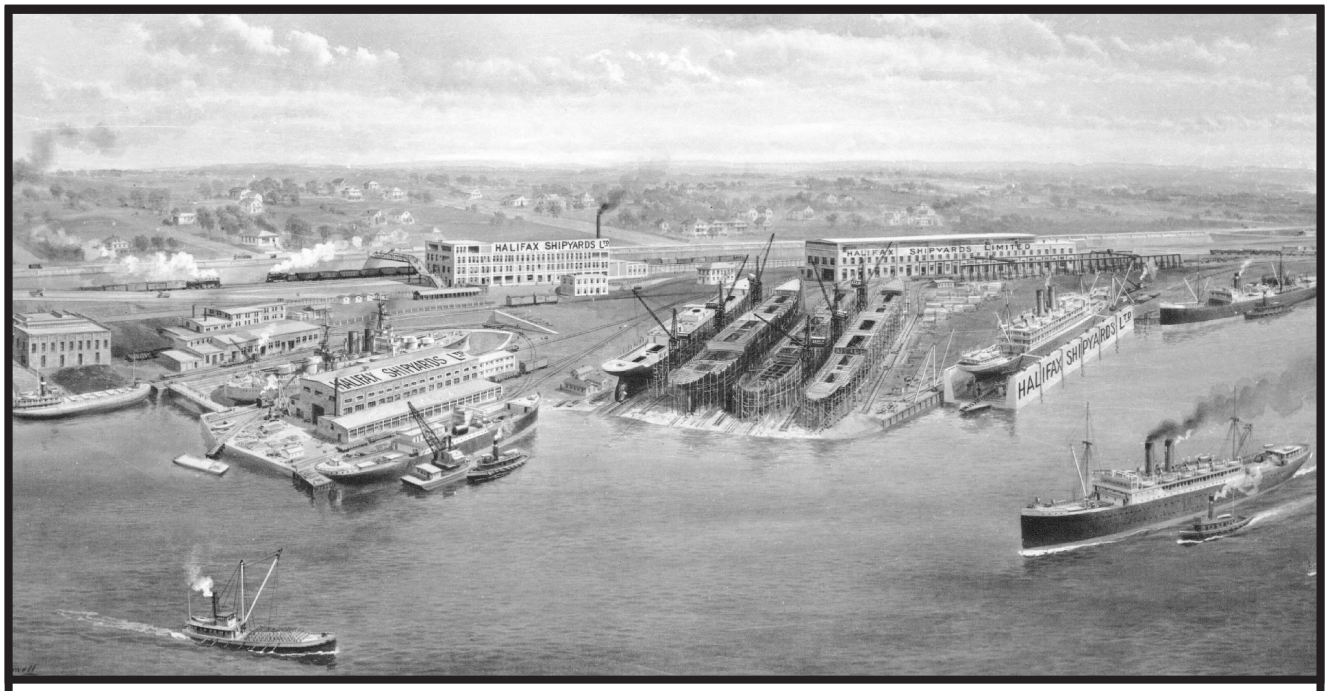

Retaining Walls, Retaining History

An Interpretative Account of Richmond's Morphological Marker

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Independent Research Project
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PLAN 6000
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Figure 1: Front cover - photograph of a painting of the Halifax Shipyards, 1919.

(Source: MacAskill, W.R., 1919. NSARM, no. 1987-453 no. 4703)

Let's walk along the wall and feel the passage of time...

Acknowledgements

I would like to acknowledge everyone that helped support and contribute to my research findings. Thank you to both my supervisor and instructor, Dr. Joseli Macedo and Dr. Mikiko Terashima for your feedback, insight, and guidance. I would also like to thank Dr. Brian Lilley, Dr. Paul Erickson, and Professor James Boxall for their insights and knowledge of all things Halifax. I would also like to thank staff at the Maritime Museum of the Atlantic, the Naval Museum of Halifax, and the Public Archives of Nova Scotia for accommodating and providing me with a wealth of valuable information.

Glossary of Abbreviations

ARGG - Applied Research Geomatics Group

CCCR - Canada's Climate Change Report

CGR - Canadian Government Railways

CNR - Canadian National Railways

DND - Department of National Defence

HMC Dockyard - Her Majesty's Canadian Dockyard

HRM - Halifax Regional Municipality

ICR - Intercolonial Railway

IMP - Integrated Mobility Plan

LIDAR - Light Detection and Ranging

MOVE - Movement for Citizens' Action and Voice

NSARM - Nova Scotia Archives and Records Management

NSCC - Nova Scotia Community College

NSPS - Nova Scotia Planning Secretariat

PID - Premises Identification (number)

TNT - Trinitrotoluene (compound used in dynamite)

Executive Summary

The crown jewel of Canada's Atlantic coast for over two-hundred-and-fifty years, Halifax has a diverse, storied, and tragic history. Countless memories and stories lie underneath the city's current urban fabric, unbeknownst to many. Halifax is a city with a palimpsest surface. Palimpsest is a term that refers to manuscripts of papyrus that historically were partially erased and written over countless times. It can also apply in an urbanist sense to the many diverse temporal and spatial layers underlying a location (Knox, 2012, p. 8). Every city has its own set of geographies: political, social, economic, and so on. Those attributes are expressed through a fabric of districts or neighbourhoods that each have a distinct identity and story. Each chapter of that story inevitably leaves its mark through sucessive cycles of development and decline. It is in the layering and imprint of urban structures, the cultures of the residents, the spatial changes of the street layout, and the institutions within each district where this overwriting becomes visible (Knox, 2012, p. 9).

Underneath a 1.5 kilometre section of Barrington Street near the HMC Dockyard lies a relic of the past that also plays a role in the present, and perhaps the future of the area. Not so readily apparent from the perspective of a motorist or pedestrian on the street itself, this massive urban structure is perhaps never on the minds of those that stand upon it. Aerial photographs, satellite imagery, and a view from the Angus L. Macdonald Bridge can be used to demonstrate the jarring difference in perspective between the street and the yards below.

The retaining wall system between Cornwallis Street and the Irving Assembly Hall has seldom been recognized as an important feature of the North End. Indeed, concrete and stone masonry does not bring much to the imagination, but the contexts and periods of history within which the retaining wall system has stood are some of the most important in Halifax. Historical literature surrounding the history of the North End of Halifax rarely refers to the retaining wall system. In the midst of the development, destruction, and redevelopment of this area, the walls have remained as a morphological marker of the trajectory that the North End has been developing towards for over a century.

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Part 1: Introduction

Introduction

Figure 2: Walking tour at Irving Shipyards.

Walking tour of the retaining wall system by the Narratives in Space+Time Society in 2016.

(Source: Narratives in Space+Time Society, 2016)

Sculpting the land...

Retaining walls play a role as earth-retaining infrastructure (Hough, 2001, p. 217). Retaining walls created in the Victorian-era up to the 1920s were mainly gravity-based masonry or concrete walls which followed classical earth-pressure theory techniques (Hough, 2001, p. 217). In the context of railway and road systems, they are used to improve safety, improve track capacity, prevent against landslides or reduce steep slope gradients (AREMA, 2014, p. 2) In Halifax, there stands a wall 1.5 kilometres in length which runs from the intersection of Cornwallis Street and Upper Water Street to the Irving Assembly Hall past North Street (Figure 1 & 2). Barrington Street (formerly known as Campbell Road), sits on top, supported by the retaining wall. This area is part of the North End, a historical working-class district which spans a history of over 250 years. Specifically, the area east of Gottingen Street and Novalea Drive over the steep hill of Fort Needham was known as the industrial working-class suburb of Richmond, where the wall stands today (Erickson, 1986, p. 12). From the early 1800s to the late 1910s, it was a separate suburb lying between North Street, Gottingen Street, and Duffus Street (Blakeney, 1949, p. 63).

In the midst of industrialization, war-time preparation, and the destruction of Halifax's North End, the retaining wall stands as one marker of Halifax's industrial and economic built-form growth through its connection to the railway, military, and marine port infrastructure. Most of the literature discussing the Halifax Explosion, the Intercolonial Railway, and about the history of the North End fails to mention the retaining wall system due to its functional nature as railway infrastructure.

To this end, I proposed the creation of an interpretive account of the retaining wall in the context of Halifax's railroad infrastructure and the subsequent periods of great economic and built-form urban change that arose from the establishment of the railroad, the aftermath of the Halifax Explosion in 1917, towards the 21st century and implications of the future.

Research Questions

What role did the retaining wall system along Barrington St. have in contributing to the economic, infrastructural, and built-form growth of Richmond between the mid-19th century and mid 20th century?

Project Sub-questions

Environmental

- What are the topographical characteristics (elevation and slope) of the North End area?
- How does acid-leaching pyritic slate impact the structural integrity of the wall?

Economic and Infrastructural

- What and who were the agents of change that facilitated the expansion of the railway, the configuration of the site, and construction of the walls from 1854 to 1918?
- How was the construction of the retaining wall financed?
- What was the impact and relevance of the Federal Government's National Policy (1879) on the industrial and infrastructural growth of the North End?

Cultural and Built-Form

- What opposition existed against the wall and construction of industrial port infrastructure?

1917 Halifax Explosion

- What was the physical impact of the explosion on the wall?
- Who was contracted to repair the wall and how did it differ from the original?

Present Day

- What measures are being taken by the Halifax Regional Municipality, the Province of Nova Scotia, and the Department of National Defence in repairing and strengthening the wall?
- How does this inform about future alterations to the wall?

Purpose

The purpose of this historical research study was to provide an interpretive account and a chronological timeline of the retaining wall within the historical context of Richmond and Halifax. Doing so will have contributed to the historical knowledge of Halifax and the North End area for residents, academics, and interest groups such as the Narratives in Space+Time research society.

Research Objectives

- To compose a chronological timeline of key events involving the retaining wall in the context of Richmond;
- To identify the agents of change that facilitated the expansion of the Intercolonial Railway, industrial growth in Richmond, the configuration of the retaining wall site, and construction of the wall sections from the mid-1800s to 1918;
- To assess the changes in built-form in Halifax's Richmond suburb in the time period from the mid-1800s to the mid-20th century as a means of providing historical context;
- To contribute another chapter to the already-established historical knowledge of Halifax and the North End area for residents, academics, and special interests groups including the Narratives in Space+Time Society.

Methods

To achieve the research objectives, I utilized four methods of investigation.

1. Primary Source Evaluation

To compile a thorough base of knowledge and to expand upon my multi-prong inquiry methods, numerous trips to provincial and municipal institutions were necessary. The Nova Scotia Public Archives, the Halifax Regional Municipality Archives, the Naval Museum of Halifax, the Maritime Museum of the Atlantic, and the Dalhousie University library were the places that had the most information on the retaining wall itself. Furthermore, newspaper articles from the Halifax Daily-Star, Chronicle-Herald, as well as photographs, maps, atlases, deed records from the Nova Scotia Registry of Deeds, military reports, city council documents, and technical infrastructural documents from the Intercolonial Railway and Canadian Government Railways were fundamental as primary and secondary documents. My aim was to detail the timeframe, places, and people who were fundamental in the creation of the retaining wall and associated railway infrastructure. From this, I was able to sculpt a cohesive and strong narrative that ties into the wider context of Halifax and Nova Scotia's economy, infrastructure, and industry. It considered it beneficial that all primary documents could be dated and traced to specific points in time.

I found and used microfiche and microfilm technology, as needed, as well as consulted with archival staff like Garry Shutlak (Nova Scotia Archives) and Susan McClure (HRM Archives) to further locate relevant documents. I gained significant experience in deed and title searches through the NS Registry of Deeds Property Online database and this helped me pinpoint the dates when land was purchased, sold, expropriated, or when right-of-way was given. As I progressed, I believed I needed to consult with relevant professionals and broaden my scope to include the Library and Archives Canada, the HMC Dockyard, and the Halifax Military Heritage Preservation Society. This is because I could not limit myself to online documentation.

2. Correspondence with Experts

Although extremely beneficial in providing support, documentation kept at the Dalhousie Library, Public Archives of Nova Scotia, Halifax Regional Municipality Archives, and other sources of primary and secondary data did not provide the explicit contexts and information needed for understanding and plotting the trajectory of the whole project.

Conversations with experts were used as a form of research gathering that ended up being helpful. Communication via email and in-person with local historical societies such as the Narratives in Space+Time Society, museum staff, academic researchers, and public archivist staff helped inform me about the local Halifax and North End contexts. Questions were semi-structured aned targeted in a way to clarify and elaborate on the historical primary and secondary materials collected so far.

Contacts for this project included:

- *Dr. Roger Marsters*, Marine Curator, at the Maritime Museum of the Atlantic, who had recently been researching the early shipyard site.
- *Jennifer Gamble*, director, she oversaw the Naval Museum of Halifax.
- *Dr. Brian Lilley*, professor, at the Dalhousie School of Architecture. He did much of the preliminary research on the retailing wall system and discussed with the Narratives in Space+Time Society about structural changes in the urban form during their 2016 walking tour of the site.
- *Dr. Ren Thomas*, professor, at the Dalhousie School of Planning.
- *Dr. Paul Erickson*, author and professor of Archeology at Saint Mary's University,. He wrote many books on the history and archeology of the North End, such as *Historic Halifax's North End* (2004), and *Halifax's North End: An anthropologist looks at the city* (1986).

Conversations with experts took place on October 29, 2019 (Brian Lilley), November 3, 2019 (Paul Erickson), and November 25, 2019 (James Boxall).

Primary and secondary sources in the form of books, journal articles, photographs, and maps were accessed through correspondence with Dr. Roger Marsters, at the Maritime Museum of the Atlantic on October 30, 2019, and with Jennifer Gamble, at the Naval Museum of Halifax on October 31, 2019.

3. Secondary Source Evaluation

To provide an overall context of the actions and processes that led to the development and construction of the retaining wall, I needed to develop an understanding of the economic, political, industrial, and infrastructural circumstances within Halifax, Nova Scotia, and Canada from the mid-19th century to the mid-20th century. I obtained numerous scholarly articles, books, and other documents from the Dalhousie Library, the Public Archives of Nova Scotia, the Naval Museum of Halifax, the Halifax Municipal Archives, and the Halifax Public Library. From these documents, I discovered the socio-spatial relationship between the development of critical infrastructures and the broader course of economic, infrastructural, and built-form development that occurred in Halifax's North End. Scholarly journals that discussed major economic reforms and town planning at the time in Halifax were also beneficial. I also noted that author Dr. Paul Erickson had written several books on the growth of the North End (*Historic Halifax's North End* (2004) & *Halifax's North End: An anthropologist looks at the city* (1986). His writing gave great insights to understanding the history of the area.

4. Site Observation

Visible on Google Maps, the site lies on property owned by the HMC Dockyard and Irving Shipbuilding. Some sections of the wall lie directly in the parking lot of the HMC Dockyard, while other sections run behind the Irving Assembly Plant. As the land is not owned by the Halifax Regional Municipality, I thought I needed to ask for permission to do a site visit. I contacted the Director of Communications at Irving Shipbuilding but received no response. By visiting the Naval Museum and also looking at files from the Maritime Museum of the Atlantic, I learned that the permit process to access the securitized area is lengthy and involves contacting the Base Commander. I knew that the Narratives in Space+Time Society had done public walking tours of the site itself in 2016. Therefore, I asked them for advice and support regarding site access. I had taken some photographs of the retaining wall and the Irving Shipyards site from the water during the summer months when I went on a small heritage tour of the Narrows area and harbour. I also had to rely on second-hand information and knowledge about the retaining wall site, particularly from the Narratives in Space+Time Society as some members took pictures and recorded videos which remain on their website.

Site observation occured on September 29, 2019, November 6, 2019, and December 1, 2019. It comprised of walks along both Valour Way and Barrington Street within the vicinity of the retaining wall system. Outside of the securitized areas, the parking lots of the HMC Dockyard and Irving Shipyards were somewhat accessible as agreements between them and CN Rail grants a perpetual right-of-way as it was formerly used as a railway corridor. Photographs were also taken from both sides of the pedestrian and cycling lanes of the Angus L. Macdonald Bridge providing a stunning view of the site and of the walls themselves.

Interpretative Historical Analysis

The method of analysis that I used is called Interpretive Historical Analysis.

Strictly speaking, all research involves the interpretation of data. However, interpretive research is defined as, "investigations into social-physical phenomena within complex contexts, with the aim of explaining those phenomena through a holistic narrative form" (Groat, & Wang, 2013, pp. 222-223). This is an inductive method of using data to create a rich descriptive narrative. The aim is to create a cohesive narrative through which evidence can be weaved together. Social reality is shaped by human experiences and contexts, therefore, the narrative created in this project must be consistent with time-period relationships found in the Canadian and Haligonian contexts of the mid-19th century to 1918. The research data acquired through primary and secondary source evaluation will be used to interpret the retaining wall's history through determinative, recollective, inferential, and contextual evidence within that timeframe (Groat & Wang, 2013, pp. 195-196, 198, 201-202). This is part of an iterative, back-and-forth process of connecting fact to overall contexts to establish a grander historical narrative. Finally, the need for verification is a check against inaccurate narration. The triangulation of researched facts from different sources to a point of convergence or agreement is critical, otherwise the veracity of any claims are diminished (Groat & Wang, 2013, p. 84).

Limitations

Throughout the project, several limitations were experienced. Contact with Irving Shipyards Ltd. and the HMC Dockyard staff was unsuccessful in getting access for some parts of the site. As well, no help was provided from staff at the HMC Dockyard or Irving Shipyards regarding information about the site or the retaining walls themselves.

In correspondence with Dr. Lilley, he mentioned that the parking lot areas of the HMC Dockyard and Irving Shipyard sites were accessed by the walking tour of the Narratives in Space+Time Society. He remarked that it was located directly outside of the securitized areas. Therefore, parts of the retaining wall system were observed at various dates and also from the pedestrian lane of the Angus L. Macdonald Bridge (Lilley, personal communication, 2019).

During research on the numerous properties that were expropriated on Barrington Street, I realized that interviews with former residents of that immediate area would possibly have added another angle and more depth to the project. This came to mind when looking for vintage archival photographs on a Facebook group called "OLD Black and White Pictures of Halifax, Nova Scotia" there were many comments from former residents under photographs of Elevator Court, Bedford Court, and the HMC Dockyard. They reminisced about the past and recalled events with suprising detail. Certainly, some people may have had some knowledge about the retaining walls as well.

Part 2:

The Retaining Wall System

Geographical Context

The retaining wall system lies within a 1.5 kilometre expanse between Cornwallis Street and Duffus Street in the North End of Halifax Peninsula. It is bounded by the deep Halifax Harbour, a crowded harbour that stretches for kilometres between hills until it opens into Bedford Basin. It grew from the HMC Dockyard and Fort Needham in the 1700 and early 1800s, as an agricultural area called Dutch Town expanded (Figure 3). Eventually, Richmond became a part of the city in the North End around Fort Needham and Mulgrave Park. From the early 1800s to the late 1910s, it was a separate suburb lying between North Street, Gottingen Street, and Duffus Street. It was called Richmond due to the vessels that brought flour from Richmond, Virginia to the wharves near the present HMC Dockyard (Blakeney, 1949, p. 63).

