TAILORING THE HERITAGE RECORD. A PROACTIVE APPROACH TO USER NEEDS

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ABSTRACT:

The inclusion of sound heritage recording is seldom a high priority to a multidisciplinary multi-client restoration project. Often it is an after thought driven by the lack of a detailed understanding of the cultural resource throughout the life cycle of the project. Heritage recording is a core conservation activity. The "project scope" for the Fort Henry project states "HCS will carry out heritage recording investigations to understand the issues and provide clear options on how to stabilize, restore and conserve the resources with a conservation approach meeting Parks Canada's conservation policies". This paper discusses the recording techniques applied and the recording deliverables generated as critical inputs to the on-going Fort Henry rehabilitation project. These deliverables will be evaluated/discussed as to "where value lies" as a result of their generation and the gaps vis-à-vis the information provider vs. the information user. An approach to tailoring the record to specific information user needs is outlined and evaluated Furthermore the role of heritage recording training for project conservation engineers and architects is presented.

1. INTRODUCTION

Fort Henry National Historic Site of Canada (NHSC) was built from 1832 to 1837 to replace an existing fortification from the War of 1812 era. Situated atop Point Henry, the fort protected the naval dockyard at Point Frederick, the entrance of the Rideau Canal, and the town of Kingston; the latter serving as the major trans-shipment point along the supply route between Montreal/Ottawa and all points west. In the 1840s Fort Henry was enlarged with the construction of the branch ditch towers and commissariat stores, making Fort Henry the largest fortification west of Quebec City. The fort alone cost 70,000 British pounds sterling to construct, the equivalent of $35,000,000 in modern Canadian currency.

Fig. 1: Aerial view

The fort was abandoned by the British Army in 1870, and was garrisoned by Canadian troops until 1891. During World War I, Fort Henry was used as an internment camp for political prisoners. Following the war, the fort fell into disuse and disrepair.

Fort Henry was declared a national historic site by the Historic Sites and Monuments Board of Canada in 1923. In the reasons for designation it was noted that the fort "is a site of great national importance and its historic features should be preserved, repairs carried out and everything done to make it an attractive memorial…" In a joint Federal/Provincial project, Fort Henry was restored in 1936 to 1938 at a cost of $1 million dollars. The fort was opened as a museum and historic site "in the name of all British soldiers who served there" by Prime Minister Mackenzie King in August 1938.

During World War II, Fort Henry became Camp 31, a Prisoner of War camp for enemy merchant seamen, soldiers, sailors and airmen. Today, Fort Henry continues to function as a museum and an important national historic site

Parks Canada is the Federal Agency responsible for the protection and promotion of nationally significant examples of Canada's natural and cultural heritage. Parks Canada administers approximately 146 national historic sites on behalf of the people of Canada, including Fort Henry. In partnership with the St. Lawrence Parks Commission, Parks Canada is responsible for maintaining the site's commemorative integrity. This is achieved in two ways; by ensuring the protection and preservation of the fort's valued cultural resources and by educating Canadians and visitors about its national historic significance. At Fort Henry NHSC, the St. Lawrence Parks Commission provides high quality and informative programming to visitors through guided tours, museum displays, special events and the Fort Henry Guard.

2. PROJECT SCOPE

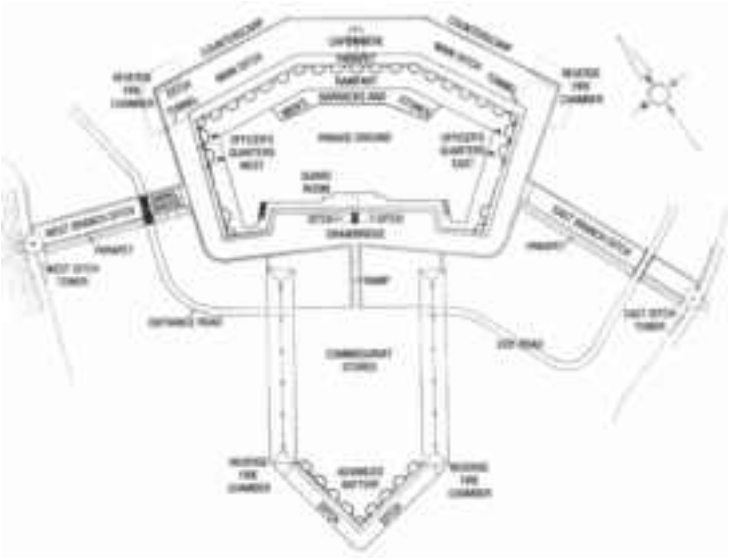
A core conservation activity, heritage recording provides base documentation essential for the development of options for any intervention to a cultural resource. The information further provides a sound basis for establishing an approach towards the rehabilitation of the resource. In subsequent phases of this project, private sector consultants will use the heritage recording documents in the development of the final design, tender documents, and drawing package.

