

RIDEAU CANAL

World Heritage Site Management Plan



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RIDEAU CANAL

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2005





Foreword

The Rideau Canal bears witness to 19th century engineering excellence, most notably through its ingenious adaptive design and brilliant execution. As well as being a technological feat, it provides an eloquent illustration of the defence measures taken by the British Empire in Canada in the early 1800s, which resulted in the transformation of Canada's eastern Ontario hinterland into a transportation route whose integrity has, to this day, been maintained at an exceptionally high level.

This linear serial nomination incorporates six elements that together will become the Rideau Canal World Heritage Site. These are: the Rideau Canal National Historic Site of Canada, Fort Henry National Historic Site of Canada, Fort Frederick, Cathcart Tower, Shoal Tower and Murney Tower (the Kingston Fortifications National Historic Site of Canada).

This management plan specifies how the world heritage values of the nominated property will be protected for present and future generations. It constitutes the formal commitment of the Parks Canada Agency, the responsible Canadian management organization, to the conservation and protection of the property. It identifies the world heritage values that will be protected, the legislative and policy framework for management of the property, the elements of the management system in place to protect the property, and mechanisms for monitoring and periodic reporting.

As a high-level, overarching management plan, this document unites the specific operational plans for the six elements by identifying and elaborating management commitments and actions that will result in an integrated approach to administering the world heritage site.

I am very grateful to our dedicated team from Parks Canada, the World Heritage Site steering committee and to all of the local organizations and individuals who have demonstrated good will, hard work, spirit of cooperation and extraordinary sense of stewardship.

I am pleased to approve the management plan for the proposed Rideau Canal World Heritage Site.

Alan Latourelle
Chief Executive Officer
Parks Canada Agency

Approved by:



Alan Latourelle,
Chief Executive Officer, Parks Canada Agency

Date

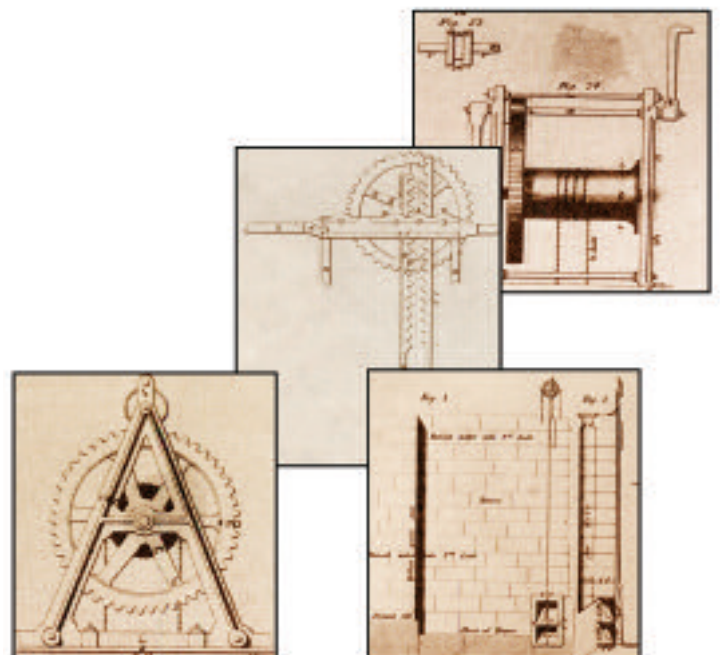




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Rideau Canal

World Heritage Site Management Plan

1.0 Purpose of this Management Plan

This plan meets the requirements of paragraph 108 of the *Operational Guidelines for the Implementation of the World Heritage Convention* for a plan to specify how the world heritage values of the nominated property will be protected for present and future generations. It constitutes the formal commitment by the Government of Canada to the conservation and protection of the property. It identifies the world heritage values that will be protected, the legislative and policy framework for management of the property, the elements of the management system in place to protect the property, and mechanisms for monitoring and periodic reporting.

The plan builds on the management plans for the six elements of the nominated property as well as on the *Eastern Ontario Field Unit Business Plan* and Long Term Capital Investment Plan, which are in place to guide their management. As a high-level, overarching management plan, this document unites the six elements by identifying and elaborating management commitments and actions that will result in an integrated approach to administering the world heritage site.

2.0 Statement of Outstanding Universal Value

In concept, design, and engineering, the Rideau Canal is the most outstanding surviving example of an early-19th century slackwater canal system in the world and one of the first canals designed specifically for steam-powered vessels. It is an exceptional example of the transfer of European transportation technology and its ingenious advancement in the North American environment. A rare instance of a canal built primarily for strategic military purposes, the Rideau Canal,



Opinicon Lake, looking to N.W., watercolour, Thomas Burrowes, 1845, Archives of Ontario.

together with its ensemble of military fortifications, illustrates the significant stage in human history when Great Britain and the United States of America vied for the control of the northern portion of the North American continent.

3.0 Criteria for Inscription on the World Heritage List

Criterion (i): The Rideau Canal is a masterpiece of human creative genius.

The Rideau Canal is a masterpiece of human creative genius, in its concept, design, and engineering. To build the canal, Lieutenant-Colonel John By, the canal's principal designer, had two options. The conventional and proven option was to use excavated channels of considerable length to link existing waterways that were navigable, bypassing falls, rapids, swamps and rocky shallows. John By dismissed this approach as being too expensive and time-consuming, given the terrain, geology and configuration of the lakes and rivers. Through a fundamental stroke of creative genius, he envisioned another option to join the watersheds of the two river systems, the Rideau and the Cataraqui: a slackwater canal, executed on a monumental scale. His decision to build a slackwater canal was highly innovative – and technologically risky. The slackwater system was virtually untried at this time in Europe. Slackwater techniques on a limited scale had been attempted

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in North America, but none of these canals was near the complexity of what John By conceived for the Rideau Canal.

The slackwater design that John By envisioned for the Rideau Canal required a very large number of embankments and high dams in order to inundate shallows, swamps, and rapids, and thus create a series of impoundments of sufficient depth to allow navigation along the full length of the canal. This approach dramatically reduced the requirement for extensive excavated channels, thereby reducing costs and construction time. The Corps of Royal Engineers responded with designs for an ingenious system of engineering works, including seventy-four dams and forty-seven locks at twenty-four lockstations, allowing vessels to ascend 85 m to the summit of the canal from the Ottawa River, and then descend 50 m to Lake Ontario.