The area along Barrington Street between Richmond and the HMC Dockyard was where many of the working-class residents of the city lived. Richmond grew from a tiny agricultural and military settlement to a large and populous district of roughly 14,000 in 1901. Highly industrialized, it was where machine shops, iron foundries and factories employed over one-hundred and fifty men (Blakeney, 1949, p. 4).

Figure 3: View of Halifax from Fort Needham Hill, 1801.
(Source: Parkyns, G.I., 1801, watercolour on canvas, The British Library)

Wall Characteristics

Location

A series of retaining walls were built between Cornwallis and Duffus Streets. The walls themselves were not built contiguously and thus they could be divided into sections (Figure 4).

The first section **(A)** runs between the intersection of Cornwallis and Upper Water Street along Valour Way.

The second section **(B)** runs between the intersection of North Street and the Niobe Gate Bridge.

The third section **(C)** runs along Barrington Street from the Niobe Gate Bridge to the end of the Irving Assembly Hall near Duffus Street.

Figure 4: Map of the retaining wall system (on next page). (Source: ESRI, 2019)


N
Legend
Retaining Walls
Areas of Interest
Streets & Bridges
Pier 6
Angus L. McDonald Bridge
X
Halifax Graving Dock
HMC Dockyards
Irving Assembly Hall
Niobe Gate Bridge
Valour Way
C
B
A
Duffus St.
Barrington St.
Cornwallis St.
Fort Needham
Memorial Park
Hydrostone District
North St.
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Topography

The retaining wall structures lie on the eastward slope of Needham Hill in the North End. The hill itself is a steep glacial drumlin composed of silty soils. Citadel Hill and Georges Island are other drumlins that were valued militarily due to the ease of shaping the land and their commanding views (Ekistics & Form:Media, 2015, p. 12). The soils that the retaining walls hold back are of the Halifax Formation. It is composed of a brown sandy-loam till that has good internal drainage, and consists of granite and quartzite material. The topsoils are underlain by Precambrian pyritic slates native to Halifax (Ekistics & Form:Media, 2015, p. 32).

As seen below, the 1969 contour map of the North End displays elevation values, building footprints, and modes of transportation (Figure 5). Highlighted in blue, some of the retaining wall sections are found at different elevations above sea level. The section along the parking area on Valour Way lies between 34-36 feet and 61-47 feet. The section along Barrington Street directly underneath the Angus L. Mcdonald Bridge lies between 61 feet and 78-80 feet. To the far right side of the map are the Dockyard facilities located at a much lower elevation. It indicates that the urban structure of much of this part of the North End is heavily terraced as to allow for the development of buildings and movement of goods and people.

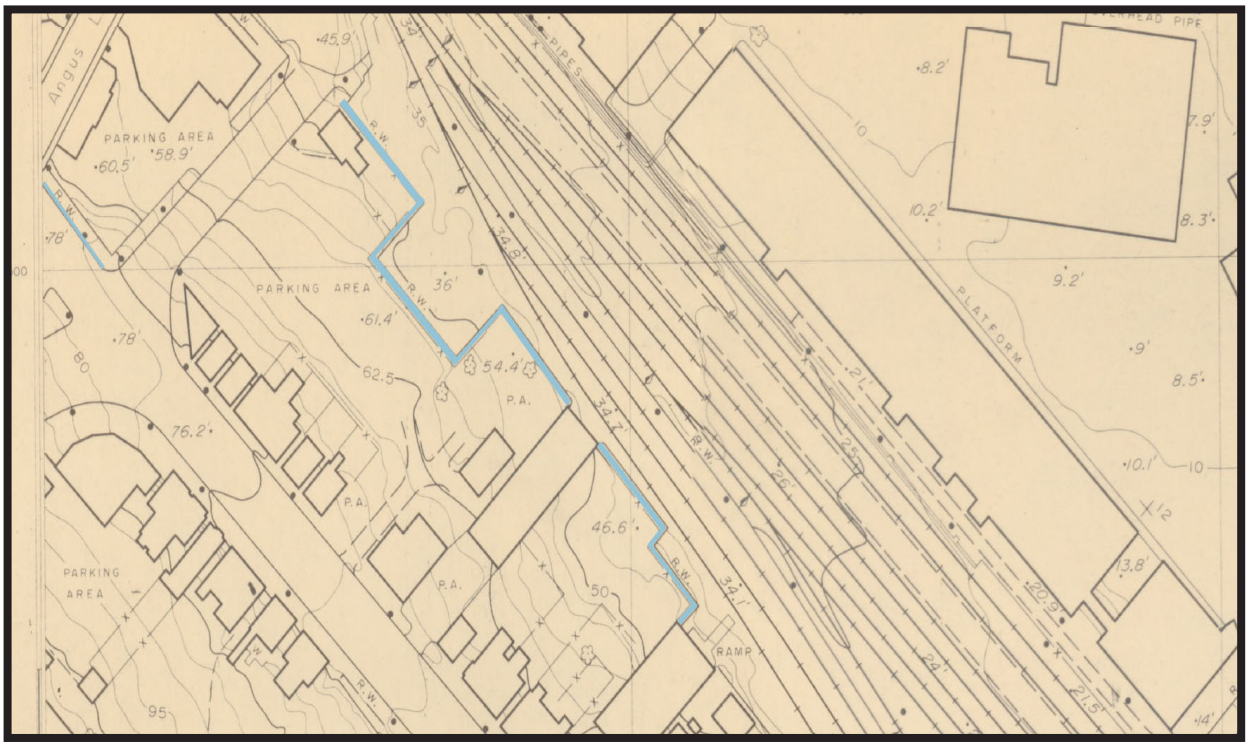


Figure 5: Contour map of of Barrington St, 1969 (retaining wall highlighted in blue).
(Source: NS Department of Lands and Forests, 1969. City of Halifax, Sheet: 5N11-95-NE)

Historical Material Composition of Retaining Walls in Halifax

Stone

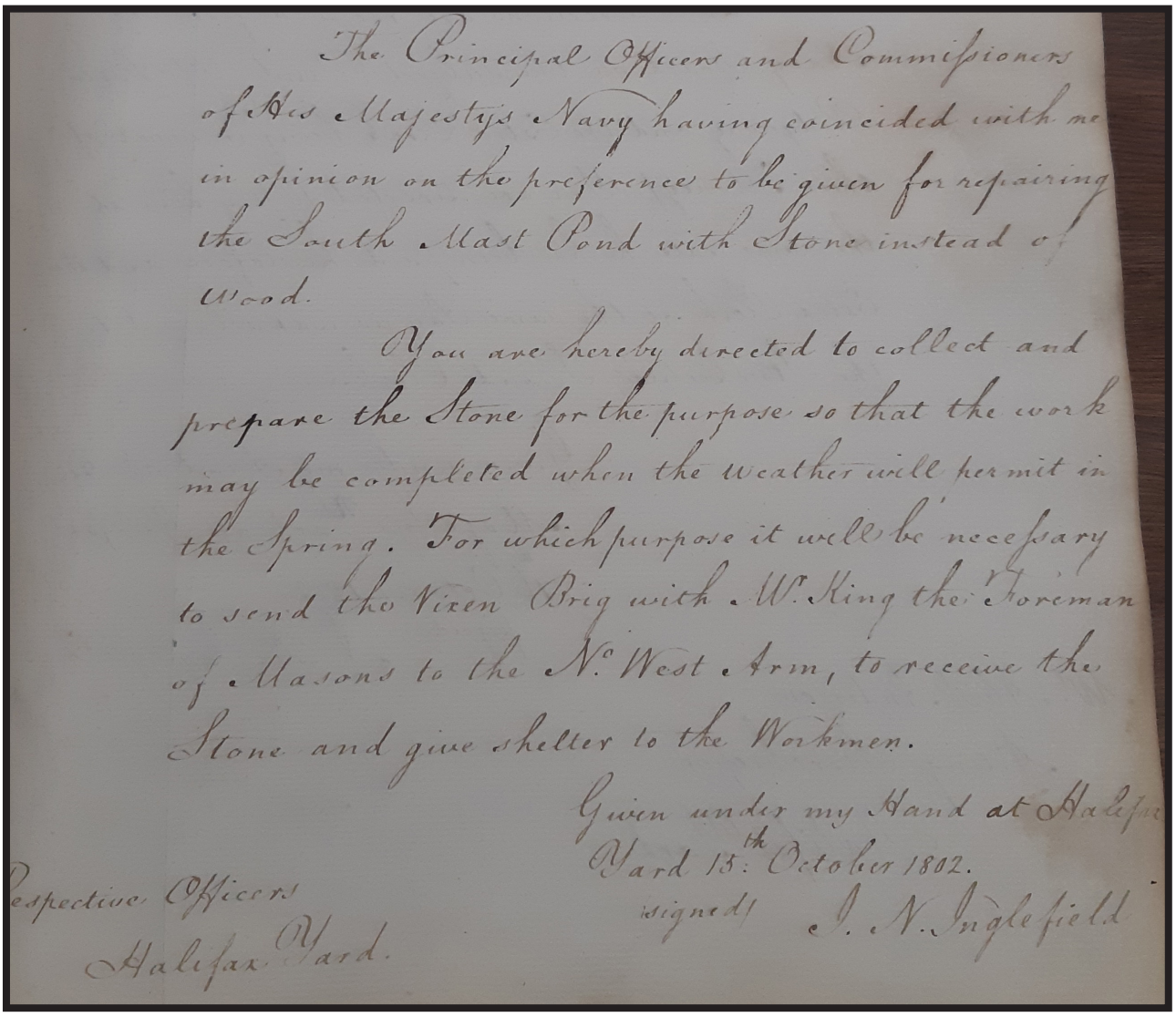
Building stone refers to stone used in the construction of buildings and other structures. It can be used for structural purposes, such as bearing heavy loads, or for decoration as cladding or pavers (Dickie, 1993, p. 1). Stone has been used in Nova Scotia in settlement-building since the 17th and 18th centuries. During those years, some types of stone were acquired from ship ballast as ships moved from Halifax to Europe and the West Indies. Ship ballast was often crushed stone used to provide stability in ships, colloquially known as rip-rap (Dickie, 1993, pp. 5-6). This may be seen as one of the first examples of adaptive re-use for infrastructure in the city. Although much of the stone used in Nova Scotia came from quarries in Pictou County, a majority of Halifax's building stone came from Queen's Quarry and King's Quarry at Purcell's Cove. From the mid-1700s, Queens Quarry provided much of the granite and ironstone used in the city (Dickie, 1993, pp. 5-6).

Ironstone is the colloquial name for a type of metamorphized slate found in the Halifax area. It is formed from the alteration of clay sediments heated by the intrusion of large swathes of granite (Parks, 1912, p. 209). Particles of iron pyrite are found in the rock. Oxidation in the form of yellowish-brown stains occur through the passage of time and due to weather. This type of stone was used in the construction of the Halifax Citadel, Fort Charlotte, the earlier HMC Dockyard buildings and walls, and other government works (Parks, 1912, pp. 209-210).

Dating from 1802, one of the earliest existing records of retaining walls in Halifax is found at the HMC Dockyard site. It describes a motion from John N. Inglefield, Naval Commissioner, to replace the wooden palisades and fortifications with stone from Queen's Quarry in the North West Arm (Figure 6). A barge would be sent near the quarry site to obtain the stone and specialized naval workers which included masons who would construct new defensive and retaining walls.

Concrete and Mortar

Portland cement was developed in England as a cheap and sturdy method of joining bricks or stones together. The Mahone Bay sands were historically known for their high-quality deposits of sand and gravel. During the mid to late 19th century, this aggregate material was loaded onto schooners and shipped to Halifax where it was turned into concrete, cement, and mortar. The Halifax Graving Dock was constructed in 1889 from Mahone Bay sands and gravels (Prime, 1993, pp. 2-3).



The Principal Officers and Commissioners of His Majestys Navy having coincided with me in opinion on the preference to be given for repairing the South Mast Pond with Stone instead of Wood.

You are hereby directed to collect and prepare the Stone for the purpose so that the work may be completed when the Weather will permit in the Spring. For which purpose it will be necessary to send the Vixen Brig with W.m King the Foreman of Masons to the N.o West Arm, to receive the Stone and give shelter to the Workmen.

Given under my Hand at Halifax Yard 15th October 1802.

signed J. N. Inglefield

Respective Officers
Halifax Yard.

Figure 6: Record of an early retaining wall, 1802.

(Source: Inglefield, J.N., 1802, in Inglefield's Transcripts 1802-1804, Royal Naval Dockyard. Naval Museum of Halifax.)

This image shows a page from the original transcripts of John Inglefield, a Commissioner of the Royal Navy. In replacing the wooden palisades of the dockyard, stone was to be collected for the construction of defensive and retaining walls. Specialized naval masons would be sent on the Nixon brig to the North West Arm (Queen's Quarry) to retrieve the ironstone.

Age

Various sections of the retaining wall are over 100 years old (Figure 9 & 10). For the scope of this project, numerous fire insurance plans and atlases from the Public Archives of Nova Scotia were utilized to approximate when sections of the wall may have been built. Detailed records were kept by the former Department of Canals and Railways during the Victorian era.

A) Cornwallis Street and Valour Way to North Street (1909)

Prior to 1889, this area between Cornwallis Street and North Street was heavily residential with industrial uses. Interestingly, Upper Water Street continued to North Street as indicated in the 1889 map (Figure 9). The street was eventually reconfigured into Valour Way. By 1907, serious work had commenced on the development of the freight yards of the Intercolonial Railway (Figure 7 & 8). By 1914, several side streets including Artz St, Gerrish St, and Gray's Lane were cut off from the street grid by a large concrete retaining wall 338 metres (1,110 feet) in length (Figure 10). The filling behind the retaining wall was composed of heavy stone rip-rap. This section of the retaining wall system was completed in 1909 (Department of Canals and Railways, 1909, p. 66; Department of Canals and Railways, 1910, p. 127).

Figure 7: View of the ICR freight yards from a grain elevator, 1907.

(Source: Gagnon, 2016)

This postcard shows the freight yard and the side streets that were connected to Upper Water Street. The view was from the top of a grain elevator that stood at what is now the corner of Cornwallis Street and Valour Way, 1907.

Increased accommodation at Halifax—

At the new yard on the west side of Water street, Halifax, N.S., the excavation was completed.

The replacing of the old stone or brick sewers cut off by the excavation for the yard at Artz and Gerrish streets and Grey's lane with 18-inch cast-iron pipe, was completed and required manholes put in. Suitable catch basins to carry the water of the street gutters to the street sewers back of the wall were also put in. To take care of the drainage from house drains cut off by the excavation for the yard, as well as to provide for the drainage from houses or factories which may in future be built along the back line of the yard, an 18-inch longitudinal terra-cotta pipe sewer was laid close to the concrete wall with required manholes and wyes for present and future connections ; thus, carrying the sewerage from all house drains cut off between North and Artz street to Artz street sewer, and between Artz and Gerrish street into Gerrish street sewer. All drains cut off below Gerrish street were replaced with cast-iron pipe sewers carrying the drainage to the Water street sewer, as formerly.

The concrete retaining wall at the back line of the yard, as well as that between the high and low level tracks was completed. The filling behind the wall with heavy stone rip-rap was also completed. The erection of a wooden fence, 6 feet high, on top of the retaining wall at the back line of the yard, from Intercolonial Railway power-

Figure 8: Report of the new retaining wall along Upper Water Street, 1910.
(Source: Department of Canals and Railways, 1910. p. 127)

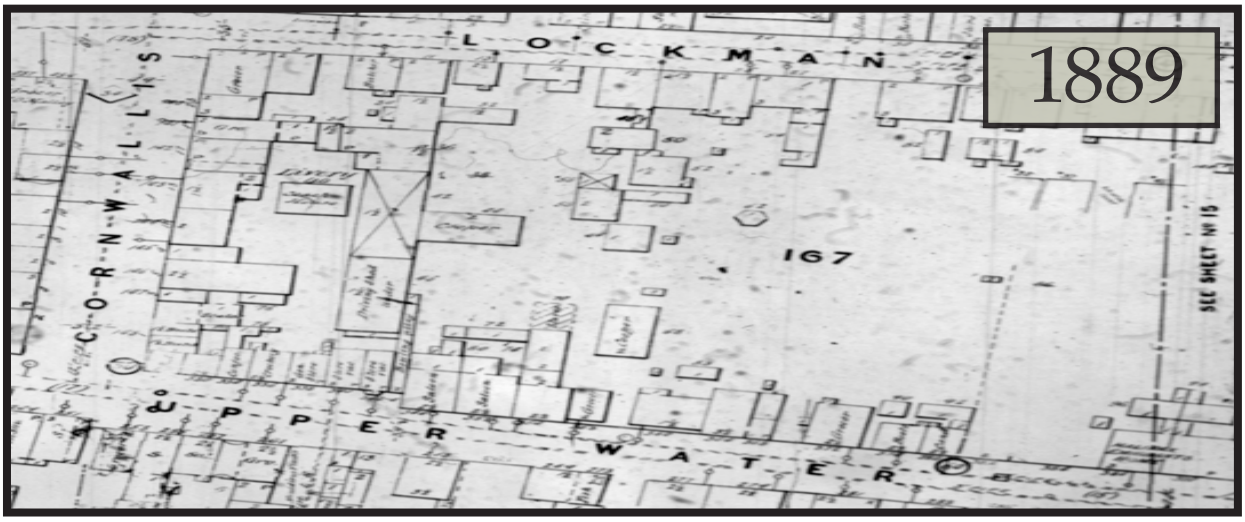


Figure 9: Map showing the original area around Barrington and Cornwallis Street, 1889.
(Source: Goad, C.E., 1889. Fire Insurance Map of Halifax, Sheet 14. NSARM)

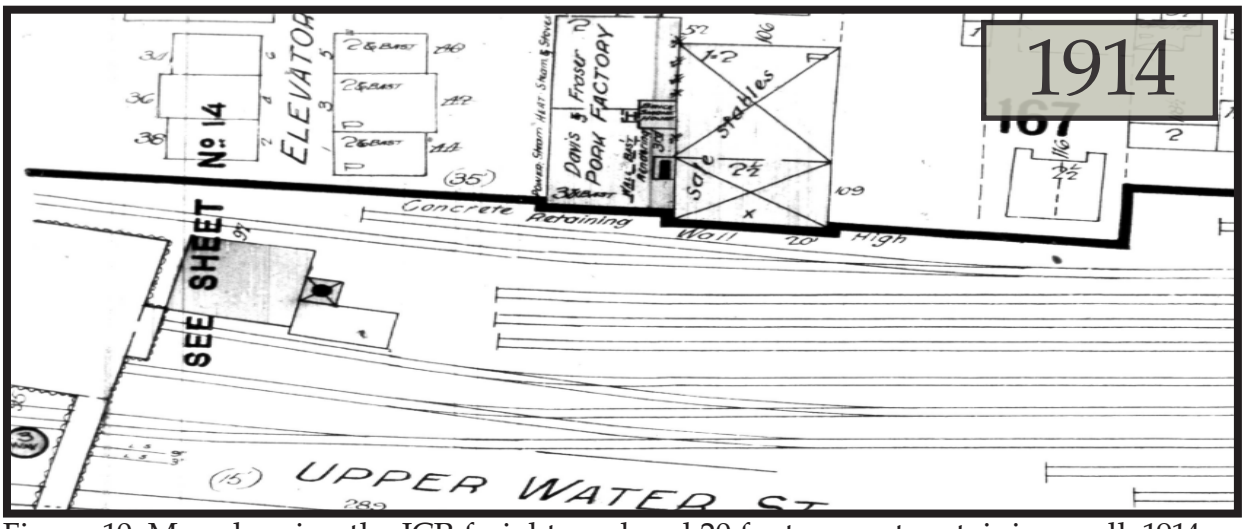


Figure 10: Map showing the ICR freight yard and 20 foot concrete retaining wall, 1914.
(Source: Goad, C.E., 1914. Fire Insurance Map of Halifax, Sheet 14. NSARM)

B) North Street to the Niobe Gate Bridge (1874-1877)

This section of the retaining wall system was built between 1874 and 1877 (Figure 11 & 12). This is known because of a record kept by the Canadian Government on the grading and masonry work done. The grading of the land and the masonry work on the heavy ironstone retaining wall from Richmond to North Street was completed by the contractor, Samuel McKean from 1874 to 1877. It came at a cost of $178,302 (Sessional Papers of the Dominion of Canada, 1878, p. 129). The maps on the following page demonstrate the placement of the ICR station on Barrington Street (Figure 12, 13, & 14). The map from 1895 shows black hatched marks under the word "Lockman" which indicate where the retaining wall stood. By 1967, the station and the bridge connecting Upper Water Street to Barrington Street do not appear on the map as they were demolished (Figure 14).

