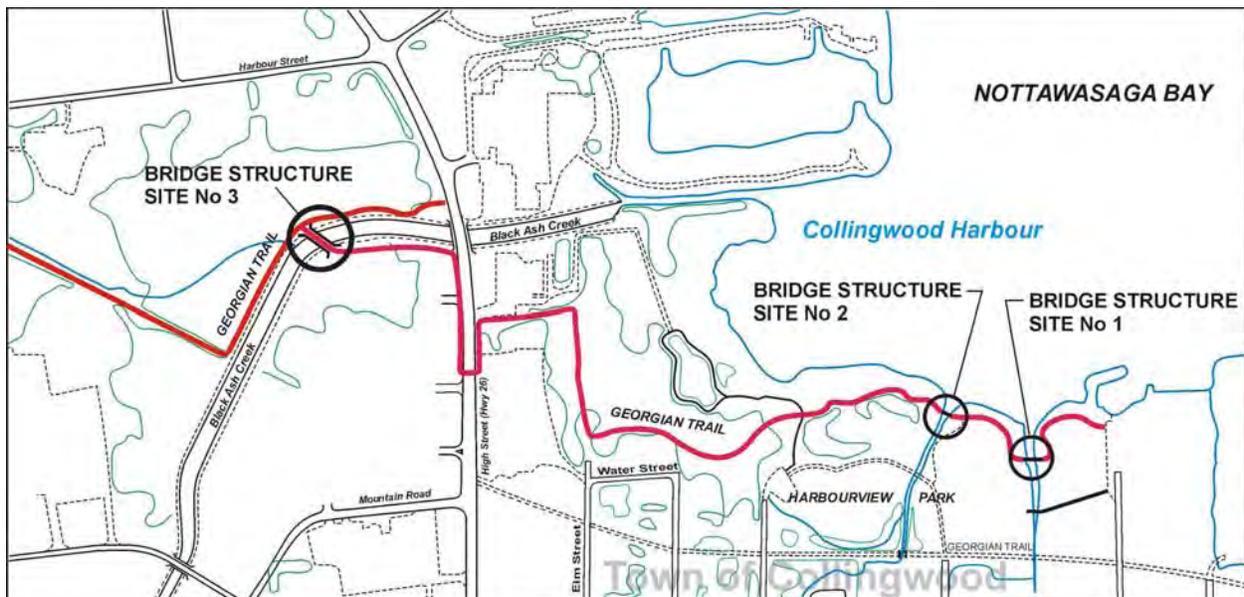


Georgian Trail Pedestrian Bridges

In the summer of 2004, the Georgian Trail Board of Management (GTBM) retained the Ainley Group to oversee the installation of three pedestrian bridges within the Town of Collingwood. The scope of work proposed by the GTBM required the replacement of two (2) trail bridges crossing the Hickory and Oak Street storm outlets within Harbourview Park and a new crossing of the recently constructed Black Ash Creek channel approximately 200 metres upstream of the Highway 26 Bridge (see Site Location Map).



Site Location Map

Pedestrian safety was the primary impetus behind the replacement of the two bridges in Harbourview Park (sites 1 and 2). The existing structures had substandard vertical safety rails, which presented a potential hazard to users of the bridges. The bridge over Black Ash Creek was needed to provide a safe link between sections of the Georgian Trail away from Highway 26 traffic.

The photographs of the three sites, at the right and the two on the following page, were taken in August of 2004.



Site No. 1

Georgian Trails Pedestrian Bridges



Site No. 2



Site No. 3

The GTBM had previously contracted Eagle Bridge Inc. to construct the prefabricated bridges. After fabrication at Eagle Bridge's facility in Kitchener, Ontario, the finished structures would be transported by truck to the bridge sites in Collingwood. The larger spans for Sites 1 and 3 would be shipped in two pieces each and be spliced together on site. The Ainley Group reviewed the completed shop drawings prior to fabrication, designed the bridge foundations/abutments and produced design drawings and contract documents for the construction of foundations and installation of prefabricated bridge spans.

After tendering and receiving submissions from three pre-selected contractors, the Ainley Group analyzed the bids and made a recommendation to the GTBM. Owen King Limited of Walkerton, Ontario was the successful bidder with a submitted price of \$182,435.00.