One of the problems that plagued slackwater canals and discouraged their use was the difficulty of controlling water levels on such a system. Once again, John By and his engineers created an imaginative and effective solution to the problem. They included in the plan for the canal a system of dams and embankments that created lakes to serve as reservoirs, allowing water to be stored to supply the canal during dry summer months. Conversely, during periods when excess water was in the



system, such as in the spring or during heavy rainfalls, the reservoirs allowed water to be held back and released gradually, preventing damage to engineering works.

The genius of the slackwater canal solution to the construction of the Rideau Canal was equaled by John By's foresight regarding the future dominance of steamboats as a mode of transportation. The specifications for the canal that he was given called for locks sufficient in size to accommodate Durham boats, flat-bottomed vessels propelled by sail or oars. Soon after his arrival in Canada, Lieutenant-Colonel By sought, and was given, authorization from his superiors to build locks to accommodate vessels using the newly emerging technology of steam power. The Rideau Canal became one of the first canals in the world designed specifically for steam-powered vessels.

Criterion (ii): The Rideau Canal exhibits an important interchange of human values, over a span of time or within a cultural area of the world, on developments in technology.

Building the Rideau Canal and its fortifications required adapting existing European technology to the North American environment and to the specific circumstances and geography of its setting. The experience gained in the engineering of canal works and fortifications for the Rideau Canal advanced these technologies to a new level.

The Transfer of Canal Technology

The concept of canals and their engineering principles and technology were well known in Europe prior to the construction of the Rideau Canal. Canals had emerged as important commercial transportation systems in the mid-18th century, closely associated with the Industrial Revolution. The Rideau Canal was built using canal technology



Dam at the Hog's Back showing the Breach in the Stonework 1830, watercolour, Thomas Burrowes, Archives of Ontario.

developed in Europe and transferred to North America. However, the existing European canal technology was adapted and advanced on the Rideau in order to build a slackwater system on a scale previously untried.

There were three areas of canal-building technology in which significant adaptation and technological advancement occurred during the building of the Rideau Canal – surveying methodology, lock engineering and dam engineering.

Surveying Methodology

The Corps of Royal Engineers brought European surveying methodologies to North America for the construction of the Rideau Canal. The adaptations they made in the application of the transferred technologies, to meet the exigencies of particular local conditions, was an outstanding technological advancement.

The Royal Engineers developed truly innovative methods for orienting a survey and taking levels. First, a directional fire technique was adopted, enabling the surveyors to orient a survey over great distances in the dense forest. Second, they used compass traverses rather than conventional theodolite traverses, which were impossible in the forest. Third, so-called ‘flying levels’ were taken of the rise or fall of the land, based on the vertical position of a light placed at an established height on the leveling staff. And fourth, with the impossibility of running theodolite traverses, cross-sections of the terrain were mapped using a grid survey on compass bearings. These maps allowed the canal to be routed to take advantage of the natural terrain, thereby minimizing tree clearing, excavation and embanking work.

These innovations eliminated a great deal of difficult, costly and time-consuming labour in clearing away forest growth to obtain clear sight lines. They enabled canal works, stretching throughout a 202-km-long wilderness corridor, to be laid out in a remarkably short period of time during the winter of 1826 and spring of 1827.

Lock Engineering



Lower lock gates at Kingston Mills and excavated channel to Lake Ontario, 2005, Simon Lunn.

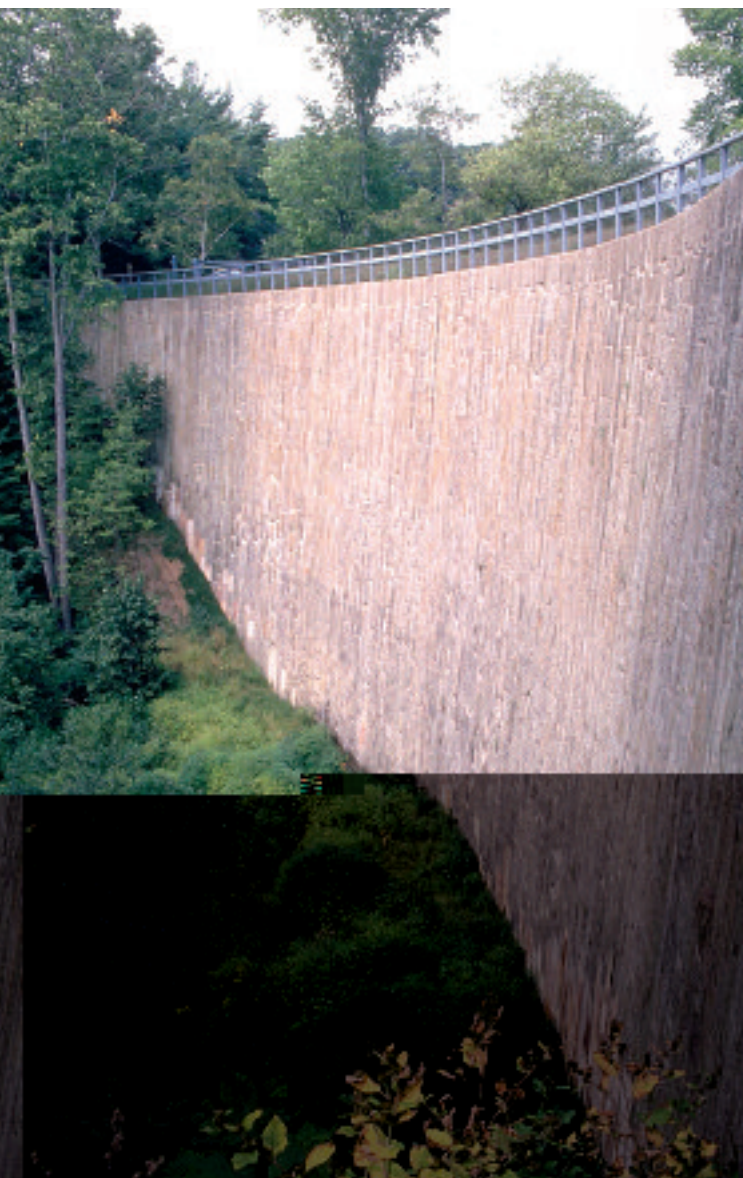
The second important area of the transfer of European technology where the Royal Engineers took an established technology to a new level was in lock engineering. Engineering principles transferred from Europe were used for the construction of the Rideau. The lock-building achievement on the Rideau was, however, the design and construction of locks capable of withstanding the unprecedented force of water pressure resulting from the high lifts and large lock chambers required for a slackwater canal built for steamboats.