The Fort Henry NHSC is a grouping of individual cultural resources: the Redoubt, the Commissariat Stores and reverse fire chambers, advanced battery, the curtain wall and demi-bastions, and the two branch ditches and towers.

Heritage recording was carried out in 2002/03 on the Commissariat Stores and the Redoubt. In order to have a better understanding of the Redoubt, Heritage Conservation Services (HCS) conducted a condition survey and produced as-found drawings and photos of the structure. The drawings included a roof plan, an elevation plan of the parade square, rectified photo elevations, longitudinal and transversal sections. This information, in addition to input from Parks Canada professionals including archaeologists and historians, was used to develop conservation guidelines. Having a thorough knowledge and understanding of a cultural resource before proposing interventions is in keeping with the Parks Canada Cultural Resource Management Policy (CRM), the Fort Henry Commemorative Integrity Statement and sound conservation policies and principles. For the Commissariat Stores, a condition survey of the roof structure and building envelope was conducted with the aid of as-found drawings and photos. Elevation line drawings were produced of the buildings showing window and door openings, mortar joints, roof outline and chimney locations. A roof plan and typical truss drawing were also prepared. As in the case of the Redoubt, this information formed the basis for the development of conservation guidelines for the rehabilitation of these structures.

The heritage recording completed to date on this project represents only a fraction of Fort Henry NHSC's cultural resources. Other site elements will be documented based on the priority of interventions throughout the life cycle of the rehabilitation project. In addition, specific areas of the fort's cultural resources are of concern due to their structural instability. A monitoring program has been developed, using survey and photogrammetry, to assist the engineers in their understanding of present and future problems with the structures at risk.

The heritage recording field recording team consisted of 6 recorders for a period of three weeks in the spring of 2002. Of the six, there were two surveyors, one photographer and three hand-recording specialists. Supporting the field recording team for approximately 6 months were two Cad specialists tasked with compiling the final heritage record.



3. THE PLAYERS

In most comprehensive restoration projects the number of partners, users and stakeholders is extensive and the Fort Henry rehabilitation project is no exception. The two main partners, Parks Canada and the St. Lawrence Parks Commission, amassed a team of conservation specialists for the project, including engineers, architects, heritage recorders, conservation technologists, architectural historians, archaeologists, and external conservation consultants. A project manager oversaw all work to ensure program delivery and to coordinate client approval of project scope, costs, schedules and project delivery. In addition, it is Parks Canada's commitment to ensure that the public stakeholders play an integral role in the long-term conservation and management of the site. Steps by Parks Canada are presently being taken to provide a forum for community input into the preparation of the Fort Henry "management plan". Other stakeholders include the Province of Ontario, the City of Kingston, and concerned heritage groups, to mention a few.

4. THE DOCUMENTATION PROCESS

4.1 Guiding principles/philosophy

The heritage recording team leader was tasked with establishing how the heritage recording document would be used by the identified information users to facilitate project delivery requirements. This was achieved at various stages in the individual projects. At the early planning stages of each project, the project manager scheduled a project start-up meeting. Present at the meeting were various players including the heritage recording team leader. From this meeting, the heritage recording team leader identified potential information users. The various information users were then interviewed to find out what their respective projects involved, the intended deliverables, and how the heritage record might assist them. For example, an important requirement for one conservation team was to have every stone of the exterior documented to assist in the stone condition assessment. Another critical component was to document the existing drainage plan of the roof and parade square of the Redoubt to aid the conservation professionals in their investigation of water infiltration problems. Without communication between the various conservation teams and heritage recording team leader, these elements of the fort may not have been included in a heritage recording proposal. Priority areas of the fort had to be identified for the heritage recording process. These areas were identified in the planning stage by the various conservation teams, and the heritage recording team focussed on these priority areas.

The various consultations established a sound understanding of the various conservation teams' objectives. From this a proposal for heritage recording was prepared and presented to the project manager. The heritage recording proposal included the deliverables, cost, schedule, and team members for the field and office work.

