

Background

Stormwater from a 248-hectare urban drainage area (bounded by Bloor St. West on the south, Lansdowne Avenue on the east, St. Clair Avenue on the north, and Clendenan Avenue and Runnymede Road on the west), enters High Park at its northeast corner. These storm flows contribute a large portion of water that supports the Spring Creek system. Spring Creek is the most prominent natural feature on the east side of High Park and is a significant echo of Toronto's pre-settlement environment. The creek follows a natural course originally carved through sand dunes bordering Lake Ontario. The ravine slopes, above the Creek, bear remnants of northern coniferous forests, the open bottomlands support small wetlands reminiscent of the lakefront marshes and swamps of Toronto's past, and the table lands above are provincially significant remnants of oak savannah. High Park is designated as a provincially significant Area of Natural and Scientific Interest (ANSI) and an Environmentally Significant Area (ESA).

Water Quality in Spring Creek

The stormwater that helps support the High Park wetlands comes with a price. Spring Creek contains contaminants that often exceed the Provincial Water Quality Objectives (PWQO). The limited data show that heavy metals such as boron, aluminum, and copper may occur at four to ten times the acceptable concentrations. Wet weather bacterial loading is more than three orders of magnitude above PWQO, contributing to the degradation of water quality in Lake Ontario. Total phosphorus has also been shown to exceed the PWQO. Suspended solids are high.

The Spring Creek system is partly effective in removing some of the contaminants entering High Park before they reach Lake Ontario. Two man-made sedimentation ponds at the north end of Spring Creek provide a degree of sediment removal. These ponds are undersized compared to the quantity of stormwater they receive, and require frequent dredging to remove accumulated sediments. The Creek meanders through the Park, providing areas of rapid and quiescent flow, providing limited contaminant removal by settling suspended particles. The sediment re-suspended during runoff events migrates to the Lower Duck Pond

before settling out in the southern portion of the pond. Figure 1 illustrates the Spring Creek system, including the sedimentation ponds and the Lower Duck Pond.