Typically, locks on European canals had a lift of 2,4 m to 3,0 m. To overcome the terrain on the route of the Rideau Canal, John By was faced with the choice of building numerous locks with low lifts or fewer locks with high lifts. To minimize costs and construction time, he opted for high lifts and, therefore, fewer locks. For example, rather than construct six locks or more at Jones Falls, to overcome a rise of 18,4 m, four locks were constructed, with a maximum lift of 4,6 m. In addition, to accommodate steamboats, the lock chambers had to be significantly larger than those employed up to that time on European and North American canals. The locks on the Rideau Canal were 37,8 m long and 9,1 m wide. In comparison, the contemporary Blackstone Canal in the United States of America had locks 21,3 m long and 3,1 m wide.

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The force of water pressure created by the high lifts and large size of the locks required engineering advancements in design and construction. Lock walls, gates, sluice tunnels and wing walls were all designed and constructed to carry significantly greater force than in earlier canals. In later years, these advancements in lock engineering were applied elsewhere in the construction of locks, such as those built on the St. Lawrence River in the late 1840s.

Dam Engineering



The stone arch dam at Jones Falls was the tallest dam built in North America at the time, 2005, Simon Lunn.

The third major area of technology transfer where John By and his engineers took an established technology to new levels during the design and construction of the Rideau Canal was in the engineering of dams. The slackwater system used for the canal required a large number of dams to inundate shallows and rapids. Individually and as a system, these dams represented a considerable advancement in dam-building technology.

The massive Jones Falls Stone Arch Dam well illustrates the adaptation and advancement of European dam-building technology to meet the challenges of the Rideau Canal. To deal with the deep gorge, falls and rapids at Jones Falls required a dam with a span 107 m, to a height of 19 m, double the height of any dam in North America at the time. John By's design integrated stone masonry dam technology with the technology of clay core earth dams, to cope with the incredible stresses on a structure of this scale. The Jones Falls dam's international importance was recognized in the *International Canal Monuments List*, prepared under the auspices of The International Committee for the Conservation of Industrial Heritage (TICCIH).

To establish the impoundments of water that were required for the Rideau Canal's slackwater system, sets of dams were often required at lockstations. The engineering of such dam systems involved the use of earth embankment dams, stone masonry dams and stone masonry water control weirs in combination. The system of dams at Kingston Mills illustrates John By's mastery of traditional European dam building technology and his advancement of it. He achieved the impoundment of the 15.6-km stretch of water above Kingston Mills through a system of dams that included two earth embankment dams, 1.4 km in total length, a 120-m long stone masonry arch dam, natural geological features, a water control weir, and the upper lock.

The Transfer of Military Technology

The fortifications built at Kingston to defend the mouth of the Rideau Canal represent the transfer of European military technology to North America.



Innovative in design, Fort Henry was the most important British fortification west of Quebec City, 2001, Brian Morin.

Fort Henry was, however, a considerable advance over earlier fortifications built in British North America. Major citadels built in the 1820s at Halifax and Quebec City conformed to the traditional Vauban design of fortification. For Fort Henry, engineers abandoned this approach, adapting newer Prussian thinking to create a fortification that was unique in British North America. The result was a powerful and compact fort, well suited to the topography of Point Henry.

The four Martello towers, built between 1846 and 1848 to protect Kingston Harbour and the entrance to the canal, were designed by Lieutenant-Colonel W. Holloway of the Corps of Royal Engineers. Martello towers had been adapted by the British from round tower fortifications found on the European continent, and built to protect the English coastlines during the period of the Napoleonic Wars. They extended their use to British North America, eventually building twelve towers in total, the last being the four in Kingston. The Kingston towers were the culmination of decades of British development of round masonry tower design and construction. All incorporated significant innovative structural and external features to address defensive weaknesses previously associated with this type of fortification. Of the four, Murney is the best example of the final phase in this process of evolution. Like traditional Martello towers, it consisted of two floors with a gun platform protected by a high parapet. It was, however, surrounded by a deep ditch with a dry masonry counterscarp. Tower and ditch were

protected by a rubble-filled glacis. Four massive caponiers projected from the base of the tower, enabling defenders to fire in to the ditch. All the Kingston towers were innovative in design and of a high quality of construction. Murney is, however, regarded as the most sophisticated Martello tower to be built in British North America.



The glacis surrounding Murney Tower is clearly visible in this aerial photograph, 2001, Brian Morin.

Criterion (iv): The Rideau Canal is an outstanding example of a technological ensemble which illustrates a significant stage in human history.

The Rideau Canal was built in 1860 at a time when two powers, Great Britain and the United States of America, vied for the control of the northern portion of the North American continent. This significant stage in human history resulted in the creation of two distinct political and cultural entities, Canada and the United States of America.

One of very few canals in the world built primarily for strategic military purposes, the Rideau Canal and its associated defensive works were critical elements in the global strategy developed by Great Britain immediately after the Napoleonic Wars in Europe and the War of 1812 in North America. The two wars demonstrated to British political and military leaders the importance of a military defensive system to protect their far-flung global interests.

In North America, the key to the defence of Canada lay in a transportation route from

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Montréal to Lake Ontario, more secure than the St. Lawrence River, to supply the vital naval base at Kingston. When the British Government examined the defence of British North America, two Canadian projects were sanctioned: the Rideau Canal and the Kingston harbour fortifications.



Merrickville, watercolour, Philip John Bainbridge, 1838, Library and Archives Canada.