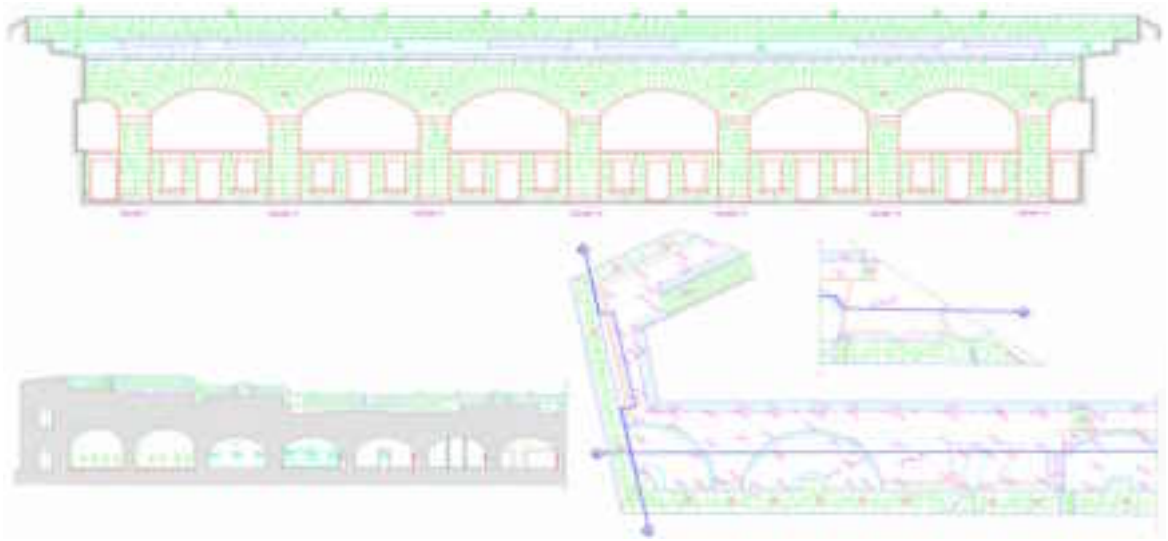


Fig 2: Examples of Heritage Record (Elevation, section and roof plan)

4.2 Conservation Team Requirements and Deliverables

The heritage recording proposal included the following deliverables: floor plans, building sections, roof plan, and exterior elevations for both the Commissariat Stores and the Redoubt, and a drainage plan of the roof and parade square of the Redoubt. This was intended to be the base documentation to support the various conservations teams.

The conservation team had full access to the digital heritage recording documentation, which was available on a LAN (local area network). The heritage recording team followed naming conventions established in collaboration with the conservation team. This assisted various information users to access the heritage record without having to communicate directly with the heritage recording team. This applied to the final product and any other intermediate material that was used in the production of the final deliverables. For example, raw images used for the production of the rectified elevations were given the appropriate location name prior to the transfer from the recording field laptop to the LAN. This enabled information users access to over 1800 images captured in the field documentation process prior to the completion of the final heritage record. This was essential due to the fact that parallel conservation activities were proceeding in tandem with the recording work. Images were divided into 190 named folders that most information users understood if they were familiar with the naming conventions adopted for the building.

One specific requirement by some information users was the exterior elevations of every stone showing the mortar joints, which was to be used for the condition assessment of the masonry. The final exterior elevations were of overlaid Cad line drawings from the rectified photo elevations. For this project, the primary tools used by the information users were the rectified photo elevations. These elevations were used more often than the line drawings due to the additional information provided by the photo, such as stone fractures and staining (Fig 3).

