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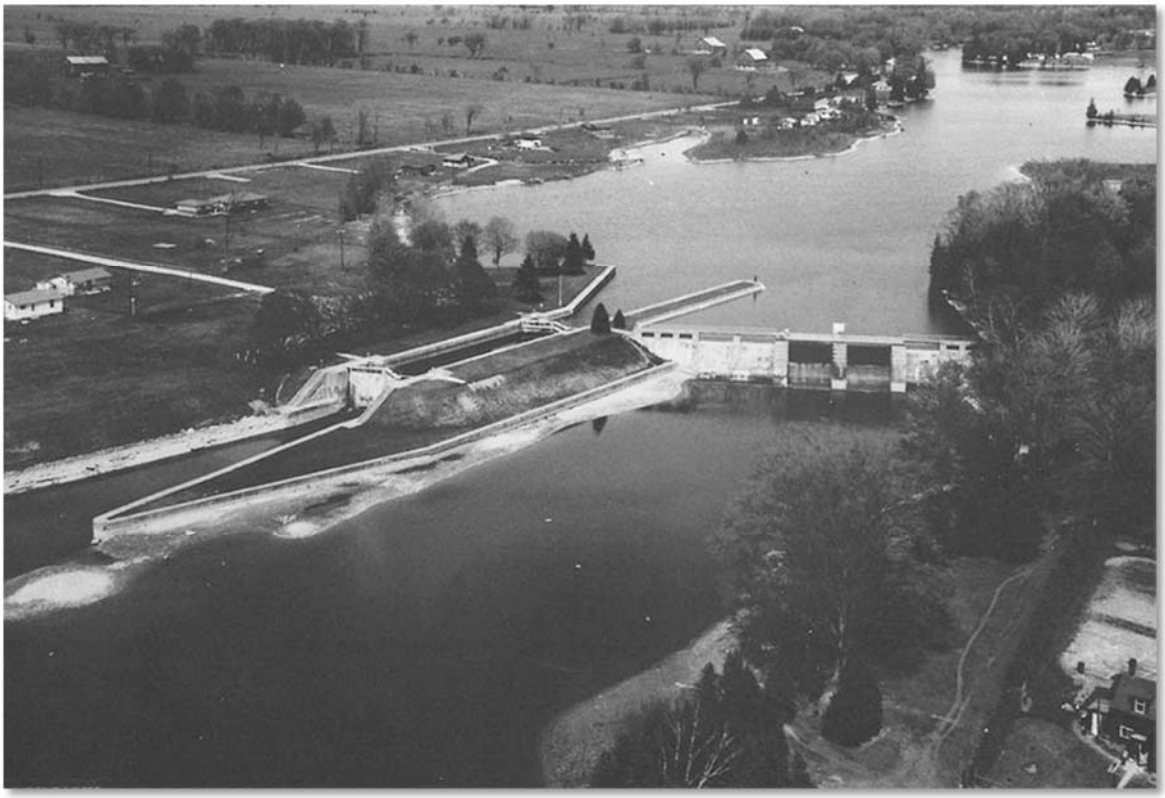
Trent-Severn Waterway NHSC
Ontario

Cultural Landscape Value Assessment 2016-2017



Date: August 2017
Project Number: R.083072.027
Team Leader: Marie-Claude Quessy

Cover Image: Birds Eye View of Talbot. [Parks Canada, No Date]

This *draft* report titled:

Trent-Severn Waterway NHSC
Cultural Landscape Value Assessment
2016-2017

Prepared for:
Parks Canada Agency

Prepared by:
Heritage Conservation Services
Public Services and Procurement Canada

Date: August 2017

HCS Project Number: R.083072.027

has been reviewed by the following HCS Team Members in accordance with the following criteria:

Team Leader - I confirm that: • This document addresses the scope of work as outlined in our formal agreement with the Client; and, • The work has been carried out in such a way as to ensure accuracy of findings, results and/or recommendations.	*Marie-Claude Quessy* *Month ##, 2017*
Quality Reviewer - I have reviewed this document myself or in conjunction with colleagues to ensure: • Clarity of message and content including language, drawings and/or illustrations; and • That appropriate technical and conservation advice and/or recommendations are made.	*John Zvonar* *Month ##, 2017*
Publishing Coordinator - I have reviewed this document to ensure that: • The most up-to-date template has been used and that the content is formatted as per office standards; and, • That images, illustrations and appendices are all clearly organized and identified.	*Jody Scully* *Month ##, 2017*
Program Manager - I confirm that: • These deliverables have been prepared and reviewed in accordance with HCS's internal Quality Management System.	*Marie-Claude Quessy* *Month ##, 2017*

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1.0 INTRODUCTION

The Trent-Severn Waterway was initially constructed to facilitate a bypass to the southern Great Lakes system in moving timber to Montreal. Ultimately, this inland water transportation system would facilitate local resource extraction, colonial settlement and in the end, recreation. Now a 386 km long route that connects Simcoe Lake to the Bay of Quinte, the Trent-Severn Waterway includes 44 locks and 42 lock stations. The approximate one way trip through this series of locks is five to seven days.

This preliminary assessment of eight (8) various historic landscapes of lock, dam and bridge sites within the Trent-Severn Waterway system has been prepared in a chronological order of site construction which demonstrates the evolution of the Trent-Severn system over the course of its development. This evolution is evident in the construction practices which had advanced from the use of limestone masonry locks to the use of concrete.

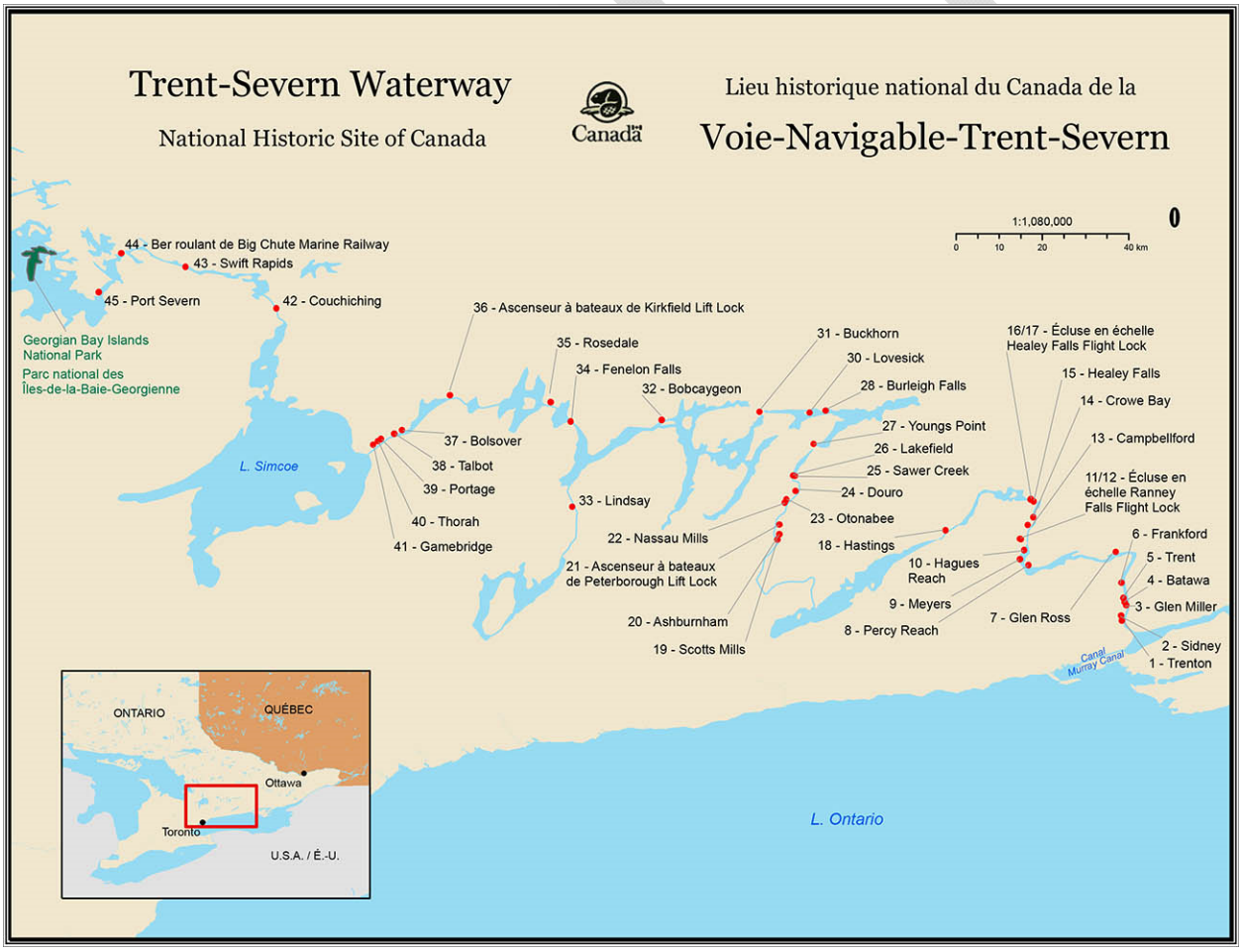

Figure1: Trent-Severn Waterway NHSC. [Parks Canada, No Date]

As the waterway system was primarily built by local initiative, the progression was not linear. This means it did not start at Trenton and move its way northwards to Lake Simcoe. Instead, expansion was realized by joining lakes in sections through the construction of many lock and dam sites in divisions.

As such, the following eight sites are representative of two key construction periods of the system and are located within the following districts:

1833 to 1841: The first development phase is characterized as the colonial period and includes the construction of the first lock and dams of the system, including Scott's Mills in Peterborough.

1896 to 1911: This phase is characterized by the use of concrete lock and dam sites being constructed along the Otonabee River which connected Peterborough to Lakefield. Others sites would link Lake Simcoe to Balsam Lake and along the Trent River which connected Lake Ontario to Rice Lake.

The result of the lock and dam sites being constructed during the same time period has established a recognizable pattern in the spatial organization and the use of the same built elements. These recognizable site features provide a legibility to the evolution of the system and as such, embody an interpretive value that should be maintained and protected. Recognizing the relationship of the lock and dam sites to one another, albeit several kilometers away, will assist in planning for future compatible interventions that may occur.

Identification of these relationships requires an understanding of the unique character of the individual lock and dam sites and their function as a collective whole. The early day-to-day management of the locks has impacted the landscape treatment. During the colonial period, many locks would fall under the care of local farmers who would maintain and facilitate the locks as needed.[1] This would require an approaching watercraft to ring a bell or shout for assistance. Later, each lock would have a lockmaster's residence which would include accessory buildings such as a shed, ice house and garage. Today, the relationship of the lockmaster and the lock site has been altered, allowing for the interpretation of and understanding of these features would enhance the visitor experience to these sites.

Additionally, an understanding of the lock as a working complex provides insight into the location in which it has been constructed. A lock has been carefully situated along a watercourse where a dam is constructed to hold sufficient water to allow for access to the lock and to exit. This allows a vessel to navigate an elevation change in the watercourse. The lock is a box-like structure with gates at each end and valves or sluices that allow the box to be filled or drained of water when the gates are shut. When the upper valves are open, the lower valves are closed, and the lock fills

[1] Daniel Francis, *I remember... An Oral History of the Trent-Severn Waterway*.(Peterborough: Friends of the Peterborough Waterway, 1984), p. 19.

to the level of the upper reach. The valves are then closed and the gates leading into the upper reach opened, permitting boat entry into the lock chamber. The upper gates are then closed and the lower gates opened, allowing the water to drain to the level of the lower reach and, when drained, opened to let the boat proceed on its way. The difference between the upper and lower levels determines the lock's 'lift'. [2]

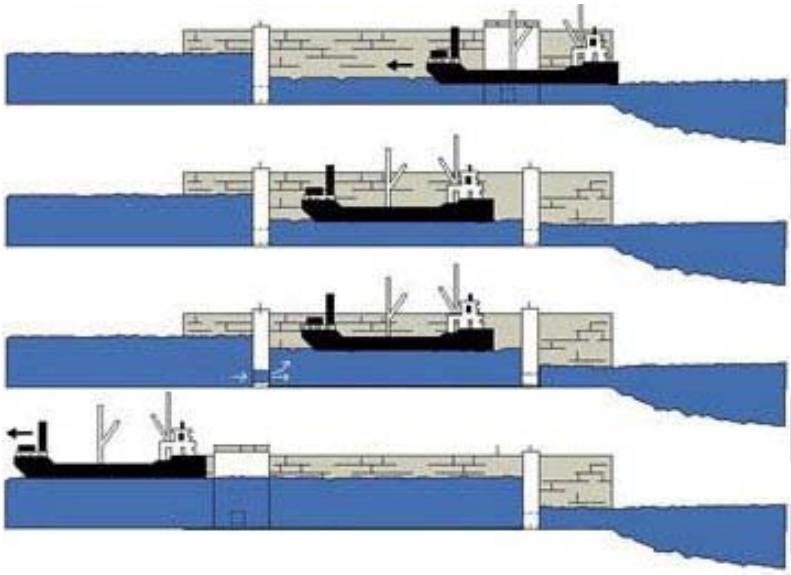

Figure 2: How conventional locks work. [Parks Canada, No Date]

The following preliminary site assessment identify the character defining elements through historic research and site assessment which provide a comprehensive understanding of the historic landscape to move forward with the a planning process for intervention.

1.1 Mandate / Background

The Heritage Conservation Services (HCS), Technical Services, RPB, has been requested by the Cultural Heritage Policies Branch of Parks Canada to complete a preliminary assessment of various historic landscapes of eight (8) identified lock, dam and bridge sites along the Trent-Severn Waterway NHSC including: Trenton lock no.1; Scott's Mills lock no. 19; Nassau Mills lock no.22; Otonabee lock no. 23; Douro lock no.24; Sawyer Creek lock no. 25; Burleigh Falls lock no. 28; Talbot lock no.38 and Boundary Road Bridge no. 44.

[2] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 14.

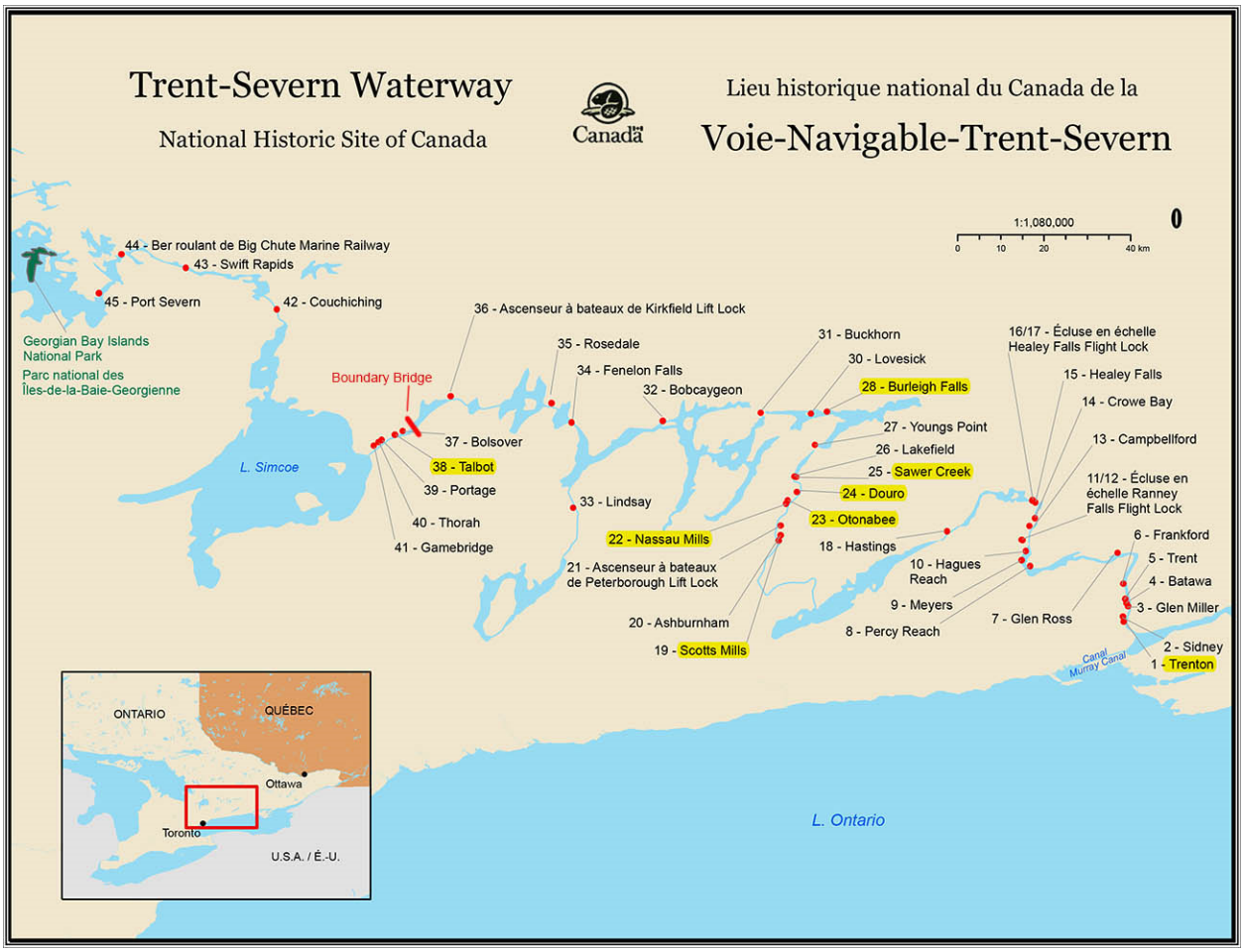

Figure 3: Trent-Severn Waterway NHSC. Study sites are highlighted in yellow. [Parks Canada, No Date]

The objective of this assessment is to gain a better understanding of the site's cultural resources, in anticipation of future interventions that could impact its established heritage character. This planning exercise will define: the key periods and evolution of landscape development; the heritage values specific to each site or division; and, the character defining elements that contribute to the landscape heritage character. Finally, it will provide general recommendations on how future interventions should attempt to protect and enhance the established landscape character of the site and what remains of the original site elements.

1.2 Project Team

The Project Team consists of the following Heritage Conservation Services personnel, including senior staff for quality assurance:

Conservation Landscape Architect / Team Leader ..... Marie-Claude Quessy

Conservation Landscape Architect ..... Jessica Tivy

Conservation Landscape Architect / Quality Review ..... John Zvonar

Publishing Coordinator ..... Jody Scully

1.3 Conservation Approach

The Conservation Approach for this project will be governed by Parks Canada's *Cultural Resource Management (CRM) Policy* and the *Standards and Guidelines for the Conservation of Historic Places in Canada* (2nd Edition). The CRM Policy provides requirements for the identification, management, conservation, assessment of impacts, monitoring and sharing the heritage value of cultural resources.

According to the *CRM Policy* the following principles will be applied together in all resource management activities:

- Understanding Heritage Values;
- Promoting Sustainable Conservation; and,
- Being of Benefit to Canadians.

1.4 The Standards and Guidelines for the Conservation of Historic Places in Canada

The Standards and Guidelines for the Conservation of Historic Places in Canada (Second Edition) is a pan-Canadian document describing the accepted principles and practices related to heritage conservation in Canada. They include: a section on the Conservation Process which outlines the steps to take as part of a conservation project; a section defining treatment types (preservation, rehabilitation and restoration); a section of Standards, which identify the overall principles of conservation; and, a section of Guidelines providing detailed recommendations for archaeological sites, cultural landscapes, buildings, engineering works and materials.

All work, advice and /or recommendations included in the Zone of High Heritage Value and Buffer Mapping and accompanying report will also be guided by the *Standards and Guidelines*. Hence, a minimum intervention approach limited to that necessary to stabilize, maintain and /or enhance the integrity of the following sites along the Trent-Severn Waterway NHSC and its historic features, will be followed. Recommendations will be based on accepted heritage

conservation principles and practices, a respect for the integrity and identity of the historic place and, specifically, an understanding and acknowledgement of its ascribed heritage values.

The *Standards and Guidelines* include 14 standards or principles. The eventual identification of a primary conservation treatment type (preservation, rehabilitation or restoration) will be based on the analysis of the site's heritage values and the condition of its assets. Consideration will also be given to the Management Plan for the Trent-Severn Waterway and the strategy developed for protecting the waterway's cultural resources and those landscapes and landscape features of significance. The exercise will also strive towards improving the visitor experience.

The landscape of the each site is complex and includes elements such as: evidence of land use, spatial organization, circulation, vegetation, landforms, water features, built features and functional arrangement. The relevant guidelines from the *Standards and Guidelines* for this historic place will be used in the development of options for the identification of approaches for future conservation work.

1.5 Overall Heritage Values of the Trent-Severn Waterway and Character-Defining Elements of the System

The Trent-Severn Waterway was formally recognized as a National Historic Site in May 17, 1929. Its heritage value, as stated within the Commemorative Integrity Statement, is as follows:

> *"This canalized waterway connecting Georgian Bay with Lake Ontario was of national historic significance because it was part of Canada's national canal system. Specific resources designated of national historic significance include the engineering achievement of the Peterborough Lift Lock plus those unmodified engineering structures dating from the original construction period 1900-1907 along the Lake Simcoe-Balsam Lake section of the Waterway."*

The cultural resources and their heritage values as well as the messages to be communicated about its heritage value are described in the Commemorative Integrity Statement for the Trent-Severn Waterway NHS.

2.0 SCOTT'S MILLS LOCK NO. 19

Figure 4: 1964 Aerial of Scott's Mills, formally known as Whitlaws Rapids. [National Air Photo Library]

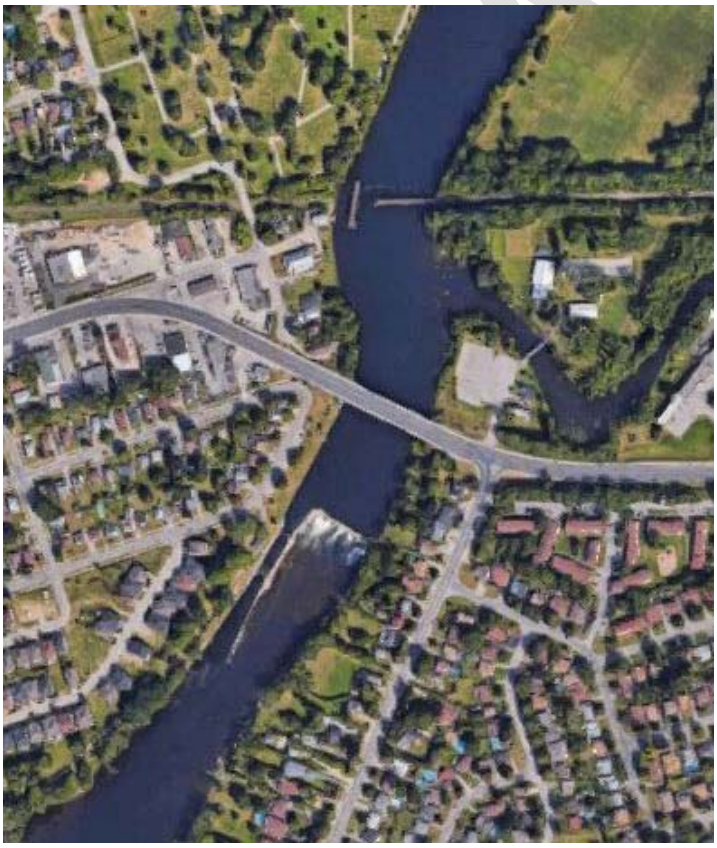

Figure 5: 2016 Aerial of Scott's Mills, formally known as Whitlaws Rapids. [Google Earth]

2.1 Site Description

Located at 804 Morphet Avenue within the City of Peterborough, Scott's Mills lock no. 19 is an example of the first construction phase of the Trent-Severn Waterway in the early 1800s. Although restored over the years, the lock at Scott's Mills retains its original cut stone masonry blocks from its initial construction period. It is the only lock remaining of this phase, as the others have been replaced with concrete.

2.2 Periods of Landscape Development

To understand the present day landscape of Scott's Mills and its heritage values, it is important to know how the landscape came into existence. Because of the complexity of the site and the changes that took place over time, the story of its development is divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1833 - 1844 The First Phase of Construction

Period 3: 1850 - 1872 Neglect and Restoration

Period 4: 1872 - 1971 Department of Railways and Canals and Transfer to Parks Canada

Consideration of these four periods of time will identify the influences that led to the implementation of the existing design for this site.

2.2.1 Period 1: Pre-history to Colonial Settlement

The passages within the Trent-Severn Waterway system have long been established travel routes by the Indigenous peoples of the area. Human activity along the Trent-Severn River corridors predates canal construction by several thousand years. These waterways includes archeological evidence dating to the Laurentian Archaic period. As such, these ancient passages are acknowledged to be the basis for siting many of the engineering works which now link Georgian Bay with the Bay of Quinte, through to Lake Ontario.

2.2.2 Period 2: 1833 - 1844 The First Phase of Construction

Scott's Mills is representative of the first phase of construction along the Trent-Severn Waterway. It is the result of a formal request actioned by local settlers, which is the first step in a process in which to initiate this type of development. This petition requested the lieutenant-governor, to ask for government support. For major public works of this kind, support came through enabling legislation which was provided for the establishment of a board of commissioners. This board was given full authority to plan, manage and finance such work.[3]

[3] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 5

To overcome the rapids at Whitla's Rapids (now Scott's Mills) this group of settlers in Peterborough organized themselves to lobby for its construction. Whitla's Rapids contained a three (3) foot drop which had been preventing the steamers, within the district along the Otonabee, to reach Little Lake at Peterborough. Since 1832, steamboats such as the "Pemedash" had been travelling from Rice Lake to Whitla's Rapids transporting goods and people. This had facilitated settlement in the area.

In 1833, James Gray Bethune, a Commissioner of this group, instigated the construction of the first lock at Bobcaygeon with the intention of further facilitating the transportation of goods for settlement. Four years later, as part of the Act to Improve the Navigation of the Inland Waters of Newcastle District of 1836, six (6) projects - including the construction of the waterway's first true lock at Whitla's Rapids - began.

Bethune's plan included works at Scott's Mills, Bobcaygeon and Purdy's Mills. Combined, these sites would open navigation and support settlement from Bridgenorth to the head of Sturgeon and Scugog Lakes.[4] An influx of Irish settlers had arrived under the initiative of Peter Robinson in 1825 and small lots within the Newcastle District had begun to be cleared. This group of settlers would also provide the labour for many of these works.

With direction from the government, Nichol Hugh Baird, a Scottish engineer - one of the first engineers to survey the Trent River - proposed a system of damming rapids and overcoming rises with locks and short canals.[5] At Whitla's Rapids this included a wing-and-cross dam of truss-work construction and a limestone masonry lock.

Born in Glasgow, Scotland, Baird's father was the superintendent of the Forth and Clyde Canal which was completed in 1791. N.H Baird was an experienced engineer who had apprenticed in Scotland under his father and in St. Petersburg in Russia. Upon immigrating to Canada in 1828, he served as the clerk of works for the construction of the Rideau Canal.

At completion, Whitla's Rapids would be the first lock completed within the system - however, would soon fall into disrepair.

2.2.3 Period 3: 1850 - 1872 Neglect and Restoration

With the rise in lumber activities in the area, timber damaged the lock and created numerous obstacles / hazards for the boats operating on the Otonabee River. With the opening of the rail at Cobourg, and later Port Hope, the lock was seldom used and soon Whitlaws lock (apostrophe dropped during this time) quickly fell into disuse and repair.

[4] Ibid, 37
[5] Ibid, 24

In 1862, a breach of 15 to 18 m (60 to 70 ft.) in the dam and a large accumulation of sawmill litter on the upper gates resulted in "the gates of no public benefit at present." [6] In 1870, mining and railway interests, the Peterborough mayor and 50 residents of Cobourg petitioned the federal government for restoration of the lock to re-establish a connection with the Cobourg Railway at Harwood. Although the restored lock was opened June 1, 1872 and has remained in use ever since[7], a significant restoration would follow in the early 1900s.

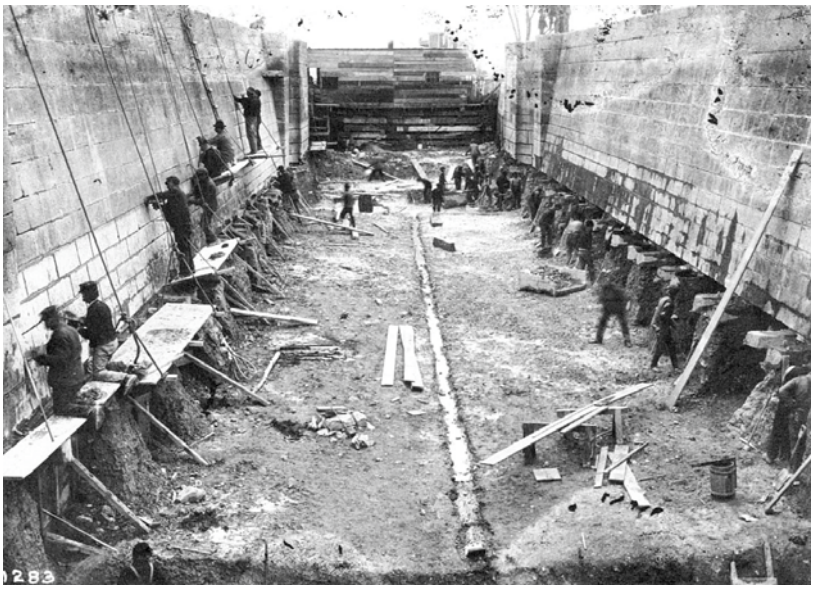

Figure 6: Repairing the Walls at Scott's Mills 1920s. [Angus, 1998]

2.2.4 Period 4: 1872 - 1971 Department of Railways and Canals and Transfer to Parks Canada

In 1901, Whitlaws lock was now known as Scott's Mills. Presumably due to poor condition, restoration plans were prepared under the government's direction for a new concrete dam and lock (see appendix A). The then Dominion Engineer, R.B. Rogers, retained the original and sound cut masonry of the lock specified by Baird.

Richard B. Rogers, was the Dominion Engineer who would oversee numerous significant works along the waterway. Rogers was a respected professional and McGill University graduate with a bachelor of arts in science and a major in civil and mechanical engineering. His first job was as an assistant engineer in charge of the Trent River timber slides. In 1886, he became superintending engineer of the Trent Canal and in 1887, was elected a member of the Canadian Society of Civil Engineers and, in 1888, a member of the Institute of Civil Engineers of England.[8] Most importantly, Richard B. Rogers is associated with the design and oversight of the Peterborough Lift Lock no. 19, a recognized engineering accomplishment.

[6] Ibid, 111
[7] Ibid, 111
[8] Ibid, 257

The plans prepared for Scott's Mills illustrate similarities in details to the nearby locks along the Otonabee including Nassau, Otonabee, Douro and Sawyer Creek. These details include, the width and length of the canals, and the concrete edging and finish. However, unique to Scott's Mills, is the concrete 'island' that was created between the lock and dam. This 'island' results from the canal being cut in the curving bend of the soft river bank – this was not present at Scott's Mills. As such, this engineered spatial organization is unique to this site within this grouping along the Otonabee River.

Additionally unique to this site is the urbanization of its surrounding context. Aerial imagery of 1929 and site plans prepared in 1932, 1958 and 1966 (see appendix A) reveal this steady urbanization of the lock's surroundings.

Visible on the 1929 aerial and early site plans is the former rural character of the area. Also visible are the timber crib concrete caps for the timber boom. Additionally, on the early site plans the lock office is present as well as lock master's residence and a garage.

Figure 7: Scott's Mills lock 1929 – note line of timber crib caps in waterway. [National Air Photo Library]

Until 1971, the Trent-Severn Waterway was under the oversight of the Department of Railways and Canals at which time it was transferred to Parks Canada. Aside from the removal of the aforementioned buildings and the creation of a parking lot, this site has remained relatively unaltered and retains much of the original character from the work completed by the 1901 restoration work detailed by Rogers.

2.3 Heritage Values

As per the Trent-Severn Waterway Commemorative Integrity Statement, many of the locks along the system were evaluated as Level II cultural resources. Heritage value specific to Scott's Mills lock no. 19 include:

- *Lock 19 at Scott's Mills, which is the only remaining one on the Waterway to retain cut stone masonry construction dating from 1843; the configuration of the dams and lock is also unique at this station. The lock operating mechanism at Scott's Mills dates from 1900.*

2.4 Landscape Elements that Contribute to the Heritage Character

The following section describes key elements of the landscape that will need to be protected and enhanced in order to conserve the unique character of this unique cultural landscape. The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*.

In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Scott's Mills, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

The extent to which such character-defining elements of Indigenous cultural landscapes, can be identified will depend on how much information the communities are willing and able to share. It is recommended that the Indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character-defining elements within this cultural landscape.

As such, in addition to the values identified in the Commemorative Integrity Statement, the following cultural landscape elements can be considered to have heritage value.

2.4.1 Evidence of Land Use

The lock and dam constructed at Scott's Mills, were built to overcome the naturally occurring rapids in this location. As a result, these built elements modified the naturally occurring river corridor thereby facilitating the transshipment of goods and people since the early 1800s. Elements that reflect the continuing function of the site as a working lock are: the dam, the linear concrete canal, the terraced embankment, the mature trees and the lock itself. The legibility of these elements that support this continuing land use is highly valued and needs to be understood and protected.