This was the context for the British decision to invest enormous financial resources in the construction of the Rideau Canal and its associated fortifications. At stake was the future security and expansion of British political and commercial interests on the North American continent. This was also the context for approval of locks large enough to accommodate steam-powered vessels. As historian Robert Passfield, in *Building the Rideau Canal*, remarks, “steamboat navigation provided the British forces with a speed of movement superior to that enjoyed by the Americans. Had the Rideau Canal not been completed, or had it been constructed as a small gunboat canal, the whole of the military’s efforts at engineering the defence of Canada would have been undermined.”

Ultimately, the success of this strategy was fundamental to the growth of colonial Canada and, subsequently, its development as an independent nation, spanning the northern half of the continent.

4.0 Management Framework for the Nominated Property

The nominated property consists of the Rideau Canal, with its lockstations and slackwater sections, and the fortifications in Kingston, which are briefly described in this section. The nomination document for the property includes descriptions and photographs for each of these elements. The nomination document and map annex, as well as the appendices included in the nomination, serve as appendices for readers of this management plan.

Element 1, Rideau Canal



Jones Falls Lockstation, 2005, Simon Lunn.

The Rideau Canal is a 202-km slackwater canal, consisting of navigable lakes and rivers and excavated channels, connecting Ottawa, the nation’s capital on the Ottawa River, and Kingston on Lake Ontario. In 1887, an additional 10 km of waterway was completed, linking the Rideau Canal to the town of Perth via the Tay River. The canal includes fifty locks at twenty-four lockstations, seventy-three dams, and 19 km of excavated channels. The Rideau Canal is administered by Parks Canada, an agency of the Government of Canada.



Kingston Shipyards, watercolour, James Gray, 1828, Library and Archives Canada.

Element 2, Fort Henry

Fort Henry is the key component of the fortification system defending the southern entrance to the Rideau Canal and Kingston Harbour. Situated on a peninsula at the eastern side of the harbour, its position provides a commanding view of the north channel of the St. Lawrence River, the entrance to the Rideau Canal and the harbour itself. Fort Henry is administered by the Parks Canada Agency but operated through a management agreement with the St. Lawrence Parks Commission, an agency of the Government of the Province of Ontario.

The strategic relationship of the Martello Towers and Fort Henry is still clearly visible, 2005, Simon Lunn.

Elements 3, 4, 5, 6, Kingston Fortifications

The Kingston Fortifications is a system of four Martello towers located along the shore of Lake Ontario at Kingston and on a nearby island, strategically placed to protect the entrance to the Rideau Canal and Kingston Harbour.

The Parks Canada Agency administers Cathcart, Shoal and Murney towers. Murney Tower is leased to the Kingston Historical Society for use as a historical museum. Fort Frederick is administered by the Department of National Defence. It is used as a historical museum.





Murney Tower is operated as a museum by the Kingston Historical Society, 2005, Simon Lunn.

5.0 Legislative Authority, Policies and Plans for the Management of the Nominated Property

The Government of Canada is the sole owner of the nominated property by virtue of the *British North America Act* (1867), which transferred the various elements from the Government of Great Britain. The Rideau Canal, Fort Henry and the Kingston Fortifications are all national historic sites of Canada as commemorated under the authority of the *Historic Sites and Monuments Act*.

The entire property, with the exception of Fort Frederick, is administered by the Parks Canada Agency under the authority of the *Parks Canada Agency Act*. Fort Frederick, located on the grounds of the Royal Military College of Canada, is under the authority of the Department of National Defence. Ownership by the Government of Canada and their designation as national historic sites ensures that all of the elements of the nominated property are protected under federal legislation and policy.

Pursuant to the *Parks Canada Agency Act*, the agency's *Guiding Principles and Operational Policies* provide detailed direction for the national program of natural and cultural heritage protection. The *Cultural Resource Management Policy*, the *National Historic Sites Policy* and the *Historic Canals Policy* form part of the *Guiding Principles and Operating*

Policies, and the *Parks Canada Agency Act* requires the agency to implement them as they relate to the protection and management of protected heritage areas. The act also requires that each national historic site administered by the Parks Canada Agency have in place a management plan approved by the Minister of the Environment. Fort Frederick, although part of the Kingston Fortifications National Historic Site, is not covered by the requirements of the act. A memorandum of understanding between the Department of National Defence and the Parks Canada Agency will establish a formal agreement to protect the world heritage values of Fort Frederick. Under this agreement, the Department of National Defence and the Parks Canada Agency will formalize their cooperation in the implementation of the national historic site management plan for the Kingston Fortifications and of the management plan for the proposed Rideau Canal World Heritage Site.

While the Parks Canada Agency's legislation, policy and plans are effective for long-term management of the nominated property, their management is also facilitated by regulatory controls. The *Historic Canals Regulations*, pursuant to the *Department of Transport Act*, provide an enforcement mechanism to regulate activities that could harm the heritage values of the canal components. Other statutes and regulations, such as the *Ontario Trespass Act*, also support the management of the property.

6.0 Role of the Rideau Canal World Heritage Site Management Plan

This world heritage site management plan provides an overarching management framework to cohesively direct the protection, conservation and presentation of the entire nominated property. It thus complies with the requirements of the *World Heritage Convention* by demonstrating how the outstanding universal values of the property will be protected. The Government of Canada will review and update the plan after each six-year reporting cycle.

7.0 Implementation of the Rideau Canal World Heritage Site Management Plan

The world heritage site management plan will be implemented through the current management planning system and subsequent planning levels and processes. The Parks Canada Agency's national historic site management plans for the elements of the nominated property provide specific direction for decision-making and the investment of financial and human resources.

For implementation purposes, the elements of the world heritage site and their cultural resources will be managed under the direction provided by the Parks Canada Agency's management plans for each national historic site. The revised *Rideau Canal Management Plan* (2005) and pending management plans for Fort Henry and the Kingston Fortifications national historic sites of Canada, among a range of management considerations, identify the cultural values of the property that must be protected, and the policies and long-term programs to conserve and present them. The implementation of the management plans is the primary mechanism for conserving and presenting the sites' values and they will serve equally well for the management of the world heritage values of the nominated property.

The national historic site management plans recognize that the diverse elements of the world heritage site do not exist in isolation and that their heritage values are reinforced by their immediate settings. The historic site management plans specify strategies and actions that the Parks Canada Agency will employ to encourage stewardship of these values by other levels of government, agencies and adjacent landowners.