Figure 11: Photograph of the North Street ICR Station, 1902.

(Source: Notman Studio, 1902. NSARM, no. 1983-310 number 100056)

This 1902 photograph of the North Street Intercolonial Railway Station shows the spendour of the building with its Second Empire architectural style and the ironstone retaining wall below Barrington Street (highlighted in teal).

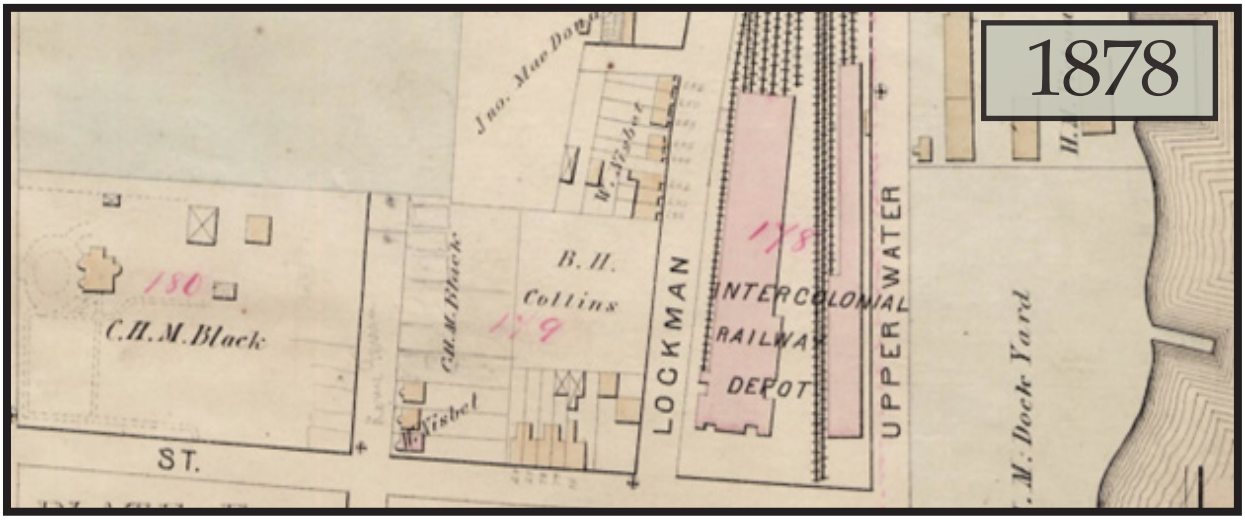


Figure 12: Map of the North Street ICR Station, 1878.
(Source: Hopkins, H.W., 1878. NSARM, Plate T, No. O/S G 1129 H3 H67 1878)

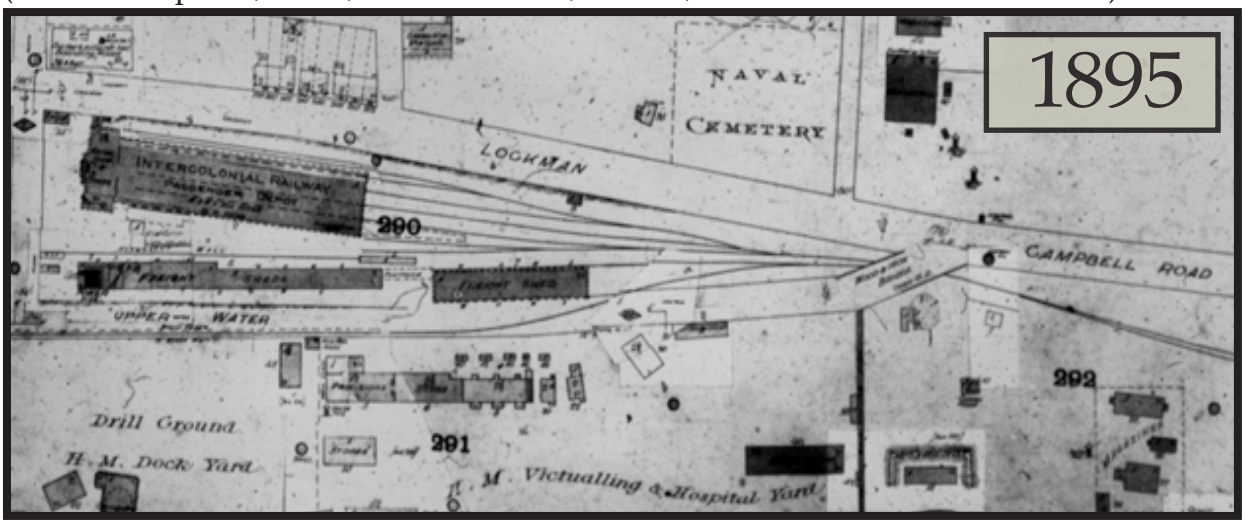


Figure 13: Map of the North Street ICR Station, 1895.
(Source: Goad, C.E., 1895. Sheet 40, NSARM)

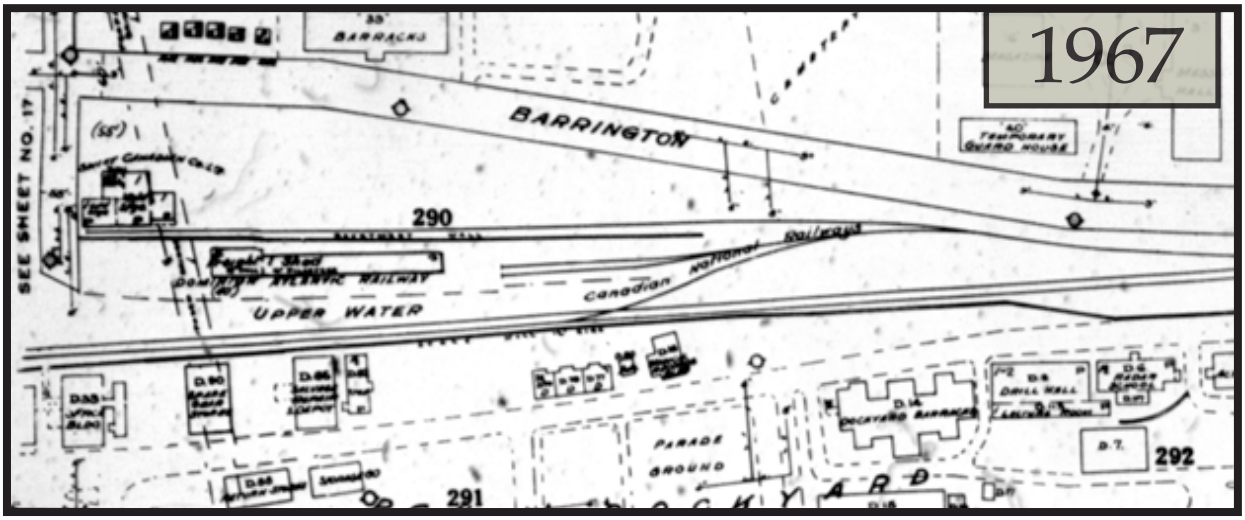


Figure 14: Map of the North Street ICR Station, 1967.
(Source: Goad, C.E., 1967. Sheet 84, NSARM)

C) Niobe Gate Bridge to the Irving Assembly Hall (1918)

This section of the retaining wall system was built in the summer of 1918 after the Halifax Explosion (Figure 15). Railway contractors, Cavicchi and Pegano were contracted by the Halifax Relief Commission to build the wall from high-strength concrete. It still exists today at the site in a relatively intact form, although the railway right-of-way seen in the 1967 map does not exist anymore, having been replaced with a parking lot for the HMC Dockyard (Figure 16).

Figure 15: Photograph of the construction of the retaining wall, 1918.
(Source: Kwiatek, 2006)

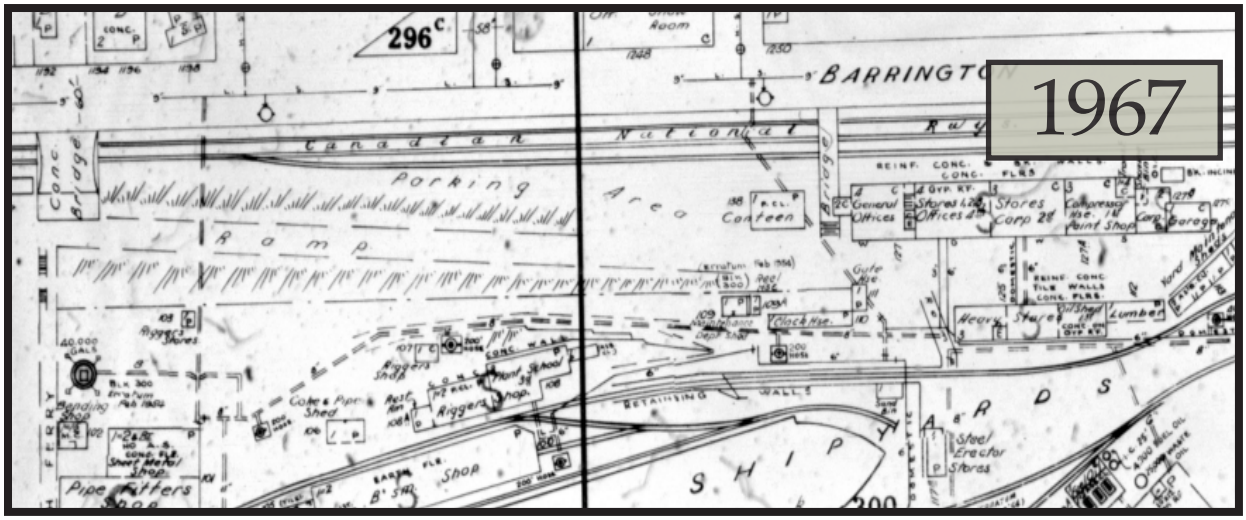


Figure 16: Map of the CGR right-of-way and tracks, 1967.
(Source: Goad, C.E., 1967. Sheet 88, NSARM)

Physical Appearance

Site observation took place on three dates, September 28, 2019, November 6, 2019, and December 1, 2019. Three sections of the retaining wall system were looked at. Photos could not be obtained of the North Street to Niobe Gate Bridge wall section due to security restrictions at the HMC Dockyard.

A) Cornwallis Street and Valour Way to North Street (1909)

Figure 17: Photograph of the retaining wall along the HMC Dockyard parking lot. (Source: Maenza, 2019)

Figure 18: Photograph of the North Street ICR Station, 1902. (Source: Maenza, 2019)

For much of this retaining wall section, the concrete wall indicated on the old fire insurance map (Figure 10) is not apparent. Instead, the fill of crushed rock and rip-rap that was located behind the concrete wall has been exposed and it extends for much of the section (Figure 18). Near the footing of the Angus L. Macdonald Bridge, the concrete wall section indicated on the maps appears (Figure 18).

The concrete wall shows signs of heavy wear with multiple long cracks, chips, and discolouration. Efflorescence (a salt residue) appears as a chalkish-white colour due to moisture from rain reacting with the concrete. Traces of rust appear from the ironstone rip-rap behind the wall. Seasonally, the wall supports bulrushes and marsh-like conditions at its base (Narratives in Space+Time Society, 2016).

B) North Street to Niobe Gate Bridge (1874-1877)

Figure 19: Photograph of the old masonry and new concrete retaining walls.
(Source: Alva Construction Ltd, n.d.)

Construction of the new retaining wall in front of the old masonry wall from the 1870s (Figure 19). Rock bolts and pre-cut concrete blocks are visible. Where the current sidewalk barrier lies, a concrete cap was fastened and reinforced to the old masonry wall.

C) Niobe Gate Bridge to the Irving Assembly Hall (1918)

Figure : Photograph of the concrete retaining wall along the Irving Shipyards.
(Source: Maenza, 2019)

The concrete wall shows signs of heavy wear with multiple long cracks, chips, and discolouration. Efflorescence (a salt residue) appears as a chalkish-white colour due to moisture from rain reacting with the concrete (Figure 20). Traces of rust appear from the ironstone rip-rap behind the wall. Unlike the 1909 wall near Valour Way, the retaining wall on Barrington St is positioned much more vertically without a sloping angle.

Part 3:

Chronological Timeline

Before 1854

For 100 years after its founding in 1749, Halifax was predominantly focused on the military and it was spatially isolated from other Nova Scotian communities and from the rest of Canada (Hodgins, 1992, p. 16). The city's greatest commercial, industrial, and military interests were met through the sea instead of through land connections, and so, growth took place along the waterfront (Hodgins, 1992, p. 16).

The establishment and expansion of the HMC Dockyard and barracks in 1759 (then known as the Royal Naval Dockyard) helped facilitate an increase in population and industrial growth as working-class people and immigrants moved into the area (Hodgins, 1992, p. 17). Moving goods, people, and armaments to and from downtown Halifax and the Dockyard required transportation corridors which included the construction of Campbell Road in 1838 and the construction of the Nova Scotia Railway connecting Windsor and Pictou to Richmond via Truro (Erickson, 1986, p. 42).

1854-1877: The Railway Enters Richmond

At the time of Confederation in 1867, Halifax was the fourth most economically-important city in the Dominion of Canada and the economic centre of the Maritimes (Blakeney, 1949, p. 13). It had flourished during the American Civil War as a neutral port and remained a strategic asset of the British Empire. The harbour, with its wharves crowded with shipping, made it hard to believe that the golden age of sail would come to a close. For Halifax had prospered on the sea, the changing demands of an industrializing nation meant that the new railway would be the city's golden ticket to a thriving future (Blakeney, 1949, p. 13).

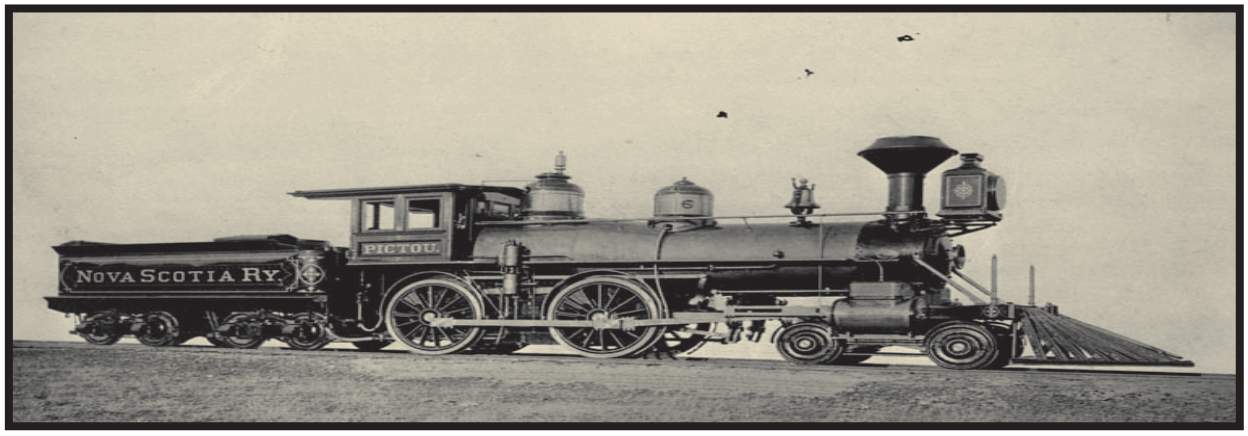


Figure 21: Nova Scotia Railways locomotive, 1854-1867.

(Source: Library & Archives Canada, n.d. Copy negative C-002607)

This undated photograph shows Locomotive No. 6, Pictou, on the Nova Scotia Railway between 1854 and 1867. The Nova Scotia Railway was the first railway link across the province.

Richmond Station

The privately-owned Nova Scotia Railway entered the Halifax Peninsula and terminated at a freight depot at the foot of Barrington and Duffus Streets in 1854 (Figure 21 & 22). This would be later known as Richmond Station. It was selected as a deep-water terminus for the loading and shipment of heavy freight, but wooden structures and sheds signalled its temporary use. According to an 1875 report from Halifax City Council, Richmond was never regarded as a suitable or entirely desirable place for a passenger and freight station as its distant location was a cause for great inconvenience, expense, and delay. By the 1870s, the station could not meet the increasing demands and intensity of the military and industrial commerce in the city (Joint Committee of the City Council and Citizens, 1875, p. 4).

Figure 22: Photograph of Richmond Station, 1860.
(Source: Richmond Station, 1860, Tom Connors 1987-218 no. 713 / negative no. N-388, NSARM)

The Railway Extension from Richmond Station to North Street

By 1855, the Nova Scotia government had already decided on the matter of a railway extension into downtown Halifax. It was not until Confederation in 1867 that the Nova Scotia Railway was turned over to the Dominion Government as part of plans for the Intercolonial Railway linking Halifax to Montreal. The Halifax City Council also expressed a desire to advance the idea of a station in the heart of the city. It would have required the removal of a guard house and several powder magazines from HMC Dockyard-owned land. The Railway Commissioners had received permission from the War Department and the Admiralty of the Imperial British Government to carry the railway through the HMC Dockyard Naval Hospital and Magazine grounds. Conditions were appended in the granting of the right-of-way, including that any costs incurred in the demolition and reconstruction of assets were borne by the Nova Scotia government (Joint Committee of City Council and Citizens, 1875, pp. Appendix A; III-IV).