2.4.2 Spatial Organization

The spatial configuration of Scott's Mills includes the lock and the dam designed by Richard B. Rogers. Rogers was an accomplished and recognized engineer of his time and oversaw the construction of many lock and dam sites along the Trent-Severn. His approach to the lock sites along the curvilinear sections of the Otonabee River was to cut through the broad bends of the river bank and place the canal in this cut. This approach resulted in a pattern which creates as island in the river. This pattern is repeated along the Otonabee. For Scott's Mills however, there was no bend in the river, which has resulted in a unique constructed concrete island which serves to connect the lock and dam.

2.4.3 Visual Relationships

Historically, the views upon approaching to the lock were uninterrupted toward the lock master's house who facilitated boaters through the locks. This view included the concrete walls of the canals along the long sodded engineered embankments and the lock master's house set within a park-like atmosphere. This visual relationship has been for the most part retained and should be protected. Although, the recent encroachment of residential development has detracted from this historic setting.

2.4.4 Circulation

Many elements contribute to historic site circulation infrastructure. This includes the linear narrow alignment of the canal with a distinctive bullnose concrete edge treatment and the engineered embankments along the canal that originally supported the circulation access to the lock site. Additionally, the pedestrian route made of narrow timber walkways above the gates and across the canal, is also considered a character-defining element of the site's historic circulation.

Figure 8: The embankments of the canal provide access to the site. [HCS, 2016]

Figure 9: The timber walkways above the locks are considered to be a part of the historic circulation. [HCS, 2016]

2.4.5 Vegetation

Historically the role of vegetation at this lock site was to stabilize the earth work and presumably to provide shade for the comfort of the lockmaster and other users of the site. Otherwise, these very early constructed lock sites were simple working areas with no elaborate plantings. Generally the landscape character of this engineered landscape was ordered in a way to allow views to the water from the former lock office where the lockmaster could watch for boats approaching the lock channel.

Today, the vegetation is still simple and supports the function of the lock site. It remains set back from the lock and the canal. The sodded engineered embankments maintain the legibility of the landform that is representative of canals excavation. The mature remnant Sugar maples (*Acer saccharum*) behind the lockmaster's house, highlight the placement of the engineering work being set within the natural landscape. Today, there continues to be a strong visual contrast onsite between the orderly landscape along the canal and the informal natural setting in which it has been placed.

Figure 10: The mature Sugar Maples (*Acer saccharum*) support a visual contrast between the orderly character of the canal and the informal natural setting in which it has been placed. [HCS, 2016]

2.4.6 Landforms

The engineered terraced embankment of the canal is a human-made landform. It is associated with the excavated materials of the canal which were disposed of adjacent to the canal and graded into terraced banks. This landform facilitated the circulation for the horses and carts which were used to excavated material out of the canal; and, provided flat areas on the site for the siting of support structures such as the lock office and the lockmaster's residence.

Figure 11: The ordered landscape allows view to and from the water from the lock office. Note the encroachment of residential development at right which detracts from the picturesque setting. [HCS, 2016]

2.4.7 Water Features

The water features at Scott's Mills play a functional role whereby the canalized channel allows waters to run through the lock from the Otonabee River in its role to overcome the rapids. As such, the linear length, the width and the depth of the canal water - which has historically facilitated navigation on the waterway - are features unique to a canal site. Additionally, the manner in which the water rises and lowers in the lock box, is also considered a character-defining element of this historic site.

Figure 12: The mass, scale of the lock and the colour and the finish of the concrete are valued characteristics. [HCS, 2016]

2.4.8 Built Features

The historic built features of this site include the original cut stone block masonry of the 1846 construction and the 1901 masonry of the canal walls, the lock and the dam. The scale, form, mass, composition, colour and finish of these features are character defining elements of the historic place. The dark colour and the coarse aggregate finish of the 1901 concrete is a character defining element that is shared with other locks within the Trent-Severn Waterway system. Additionally, the curving wall on the south side of the concrete island is a unique characteristic distinct to this site. The timber lock gates including their form, mass, scale, and type of timber used is also valued. Timber was the original material used for the gate and its presence at this site exemplifies the vernacular context and the historical relationship with the area's lumber trade.

Other built features include the archeological remains of the supporting structures on the site. These archeological remains include the Lock Master's Residence, garage, storehouse and ice house. These features provide tangible insight into the day to day management of the lock site and the life of the lock masters.

2.4.9 Functional Arrangement

The construction of this lock and dam along the Otonabee River is part of a grouping of engineered elements to overcome a significant elevation change. This has resulted in a large scale functional arrangement that includes the Trent Canal and the nearby Peterborough Lift Lock. Thus, Scott's Mills is part of a broader system where these engineering works have a strong connection to its natural setting.

These lock sites are therefore a manifestation of the important human accomplishment to overcome the naturally occurring change in grade. The legibility between the Scott's Mills site and the lock sites along the Otonabee River - as well as the Peterborough Lift Lock - within their broader functional arrangement, should be enhanced and protected in any future work.

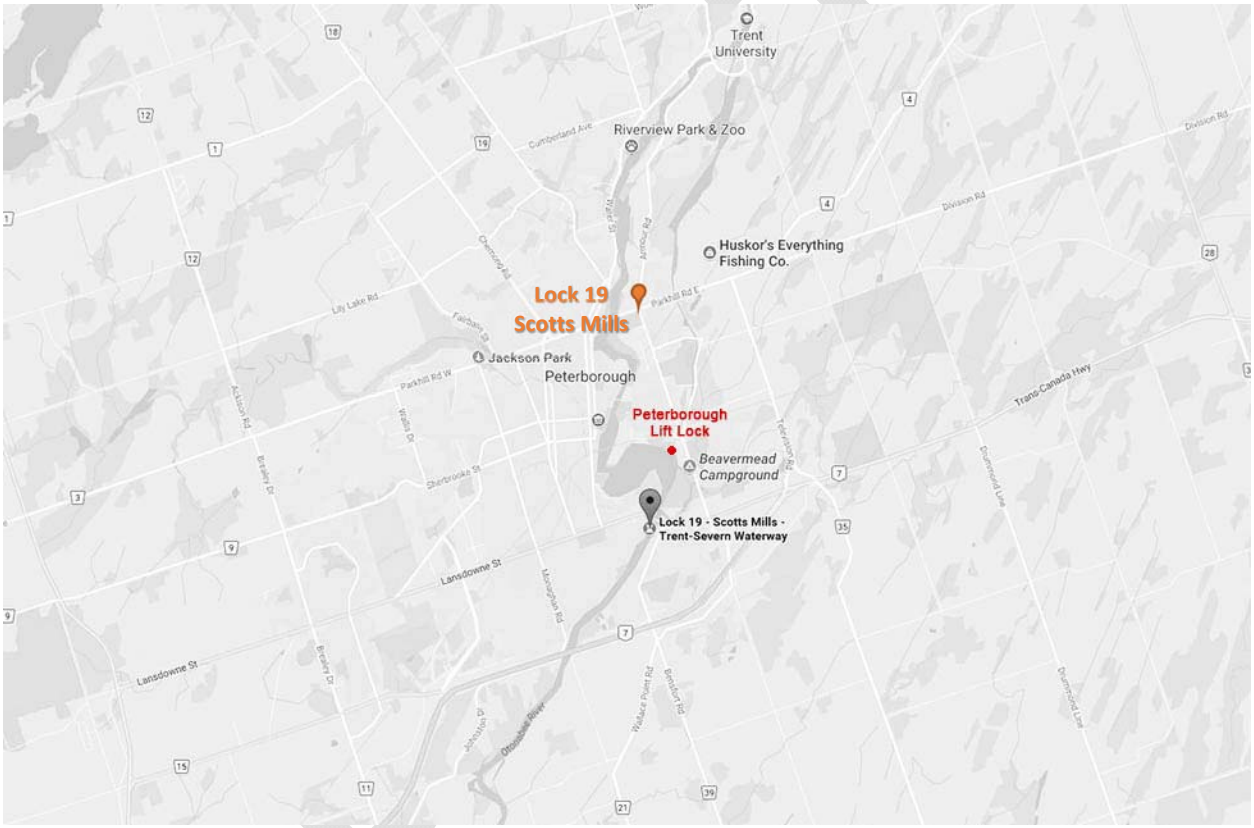

Figure 13: Context map illustrating the location of Scotts Mills, Lock 19. [Google Maps, 2017]

2.4.10 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: the dam, the linear concrete canal, the terraced embankment, the mature trees and the lock itself.
- Spatial Organization: the placement of the dam and of the canal cut.
- Visual Relationships: the uninterrupted, open views toward the lock master's house.

- Circulation: the linear, narrow alignment of the canal, the engineered embankments along the canal and the narrow timber walkways.
- Vegetation: simple turf grass working areas with no elaborate plantings.
- Landforms: the engineered terraced embankment of the canal.
- Water Features: the linear length, the width and the depth of the canal water
- Built Features: original cut stone block masonry of the 1846 construction and the 1901 masonry of the canal walls, the lock and the dam. The scale, form, mass, composition, colour and finish of the masonry and concrete. Other built features include the archeological remains include the Lock Master's Residence, garage, storehouse and ice house.

2.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Enhance the understanding of the site by interpreting the construction of the dam to overcome the naturally occurring rapids in this location. These built elements have modified the naturally occurring river corridor thereby facilitating the transshipment of goods and people since the early 1800s.
- Maintain and protect the spatial configuration of the site which includes the unique concrete island which serves to connect the lock and dam.
- Maintain and protect the elements which contribute the historic site circulation infrastructure. This includes the linear narrow alignment of the canal with a distinctive bullnose concrete edge treatment, the engineered embankments and the narrow timber walkways.
- Maintain and protect the water features at Scott's Mills which play a functional role whereby the canalized channel allows waters to run through the lock from the Otonabee River in its role to overcome the rapids.
- Maintain the site's historic character by preserving the uncluttered setback that exists between the lockmaster's house and the canal. If new elements need to be placed within this zone, it is recommended that they are positioned in an ordered and subordinate manner.

- Maintain / reinstate a well ordered and minimal landscape treatment with the use of native trees and turf grass. The strong visual contrast onsite between the orderly landscape along the canal and the informal natural setting in which it has been placed should be protected.
- Maintain and protect the distinct engineered terraced grading of the long canal embankments as sodded areas.
- Maintain the scale, massing and form of the canal, lock and dam elements including the curving concrete wall unique to this site and the concrete bull nose edging detail throughout. All new concrete work to be date stamped accordingly.
- Maintain the uniform character of the lock and dam's high quality concrete finish.
- When possible, preserve the existing timber gates.
- When adding new elements on the site, consider using materials that have been traditionally used such as timber, stone or concrete. Avoid adding new materials that will detract from the historic character and the understanding of the sites evolution. These new elements should be visually compatible with, subordinate to and distinguishable from the historic place.
- Consideration should be given to the interpretation of the archaeological built elements associated with the early use site, such as the lockmaster's residence, garage, store house and ice house, in a way to interpret the evolution of the site.

3.0 BURLEIGH FALLS LOCK NO. 28

Figure 14: 1964 aerial of Burleigh Falls. [National Air Photo Library]

Figure 15: 2016 aerial of Burleigh Falls. [Google Earth]

3.1 Site Description

Burleigh Falls is within the Kawartha Lake district, north of Peterborough along Hwy 28 in Trent Lakes. Formally call Peninsula Falls, it was considered one of the most picturesque spot's on the entire waterway.

> *"The Burleigh Falls are worth seeing. Viewed from Stoney Lake, the landscape is one of remarkable beauty. The four cascades foaming and tumbling into the bay through lofty walls of granite, over arched by the rich foliage of dwarf oak. The more lofty pine, and gnarled branches of red cedar, whose roots are seen firmly fixed in deep fissures of the overhanging rocks present a picture whose varied features are not easily described."*
>
> *Samuel Strickland, 1849* [9]

Burleigh Falls is representative of the Interlake Connection in the 1880s which connected the Kawartha Lakes. This was accomplished with a division of lock completed at Fenelon Falls, Buckhorn, Lovesick and Burleigh Falls.

3.2 Periods of Landscape Development

To understand the present day landscape of Burleigh Falls lock no. 28 and its heritage values, the story of Burleigh Falls is divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1870 - 1888 Politics, Tourism and the Interlake Connection

Period 3: 1889 - 1959 The Decline of the Local Economy at Burleigh Falls

Period 4: 1960 - 1971 Transfer to Parks Canada

Consideration of these four periods of time will show the influences that led to the implementation of the existing design for this site.

3.2.1 Period 1: Pre-history to Colonial Settlement

As with the Scott's Mills lock site, the waterways within the Trent-Severn system have been long established travel routes by the indigenous peoples of the area. Human activity along the Trent-Severn river corridors predate canal construction by several thousand years. As such, Indigenous s were hunting and trapping on the waterway long before the onset of settlers.

During the early colonial period, indigenous groups such as the local Métis, were forced to move to reserves however, they continued to take part in resource-related activities such as

[9] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 173

logging, trapping and fishing.[10] Indigenous communities, including the Métis people of Burleigh Falls, were central to the early economic activity in the area such as guiding tourists on fishing tours and working in the local lumber industry.[11]

The construction of Nichol Hugh Baird's early dam and lock projects of 1836 were part of the Act to Improve the Navigation of the Inland Waters of Newcastle District: in its wake, settlement and economic activities throughout the district continued to expand. This expansion was supported by the influx of Irish settlement that occurred earlier in 1825 which had facilitated settlement and the growth of the local lumber and iron trade. [12]

The following phase of construction - the Interlake Connection - would be justified on economic grounds, particularly for the lumber trade and tourism. As such, the lobbying of local lumbermen and steamboat owners would champion this phase of the waterway.

3.2.2 Period 2: 1870 - 1888 Politics, Tourism and the Interlake Connection

Ownership of the early development of the waterway had been shared by private, provincial and federal bodies. By the late 1800s, ownership rested solely with the federal government. The completion of the Interlake Connection, which would now linked all the lakes in the Kawartha chain, included the locks and dams at Fenelon Falls, Buckhorn, Lovesick and Burleigh Falls. [13]

Figure 16: Excavating canal prism at Burleigh Falls through hard granite 1885. Note the bridge crossing in top left hand corner. [Angus, 2000]

[10] Daniel Francis, *I remember... An Oral History of the Trent-Severn Waterway*.(Peterborough: Friends of the Peterborough Waterway, 1984), p. 55

[11] Public History Inc*. Métis of Burleigh Falls.* 2000. p. 23

[12] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 34

[13] Ibid 47

The landscape surrounding Burleigh Falls was isolated, rugged and picturesque. Several lakes in the Kawartha chain, instead of being connected by rivers, spill into the other over low spots in the rock. This irregularity is especially evident in the section of the waterway between Burleigh Falls and Bobcaygeon which includes Lovesick, Buckhorn, Chemong Pigeon and Sturgeon Lakes. [14] By 1874, tourism had begun to replace the lumber trade in the area. The construction of Mount Julian - one of several summer hotels in the area - accommodated guests throughout the season and provided steady excursions which were limited by the falls.[15]

To connect this series of inter-lakes, the plan for the lock included a 180 m (600 ft.) canal cut north of the falls between Lovesick Lake and Burleigh Bay, with two combined locks, each with a lift of 4.0 m (13 ft.). This required a number of regulating dams including the replacement of the old loggers' dam across the Burleigh River; a series of dams with regulating weirs on the west side of the upper lock to shut off Perry's Creek; and, a dam across the low ground between the canal and the north end of the main dam. These dams would raise the water in the river by 2.1 m (7 ft.), drowning out a series of rapids above the falls. [16]

When completed in 1888, the first steamboat passed through the new limestone locks on October 26th. With this series of locks and dams, steamboats could finally cruise from Port Perry on Lake Scugog or Cobobconk on the Gull River to Lakefield to the east.

Figure 17: Steamers in Burleigh Locks, Date Unknown. [Angus, 1998]

[14] Theberge., Clifford et. al. *A Traveller's Companion: The Trent-Severn Waterway*. (Samual Stevens & Company , 1978), p 102.
[15] Ibid 57
[16] James. Angus, *A Work Unfinished: The Making of the Trent-Severn Waterway*. (Sever Publications Limited, 2000), p. 64

3.2.4 Period 3: 1889 - 1959 The Decline of the Local Economy at Burleigh Falls

By the 1930s, employment opportunities in lumbering, trapping and guiding in the area around Burleigh Falls were becoming limited. As the forests became depleted, a shift was also occurring with the advent of the railway and gas powered boats. This impacted guiding which was traditionally done by canoe:

> *"used to be all canoe work, and in three or four hours you could get all the fish you desired. Now the motor boats have killed the business because you don't need to spend all day fishing and paddling."*[17]

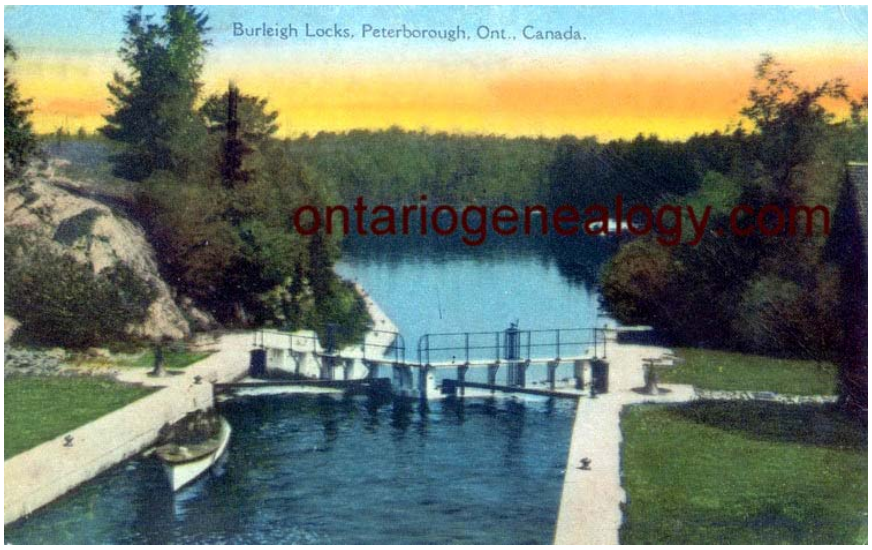

Figure 18: Burleigh Falls 1930. [Source: Amazon.com]

Early postcards of Burleigh Falls reveal a minimal landscape treatment bordered by granite outcrops. A site plan from 1949 (see Appendix A) illustrates a small complex that had developed around the lock site including the location of the lockmasters residence, garage and swing bridge. It also identifies the location of a new highway.

3.2.5 Period 4: 1960 - 1971 Department of Railways and Canals and Transfer to Parks Canada

In 1971, the Trent-Severn Waterway was transferred from the Department of Railways and Canals to Parks Canada. Upgrades to the lock site were completed in the 1960s and in the early 1970s. These upgrades included the replacement of the two original limestone cut masonry locks with a single concrete lock.[18] As is evident in a 1969 aerial photograph, additional site changes reveal the new Highway 28 cutting through the southern half of the site over the canal and replacing the old swing bridge. Today, this highway and bridge has been relocated to the north side, crossing over a portion of the canal. The southeast side of the site has been altered with fill and today can be characterized by open grassed areas with access for boaters.

[17] Public History Inc*. Métis of Burleigh Falls.* 2000. p.49
[18] Parks Canada, *Celebrating 125 years along a significant stretch of the Trent-Severn Waterway* (2016)

Figure 19: 1964 aerial image of the Burleigh Falls site. [National Air Photo Library]

Figure 20: A new layer of site infrastructure was added in the 1960s and 1970s. [HCS, 2016]

These upgrades have also resulted in wide concrete areas along the lock and canal, the addition of luminaires and station huts. These elements clearly speak to a different time and to an evolutionary layer associated with this period.

3.3 Heritage Values

As per the Trent-Severn Waterway Statement of Commemorative Integrity the heritage values specific to Burleigh Falls lock no. 28 include:

- *archaeological resources along the waterway including the timber slide at Burleigh Falls (1850) which have been identified as objects of heritage value.*

3.4 Landscape Elements That Contribute To the Heritage Character

The following section describes key elements of the landscape that will need to be protected and enhanced in order to conserve the unique character of this unique cultural landscape. The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*.

In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Burleigh Falls, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

The extent to which such character-defining elements of Indigenous cultural landscapes, can be identified will depend on how much information the communities are willing and able to share. It is recommended that the indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character-defining elements within this cultural landscape.

As such, in addition to the values identified in the Statement of Commemorative Integrity, the following cultural landscape elements can be considered to have heritage value.

3.4.1 Evidence of Land Use

The lock and dam constructed at Burleigh Falls, were built to overcome the naturally occurring falls which are immediately south east of the lock location. As a result, these built elements altered the naturally occurring granite outcrops thereby facilitating people to move through the Kawartha chain of Lakes since the late 1800s. Elements that reflect the continuing function of the site as a working lock are: the dam, the linear concrete canal, and the lock itself. The legibility of these elements that support this continuing land use needs to be understood.

3.4.2 Spatial Organization

The lock at Burleigh Falls was placed within a crevice of a granite outcrop to connect Lovesick Lake to Clear Lake. As such, the spatial organization of this site results with a narrow concrete channel that has been placed through a rugged and wild landscape. This distinctive landscape in which the lock has been set, is especially apparent on the north side of the lock canal. This area best reflects the historic spatial organization of the lock site which has been significantly altered on the south side with the removal of vegetation and the relocation of roads.

3.4.3 Visual Relationships

Historically, the views upon approaching to the lock included the swing bridge (now removed) and the natural vegetated shoreline of Lovesick Lake. As visible from the 1964 aerial photograph, very little of the site on the south side was open, graded or sodded. Although a clear visual path was maintained to the lock master's house upon approaching the bridge, the undisturbed 1960s landscape may have obscured the lock entry from a distance. While the current open landscape treatment of the site maintains the historic visual relationship to the lockmasters house, the experience of the boater seeking the swing bridge as a marker along the mature treed banks of Lovesick Lake has been lost. Although, the south side of the lock has been altered to accommodate various activities, including parking and picnicking, there is an opportunity to better integrate these areas with the natural historic character of the shoreline.

3.4.4 Circulation

There are few remaining elements which contribute to historic site circulation infrastructure at Burleigh Falls. The circulation into this site has been altered with the removal of the swing bridge, the construction of a new overhead bridge and the relocation of this overhead bridge / highway to the north side of the site. The widening of the narrow walkways along the canal and a new curvilinear walkway entering the canal site from the parking area, also detract from the historic circulation of the site.

Figure 21: Note the modification to the width in walkways along the canal. [HCS, 2016]

Figure 22: The relocated highway which now crosses the north end of the canal. [HCS, 2016]

3.4.5 Vegetation

Distinctive to Burleigh Falls is the close proximity of mature vegetation to the built elements. Aerial imagery from 1964, show the lock master's house, the lock, and the canal itself, set within an area of mature trees. The presence of this wild setting, which was historically characterized the canal and lock in its entirety, reinforced the isolated nature of the lock, which was sought by the tourists of the turn of the century.

Figure 23: The close proximity of the vegetation is still evident on the north side of the canal. [HCS, 2016]

3.4.6 Landforms

Unlike many lock sites, the familiar engineered terraced embankments are not present at Burleigh Falls. As such, the material that was removed during excavation of the prism for the canal was not placed adjacent to the canal. Instead broad, flat granite outcrops characterize the sites landscape. This landform is unique to this lock site and a valued feature of the historic cultural landscape.

Figure 24: Granite outcrops onsite. [HCS, 2016]

3.4.7 Water Features

The water features at Burleigh Falls allows waters to run through the lock site from Lovesick Lake through to Burleigh Bay in its role as a bypass to Burleigh Falls. As such, the linear length, the width, and the depth of the canal water - which has historically facilitated navigation on the waterway - are features unique to a canal site. Additionally, the manner in which the water rises and lowers in the lock box, is also considered a character-defining element of this historic site.

3.4.8 Built Features

The historic built features of this site include form, mass and scale of the 1890's lock and canal which has been placed in between the granite outcrop. Although the canal and lock have been significantly altered from two to one, the narrow form of the channel and its linearity is valued.

Although not visible, the submerged archaeological remains of the timber slides - which were constructed in 1850 to assist the log drives - are representative of one of the key economic drivers that built the Trent- Severn system. This also includes the archaeological remains of the lockmaster's residence as shown on the 1930 site plan (see appendix A), which can also provide tangible insight into the day to day management of the lock site and the lock masters who once lived there.

Additionally, the former road bed and bridge piers which passed through the site as shown on the 1964 aerials photographs, are elements which, when interpreted, allow for a better understanding of the sites evolution.

3.4.9 Functional Arrangement

The construction of this lock and dam at Burleigh Falls is part of a larger grouping of engineering elements built to overcome the falls and to establish an inter-lake connection of the Kawartha Lakes. This includes lock and dam sites at Fenelon Falls, Buckhorn, Lovesick and Burleigh Falls. As such, this represents a broader functional arrangement where the engineering work has a strong connection to its natural setting.

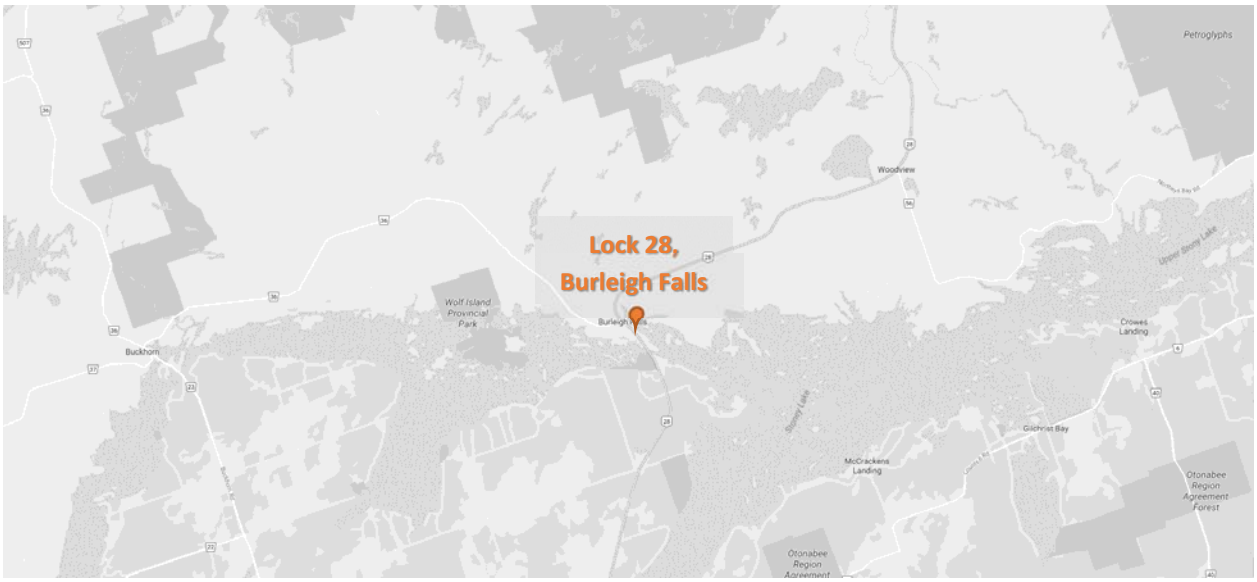

Figure 25: Context map illustrating the location of Burleigh Falls, Lock 28. [Google Maps, 2017]

3.4.10 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: the dam, the linear concrete canal, and the lock itself.
- Spatial Organization: the lock placed within a crevice of a granite outcrop resulting in a narrow concrete channel that has been placed through a rugged and wild landscape.
- Circulation: the linear and narrow alignment of the canal.
- Visual Relationships: the views upon approaching to the lock and the natural vegetated shoreline of Lovesick Lake.
- Vegetation: the close proximity of mature vegetation to the built elements.
- Landforms: broad, flat granite outcrops characterize the sites landscape.
- Water Features: the linear length, the width, and the depth of the canal water.
- Built Features: the form, mass and scale of the 1890's lock and canal which has been placed in between the granite outcrop, the submerged archaeological remains of the timber slides, lockmaster's residence, the former road bed and bridge piers which passed through the site.
- Functional Arrangement: lock and dam sites at Fenelon Falls, Buckhorn, Lovesick and Burleigh Falls.

3.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Enhance the understanding of the site by interpreting the construction of the dam to overcome the naturally occurring falls in this location and how these built elements altered the naturally occurring granite outcrops thereby facilitating people to move through the Kawartha chain of Lakes.
- Maintain and protect the placement of the lock within a crevice of a granite outcrop resulting in a narrow concrete channel within a rugged and wild landscape.
- Maintain and protect the views upon approaching to the lock and the natural vegetated shoreline of Lovesick Lake.
- Maintain and enhance the close proximity of mature vegetation to the built elements.
- Maintain and protect the linear length, the width, and the depth of the canal water.
- Enhance the understanding of the functional connection in which this lock and dam site has with the sites at Fenelon Falls, Buckhorn, Lovesick and Burleigh Falls.
- On the south side of the lock, where possible, reinstate the historic natural character of the lock setting by re-naturalizing the open grassed areas along the shoreline.
- Consideration should be given to the interpretation of the archaeological built elements associated with the early site use, such as the Lock Master's Residence, the swing bridge, and the former road bed in a way to interpret the evolution of the site.
- The granite outcrops on the site should remain visible. When adding new elements on the site, consider using materials that are visually compatible and subordinate to the natural rugged character of the granite outcrop and the vegetation. The historic natural character of the vegetation should be protected during any future interventions.

4.0 NASSAU MILLS LOCK NO. 22, OTONABEE LOCK NO. 23, DOURO LOCK NO. 24, SAWYER CREEK LOCK NO. 25

Figure 26: 1929 aerial of Douro lock no. 24. [National Air Photo Library]

Figure 27: 1929 aerial of Sawyer Creek lock no. 25. [National Air Photo Library]

Figure 28: 2016 Aerial of Nassau Mills lock no. 22. [Google Earth, 2016]

Figure 29: 2016 Aerial of Otonabee lock no. 23. [Google Earth, 2016]

Figure 30: 2016 Aerial of Douro lock no. 24. [Google Earth, 2016]

Figure 31: 2016 Aerial of Sawyer Creek lock no. 25. [Google Earth, 2016]

4.1 Site Description

Nassau Mills lock no. 22, Otonabee lock no. 23, Douro lock no. 24, and Sawyer Creek lock no. 25 are located along Highway 32 adjacent to the Otonabee River between Peterborough and Lakefield. In contrast to Burleigh Falls, this division of lock and dam sites is set within an open pastoral landscape rather than the rugged granite outcrops of the Kawartha Lakes.

These four locks were constructed at the same time during the late 1800s following the work at Burleigh Falls. They were completed under the direction of the accomplished Dominion Superintending Engineer R.B. Rogers. Rogers would refine his process for concrete construction at these sites in preparation for the iconic Peterborough Lift Lock no. 21. As such, these sites share a common spatial organizational pattern and contain many similar site characteristics and therefor have been assessed as a group.

4.2 Periods of Landscape Development

To understand the present day landscape and heritage values of the lock and dam features at Nassau Mills lock no. 22, Otonabee lock no. 23, Douro lock no. 24, and Sawyer Creek lock no. 25, it is important to know how these landscapes came into existence. The story of their development has been divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1896 - 1904 Politics and the Peterborough-Lakefield Division

Period 3: 1904 - 1971 Recreation and the Peterborough-Lakefield Division

Period 4: 1972 - Transfer of Ownership to Parks Canada

Consideration of these four periods of time will show the influences that led to the implementation of the existing design for this site.

4.2.1 Period 1: Pre-history to Colonial Settlement

Similar to Scott's Mills and Burleigh Falls, the waterways within this system have long been established travel routes by the indigenous peoples of the area. Human activity along the Trent-Severn river corridors pre-date canal construction by several thousands of years. With the construction of Nichol Hugh Baird's early dam and lock projects of 1836 - as part of the Act to Improve the Navigation of the Inland Waters of Newcastle District - settlement and economic activities continued to expand. This expansion was supported by the earlier influx of Irish settlement that had occurred in 1825 which had facilitated settlement and the growth of the local lumber and iron trade. [19]

With the completion of the Interlake-Connection of the Kawartha chain of Lakes (which included Burleigh Falls), the next phase of construction of the Peterborough-Lakefield Connection would be done with the intent to transport goods.

4.2.2 Period 2: 1896 - 1904 Politics and the Peterborough-Lakefield Division

Political interest and support served as a complex component to the success of the development of the waterway. As such, the approval for the construction of the Peterborough-Lakefield division was inevitably linked to the campaigning efforts of the then governing party who had won the election of 1896. With the defeat of the Conservative government - and in spite of falling under the program of the new Liberal Laurier government - construction of the Peterborough-Lakefield Division would be executed in a strategic manner by the Dominion Engineer to ensure both completion and his job security. [20]

The Peterborough-Lakefield division was to provide a navigable stretch of waterway from Little Lake to Lakefield, establishing a route of 233 km (126 mi.) from Healy Falls to Balsam Lake. This division included the Peterborough Lift Lock and the nearby lock and dam sites along the Otonabee River towards Lakefield including: Nassau Mills, Otonabee, Douro and Sawyer Creek.

