the outflow from the tributary creating a distinct feature along the waterfront. The proposed development will have no impact on views from the river. The Paterson Group has provided an analysis of slope stability specific to this site.

Discussion – Existing / Proposed Landscape: The existing landscape features including topography, and soft landscaping will be retained on the slope and level area at the water's edge. Potentially some turf, native grasses, native shrubs – red osier dogwood, sumac, service berry, and specimen trees and shrubs could be planted to limit erosion. The existing landscape with additional planting will limit views from the river and block sight lines to the proposed buildings.

Discussion - Potential impact on the Rideau Canal NHS and the Rideau Corridor Landscape Strategy: Because of the proposed lot depth and topography, the proposed development is located outside the 30m setback from high-water mark. The development will not change the natural environment of the Rideau River and is respectful of the heritage attributes and character defining attributes of both the tributary and the Rideau River shore.

6.0 ALTERNATIVES AND MITIGATION STRATEGIES

6.1 Mitigation measures

Landscape:

RVCA has planting standards and provides recommendations for the type, mix and density of the new plantings suitable for the sloped lands fronting onto the river. The existing shoreline vegetation and the existing tree line along the top of the slope portion of the property will be retained and will be protected during construction particularly along the northern portion next to creek channel. There are no plans to providing access from the upper development site leading to the lower levels along the shoreline.

Building:

Based on the line of sight for the 9-storey hotel consideration may have to be given to reducing the visibility of the upper floors of the building from the river. However, according to Parks Canada's Principle 7, buildings should be low profile and not exceed the height of the tree canopy. It also stipulates that in more urbanized areas taller buildings may be appropriate.

The palette of finishes on the exterior of the building have not been specified. A more detailed discussion of material and finishes will conform with Parks Canada's recommendations for "finishes to be visually consistent with adjacent properties, and neutral in tone so as to blend the proposed building into the landscape."

6.2 Conclusions

The statement of significance for the Rideau Canada NHS emphasizes heritage attributes associated with constructed elements, built features, land, natural environment, and engineering works of the historic canal owned by the crown. The City of Ottawa and the Rideau Valley Conservation Authority have jurisdiction, primarily through the management of the 30-m setback from the high-water level of the Rideau corridor.

- The property has no heritage significance as outlined in the official plan.
- The proposed development is consistent with the pattern of development and use in this section of the Rideau corridor and supports the landscape strategy developed by Parks Canada.
- The potential construction of any of the three concepts, office complex, hotel, or automotive dealership are well outside the 30m management setback as is the surface parking. The combination of distance from the river, topography and mature vegetation will ensure that the development as presented in the conceptual plan does not have a visual impact from the river nor does it interfere with the shoreline, vegetation, or navigation on the Rideau Corridor or the tributary.

In conclusion, as it pertains to site's cultural heritage, this development proposal will have no impact.

7.0 AUTHOR'S QUALIFICATIONS

Commonwealth Historic Resource Management offers professional services related to conservation, planning, research, design, and interpretation for historical and cultural resources. A key focus of the practice is assessing the impact of development on heritage resources. The firm was incorporated in 1984.

John J. Stewart, B.L.A., O.A.L.A., C.S.L.A., CAHP, a principal of Commonwealth is a specialist in the planning and design of cultural resources, building conservation, and commercial area revitalization. A graduate of the University of Guelph, he received additional training at Cornell University (USA) and Oxford University (UK) and holds a diploma in the Conservation of Monuments from Parks Canada, where he worked as Head, Restoration Services Landscape Section. Before Commonwealth's formation, Stewart served for four years as the first director of Heritage Canada's Main Street Program.

Stewart is a founding member of the Canadian Association of Heritage Professionals. He has served as the Canadian representative of the Historic Landscapes and Gardens Committee of ICOMOS and the International Federation of Landscape Architects. Stewart is a panel member with the Ottawa Urban Design Review Panel and a board member of Algonquin College Heritage Trades Program.

8.0 SLOPE STABILITY REPORT 2017

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February 28, 2017
File: PG1887-LET.01 Revision 3

Mr. Scott Thomson
3 Lemon Point Lane
Prescott, Ontario
K0E 1T0

Subject: **Slope Stability Analysis**
2175 Prince of Wales Drive
Ottawa, Ontario

Dear Sir,

Further to your request, Paterson Group (Paterson) has conducted a slope stability analysis and determined the limit of hazard lands for the aforementioned site. The limit of hazard lands for the subject site extends along the west side of the Rideau River and along the south side of a ravine containing a tributary watercourse to the Rideau River. The present letter summarizes our findings from a geotechnical perspective.

