Where Past Meets Present – Infrastructure Improvements in Historical Fort Frontenac

Fort Frontenac in Kingston Ontario is a National Historic Site and the campus for the Canadian Army Command and Staff College, which is located immediately adjacent to The Great Cataraqui River where Lake Ontario meets the St Lawrence River.

Modern day Fort Frontenac has an extensive historical timeline beginning well before 1673 when construction of "Fort Cataraqui" (later Fort Frontenac) first began by the Comte de Frontenac on what was then a peninsula that jutted into the mouth of the Great Cataraqui River. The British and Canadian militaries have had a permanent presence on the site since 1783. Extensive infilling during the 19th and 20th centuries has expanded the shoreline and the original peninsula is no longer evident. The eastern half of the original French Fort is located within the modern-day Fort Frontenac and the western half is under the adjacent streets of Kingston. The Canadian Army has been providing training at the site since 1947.

Utility condition assessments showed that the utilities, notably the storm sewers, were well beyond their expected life cycle at the site. There has been a history of flooding within Fort Frontenac, which has worsened over recent years. Increased lake water elevations and portions of collapsed sewers were contributing to flooding within the Fort. A project was required to bring the site infrastructure in line with typical quantity and quality control best management practices to help mitigate the negative impacts of surface flooding and high Lake Ontario water levels, and to help preserve the historic infrastructure assets in Fort Frontenac.

In 2018 Real Property Operations Unit Ontario Detachment Kingston (RPOU(O) Det Kingston) initiated a challenging project to recapitalize underground stormwater collection infrastructure, replace other underground utilities, reconstruct the pavement, and complete site improvements throughout Fort Frontenac. Construction work in Fort Frontenac comes with many challenges as it is a water-adjacent, area-constrained, soil-contaminated, and archeologically rich site within historic stone walls.

One unique component of the construction project was preservation of the Fort's "sunken garden" found in the center of the upper parking lot which showcased a small portion of the 18th Century stone Fort and corner bastion.

Sign illustrating the 18th Century French Fort and shoreline overlain on 2022 aerial imagery

The top few courses of original 18th century stone walls had been reconstructed in the 1950s in the sunken garden and over time this recreation has fallen into disrepair. On advice of the project's Archeologist, it was determined that one of the best methods to preserve this resource was to cover up and bury the original base layers of the stone fortification to permanently protect it from the elements. The upper stones of the 50's reconstruction were carefully removed, and the original stones were preserved by covering them in geotextile and sand through oversight of the project archaeologist. To preserve the interpretive benefits of the sunken garden feature and the history of this former fort after covering over the old walls, it was decided to represent the location of the old walls on the new surface. The coordinates of the original Fort walls were determined from historical records and GPS survey of known features, then the new asphalt was stamped with a custom pattern to reflect the original scale and composition of the stone walls and wooden gate (see image on next page). A sign was created to tell the history and illustrate the layout of the 18th Century French Fort outline, and the 18th Century shoreline on modern day aerial imagery.

Given the history and archeological richness of the site, a licensed professional archaeologist was contracted during design options analysis to provide input on proposed scope, utility alignments and subsurface work. The archaeologist reviewed the available historical background information, completed an archaeology desktop study and plan prior to completing detailed design. Stage 2 test pits were performed along select areas of the proposed alignment. Stage 4 exposures were done in other areas of known historical artifacts, walls, and features. An archaeological monitoring plan was developed for the remaining areas prior to construction.

All subsurface work on the project was planned and completed under the supervision of an onsite archeologist contracted by RPOU(O) Det Kingston. The 3rd party archaeological monitoring and procedures were identified within the construction contract tender, including allowances for archaeological stoppages/interruptions during excavation. Pre-construction, the subsurface items within the parking lot and project limits were anticipated to be limited to historical artifacts and former walls/ foundations based on historical plan overlays.

Despite conducting archaeological studies and advance excavations during design, an unidentified historical burial ground (circa 1700's) was discovered in 2022 during construction by the onsite archaeologist while performing a planned investigation and monitoring exercise. Construction was re-directed, portions of the project were promptly re-designed, and an increased level of engagement was completed, including with Indigenous Communities having historical and treaty ties to the area on how best to proceed. A calming of the spirts ceremony was conducted in fall 2022 and the area was re-designed through meaningful engagement.

Following restoration of the area in 2022 and 2023, a re-dedication ceremony was held on August 8th 2023 with honoured guests from surrounding Indigenous communities joining the CFB Kingston Command Team, RPOU(O) Det Kingston, and various units to show proper respect to remains that were uncovered on the site.

The former Burying Grounds of the Parish of St. Francis, Fort Royal of Frontenac, sits in Fort Frontenac before the re-dedication ceremony, August 8th, 2023. Photo Credit: Kristy Murphy, Base Photo CFB Kingston.

A portion of the stamped asphalt depicting the 18th Century French Fort Corner Bastion.

Cooperating with the local First Nations communities, Defence Construction Canada, the Defence Indigenous Advisory Group, Real Property Operations Unit Ontario, and the Canadian Army Command and Staff College, CFB Kingston organized the construction of a memorial and the hosting of the re-dedication ceremony. Fort Frontenac now displays a new monument, plaque, and garden constructed by Real Property Operations through Defence Construction Canada to acknowledge the people who inhabited this land before us and affirm our commitment to improving relations in the future (Figure 3). During the French period, the Fort was both a military garrison and a major trading post utilized by many Indigenous communities, habitants and traders. Fort Frontenac is located on the traditional territory of the Huron Wendat, the Anishinaabeg and the Haudenosaunee Peoples. The ceremony included participation from Indigenous representatives of numerous communities and the Catholic church. The re-dedication ceremony, attended by many local Elected Chiefs and Elders, included many Indigenous traditions, and was followed by a traditional Indigenous Fellowship Feast.

"This ceremony is to ensure proper respects are being paid to those buried at this historic site, with you all here as witnesses to our commitment," said Colonel Sonny Hatton, the CFB Kingston Commander, reinforcing the Canadian Armed Forces message of respect and inclusivity towards our Indigenous partners.

Despite the challenges and valuable lessons learned along the way, several project risk mitigation measures to scope, schedule and cost were successfully implemented throughout the course of project; from pre-construction utility daylighting, geo-environmental and hydrogeological studies, construction unit rate tables, archaeological studies, and archaeological construction tender allowances to name a few. The construction contract was substantially complete as of September 8, 2023, and the recapitalised assets were handed over to DND. The construction contract is expected to be fully complete in the fall of 2023 and the project closed out this year.