There are two sections within the Peterborough-Lakefield Division that were constructed between 1896 and 1904. Section 1 included canals built of concrete along the Otonabee – the first in North America- which replaced / restored the existing limestone and wooden structures

[19] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 36
[20] Ibid 36

such as Scott's Mills, and the second section included the Peterborough Lift Lock and the associated Trent Canal. [21]

This division was identified by the earliest surveys by N.H. Baird which were completed at the beginning of the 1800s. Following successive surveys by David Stark and Tom S. Rubidge - completed for the Department of Railways and Canals - the final route charted by Rogers would be a combination of both. R.B. Rogers was the then Dominion Engineer who would oversee the construction of the Peterborough-Lakefield Division.[22]

The plan specified the cutting of short canals across bends in the river at the location of the rapids. Locks were placed in each cut and dams were constructed to control the water level above the lock between the islands and the opposite bank slightly above each rapid.[23] This resulted in a distinctive spatial organization which can be seen at each site.

By this time, Rogers had become a leading authority on the use of watertight concrete in North America: he obtained permission to build a laboratory in the basement of the Trent Canal office where he tested various types of cement and combinations of constituents. [24]

In the spring of 1896, work began at Otonabee. At completion, a three-inch coat of mortar (in the proportion of two parts sand to one part cement) was put on all exposed surfaces. The timber lock gates were then painted white, the railings and other metal parts painted black, and the grounds surrounding the locks graded and sodded. When the water was let in, the canal and the locks proved to be not only highly attractive but highly functional and durable. [25]

In the spring of 1896, excavation for Nassau Mills, the first canal and lock pit for the Otonabee River, was finished. Forms were constructed in the bottom of the pit and a floor of concrete approximately 30.5 cm (1 ft.) thick was laid; the lift in the bottom of the lock was boxed in and a concrete base was laid for the upper sill.[26]

With a complete foundation, the false work for the walls was constructed. The sill depth of each lock was 1.8 m (6 ft.)[27] The lock walls were poured 3.04 m (10 ft.) thick at the bottom and 1.2 m (4 ft.) thick at the copings; at the lower end of the lock the walls were 7.6 m (25 ft.) high and on the upper end about 4 m (13 ft.). Upon completion, Section 1 would remain closed until Section 2 was opened.[28]

[21] Ibid 225
[22] Ibid 221
[23] Ibid 224
[24] Ibid 223
[25] Ibid 225
[26] Ibid 222
[27] Ibid 224
[28] Ibid 226

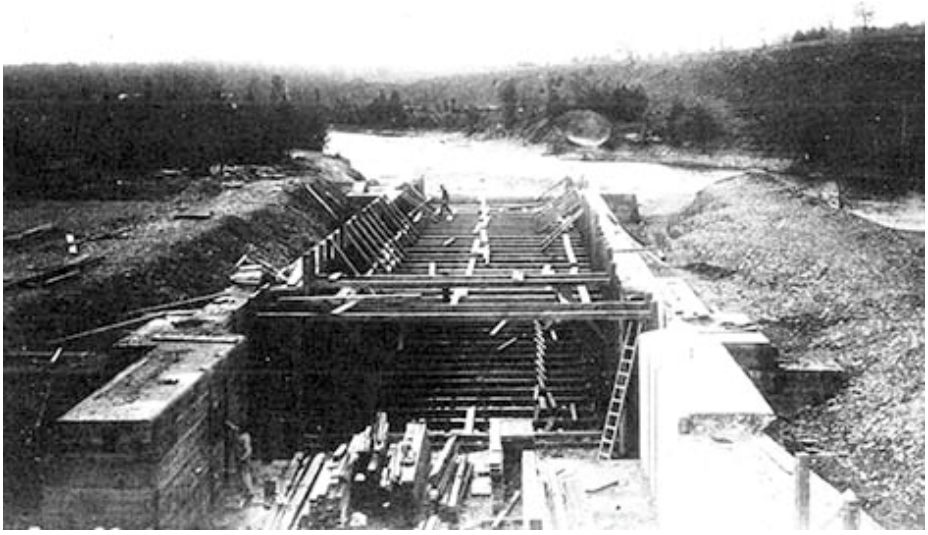

Figure 32: Falsework for the Otonabee lock 1896 – first concrete lock in North America. [Angus, 2000]

Figure 33: R.B. Rogers inspects Otonabee – the first concrete lock completed in 1896. [Angus, 2000]

Section 2 was to overcome the 43.8 m (144 ft.) differential between Lake Katewanooka to that just south of Little Lake in Peterborough. The proposed hydraulic lift was situated to the east of the Otonabee River to avoid the rapids. With the completion of the limestone block locks from the 1830s, such as those at Whitlaw's Rapids (Scott's Mills), the Peterborough-Lakefield division serves as a turning point in the changeover to concrete structures.

The process of carving a channel through the bend of the river bank, the use of concrete and the consistent site treatment of grading and sodding of the site banks resulted in a distinct cultural landscape unique to this division of lock and dam sites.

4.2.3 Period 3: 1904 - 1971 Recreation and the Peterborough-Lakefield Division

Although constructed with the intent of facilitating the movement of goods, the Peterborough-Lakefield division never saw this type of transportation. With the advent of the car, the railway and diminishing natural resources, the main use was, and remains, tourism.

Figure 34: View looking north to Otonabee River from the lock at Douro lock no. 24. [HCS 2016]

Figure 35: Informal pathways at Nassau lock no. 22. [HCS 2016]

4.2.4 Period 4: 1972 - Transfer to Parks Canada

In 1972, the Trent-Severn System was transferred from the Department of Railways and Canals to Parks Canada. Since that time, works have been carried out at each site, such as the restoration of the stairs at Douro lock no. 22 in 1972. Additional concrete work has been recently completed at Douro lock no. 22, Otonabee lock no. 23 and Nassau lock no. 22. Ornamental plantings and raised beds have also been installed at these lock sites. All four of these sites have new railings along the stairways and the locks. Some of these interventions, such as the new concrete work, have detracted from the historic nature of the sites. The colour and the finish of the new work contrasts boldly with the original dark colour of the existing, bullnose edged walls of the canals and locks.

Figure 36: New concrete work at Douro lock no. 24. [HCS 2016]

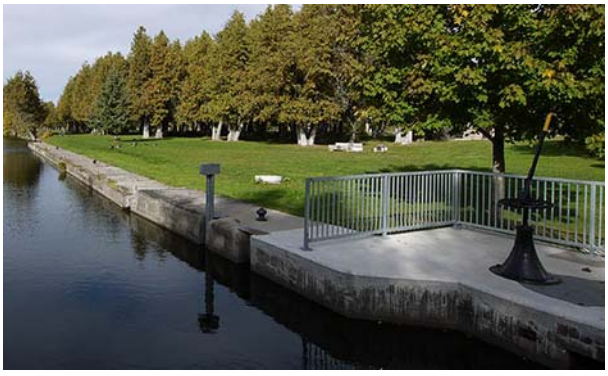

Figure 37: New concrete work at Nassau lock no. 22. [HCS 2016]

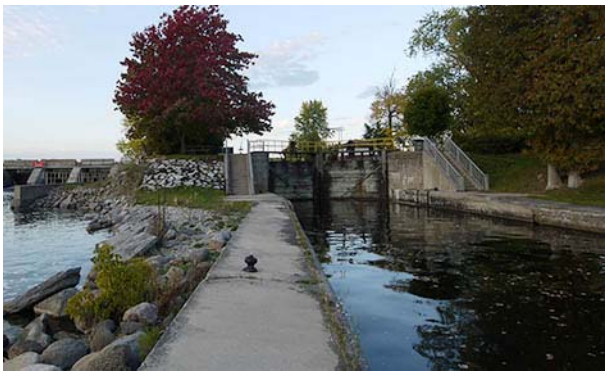

Figure 38: Steep slopes are present adjacent to the stairway at Sawyer Creek lock no. 25. [HCS 2016]

Figure 39: The engineered embankment of the canal at Otonabee lock no. 23 [HCS 2016]

Figure 40: The stone retaining wall detail at Otonabee lock no. 23 is also present at other sites, including Talbot lock no. 38. [HCS 2016]

4.3 Heritage Values

As per the Trent-Severn Waterway Statement of Commemorative Integrity, the heritage values specific to Nassau Mills lock no. 22, Otonabee lock no. 23, Douro lock no. 24 and Sawyer Creek lock no. 25 include:

- *These sites are significant not only because they were among the earliest (1896) concrete marine engineering structures built in Canada, but they, along with their unique operating mechanism and surrounding landscapes, have survived with minimal change since the time of construction.*
- *The value of the cultural landscape at lock no. 22 and lock no. 23 includes: the historic value of these stations lies in the assemblage of historic engineering structures and that, within the context of their landscape patterns, little has changed since the stations began operations in 1896. Both sites contain the archaeological remains of powerhouses from early 20th century hydro generation. Enhancing the historic character is the fact that the surrounding landscape features at these two stations remains relatively free from modern development.*

4.4 Landscape Elements that Contribute to the Heritage Character

The following section describes key elements of the landscape that will need to be protected and enhanced in order to conserve the unique character of this unique cultural landscape. The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*.

In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Nassau Mills lock no. 22, Otonabee lock no. 23, Douro lock no. 24 and Sawyer Creek lock no. 25, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

The extent to which such character-defining elements of indigenous cultural landscapes, can be identified will depend on how much information the communities are willing and able to share. It is recommended that the indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character-defining elements within this cultural landscape.

As such, in addition to the values identified in the Commemorative Integrity Statement, the following cultural landscape elements can be considered to have heritage value.

4.4.1 Evidence of Land Use

The series of lock and dam sites constructed along the Otonabee River between Peterborough and Lakefield were built to overcome the naturally occurring rapids and to regulate the waterway levels. As a result, these built elements modified the naturally curving bends in the Otonabee River by placing locks and canals in them. This facilitated the movement of people and goods since the late 1800s. Elements that reflect the continuing function of these sites as working locks are: the dam, the linear concrete canal, the island, and the lock itself. The legibility of these elements that support this continuing land use needs to be understood.

4.4.2 Spatial Organization

This grouping of locks were placed within the curvilinear bends along the Otonabee River. As such, the spatial organization of these sites included a concrete canal which is placed through a bend in the riverbank and an island in which the dam is connected to. This distinctive pattern along the river corridor, has been repeated at each one of these four lock sites. This pattern reflects a historic spatial organization which remains clearly discernable today.

4.4.3 Visual Relationships

Historically, the views upon approaching these locks were uninterrupted toward the lockmaster's house who facilitated boaters through the locks. These views included the concrete walls of the canals along the long sodded engineered embankments, the island adjacent to the canal and the lock master's house, set within a park-like atmosphere. Over time, trees have been planted within this sightline -such as those at Nassau Mills- which have diminished the interpretive and functional aspect of the site.

Figure 41: The views to the lock at Nassau Mills Lock 22 from the lockmaster's house have been altered with the addition of site plantings. [HCS, 2016]

4.4.4 Circulation

Many elements contribute to historic site circulation infrastructure of these sites. These include: the linear alignment of the canals; the pedestrian route made of narrow timber walkways above the gates which cross the canal; and, the informal pathways on the islands which lead to the dams.

4.4.5 Vegetation

The series of locks within this grouping are reflective of the construction of the canals and locks. This process required grubbing the sites of existing vegetation, the excavation of soil and stone, the removal of material by horse and cart and upon completion of the concrete work, fine grading of the disturbed areas. These areas were then sodded which resulted in a park-like atmosphere which is characterized by open lawn and informal tree plantings.

These grassed open areas which edge the canal and locks, maintain a well-ordered atmosphere. Generally, the landscape character of these engineered landscapes was organized to allow views to and from the water from the former lock office where the lockmaster could watch for boats approaching the lock channel.

Today, there continues to be a visual contrast onsite between the orderly character along the canal and the immediate pastoral natural setting in which it has been placed.

4.4.6 Landforms

The engineered terraced embankments of these lock sites are a human-made landform. They are associated with the construction of the lock. Steep slopes are present adjacent to the stairways. Gentle, long terraces are present along the canals. Additionally, the islands which result from the canal cutting through the bends along the Otonabee River, are also character defining elements.

4.4.6 Water Features

The water features at these locks play a functional role whereby the canalized channel allows waters to run through the locks from the Otonabee River in its role to overcome the rapids. As such, the linear length, the width, and the depth of the canal water - which has historically facilitated navigation on the waterway - are features unique to all of the lock sites. Additionally, the manner in which the water rises and lowers in the lock box, is also considered a character-defining element of these historic sites.

4.4.7 Built Features

The historic built features of these sites include the 1896 concrete locks that were the first to be constructed in North America. They were designed by Robert B. Rogers, a recognized Dominion Engineer of his time. The scale, form, mass, and composition are character defining elements of these historic sites. The dark colour and the coarse aggregate finish of the concrete at Sawyer Creek lock no. 25 is a character defining element that is shared with other locks completed by Rogers. This includes Scott's Mills lock no. 19and Talbot lock no. 38.

Additionally, the timber lock gates including their form, mass, scale and type of timber used is also valued. Timber was the original material used for these gates and the presence of this material onsite exemplifies the vernacular context and the historical relationship with the area's lumber trade.

4.4.8 Functional Arrangement

The construction of this grouping of lock and dams along the Otonabee has resulted in a large scale functional arrangement that is unique along the Trent-Severn Waterway. This includes the Trent Canal and the nearby Peterborough Lift Lock. Thus, this grouping of lock and dam sites represents a broader functional arrangement where the engineering work has a strong connection to its natural setting.

These lock sites are therefore a manifestation of the important human accomplishment to overcome the naturally occurring rapids. Legibility between this grouping of lock and dam sites within their broader functional arrangement, should be enhanced and protected in any future work.

4.4.9 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: this series of lock and dam sites have been constructed along the Otonabee River between Peterborough and Lakefield to overcome the naturally occurring rapids and to regulate the waterway levels.
- Spatial Organization: the placement of the locks within the curvilinear bends along the Otonabee River which include a concrete canal and an island in which the dams are connected to.
- Visual Relationships: the uninterrupted views toward the lockmaster's house upon approaching the locks.
- Circulation: the linear alignment of the canals; the narrow timber walkways; and, the informal pathways on the islands which lead to the dams.
- Vegetation: the simple turf grass working areas with no elaborate plantings.
- Landforms: the engineered terraced embankments, the steep slopes, the gentle long terraces which are present along the canals and the islands.
- Water Features: the linear length, the width, and the depth of the canal water.
- Built Features: the scale, form, mass, and composition of the lock and dam structures and the dark colour and the coarse aggregate finish of the concrete.
- Functional Arrangement: the grouping of lock and dams along the Otonabee River as a large scale functional arrangement built to overcome the naturally occurring rapids.

4.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Enhance the understanding of the lock and dam sites by explaining the evidence of land use which included the construction of this series along the Otonabee River to overcome the naturally occurring rapids and to regulate the waterway levels.
- Maintain and protect spatial organization and the natural character of the islands which result from the canal cutting through the bends along the river corridor.
- Maintain the site's visual relationships by preserving the uncluttered setback that exists between the lockmaster's house and the canal. If new elements need to be placed

within this zone, it is recommended that they are positioned in an ordered and subordinate manner.

- Maintain / reinstate a well ordered and minimal landscape treatment with the use of native trees and turf grass. The visual contrast onsite between the orderly landscape along the canal and the informal natural setting in which it has been placed should be protected.
- Maintain the landforms and the distinct engineered terraced grading of the long canal embankments and steep slopes adjacent to the stairs as sodded areas.
- Maintain the built features including the scale, massing and form of the canal, lock and dam elements including the concrete bull nose edging detail throughout. All new concrete work to be date stamped accordingly.
- Maintain the uniform character of the lock and dam's high quality concrete finish.
- When possible, preserve the existing timber gates.
- When adding new elements on the site, consider using materials that have been traditionally used such as timber, stone and concrete. Avoid adding new materials that will detract from the historic character and the understanding of the sites evolution. These new elements should be visually compatible with, subordinate to and distinguishable from the historic place.
- Maintain and protect the circulation including the linear alignment of the canals; the narrow timber walkways; and, the informal pathways on the islands which lead to the dams.
- Maintain and protect the water features including the linear length, the width, and the depth of the canal water.

Figure 42: Context map illustrating the location of Locks 22 - 25. [Google Maps, 2017]

5.0 TALBOT LOCK NO. 38

Figure 43: Bird's eye view of Talbot lock no. 38 [No Date, Parks Canada]

Figure 44: Contemporary view of the Talbot Lock No. 38 site which has retained much of its original character. [No Date, Parks Canada]

5.1 Site Description

Talbot is located along Highway 48 at 1427 Canal Road, west of the Kawartha Lakes area close to Gamebridge by Lake Simcoe. Talbot is situated between Kirkfield and Lake Simcoe and is part of a larger series of works constructed in the early 1900s to link Lake Simcoe to Balsam Lake.

Figure 45: Context map with Talbot lock no. 38 at center. [HCS, 2017]

This division was constructed to overcome the crest that had resulted from the Wisconsin glacier retreat at Kirkfield which separated Lake Simcoe from Balsam Lake. The 27.2 km (17 mi) long Simcoe-Balsam Lake Division necessitated joining the two drainage systems through a natural waterway. This resulted in a series of locks and dams controlling the water flow into Balsam Lake, located east of Kirkfield.[29]

Talbot lock no. 38, is highly valued as part of a larger grouping of canal works that has retained its historic integrity: there is no evidence identifying alterations to the site or the built elements from the initial construction period. Additionally, historic aerial imagery illustrates minimal evolution to this lock. As such, this site is unique to the Trent-Severn Waterway and could be representative of this early period.

[29] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 241

5.2 Periods of Landscape Development

To understand the present day landscape of the lock and dam features at Talbot and its heritage values, it is important to know how this landscape came into existence. The story of its development has been divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1836 - 1907 Act to Improve the Navigation of the Inland Waters of Newcastle District

Period 3: 1907 - The Simcoe-Balsam Lake Division

Period 4: 1971 - Present: Transfer to Parks Canada

Consideration of these four periods of time will show the influences that led to the implementation of the existing design for this site.

5.2.1 Period 1: Pre-history to Colonial Settlement

As with the earlier assessed lock sites, human activity along the Trent-Severn river corridors had predated canal construction by several thousands of years. This is exemplified at Talbot by the story of the preference of the First Nations peoples to portage around the river by way of the Talbot Portage.[30] The earliest surveys of the land between Lake Simcoe and Balsam Lake, which was made by Deputy Surveyor General John Collins in 1790, described the river as blocked with trees and rubbish[31]. A subsequent survey was carried out by J.P Catty in 1819, who was determining the Madawaska-Ottawa River route. It also described the river completely choked with fallen trees. [32] It is clear that although impassable by canoe, this area was part of a larger network of travel by early indigenous peoples.

Colonization was slow to populate this comparably isolated area of the region. The 1825 Irish settlement which populated the Peterborough area had fueled the development of region. Lumbering and mining efforts had continued to expand in meeting the needs of local areas. This Simcoe-Balsam Lake Division was built concurrent with the Peterborough-Lakefield Division and would continue to link the Waterway with the intent to transport these goods.

5.2.2 1836-1907 Act to Improve the Navigation of the Inland Waters of Newcastle District

Nichol Hugh Baird completed his survey for the Simcoe-Balsam Lake Division in 1835. Baird's proposal determined a route which avoided the numerous bends in the river and cut through land that was favorable for excavation. This plan envisioned the construction of 12 locks with

[30] Ibid 241
[31] Ibid 241
[32] Ibid 242

the average lifts of 3 m (10 ft.), to overcome the 37 m (121 ft.) difference in elevation between the two lakes. [33]

To situate these works along the Talbot River, R.B. Rogers would review and integrate the these surveys - including those done by N.H Baird and those by the Department of Railways and Canals Engineers - Stark and Rubidge. Together these surveys would provide the information for the final proposal constructed by R.B. Rogers, an approach he took for the siting other canals along the waterway. [34]

Similar to the proposal by Rubidge and Baird, Roger's was shorter. It included five (5) concrete locks with the planned Kirkfield Lift Lock which would replace the need of six (6) locks. This together with a series of dams and bridges, was considered an example of Canadian hydraulic engineering at its finest.[35]

5.2.3 Period 3: 1907-The Simcoe-Balsam Lake Division

For contract purposes, the sections within the Simcoe-Balsam Lake Division were divided into three sections. Section 1 included earth and rock excavation. Concrete abutments were also constructed for three bridges, and two entrance piers at Balsam Lake. Section 2 extended down from the hydraulic lift lock at Kirkfield to Bolsover lock; and, Section 3 extended from Bolsover lock to Lake Simcoe.

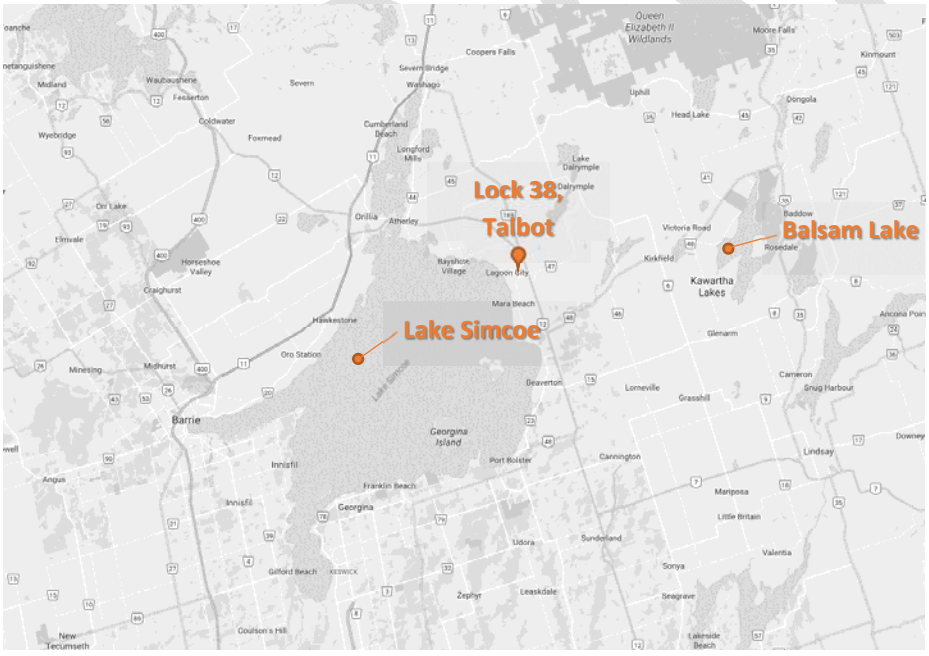

Figure 46: Context map with Talbot lock no. 38 at center. [HCS, 2017]

[33] Ibid 242
[34] Ibid 244
[35] Ibid 247

The lock and dam at Talbot were included in Section 3. This final section follows along the existing Talbot River for 3.2 km (2 mi.) and then a canal is constructed as a straight line north of the river as a bypass towards to Lake Simcoe for 5.6 km (3.5 mi.) This section contains five locks to overcome the 23 m (75 ft.) rise between Lake Simcoe and Canal Lake.[36]

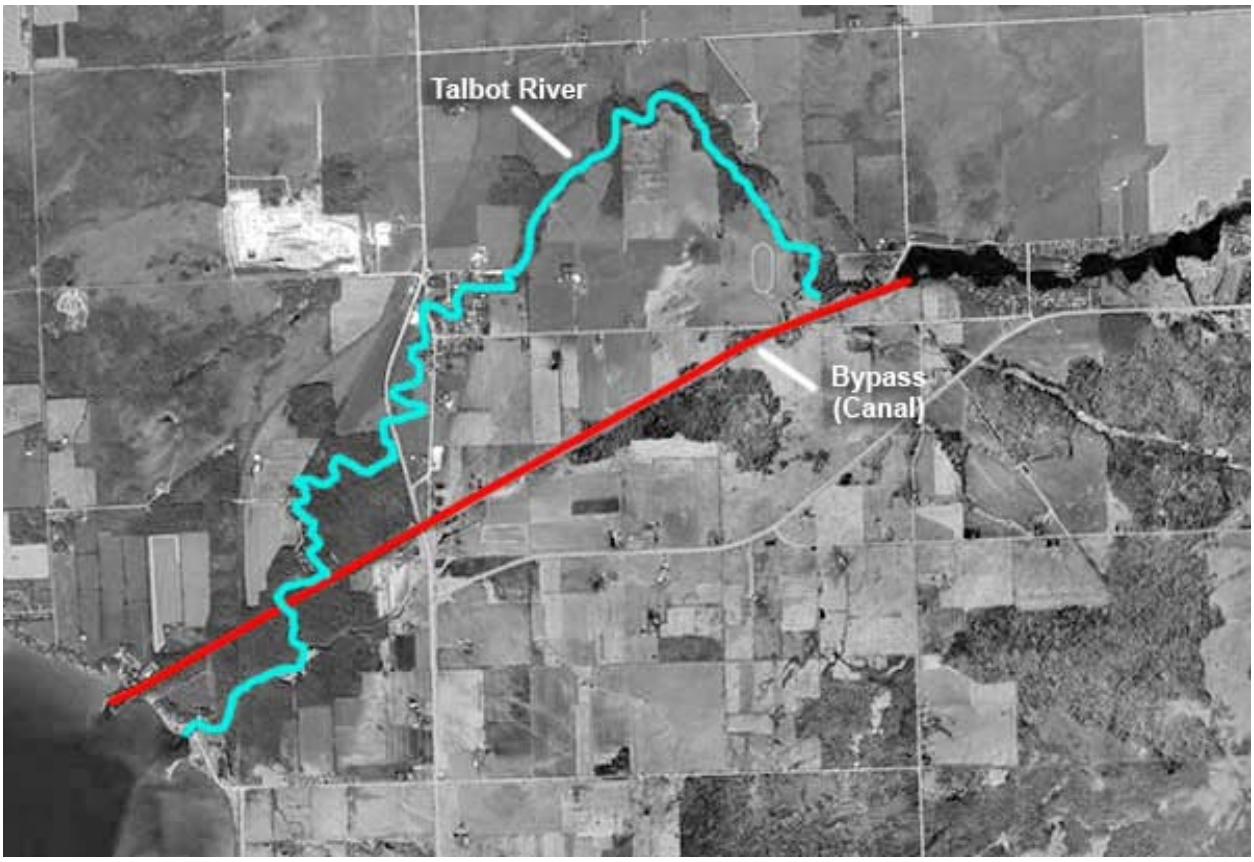

Figure 47: Aerial image of canal bypassing the Talbot River. [Google Earth, 2017]

Section 3 was constructed by contractors Brown and Aylmer who had built the Peterborough-Lakefield Division, credited as the first concrete locks in North America. The challenge of Section 3 was the excavation of the three-mile long prism, which had to be dug through heavy clay that was deposited at the bottom of post-glacial Lake Algonquin. Impossible to move during wet weather, horses and men could not stand up in the slippery soil, steam shovels could barely penetrate it, and wagons bogged down in it. When the weather was dry, the clay hardened like cement and was equally hard to move.[37]

[36] Ibid 250
[37] Ibid 253

Figure 48: Dredge excavating the canal prism between Gamebridge and Lake Simcoe. Date Unknown [Angus, 2000]

It took almost four years to build the five locks, dams and, the abutments for the bridges.[38] Construction was completed in June 1907. Sharing many of the distinct characteristics of the series built along the Peterborough-Lakefield Division, one can see the comparison of the lock to those along the Otonabee River with regards to the concrete work such as the bullnose treatment, the timber lock gates, and the graded and sodded landscape of the embankments.

Figure 49: 1945 Aerial of Talbot. [National Air Photo Library]

[38] Ibid 253

As done at the completion of the Peterborough Lift Lock and other sites, a celebration was held for the completion of this division. This one focused around the Kirkfield Lift Lock and on July 6th politicians, families and sightseers travelled from Ottawa to Lindsay by train, where they were picked up at Stoney Lake and taken to Kirkfield.

Onlookers passed through the hydraulic lift lock and the five new concrete locks, which had freshly painted timber gates and new concrete walls described as silver-grey and clean. These built elements were contributing to a highly technical industrial landscape of the early twentieth era. Miles of neat rows of limestone lined the sides of the canal prism. Nine new bridges, some rotating to let steamers pass, such as the one at Boundary Road, stretched high above the steamers.[39]

While the lock and dam sites projected formality and order with concrete walls and engineered slopes - albeit finely graded and sodded - the impact on the landscape within this section was utter devastation. The newly formed Mitchel and Canal Lakes were no more than flooded forests. Tree destruction on the Simcoe-Lake division was vast. An order on behalf of Superintendent J.H. McClellan that year was issued to clean up the canal once it was closed for the season to harvest the submerged trees. The retrieved cedar was used subsequently for canal fencing. An additional 60,000 feet of hemlock, pine, and elm was used for bridge planking and for the joists and rafters for the lockmaster's houses.[40]

Constructed with the intent of facilitating the movement of goods, the Simcoe-Balsam Lake Division never saw this type of transshipment. With similar influences that impacted the Peterborough – Lakefield Division such as the advent of the car, rail and diminished natural resources, the main use was, and has remained, tourism.

Upon review of early aerial imagery from 1945, very few site alterations have occurred, in spite of the increased number of shoreline properties along Canal Lake. As such, the existing park-like character of this lock site could be considered a compatible approach to the landscape treatment.

5.2.4 Period 4: 1971 - Present: Transfer to Parks Canada

In 1971, the Trent-Severn system was transferred from the Department of Railways and Canals to Parks Canada. Now, at the heart of the Trent-Severn navigation system, the Simcoe-Balsam Lake Division is the centre of recreational cruising. From here vessels journey to the east coast of North America. Those bound for Georgian Bay and the Upper Great Lakes, follow the markers to the northern part of Lake Simcoe, Atherley, and Lake Couchiching.[41]

[39] Ibid 253
[40] Ibid 255
[41] Theberge., Clifford et. al. *A Traveller's Companion: The Trent-Severn Waterway*. (Samual Stevens & Company , 1978), p 132

5.3 Heritage Values

According to the Commemorative Integrity Statement (CIS), the specific heritage values associated with the Simcoe-Balsam Lake section of the Waterway include:

- *The high number of surviving unmodified structure dating from the construction period 1900 to 1907 and because most of the lockstations in this section retain their integrity from the early 20th century period. In no other section of the Waterway is there such a collection of unmodified canal works and lockstation landscapes.*
- *The specific resources in the Simcoe-Balsam section which include: original locks, lockgate and valve operating mechanisms, damns, canal cuts, embankments, spoils, entrance piers, guardgates, culverts, bridges, bridge abutment remnants, associated machinery and loackstation landscape features surviving from the construction era.*

5.4 Landscape Elements That Contribute To the Heritage Character

The following characterization of the landscape setting of Talbot is based on background research, including the review of historic aerial and archival photographs, and on-site observation and assessment. It also takes into account the similarities of other divisions, such as those along the Peterborough-Lakefield Division which were constructed by the same engineer that exemplify similar site development and patterns.

The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*. In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Talbot, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

The extent to which such character-defining elements of indigenous cultural landscapes, can be identified will depend on how much information the communities are willing and able to share. It is recommended that the Indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character-defining elements within this cultural landscape.

5.4.1 Evidence of Land Use

Talbot is a part of a series of lock and dam sites constructed overcome the crest that had resulted from the Wisconsin glacier retreat at Kirkfield which separated Lake Simcoe from Balsam Lake. To overcome the 37 m elevation difference between the two lakes, five concrete locks and the Kirkfield Lift Lock were built. These elements combined with a series of bridges and dams – which flooded vast forested areas creating Mitchel and Canal Lake - were considered an example of Canadian hydraulic engineering at its finest.[42] Elements that reflect the continuing function of this site as working a lock include: the long linear concrete canal, the lock, the island, the steep embankments, the dam and the new lakes. The legibility of these elements that support this continuing land use needs to be understood.

5.4.2 Spatial Organization

The spatial organization of this site includes the linear canal, the lock, the adjacent island and the dam. These elements were organized in this manner to achieve the 'lift' of the lock. Additionally, the lock 5master's residence was placed by the lock to maintain a visual relationship with the water craft.

Figure 50: View of Talbot lock and dam. [HCS 2016]

5.4.3 Visual Relationships

Historically, the views upon approaching this lock were uninterrupted toward the lock master's residence who facilitated boaters through the locks. These views included the concrete walls of the canals along the long sodded engineered embankments, the island adjacent to the canal and the lock master's residence, set within a park-like atmosphere. Over time, the embankments at Talbot have been allowed to naturalize, which have diminished the interpretive and functional aspect of the site.

[42] Ibid 247

5.4.4 Circulation

Existing elements which contribute to the historic site circulation of this site includes: the top of the concrete wall of the canal and lock; the pedestrian route made of narrow timber walkways above the gates which cross the canal; and, the timber concrete walkway over the dam.

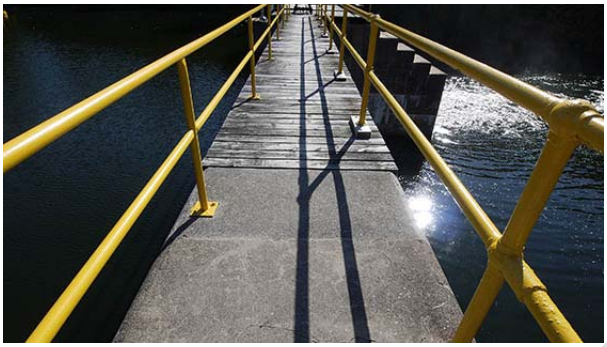

Figure 51: Timber and concrete characterize the walkway above the dam. [HCS 2016]

Figure 52: Open setback from the lock with adjacent mature vegetation. [HCS 2016]

5.4.5 Vegetation

Talbot is reflective of the construction of the canal, lock and dam. This required grubbing the site of existing vegetation, the excavation of soil and stone, the creation of a substantial landform to support the lock and dam and - upon completion of the concrete work - fine grading of the disturbed areas. These areas were then sodded which resulted in a park-like atmosphere which is characterized by open lawn and informal tree plantings.