The Superintendent of the Eastern Ontario Field Unit is delegated the responsibility for developing, implementing and periodically reviewing the national historic site management plans on a five-year cycle. Within that cycle, the plans will be updated to reflect the inscription of the property and to reflect specific strategies, plans and actions required for their implementation.

The principal planning tool for identifying management decisions related to investment of resources is the *Eastern Ontario Field Unit Business Plan*, which is a three year plan, updated annually, that addresses the highest priority management issues. With respect to investments in the conservation and maintenance of assets, both cultural resources and contemporary, the business plan is informed by the *Eastern Ontario Field Unit Long Term Capital Plan*. This plan, which is developed by the asset management group of the field unit, identifies all investments in asset protection and conservation that will be required on a ten-year forecast. The plan is updated annually and the priority of specific interventions is re-assessed based on asset inspections and condition assessments. Together, these two plans will identify, place in order of priority and direct the fiscal and human resources required to conserve and present the world heritage values of the property.

The Superintendent of the Eastern Ontario Field Unit is accountable for all the elements of the world heritage site except Fort Frederick. The superintendent relies upon a number of key individuals and units to implement the direction provided by these plans:

- The Manager of National Historic Sites Programs, reporting to the field unit superintendent, is the responsible officer for the conservation of Fort Henry and the Kingston Fortifications, and for the management agreement with the St. Lawrence Parks Commission for the operation and maintenance of Fort Henry.
- The heritage assets of the field unit are managed by the Eastern Ontario Field Unit, Asset Management Unit, under the direction of the Asset Manager. The section is supported by the Heritage Canals and Engineering Works Unit of the federal Department of Public Works and Government Services. This unit is an in-house consulting service providing expertise in inspection, rehabilitation, design and contract tendering. Additional services such as historic building conservation and landscape architecture services are available from the department as well.

- The day-to-day operation of the Rideau Canal as a recreational waterway is under the canal's Director of Operations who is responsible for staff working in the areas of maintenance, canal operations, water management, realty, ecosystem management, visitor services and planning.
- The field unit's Marketing and External Relations Unit provides marketing and heritage presentation services.

With regard to Fort Frederick, the Department of National Defence has its own asset management system, which is consistent with the Parks Canada Agency's system in terms of the effective management of the assets. Fort Frederick falls under the authority of the Base Commander, Canadian Forces Base Kingston.

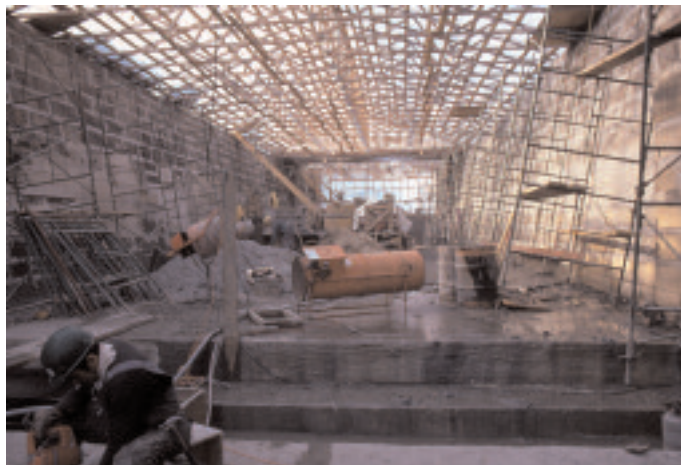
8.0 Conservation Program for the World Heritage Site

The engineering works, fortifications and other built heritage resources of the nominated property are the lasting authentic evidence of the transfer and advancement of canal and fortifications building technology from Europe to North America and the creative genius of its concept, design and engineering. Together with the slackwater canal system, they illustrate the period in history when Great Britain and the United States of America struggled for control of the northern part of the North American Continent.

Conservation of cultural resources and assets

The Parks Canada Agency will undertake the following measures to ensure that the cultural resources and other built assets of the world heritage site are conserved:

- Conclude a memorandum of agreement with the Department of National Defence, which specifies the conservation program for Fort Frederick and the role of the Parks Canada Agency in support of the department's conservation program.
- Conduct regular monitoring of all cultural resources on a cycle not to exceed three years, in accordance with the Parks Canada Agency's policies, and record and report the condition of assets in the Asset Management System of the Eastern Ontario Field Unit.
- Update the *Long Term Capital Plan* of the Eastern Ontario Field Unit on an annual cycle to reflect changes in asset condition and to ensure that the highest priority conservation and maintenance projects are being implemented.
- Update the annual business plan of the Eastern Ontario Field Unit to identify the specific financial resources required to invest in priority projects.
- Undertake conservation work in accordance with the *Cultural Resource Management Policy* of the Parks Canada Agency. This will ensure that the work is consistent with international conservation principles and practices.
- Maintain accurate records, plans and data related to the conservation program for the world heritage site.



Five of the eight locks in flight at the Ottawa lockstation were reconstructed in the 1980s, 1986, Rideau Canal Archive.

Conservation program for the slackwater sections of the canal system



The slackwater section from Clowes as it approaches Merrickville Lockstation, 1990, Simon Lunn.

The slackwater sections of the Rideau Canal, which are connected for navigation by the system of locks, are the evidence of the human creative genius brought to bear in the concept, design and engineering of the Rideau Canal.

The Parks Canada Agency will undertake the following measures to ensure that the slackwater sections of the canal are managed and conserved:

- Prohibit any activities that would alter the size, shape, depth or configuration of the slackwater sections of the canal system.
- Ensure that applications for small-scale shoreline marine works to facilitate private access to and use of the canal by adjacent land owners will be considered subject to a review of the potential impact of such developments on the cultural resources of the property. Reviews will also consider possible impacts on natural resources. The *Canadian Environmental Assessment Act* governs such reviews.
- Regulate the construction of private shoreline works by using the *Policies for In-water and Shoreline Works and Related Activities*, which establish detailed standards and requirements to protect the authenticity of the shoreline of the slackwater canal system as well as its environmental and scenic values.
- Exercise its enforcement authority under the *Historic Canals Regulations* to protect the world heritage values of the slackwater canal sections.
- Ensure that new bridge and public utilities crossing proposals include detailed environmental assessments so that the property will maintain the authenticity of its shoreline and cultural resources, and the environmental and scenic qualities of its setting.
- Monitor the state of the slackwater canal sections as components of the world heritage site to verify their state of conservation and detect any threats to the resources.
- Include information and analysis about the state of conservation of the slackwater canal sections in its report to the World Heritage Committee on the state of the world heritage site.