The contract included:

- removing two (2) existing bridges
- excavating for new abutments
- disposing of all excess or unsuitable materials, including concrete and rebar from existing bridge abutments
- construction and backfill of the new abutments
- offloading, and erecting/placing prefabricated steel truss bridge span at Site No. 2
- offloading, splicing and erecting/placing prefabricated steel truss bridge spans at Sites 1 and 3
- site restoration including realigning and reinstating trail as required.

Since each of the three bridge sites was in an environmentally sensitive area, the selected contractor was required to observe strict environmental protection measures indicated in the contract documents and as required by the Nottawasaga Valley Conservation Authority (NCVA), Ministry of Natural Resources (MNR), the Town or the Engineer. These measures included:

- keeping disturbance of the stream to an absolute minimum
- preventing pollution of the river by foreign materials of any kind including debris from demolition of the existing structure(s)
- maintaining, isolating and protecting footing excavation from river flows
- supplying, installing and maintaining environmental protection measures including silt fences, cofferdams and rock-check dams

Georgian Trails Pedestrian Bridges

General environmental protection requirements included but were not limited to:

- work within the stream was prohibited unless otherwise authorized by the NVCA
- natural materials (rock, gravel, rocks, etc.) were not be removed from the banks or below the high water level for use as construction material
- all natural woody materials or boulders moved in order to complete construction were to be returned to the preconstruction location and configuration upon completion of the works
- stabilization works to follow the natural contour and profile of the banks
- vehicle and equipment refuelling and maintenance carried out at least 30 metres away from the watercourse
- sediment and erosion control measures to be installed prior to work and maintained during work phase to prevent entry of sediment into the watercourse
- at no time were water flows to downstream sections to be interrupted.

Extensive snow cover during the winter months mitigated some of the environmental restraints while the bridges were being installed; however, the contractor would still had to be cognizant of all the restrictions when placing the structures on the abutments.

The completed prefabricated bridges were delivered to the installation sites during December 2004 and January 2005. The bridges were lowered into position using a combination of cranes and heavy construction equipment.

Site No. 1

The prefabricated bridge for Site No. 1 was delivered in two sections. The two sections were placed on blocks and spliced together adjacent to the site. Using two pieces of excavating machinery, the completed bridge was manoeuvred into position atop the concrete abutments.



Positioning the spliced bridge structure.



Splicing the two prefabricated sections.



Site No. 1 completed installation.

Site No. 2

The span of the prefabricated bridge at Site No. 2 was short enough to allow the structure to be manufactured as one piece and delivered to the site ready for installation. Two pieces of excavating machinery were used to position the structure on the concrete abutments.



Moving the prefabricated steel truss bridge.



Site No. 2 completed installation.

Site No. 3

Site No. 3, the largest span, was located approximately 200 metres upstream from the Highway 26 Bridge. The structure was designed to cross the channellized Black Ash Creek at a skew in order to link two sections of the Georgian Trail. Each prefabricated section of the bridge was delivered to the site and off-loaded – one on each side of Black Ash Creek. A scaffold and support structure was assembled on the bed of the floodway channel before the first section of the bridge was positioned.



A section of prefabricated bridge arriving on site.



One of the concrete abutments.



A temporary scaffold and support structure was erected on the floodway channel bed.

Georgian Trails Pedestrian Bridges

Suspended by a crane, the first section was aligned with the abutment and lowered onto the support in the middle of the channel. Working from the opposite side of the channel, the second section was then lowered into place and aligned with the first section. While still suspended by the crane, both sections were spliced together. After splicing and final alignment was complete, all scaffold and support material was removed from the channel bed and the site was restored to its original condition.



Lowering the first prefabricated bridge section.



Aligning the first section with the abutment.



Lowering the second section of bridge.



Splicing the sections together.



Site No. 3 completed installation.

Despite the very cold and snowy weather presenting a few problems at the time of installation, all three bridges were successfully placed and secured.

The Ainley Group's involvement included the design of the concrete abutments for the new bridges, surveying, obtaining all the necessary permits and approvals, managing the tendering process, reviewing the bridge design and undertaking the contract administration.