The grassed open area which edge the canal and lock, maintain a well-ordered atmosphere. Generally, the landscape character of this engineered landscape was organized to allow views to and from the water from the former lock office where the lockmaster could watch for boats approaching the lock channel.

Today, there continues to be a visual contrast onsite between the orderly landscape along the canal and the immediate natural setting in which it has been placed.

5.4.6 Landforms

The steep engineered embankments of this lock site are a human-made landform. They are associated with the construction of the canal, the lock and the dam. The island which connects the lock and the dam is a significant character defining element. Recent naturalization of these landforms detract from the legibility of the site.

5.4.7 Water Features

The water features at this lock play a broader functional arrangement whereby the canalized channel allows waters to bypass the crest resulting from the glacial retreat. As such, the linear length, the width, and the depth of the canal water - which has historically facilitated navigation

on the waterway - are features unique to all of the lock sites. The manner in which the water rises and lowers in the lock box, is also considered a character-defining element. Additionally, the creation of nearby Canal Lake – resulting from the number of dams associated with this division – is a water feature that contributes to the understanding of this historic site.

Figure 53: The neat rows of stone along the water's edge are a valued built element in addition to the concrete canal and dam and shared with other sites such as at Otonabee. [HCS 2016]

Figure 54: The broom finish of the concrete work at Talbot is a valued characteristic. [HCS 2016]

Figure 55: The railings at Talbot do not detract from the site. [HCS 2016]

5.4.8 Built Features

The historic built features of this site include the 1906 concrete lock designed by Robert B. Rogers. Rogers - a recognized Dominion Engineer of his time – had just completed the first concrete locks in North America along the Otonabee River. As such, the scale, form, mass, and composition are character defining elements of this historic site. The dark colour and the coarse aggregate finish of the concrete is a character defining element that is shared with other locks completed by Rogers. This includes Scott's Mills and Sawyers Creek.

Additionally, the timber lock gates including their form, mass, scale, and type of timber used is also valued. Timber was the original material used for these gates and the presence of this material onsite exemplifies the vernacular context and the historical relationship with the area's lumber trade.

Figure 56: Inspecting concrete at Talbot. [No date, Parks Canada]

5.4.9 Functional Arrangement

The construction of the lock and dams in the Simcoe-Balsam Lake Division, joined two drainage systems in the natural waterway to flow into Balsam Lake. This has resulted in a functional arrangement of lock and dam sites which represents an engineering work which has a strong connection to the natural setting.

This lock site is therefore a manifestation of the important human accomplishment to overcome the naturally occurring change in grade. The legibility between the Talbot site and the lock sites with the Simcoe-Balsam Lake Division within their broader functional arrangement, should be enhanced and protected in any future work.

Figure 57: Context map illustrating the location of the Talbot Lock, no. 38. [Google Maps, 2017]

5.4.10 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: the long linear concrete canal, the lock, the island, the steep embankments, the dam and the new lakes.
- Spatial Organization: the linear canal, the lock, the adjacent island and the dam.
- Visual Relationships: uninterrupted views towards the lock master's residence.
- Circulation: the top of the concrete wall of the canal and lock; the timber walkways above the gates which cross the canal; and, the timber concrete walkway over the dam.
- Vegetation: the simple turf grass working areas with no elaborate plantings.
- Landforms: steep engineered embankments and the island which connects the lock and the dam.
- Water Features: the linear length, the width, and the depth of the canal water and the creation of Canal Lake.
- Built Features: the scale, form, mass, dark colour and the coarse aggregate finish of the concrete; and the timber lock gates including their form, mass, scale and type.
- Functional Arrangement: the relationship with the lock and dams in the Simcoe-Balsam Lake Division, which joined two drainage systems in the natural waterway to flow into Balsam Lake.

5.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Maintain the site's historic character by preserving the uncluttered setback that exists between the lockmaster's house and the canal. If new elements need to be placed within this zone, it is recommended that they are positioned in an ordered and subordinate manner.
- Maintain / reinstate a well ordered and minimal landscape treatment with the use of native trees and turf grass. The strong visual contrast onsite between the orderly landscape along the canal and the informal natural setting in which it has been placed should be protected.
- Reinstate the distinct engineered terraced grading of the canal embankments banks as sodded areas
- Maintain the scale, massing and form of the canal, lock and dam elements including the concrete bull nose edging detail throughout. All new concrete work to be date stamped accordingly.
- Maintain the uniform character of the lock and dam's high quality concrete finish.
- Where possible, preserve the existing timber gates.
- When adding new elements on the site, consider using materials that have been traditionally used such as timber, stone and concrete. Avoid adding new materials that will detract from the historic character and the understanding of the sites evolution. These new elements should be visually compatible with, subordinate to and distinguishable from the historic place.
- Maintain and enhance the understanding of this lock within the broader Simcoe-Balsam Lake Division.
- Maintain and enhance the understanding of the comparable details between this grouping of lock and dam sites to those of the Peterborough-Lakefield Division which are associated with the same engineer and contractors resulting in many similar site details and characteristics.
- Maintain and enhance the awareness of the correlation between the built elements within the system and the vast quantities of wood harvested from the Simcoe-Balsam Lake Division that was used for fencing and construction material.

- Maintain and protect the sites circulation including the timber walkways and along the canal.
- Maintain and protect the water features including the linear length, the width, and the depth of the canal water and Canal Lake.

6.0 BOUNDARY ROAD BRIDGE 44

Figure 58: 1945 aerial of Boundary Road Bridge. [National Air Photo Library]

Figure 59: 2016 aerial of Boundary Road Bridge. [Google Earth, 2016]

6.1 Site Description

Located approximately 2 km (1 mi.) to the east of Talbot lock no. 38, Boundary Road Bridge is considered an outstanding example of a heritage swing bridge on the Trent-Severn Waterway. Constructed in 1902, this single lane bridge is 5.25 m wide and 41.9 m long and is noted for its high degree of historic integrity with no major alterations to the truss apparent. Boundary Road Bridge was constructed within Section 2 of the Simcoe – Balsam Lake Division.

6.2 Periods of Landscape Development

To understand the present day landscape of Boundary Road Bridge and its heritage values, it is important to know how this landscape came into existence. The story of its development has been divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1800 - 1895 Bridge Construction Evolution

Period 3: 1896 - 1907 The Simcoe-Balsam Lake Division

Period 4: 1971 Transfer to Parks Canada - Present

Consideration of these four periods will show the influences that led to the implementation of the existing design for this site. It will also articulate the understanding the bridge and how it contributes to the heritage value of the broader engineered canal system. Understanding the construction history, theory, functional basis and design behind the constructed element should guide the conservation maintenance of this site as unique cultural landscape.

6.2.1 Period 1: Pre-history to Colonial Settlement

As with the earlier assessed lock sites, human activity along the Trent-Severn river corridors had predated canal construction by several thousands of years. This was exemplified in this area at Talbot by the story of the preference of indigenous peoples to portage around the river by way of the Talbot Portage.[43]

Before bridges were built, travelers and settlers crossed the rivers at shallow places or fords such as at Campbell's ford (later Campbellford). Ferries were used to cross as well. As a result of the crossings three transportation patterns resulted in bridge building along the waterway: roads, railways; and the building of the waterway itself.[44]

[43] Ibid 241

[44] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 34

Prior to 1790, most travelers in Upper Canada moved around by water in summer and by horse and sleigh in winter. As roads gradually expanded into the interior, some of them crossed rivers and required bridges. One of the earliest was from Trenton to Crook's Rapids (Hastings) which was built in 1826 and which gave access to the townships on the north side of Rice Lake. Successive settlement roads and crossings would eventually become major canal crossings. Additionally, of the 78 bridges constructed along the Trent-Severn, 24 were constructed for railways.

With the activity of canal construction being completed as divisions, bridges would follow and as such, bridge building and modification would take place during the various phases of the canals.

6.2.2 Period 2: 1800 - 1895 Bridge Construction Evolution

During the evolution of the waterway many bridges were built. These began in the 1800s, with the wooden swing bridges which were built with the early works at sites such as Burleigh Falls. Additionally, nine new bridges were added to the existing five bridges along the Peterborough-Lakefield Division completed in 1904.

These early bridges were wood and forest fires destroyed many of them. Early wood burning locomotives sent out a stream of sparks and ashes that frequently landed on bridges. By the end of the 19th century, the supply of lumber and timber was scarce leading to the manufacturing of composite bridges made up of wood and iron were built. The railways would influence the construction of steel bridges in 1890s and three different classes would be constructed: through truss, pony truss and deck truss.

As a result of this railway construction, the Simcoe-Balsam Lake Division had 11 bridges built.

6.2.3 Period 3: 1896 – 1907 The Simcoe-Balsam Lake Division

As identified in the evolution of Talbot lock no. 38, Section 1 included earth and rock excavation. Concrete abutments were also constructed for three bridges and two entrance piers on Balsam Lake. Section 2 extended down from the hydraulic lift lock to Bolsover, Section 3 extended from Bolsover to Lake Simcoe.

Boundary Road Bridge 44 was included in Section 2 of the Simcoe-Balsam Lake Division which extended from the site of the hydraulic lift lock for 12 km (7.5 mi.) down the Talbot River to Bolsover. It was preceded at the exact location by a pre-canal bridge across the Talbot River (built circa 1889).[45]

[45] Parks Canada, *Boundary Road Bridge Presentation (2016)*

The major construction for this section was the excavation for the hydraulic lift lock, the construction of the lock foundation, the construction of abutments and piers for nine (9) bridges including one railway bridge and, a dam on the Talbot River at Bolsover lock.[46]

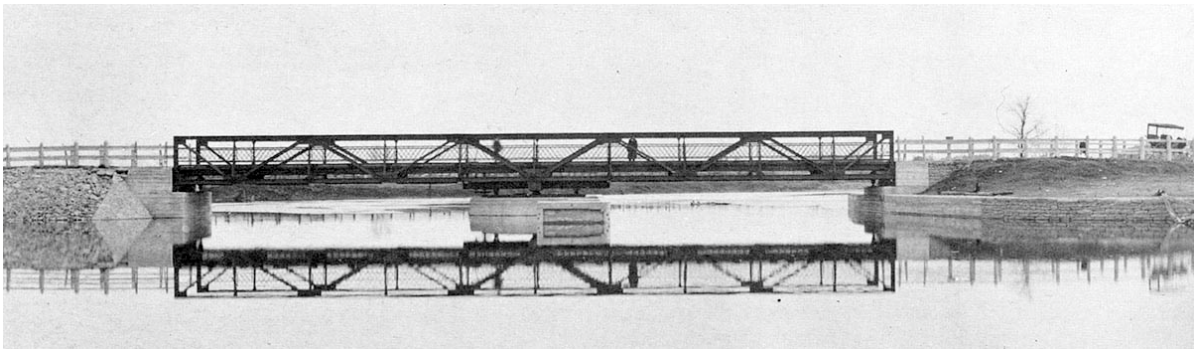

Figure 60: Boundary Road Bridge 1920. [Angus, 2000]

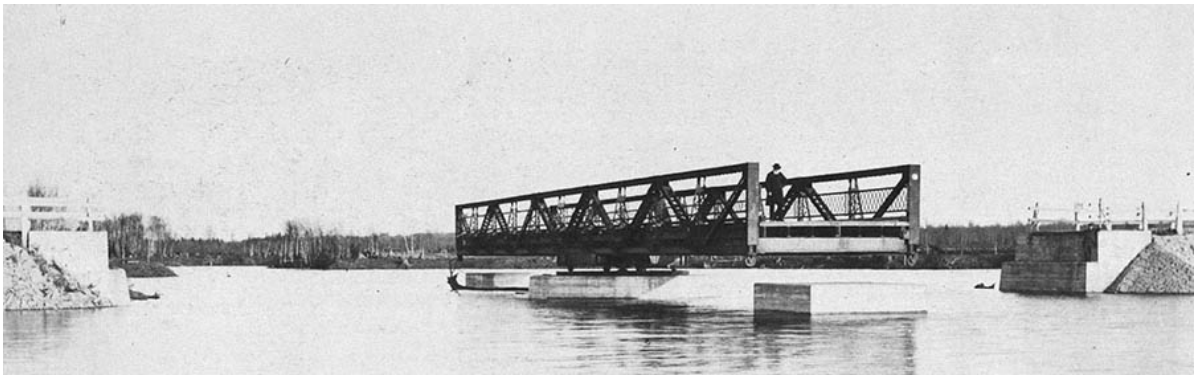

Figure 61: Boundary Road Bridge 1920. [Angus, 2000]

Moveable bridges had become necessary to allow the passage of steamers and other large boats, when it was not feasible to construct fixed bridges with sufficient clearance. There are three (3) types of movable bridges: swing, bascule, and lift. Swing types include an equal arm, where the span turns a central axis on a central pier. Boundary Road Bridge is an equal arm steel pony-truss bridge.

Starting as early as the 1950s the increase of traffic on the waterway and the attendant roads caused conflict at swing bridges and lengthy delays for both boaters and motorists. To mitigate this conflict, 21 high level highway bridges were built over the waterway between 1962 and 1972. This scenario occurred at Burleigh Falls with the replacement of its swing bridge and eventually construction of a high level highway bridge.

[46] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 249

6.2.4 Period 4: 1971 Transfer to Parks Canada - Present

In 1971, the Trent-Severn system was transferred from the Department of Railways and Canals to Parks Canada. With numerous replacements and new construction, five (5) road swing bridges remain, including the one at Boundary Road.

As such, the Boundary Road Bridge is recorded as the last original equal-arm pony-truss swing bridge remaining on the Trent-Severn Waterway out of 22 extant highway swing bridges; it is also the sole remaining example within the Federal system. Other bridges include the Bolsover Bridge (replaced in kind), the Gamesbridge Swing Bridge (ruins), and the Lake Shore Road Bridge 50 (removed in 2009).

Identical bridges in form include nos. 43, 46, 47 and 50 which are from the same plans prepared by Hamilton Bridge Works Co. The Boundary Road Bridge is a good representative example of the James Warren and Willoughby Monzoni truss configuration (1848) with repeating equilateral triangles, I-beams and riveted connections. [47]

The control equipment in use today is unusual in that it is housed in a simple steel box located next to the bridge. There is no "bridge tender house" as was typically found with moveable bridges: within is housed the control equipment. However, there is a shelter for the bridge tender near where the control equipment is located, but no control equipment is located within this building. The truss appears to remain in good condition.[48]

Figure 62: Photograph of shelter and control equipment present at bridge. [HCS, 2016]

[47] Parks Canada, *Boundary Road Bridge Presentation* (2016)
[48] N. Holth, et. al. *Historic Bridges*. 2003-2017. (March 2017)

6.3 Heritage Values

According to the Commemorative Integrity Statement (CIS), the specific heritage values associated specific to the Boundary Road Bridge 44 include:

- *The historic bridges that cross the Trent-Severn Waterway exemplify the juxtaposition of transportation technologies and the evolution of the bridge design, construction and use. Nine bridges, comprised of both rail and road types, were evaluated as Level II cultural resources. These designations were based on the significant surviving design elements of the structures – some being quite rare in Ontario- as well as their contextual surroundings.*

6.4 Landscape Elements That Contribute To the Heritage Character

The following characterization of the landscape setting of Boundary Road Bridge is based on background research, including the review of historic aerial and archival photographs, and on-site observation and assessment.

The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*. In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Boundary Road Bridge, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

As for indigenous cultural landscapes, the extent to which such character defining elements can be identified will depend on how much information the communities are able and willing to share. It is recommended that Indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character defining elements within this cultural landscape.

6.4.1 Evidence of Land Use

Boundary Road Bridge is a part of the division of lock and dam sites constructed overcome the crest that had resulted from the Wisconsin glacier retreat at Kirkfield. This retreat separated Lake Simcoe from Balsam Lake. To overcome the 37 m elevation difference between the two lakes, five concrete locks and the Kirkfield Lift Lock were built. This also included a series of dams and bridges – including the Boundary Road Bridge. Elements that reflect the continuing function of this site as a working swing bridge include: the long linear road, the bridge and the water. The identification of these elements that support this continuing land use needs to be understood.

6.4.2 Spatial Organization

The spatial organization of this site includes the narrow bridge abutments which extend north and south across the waterway and the arc in which the swing bridge rotates. This bridge type was placed strategically to facilitate the movement of large boats.

Figure 63: Looking north along Boundary Road Bridge. [HCS, 2016]

6.4.3 Visual Relationships

Historically, the views upon approaching the swing bridge were uninterrupted towards the tender house and control equipment which facilitated boaters through. The sites visual relationship also include views from the shelter / equipment towards the waterway and the blue pony truss swing bridge itself.

6.4.4 Circulation

The elements which contribute to the historic site circulation of this site includes: the one way road and embankment leading to and from the bridge, the timber planks across the bridge and the water below in which it is set.

Figure 64: The concrete, timber and steel elements of Boundary Road Bridge are valued built features. [HCS, 2016]

6.4.5 Vegetation

Boundary Road Bridge is reflective of the construction of the abutments and of the footing of the swing bridge. Visible in the 1902 photographs, this construction has resulted in the removal of vegetation around the bridge site.

The embankements reflect a maintained landscape treatement which supports the engineered character of the earthwork and provides contrast between the orderly landscape of the abutments and the immediate natural setting in which it has been placed.

Figure 65: The cut grass along the engineered embankments support the character of this site. [HCS 2016]

6.4.6 Landforms

The engineered abutments of the bridge and of the road are a human-made landform. They are associated with the construction of the swing bridge. Recent naturalization of these landforms detracts from the legibility of the site.

6.4.7 Water Features

The controlled waters which flow from Lake Simcoe to Balsam Lake created Canal Lake which serves a role to bypass the crest resulting from the glacial retreat.

The water features at this bridge play a broader functional arrangement whereby the waters have been modified to bypass the crest resulting from the glacial retreat. As such, broader water features such as Canal Lake - which has historically facilitated navigation on the waterway - are features unique to this bridge site.

6.4.8 Built Features

The historic built features of this site include the 1902 swing bridge designed by Hamilton Bridge Works Co, the embankments for the road and footings for the bridge. Combined, the scale, form, mass and composition are character defining elements of this historic site.

Additionally, the blue colour finish of the steel is shared with other bridges within the Trent-Severn Waterway system -such as the Bolsover Swing Bridge no. 43 - which provides legibility with the construction of the Lake Simcoe – Balsam Lake Division.

6.4.9 Functional Arrangement

The construction of the grouping of bridges, locks and dams that were built in the Simcoe-Balsam Lake Division joined two drainage systems in the natural waterway which now controls water flow into Balsam Lake. This has resulted in a large scale functional arrangement of bridges, locks and dam sites which represent a broader functional arrangement where the engineering work has a strong connection to its natural setting.

This bridge site is therefore a manifestation of the important human accomplishment to overcome the naturally occurring crest which resulted from the glacial retreat. The legibility between the Boundary Road Bridge site and the remaining bridge sites with the Simcoe-Balsam Lake Division – such as Bolsover Bridge- should be enhanced and protected in any future work.

Figure 66: Bird's eye view of Boundary Road Bridge. [Parks Canada, No date]

6.4.10 Constructed Elements

Boundary Road Bridge is associated with the evolution of the Trent-Severn Waterway and the transformation of the landscape resulting from the creation of the Simcoe-Balsam Lake Division. This bridge offers: a rare physical record of this division which was constructed with the purpose to transport goods and to facilitate large watercraft.

6.4.11 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: the long linear road, the bridge and the water.

- Spatial Organization: spatial organization of this site includes the narrow bridge abutments which extend north and south across the waterway and the arc in which the swing bridge rotates
- Visual Relationships: uninterrupted views towards the tender house, views from the shelter / control equipment to the waterway and along the swing bridge.
- Circulation: the one way road and embankment leading to and from the bridge, the timber planks across the bridge and the waterway below in which it is set.
- Vegetation: the turf embankements and the immediate natural setting in which it has been placed.
- Landforms: engineered embankments of the bridge and of the road.
- Water Features: the controlled waterway in which it has been placed.
- Built Features: the scale, form, mass and composition of the 1902 blue painted swing bridge, the embankments for the road and footings for the bridge.
- Functional Arrangement: the grouping of bridges, locks and dams that were built to join two separate drainage systems.
- Constructed Elements: the bridge as a rare physical record of this division.

6.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Maintain and protect the distinct engineered abutment of the bridge and road.
- Maintain the spatial organization of the site landscape which is characterized by the narrow linearity of the bridge abutment which extends both north and south across the waterway.
- Maintain the built character of the bridge's masonry, timber and painted steel construction.
- Maintain the colour and the finish of the steel which is unique to this bridge and part of a grouping that were built over the turn of the 20th century.
- Maintain the circulation of recreational boating as well as the continuing function as a swing bridge.

- Maintain and enhance the understanding the function of this bridge within a group of lock and dam sites of the Simcoe-Balsam Lake Division and the broader functional arrangement of the Trent-Severn Waterway system.
- Maintain and enhance the correlation of the bridges within the larger group - such as the Bolsover Swing Bridge no. 43 - as they share many similar site details and characteristics.
- Maintain and protect the uninterrupted views towards the shelter / control equipment, to the waterway and along the swing bridge.
- Maintain and protect the one way road and embankment leading to and from the bridge, the timber planks across the bridge and the waterway below in which it is set.

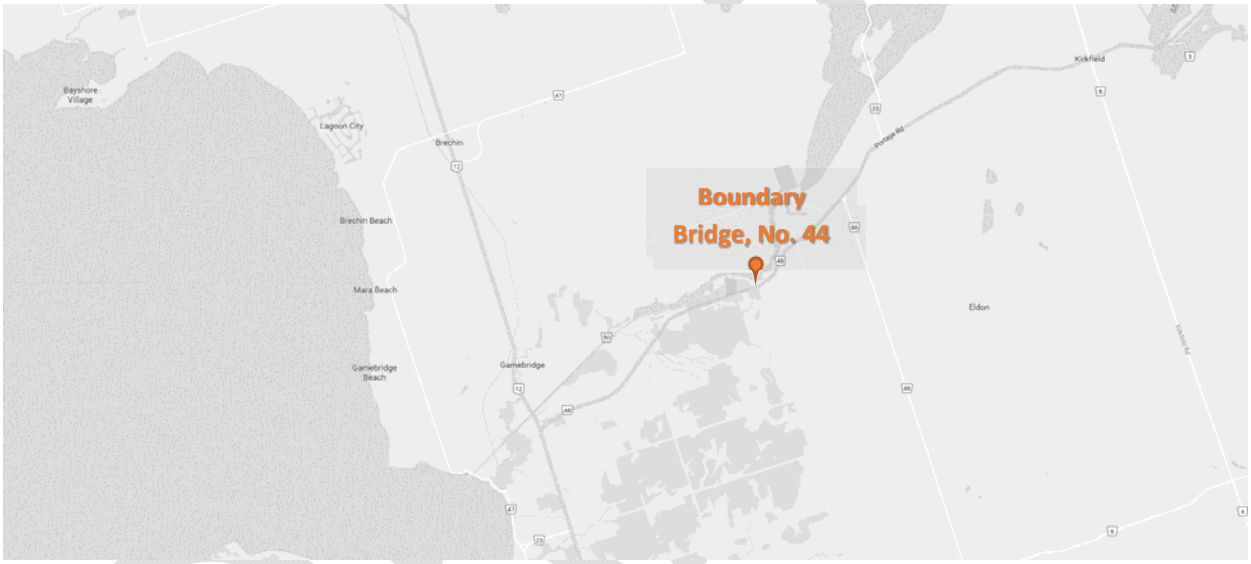

Figure 67: Context map illustrating the location of the Boundary Bridge, no. 44. [Google Maps, 2017]

7.0 TRENTON LOCK NO. 1

Figure 68: 1965 Aerial of Trenton Lock, Canal and Dam with a portion of Myers Wall visible at bottom [National Air Photo Library]

Figure 69: 2016 Aerial of Trenton Lock, Canal and Dam with a portion of Myers Wall visible at bottom [Google Earth, 2016]

7.1 Site Description

Trenton is located on west side of the Trent River at 29-45 Regional Road 33 in Trenton; just south of Highway 401. The lock was completed in 1918 and is considered a part of the Ontario-Rice Lake Division. This division is unique to the others, in that the canal length is longer. The locks along the Trent River are all 53 m (175 ft.) long while the locks on the remaining part of the waterway are 43 m (142 ft.) in length.

The opening of this final division of the Trent-Severn Waterway established a complete route from Lake Ontario to Lake Couchiching, just north of Lake Simcoe. As such, Trenton is the culmination of 80 years of canal construction and is representative of the continuing development of the waterways tourism and recreation trade.

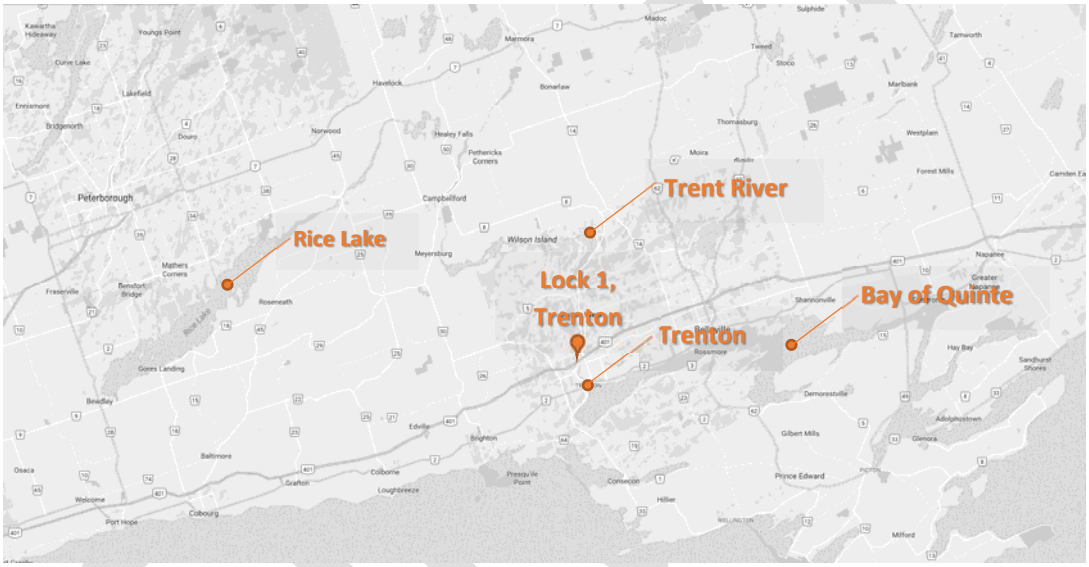

Figure 70: Context map illustrating the location of Trenton lock no. 1 in facilitating navigation from the Bay of Quinte to Rice Lake. [Google Maps]

Entering the waterway at Trenton, boats sail north under several bridges and negotiate a number of locks before reaching open countryside. In travelling the 92 km (57 mi) from the Bay of Quite to the eastern end of Rice Lake, vessels climb about 112 m (367 ft.) an ascent made possible by eighteen (18) locks. [49]

[49] Theberge, 118)

7.2 Periods of Landscape Development

To understand the present day landscape of Trenton and the heritage values, it is important to know how this landscape came into existence. The story of its development has been divided into four periods for the purposes of this study:

Period 1: Pre-history to Colonial Settlement

Period 2: 1900s Hydro Electricity on the Trent River

Period 3: 1907 - 1959 The Ontario-Rice Lake Division

Period 4: 1960 - 1971 Transfer to Parks Canada

Consideration of these four periods of time will show the influences that led to the implementation of the existing design for this site.

7.2.1 Period 1: Pre-history to Colonial Settlement

As with the earlier lock and dam sites, human activity along the Trent-Severn River corridors pre-date canal construction by several thousands of years. During the early colonial period, the Ontario-Rice Lake Division was surveyed by Baird in 1833 who proposed a number of lock and dam sites to overcome the grade change to from the Bay of Quinte to Rice Lake. Following in 1843, James Lyons of the Board of Works suggested a less expensive scheme.These proposals were not executed and instead, early activity along the Trent would be driven by log mills such as the one owned by David Gilmour in 1852.[50]

As the forests were cleared for settlement adjacent to the Trent drainage system, mill owners harvested logs as far away as Algonquin Park. Elaborate systems of 'tramways' were built, as well as timber cribs and shoots. As settlement expanded, millers and steamboats also used the Trent River. [51] This early period of lumbering, impacted the industrialization of the Trenton area in its earliest days.

[50] Crispin Shaftoe, *The History of Lock Number 1 on the Trent-Severn Waterway*. (Cornwall: Canadian Parks Service, 1989), p 31

[51] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 17

Figure 71: Example of one of the means of moving lumber within the waterway – a single timber slide. [Angus, 1998]

At its peak in the late 1800s, lumbering activities would conflict with the steamboats and other mills along the waterway: late spring, timber drives would lower the water levels below navigable depths if the slide dams were not closed. Because of this activity along the river corridor, sunken logs, sawdust and wood chips congested the waterway, impacting water quality and making boating difficult.[52]

To mitigate the environmental damage, the Ontario legislature enacted laws that required sawmills to burn sawdust. Additional canal regulations were brought in under Dominion control to remove obstacles to navigation and hefty fines were implemented for obstructing navigation.[53]

7.2.2 Period 2: 1900s Hydro Electricity on the Trent River

As the lumber industry began to decline, the interest in the potential for the development of hydroelectricity power began to develop along the Trent River. This interest would initiate the construction of this final series of lock and dams sites along the Trent River. The then governing party used the canal as a means to prevent Ontario's Hydro Electric Power Commission from developing the river's electric power potential as a public enterprise.[54]

[52] Ibid 19
[53] Ibid 19
[54] Ibid 19

Due to the steep elevation change of the river, the Ontario-Rice Lake Division contained substantial amounts of electric power potential. The riparian rights were acquired by J.G.G. Kerry who would develop power in the name of Sidney Electric Power, one of the several power companies that had been established for developing the Trent River water powers. [55]

7.2.3 Period 3: 1907-1959 The Ontario-Rice Lake Division

In 1907, tenders were called for the final division and the river was divided into seven (7) sections. Section 1 extended from Trenton to Glenn Miller. This section included the lock and dam at Trenton in addition to the construction of two (2) other locks, two (2) dams and five (5) bridges. The contract was awarded to Larkin and Sangster, the contractor who had recently completed the work at Kirkfield Lift Lock. [56]

The placement of the lock site itself was very close to the underside of the Grand Trunk Railway Bridge: this resulted in the construction of retaining walls below the bridge crossing. This also necessitated the removal and replacement of an old timber slide and dam and the support of the railway track as a temporary bridge during construction of the canal cut.[57]

Figure 72: Temporary Rail bri0dge constructed at Trenton 1908. [Angus, 2000]

[55] James. Angus, *A Work Unfinished: The Making of the Trent-Severn Waterway*. (Sever Publications Limited, 2000), p. 17
[56] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 314
[57] James. Angus, *A Work Unfinished: The Making of the Trent-Severn Waterway*. (Sever Publications Limited, 2000), p. 17

In the spring of 1908, Larking and Sangster supplied two steam shovels for the work on the section. It was excavated throughout the summer and autumn. The rock was drilled and blasted and dumped beside the canal cut. The steam shovel was assisted by teams of horses and carts which carried the rubble and dirt from the site which was deposited near the canal prism where the land was being cleared and 'grubbed'. The excavated material was used by the contractor as either backfill behind completed structures and walls or was 'thrown to spoil' by widening the embankments.[58]

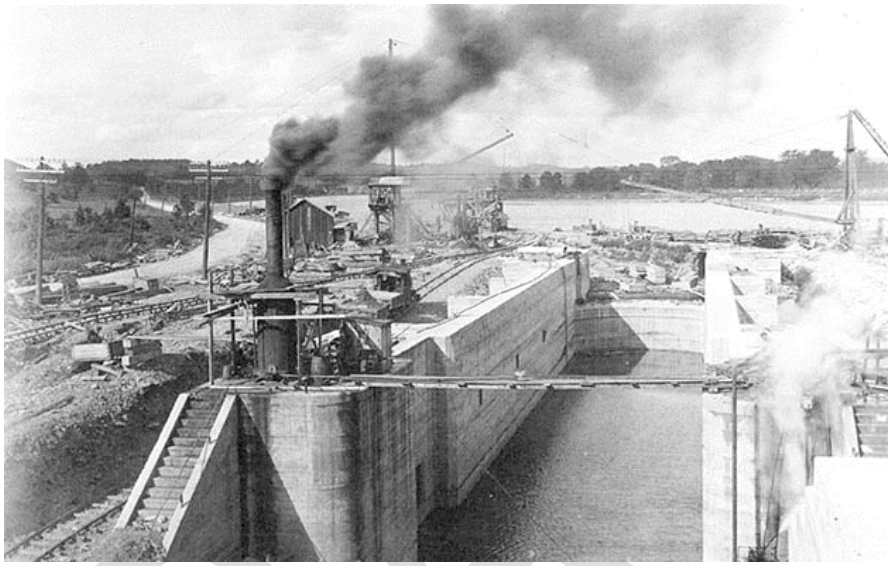

Figure 73: Trenton under construction c. 1910. [Angus, 2000]

Figure 74: Trenton under construction c. 1915. [Angus, 2000]

[58] Crispin Shaftoe, *The History of Lock Number 1 on the Trent-Severn Waterway*. (Cornwall: Canadian Parks Service, 1989), p 39

As seen at sites along the Otonabee River such as Douro lock no. 24 and Sawyers Creek lock no. 25, this lock was placed within a bend along the Trent River. As such, the spatial organization of this site includes a concrete canal which is placed through a bend in the riverbank and the resulting island in which the dam is connected to.