Baseline Data: Condition of Cultural Resources September 2005

Cultural Resource	Condition	Comments
Ottawa Lockstation		
Eight locks	Locks 1, 2, 5, 6, 8: Good Locks 3, 4, 7: Fair	The lower sill on Lock 8 was repaired in 2005. Routine maintenance.
Commissariat building	Fair	Repairs to wooden components and painting scheduled for 2006. Routine maintenance.
Lockstation office	Fair	Routine maintenance.
Archaeological features	Fair	Routine maintenance.

Cultural Resource	Condition	Comments
Hartwells Lockstation		
Two locks	Fair	Routine maintenance.
Defensible lockmaster's house	Fair	Routine maintenance.
Storehouse	Fair	Routine maintenance.
Lockman's house	Good	Routine maintenance.
Stoplog weir	Fair	Routine maintenance.
Hogs Back Lockstation		
Two locks	Fair	Routine maintenance.
Earth embankment dam	Fair	Routine maintenance.
Lockstation office	Good	Building painted and major repairs to roof in 2001. Routine maintenance.
Storage shed	Good	Routine maintenance.
Black Rapids Lockstation		
One lock	Fair	Routine maintenance. Gate replacement scheduled for 2006. Concrete repairs 2010.
Lockmaster's house	Fair	Routine maintenance.
Spillway dam	Fair	Routine maintenance.
Weirs	Fair	Routine maintenance.
Long Island Lockstation		
Three locks	Fair	Lock 15 stabilized in 2003. Routine maintenance.
Stone arch dam	Fair	Routine maintenance.
Manotick Dam	Fair	Routine maintenance.
Lockmaster's house	Fair	Routine maintenance.
Swing bridge	Fair	Routine maintenance. Conservation of abutments and stringers, and painting, in 2006.
Burritts Rapids Lockstation		
One lock	Fair	Routine maintenance.
Spillway dam	Fair	Routine maintenance. Minor pier and abutments repairs in 2006.
Weir	Poor	Routine maintenance. Stabilization and repair in 2006.
Swing bridge	Good	Complete conservation in 2005. Routine maintenance.
Dam ruins	Not rated	Archaeological resource, no conservation planned.
Nicholsons Lockstation		
Two locks	Fair	Routine maintenance. Lock 19 grout repairs planned for 2006.
Excavated channel	Not Rated	Routine maintenance.
Spillway dam	Fair	Routine maintenance.
Weir	Good	Routine maintenance. Minor repairs to log checks and wall in 2007.
Defensible lockmaster's house	Fair	Routine maintenance.
Swing bridge	Fair	Routine maintenance.

Cultural Resource	Condition	Comments
Clowes Lockstation		
One lock	Fair	Emergency repair to masonry in lower sill in 2005. Routine maintenance.
Stone arch spillway dam	Fair	Routine maintenance.
Weir	Fair	Routine maintenance.
Defensible lockmaster's house	Fair	Routine maintenance.
Merrickville Lockstation		
Three locks	Fair	Lock 23 stabilized and conserved in 2002. Routine maintenance.
Original dam	Not Rated	Archaeological resource, no conservation planned.
Water control dams and weirs	Good	Routine maintenance.
Lower and upper basins	Fair	Conservation of upper basin stone masonry in 2002. Routine maintenance. Upper basin walls conservation in 2010.
Blockhouse	Fair	Routine maintenance.
Storehouse	Fair	Routine maintenance.
Merrickville Industrial Complex	Foundry: Good Industrial Ruins: Poor	Routine maintenance. Routine maintenance and monitoring will continue. Possible conservation within 10 years based on monitoring.
Kilmarnock Lockstation		
One lock	Fair	Routine maintenance.
Earth embankment dam	Fair	Routine maintenance.
Defensible lockmaster's house	Good	Routine maintenance. Porch repairs within 3 years.
Swing bridge	Fair	Routine maintenance.
Edmonds Lockstation		
One lock	Fair	Routine maintenance. Rake, point and grout in 2013.
Spillway dam	Fair	Routine maintenance. Rake, point and grout 2012.
Weir	Good	Routine maintenance.
Earth embankment dam	Fair	Routine maintenance.
Lockstation office	Fair	Routine maintenance.
Old Slys Lockstation		
Two locks	Good	Routine maintenance.
Stone arch dam	Fair	Routine maintenance.
Defensible lockmaster's house	Good	Routine maintenance.
Smiths Falls Combined		
Three original locks	Locks 28, 29: Good Lock 30: Fair	Routine maintenance.
Replacement single chamber lock	Fair	Routine maintenance. Gates and operating system repair 2007.
Stone arch dam	Good	Routine maintenance.
Defensible lockmaster's house	Fair	Routine maintenance.
Canalman's house	Fair	Routine maintenance.
Smiths Falls Detached Lockstation		
One lock	Fair	Routine maintenance.
Lockstation office	Fair	Routine maintenance.