Ultimately, the provincial government's ambitions in extending railways to the west and east of Halifax meant that capital resources were heavily exhausted (Joint Committee of the City Council and Citizens, 1875, pp. 4-5). In 1873, the proposal was revised to separate freight from passenger traffic. The passenger station would be located at the corner of North Street and Barrington Street, adjoining the HMC Dockyard property, and the freight would be handled by a dedicated spur line and terminal further south.

In 1875, City Council noted that the railway was planned at a low elevation to the water level to improve the passage of passenger and freight. According to the attached City Engineer's report, the triangle-shaped portion of land which continued to North Street (Figure 23) (popularly known as the "Jib") was constructed by open cut, allowing for a nearly level grade surface (Joint Committee of the City Council and Citizens, 1875, p. Appendix C-IX).

Figure 23: Birds'-eye view map, 1879.

(Source: Ruger, A., 1879. Library of Congress. No. G3424.H2A3 1879 .R8)

Location of the North Street Station in the "Jib" formed by the intersection of Upper Water Street with Barrington Street

North Street Station

The North Street Station (also known as the Intercolonial Railway Station), was one of the most imposing buildings in Halifax and one of the finest railway stations in Canada (Figure 11 & 24). It was situated at the foot of North Street next to Barrington Street. It was two stories tall and made from pressed brick and granite. Designed by a local architect, Henry Peters, its beauty was often obscured by its cramped position. Haligonians rejoiced at having a station closer to the downtown core and lauded its modern amenities in comparison to the then outdated Richmond station which in 1872 was deemed as "not fit for a cow stable or a wood shed" in an article by the Acadian Recorder newspaper (Blakeney, 1949, pp. 88-89).

The grading of the land and the masonry work on the heavy ironstone retaining wall from Richmond to North Street was completed by the contractor, Samuel McKean from 1874 to 1877. It came at a cost of $178,302 (Sessional Papers of the Dominion of Canada, 1878, p. 129). The retaining wall and open cut facilitated the construction of the railway deeper into Halifax. The station was opened to the public in 1877.

Figure 24: Photograph of station interior, 1912.

Source: Canadian Science & Technology Museum, 1912. No. STR04089a

Rare interior photograph of the North Street Station in 1912. The Flying Bluenose was a luxury express train servicing Halifax to Yarmouth.

1878-1900: Industry in Richmond

Industrialization

By the late 1870s, the rapid industrialization of Halifax was brought on by new federal government attitudes in a program known as the National Policy which sought to connect the west and east coasts by railroad and the promotion of Canadian industries (Erickson, 1986, p. 42; Settle, 1994, p. 3).

Erickson and Acheson both mention that it was a protectionist measure in which the Federal government placed tariffs on imported goods in 1879 onwards which boded extremely well for Richmond. In fact, between 1881 and 1891, Nova Scotia had the highest industrial growth rate (66%) of all provinces. Major factories such as the Acadia Sugar Refinery, Nova Scotia Cotton Company, and Halifax Graving Dock were located along the Intercolonial Railway tracks where the retaining wall stood. The assumption was that Nova Scotia could become the industrial powerhouse of Canada as it contained the largest port, viable coal and iron deposits, controlled the flow of fuel to Montreal and other provinces, and it was a gateway for people and goods from the nation to the world and vice versa (Acheson, 1972, p. 6; p. xiii; Settle, 1994, p. 7).

Figure 25: Photograph of the refinery, 1880.

(Source: Notman Studio, 1880. Nova Scotia Archives, no. 47660)

Photograph of the Nova Scotia (Acadia) Sugar Refinery, c. 1880.

Richmond was at the forefront of economic growth on the Halifax Peninsula as it had major roads, railways, and goverment property in place. Located adajacent to the retaining wall and the railway tracks, the most highly-touted industries were the Acadia Sugar Refinery and the Nova Scotia Cotton Company founded in the early 1880s. The refinery complex was the tallest building east of Montreal boasting an impressive ten stories (Figure 25) (Erickson, 1986, p. 47). More than just the refinement of raw materials, value-added goods were produced in Richmond as well. The Nova Scotia Car Works produced railway passenger cars, the Hillis and Sons foundry produced stoves and furnaces. There were factories that produced coffee, beer, pianos, glassware, cigars, and shoes; something almost astounding in a post-industrial Halifax (Erickson, 1986, p. 49).

The industrial surge of the late 19th century had brought extreme wealth to Richmond. By 1900, this part of the peninsula had more than half of Halifax's assessed property valuation. Unfortunately, the profits did not last very long. The economic centres of capital and population shifted west towards Quebec and Ontario. Towards the 1900s, factories in Richmond were consolidated by Upper Canadian businessmen (Erickson, 1986, pp. 49-50).

The combination of Victorian-era steam locomotives, smokestacks, loud noise, and heavy industrial output branded Richmond as a working-class suburb. It soon was avoided by middle-class homeowners and was not sufficiently given provision of city services compared to the South End of the city (Erickson, 1986, pp. 50).

1917: The Halifax Explosion

At 9:06 a.m. on December 6th, 1917, Halifax changed forever. The Halifax Explosion of 1917 devastated the suburb of Richmond (Figure 26). The French munitions ship *Mont Blanc* was enroute to join a trans-Atlantic convoy. It carried 35 tons of benzole, 2,300 tons of picric acid, and 200 tons of TNT. The ship collided with the Norwegian relief ship *Imo* and was set on fire as it drifted towards Pier 6. Over 2,500 tons of volatile materials exploded giving off over 9,000 F in heat. The resulting shockwave ripped through Halifax at 21,436 kilometres per hour. It was felt as far as Charlottetown and Boston (Macdonald, 2005, pp. 62-63).

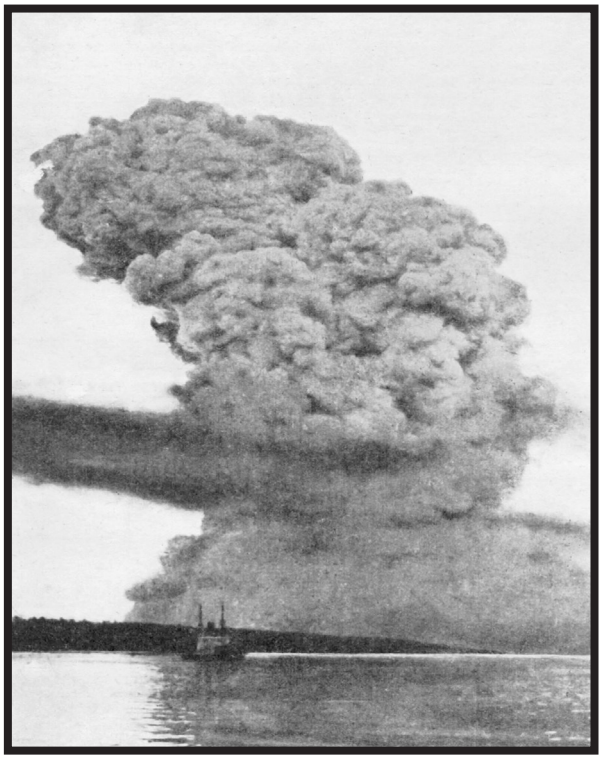


Figure 26: Photograph of cloud from Eastern Passage, 1917.

(Source: Library and Archives Canada, 1917. No. PA-166585/MIKAN 3531262)

The explosion obliterated over six square kilometres of the city, killing 2000 people, leaving over 9000 people with injuries, and a further 10000 homeless. The massive explosion from the cargo ship Mont-Blanc set off a tsunami which rose between 15 to 8 metres above sea level (Macdonald, 2005, p. 66; Ruffman, et al, 1994, p. 337). Sections of the retaining wall had received major damage. Richmond Station was obliterated. The North Street Station had its roof destroyed, and railway infrastructure was strewn about. Forever altered, Richmond needed a haste rebuilding (Figure 27) (Smith, 1992).

Figure 27: Photograph of Richmond in ruins, 1917.

(Source: MacLaughlan, W.G., Nova Scotia Archives, 1917. No. 1988-34 no. 14 / negative: N-137)

Looking north toward Pier 8 from Hillis foundry after great explosion, Halifax, Dec. 6, 1917.

1918: Aftermath and Rebuilding

The Halifax Relief Commission was created in 1918 by the federal and provincial governments to coordinate relief and reconstruction efforts (Erickson, 1986, p. 58). Part of the actions undertaken by the Halifax Relief Commission included the rebuilding of Richmond. Thomas Adams, an urban planner, was given a clean slate to layout his vision, including parts of the Richmond bluff and other undeveloped areas (Ruffman, et al, 1994, p. 410). He left the industrial areas below Barrington Street as unplanned, providing no specifications regarding land-use and lot size. By 1918, Halifax Shipyards Ltd. consolidated those properties. The lands of the Halifax Graving Dock, and ruined Acadia Sugar Refinery all became company property as the railway facilities themselves moved to the South End (Figure 28) (Ruffman, et al, 1994, pp. 414, 419; Settle, 1994, p. 38).

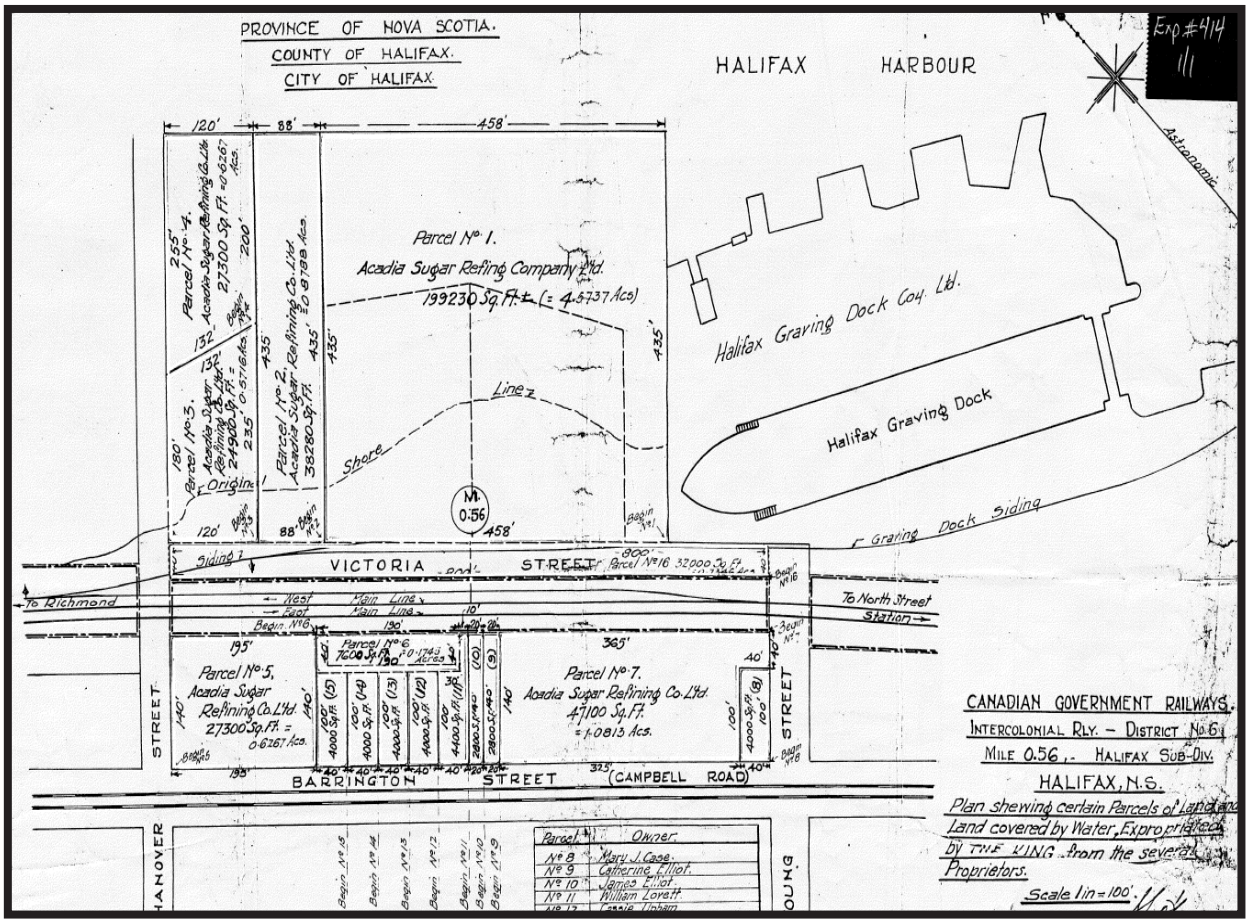


Figure 28: Expropriation plan of the Acadia Sugar Refinery, 1917.

(Source: NS Registry of Deeds, 1917. Expropriation Plan #414)

This plan shows the expropriation of multiple parcels including that of the Acadia Sugar Refinery to the Dominion Government. These were to be consolidated and sold to Halifax Shipyards Ltd.

The Halifax Relief Commission appraised the damages caused by the explosion and tidal wave to over $25,000,000. Major losses occurred for the Canadian Government Railways and the Naval Service Department of Canada. Damage to property belonging to the Canadian Government Railways amounted to $1,225,000 of which $155,000 was expensed on clearing debris and repairs. North Street Station was destroyed and the main tracks were covered with debris (The Canadian Engineer, 1918, p. 558).

Cavicchi and Pegano

The railroad construction firm was contracted by the Halifax Relief Commission to assist in reconstruction efforts following the Halifax Explosion. Originally operating out of Montreal, Quebec, the company was founded by P. Pagano and Vincent J. Cavicchi (Figure 29). The firm employed 1,250 foreign-born labourers and brought 400 of them to work in camps on Longard Road informally known as Cavicchiville (Morton, 1989, p. 79).

The prime contractor in the rebuilding of the Halifax Shipyards, the firm won a lucrative contract to clear debris in Richmond with a commission of 6.5%. It also began the process of moving, grading, and ballasting 1.5 kilometres of railway tracks in July 1918. At that time, the firm became known as the Bedford Construction Company, Ltd. (Morton, 1989, p. 83; Settle, 1994, p. 40).

Both Cavicchi and Pagano saw the construction of the shipyard as a substantial economic and moral boost to the people of Halifax (Settle, 1994, pp. 39-40). Approximately 2,000 new jobs would be created and spin-off industries would emerge in supplying and supporting the shipyard. As the city's biggest and most modern employer, the shipyard would put Halifax and the province into the forefront of economic development on the East Coast (Settle, 1994, pp. 39-40).

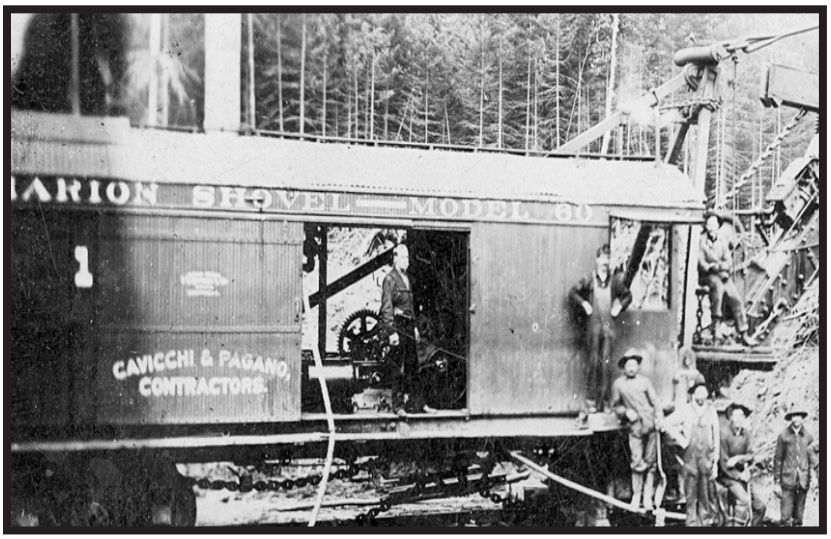


Figure 29: Photograph of an excavator, 1908.

(Source: Gare de Riviere Bleue, 2010)

Railway contractors Cavicchi and Pegano excavating a section of a Quebec railway, 1908.

Railroad Right-of-Way and the Retaining Wall

In expanding and filling the shoreline, the plan was to move all the railway tracks along the right-of-way to allow for the construction of various shipyard workshops. These workshops would face the railway to allow for the quick unloading of freight. According to the Nova Scotia Registry of Deeds, there is a deed from Imperial Government to Halifax Shipyards Ltd. which indicates the right-of-way granted to the Canadian Government Railways through the shipyard property (Figure 30) (1919, Book 498, Page 641).

As well, a massive reinforced concrete retaining wall was built along the railway right-of-way, supporting the 1896 roadbed of Barrington Street (The Daily Gleaner, 1918, p. 8). The work undertaken by Cavicchi and Pagano required an estimated 270,000 cubic yards of earth and rock to be excavated and 20,000 cubic yards of concrete to be poured. (Tomlin, 1918, p. 366). It stands as perhaps an unkempt and unnatural division that separates the residential neighbourhood above Barrington Street with its industrial counterpart below (Macdonald, 2005, p. 277).

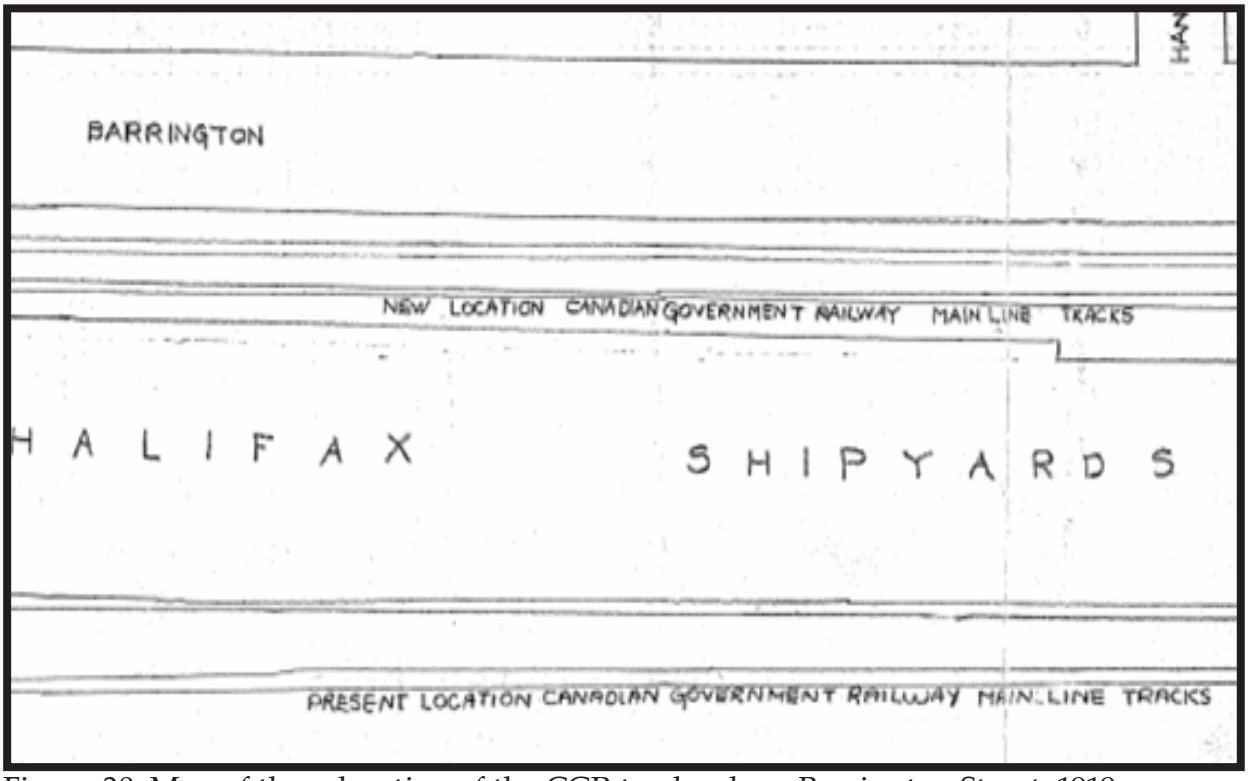


Figure 30: Map of the relocation of the CGR tracks along Barrington Street, 1919.
(Source: NS Registry of Deeds, 1919, Book 498: Page 641)

Relocation of the Canadian Government Railway tracks adjacent to the retaining wall after consolidation of the parcels of land by Halifax Shipyards Ltd.