Downstream from the lock and dam is a protection wall for the canal channel in the river. The channel was dredged by R. Weddell and Company. This protection wall was raised because a strong cross current forced boats onto the east shore. The Myers Island protection wall was constructed following the excavation of the channel.[59]

After six years of construction, the site was completed in 1912. All that remained was some dredging between the lock and the Bay of Quinte, sodding around the locks, and the installation of hand rails.[60]

Figure 75: Myers Island protection wall under construction 1913. [Angus, 2000]

[59] Ibid 42
[60] Ibid 42

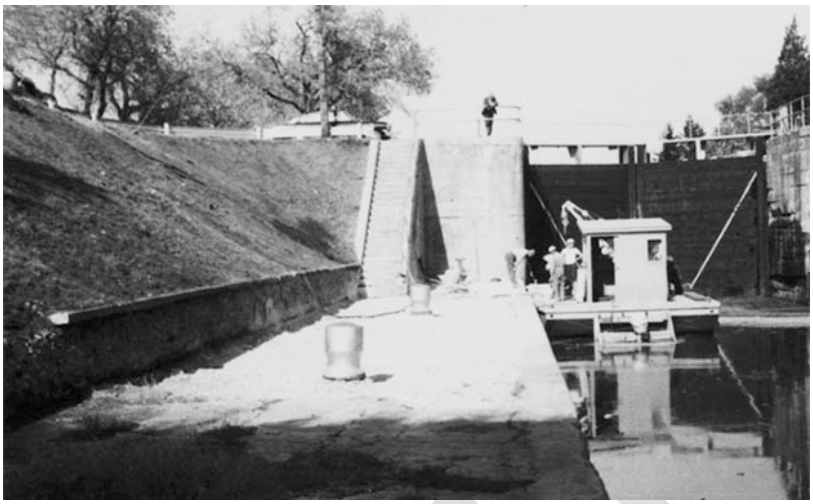

Figure 76: Trenton lock with steep sodded embankment on left.
[Parks Canada, No date]

The reason for the unique length of this series of locks along the Trent River is unclear. However it has been associated with the engineer at the time who, may have copied details for the Soulanges Canal which had been built for a larger class of steamer on the St. Lawrence. This deviation in size meant that the earlier, smaller, limestone locks were torn out and replaced with larger, less durable concrete locks. As a result, the only limestone that remains today is at Scott's Mills, lock no. 19.[61]

All lockstations along the Trent Canal were eventually provided with houses for the resident lockmaster. The Trenton lockmaster's house also serves as the lockstation's office. The dwelling at Trenton was constructed in 1923. It was a standard one and a half storey red brick and wood frame house with a front verandah. The house trim was painted forest green. When the Department of Transport took over control of the canal, the houses were usually painted with a grey trim much like those along the Rideau Canal.[62] It is plausible that timber harvested from the Simcoe – Balsam Lake Division - which resulted from the flooding of vast forested areas - was used for the house construction.

The lockstation at Trenton served as the gateway to the Trent-Severn Waterway and despite the 90 years spent lobbying for the canal, it was not until July 1912, that the cruiser *Kitchener* finally made its way through the waterway from Belleville to Orillia: there it claimed two silk flags - put up by the Orillia Board of Trade and the Dominion's Department of Marine and Fisheries - for the first boat carrying six passengers or more to make the through trip.[63]

[61] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 308

[62] Crispin Shaftoe, *The History of Lock Number 1 on the Trent-Severn Waterway*. (Cornwall: Canadian Parks Service, 1989), p 49

[63] James Angus, *A Respectable Ditch: A History of the Trent-Severn Waterway 1833-1920* (McGill-Queen's Univeristy Press, 1988), p. 308

7.2.4 Period 4: 1960 - 1971 Transfer to Parks Canada

In 1971, the Trent-Severn Waterway was transferred from the Department of Railways and Canals to Parks Canada. Repairs and changes that have occurred since 1910 include: the removal of the road bridge; the rehabilitation of the stairways (1922, 1950, 1966); rebuilding of the lock entrance wall (1966-67), the installment of the log lifter during the late 1970's, the restored safety ladder and lock chamber (1975) and the mechanization of the lock gate (1967-1968). [64]

Today the missing features from the original 1912 site include the lockmaster's house, tool sheds and the original watch house. The lockmaster's house was demolished in 1969: by that time residential development in the City of Trenton had almost reached the lock station and the lockmaster could live close by if he so desired. The new watch house has continued to serve as the administrative office. [65]

7.3 Heritage Values

As per the Trent-Severn Waterway Statement of Commemorative Integrity the heritage values specific to Trenton include:

- *All the locks in the Trent River section (Lock 1 through 18) because they reveal the evolutionary character of lock operation and construction. While gate opening mechanisms on the lower gates have been automated, the upper gates retain their traditional manual method of operation. In addition, the locks in the Trent River section retain much of their original fabric and massing, and the environmental settling has experience relatively little change since the construction period.*

7.4 Landscape Elements That Contribute To the Heritage Character

The following section describes key elements of the landscape that will need to be protected and enhanced in order to conserve the unique character of this unique cultural landscape. The key elements were identified and analyzed using the framework developed in the *Standards and Guidelines for the Conservation of Historic Places in Canada*.

In accordance with that document, the key elements of this property can be considered in different categories including: evidence of land use, spatial organization, visual relationships, circulation, vegetation, landforms, water features, built features, and functional arrangement. In the context of Trenton, it is the presence of key historic elements on the site that is critical to the quality of the visual experience today.

[64] Parks Powerpoint, No date.
[65] Crispin Shaftoe, *The History of Lock Number 1 on the Trent-Severn Waterway*. (Cornwall: Canadian Parks Service, 1989), p 49

The *Standards and Guidelines* also provide direction regarding material features or landscape patterns or forms that result from traditional practices which may be identified as character-defining element within a cultural landscape.

The extent to which such character-defining elements of Indigenous cultural landscapes, can be identified will depend on how much information the communities are willing and able to share. It is recommended that the Indigenous communities are consulted prior to any intervention, to understand the traditional practices that may be identified as character-defining elements within this cultural landscape.

As such, in addition to the values identified in the Statement of Commemorative Integrity, the following cultural landscape elements can be considered to have heritage value.

7.4.1 Evidence of Land Use

As part of a larger division of sites along the Trent River, the lock and dam constructed at Trenton, was built to overcome a 112 m (367 ft.) elevation difference between the Bay of Quinte and Rice Lake. As a result, these built elements modified the naturally occurring river corridor thereby facilitating the movement of people since the early 1900s. Elements that reflect the continuing function of the site as a working lock include: the dam, the linear concrete canal, the Myers Island protection wall, the terraced embankments and the lock itself. The legibility of these elements that support this continuing land use is highly valued and needs to be understood and protected.

7.4.2 Spatial Organization

The spatial configuration of Trenton includes the lock and the dam constructed by Larkin and Sangster, the contractor who had recently completed the work at Kirkfield Lift Lock. Additionally, similar to those located along the Otonabee such as Douro and Sawyers Creek, this lock was placed within a bend along the Trent River. As such, the spatial organization of this site includes a concrete canal which is placed through a bend in the riverbank and an island in which the dam is connected to. This distinctive pattern, has been repeated at other earlier lock sites within the system and reflects a historic spatial organization which remains clearly discernable today.

7.4.3 Visual Relationships

Historically, the views upon approaching this lock was uninterrupted toward the lockmaster's house who facilitated boaters through the lock. These views included the concrete walls of the canal, the steep engineered embankments, the island adjacent to the canal and the lock master's house, set within a park-like atmosphere.

7.4.4 Circulation

Many elements contribute to historic site circulation infrastructure of this site. This includes: the linear alignment of the canal; the pedestrian route made of narrow timber walkways above the gates which cross the canal; and, the informal pathways on the island which lead to the dam. Unique to Trenton is the rail bridge that runs overhead of the canal. This too is part of the historic site circulation. New paving material has been introduced at Trenton and detracts from the historic character of the site.

Figure 77: The contemporary paving material detracts from the established heritage character of the site. [HCS, 2016]

7.4.5 Vegetation

The vegetation at the Trenton is reflective of the excavation of the canal and the final grading of the site. This earthwork resulted in the removal of the existing vegetation around the lock site, resulting with the steep embankments and a park-like atmosphere which can be characterized by open lawn and informal tree plantings. Along the engineered banks of the island, vegetation has begun to naturalize the embankments: unfortunately this vegetation detracts from the interpretive value of the engineered banks.

The contrast onsite between the orderly landscape along the canal and the informal natural setting in which it has been placed has diminished over time, this is particularly evident at the southern end of the canal site.

Figure 78: The encroaching vegetation detracts from the engineered embankments. [HCS, 2016]

7.4.6 Landforms

The engineered terraced embankments of the canal are a human-made landforms. They are associated with the excavated materials of the canal prism which were disposed of adjacent to the canal and graded into terraced banks. This landform facilitated the circulation for the horses and carts which were used to excavated material out of the canal; and, provided flat areas on the site for the siting of support structures such as the lock office and the lockmaster's residence. Concrete has used to stabilize some of these slopes - encroaching vegetation should be removed to preserve this landform.

Figure 79: The encroaching vegetation can de-stabilize the built elements of the site. [HCS, 2016]

7.4.7 Water Features

The canalized channel allows water to run through the lock site from the Trent River in its role as a bypass to the dam. The unique linear length, the width and depth of the canal, and the depth of the water, historically facilitated navigation on the canal. Additionally, the manner in which the water rises and lowers in the lock box, is also considered a character-defining element.

7.4.8 Built Features

The historic built features of this site include the 1912 masonry of the canal walls, the lock and the dam. The scale, form, mass, composition, colour and finish of these features are character defining elements of the historic place. The canal – the length, width and alignment - is unique to the locks built along the Trent River. The timber lock gates including their form, mass, scale, and type of timber used is also valued. Timber was the original material used for the gate and its presence at this site exemplifies the vernacular context and the historical relationship with the lumber trade.

Other built features include the possible archeological remains of the auxiliary structures on the site. These archeological remains include the lockmaster's house, tool sheds and the original watch house. These built features provide tangible insight into the day to day management of the lock site and the life of the lock masters.

7.4.9 Functional Arrangement

The construction of the grouping of locks and dams that were constructed in the Ontario-Rice Lake Division overcame a rise of 112 m (367 ft.) made possible by 18 locks. Thus, Trenton is part of large scale functional arrangement of bridges, locks and dam sites which represents a broader an engineering work that has a strong connection to its natural setting.

This site is therefore a manifestation of the important human accomplishment to overcome the naturally occurring change in elevation. Understanding this grouping of lock, dam and bridge sites along the Trent River within their broader functional arrangement, should be enhanced and protected in any future work.

7.4.10 Summary of Character Defining Elements

The following is a summary of the Character Defining Elements as discussed above:

- Evidence of Land Use: the dam, the linear concrete canal, the Myers Island protection wall, the terraced embankments and the lock itself.
- Spatial Organization: includes a concrete canal which is placed through a bend in the riverbank and an island in which the dam is connected to.
- Visual Relationships: views upon approaching this lock was uninterrupted toward

- Circulation: the linear alignment of the canal; the pedestrian route made of narrow timber walkways and, the informal pathways on the island which lead to the dam. Unique to Trenton is the rail bridge that runs overhead of the canal.
- Vegetation: the park-like atmosphere containing open lawn and informal tree plantings.
- Landforms: the engineered terraced embankments.
- Water Features: the canalized channel allows water to run through the lock site from the Trent River in its role as a bypass to the dam. The unique linear length, the width and depth of the canal, and the depth of the water.
- Built Features: the 1912 masonry of the canal walls, the lock and the dam. The scale, form, mass, composition, colour and finish of these features, the length, width and alignment and the archeological remains include the lockmaster's house, tool sheds and the original watch house.
- Functional Arrangement: large scale functional arrangement of bridges, locks and dam sites which represents a broader an engineering work that has a strong connection to its natural setting.

7.5 Recommendations

Future interventions should attempt to preserve the remaining characteristic features and original materials. It will also be important to consider reinstating those features which have been lost or to improve the compatibility of the alterations identified below. When rehabilitation activities are undertaken, a Cultural Resource Impact Analysis should be done and an integrated, multi-disciplinary conservation team should be involved throughout the project to minimize the impact of the intervention. In particular, follow these recommendations for the site:

- Maintain the site's historic character by preserving the uncluttered setback that exists between the lockmaster's house and the canal. If new elements need to be placed within this zone, it is recommended that they are positioned in an ordered and subordinate manner.
- Maintain / reinstate a well ordered and minimal landscape treatment with the use of native trees and turf grass.
- Maintain and protect the distinct engineered terraced grading of the long canal embankments banks as sodded areas
- Maintain the scale, massing and form of the canal, lock and dam elements. All new concrete work to be date stamped accordingly.
- Maintain the uniform character of the lock and dam's high quality concrete finish.
- When possible, preserve the existing timber gates.

- When adding new elements on the site, consider using materials that have been traditionally used such as timber, stone and concrete. Avoid adding new materials that will detract from the historic character and the understanding of the sites evolution. These new elements should be visually compatible with, subordinate to and distinguishable from the historic place.
- Consideration should be given to the interpretation of the archaeological built elements associated with the early use site, such as the lockmaster's house, tool sheds and the original watch house in a way to interpret the evolution of the site.
- Maintain the spatial organization of the immediate lock landscape which is characterized by: the canal, the adjacent island which results from the excavated canal across the bend in the river, the dam, and the Meyers Island protection wall.
- Maintain and enhance the understanding of this lock and its correlation to the group of lock and dam sites of the Ontario-Rice Lake Division which are associated with the same contractors resulting in many similar site details and characteristics.
- Maintain and enhance the understanding of evidence of land use including the siting of the dam, the linear concrete canal, the Myers Island protection wall, the terraced embankments and the lock itself.
- Maintain and protect the historic circulation including the linear alignment of the canal; the pedestrian route made of narrow timber walkways and, the informal pathways on the island which lead to the dam. Unique to Trenton is the rail bridge that runs overhead of the canal.
- Maintain and protect the the 1912 masonry of the canal walls, the lock and the dam. Respect the scale, form, mass, composition, colour and finish of these features, the length, width and alignment.
- Enhance the interpretive understanding of the sites and the archeological remains which include the lockmaster's house, tool sheds and the original watch house.

8.0 BIBLIOGRAPHY

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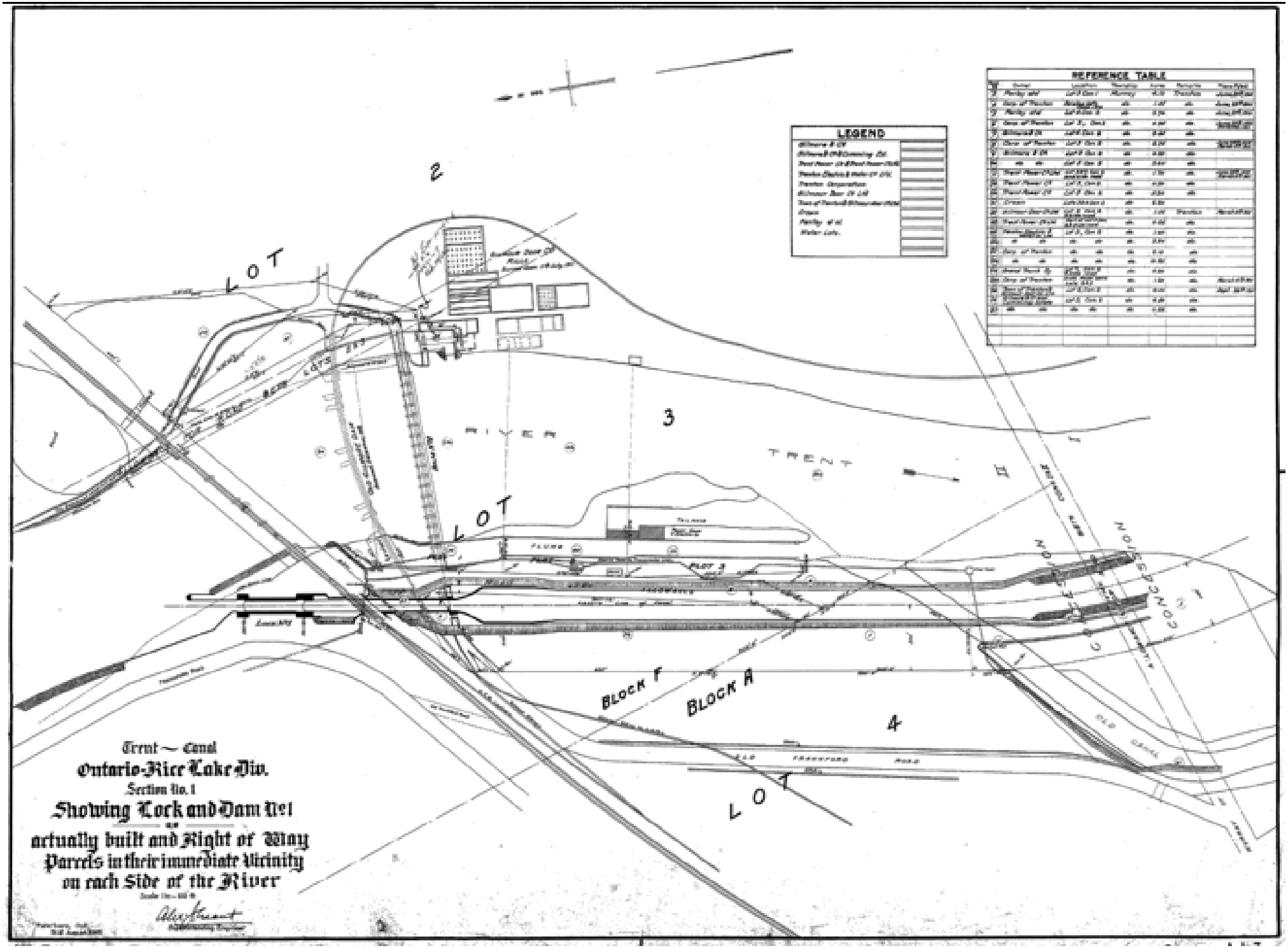
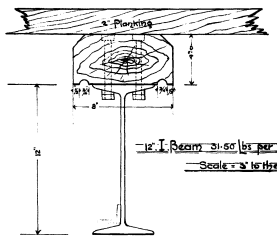
APPENDIX A

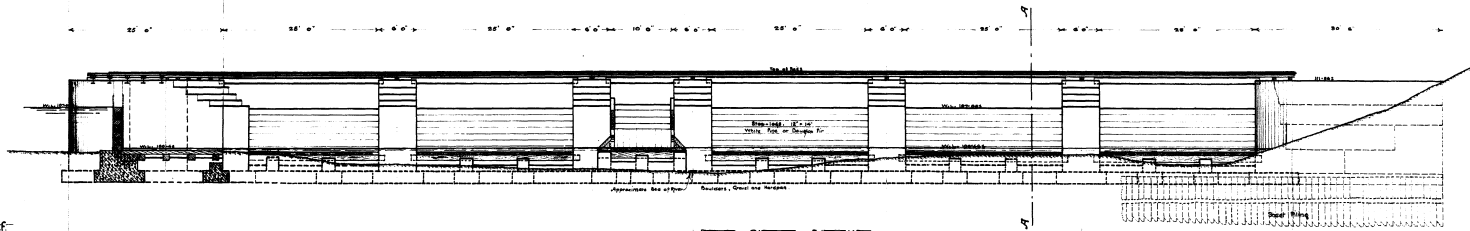
Historic Site Plans

1. **Lock No. 1 (unknown)**
2. **Lock No. 19 (1902)**
3. **Lock No. 19 (1902)**
4. **Lock No. 19 (1932)**
5. **Lock No. 19 (1958)**
6. **Lock No. 23 (1925)**
7. **Lock No. 28 (1930)**
8. **Lock No. 28 (1958)**
9. **Lock No. 38 (1949)**
10. **Lock No. 38 (1969)**

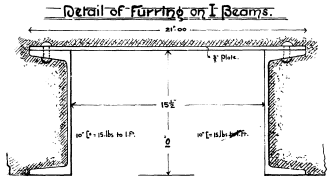

LEGEND
REFERENCE TABLE
LOT
RIVER
TRENT
BLOCK F
BLOCK A
NORTH CONCESSION
Trent — Canal
Ontario-Rice Lake Div.
Section No. 1
Showing Lock and Dam No 1
and
actually built and Right of Way
Parcels in their immediate Vicinity
on each Side of the River



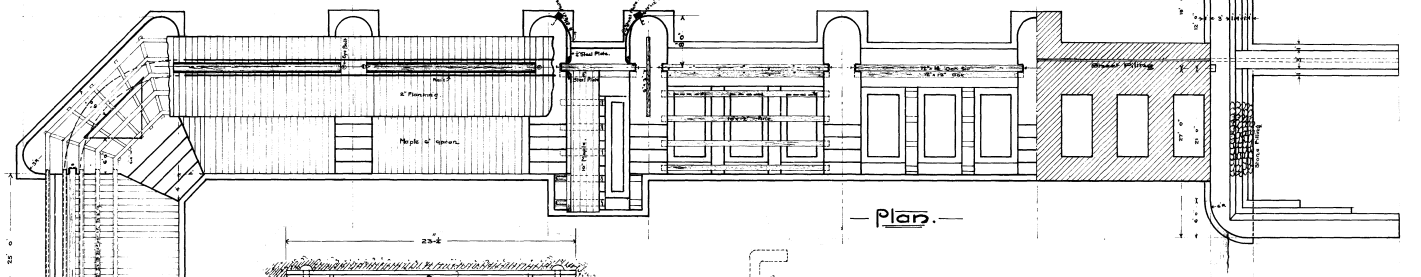
Detail of Furring on I Beams.



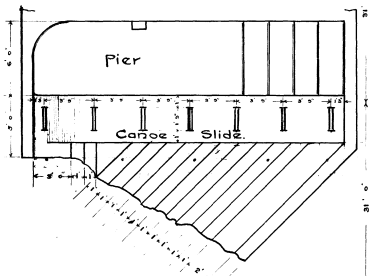
Down Stream Elevation.

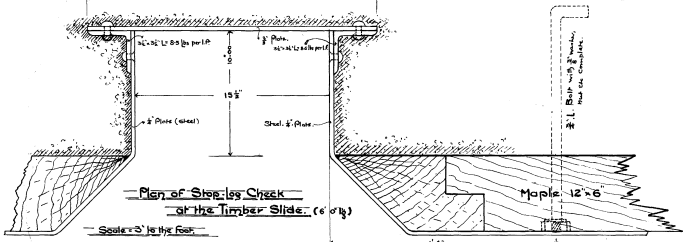


Plan of Stop log Check (9'6" lg)
Scale = 3" to the Foot.

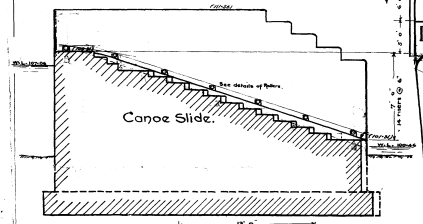


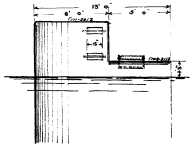
Plan.



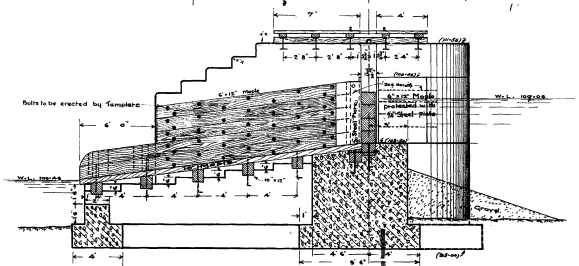


Plan of Stop log Check at the Timber Slide. (6'0" lg)
Scale = 3" to the Foot.

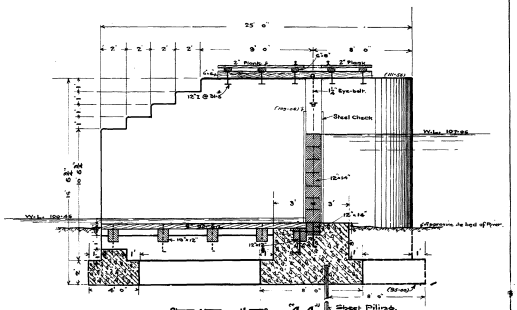




Entrance to Canoe Slide.



Section thro' Timber Slide
Scale 4' = 1'

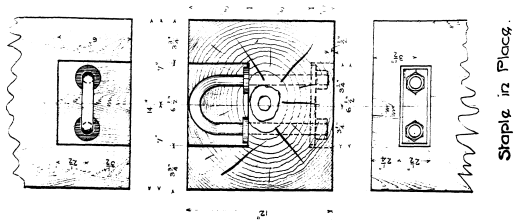


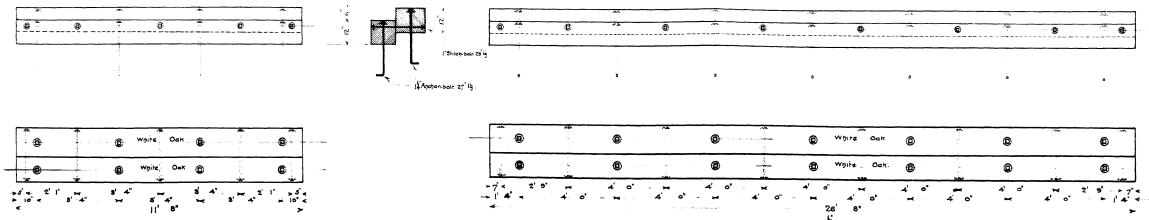
Section thro' "A A"
Scale 4' = 1'

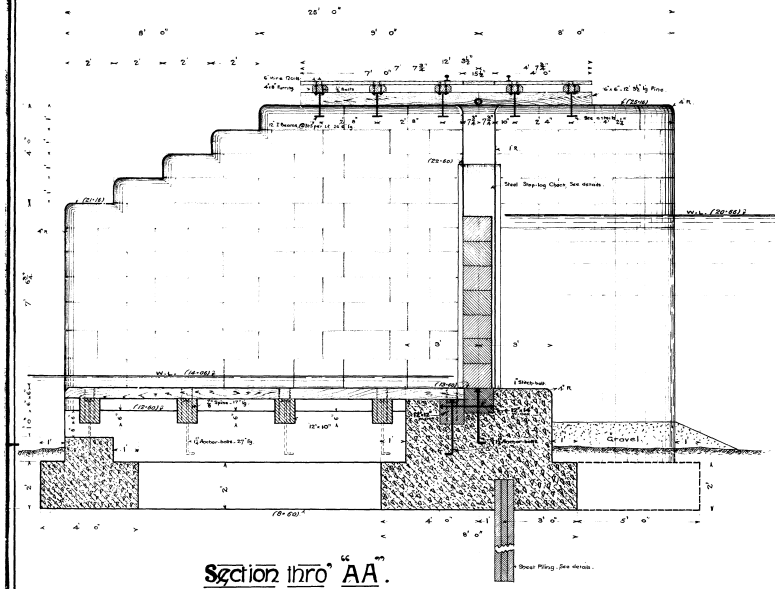
Trent Canal ÷ Plan of Dam at Lock near PETERBOROUGH ÷ Ont.

Peterborough Septr 25th 1901.
Richd. B. Rogers
Supt's Engineer.

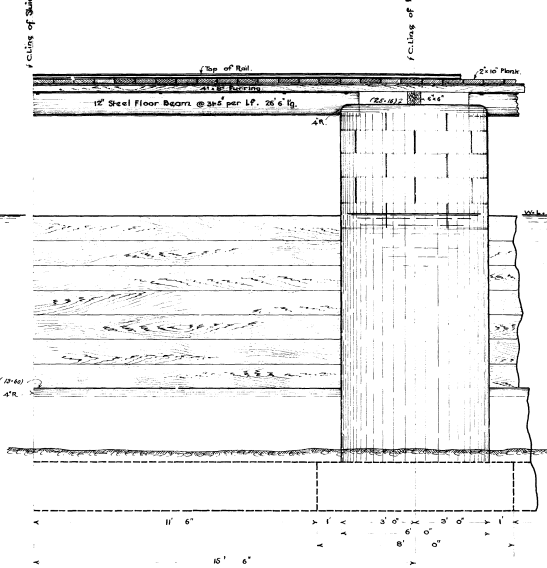
A-10-770



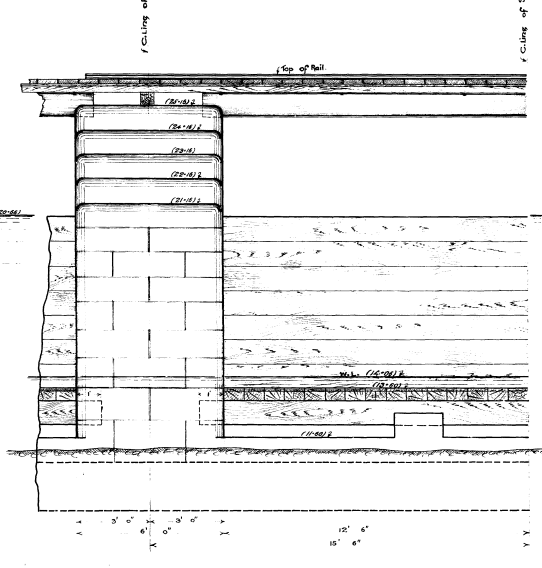




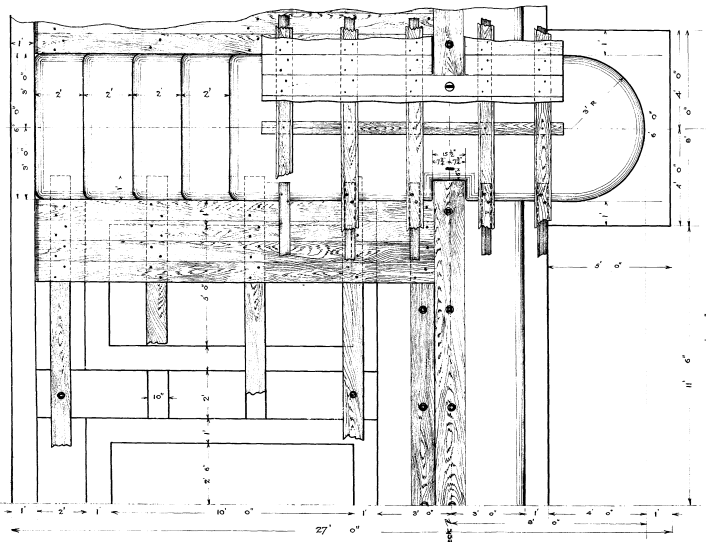
Section thro' "AA".



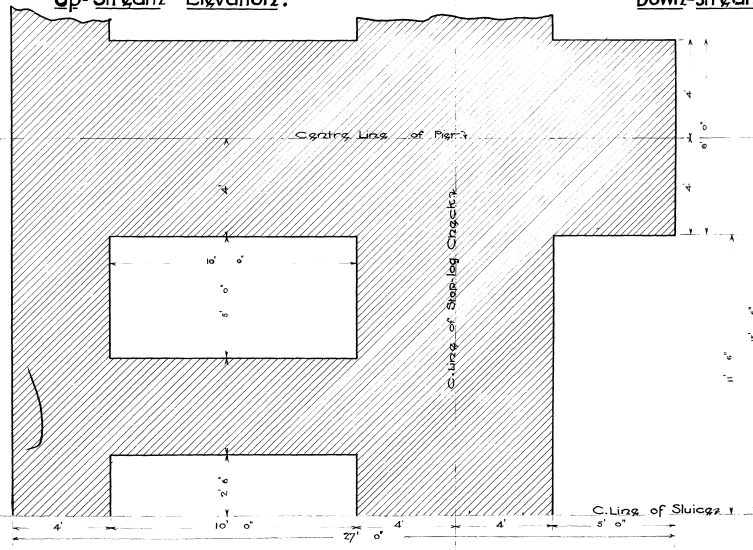
Up-Stream Elevation.



Down-Stream Elevation.



Plan.



Section thro' Base.

Trent Canal

Details of Dam. at Lock — near — Peterborough Ont.