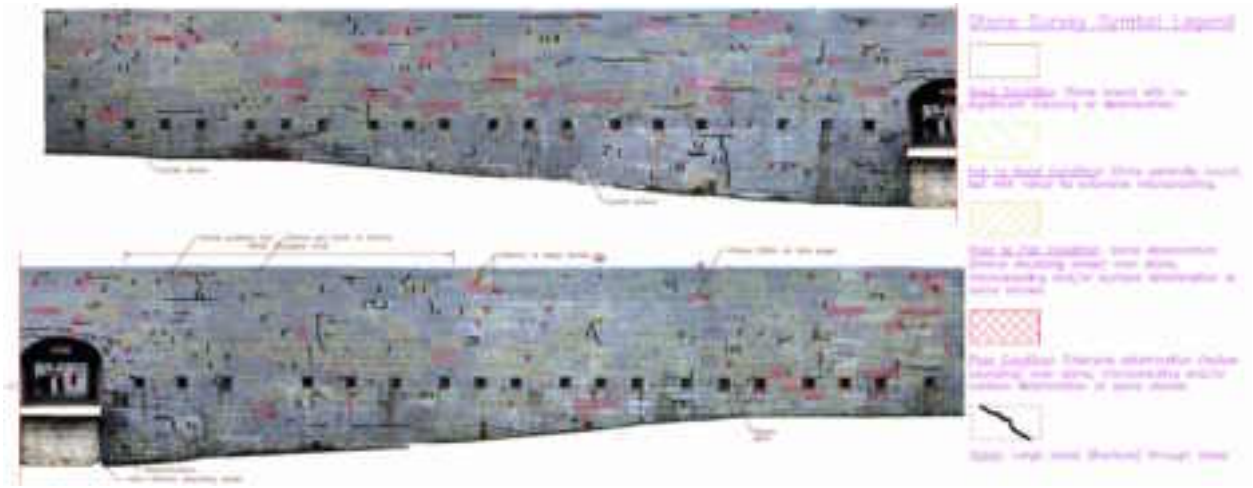


Fig. 3: Condition assessment with legend

4.3 Selection of documentation techniques and methods

The foundation for the precision of the documentation was a building survey using a total station. This ensured that all of the documentation fell within the specified precision of +/-50mm. Every element of the deliverable used the survey, therefore the entire record shares the same coordinate system.

Many of the survey points served a dual purpose for the roof and floor plans and also in the production of the sections, thus reducing the number of points captured on site to around 2500 (Fig. 4). Due to the large number of survey points, it was essential that each point have a clear description to allow heritage recording office staff to have access to, and a general understanding of, the survey.

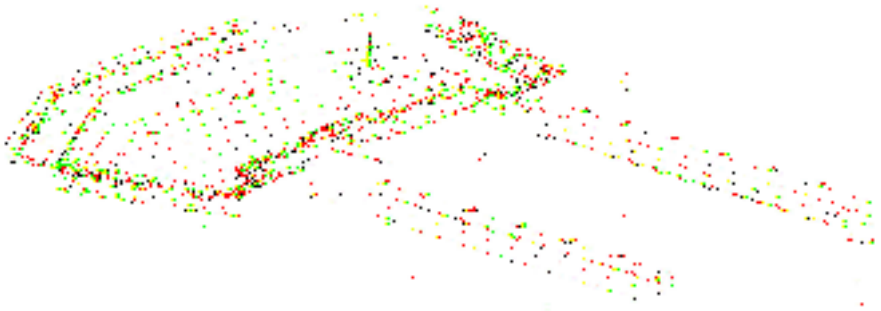


Fig. 4: Isometric of survey

Since the strategic nature of a fort is to have unobstructed views of the surrounding topography, very few natural obstructions to the exterior elevations existed. This, along with other factors such as the flatness of the various elevations, consistent photo acquisition, lack of obstructions, and easy access, led to the decision to use photo rectification. In addition, the elevations were relatively long flat areas (some walls as long as 65meters). Combine these various factors with the increased resolution of digital cameras, and the mortar joints, for example, read quite visibly. These factors benefited the heritage recording due to the fact that elements such as the mortar joints were identified as key information to the record by various users. Control for the photographs was obtained from the survey point database. The photographs were captured with a digital camera and rectified using Rolleimetric MSR software. After the rectification and mosaicing of the building planes, the mortar joints were then overlaid in AutoCAD.

Hand recording was the method of choice for the production of the floor plans and sections. This method provided a field drawing of each room, complete with notes and dimensions, which could be transferred to Cad by heritage recording cad specialists located in Heritage Conservation Services office in Ottawa. Field notes were sent to the office during the site work period with some floor plans being drawn before the completion of fieldwork. This enabled office staff to identify trends regarding errors in the field notes such as missing dimensions or notes.

Walls, windows, doors, loopholes and permanently fixed objects were recorded. Rooms were tied together into floor plans with the survey using the windows, doors and loopholes openings. Several digital photos were taken of each room to give office staff a better understanding of individual rooms. Building sections were assembled with a combination of hand recording, survey and rectified photography.