After 1918: The Removal of Richmond

Richmond No More

The 1917 Halifax Explosion brought devastation and hardship to the city, and in the long run it also brought a whole lot more. On that cold December morning, the working-class neighbourhood had just awoke: parents stoked stoves and filled furnaces, children dressed for school, milk deliveries were being made by horse-and-carriage as the men made their daily rounds. The waterfront bustled with the sounds and sights of ships, freight cars, bellowing factories, and noisy locomotives. Noticing a flaming ship drifting towards the shore, faces of all kinds began to watch. Presumably, with a clear view of the harbour, onlookers may have chosen a spot along the hand-rails on Barrington Street to watch what unfolded. It is hard to believe that in an instant, Richmond was obliterated off the face of the earth (Narratives in Space+Time Society, 2016).

Before the explosion, Richmond was a thriving community with churches, schools, factories, and many businesses. In fact, nearly half of all of the population of Halifax lived in Richmond. After the explosion, the reconstruction process begun by the Halifax Relief Commission through the powers set out in the *1915 Nova Scotia Town Planning Act* caused major changes in land-use and urban structure (Cahill, 2018, p. 66). Perhaps even Thomas Adams could not have envisaged the long-term effects that the shipbuilding facilities and other spin-off industries would have on the newly-christened North End. Future prosperity and population growth was idealized as being hand-in-hand with serious industrial and residential development along the waterfront and the slopes of Needham Hill during the 1920s.

Eventually, the visible traces of Richmond would fade as the new North End was built. The absence of Richmond was felt through changes in names, the street layout, buildings, the people, and in memories. Even the originally-named "Richmond Heights" eventually became known as the Hydrostone District. Difficult economic and social times during the 1920s and 1930s meant perhaps that Haligonians wanted to push aside the tragedy of 1917 and move on with their lives. Understandably, it took generations for survivors and the city to remember and recall the events of the past. It was only in 1967 that the first city-sanctioned remembrance ceremony of the Halifax Explosion took place. It took another eighteen years until the next service in 1985 and the opening of the Halifax Explosion Memorial Bell Tower on Needham Hill (Elliott, 2019).

1945-1975: Urban Renewal on Barrington Street

Rationale for Redevelopment

Within the vicinity of the retaining walls, the urban form and function of the land also changed. The heavy industrial and military uses along the waterfront and the retaining wall system that barricaded it created an industrial landscape that became a strong deterrent to any potential waterfront residential development. Barrington Street was always a major corridor of movement and commerce but by the middle of the 20th century, new municipal planning documents presented a number of ideas for the redevelopment and growth of the city. The 1945 Master Plan for Halifax, the 1957 Redevelopment Study, and the 1965 Functional Planning Report for Harbour Drive were the major documents. The dwellings in the North End were slated for clearance (Stephenson, 1957, p. 17).

Barrington Street was selected as thoroughfare for the intensification of the downtown core. An area of North Street was cleared as the approach ramps were built for the Angus L. Macdonald Bridge (Stephenson, 1957, p. 26). By the 1960s and 1970s, many Victorian-era homes, flats, and commercial establishments were demolished on Barrington Street and the small side streets within the vicinity of the retaining walls (Figure 31). Houses that overlooked both the railway and the naval facilities were considered by city officials to have outgrown their usefulness and were seen as unsanitary and overcrowded.

Figure 31: Painting of Elevator Court, Halifax.

(Source: Harris, L. 1921. Elevator Court, Halifax. Oil on canvas. Art Gallery of Ontario, no. 2570)

Painting by Group of Seven member Lawren Harris of the tenement housing on Elevator Court. The retaining wall lies beneath the fenced portion.

Harbour Drive

In 1965, the City of Halifax put forward a plan to develop Harbour Drive, as the Nova Scotia Planning Secretariat (NSPS) deemed it to be a crucial piece of infrastructure that would help circulate a projected 500,000 residents of the Halifax region. It was a four-lane expressway from the foot of Prince Street to the intersection of Barrington Street and Devonshire Avenue, and around the north end of the peninsula (Figure 32). Phase I involved the construction of the Cogswell Interchange, a pretzel-like structure of asphalt, pillars, and retaining walls. Phase II and III involved a realignment of Harbour Drive to the Mackay Bridge which included interchanges at North Street and Devonshire Avenue (Figure 33). It did not proceed through the approval process at Council and became very unpopular with local citizens. By 1970, only the Cogswell Interchange was built (Rutland, 2018, p. 194; Ziobrowski, 2015).

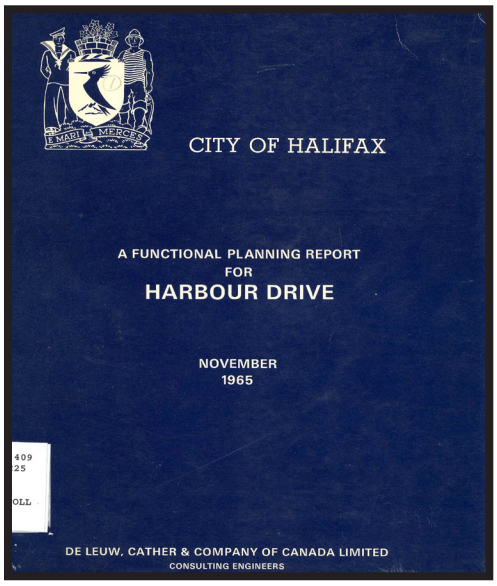


Figure 32: Cover of the Harbour Drive report, 1965.
(Source: HRM Archives, 1965, no. 711.409716225 F)

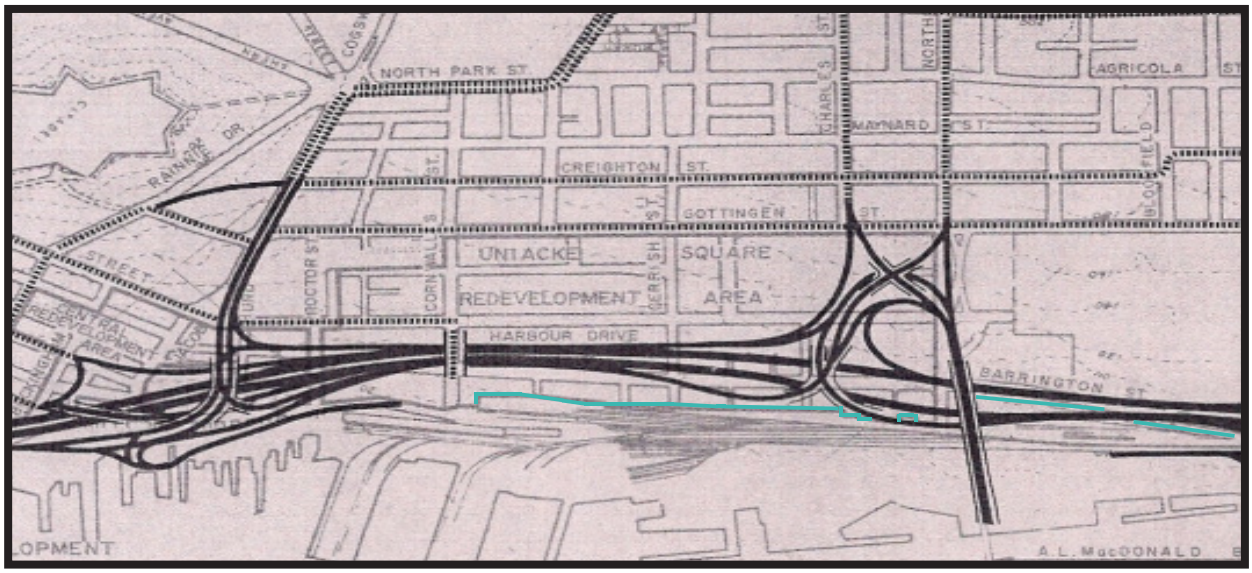


Figure 33: Plans of the proposed expressway, 1965. Retaining wall is highlighted in teal.
(Source: Ziobrowski, 2015)

Detailed plans by the DeLeuw, Cather & Company of Canada Ltd. in 1965 that showed the path of the proposed expressway further cutting through the North End waterfront. This would require the demolition of properties for the construction of elevated ramps and road segments.

The Proposed Barrington Street Diversion and Expansion

Towards the mid-1970s, city officials sought to use Barrington Street as a feeder route into the Cogswell Interchange. Barrington Street would have been expanded from four lanes to six lanes. In order to complete this phase called Harbour Drive North, the City of Halifax expropriated all of the land on the east side of Barrington Street between Cornwallis Street and North Street (Figure 34 & 35). This included all the land behind the retaining wall. Over one-hundred working-class families lost their homes between 1966 and 1974 (Rutland, 2018, pp. 194-195). Local streets which dated back as far as 1878, such as Artz Street, Gerrish Street, Bedford Court, and Elevator Court were closed. The overarching legislation which allowed the city to do this was the Halifax City Charter, 1963, section 407, whereby City Council could negotiate with the owner for land via agreement (Patterson Law, 2015, p. 2).

Public outcry came through a citizen activist coalition known as the Movement for Citizens' Voice and Action (MOVE) in 1971. MOVE was intertwined with voices that advocated for a participatory form of democracy in Halifax. MOVE sought to fight against the expansion because they opposed the destruction of their community and felt that residents would be left powerless. Between 400 and 500 residents attended public forums in 1972 and 1973 which made city officials aware that they did not have sufficient community support for their plans (Rutland, 2018, pp. 193, 196).

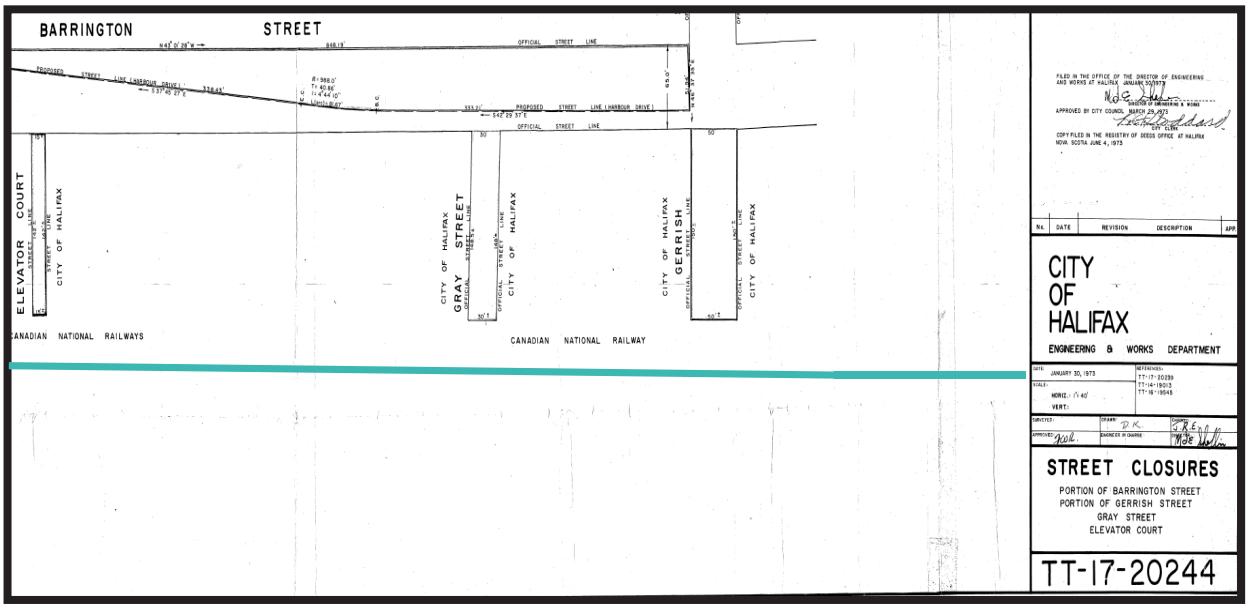
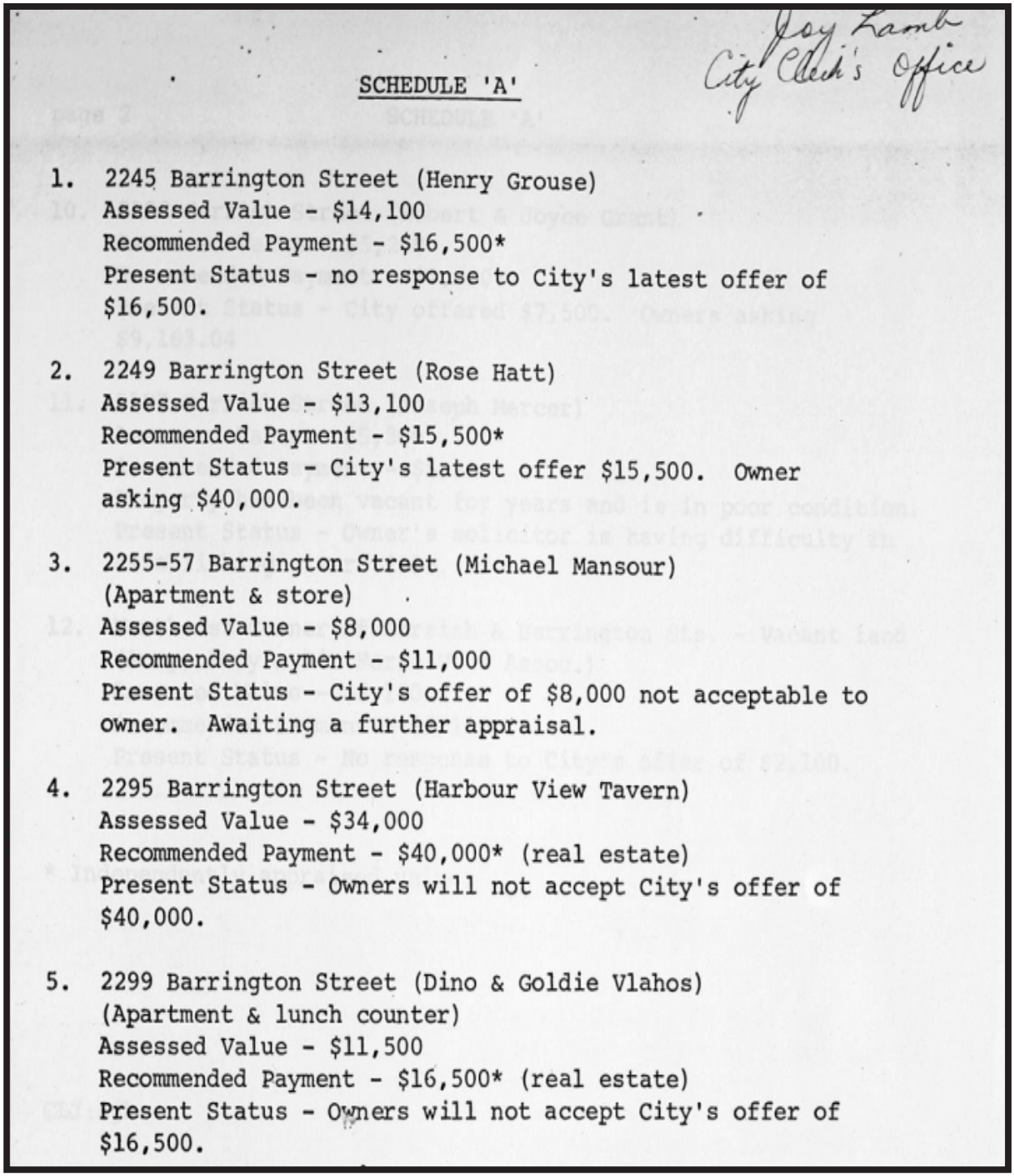


Figure 34: Street closure plan, 1973. Retaining wall highlighted in teal.

(Source: NS Registry of Deeds, 1973. Expropriation Plan #2296, TT-17-20244)

Expropriation of parcels of land and closure of Elevator Court, Gray Street, and Artz Street towards the HMC Dockyard for the expansion of Barrington Street to six traffic lanes. Note that property lines and building footprints do not appear.



Joy Lamb
City Clerk's Office

SCHEDULE 'A'

1. 2245 Barrington Street (Henry Grouse)
Assessed Value - $14,100
Recommended Payment - $16,500*
Present Status - no response to City's latest offer of $16,500.

2. 2249 Barrington Street (Rose Hatt)
Assessed Value - $13,100
Recommended Payment - $15,500*
Present Status - City's latest offer $15,500. Owner asking $40,000.

3. 2255-57 Barrington Street (Michael Mansour)
(Apartment & store)
Assessed Value - $8,000
Recommended Payment - $11,000
Present Status - City's offer of $8,000 not acceptable to owner. Awaiting a further appraisal.

4. 2295 Barrington Street (Harbour View Tavern)
Assessed Value - $34,000
Recommended Payment - $40,000* (real estate)
Present Status - Owners will not accept City's offer of $40,000.

5. 2299 Barrington Street (Dino & Goldie Vlahos)
(Apartment & lunch counter)
Assessed Value - $11,500
Recommended Payment - $16,500* (real estate)
Present Status - Owners will not accept City's offer of $16,500.

Figure 35: List of properties put forward to City Council for expropriation, 1972.
(Source: City of Halifax, 1972 July 27. Schedule #A, Minutes of City Council, p. 353)

Expropriation of properties along the closed streets and on the east side of Barrington Street. Many residents did not like how their community was being dismantled house by house.