The subject site is presently undeveloped and has an approximate area of 3.23 hectares. The majority of the subject site is grassed covered and slopes gradually downward to the west towards the Rideau River. The subject site is bordered by a ravine to the north, the Rideau River to the east, Waterbend Lane followed by residential housing to the south and Prince of Wales Drive to the west. A topographic survey was completed by Paterson to provide spot grade elevations across the subject site and three (3) slope cross sections were completed for our slope stability analysis. One slope cross section was completed

The analysis of the stability of the slope was carried out using SLIDE, a computer program which permits a two-dimensional slope stability analysis using several methods including the Bishop's method, which is a widely used and accepted analysis method. The program calculates a factor of safety, which represents the ratio of the forces resisting failure to those favoring failure. Theoretically, a factor of safety of 1.0 represents a condition where the slope is stable. However, due to intrinsic limitations of the calculation methods and the variability of the subsoil and groundwater conditions, a factor of safety greater than one is usually required to ascertain the risks of failure are acceptable. A minimum factor of safety of 1.5 is generally recommended for conditions where the failure of the slope would endanger permanent structures.

Subsoil conditions at the cross-sections were inferred based on the findings at nearby borehole locations and general knowledge of the area's geology.

The results for the existing slope conditions under static loading at Sections A, B and C are shown in Figures 1, 2 and 3, respectively, attached to the present letter. The overall slope stability factors of safety for the subject sections were found to be less than 1.5, except at Section C. The stable slope allowance from top of slope required for a slope with a minimum factor of safety of 1.5 is identified for each profile in the attached figures.

Seismic Loading Analysis

An analysis considering seismic loading was also completed. A horizontal seismic acceleration, K_h, of 0.16G was considered for the analyzed sections. A factor of safety of 1.1 is considered to be satisfactory for stability analyses including seismic loading.

The results of the analyses including seismic loading are shown in Figures 2, 4 and 6 for the slope sections. Where the minimum factor of safety is less than 1.1, the stable slope allowance from top of slope required for the slope section is identified in the attached figures.

1.0 Existing Slope Conditions and Soils Information

The south valley corridor wall of the drainage ravine along the north property boundary was noted to be vegetated with small brush and signs of erosion occurring at several localized outbends in the watercourse/creek channel. A 2 to 3 m wide watercourse was noted to meander throughout the valley corridor. The water depth was noted to vary between approximately 0.2 to 0.3 m.

Along the east property boundary, the west valley corridor wall of the Rideau River is undergoing active erosion within several areas, the slope was noted to have been undercut at the toe. It is expected that historical erosional activities have resulted in currently observed steep back scarp slope. Currently, the majority of the bank was vegetated with small brush and full grown trees (mainly deciduous). A previous slope slip failure due to toe erosion activities had occurred at the south property boundary of the subject site (Section C in Drawing PG1887-2 - Site Plan). A slope remedial program was initiated in Summer 2003 and consisted of modifying the existing slope and reinstating with blast rock fill.

The subsurface soil profile used for the slope stability analysis was based on existing test hole information and available geological mapping in the immediate area of the subject site. Generally, the soil profile at the test hole locations placed within the subject site, consists of a thin layer of topsoil overlying a sandy silt layer followed by a 1 to 3 m thick very stiff brown silty clay deposit. The silty clay layer was underlain by a sandy silt to silty sand deposit extending beyond a 12 m depth. Based on nearby borehole locations, glacial till was encountered at 18 to 20 m followed by bedrock at 25 to 30 m below ground surface. Based on available geological mapping, the bedrock surface in this area is encountered at depths varying between 15 to 25 m and consists of dolomite of the Oxford formation.

2.0 Slope Stability Analysis

3.0 Limit of Hazard Lands

The limit of hazard lands includes a stable slope allowance taken from top of slope. The limit of hazard lands also includes a toe erosion and a 6 m erosion access allowance. The various allowances and the overall limit of hazard lands for the subject site are indicated on Drawing PG1887-2 - Site plan attached to the present letter.

The toe erosion allowance for the slopes was based on the nature of the soils, the observed current erosional activities and the width and location of the current watercourse. Signs of erosion were noted in areas where the existing watercourse has meandered in close proximity to the toe of the corridor wall of the north neighbouring tributary watercourse. It is considered that a toe erosion allowance of 5 m is appropriate for the tributary watercourse.

