

CFB Petawawa Military Base Upgrades Outfall

Project: Canadian Forces Base Petawawa

Location: Ottawa Valley, Ontario

Owner: Department of National Defence (DND) and Canadian Armed Forces (CAF)

Engineer: Jp2g Consultants, Inc.

Contractor: H and H Construction, Inc.

Approving Agency: Canadian Forces Base Petawawa

Product: Stormceptor® STC 14000



CFB Petawawa's Storm Outfall #1 provides drainage for approximately 45.9 ha (113 ac) of developed and 10.0 ha (24 ac) of undeveloped lands located within a portion of the Base.

The majority of the area is already serviced by a storm sewer collection system which ultimately discharges into the Ottawa River. The developed area which contains buildings and associated parking lots is generally located on a flat sand plain, with very little fall. The storm sewer system in this area follows the land contours and therefore has very flat grades.

Analysis of the pre-existing storm sewer immediately upstream of Outfall #1 indicated that the majority of the system was undersized for both the 2 and 5 year events, and flow velocities exceeded the typical recommended design velocity. This was a concern with the existing infrastructure, which included a Stormceptor (designed and installed nearly 20 years ago). As development continued on the Base over the years it was found that the resulting storm sewer hydraulic changes began to limit the existing sewer's capacity and unit's overall functionality.



Additionally, to address additional downstream erosion issues in the creek the alignment of the Outfall #1 sewer pipe's outlet required adjustment so it would be more in line with the creek's flow, rather than perpendicular to it.

To improve the overall function of Outfall #1, the following storm sewer upgrades were implemented:

- An additional Stormceptor STC 14000 with only 75mm (3-inches) of required drop from inlet to outlet was added. This improved the overall long-term TSS removal, and provided additional hydrocarbon spill protection & capacity.
- Storm sewer pipe sizes were increased, to reduce the sewer system's flow velocities and increase the discharge capacity.
- The Outfall #1 was realigned and rip-rap stone protection was added to mitigate the erosion downstream.

The overall Outfall #1 upgrade at CFB was a solid investment and huge success. "The product made a big environmental improvement," stated Mohammad Zaidi of the Petawawa Military Base.