Examples of Expropriated Properties Within the Vicinity of the Retaining Walls

T.M. Power & Son Drugstore

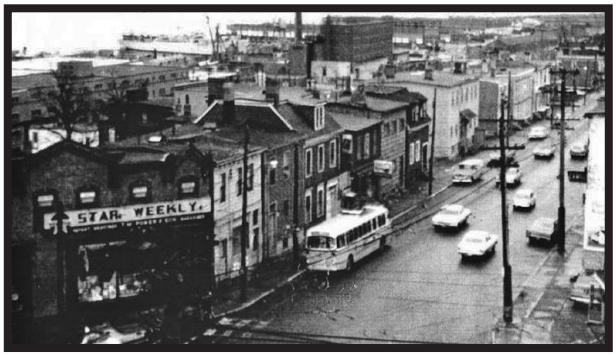


Figure 36: View of Barrington Street, 1960s.
(Source: Bowers, 2014)

Figure 37: T.M. Power and Son, 1969.
(Source: Herzog, 1969)

This was an iconic drugstore located at the corner of Barrington and North Street across from the ICR station. Built in 1897, it had survived the blast from the Halifax Explosion due to its odd triangular shape. Throughout the early 20th century it was locally known for its Mercantile architecture and Star Weekly signboard (Figure 36 & 37) (Forbes Restoration, 2016).

In 1973, the City of Halifax purchased the parcel of land and building for $7,700 from Thomas R. Power and demolished it for the purpose of widening Barrington Street to six lanes, which did not occur (Figure 39) (NS Registry of Deeds, Book 2752: Page 625, 1974).

The interior was salvaged and moved to the Rossignol Cultural Centre museum in Liverpool, NS. It stands as one of the finest existing examples of drugstore decor in Canada (Figure 38) (The Rossignol Cultural Centre, no date given).

Figure 38: Drugstore interior, 2016.
(Source: Forbes Restoration, 2016)

Figure 39: View of Barrington Street and Valour Way, 2016.
(Source: Google, 2016)

The Dwellings of Bedford Court

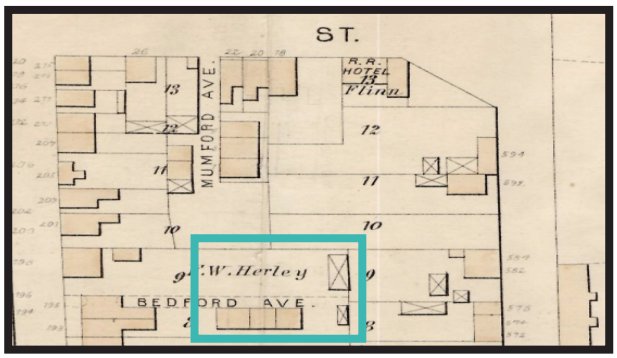


Figure 40: Bedford Court (Avenue), 1878.
(Source: Hopkins, 1878, Plate E.)

Figure 41: 5 Bedford Court, 1962.
(Source: Fisher, 2018)

The retaining wall fence and a HMC *Dockyard building can be seen. At the left side of the photograph is a white dwelling, 2 Bedford Court.*

Bedford Court was a rugged laneway found between North Street and Artz Street. It had existed in some form since 1878 as Bedford Avenue (Figure 40).

Dwellings at civic addresses 2 and 5 Bedford Court were located right next to section A of the concrete retaining wall structure (Figure 4, 41, & 42). According to the 1878 Hopkins Atlas and the 1895 Fire Insurance Map of Halifax, these dwellings may have been built earlier than 1878 (Goad, 1895; Hopkins, 1878). These properties were expropriated by the City of Halifax for the expansion of Barrington Street. The dwelling at 2 Bedford Court was purchased for $6,250 in 1966 (NS Registry of Deeds, Book 2149: Page 455, 1966). The dwelling at 5 Bedford Court was purchased for $239 due to unpaid taxes in 1964 (NS Registry of Deeds, Book 1962: Page 486, 1964).

The dwellings were demolished and a grassy area was left in its place. The retaining wall stands directly below (Figure 43). It is unknown if at the time of the expropriation any consideration was given to any potential archeological resources that may still lie buried in the ground.

Figure 42: Bedford Court (highlighted in teal), early 1960s.
(Source: Fisher, 2018)

Figure 43: Current view of the area.
(Source: Maenza, 2019)

The map feature of Property Online shows updated parcel (PID) information. All parcels located on the east side of Barrington Street were formerly owned and occupied (Figure 46). From the 1960s onward, every parcel was bought, demolished, and left vacant by the city (Figure 44 & 45). Today, that section between the street and HMC Dockyard property line is a grassy fenced-in space (Figure 47). It was used for the creation of the Barrington Street Active Transportation Greenway through the HRM Complete Streets Project. The outline of the retaining wall system is visible when compared to Figure 4.

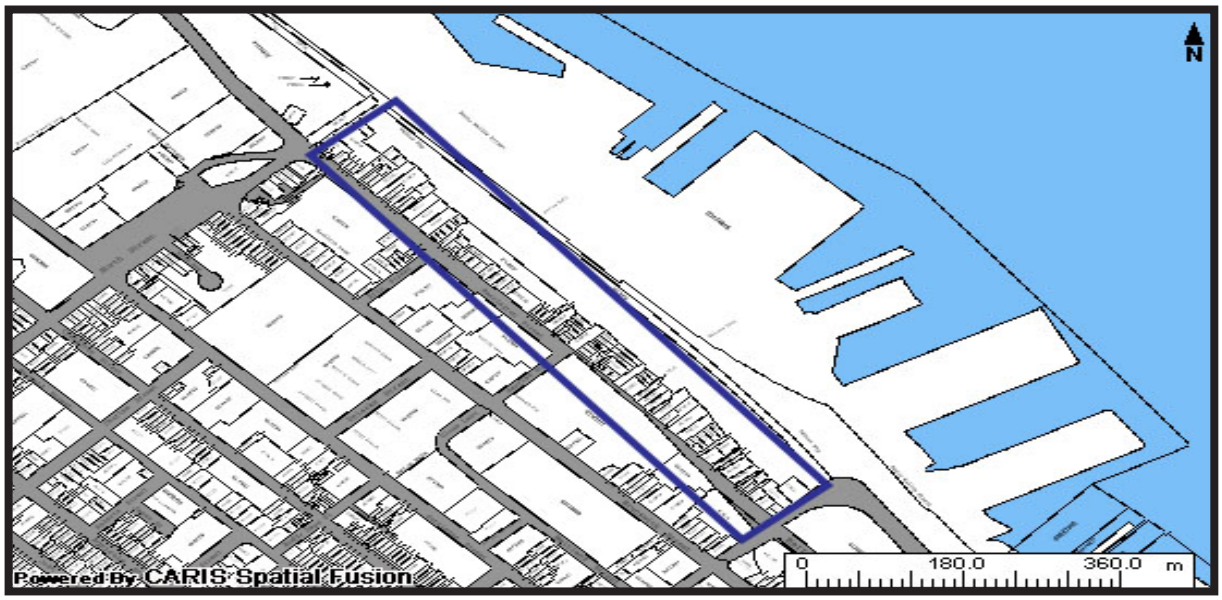


Figure 44: Map of current parcels, 2019.
(Source: NS Registry of Deeds, 2019. Map Extent -- North St. to Cornwallis St.)

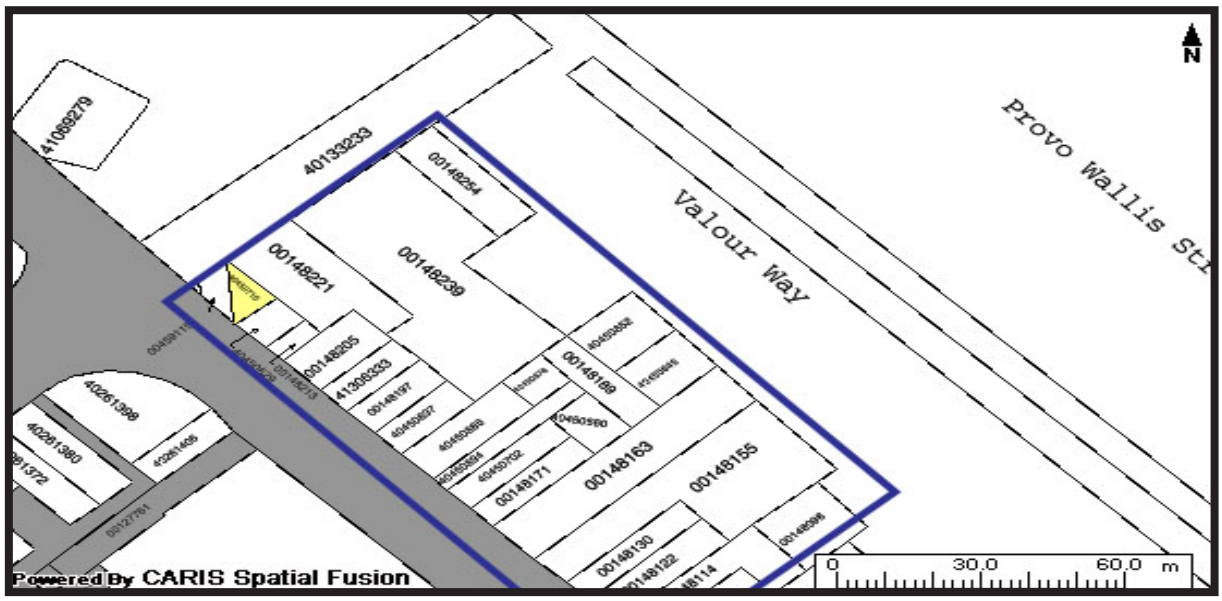


Figure 45: Map of current parcels, 2019.
(Source: NS Registry of Deeds, 2019. Map Extent -- Barrington St. and North St.)

Figure 46: Aerial photograph of Barrington and North Streets, 1958.
(Source: Nova Scotia Information Service, 1958. NSARM, no. NSIS 12298)

Figure 47: Aerial photograph of Barrington and North Streets, 2018.
(Source: Google, 2018-a)

Chronological Timeline

1759

10 years after the founding of Halifax, the HMC Dockyard at Halifax Harbour is established.

1867

The Nova Scotia Railway is purchased by the Dominion Government and consolidated to form the ICR.

1879

The Dominion Government's *National Policy* program is implemented leading to an industrial boom in Halifax.

1909

The ICR freight yard at the Deep Water Terminus is expanded as a retaining wall is built.

1917

The Halifax Explosion destroys much of Richmond as thousands are killed and left injured.

1945

World War II ends and the Halifax Master Plan targets the redevelopment of the downtown core and the North End

1973

Properties are expropriated and streets are closed for the proposed expansion of Barrington St, which along with Harbour Drive ultimately fails.

1854

The Nova Scotia Railway rounds the peninsula and terminates at Richmond Station.

1877

The ICR is extended further into Halifax as a retaining wall is built along Barrington Street and the new North Street Station opens.

1889

The Halifax Graving Dock is constructed, beecoming the largest dry dock in the British Empire.

1914

World War I begins and Halifax is thrown into a thriving wartime economy. Convoys of ships pass through the Narrows.

1918

Thomas Adams and the Halifax Relief Commission begin rebuilding the North End through an ambitious planning scheme.

1965

Plans for the Harbour Drive expressway along the North End waterfront are formalized.

Part 4:

Present & Future Considerations

Retaining the Sea and the Land

Cogswell District Redevelopment

Constructed in the 1960s as part of a future vision called Harbour Drive, the Cogswell Interchange remains as a remnant of one of the most controversial and prominent forms of infrastructure created in Halifax (Figure 48). A long-lasting source of debate and discussion, ideas for the redevelopment of the area surfaced in the late 1990s after a charette was held by the Canadian Association of Planning Students in 1997 (Ekistics, 2013, p. 1). By 2017, the road layout and design elements of the 30% design plan were approved by Regional Council (HRM, 2019-a).

In coordination with HRM Legal Services, and HRM Corporate Real Estate, the team in charge of the Cogswell District redevelopment project has been in negotiations for the acquisition of land. Project partners include Halifax Water, Crombie REIT, and the Department of National Defence (DND) (HRM, 2019-b, p. 3). As identified in the 90% design plan, a roundabout and realignment of Valour Way is to be constructed. As the only roundabout featured in the project, it would serve as the gateway to the downtown core and potentially slow down traffic on Barrington Street. The roundabout would join a newly-realigned Barrington Street, Cornwallis Street, and Valour Way, providing access into the HMC Dockyard naval base (Figure 49, 50, & 51).

To date, negotiations between the HRM and the DND for the lands required to construct the roundabout are ongoing. The HRM staff report notes the difficulty and long amount of time needed to negotiate and solidifying directions with a large and complex organization (HRM, 2019-b, p. 13).

Figure 48: Photograph of the Cogswell Interchange, 2018.
(Source: Krochak, 2018)

Sources for maps on next page:

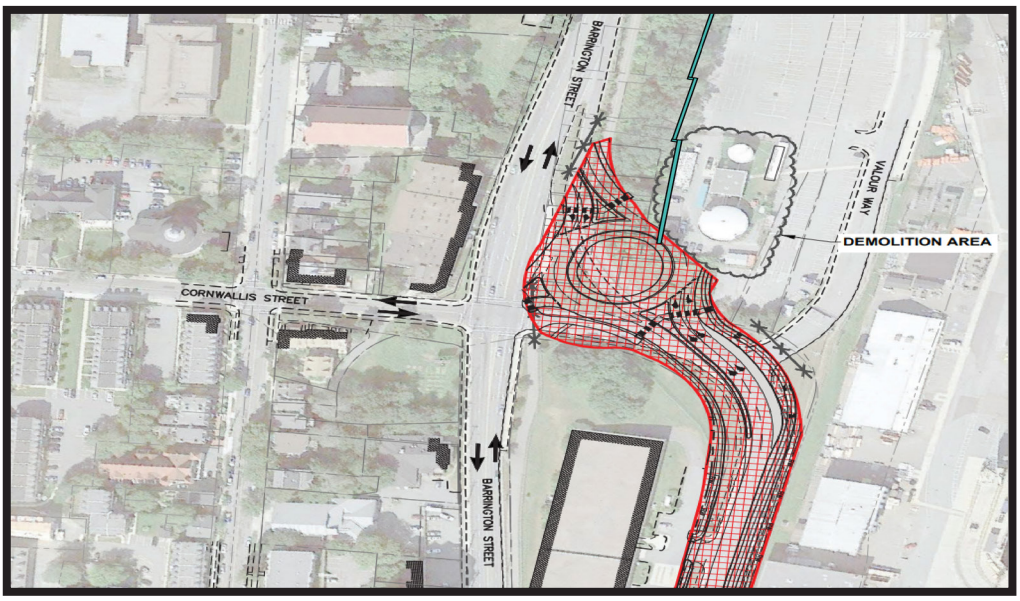
Figure 49: Phase 1
(Source: HRM, 2019-b, p. 33)

Figure 50: Phase 2(Source: HRM, 2019-b, p. 33)

Figure 51: Phase 3
(Source: HRM, 2019-b, p. 33)

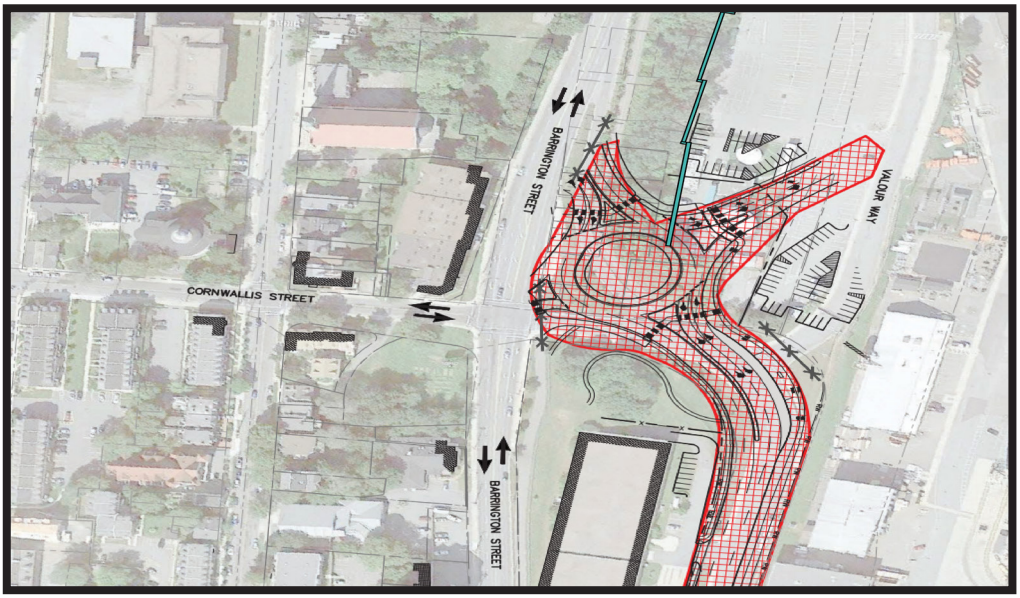
Phase 1: 2020

Beginning in 2020, a section of DND property will be purchased by the HRM and the former DND facilities will be demolished. Construction of the roundabout will commence. Part of the retaining wall structure will be demolished.



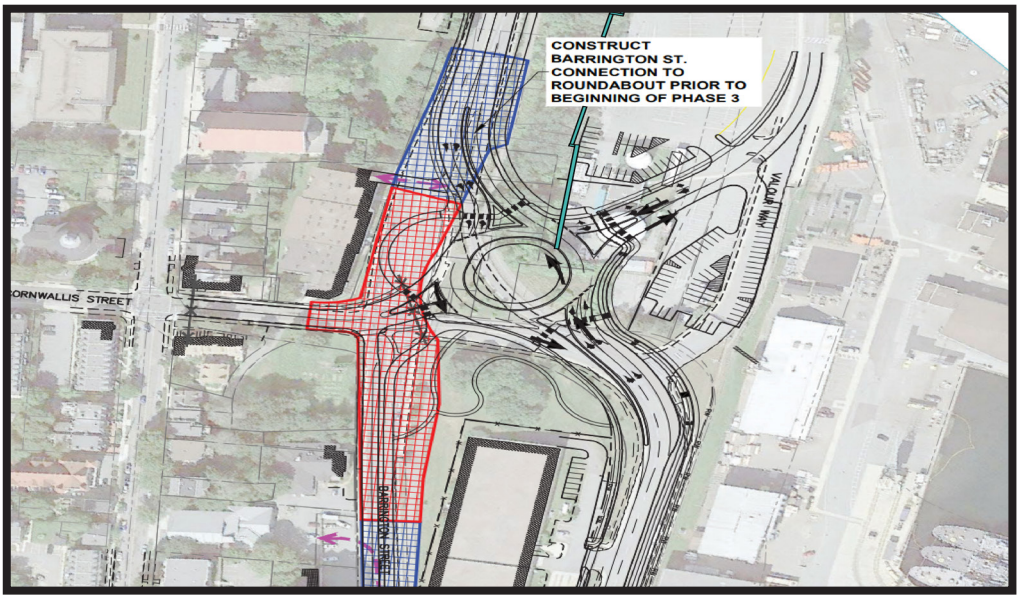
Phase 2: 2020-2021

The extension into the HMC Dockyard through Valour Way will commence as construction on the roundabout continues.