Some erosional activities were noted along the toe of the subject valley corridor wall for the Rideau River. It is considered that a toe erosion allowance of 8 m is appropriate for the subject slope along the Rideau River.

Based on the location of the limit of hazard lands line within the subject site, a total of 5.14 acres of developable land is available from a geotechnical perspective within the subject site.

4.0 Recommendations

The existing vegetation on the slope face should not be removed as it contributes to the stability of the slope and reduces erosion. If the existing vegetation needs to be removed, it is recommended that 100 to 150 mm of topsoil mixed with a hardy seed or an erosional control blanket be placed across the exposed slope face.

Mr. Scott Thomson
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5.0 Statement of Limitations

The information gathered for this report is based on a soils investigation, which is a limited sampling of a site. Should any conditions at the site be encountered which differ from those at the test hole locations, we request that we be notified immediately in order to permit reassessment of our recommendations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Mr. Scott Thomson or their agent(s) is not authorized without review by this firm for the applicability of our recommendations to the altered use of the report.

We trust that this letter satisfies your requirements.

Sincerely,

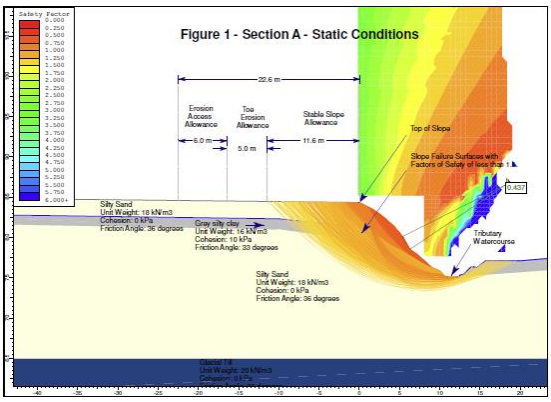
Paterson Group Inc.

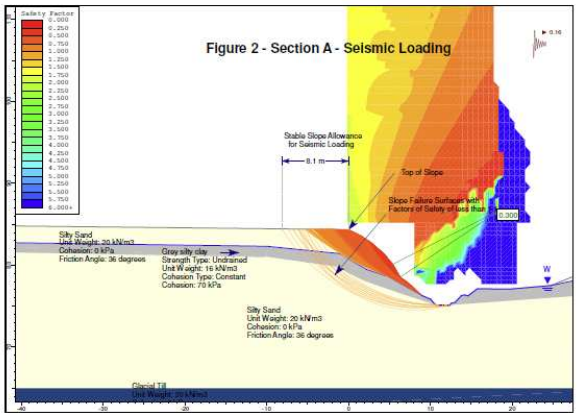
Richard Groniger, C. Tech.

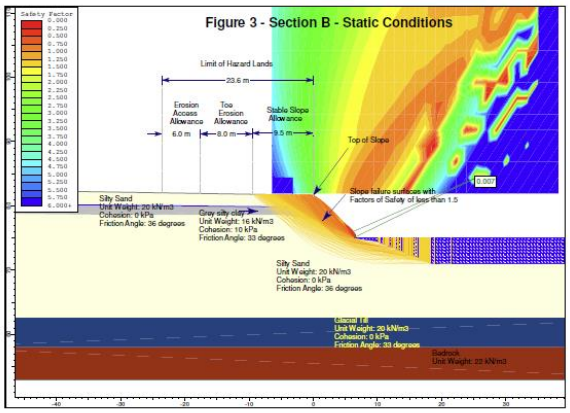
David J. Gilbert, P.Eng.

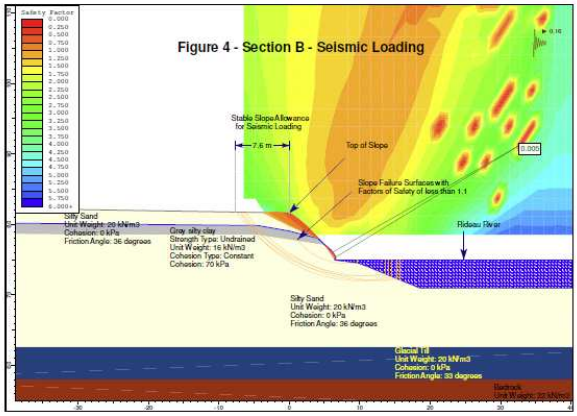
Attachments:

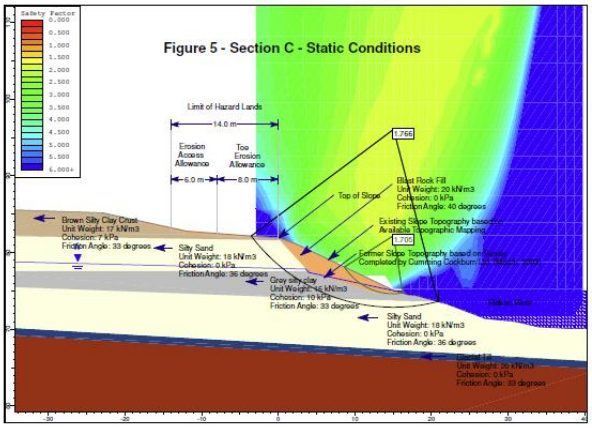
- Figures 1 to 6 - Slope Stability Analysis
- Soil and Profile Test Data sheets (JDPA)
- Drawing PG1887-2 - Site Plan











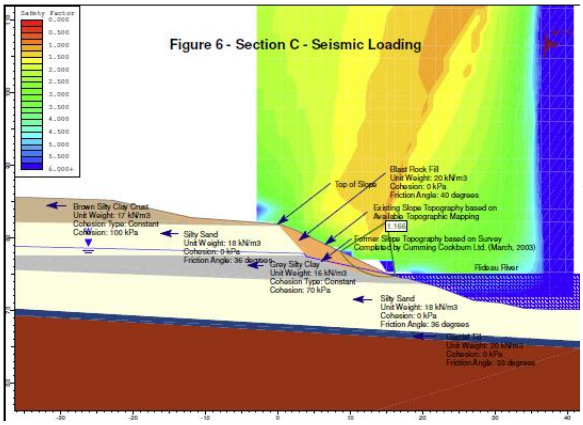
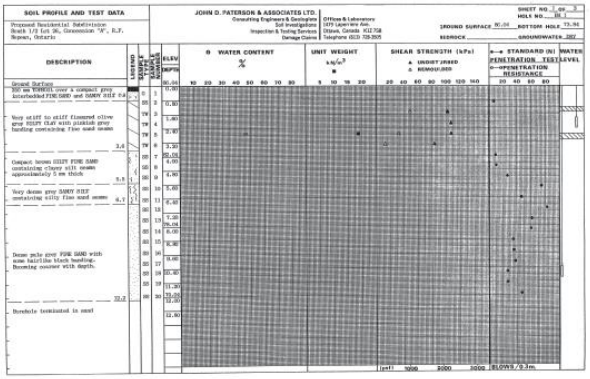
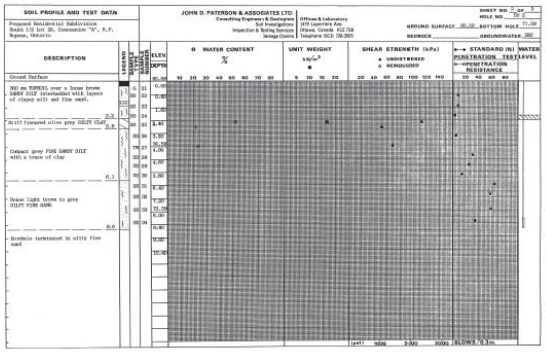


Figure 6 - Section C - Seismic Loading
Safety Factor
Blast Rock Fill
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 40 degrees
Top of Slope
Existing Slope Topography based on Available Topographic Mapping
Former Slope Topography based on Survey Completed by Cumming Cockburn Ltd. (March, 2003)
Brown Silty Clay Crust
Unit Weight: 17 kN/m3
Cohesion Type: Constant
Cohesion: 100 kPa
Silty Sand
Unit Weight: 18 kN/m3
Cohesion: 0 kPa
Friction Angle: 36 degrees
Grey Silty Clay
Unit Weight: 16 kN/m3
Cohesion Type: Constant
Cohesion: 70 kPa
Rideau River
Silty Sand
Unit Weight: 18 kN/m3
Cohesion: 0 kPa
Friction Angle: 36 degrees
Unit Weight: 20 kN/m3
Cohesion: 0 kPa
Friction Angle: 33 degrees