The total station was the primary tool for the production of the roof plan. Various roof levels, stairs, outlines and all other permanent features were located using the total station. The primary reasons this method was chosen was because of the lack of obstructions between the survey instrument and rod-man and with the complex geometry of the buildings, this method would be more efficient than hand recording.

The entire heritage record shared the same coordinate system, allowing different elements to be combined for study. Heights of interior and exterior elevations could be compared and different floor and roof plans could be overlaid for analysis. This also assisted the documentation process and quality review by comparing common elements of the drawing set. For example, loopholes, doors and windows of both floor plans and elevations could be combined and then compared to see if they were in-line. This was one tool to help determine if the final product met the precision specified for the project deliverable.

5. WHERE VALUE LIES

Feedback was sought from different conservation team information users regarding the usefulness of the heritage record. From the conservation architect's point of view, prior to the completion of the heritage record, there was never a check or confirmation of the original drawings of the fort. In the past, the original drawings were traced and manipulated as working drawings for major interventions. It was often not clear if specific original drawings accurately represented what was built, or if it was a conceptual drawing. Various information users can feel confident that they have a heritage record in hand that reflects the state of the fort as it stands today.

Dimensions obtained from the heritage record were also compared to the written record of the construction of the fort, helping to identify the configuration of the fort in different eras. Also the roof plan provided a base drawing for the architects, engineers and historians to graphically represent the different eras of the fort (1862, 1864,1878 and 1938) (Fig. 5). These documents where then used to convey information to the client.

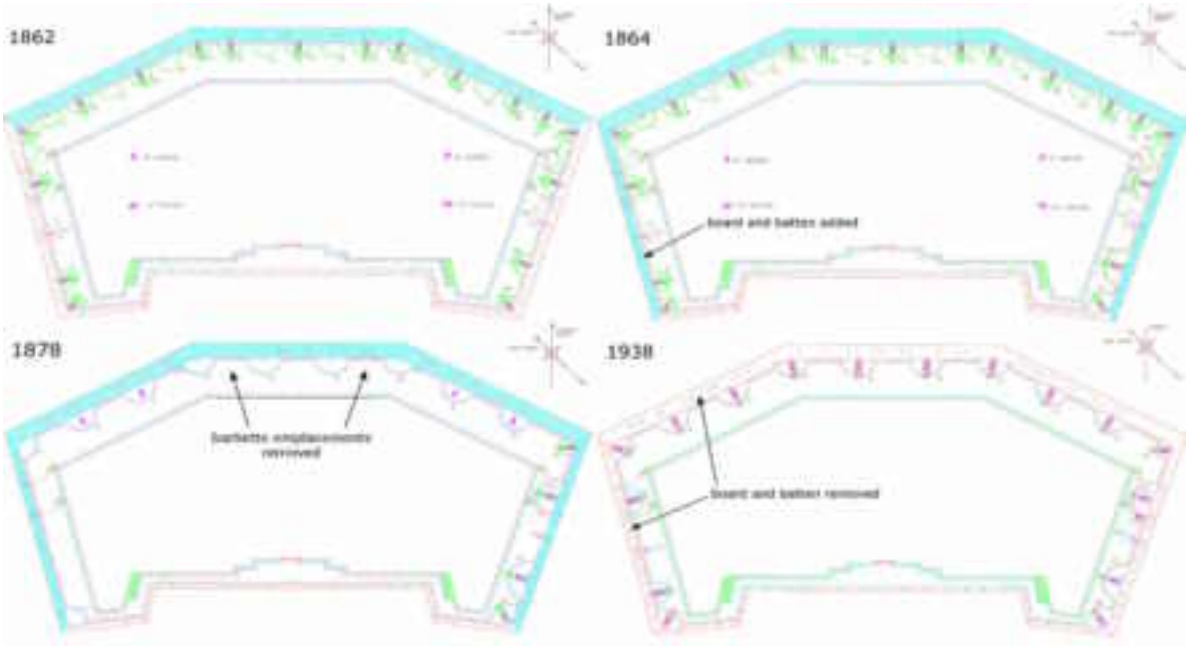


Fig. 5: Roof plans showing the different eras of the fort

Historic photos where also compared to the heritage record to identify the different eras shown in fig.6. The 1910 photo was rectified and compared to the 2002 heritage record. With this exercise, it was determined that the roof was previously at a higher level. During the renovation of 1938, the roof was lowered, possibly to provide drainage.