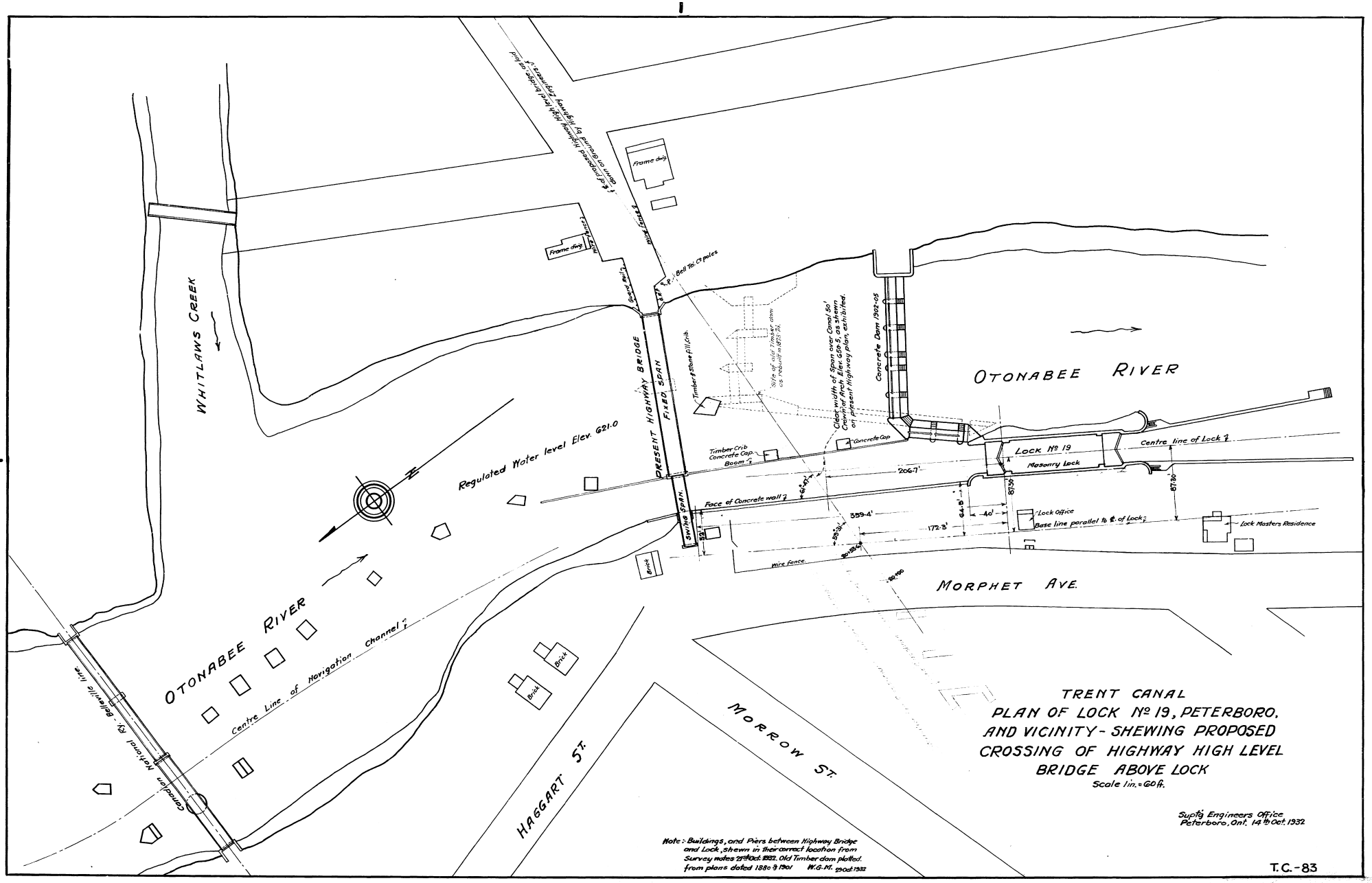
Scale = 2' to 1"

Peterborough Nov. 2nd 1901.

Richard B. Rogers
Supt'g Engineer.

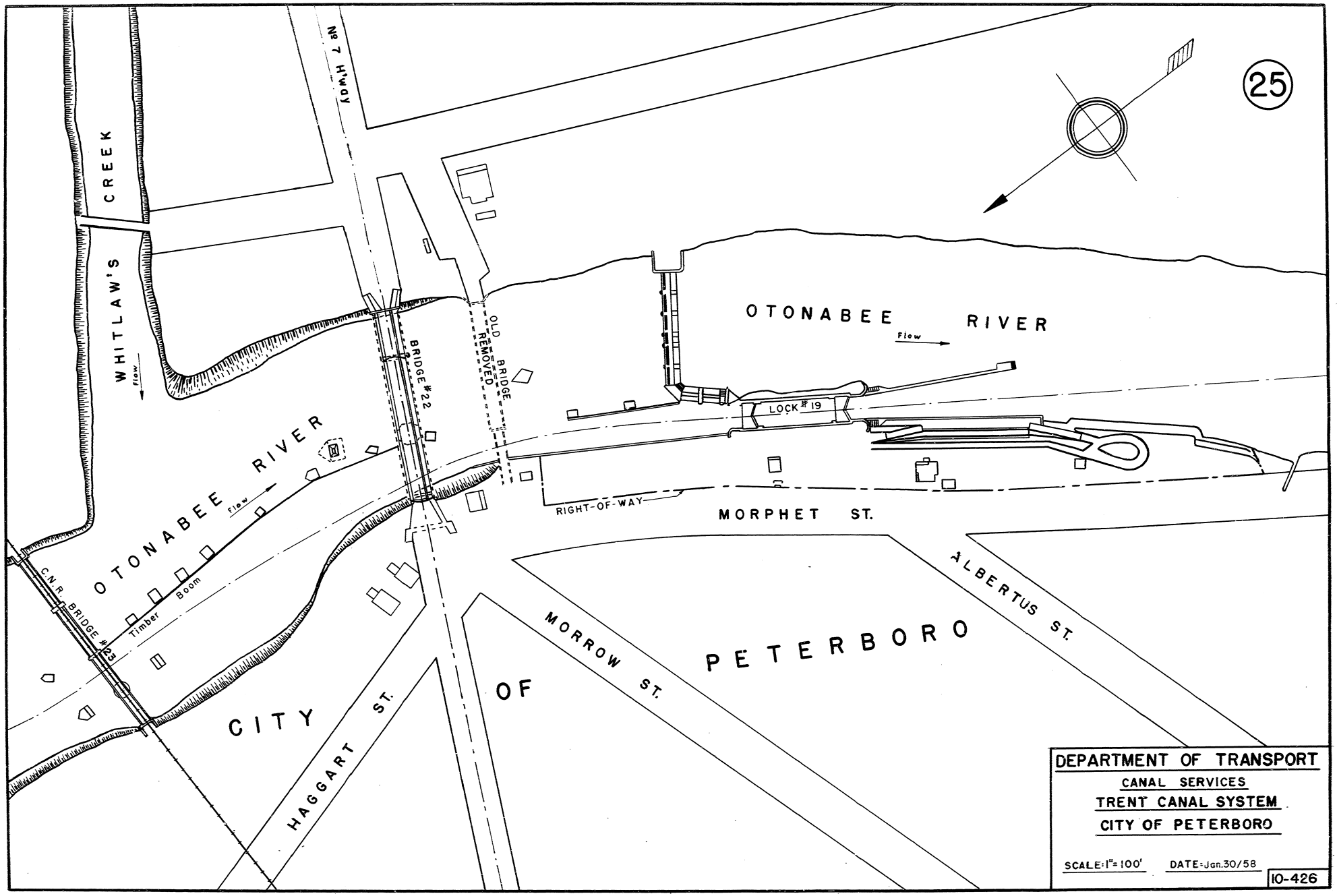
A-10-771

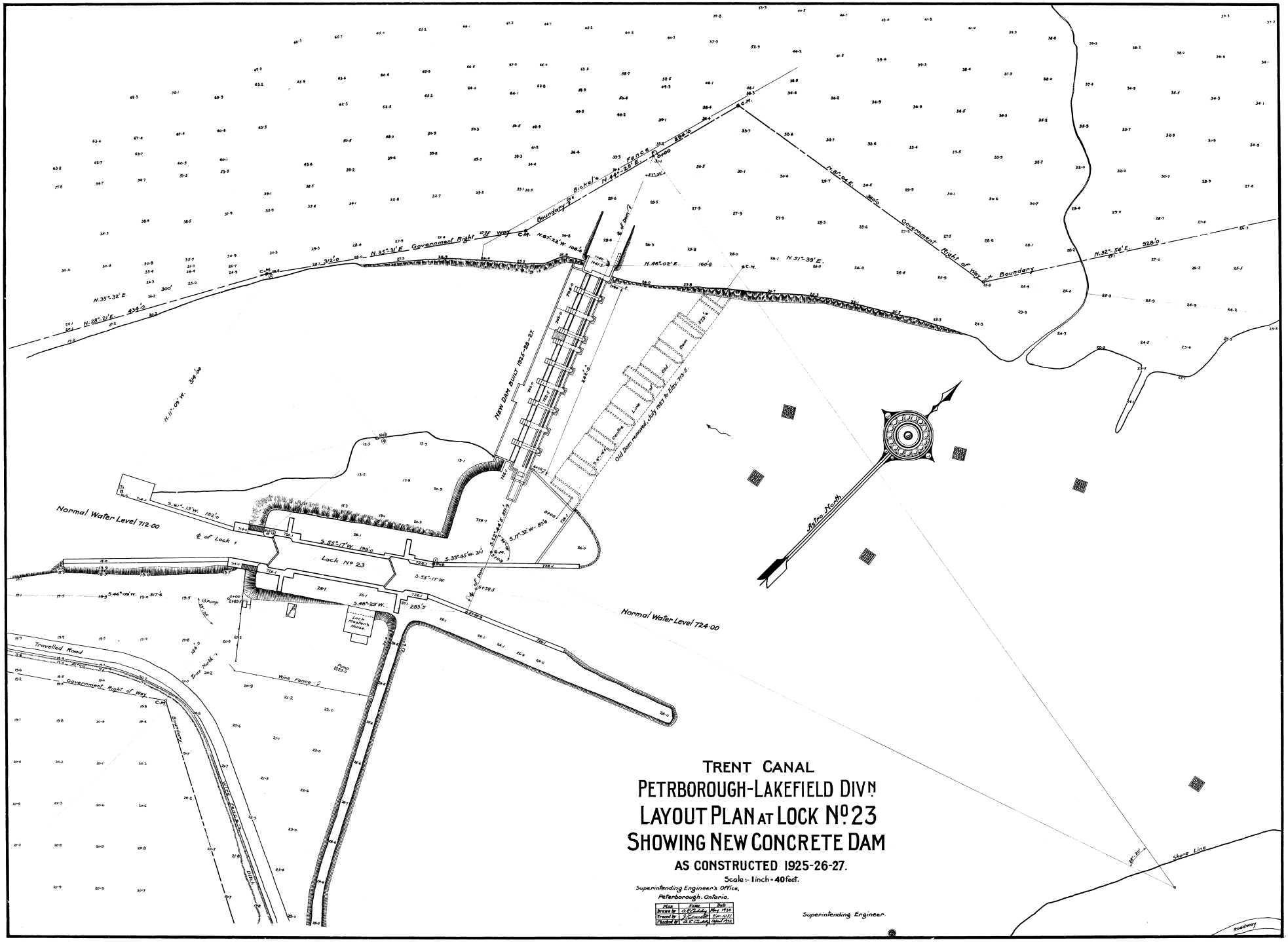
T-11-242.5 A-10-771



A-10-793

T-20-205.10 A-10-793


25
No 7 HWY
WHITLAW'S CREEK
Flow
OTONABEE RIVER
Flow
OLD BRIDGE REMOVED
BRIDGE #22
LOCK #19
RIGHT-OF-WAY
MORPHET ST.
OTONABEE RIVER
Flow
C.N.R. BRIDGE #103
Timber Boom
ALBERTUS ST.
MORROW ST.
PETERBORO
CITY OF
HAGGART ST.
DEPARTMENT OF TRANSPORT
CANAL SERVICES
TRENT CANAL SYSTEM
CITY OF PETERBORO
SCALE: 1" = 100'
DATE: Jan. 30/58
10-426



TRENT CANAL
PETRBOROUGH-LAKEFIELD DIVN
LAYOUT PLAN AT LOCK Nº 23
SHOWING NEW CONCRETE DAM
AS CONSTRUCTED 1925-26-27.

Scale:- 1 inch = 40 feet.

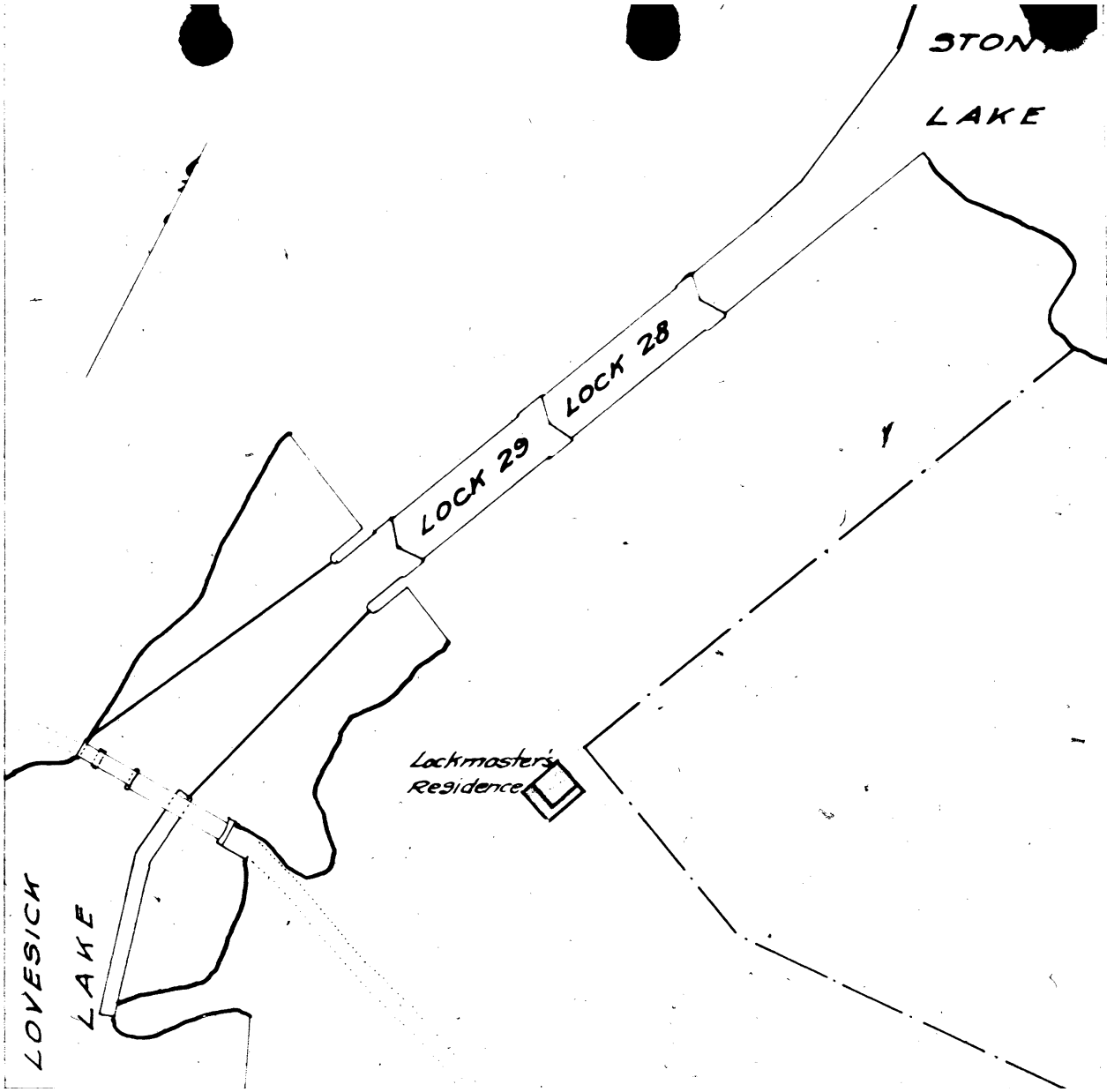
Superintending Engineer's Office,
Peterborough, Ontario.

Plan	Name	Date
Drawn by	G.E.Goldie	May 1930
Traced by	J.C.Grundy	Nov. 1931
Checked by	G.E.G.	April 1932

Superintending Engineer.

B-1-1344

B-1-1344
T-20-229.4



Construction - one storey
all frame construction
Dimensions - 24' x 35
Kitchen under main roof.
Number of rooms - 5
Approx. value - $1200.00
Furnace - None
Annual cost of maintenance $148.82
avg. 5 years

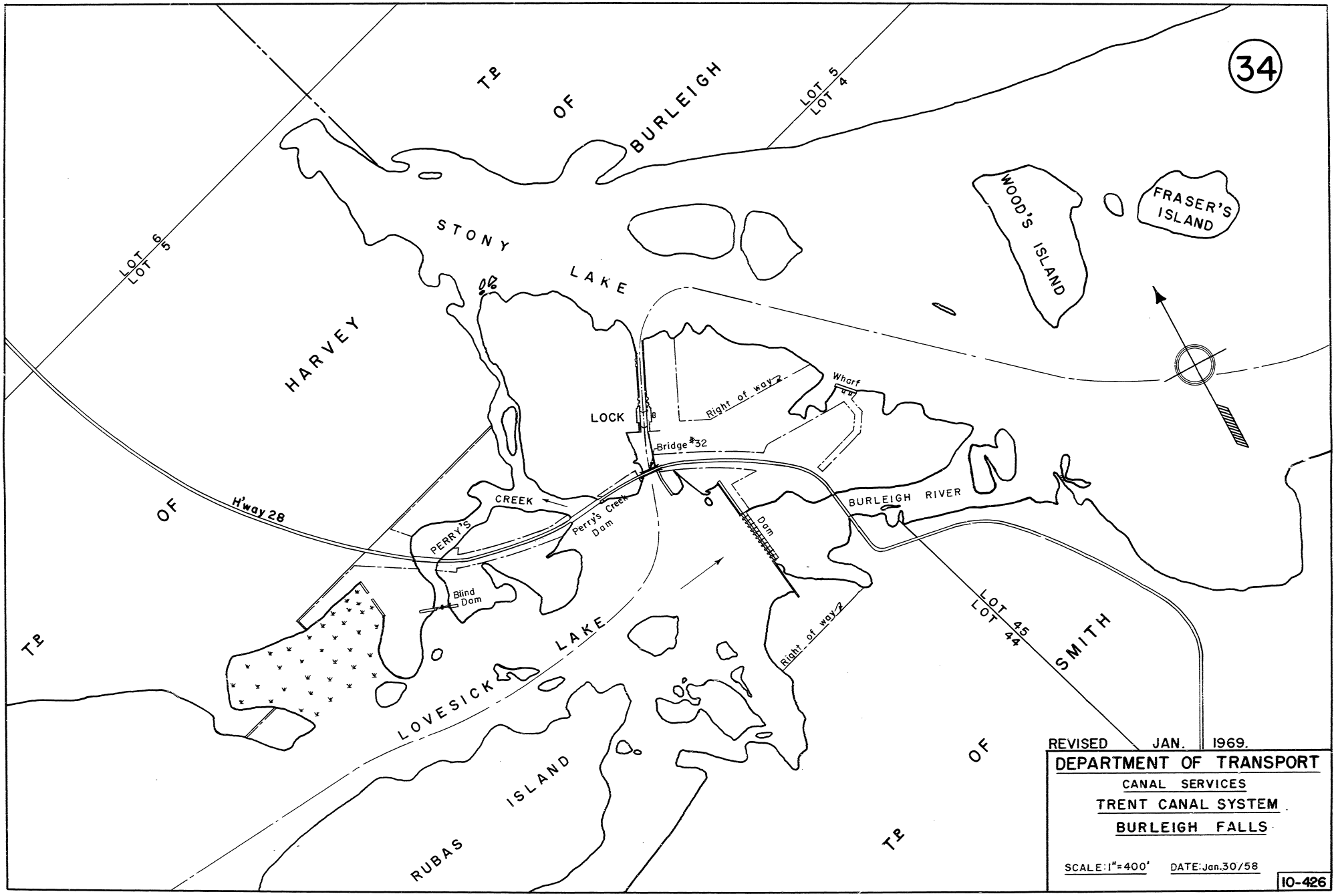
TRENT CANAL

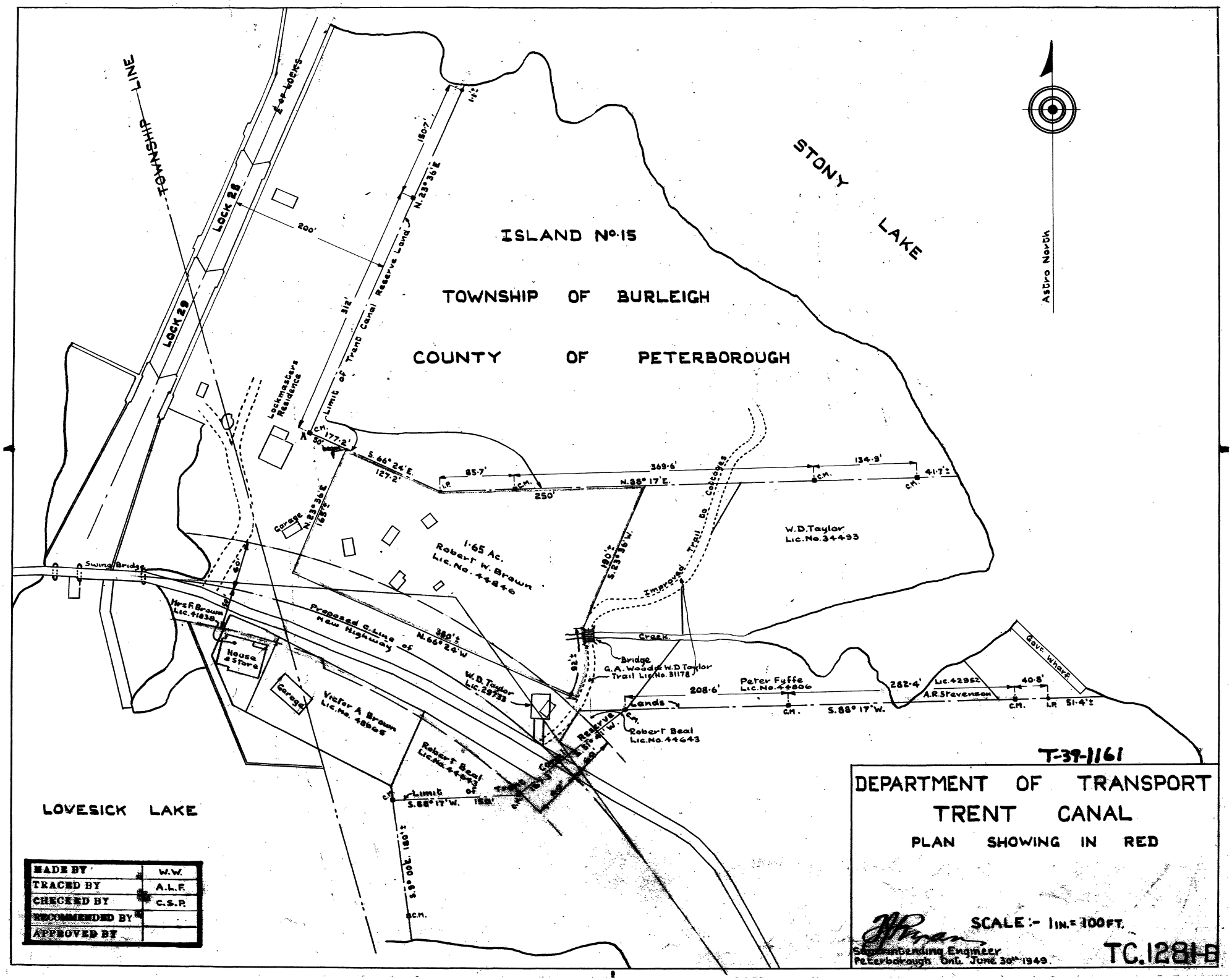
Plan showing location of

LOCKMASTER'S RESIDENCE

AT LOCKS Nos 28 & 29.

Scale - 1" = 100' Peterboro' 26th June '30


34
TP OF BURLEIGH
LOT 5
LOT 4
LOT 6
LOT 5
STONY LAKE
HARVEY
WOOD'S ISLAND
FRASER'S ISLAND
LOCK
Bridge #32
Right of way
Wharf
H'way 28
PERRY'S CREEK
Perry's Creek Dam
Blind Dam
Dam
BURLEIGH RIVER
LOVESICK LAKE
RUBAS ISLAND
Right of way
LOT 45
LOT 44
SMITH
TP OF
REVISED JAN. 1969.
DEPARTMENT OF TRANSPORT
CANAL SERVICES
TRENT CANAL SYSTEM
BURLEIGH FALLS
SCALE: 1"=400' DATE: Jan. 30/58
10-426



MADE BY	W.W.
TRACED BY	A.L.F.
CHECKED BY	C.S.P.
RECOMMENDED BY	
APPROVED BY	

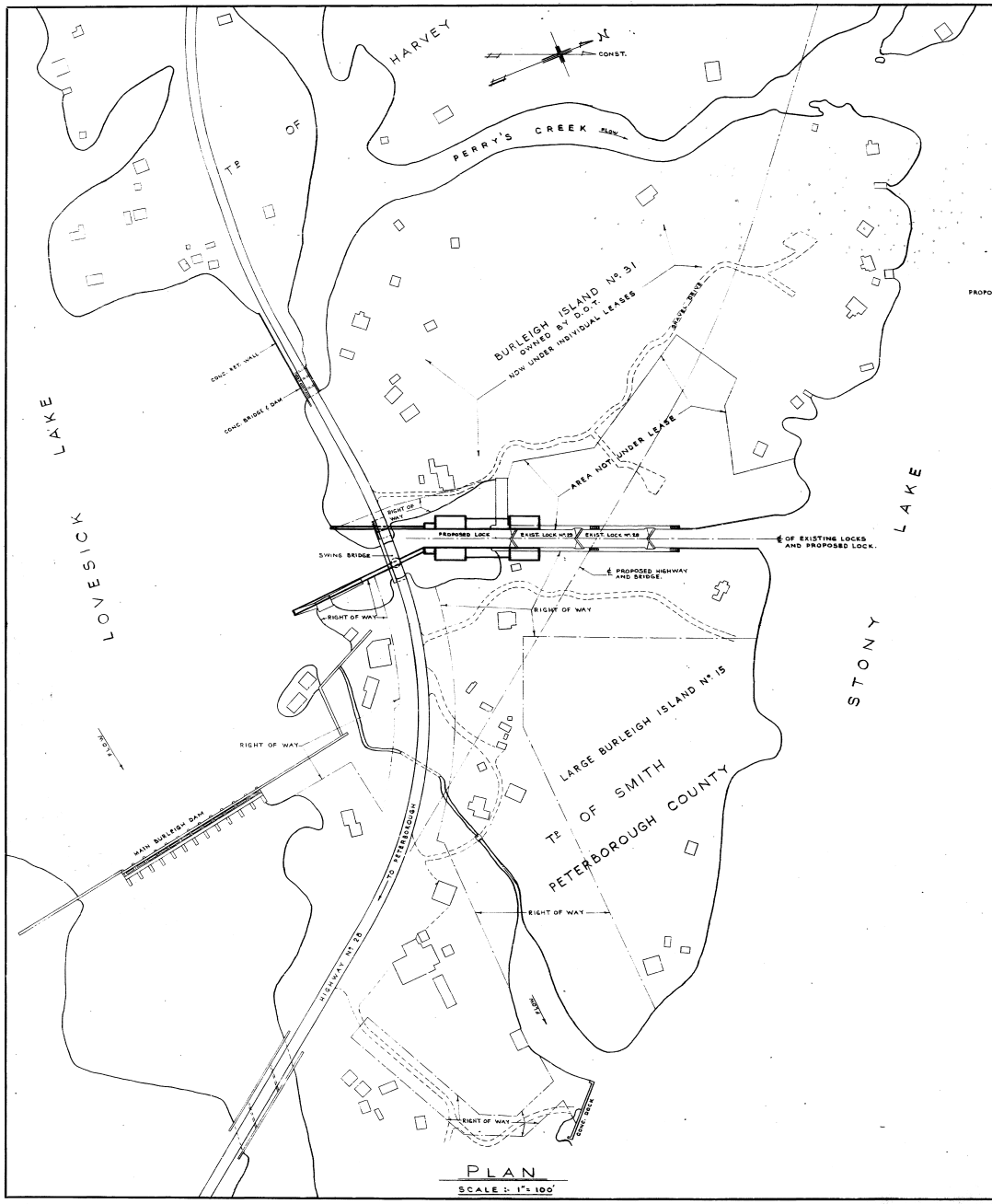
T-39-1161

DEPARTMENT OF TRANSPORT
TRENT CANAL
PLAN SHOWING IN RED

SCALE :- 1 IN. = 100 FT.

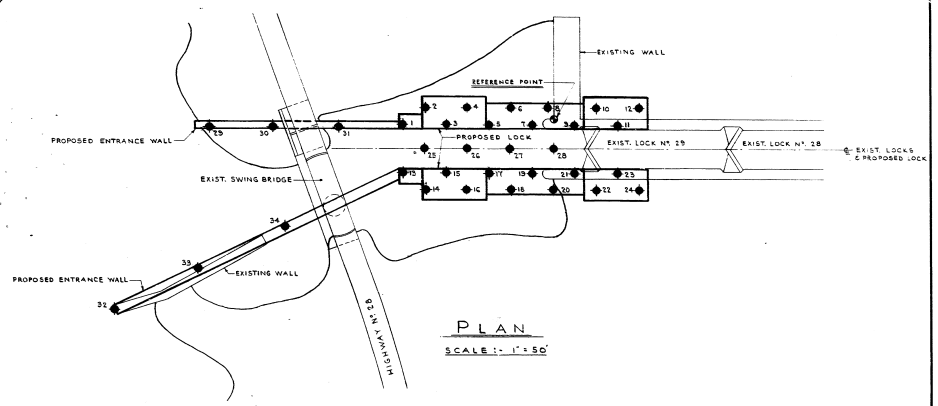
Superintending Engineer
Peterborough Ont. June 30th 1949.

TC. 1281-B



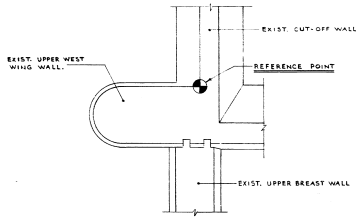
PLAN

SCALE :- 1" = 100'



PLAN

SCALE :- 1" = 50'



DETAIL 1

SCALE :- 1/8" = 1'-0"

LOCATION OF BORE HOLES

HOLE No.	LAT.	DEP.
1	140 S	4.5 E
2	120 S	10 W
3	100 S	4.5 E
4	80 S	10 W
5	60 S	4.5 E
6	40 S	10 W
7	20 S	4.5 E
8	5 S	10 W
9	20 N	4.5 E
10	40 N	10 W
11	60 N	4.5 E
12	80 N	10 W
13	140 S	48.5 E
14	120 S	63 E
15	100 S	48.5 E
16	80 S	63 E
17	60 S	48.5 E
18	40 S	63 E
19	20 S	48.5 E
20	0	63 E
21	20 N	48.5 E
22	40 N	63 E
23	60 N	48.5 E
24	80 N	63 E
25	120 S	26 E
26	80 S	26 E
27	40 S	26 E
28	0	26 E
29	320 S	8.5 E
30	260 S	8.5 E
31	200 S	8.5 E
32	410 S	180 E
33	330 S	140 E
34	250 S	100 E

GENERAL NOTES :-

- LATITUDES AND DEPARTURES OF TEST BORING HOLES ARE TAKEN FROM THE REFERENCE POINT WHICH IS SHOWN IN DETAIL 1.

T-20-179.5

DEPARTMENT OF TRANSPORT

MARINE WORKS

CANALS DIVISION

TRENT CANAL SYSTEM

NEW LOCK - BURLEIGH FALLS

LOCATION OF BORE HOLES

SCALE: AS SHOWN
DESIGN: J. R.
DRAWN: C. H.
CHECKED: J. T.

DATE: OCT./65

D. A. Hamer Esq
CHIEF, CANALS DIVISION

10-6354-01

DATE:	REVISIONS:	MADE:	CH'CK'D:

APPENDIX B

Statement of Commemorative Integrity

II. The Trent-Severn Waterway
Statement of Commemorative Integrity

A. Purpose and Definition of Commemorative Integrity

A statement of commemorative integrity has three key purposes:

- to focus attention on what is nationally significant about a site and thus assist in the decision-making process,
- to provide guidance on the values of all the site's cultural resources and on the critical messages related to the site's designation, and
- to provide a measuring stick to determine how successfully a site is being managed.

"A national historic site possesses commemorative integrity when:

- the resources that symbolize and represent its importance are not impaired or under threat,
- the reasons for the site's national significance are effectively communicated to the public, and
- the site's heritage values are respected by all whose decisions or actions affect the site."

(Parks Canada Guiding Principles and Operating Policies, Pg. 71)

B. Historic place

The Trent-Severn Waterway [TSW] meanders nearly 400 kilometres across central Ontario to link Georgian Bay with the Bay of Quinte and hence to Lake Ontario. Through most of its length the navigation route of the Waterway consists of natural water courses connected through a series of engineering works including 36 conventional locks, 2 flight locks, 2 hydraulic lift locks and a marine railway. In addition there are numerous canal cuts, entrance piers and embankments along with 125 dams of various sizes and types.

Initial surveys and early construction efforts began at Bobcaygeon and on the Trent River section in the mid-1830's but the history of the Waterway's construction was sporadic and localized throughout the remainder of the 19th century. Marked by financial problems and political squabbling along with determined and innovative engineering achievements, it was not until 1920 that the system was completed for through navigation. But human activity along the Trent-Severn region predated canal construction by several thousand years. Extensive archaeological evidence indicates aboriginal peoples as early as the Laurentian Archaic period travelled the lakes and rivers of the area testifying to its importance as a transportation corridor long before canalization.

While the Trent-Severn is an extensive transportation network in its own right, it is also part of a larger national canal system in Canada which had its origins in the canal-building era of the 1820's and 30's. Furthermore, the Trent-Severn is witness to the long-held vision of a commercial/military canal across central Ontario intended to avoid the much longer route through the southern Great Lakes system. Today the Waterway and its associated landscapes convey the vital role played by inland water transportation in resource extraction, commercial development, settlement, agriculture and recreation in Ontario's history from pre-Confederation times to the present.