SOIL PROFILE AND TEST DATA
JOHN D. PATERSON & ASSOCIATES LTD.
DESCRIPTION
WATER CONTENT
UNIT WEIGHT
SHEAR STRENGTH (kPa)
STANDARD (N) PENETRATION TEST RESISTANCE
WATER LEVEL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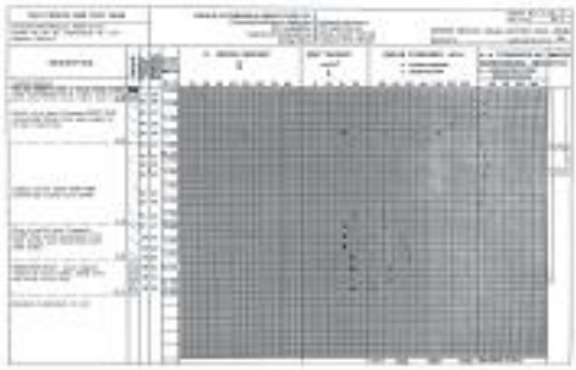

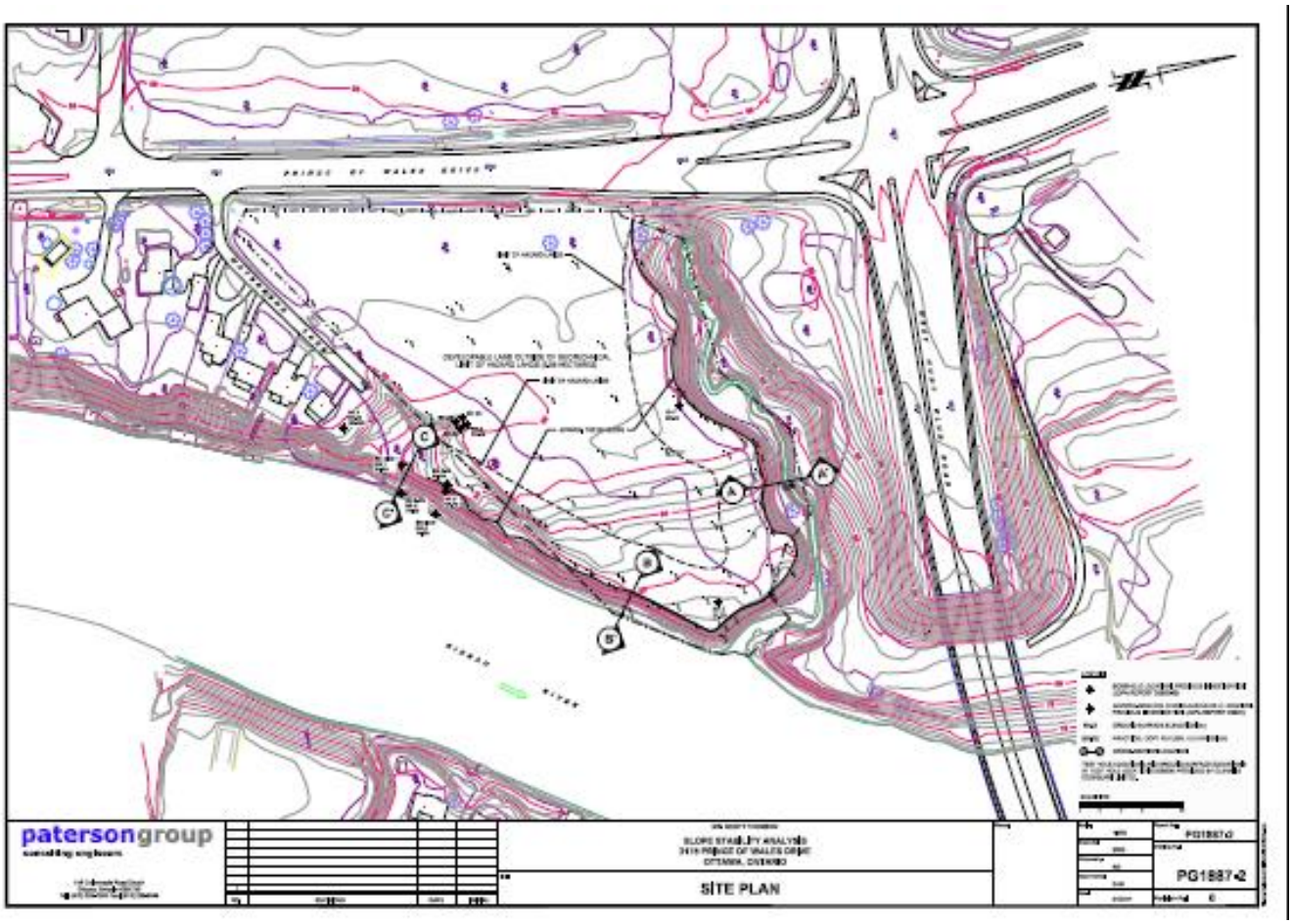
paterson group
SITE PLAN
PG1887-2