Phase 3: 2021-2022

Barrington Street will be connected to the roundabout as it is re-aligned to the former route that Upper Water Street took through the waterfront. Cornwallis Street will be re-aligned slightly to connect to the roundabout.



The Cogswell District suffers from issues of inactive ground floor uses (surface parking lots) and tough topographical challenges due to a steep slope towards the water's edge. The construction of the roundabout will require a re-grading of the land near the Halifax Water wastewater treatment plant, demolition of properties along Barrington Street and section A of the retaining wall within DND property (Figure 52 & 53).

Figure 52: Aerial photograph of the proposed roundabout site, 2018.
(Source: Google, 2018-b)

Figure 53: Rendering of the roundabout site demonstrating a slight slope on the left side.
(Source: HRM, 2019-b, p. 24)

Sea Level Rise in Halifax

Canada's Changing Climate Report from 2019 notes that the Atlantic Ocean is projected to warm throughout the 21st century in response to the emission of greenhouse gases. As well, coastal areas are expected to experience increased wave activity. With high confidence, the government predicts that the sea level will rise tens of centimetres and extreme high water-level events like hurricanes and storm surges will become for frequent and larger (Natural Resources Canada, 2019, pp. 349-350).

One-in-fifty year storms such as Hurricane Juan in 2003 ravaged Halifax. It uprooted trees, flooded the downtown core, and led to the deaths of eight people. in 2019, Hurricane Dorian likewise had damaging effects on the city's infrastructure and the livelihoods of many residents. These storm events were caused by the Atlantic Ocean being unusually warm for the time of year. By 2100, the warming of the ocean will have continued and the waterfront of Halifax will have changed. The National Oceanic and Atmospheric Administration reports that there is a 90% chance of the sea level rising by at least two metres by 2100 (Benjamin, 2019, pp. 19-20). The influence on tides and sea-level rise should also be considered. In Halifax, the highest tides are often during the winter months of January and February. Mild storms with winds of around 50 km/h can wreak havoc due to the movement of the tides. According to Fisheries and Oceans Canada, the sea-level can swell up to 2 metres in the harbour during those months. If Hurricane Dorian occurred at high tide, then the effects could have been catastrophic (Benjamin, 2019, pp. 19-20).

Local research undertaken by the Bedford Institute of Oceanography has shown that the sea level has risen 3.3mm/year since the 1920s in Halifax. This number arrived by the coincidence of two factors. One: the sea-level rising by 1.6-1.7 mm per year. Two: the land sinking 1.6 mm per year. The remnants of deglaciation and rising sea-levels plays out in the constant coastal erosion that occurs in the city and surrounding area (Campbell, 2018).

The Applied Research Geomatics Group (APRG) at NSCC has been working for over a decade on creating high-quality flood risk maps for communities throughout Nova Scotia. In the case of the HRM, the group has been using LIDAR 1-2 metre elevation imagery to assess which areas of the city are at high risk. They have produced a series of maps that display data on sea-level rise at different floodlevels and a tsunami map (Figure 54 & 55). In correspondence with Dr. Boxall, it was noted that the impacts of the massing of buildings and the way the retaining walls may refract and push water away has not been fully explored through the modelling used by the APRG (Boxall, personal communication, 2019).

The maps on the following page demonstrate the differences in sea-level rise at 5 metres and 12 metres. The map extent is focused on the retaining wall section between Cornwallis Street and Valour Way (section A). The outline of the concrete and rock walls are very visible at 12 metres. Streets outlined in red have been submerged.

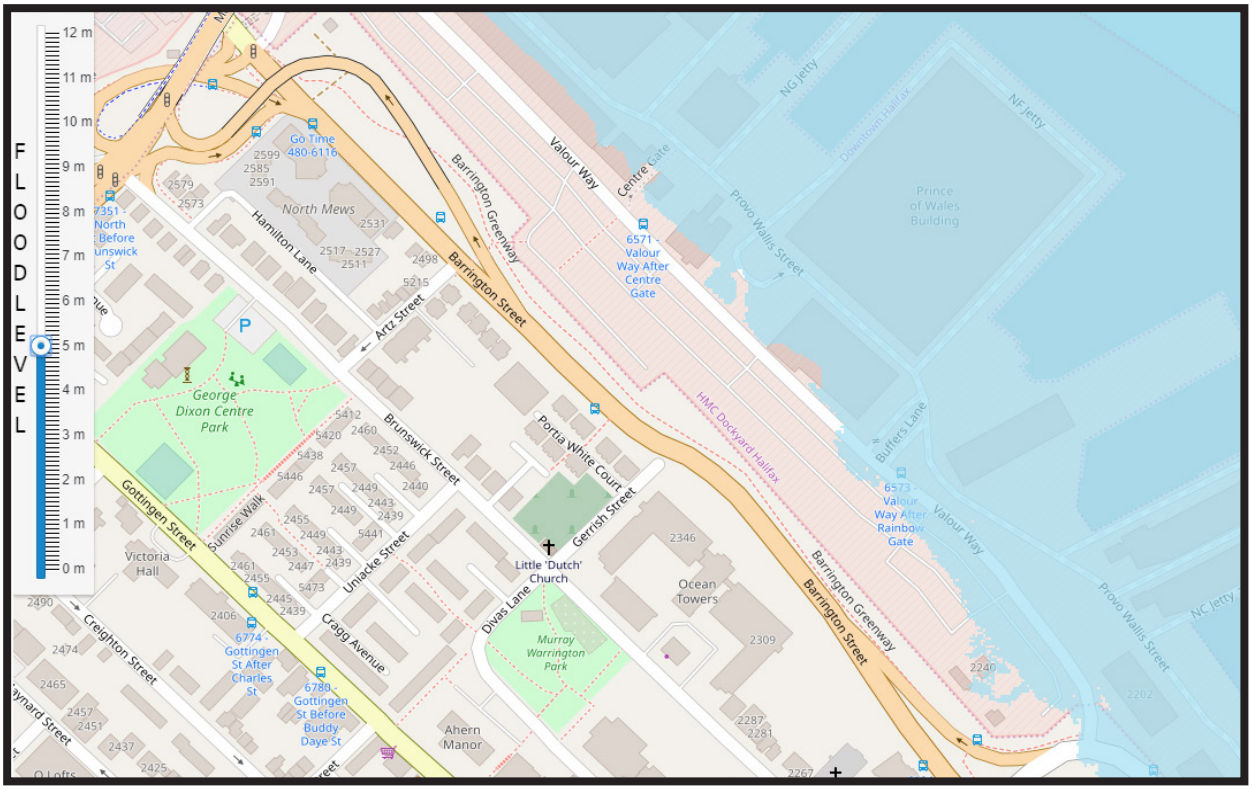


Figure 54: Sea level rise at 5 metres on section A of the retaining wall system, 2019. (Source: Applied Geomatics Research Group, 2019. Maritime Coastal Flood Risk Map. NSCC)

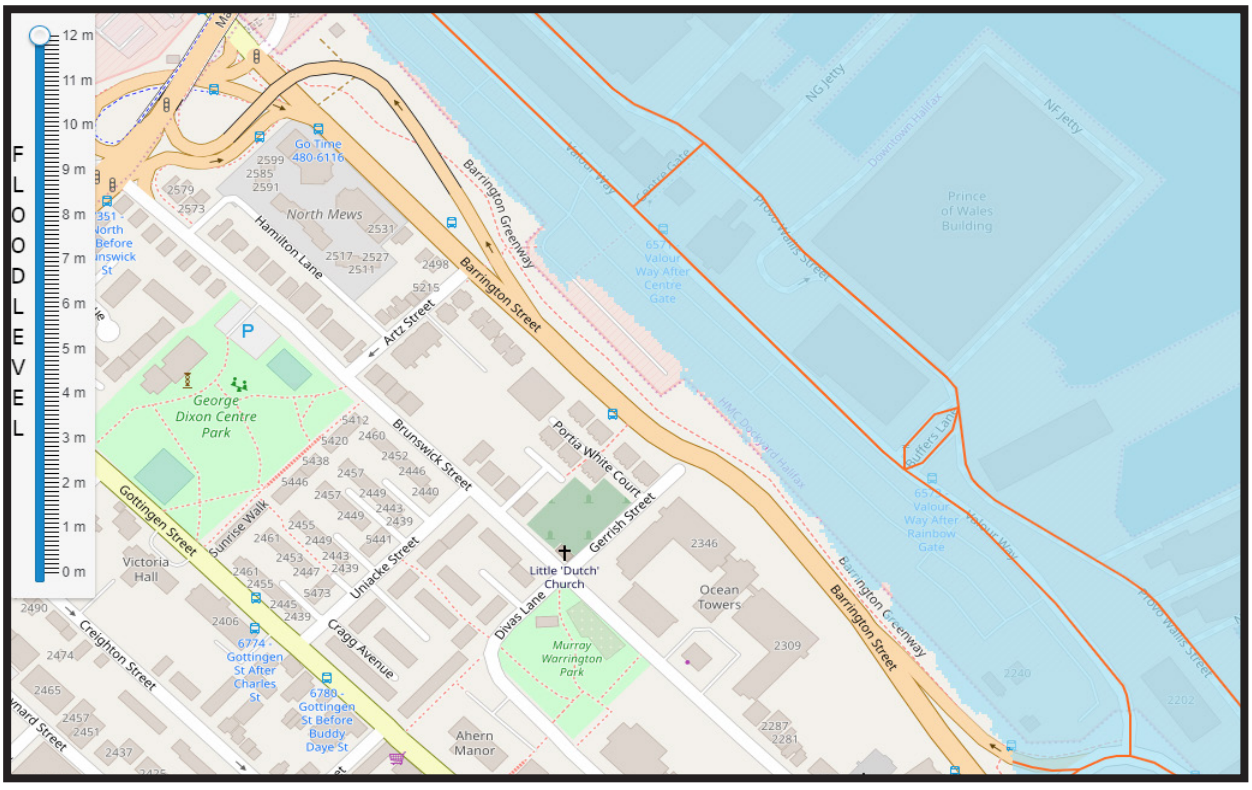


Figure 55: Sea level rise at 12 metres on section A of the retaining wall system, 2019. (Source: Applied Geomatics Research Group, 2019. Maritime Coastal Flood Risk Map. NSCC)

The Impacts of Tsunami

A tsunami is an ocean wave caused by the sudden displacement of water. It can be caused by a large earthquake, or something plunging into the water such as a glacier or landslide. Impacts from meteorities and explosions can also cause tsunami. The name 'tsunami' comes from Japanese meaning 'harbour wave'. Not just confined to harbours, they can occur around any coastal indentation (Ruffman, 2005).

Unlike the Pacific and Indian Oceans, the Atlantic Ocean cannot support or propagate tsunami due to seismic and physiographical factors. However, the 1917 Halifax Explosion is one of the few instances where a devastating tsunami was created on the East Coast of Canada. Although accounts of the tsunami do not dominate discussions of the explosion, it has been mentioned in various first and second-hand sources including Hugh MacLellan's novel *Barometer Rising*. Presumably, specific documentation of the tsunami would not have been possible as survivors would have sought to avoid shrapnel, assist the injured, or search out for missing relatives, but first-hand accounts do indeed exist. (Ruffman, et al, 1994, pp. 327, 336).

Survivors' Accounts of the 1917 Halifax Explosion

Dwight Johnstone in his 1919 manuscript stated, "*180 men perished at the drydock from drowning...for a tidal wave rushed along the harbour front and flung tons of water. It also went forty feet beyond the tracks of the C.G.R. and carried off loaded freight cars*"

Samuel Henry Prince in his 1920 PhD thesis, said, "*It was a flood, for the sea rushed forward in a gigantic tidal wave, fully a fathom in depth. It swept past pier and embankment into the lower streets, and receeding, left boats and wreckage high and dry, but carried to a watery doom score upon score of human lives*"

In *Barometer Rising*, MacLellan wrote, "*It boiled over the shores and climbed the hill, as far as the third cross-street*"

Stanley K. Smith of the Saint John Daily Telegraph wrote, "*Survivors of the explosion say that the crest of the wave swept across Campbell Road, more than six metres above the level of the harbour, caught some firemen...and carried them back across the hill to a watery grave*"

(Ruffman et al, 1994, p. 337)

Some accounts suggest that the tsunami and the run-up flowed up Roome Street, flowed over the intersection of Barrington and Duffus Streets and into a flooded basement at the corner, a difference of eighteen metres (sixty feet) above sea level (Source: Ruffman, et al, 1994, pp. 337, 340, 469). Ruffman's model indicates that the localized tsunami that impacted Halifax in 1917 was around 14 metres tall near the site of Pier 6 and the Irving Assembly Hall which is where section C of the retaining wall system lies (Figure 56). The APRG tsunami map illustrates the impacts of a fourteen metre wave (consistent with the Halifax Explosion), on contemporary Halifax. Although the shipbuilding facilities and military dockyard would be destroyed, the massive concrete and stone retaining walls could potentially hold back much of the water from such a large wave (Figure 57).

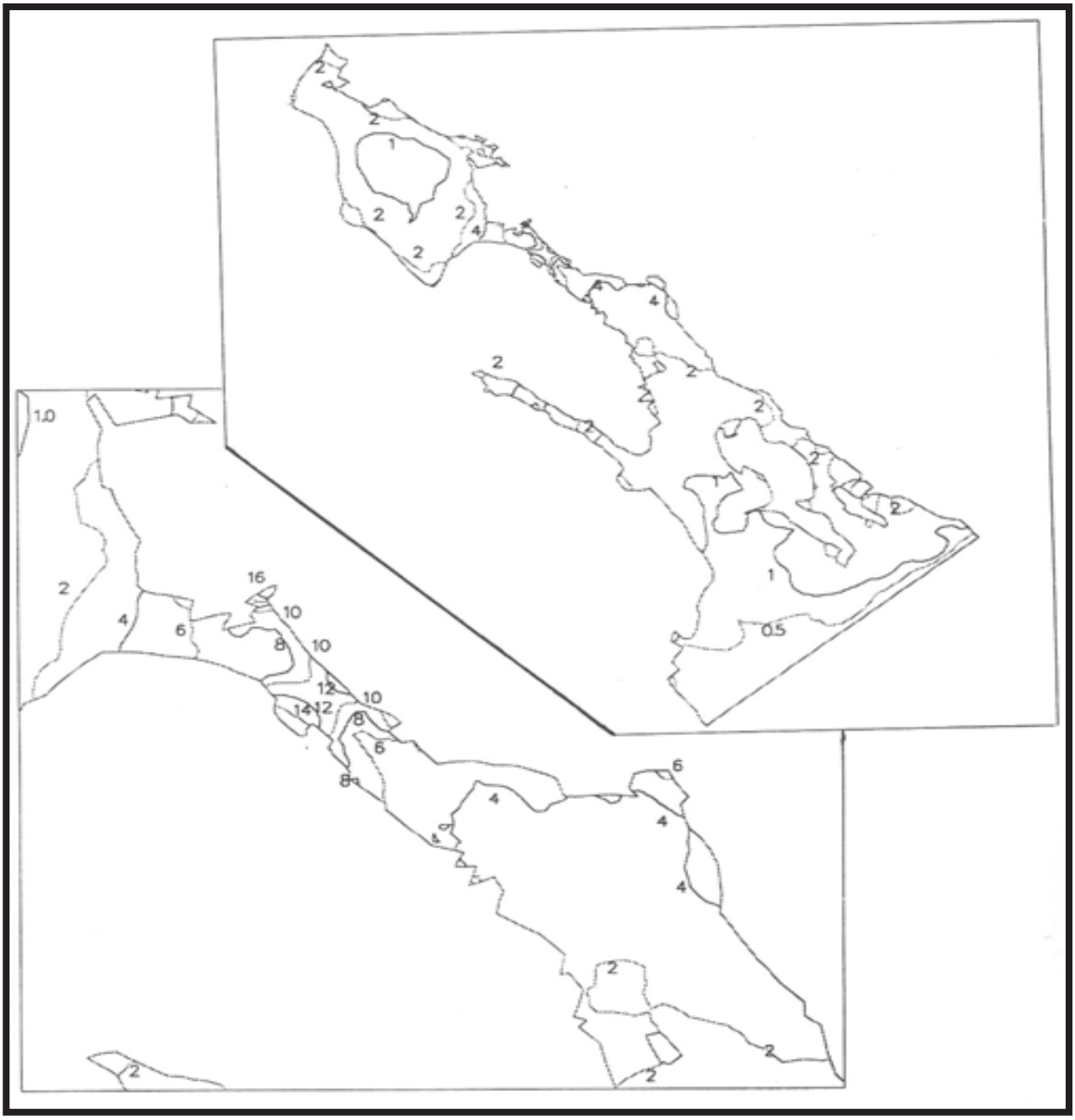


Figure 56: Numerical model of the 1917 tsunami.

(Source: Ruffman, et al. 1994. Maximum rise in metres of the tsunami, p. 334)

Contours in metres displaying the maximum rise in water level predicted for the tsunami over the entire harbour and in Bedford Basin. The detail of the Narrows is shown at the lower left. The area adjacent to the Richmond wharves and the Halifax Graving Dock was hit the hardest. A fourteen metre tsunami would have moved up the slope of Needham Hill destroying everything in its path.