C. Commemorative Intent Statement

Commemorative Intent specifies the reasons for a Waterway's national significance as contained in the Ministerially-approved recommendations of the Historic Sites and Monuments Board of Canada.

The Historic Sites and Monuments Board of Canada considered the national significance of the TSW several times between 1925 and 1988. The Board noted that this canalized waterway connecting Georgian Bay with Lake Ontario was of national historic significance because it was part of Canada's national canal system. Specific resources designated of national historic significance include the engineering achievement of the Peterborough Lift Lock plus those unmodified engineering structures dating from the original construction period 1900-1907 along the Lake Simcoe-Balsam Lake section of the Waterway.*

**NOTE: The Canal Lake Arch Bridge was identified as nationally significant by the Board but this structure is not under Parks Canada jurisdiction. The Board did not consider the Murray Canal as being of national historic significance.*

D. Commemorative Integrity

1.0 Historic value

The Historic Sites and Monuments Board identified the Waterway as being of national significance because it was part of Canada's national canal system. As such, the Waterway has associative value as a component of the country's inland water transportation system. Furthermore, the Board specified that Canal features along the Simcoe-Balsam Section dating from the construction era of 1900 to 1907 were of national significance. The historic value of the Simcoe- Balsam Section derives from the assemblage of physical elements surviving from the 1900-1907 period. Finally, the Board identified the engineering achievement of the Peterborough Lift Lock as being of national significance. These resources are directly related to the designation of this national historic canal and are therefore given the highest value, Level I, according to the Cultural Resources Management Policy (CRM) evaluation guidelines.

1.1 The Peterborough Lift Lock is valued for its:

- surviving physical attributes and the fact that it was, and remains, an engineering achievement of national and international renown. When completed in 1904, it was the highest hydraulic lift lock ever built, with a vertical lift of nearly 20 metres (65') and was reputed to be the largest concrete structure in the world.
- engineering features, which include the immediate upper and lower canal cuts and the embankments which are integral components of the lock design and operation.

These surviving resources will be unimpaired or not under threat when:

- the Peterborough Lift Lock is preserved* along with the immediate upper and lower canal cuts and the embankments and is maintained in an operational condition as the best means to ensure the structure's long term preservation*, including:
  - maintaining the hydraulic mode of operation;
  - maintaining the original steel work in the chambers;
  - preserving the structure's architectural detail such as the cornices, coping, the original operator's cabin, the chambers and original railings;
  - conducting on-going monitoring and conservation maintenance to mitigate wear and deterioration of the lift lock without altering its performance, integrity or appearance; and
  - reviewing the appropriateness of proposed interventions to the lift lock or its immediate setting according to the principles of the CRM Policy.

**NOTE: In this statement the term* preservation *encompasses conservation activities that consolidate and maintain the existing form, material and integrity of a resource (CRM Policy, 3.4.3).*

1.2 The Lake Simcoe-Balsam Lake section of the Waterway is valued for:

- the high number of surviving unmodified structures dating from the construction period 1900 to 1907 and because most of the lockstations in this section retain their integrity from the early 20th century period. In no other sector of the Waterway is there such a collection of unmodified canal works and lockstation landscapes;
- the specific resources in the Simcoe-Balsam section which include: original locks, lockgate and valve operating mechanisms, dams, canal cuts, embankments, spoils, entrance piers, guardgates, culverts, bridges, bridge abutment remnants, associated machinery and lockstation landscape features surviving from the construction era.

NOTE: These Level I resources are detailed in the TSW Cultural Resource Inventory.

These surviving resources will be unimpaired or not under threat when:

- the structural features and lockstation landscapes along the Simcoe-Balsam section of the Waterway that have survived from the 1900-1907 construction era are *preserved* and through-navigation along this section of the Waterway is maintained as the best means to ensure the long term preservation of the extant engineering works, including:
- maintaining the current manual mode of operation of all locks, dams, guardgates and bridges;
- preserving any visual evidence of previous modes of operation;
- preserving the form and massing of the structures if repairs are necessary and replacing material in kind;
- preserving the design details of locks, dams and bridges;
- retaining the evidence of canal construction activities;
- preserving the integrity of the lockstation landscapes by retaining current landscape features and patterns and discouraging the introduction of modern visual intrusions; and
- encouraging and supporting the preservation of the open, rural landscapes that mark the viewscapes between the lock stations and along the canal channel that are noteworthy because such landscapes enhance the historic character of this section of the Waterway.

1.3 The original survey maps, documents, correspondence, designs, engineering drawings, photographic plates, patterns, moulds, machine templates and other historic objects related to the design and construction of the Peterborough Lift Lock and/or the Simcoe-Balsam section of the Waterway are valued for:

- their direct association with the design, construction and operation of a nationally significant resource; and
- their direct association with R.B. Rogers, the superintending engineer for the Peterborough Lift Lock construction project and Trent Canal Superintendent; Corry and Laverdure Construction, the firm that excavated the site and built the concrete towers and walls of the lock and; Dominion Bridge of Montreal, the firm contracted to do the metal work including the rams, presses and large caissons which comprise the workings of the lock.

These surviving resources will be unimpaired or not under threat when:

- all original historic objects as listed above are conserved including:
- conducting an inventory and evaluation of the Waterway's original surveys, engineering drawings, records and historic objects;
- copying Level I resources where duplicates are required for working purposes;
- restricting access to the Level I documents to help ensure their preservation;
- providing appropriate storage conditions for the Level I documents and historic objects;
- providing appropriate conservation measures to those documents and historic objects in need of such treatment.

2.0 Communicating the reasons for the Waterway's national significance.

The reasons for the national significance of the Waterway will be effectively communicated to the public when the following messages are presented:

- the place/vision of the Waterway in the national canal system for both military and commercial use beginning in the early 19th century—the canal era—and continuing into the 20th century with the completion of the final link between Georgian Bay and Lake Ontario;
- the nationally and internationally significant engineering achievement of the Peterborough lift lock—its design, construction and operation;
- the historic character of the Waterway as exemplified in the structural elements and cultural landscapes surviving along the Simcoe-Balsam section;
- the evolutionary development and construction of the Waterway with particular emphasis on changing construction and transportation technologies from 1833 to the present;

3.0 Other heritage values

In addition to those Level I cultural resources and their associated values that symbolize its national significance, the Trent-Severn Waterway possesses other values, both tangible and intangible, that contribute to its heritage character and heritage experience.

These heritage values derive from a number of sources including: engineering structures; buildings; cultural landscapes including natural features; archaeological sites, and historic objects.

Some of these resources are not under the jurisdiction of the Department of Canadian Heritage but require mention here because they contribute to the heritage values of the Waterway and therefore are worthy of respect.

"Respect for heritage values" refers to the application of the principles and practices of the Department's CRM Policy in decisions that affect or have a potential affect on those resources that form part of the heritage values of the Waterway including the Level II cultural resources.

NOTE: The hundreds of individual resources that contribute to the heritage value of the Trent-Severn Waterway are listed separately in the TSW Cultural Resource Inventory.

3.1 Value of the engineering structures and buildings:

A key defining element of the system, more significant than any of the individual structures, is *the working assemblage of locks, dams, canal cuts, bridges, etc.* that makes the Trent-Severn Waterway an operational system for through-navigation. This is integral to the transportation message as well as the construction and operational history of the Waterway.

While some of these structures have undergone major alterations and/or reconstruction to such an extent that they can no longer be considered cultural resources on their own, a considerable number were evaluated and determined to be *Level II cultural resources.* The heritage value of this latter group of engineering structures derives from the following criteria:

- their historic associations with Canada's national canal system, the evolutionary construction and operation of the Waterway and, aspects of local/community development;
- their design and/or functional qualities including the integrity of their original form, fabric and function of the structures and;
- their environmental qualities which included landmark status and the integrity of the historic character of the landscape;

3.1.1 Locks

Many of locks along the system were evaluated as Level II cultural resources which include:

- *all the locks in the Trent River section (Locks 1 through 18)* because they reveal the evolutionary character of lock operation and construction. While the gate opening mechanisms on the lower gates have been automated, the upper gates retain their traditional manual method of operation. In addition, the locks in the Trent River section retain much of their original fabric and massing, and the environmental setting has experienced relatively little change since the construction period,
- *Lock 19 at Scott's Mills* which is the only remaining one on the Waterway to retain cut stone masonry construction dating from 1843; the configuration of the dams and lock is also unique at this station. The lock operating mechanism at Scott's Mills dates from 1900.
- *Lock 22 at Nassau Mills and Lock 23 at Otonabee* are significant not only because they were among the earliest (1896) concrete marine engineering structures built in Canada, but they, along with their unique operating mechanisms and surrounding landscapes, have survived with minimal change since the time of construction.

3.1.2 Dams

The numerous dams of the TSW are linked not only to the themes of in-land water transportation and the evolutionary development of the system like many other engineering structures but to water management as well. *Forty-four of the 125 dams along the Waterway were designated as Level II cultural resources* based on their historic associations, the integrity of their surviving design and construction qualities and their environmental setting. Two examples of these dams include:

- *Dam 13 at Healey Falls* is noteworthy because of its impressive size and its unique curved-wall design;
- *the main dam at Swift Rapids* because of its unique size and submerged valve mechanism. This dam is the only one on the system that was esigned for both navigation and hydro-electric generation.

3.1.3 Bridges

While not directly linked to Waterway operations, the historic bridges that cross the Trent-Severn Waterway exemplify the juxtaposition of transportation technologies and the evolution of bridge design, construction and use. *Nine bridges, comprised of both rail and road types, were evaluated as Level II cultural resources.* These designations were based on the significant surviving design elements of the structures — some being quite rare in Ontario — as well as their contextual surroundings. The bridge at Young's Point for example, is a pin-connected through- truss twin span and is the oldest bridge on the Waterway.

3.1.4 Buildings

Only a few heritage buildings under the jurisdiction of Parks Canada have survived along the Waterway. Six were evaluated as Level II cultural resources because of their surviving physical elements and their ties to the early operational history of the Waterway. Because of the scarcity of heritage buildings on the Waterway, it is important that every precaution be taken to ensure the survival of these remaining structures.

The heritage values of the engineering structures and buildings will be respected by all whose decisions or actions affect them when:

- the assemblage of engineering structures is maintained in an operational mode to permit through-navigation as the best means to preserve the most salient heritage values of the system;
- the identified heritage values — method of operations, fabric, massing, and profile — are safeguarded in any operational decisions affecting locks and dams;

- the appropriateness of proposed interventions to the structures are reviewed according to the principles of the CRM Policy;
- the present method of manual operation, along with the massing and architectural detail, are retained at Locks 19, 22 and 23;
- the visual evidence of previous modes of operation are preserved;
- the present method of operation along with structural details and evidence of past operational methods on all TSW bridges identified as cultural resources are preserved;
- the *FHBRO Code of Practice* is adhered to whenever an intervention to a heritage building is under consideration;
- on-going monitoring and conservation maintenance is carried out to mitigate wear and deterioration of engineering structures and buildings, without altering performance, integrity or appearance.

3.2 Value of cultural landscapes

Another component integral to the heritage values of the Waterway is the diverse collection of cultural landscapes. With their varied assemblage of natural and historic features the *thirteen cultural landscapes identified below were evaluated as Level II cultural resources* because they convey significant historic themes from the Waterway's past and contribute to the historic character of the Waterway corridor.

The discussion of the Waterway's cultural landscapes focuses primarily, but not exclusively, on the lockstations. Because of their surviving assemblage of extant and remnant engineering works, operational buildings, archaeological esources, circulation patterns, open spaces, and associated natural features, the identified sites are important cultural landscape nodes that provide a sense of history, continuity and cohesion along the Waterway.

In many instances, however, the character of these lockstations cannot be defined without reference to their broader contextual setting. The lockstations influence the character of their adjacent environment and in turn are influenced by their surroundings. These transboundary surroundings can be defined as those landscapes and landscape features that are viewed from the lockstation grounds or canal cuts.

3.2.1 Peterborough Lift Lock landscape

One lockstation landscape of note is the designed landscape on the west side of the channel below Lift Lock. This open, park-like landscape contoured onto the hillside dates from 1910 and was designed to complement and highlight the lift lock. Its historic value resides in its design elements and open vistas.

3.2.2 Cultural landscapes at Lock 22, Nassau Mills and Lock 23, Otonabee

The historic value of these stations lies in the assemblage of historic engineering structures and that, within the context of their landscape patterns, little has changed since the stations began operations in 1896. Both sites contain the archaeological remains of powerhouses from early 20th century hydro generation. Enhancing the historic character is the fact that the surrounding landscape features at these two stations remains relatively free from modern development.

3.2.3 Cultural landscape related to water power

Despite varying levels of modern overlay, several lockstations display a strong historic relationship to the communities in which they are located. The connection is based on the utilization of water power — hydro-electric generation and/or saw and grist milling operations related to the Waterway structures. This characteristic is most evident around *Lock 33 at Lindsay* where evidence of the town's original industrial sector survives along

the channel. A variant on this theme is the cultural landscapes of *Big Chute and Swift Rapids*. At these two locations the landscape has a historic relationship with water transportation and hydro generation which led to the development of small communities in an isolated setting along the Severn River in the Canadian shield. The cultural landscape at Swift Rapids has historic value because of the contrast of the impressive engineering structures within a near wilderness environment with a minimum of modern intrusions. The landscape around the marine railway station at Big Chute has experienced considerable change in recent times but the historic context of the site remains much in evidence including the main dam and the hydro station. The old and new marine railways are side-by-side on the site, along with several of the early operational buildings. In addition, there are structural remnants of dams and core walls from the first attempt to canalize the site plus archaeological remains from the early construction camps.

3.2.4 Cultural landscape related to recreation

Another linkage between the lockstations and their associated community evident on the landscape relates to recreation. This is particularly important in the Kawartha sector where the cultural landscapes at Young's Point and Lovesick retain their historic ties to summer resorts, cottages, steamboat excursions as well as hunting and fishing. While modern overlays have intervened on the landscape, many of these heritage associations with recreation remain evident today at these two stations and are strengthened by their secluded settings in the natural landscape of the Canadian Shield.

3.2.5 Cultural landscape related to natural features

The heritage value of several lockstation landscapes is derived from their secluded locations and relationship to natural features. *The Percy Reach, Meyers and Haigues Reach* area are characterized by the natural setting and where human presence is evident only through a pastoral landscape. The *Murray Marsh*, with its large osprey population, is a major landscape feature here. *The landscape adjacent to the Glen Ross station* is another area that conveys a sense of historic isolation from the more modern southern Ontario landscape through the dominant influence of a natural setting. Related to the natural features is the significant aboriginal presence evident on the cultural landscape at *Healey Falls* as well as at the Percy Reach burial mounds site.

3.2.6 Cultural landscape related to a variety of uses

A cultural landscape conveying an interesting mix of significant historic themes is Healey Falls.

Relatively secluded and little changed since the Waterway went through in the early 20th century, the cultural landscape features a collection of some of the largest engineering structures on the system including the arched dam and the flight lock. These cultural resources are located in close proximity to the limestone gorge which required major canalization to circumvent this imposing natural obstacle. Another important feature of the site is the remnants of the region's lumbering history represented by a timber slide and dam dating to 1845. The hydro-station building dating from 1913 tells another story about the utilization of water power of this location.

The heritage values of the cultural landscapes will be respected by all whose decisions or actions affect them when:

- the current designed landscape elements along the west side of the canal channel below the Peterborough Lift Lock are preserved;
- the current viewscapes of the Peterborough Lift Lock, specifically views of the lock from

water approaches above and below the structure and views from the road approaches along Hunter Street and Ashburnham Drive are preserved;

- the heritage values of those 12 other lockstation landscapes are safeguarded in any decision likely to affect the cultural landscape features — circulation patterns, vegetation types and patterns, open spaces, built environment, structural remnants and archaeological features;
- the heritage values of those identified lockstation landscapes are safeguarded when considering the introduction of new buildings or structures — buildings, kiosks, concession booths, signage;
- the appropriateness of proposed interventions to cultural landscapes are reviewed according to the principles of the CRM Policy;
- the many landscape features and patterns beyond the jurisdictional boundary of the Waterway are recognized, understood and supported by stakeholders and other decision-makers, as significant contributors to the heritage character of the Waterway's cultural landscapes;
- the preservation of those cultural landscapes that contribute to the heritage value of the Waterway is encouraged through education and by working with partners;
- the many natural features that are important contributors to the heritage value and heritage experience of the Waterway are identified, recognized and protected as part of the Waterway's Cultural Resource Inventory.

3.3 Value of natural landscapes

The value of the natural landscape along the Waterway is a measure of its importance to the aboriginal inhabitants, other shoreline residents and transient users. The landscape has many values at various scales, whether for production of economic resources such as fish or wildlife, research purposes, aesthetic appeal and related cultural significance, or for religious significance. Overall, it has an ecological value which has led to the prominent role in human settlement and development of sustainable uses including tourism and development. The natural corridor of the Waterway provides a healthy and vibrant ecosystem for the use and enjoyment of Canadians.

There may not be a valuation system sufficient to address the breadth of interests and geographical scales associated with the Waterway. Certainly, as a cultural landscape the Waterway has a mixture of natural and cultural attributes which characterize it as a unique part of Canada. As a natural part of the ecosystem, the landscape provides important processes and functions which sustain the values which are held highly by Parks Canada.

These values have been detailed in numerous resource inventories but can generally be summarized as follows:

3.3.1 Fish habitats

Some of the most productive fish habitats in freshwater parts of Canada are located within the Waterway. These hold economic value for a strong recreational fishing industry and related tourism benefits. Rice Lake, Lakes Simcoe and Couchiching and the Kawartha Lakes are renowned for their fishing opportunities. These lakes also hold cultural significance to the six First Nations that inhabit the shoreline of parts of the Waterway and that have traditionally harvested fishes.

Twenty-three fish sanctuaries, which have been designated for protection, as well as other significant fish habitat areas.

3.3.2 Wetlands

Two hundred and sixty marshes occur within the Waterway either entirely or

partially. These have value for research as well as for hydrologic functions. As relatively undisturbed shorelands, they provide habitats for wildlife and are aesthetically appealing, reminding us of the historical appearance of the Waterway.

3.3.3 Areas of Natural and Scientific Interest (ANSI)

Seven Areas of Natural and Scientific Interest (ANSI's) are associated directly with the Waterway. Most of these are wetlands (Holland Marsh, Duclos Point wetland, Harris Island wetland, Scugog Marsh and Murray Marsh). The wetland in the Bay of Presqu'ile associated with the Murray Canal is also designated under the RAMSAR convention. Two ANSI's are important for upland values (Big Chute Rocklands, and Oak Orchard and Buckhorn Lake Islands). As well, habitats of nationally rare species occur in parts of the Waterway, and there are many significant areas of regional value which were identified during the ANSI inventories. Many other ANSI's within the watershed, and associated with the Waterway, provide valuable ecological functions for the Waterway.

3.3.4 Scenic areas

More than 30 scenic vistas or features, as well as numerous scenic areas and shorelands that relate to the natural values of the Waterway corridor, are specifically identified in the CORTS Framework Plan No. 6.

3.3.5 Shorelands

Approximately 4 500 kilometres of shoreline are along the Waterway. While much has been partially developed for land uses of European-based settlement (eg. agricultural, industrial or residential uses), many sections still retain their natural character. Almost all sections provide terrestrial habitat and processes which benefit the natural environment of the Waterway.

The heritage value of the natural landscape will be respected by all whose decisions or actions affect them when:

- the appropriateness of proposed alterations or interventions to the natural ecosystem are reviewed according to Parks Canada's Guiding Principles and Operational Policies which includes policies for cultural resource management, for environmental assessment and for the protection of ecological integrity;

- the fish habitats, wetlands, ANSI's, scenic and near wilderness areas and other key ecosystem components of the Waterway are maintained or enhanced through adherence to all relevant federal and provincial policies. Where rehabilitation is necessary to restore a critical function, it is undertaken in a timely manner in accordance with the appropriate federal and provincial policies;

- intensification of land uses, which affect the natural processes or natural landscape values of the Waterway, are reviewed according to Parks Canada's Guiding Principles and Operational Policies, including the CRM Policy and the Canadian Environmental Assessment Act.

3.4 Value of archaeological sites and historic objects

NOTE: Atherley Narrows, an archaeological site of national historic significance, located on the Waterway, is addressed in a separate Commemorative Integrity Statement.

3.4.1 Aboriginal archaeological sites

There are several important aboriginal archaeological sites identified along the Waterway along with additional sites whose extent and significance are yet to be determined. The former category includes the two *McFarlane sites at Glenn Ross*, the *burial mounds at Percy Reach* and the *quarry site at Healey Falls*.

Other aboriginal sites and "find spots" with potential importance on the Waterway include:

the "bird amulet" at Glen Miller, the Sill Island site at Frankford, the Myers Island site at Percy Reach, the Bryen site at Fenelon Falls, four sites and two "find spots" in the vicinity of the Kirkfield Lift Lock and the Bolsover site. In addition to these terrestrial sites there several known marine aboriginal sites or "find spots" whose importance has yet to be determined. Until further investigation is conducted these potential sites must be considered cultural resources.

While future investigation might determine that several of these aboriginal sites possess a high level of intrinsic value in their own right, their current value lies in their association with the Waterway corridor, revealing aboriginal activities extending back to the Laurentian Archaic period.

3.4.2 Other archaeological sites

A number of other archaeological resources have been identified along the Waterway. These include the remains of the *construction camps at Big Chute and the Peterborough Lift Lock;* at the latter site there are also resources from the railway spur line built to assist in lock construction. Nineteenth century lumbering activities are evident through marine archaeological resources at several sites including: *the dam ruins and timber slide at Ranney Falls and Healey Falls dating from the 1840's along with dam cribs at Young's Point and timber slide at Burleigh Falls (1850). At Bobcaygeon there is a drydock facility and at Harwood on Rice Lake there is the remains of the railway causeway* dating from the operation of the Cobourg -Peterborough Railway (1860). A number of underwater sites have also been identified, including *timber crib dams in Haliburton, particularly Horseshoe Dam and the lock and dam at Rosedale in the Gull River.*

3.4.3 Historic objects

In addition to those historic objects identified in para. 1.3, there are other historic objects and documents valued for their connection with the design, construction and operation of the canal. Further investigation is required to inventory and evaluate these objects.

The heritage values of the archaeological sites and historic objects will be respected by all those whose decisions or actions affect them when:

- known archaeological sites on Waterway lands are monitored and safeguarded by adhering to the Guidelines for the Management of Archaeological Resources in the Canadian Parks Service, 1993;
- a strategy for the protection of marine aboriginal archaeological sites along the Waterway is developed by working with aboriginal partners and local diving associations;
- a research strategy to complete an aboriginal archaeological survey along the Waterway is developed by working with provincial and aboriginal partners;
- an inventory and an evaluation of archaeological sites on Waterway lands is completed;
- all operational projects involving below ground disturbance on Waterway lands are reviewed by an archaeologist;
- historic objects and documents are treated in accordance with the principles and practices of CRM Policy and when an inventory and evaluation of these objects and documents is completed.

3.5 Communicating the Waterway's other heritage values

The heritage values of the waterway will be respected by all those whose decisions or actions affect them when:

- the messages in the following chart are communicated to the public:

Messages Related to Other Heritage Values of the Waterway

The construction and operations of the Trent-Severn Waterway

- the people who built the Waterway;
- the contribution of technology developed due to the Waterway to other water transportation systems;
- the architectural presence and evolution of the Waterway from 1833 to the present;
- Waterway operations, past and present, particularly the people who operate the system;
- the regulation of the water resources on the reservoir lakes and of the Waterway watersheds; and
- heritage resource management and protection.

The evolving relationship of the TSW to development of corridor communities including association with lumbering, milling, hydro-generation, settlement, agriculture and recreational activities.

- settlement and agricultural development;
- the growth and decline of lumbering during the nineteenth century;
- the impact of canal construction and political decisions of the region;
- waterpower and industrialization, particularly the development of mills, factories and hydro electric generation plants;
- the development and the use of the Waterway's recreational resources during the nineteenth and twentieth centuries;
- the impact of the Waterway on the growth and development of the Waterway's communities; and
- the historical links between land and water transportation, and the types of vessels used on the Waterway.

The aboriginal use of the Waterway

- The 11 000 year use of the Waterway by aboriginal groups, during all the major periods of Ontario native history;
- the dynamic and diverse nature of the aboriginal cultures as they evolved and adapted to a wide variety of environmental situations;
- the rich natural resources of the area which contributed to the special development of the region (e.g. complex Middle Woodland mound-building societies in the lower Trent area); and
- the Waterway as a transportation and migration corridor linking the Upper Great Lakes to the Lower Great Lakes – St. Lawrence areas while at the same time being an attractive habitation area due to its proximity to both areas.

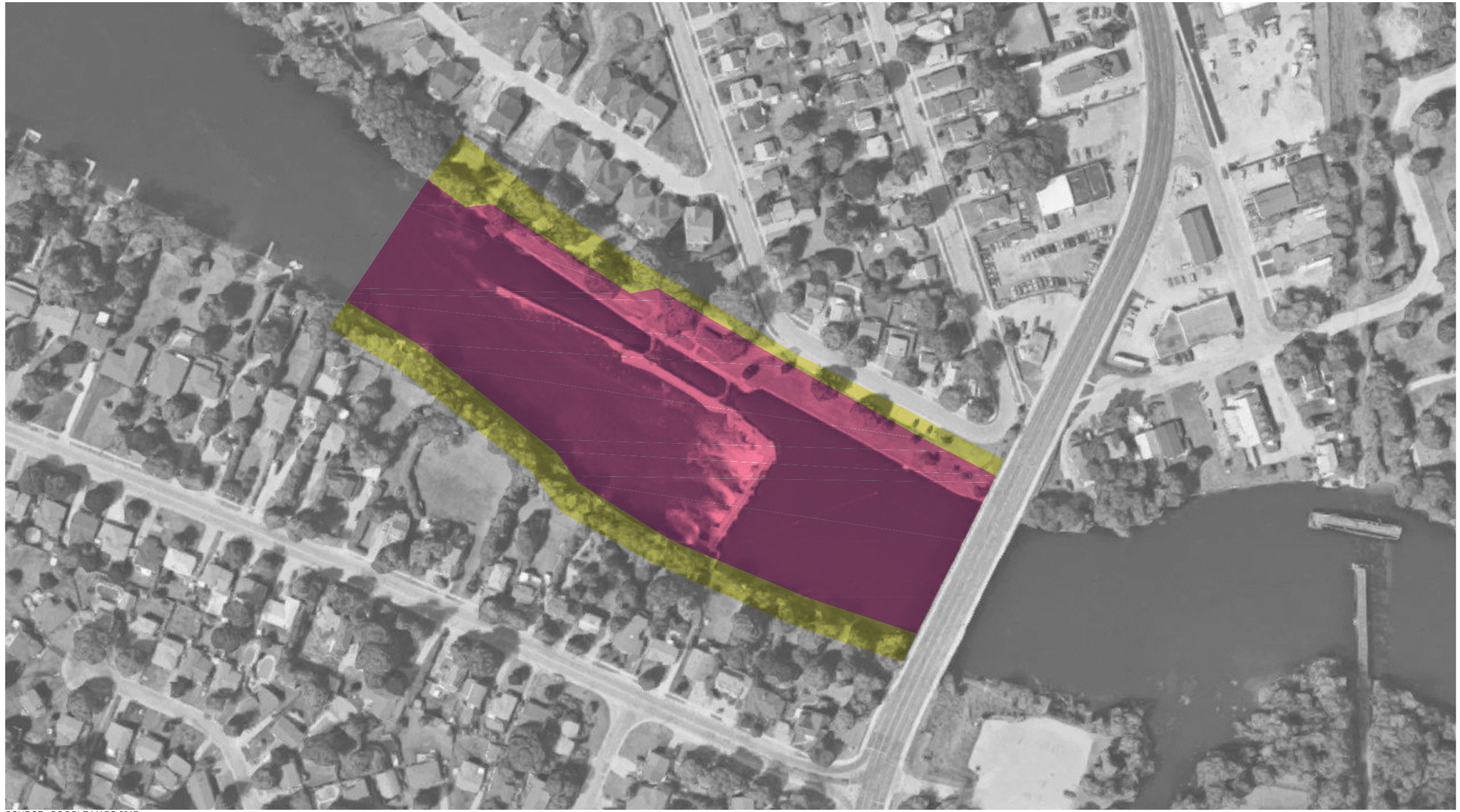
The relationship between the Waterway and the region's rich natural heritage including wetlands, natural shorelines, natural uplands, and wildlife and their habitats.

- the importance of relatively undeveloped natural landscapes (water and land) as heritage resources;
- the dependency of human use of the Waterway on the system's natural resources;
- the importance of wetlands in maintaining environmental quality (e.g. fish and wildlife populations, erosion control, flood regulation and water quality);
- the role of water level control in maintaining environmental quality (e.g. fish and wildlife habitat and water quality);
- the protection of important resources and their habitats including representative and rare species, ecosystems and natural landscapes;
- the natural systems prior to construction of the Waterway and the effects of the alterations; and
- the geological and geomophological processes including glaciation which moulded the present day landscape.

The Waterway as part of a national historic sites and canals system by which appreciation of Canada is fostered.

APPENDIX C

Zones of High Heritage Value and Buffer Zone Plans



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

Zones indicated as 'high' are of primary heritage character, strongly reflecting the heritage values of the cultural landscape and / or possessing important character-defining elements. These areas require the greatest level of care and protection. It is recommended that every attempt be made to limit interventions within these areas. Where interventions are proposed within these zones an integrated multi-disciplinary conservation team should be involved to minimize the impact of the interventions on the historic character of the site.

BUFFER ZONE - YELLOW

Zones indicated as the 'buffer zone' are those that aid to protect the context to the picturesque setting for the historic zones of high value. When undertaking interventions in these zones, conservation advice should be sought and every attempt should be made to retain a visual compatibility with the character of the high value zones. The buffer zone contributes to the overall heritage values of the historic landscape. Therefore, compatibility is key to consider to ensure the values are protected.

NORTH

0 25 50 100 150 200m

1:2000

Scale 1 : 1

0mm 5 10 20 30 40 50 60 70 80 90 100mm

PSPC / SPAC 11x17

Public Services and Procurement Canada

Services Publics et Approvisionnement Canada

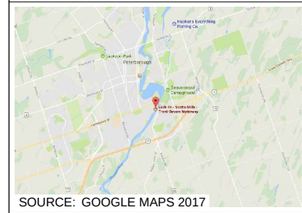
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

05		
04		
03		
02		
01		
revision		date

A detail no. no. du détail
B key location empl. clé
C detail location empl. du détail

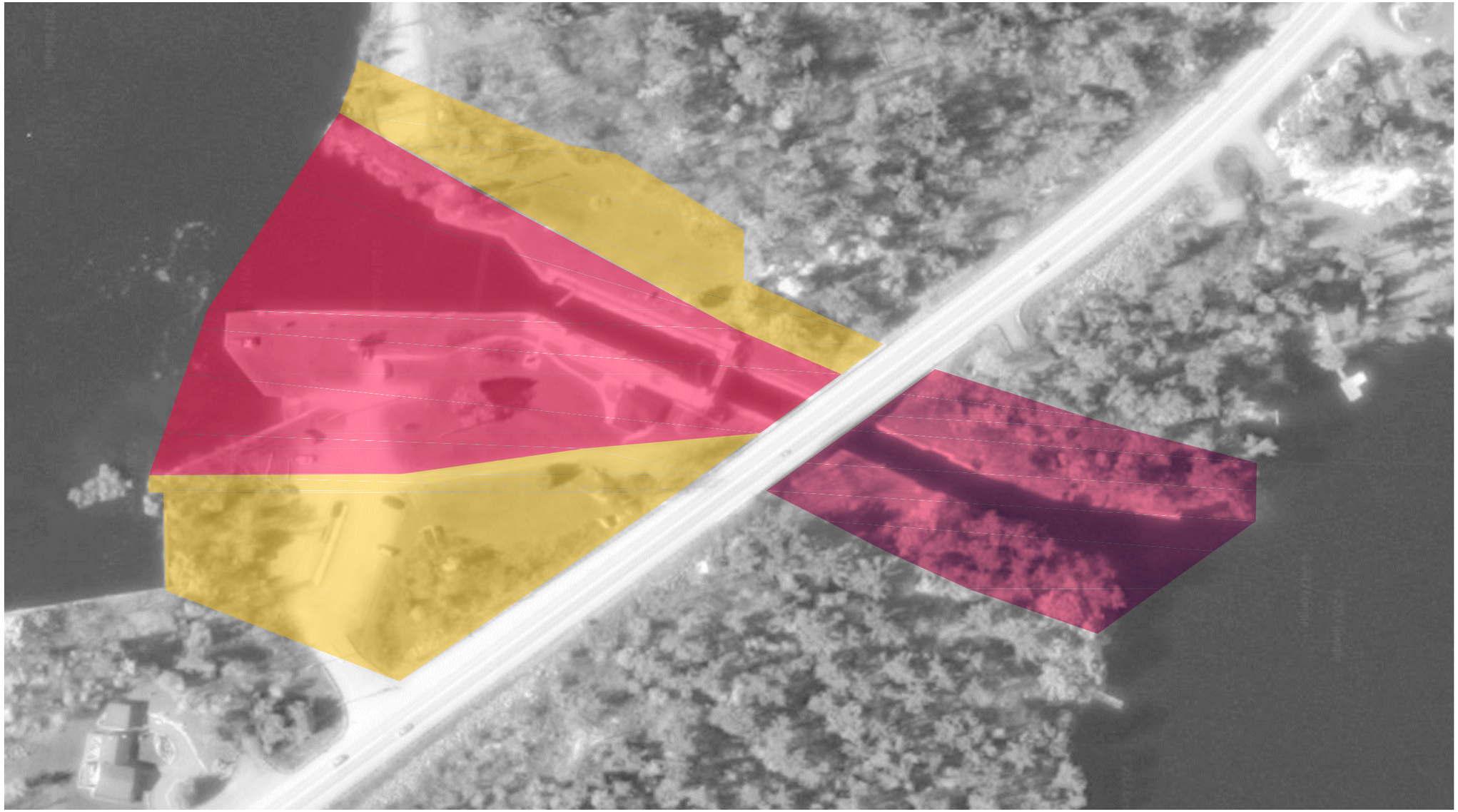
project / projet

TRENT-SEVERN WATERWAY
SCOTTS MILLS
LOCK 19
PETERBOROUGH, ONTARIO

drawing / dessin

ZONES OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed	J. TIVY	conçu
date	MARCH 2017	
drawn	S. LEFEBVRE	dessiné
date	MARCH 2017	
reviewed	J. TIVY	examiné
date	AUGUST 2017	
approved	M.-C. QUESSY	approuvé
date		
tender	M.-C. QUESSY	soumission
Project Manager		Administrateur de projets
project no.	R.083072.006	no. du projet
drawing no.	A-1 of 1	no. du dessin



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

Zones indicated as 'high' are of primary heritage character, strongly reflecting the heritage values of the cultural landscape and / or possessing important character-defining elements. These areas require the greatest level of care and protection. It is recommended that every attempt be made to limit interventions within these areas. Where interventions are proposed within these zones an integrated multi-disciplinary conservation team should be involved to minimize the impact of the interventions on the historic character of the site.