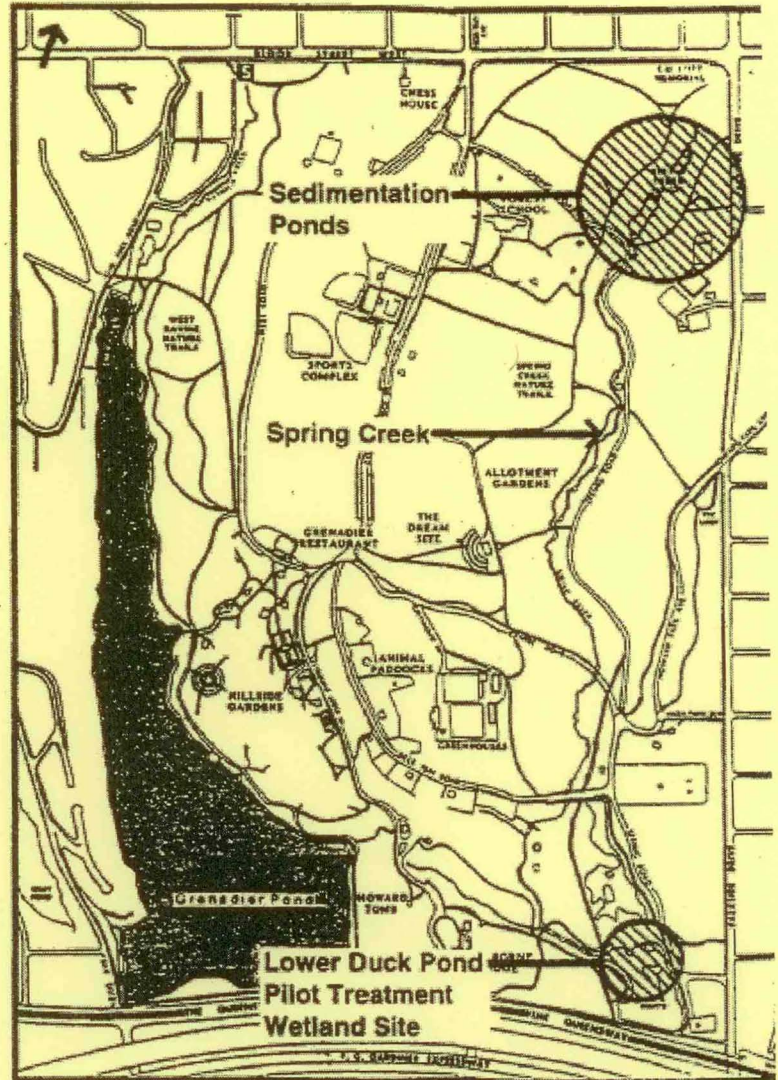


Figure 1
Spring Creek System

Water Quality Improvement in Spring Creek

Spring Creek is overloaded with contaminants. Reducing contamination of Spring Creek will allow it to comply with the most important Provincial initiatives for reducing water pollution: the PWQO for surface waters and Remedial Action Plan objectives for improving the quality of water entering Lake Ontario.

Plans by the City of Toronto for improving water quality in Spring Creek, through modifying the larger water bodies where there is greatest opportunity for development, are outlined in this newsletter. If feasible, the goal is to improve the water quality so that the PWQO are met with respect to Biological Oxygen Demand, *E. coli* bacteria, various metals, phosphorous and nitrogen. This goal is intended to dovetail as much as possible with plans for restoring the natural habitat in High Park; specifically, to restore and enlarge regionally rare marshlands within and surrounding Spring Creek, to naturalize pond edges and stream banks, to re-establish historical natural linkages with the waters and shoreline of Lake Ontario, and to develop methods to clean stormwater and control water flows and fluctuations entering the pond and stream system.

Improvement of Sedimentation Ponds

The purpose of the sedimentation ponds is to remove sediments, oils and grease before they proceed along the Creek. The ponds are currently too small to provide effective treatment and alternatives for improving the pond's effectiveness are to be implemented.

The land around the ponds provides little room for improvement as significant vegetation is found within 15 m along the east and west sides of the pond, and there are utilities buried underneath the ground in the surrounding area.

Alternative solutions for improving water quality begin with better management of the source of the contamination. The source of the majority of the contaminants is the wash-off from the urban development during a storm event (see the "Stormwater Pollution - Tips on how you can improve water quality" brochure attached). Examples of source control initiatives by the City of Toronto include street-sweeping, stoop-&-scoop bylaws, disconnecting roof leaders, storm sewer discharge by-laws, public education, erosion controls, and installing soak-away pits or exfiltration systems. These measures reduce the amount of contaminants entering the sewer system, and improve the efficiency of downstream treatment facilities. However, these best management practices, although beneficial, will not completely solve the water quality problem.

Modifications to the ponds and/or alternative stormwater controls will provide the best contaminant removal in the small area available. The Environmental Assessment for the improvements to the Spring Creek Ponds was completed in April 1999. A number of alternatives were assessed for the improvements to the Spring Creek flows. The identified preferred alternative consists of:

γ ***Expanding the Existing Storage/Treatment Facilities:*** This involves expanding the ponds to their maximum area and depth to optimize storage capacity and promote sedimentation within the ponds.

The City of Toronto, Works & Emergency Services are proceeding with the implementation of the preferred alternative. The proposed pond improvements have been designed and project awarded for construction.

Construction of the proposed improvements is to commence on January 16, 2003. Construction of the pond improvements is scheduled to be completed on April 1, 2003 with the planting restoration to be carried out in May 2003, subject to weather conditions.

Project by: **City of Toronto, Works & Emergency Services**
Consultants: **CH2M HILL Canada Limited / MacViro Consultants Inc.**
Contractor: **G. C. Romano Sons (Toronto) Limited**