Cultural Resource	Condition	Comments
Poonamalie Lockstation		
One lock	Fair	Routine maintenance. Rake, point and grout in 2009.
Earth embankment dams	Fair	Routine maintenance.
Defensible lockmaster's house	Good	Routine maintenance.
Beveridges Lockstation, Tay Canal		
Two locks	Fair	Upper lock conserved in 1998. Routine maintenance. Minor repair to lower lock in 2006.
Earth embankment dam	Fair	Routine maintenance.
Lockmaster's house	Fair	Routine maintenance.
Perth, Tay Canal		
Bridge	Fair	Routine maintenance. Painting in 2008.
Bridgeman's house	Fair	Routine maintenance.
Turning basin	Fair	Routine maintenance.
The Narrows Lockstation		
One lock	Fair	Routine maintenance. Rake, point and grout in 2011.
Earth embankment dam	Good	Routine maintenance.
Blockhouse	Fair	Routine maintenance.
Swing bridge	Fair	Routine maintenance.
Newboro Lockstation (The Isthmus)		
One lock	Fair	Routine maintenance.
Blockhouse	Fair	Routine maintenance. Roof repairs 2009.
Excavated channel	Not rated	Routine maintenance.
Archaeological Resources	Good	Routine maintenance.
Chaffeys Lockstation		
One lock	Fair	Routine maintenance. Rake, point and grout in 2007.
Defensible lockmaster's house	Fair	Routine maintenance.
Lockstation office	Fair	Routine maintenance.
Weir	Good	Routine maintenance.
Davis Lockstation		
One lock	Good	Routine maintenance.
Earth embankment dams	Fair	Routine maintenance.
Weir	Good	Routine maintenance.
Defensible lockmaster's house	Fair	Routine maintenance.
Lockstation office	Good	Routine maintenance.
Jones Falls Lockstation		
Four locks	Lock 39: Good Locks 40, 41 & 42: Poor	Routine maintenance. Stabilization and conservation of locks 40, 41, and 42 by 2009.
Stone arch dam	Fair	Routine maintenance.
Defensible lockmaster's house	Good	Routine maintenance.
Blacksmith's forge	Fair	Routine maintenance.
Lower lockstation office	Poor	Routine maintenance. Continue to monitor and repair.

Cultural Resource	Condition	Comments
Upper Brewers Lockstation		
Two locks	Lock 43: Good Lock 44: Fair	Routine maintenance. Rake, point and grout, 2010–2012.
Earth embankment dams	Fair	Routine maintenance.
Defensible lockmaster's house	Good	Routine maintenance.
Canalman's house	Good	Routine maintenance.
Lower Brewers Lockstation		
One lock	Fair	Routine maintenance. Rake and point in 2014.
Defensible lockmaster's house	Good	Routine maintenance.
Swing bridge	Fair	Routine maintenance.
Kingston Mills Lockstation		
Four locks	Locks 47, 48 & 49: Fair Lock 46: Poor	Routine maintenance. Lock 46, work identified and awaiting funding.
Stone arch dam	Fair	Routine maintenance.
Two earth embankment dams	Good	Major stabilization work in 2004. Routine maintenance.
Weir	Fair	Routine maintenance.
Blockhouse	Fair	Routine maintenance.
Lockmaster's house	Good	Routine maintenance.
Lockstation office	Good	Routine maintenance.
Fort Henry, Kingston		
Redoubt	Poor (conserved sections-good)	Major conservation program 2004 – 2007. Routine maintenance.
Advanced battery and glacis	Fair	Routine maintenance.
West and east branch ditches	Fair	Routine maintenance.
West and east branch ditch towers	Poor	Conservation planned in 2008.
West and east commissariat stores	Good	Roof conservation in 2003. Routine maintenance.
Fort Frederick, Kingston		
Martello tower	Good	Major conservation program completed in 2000, including roof repairs. Routine maintenance. Painting of wooden portions in 2007.
Earthworks	Fair	Routine maintenance. Masonry repairs pending.
Masonry curtain wall.	Good	Masonry repairs completed in 2004. Routine maintenance.
Fortified guard house	Good	Routine maintenance.
Cathcart Tower, Cedar Island		
Martello tower	Poor	Design specification documents completed. Awaiting funding. Twice-yearly monitoring for stone movement.
Shoal Tower, Kingston		
Martello tower	Good	Major conservation program completed 1997. Routine maintenance. Twice-yearly monitoring for stone movement.
Murney Tower, Kingston		
Martello tower	Good	Multi-year conservation program completed in 2004. Routine maintenance. Twice-yearly monitoring for stone movement.

9.0 Presentation of the World Heritage Site



The blacksmith's forge at Jones Falls Lockstation is the location for demonstrations of 19th century blacksmithing, 2005, Simon Lunn.

One part of the Parks Canada Agency's mandate is to present significant examples of Canada's natural and cultural heritage and foster public understanding, appreciation and enjoyment of this heritage. As national historic sites, the elements of the nominated property have developed a wide array of programs and they will be the means of communicating messages about the outstanding universal value of the world heritage site.

The communications objectives of the presentation program will be:

- To inform national and international audiences of the inscription of the property on the World Heritage List.
- To present the Statement of Outstanding Universal Value and the reasons for inscription related to the criteria of the *World Heritage Convention*.
- To place the property within the context of world heritage sites in Canada and around the world.
- To explain UNESCO's World Heritage Program, the significance of the inscription and the management responsibilities of the Government of Canada that flow from the inscription.
- To build understanding of the importance of the conservation and protection of the world heritage values of the property and foster stewardship with key decision makers, adjacent property owners, visitors and other interested parties.
- To involve adjacent property owners in the sustainable management of the buffer zone adjacent to the property in order to protect its world heritage values.

The Parks Canada Agency will undertake the following measures to ensure that messages about the outstanding universal values of the property and the world heritage program of UNESCO are effectively communicated to national and international audiences:

- Promote and brand the property as a world heritage site in media and promotional literature to raise awareness of its universal value.
- Ensure that tourism marketing initiatives include world heritage messages to inform potential visitors to the property of its world heritage status.
- Present the world heritage status and world heritage values of the designated property through displays and other media at principal

interpretive locations including: the Rideau Canal Museum, Fort Henry, Fort Frederick, Murney Tower, and Ottawa, Merrickville, Jones Falls and Kingston Mills lockstations.