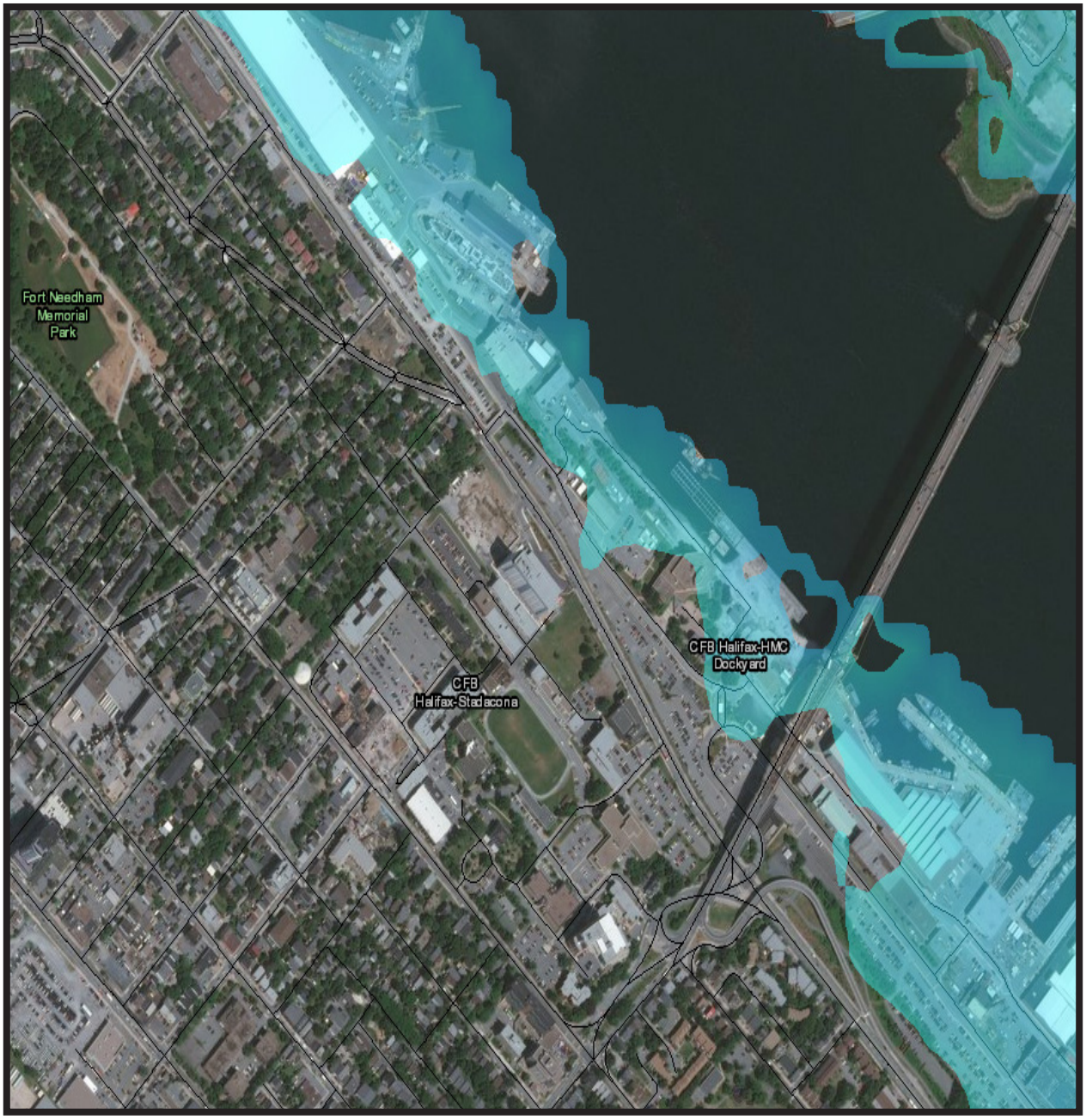


Figure 57: Tsunami Map. 2019.
(Source: Applied Geomatics Research Group, 2019. Tsunami Map. NSCC)

This map from the Applied Geomatics Research Group shows the impacts of a fourteen metre wave (consistent with the Halifax Explosion), on contemporary Halifax. Although the shipbuilding facilities and military dockyard would be destroyed, the massive concrete and stone retaining walls could potentially hold back much of the water from such a large wave. The 800-metre long Barrington Street Active Transportation Greenway might act as a buffer zone. Perhaps the run-up would only reach Barrington Street and not proceed farther upslope, as was the case in 1917.

Mitigation Strategies Within the Vicinity of the Walls

In 2014, the federal government established the Natural Disaster Mitigation Program (NDMP) as part of a commitment to build safer and more resilient communities through projects that address flood risk (HRM, 2018, p. 2). The municipality has an inventory of 700 sites that were identified as flood-prone or having drainage issues. Thirty of those sites were identified as key areas at risk of flooding and only site within the prioritization matrix was located near the vicinity of the retaining walls, the HMC Dockyard, or Irving Shipyard (HRM, 2018, pp. 4, 33).

While these sites have proven to be flood-prone under recent storm events, it is noted that many of the engineered stormwater systems built over the last 50 years have never been tested by an event greater than what they were designed for. As the intensity, duration, and frequency of precipitation and runoff increases with the advancement of climate change, the potential for the failure of many of these systems will increase. This may result in high risks for public safety and for property. Flooding at these sites is due to the limited ability for existing stormwater systems to collect and convey peak flows of water runoff. In many cases, the drainage systems may be designed for a maximum amount of runoff from a 2-year or 5-year storm event. Excess flows of water then are discharged onto the streets or through natural channels.

The mitigation of these local systems is through the completion of a proper hydrologic and hydraulic drainage study to consider the ways water interacts as it moves in all directions, increases amplitude or velocity, and the construction of improvements to infrastructure such as culverts (HRM, 2018, p. 65).

One of the sites identified, Karlson's Wharf, is part of DND property, located adjacent to Casino Nova Scotia. HRM officials in infrastructure policy have identified that 3.8 metres is the minimum elevation above sea level that roads and buildings within the Cogswell Redevelopment should follow (Berman, 2018). Within HRM's 2020/2021 Capital Budget, $600,000 has been put towards flood mitigation measures on Barrington Street and Upper Water Street (HRM, 2019-b, p. 3). Specifically, Barrington Street near the DND property would have to be raised by one metre to meet the minimum elevation required. Questions should be asked in consideration of potential high-tide storm surges not just this year, within the next ten years, but within the next century. By 2100, it is possible that intense rainfall and storm surge events may reach a threshold above the current 3.8 metre figure.

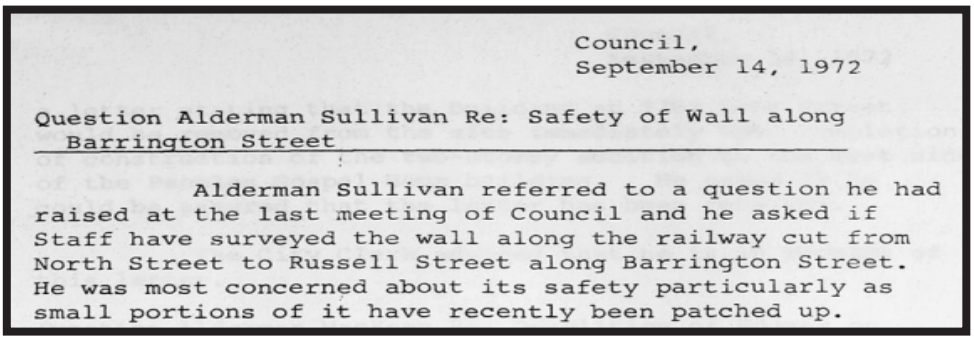
Retaining Wall Reconstruction and Repair

The Department of National Defence (DND) owns the retaining wall section between North Street and the Niobe Gate Bridge (section B). As previously discussed, it originally was a masonry ironstone retaining wall that supported the roadbed of Barrington Street from its construction in the 1870s. It has been repaired over the last one-hundred years as large concrete blocks have come to be layered over section of the original wall (Figure 58 & 59).

Figure 58: Photograph of the masonry retaining wall below Barrington Street, 1960s.
(Source: Halifax Police Department, early 1960s. HRM Archives, No. 102-16N-0039.4)
View of the masonry retaining wall within the Halifax Dockyard during the early 1960s. It had been patched with blocks of concrete in some areas but maintained the look it had in the 1870s.

Figure 59: Photograph of the new retaining wall structure, 2019.
(Source: Maenza, 2019)
View of the concrete retaining wall within the Halifax Dockyard. It has been patched with concrete and buffered out into a pair of terraced walls. The masonry wall lies behind the new concrete wall. Note the loss of the railway tracks in the 1980s replaced with a parking lot.

According to archived Minutes of City Council, between 1972 and 1974, there were concerns over the structural integrity of the retaining wall. Sections of the retaining wall were patched over and repaired (Figure 60). In 1974, the retaining wall underwent vital repairs as it had collapsed twice. The weight of heavy vehicles on Barrington Street caused the deterioration of the walls and it was considered to be an issue of public safety. It was at this time where Aldermen Sullivan and Conolly questioned the relationship between the City of Halifax and the Canadian National Railways. They asked if a mechanism within the by-laws existed which would allow for the completion of repair work on the city's behalf, with a bill to be sent to the regional offices of the CNR in Moncton (City of Halifax, 1974, p. 373).



Council,
September 14, 1972

Question Alderman Sullivan Re: Safety of Wall along Barrington Street

Alderman Sullivan referred to a question he had raised at the last meeting of Council and he asked if Staff have surveyed the wall along the railway cut from North Street to Russell Street along Barrington Street. He was most concerned about its safety particularly as small portions of it have recently been patched up.

Figure 60: Minutes of City Council referring to the retaining wall on Barrington Street, 1972.
(Source: City of Halifax, 1972 September 14. Minutes of City Council, p. 423)

Over the last ten years, the DND sought to reconstruct and stabilize that section of wall. In order to do this, several agreements and assessments between the HRM, the Canadian Environmental Assessment Agency, and the DND were signed. In 2009, the DND determined that it neeeded an environmental assessment to be completed in relation to its plans to reconstruct and stabilize the retaining wall. As noted in the project description, the work involved the construction of 290 metres of a new reinforced concrete retaining wall within the HMC Dockyard parking lot, adjacent to Barrington Street. Standing 6.5 metres tall, it was built directly in front of the old deteriorating masonry wall. One metre of excavation was required to construct the new concrete footings and to install a drain behind the wall. Around 1,750 cubic metres of acid-generating pyritic slate was encapsulated behind the new wall so that water run-off would not contaminate the area. The new section of the retainng wall was built between 2016 and 2017 by Alva Construction Ltd, a contractor from Antigonish, N.S. (Figure 61) (Alva Construction Ltd, n.d; Canadian Environmental Assessment Agency, 2012; Global News, 2017).

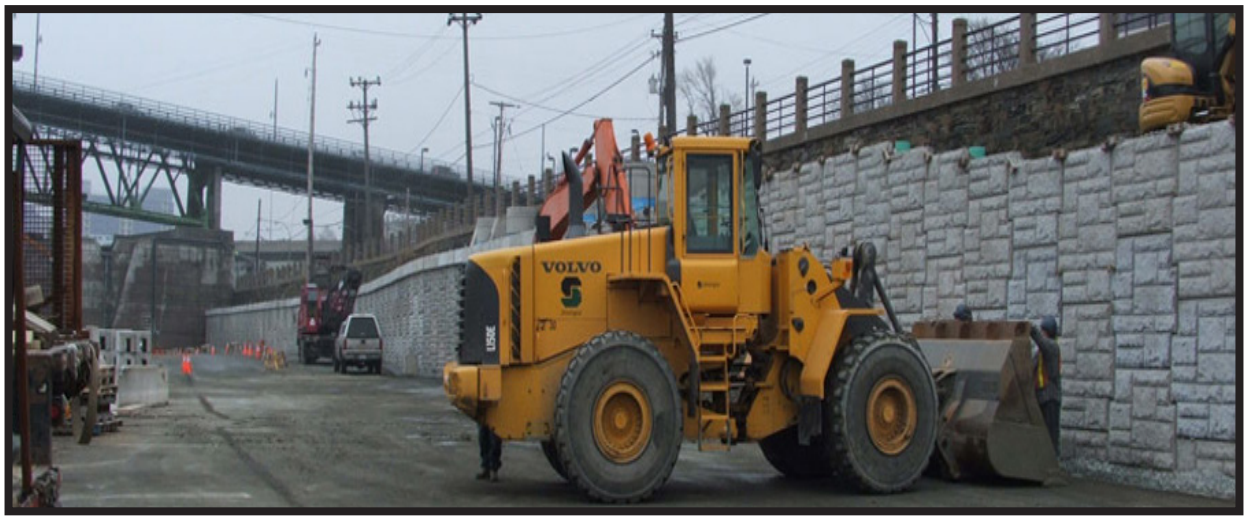


Figure 61: Photograph of the construction of the new retaining wall, 2016-2017. *Construction of the new retaining wall in front of the old masonry wall from the 1870s. The rock bolts and pre-cut concrete blocks are visible. Where the current barrier lies, a concrete cap was fastened to the old masonry wall.*
(Source: Alva Construction Ltd, n.d.)

Figure 62: Photograph of wall, 2019.
(Source: Maenza, 2019)

Figure 63: Photograph of wall, early 1960s.
(Source: Halifax Police Department, early 1960s. HRM Archives, No. 102-16N-0039.4)

As around 290 metres of new retaining wall had been constructed, not all of the 1870s masonry wall has been covered over. One section still exists visible to the eye and open to the impacts of the weather (Figure 62 & 63).

Under Section 3 of the HRM By-law E-200, Respecting Encroachments Upon, Under or Over a Street, no person can construct or maintain a structure on a sidewalk or municipal right-of-way without approval from Regional Council. As the retaining wall required stabilization and reinforcement, 100 rock bolts were drilled into the rock, five to seven metres below the sidewalk (HRM, 2016).

The old iron handrails of the retaining wall were originally from 1876 (Figure 11 & 23). Beautifully constructed, they had survived the impact of the Halifax Explosion in 1917 (Figure 64). The handrails began to deteriorate in the 1960s and 1970s, as did much of the masonry wall (Figure 65). They were one of the last remnants of the North Street ICR Station. The handrails were removed in the 1980s and replaced with stronger and safer, more utilitarian handrails with a concrete cap at the bottom of the handrails (Figure 66). With the expansion of the sidewalk as part of the Barrington St. Complete Streets Project and the construction of the new retaining wall along side the old one, the handrails were removed between 2017 and 2019 and a chain-link fence with a concrete barrier was installed (Figure 67).

Figure 64: Handrails of the wall, 1917.
(Source: Notman Studio, 1917, Nova Scotia Archives, no. 1983-310, No. 41)

Figure 65: Deteriorating handrails, 1975.
(Source: Archibald, 2016. Halifax Bloggers)

Figure 66: Handrails of the wall installed in the 1980s.
(Source: Google, 2015)

Figure 67: With the construction of the new retaining wall, the handrails were removed.
(Source: Maenza, 2019)

Under Section 74 of the Halifax Regional Municipality Charter, agreements can be made between the municipality and the provincial or federal government regarding the provision or funding of municipal services (Legislature of Nova Scotia, 2008). A Contribution Agreement was signed between the two parties on March 31, 2019.

The Department of National Defence administers a funding program called the Capital Assistance Program, which provides funding to local authorities who operate and maintain infrastructure that benefits both the public and the DND. It allows the DND to divest from non-core infrastructure and improve quality of life for civilians and military personnel while reducing maintenance and operating costs. Contributions through the Capital Assistance Program are made to improve or construct new infrastructure including roads and sidewalks.

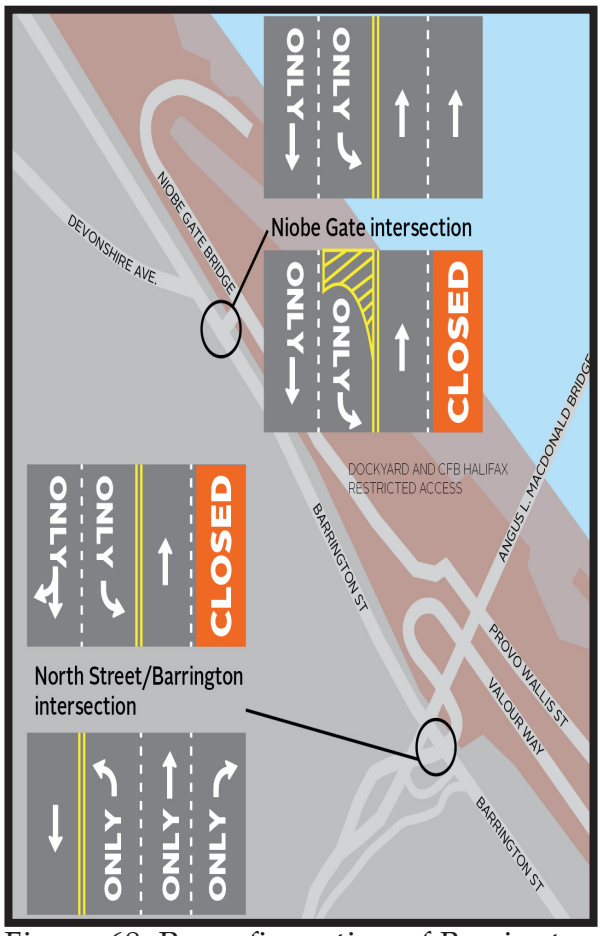


Figure 68: Reconfiguration of Barrington Street, 2018.
(Source: HRM, 2018).

A construction cost estimate completed during the preliminary design of this project estimated the construction costs at a total of $882,360. This money was to be put solely towards the design and construction management of the development of the Barrington Street Complete Streets Project, a multi-modal active and public transit initiative under the Integrated Mobility Plan (IMP) (HRM, 2019-c).

The 2014-19 Halifax Active Transportation Priorities Plan and the IMP identified that the only feasible option to have a multi-use trail on Barrington Street between North Street and Devonshire Avenue was to reduce the number of traffic lanes from four to three and widen one of the sidewalks. Simultaneously, the only way construction equipment and traffic barriers could be erected for the repair of the retaining wall was through the same traffic lane reduction (Figure 68) (HRM, 2019-c).

Recommendations

- DND and HRM must ensure that all sections of the retaining wall are properly strengthened through the addition of rock bolts and structural reinforcement. Despite the work already completed, sections of the retaining wall system have exposed stone fragments. At least one part of the old ironstone masonry wall in section B remains intact having not been altered through the construction of a new wall. It remains as one of the last relics of Richmond, having withstood the impacts of the Halifax Explosion.

Figure 69: Photograph of a section of the 1870s ironstone wall still intact. (Source: Maenza, 2019)

- A hydrological model of tidal surges that includes the effects of water on the buildings in front of the walls and the impacts to the walls should be created as one part of a comprehensive study on flood risk in Halifax.

- As the Barrington Street Greenway and the fenced-in area is owned by HRM, it would be interesting to see if any potential archeological resources are found in the sites of expropriated properties and to document the histories of residents that lived there. Hundreds of people were displaced during the urban renewal period in the 1960s and 1970s. Side streets and alleyways within the vicinity of the retaining walls such as Bedford Court, Elevator Court, Grays' Lane, Artz Street, and Gerrish Street are examples of Halifax that are now lost in time. Collecting and interpreting that information would go a long way in piecing together built-form and social histories.

Concluding Remarks

If only those walls could talk, what would they say? They would have stories about thundering machines, and families living their day-to-day lives. They would have stories of a community that could not boast of wealth nor complain about poverty. They would have stories of ingenuity and industry, and of sorrow and tragedy.

History lives on, even when it is not recognized by everyone. The retaining wall system served its primary purpose as a crucial piece of structural engineering for the railway in Halifax. Over the course of a century, parts of the walls have survived intact while other parts have changed due to structural issues or just the passage of time. Now that the passenger stations and railway yards are gone, the purpose of the retaining wall system has changed. Over time, it has been a part of the development, destruction, and rebuilding of what was once known as Richmond into the North End as it is today.

The passage of time is reflected in the changes seen on the walls themselves. The cracks, chips, and discolourations all add a patchwork texture that reflects the vibrancy of a community that always worked hard. The removal of concrete and stone from one era and the addition from another demonstrates the complex changes and layering of the wall over the years. Each layer tells a story and the stories imbedded within serve as a record of the community. Towards the future, new layers may be added and the story of the walls shall continue.

Part 5: References

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