BUFFER ZONE - YELLOW

Zones indicated as the 'buffer zone' are those that aid to protect the context to the picturesque setting for the historic zones of high value. When undertaking interventions in these zones, conservation advice should be sought and every attempt should be made to retain a visual compatibility with the character of the high value zones. The buffer zone contributes to the overall heritage values of the historic landscape. Therefore, compatibility is key to consider to ensure the values are protected.

NORTH

0 50 100 150 200 250m

1:2500

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

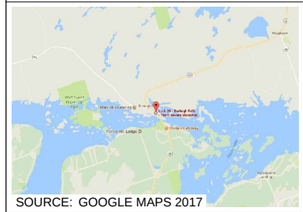
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

revision		date
05		
04		
03		
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DRAFT

A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

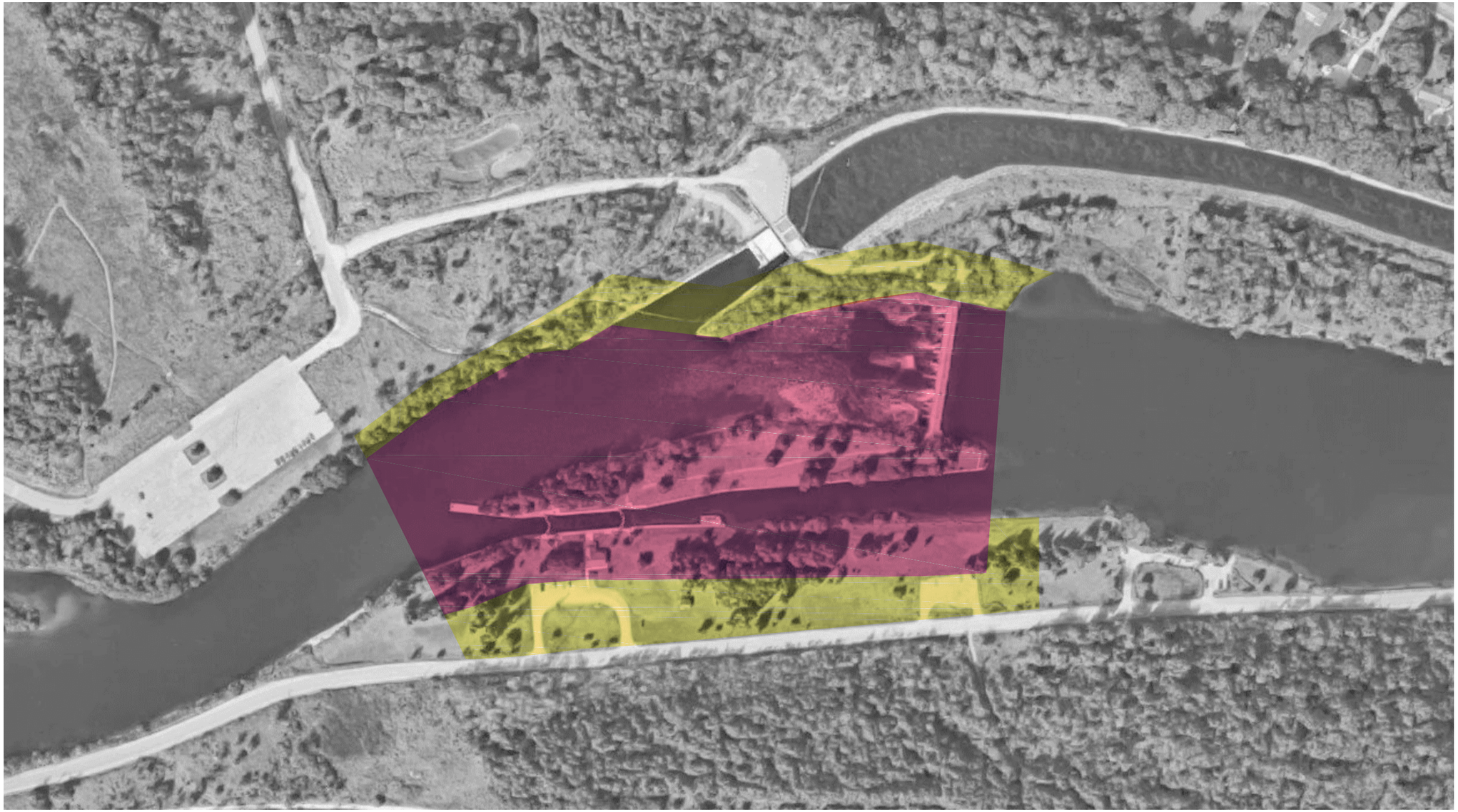
project / projet

TRENT-SEVERN WATERWAY
BURLEIGH FALLS
LOCK 28
TRENT LAKES, ONTARIO

drawing / dessin

ZONE OF
HIGH HERITAGE VALUE
AND BUFFER ZONE

designed / conçu	J. TIVY
date	MARCH 2017
drawn / dessiné	S. LEFEBVRE
date	MARCH 2017
reviewed / examiné	J. TIVY
date	AUGUST 2017
approved / approuvé	M.-C. QUESSY
date	
tender / soumission	M.-C. QUESSY
Project Manager / Administrateur de projets	
project no. / no. du projet	R.083072.006
drawing no. / no. du dessin	A-1 of 1



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

Zones indicated as 'high' are of primary heritage character, strongly reflecting the heritage values of the cultural landscape and / or possessing important character-defining elements. These areas require the greatest level of care and protection. It is recommended that every attempt be made to limit interventions within these areas. Where interventions are proposed within these zones an integrated multi-disciplinary conservation team should be involved to minimize the impact of the interventions on the historic character of the site.

BUFFER ZONE - YELLOW

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NORTH

0 50 100 150 200 250m

1:2500

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

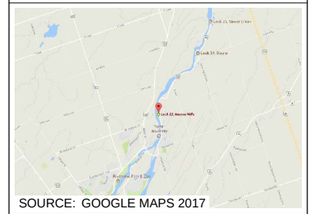
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

revision		date
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DRAFT

A detail no. no. du détail
B key location empl. clé
C detail location empl. du détail

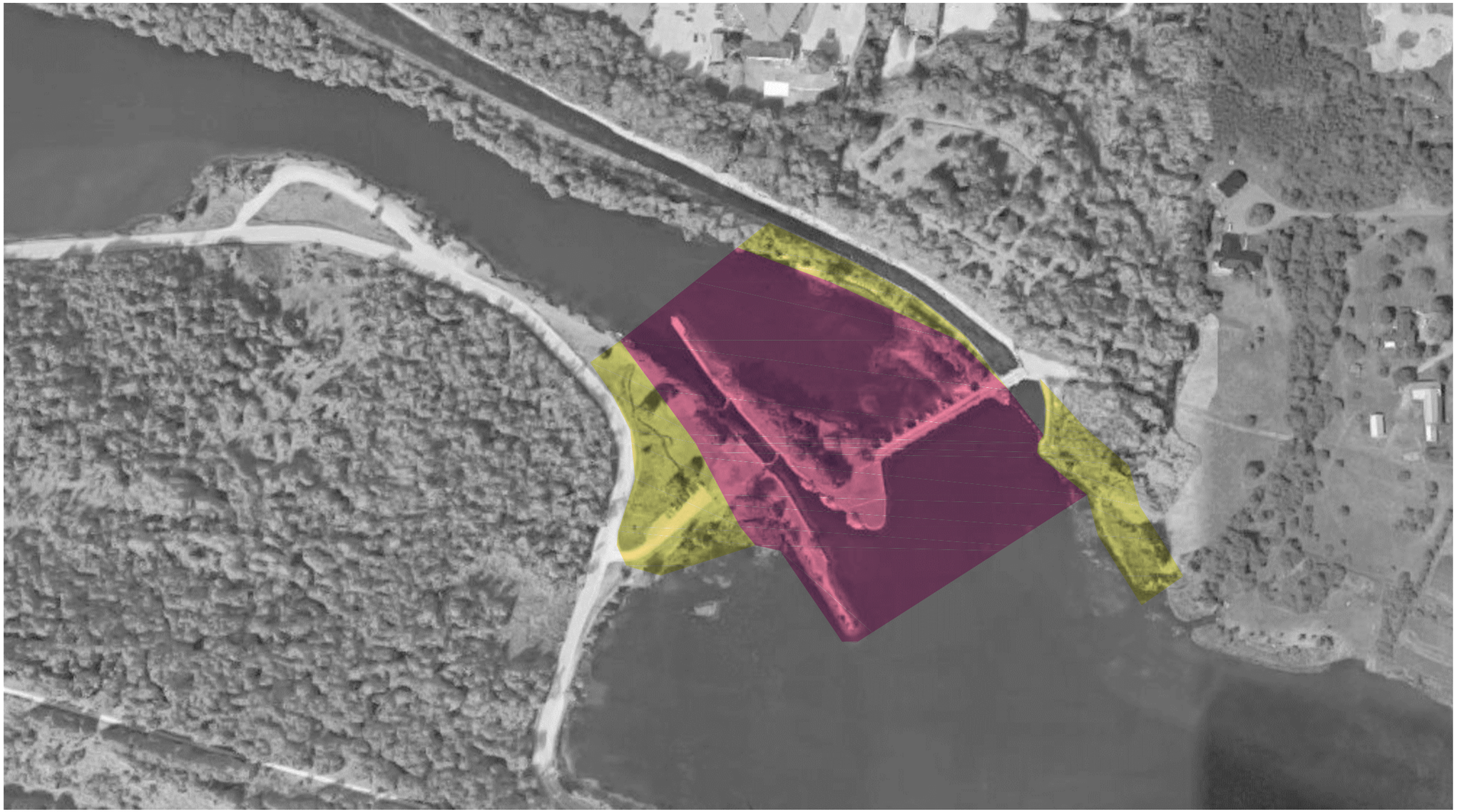
project / projet

TRENT-SEVERN WATERWAY
NASSAU MILLS
LOCK 22
PETERBOROUGH, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu	J. TIVY	
date	MARCH 2017	
drawn / dessiné	S. LEFEBVRE	
date	MARCH 2017	
reviewed / examiné	J. TIVY	
date	AUGUST 2017	
approved / approuvé	M.-C. QUESSY	
date		
tender / soumission	M.-C. QUESSY	
Project Manager		Administrateur de projets
project no. / no. du projet	R.083072.006	
drawing no. / no. du dessin	A-1 of 1	



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

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BUFFER ZONE - YELLOW

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NORTH

0 50 100 150 200 250m

1:2500

Scale 1 : 1

0mm 5 10 20 30 40 50 60 70 80 90 100mm

PSPC / SPAC 11x17

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

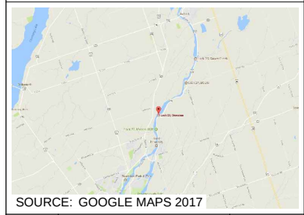
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

revision		date
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DRAFT

A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

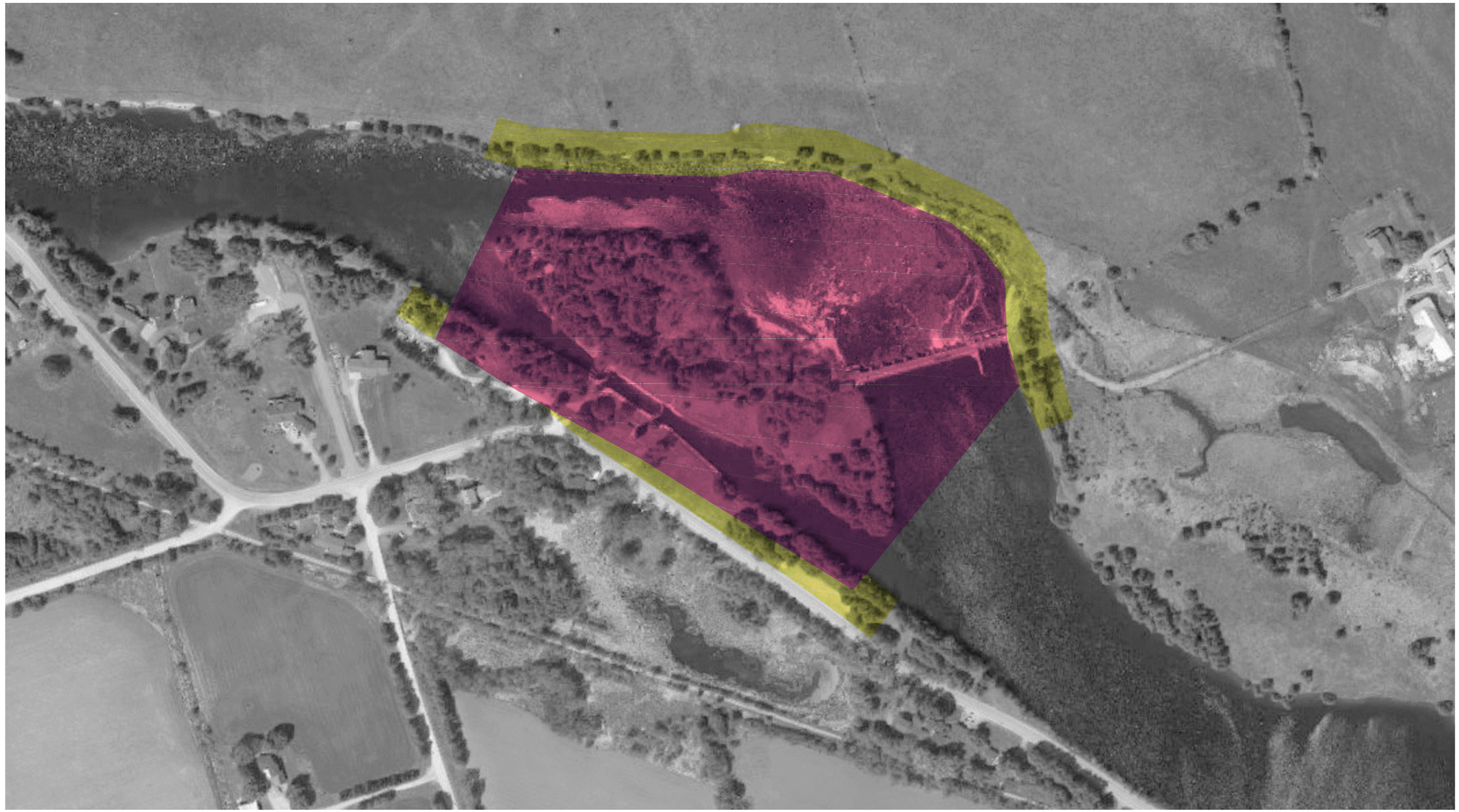
project / projet

TRENT-SEVERN WATERWAY
OTONABEE LOCK 23
INDIAN RIVER, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu	J. TIVY	
date	MARCH 2017	
drawn / dessiné	S. LEFEBVRE	
date	MARCH 2017	
reviewed / examiné	J. TIVY	
date	AUGUST 2017	
approved / approuvé	M.-C. QUESSY	
date		
tender / soumission	M.-C. QUESSY	
Project Manager		Administrateur de projets
project no. / no. du projet	R.083072.006	
drawing no. / no. du dessin	A-1 of 1	



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

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BUFFER ZONE - YELLOW

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NORTH

0 50 100 150 200 250 300m

1:3000

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada / Services Publics et Approvisionnement Canada

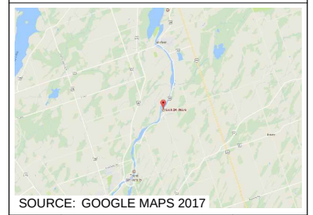
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

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A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

project / projet

TRENT-SEVERN WATERWAY
DOURO
LOCK 24
DOURO-DUMMER, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu	J. TIVY	
date	MARCH 2017	
drawn / dessiné	S. LEFEBVRE	
date	MARCH 2017	
reviewed / examiné	J. TIVY	
date	AUGUST 2017	
approved / approuvé	M.-C. QUESSY	
date		
tender / soumission	M.-C. QUESSY	
Project Manager		Administrateur de projets
project no. / no. du projet	R.083072.006	
drawing no. / no. du dessin	A-1 of 1	

SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

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NORTH

0 25 50 100 150 200m

1:2000

Scale 1 : 1

0mm 5 10 20 30 40 50 60 70 80 90 100mm

PSPC / SPAC 11x17

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

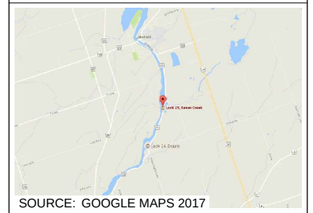
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

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revision		date

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A detail no. no. du détail
B key location empl. clé
C detail location empl. du détail

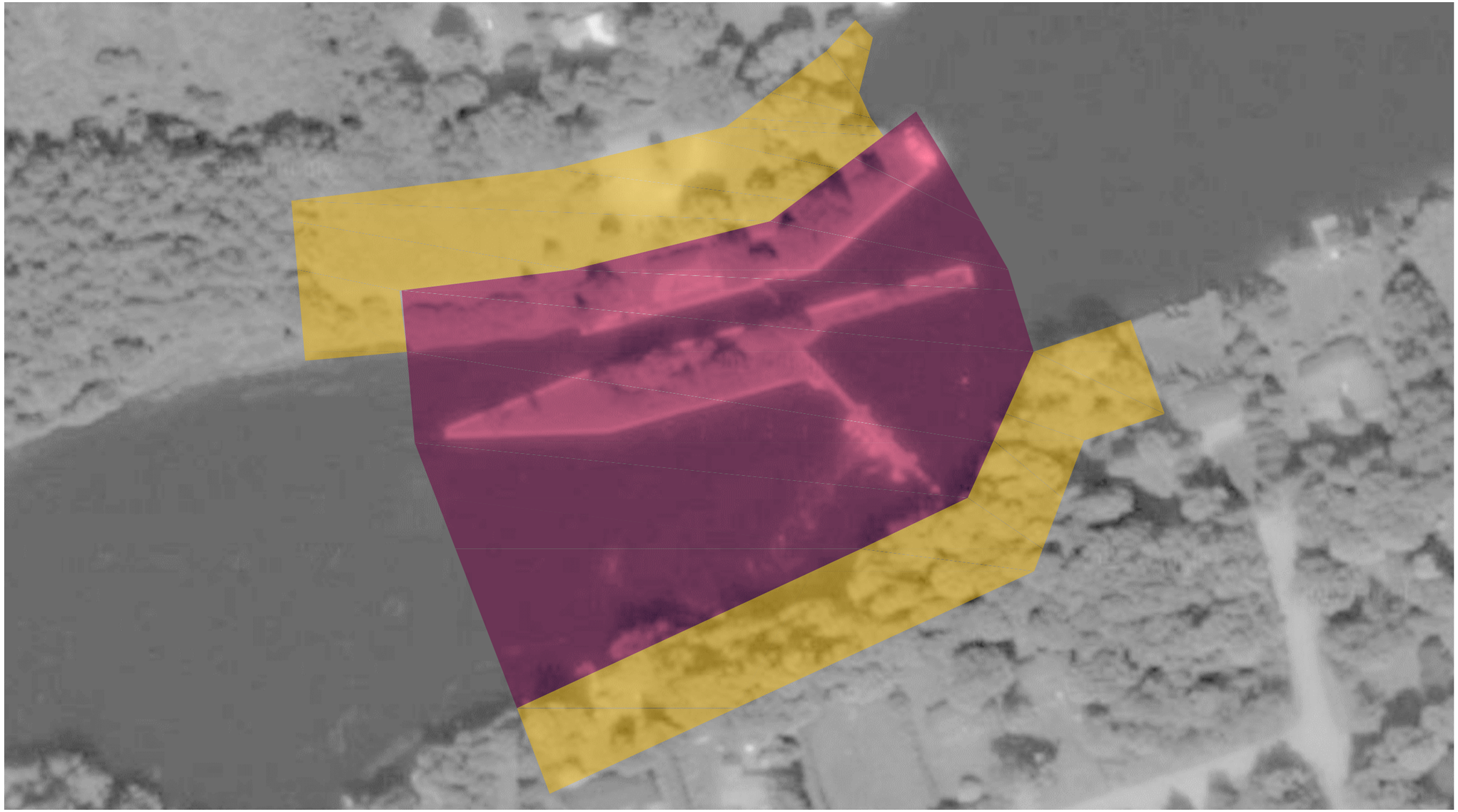
project / projet

TRENT-SEVERN WATERWAY
SAWER CREEK
LOCK 25
DOURO-DUMMER, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu	J. TIVY
date	MARCH 2017
drawn / dessiné	S. LEFEBVRE
date	MARCH 2017
reviewed / examiné	J. TIVY
date	AUGUST 2017
approved / approuvé	M.-C. QUESSY
date	
tender / soumission	M.-C. QUESSY
Project Manager	Administrateur de projets
project no. / no. du projet	R.083072.006
drawing no. / no. du dessin	A-1 of 1



SOURCE: GOOGLE MAPS 2017

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NORTH

0 50 100 150 200 250m

1:2500

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada / Services Publics et Approvisionnement Canada

Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE

SOURCE: GOOGLE MAPS 2017

revision		date
05		
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DRAFT

A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

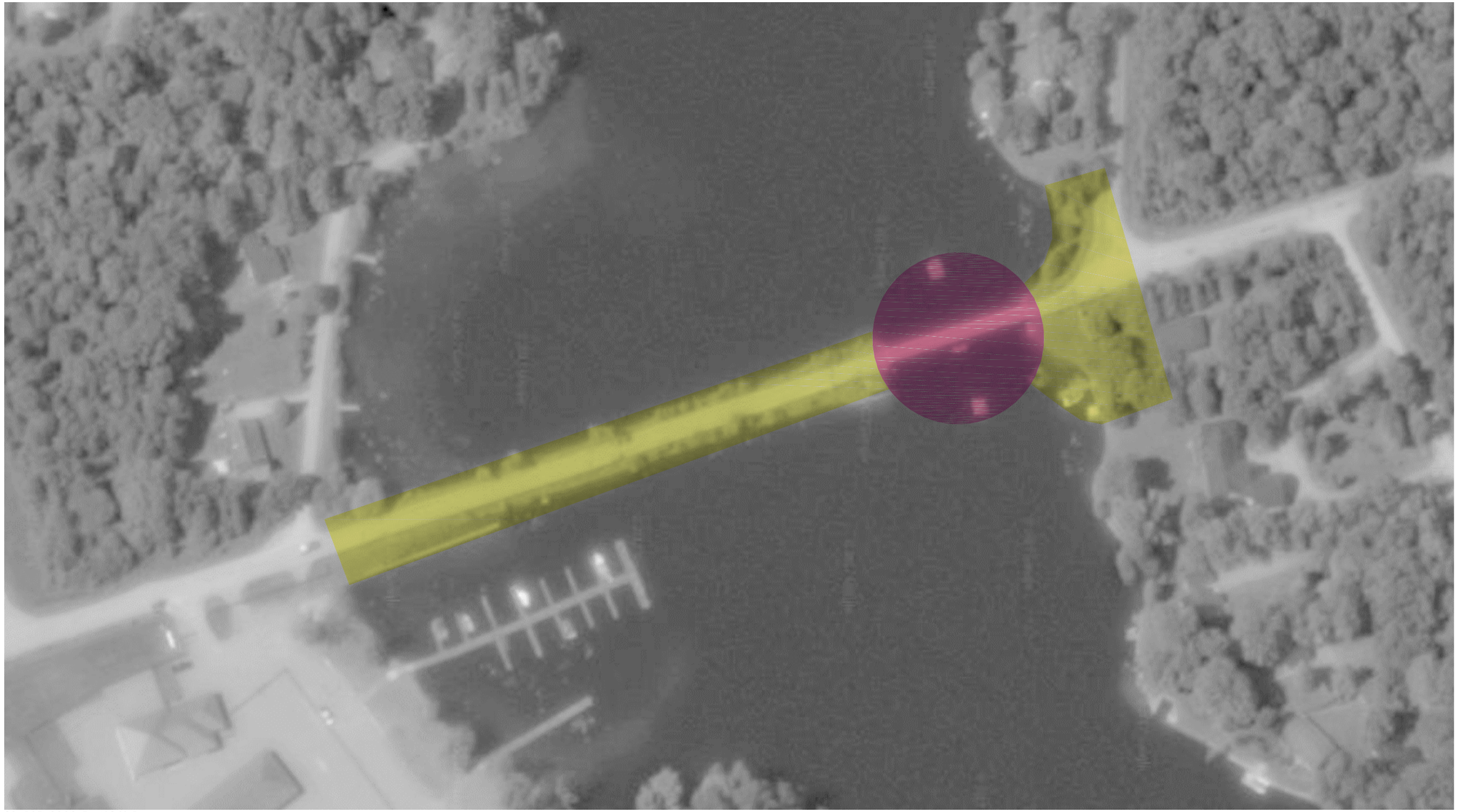
project / projet

TRENT-SEVERN WATERWAY
TALBOT
LOCK 38
BRECHIN, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu: J. TIVY — date: MARCH 2017
drawn / dessiné: S. LEFEBVRE — date: MARCH 2017
reviewed / examiné: J. TIVY — date: AUGUST 2017
approved / approuvé: M.-C. QUESSY — date:
tender / soumission: M.-C. QUESSY — Project Manager / Administrateur de projets
project no. / no. du projet: R.083072.006
drawing no. / no. du dessin: A-1 of 1



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

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NORTH

0 50 100 150 200 250m

1:2500

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE

SOURCE: GOOGLE MAPS 2017

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revision		date

DRAFT

A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

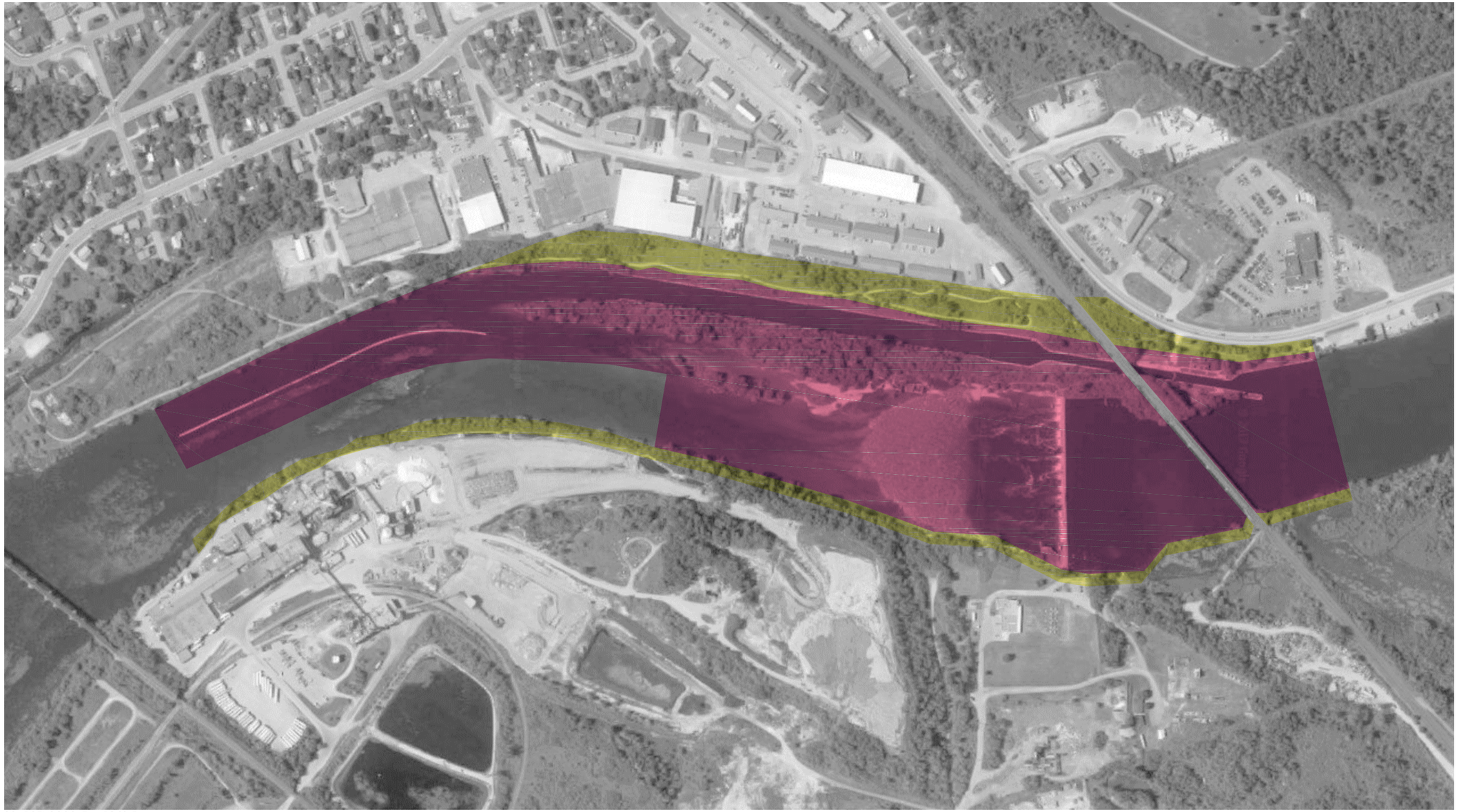
project / projet

TRENT-SEVERN WATERWAY
BOUNDARY ROAD BRIDGE
NO. 44
KAWARTHA LAKES, ONTARIO

drawing / dessin

ZONE OF
HIGH HERITAGE VALUE
AND BUFFER ZONE

designed / conçu	J. TIVY
date	MARCH 2017
drawn / dessiné	S. LEFEBVRE
date	MARCH 2017
reviewed / examiné	J. TIVY
date	AUGUST 2017
approved / approuvé	M.-C. QUESSY
date	
tender / soumission	M.-C. QUESSY
Project Manager	Administrateur de projets
project no. / no. du projet	R.083072.006
drawing no. / no. du dessin	A-1 of 1



SOURCE: GOOGLE MAPS 2017

HIGH HERITAGE VALUE ZONE - RED

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NORTH

0 100 200 300 400 500m

1:5000

Scale 1 : 1

PSPC / SPAC 11x17

0mm 5 10 20 30 40 50 60 70 80 90 100mm

Public Services and Procurement Canada
Services Publics et Approvisionnement Canada

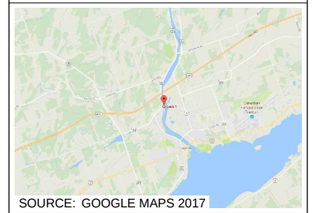
Heritage Conservation Services
Architecture and Engineering Services
Real Property Branch
Public Services and Procurement Canada

Services de la Conservation du Patrimoine
Services d'Architecture et de Génie
Direction Générale des Biens Immobiliers
Services Publics et Approvisionnement Canada

LEGEND

ZONE OF HIGH HERITAGE VALUE

BUFFER ZONE



SOURCE: GOOGLE MAPS 2017

revision		date
05		
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DRAFT

A detail no. / no. du détail
B key location / empl. clé
C detail location / empl. du détail

project / projet

TRENT-SEVERN WATERWAY
TRENTON
LOCK 1
TRENTON, ONTARIO

drawing / dessin

ZONE OF HIGH HERITAGE VALUE AND BUFFER ZONE

designed / conçu	J. TIVY	
date	MARCH 2017	
drawn / dessiné	S. LEFEBVRE	
date	MARCH 2017	
reviewed / examiné	J. TIVY	
date	AUGUST 2017	
approved / approuvé	M.-C. QUESSY	
date		
tender / soumission	M.-C. QUESSY	
Project Manager		Administrateur de projets
project no. / no. du projet	R.083072.006	
drawing no. / no. du dessin	A-1 of 1	