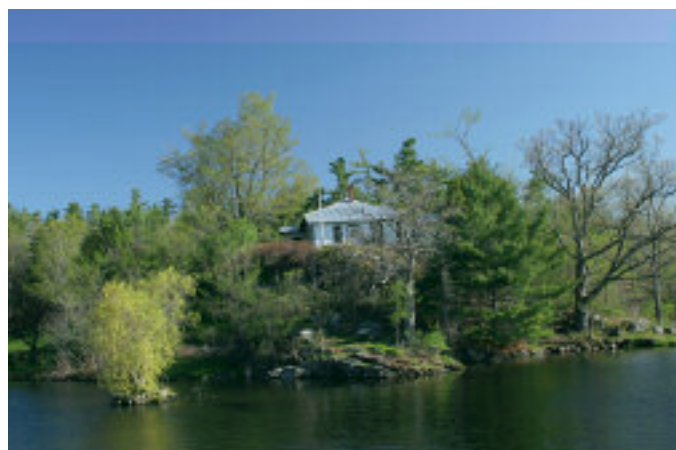
- Establish an outreach and education program to inform communities adjacent to the property of the site's world heritage values.
- Include in the websites of the elements information about the world heritage site from both the educational and tourism perspectives.
- Assess the effectiveness of the presentation program on a periodic basis to determine how well the objectives of the program are being achieved.
- Include information about the presentation of the property in the periodic report to the World Heritage Committee.

10.0 Protection of the World Heritage Site

The policies of the Parks Canada Agency recognize the need for the agency to work with all interested parties to protect the setting of the elements of the nominated property from inappropriate development adjacent to them. In addition, the property is protected by a buffer zone that is established through provincial and municipal regulation. This buffer zone protects the property from uncontrolled development, and there are processes through which the Government of Canada, as owner of the property, can assert its interests.

To ensure the protection of the nominated property, the Parks Canada Agency will undertake the following actions:

- Manage the property that contains the engineering works and canal buildings, slackwater canal sections, and fortifications in a manner that prevents inappropriate development.
- Work with municipalities, landowners, the Province of Ontario and other stakeholders to ensure that suitable land use policies for adjacent lands are in place to protect the property.
- Work with municipal governments, which are empowered to control the development and use of shore lands under the authority of the *Ontario Planning Act* to protect the property through the maintenance of a buffer zone. Municipalities control the location, type and scale of development and have land-use policies that require frontage of between 50 m to 75 m for waterfront lots and a setback of 30 m from the shoreline for all new construction. This 30-m setback constitutes the buffer zone for the slackwater sections of the canal system.
- Work within the planning processes of the municipal governments to ensure that consideration is given to the conservation management of lands beyond the 30-m buffer zone, particularly where development has the potential to degrade the heritage values of the nominated property.
- Participate directly in the process for the development of municipal plans, zoning bylaws and the review of development applications to ensure that all official plans for the municipalities bordering the nominated property have specific policies pertaining to the protection of shore lands and cultural heritage.



Extensive sections of the canal's shoreline retain their 19th century appearance, 2005, Simon Lunn.

- Intervene in proposed development applications should the agency believe that the development would negatively affect the world heritage values or resources of the nominated property.

11.0 The Involvement of Partners and Stakeholders in Managing the World Heritage Site and its Setting

Although the Government of Canada owns the nominated property, partners and stakeholders have a role to play as tenants of a number of canal buildings and fortifications. Their occupation of these buildings assists the Parks Canada Agency in preserving them and presenting them to the public. These leases are expected to continue indefinitely.

Much of the 1600-km shoreline of the slackwater canal system is privately owned. While municipalities and conservation authorities regulate the development outside of the 30-m buffer zone, the ongoing management of these lands is largely the responsibility of individual landowners. In recent years much progress has been made to encourage sustainable shoreline management practices in order to protect the authenticity of the slackwater canal sections. Landowners have been generally co-operative and have made considerable progress to rehabilitate degraded shorelines and protect existing natural areas. This trend is expected to continue.

An extensive network of non-governmental groups is active in cultural resource management, land protection, education and research, and make contributions to the conservation of the property. These include organizations such as the Rideau Canal Advisory Committee, the Rideau Waterway Land Trust, Friends of the Rideau, the Centre for Sustainable Watersheds, municipal heritage committees, residents' associations and lake associations. These organizations, together with municipal and conservation authorities, private landowners and the Parks Canada Agency will ensure the authenticity of the nominated property.

12.0 Risk Preparedness

The geographic area in which the nominated property is located is not prone to natural disasters. The only situation that could constitute a significant threat to the property would be a major flood that could damage the dams and, to a lesser extent, buildings and locks. Such an event is possible but remote, given the water management regime of the canal. During the spring, when flooding is most likely to occur, water levels are reduced prior to the spring run-off. This provides the canal system with an increased capacity to handle additional water, reducing the risk of damage to canal structures.

The Parks Canada Agency will take the following actions to manage risks related to floods:

- Maintain water management protocols to respond quickly to sudden heavy precipitation.
- Study the stability of dams and other water control structures. Where necessary, modifications will be made to dams and embankments in a manner consistent with their historic value, to increase their ability to withstand major flood events.

13.0 Sustainable Tourism

The Parks Canada Agency does not foresee unmanageable visitor/tourism pressures that could negatively impact the nominated property. The components that are major tourism attractions, such as Fort Henry and Ottawa Lockstation, can easily serve more visitors without detrimental effects on cultural resources. In most parts of the canal corridor, tourism occurs at a low to moderate level of activity. The Parks Canada Agency and partner organizations promote visitation through tourism marketing initiatives.

Certainly, most sections of the Rideau Canal can accommodate increased boat traffic. There are, however, some high-volume locations along the canal, mostly on the Rideau Lakes. The Parks Canada Agency has taken steps to attract boaters away from them by promoting lower volume



Ottawa Lockstation during the peak season, 2000, Steve Weir.

lockstations and offering additional services at these alternate locations. Shore power, for example, has recently been installed at certain less busy lockstations, to better disperse boat use in the peak season, mid-June to September.

The Parks Canada Agency will take the following actions to effectively manage potential tourism pressures:

- Keep accurate records of visitation to specific locations within the property to identify trends in visitation and any potential threats to conservation.
- Develop appropriate visitor management strategies and action plans where threats are identified.

14.0 Reporting on the State of Conservation of the World Heritage Site

The ongoing monitoring programs of the Parks Canada Agency will be the primary mechanism for the collection of data on the state of conservation of the nominated property and will be used to plan and implement remedial measures when necessary.

The World Heritage Convention requires that State Parties periodically report on the state of conservation of world heritage sites located within their territories on a six-year cycle. Information on how the property of the Rideau Canal World Heritage Site has been conserved, protected and presented, will be included in Canada's report to the World Heritage Committee.