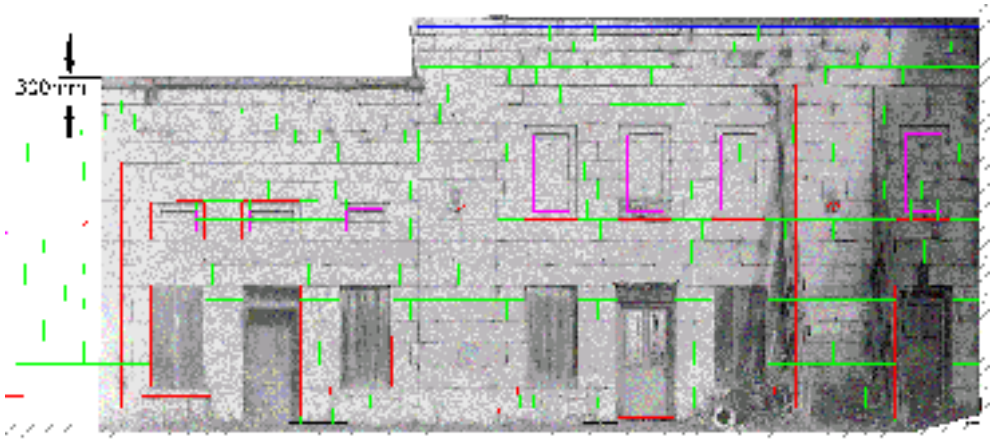


Fig. 6: Historic photo compared to heritage record

The completion of this heritage record of the fort, combined with various condition assessments, represents the first time that accurate numbers could be produced for quantities of stones, windows, rafters and other specific elements of the fort.

Various conservation professionals will have access to the documentation when needed for future projects. Before this record was generated, information users would have to produce their own drawings. In certain cases, the heritage record may not be precise or detailed enough for a specific area, but will provide a base from which to produce the required drawings.

Feedback was provided by the Project Manager regarding the overall usefulness of the heritage record. It was noted that the heritage record has not yet been fully utilized, however, the recording of the Commissariat Stores roof is currently being used by a consultant who is designing a new roof and repair measures. The consultant stated that the recording was very useful and detailed. The Project Manager also noted that the heritage recording for the Redoubt will also be used by a consultant in the near future for the design of stabilization measures. The heritage recording products were created to establish a reference point of the fort in its current state. Another major use of the products will be realized when the masonry stabilization phase of the project is implemented.

6. TRAINING

The Fort Henry NHSC rehabilitation project presented an opportunity to add a valuable training component to the recording process. In recent years, HCS has replaced many of its retiring senior staff through succession planning. Although joining HCS with impressive academic credentials and experience, few of the newly hired conservation architects and engineers had heritage recording exposure. To address this situation six new employees participated in the Fort Henry NHSC heritage recording field work for approximately 1.5 days each. All were given instruction as to why the heritage recording was being carried out, what the recording methods and tools were, and how the recording would provide basic but essential documentation resources to the rehabilitation project. With this new knowledge they were given individual instruction on how to use the recording equipment and then asked to participate in the actual recording. Their heritage records became part of the project recording deliverables. The purpose of this exercise was not to train architects and engineers to become heritage recorders, but rather to educate these individuals about the potential benefits heritage recording services may offer future conservation projects.

7. LESSONS LEARNED

The exercise of sharing information between information users and information providers was a valuable experience for the information users and it proved to be an important lesson for the information providers as well. The approach taken will help the heritage recording team make better decisions in future projects, when selecting documentation techniques and determining deliverables, by providing a better understanding of information user requirements. This positive outcome was achieved by open dialogue and collaboration with the identified information users throughout the Fort Henry rehabilitation project. As a final point, it was also interesting for the recording team to note how the heritage record benefited various users in their project delivery, and often in ways that was not initially expected.

The Fort Henry Conservation Project has proven that collaboration between information users and providers may provide a value-added component to a complex restoration project. Furthermore, it is proving to be an excellent starting document to be used by various players involved in the rehabilitation of the Fort Henry NHSC.

REFERENCES

Heritage Conservation Services, 2003, Fort Henry N.H.S.C. Redoubt Exterior Conservation Guidelines (DRAFT)

Parks Canada, 2002, Fort Henry Conservation Program – Project Charter (DRAFT), Canada

Parks Canada, 2003, Fort Henry National Historic Site of Canada, Consultation to Prepare a Management Plan, Canada

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