Day Two - Track Two
Thursday, March 23rd, 2017
1:30 p.m. – 2:00 p.m.

Buried Secrets Exposed within Toronto's River Valleys

Presenter: Robert Amos, Aquafor Beech Limited

Biography

Robert is a results driven professional with experience leading projects and teams of varied technical specialties related to fluvial geomorphology, water resources engineering, geotechnical and slope stabilization, & ecological restoration. Rob applies over 10 years of success in consulting engineering, specializing in managing client relationships and expectations while providing long term sustainable solutions. Rob is primarily focused on watercourse erosion & restoration, bridge and culvert replacements, and other projects in which infrastructure traverses natural valley corridors. Vast array of clients include municipal and provincial levels of government within Ontario, agencies including Conservation Authorities, Ministry of Transportation, Ministry of Environment, Department of Fisheries and Oceans.

Abstract

The City of Toronto is serviced through an extensive network of sanitary trunk sewers which coincide with natural creek and valley corridors, using gravity to convey flows to treatment centres located at the downstream limits of the subwatersheds.

Recognizing the fundamental impacts on watersheds associated with urbanization (ie. hydrology, sediment supply, direct modifications), and the critical role natural riparian corridors provide, the City of Toronto and Aquafor initiated a study on Highland Creek, the most developed and impacted watershed within the City.

Shortly thereafter (August 19th, 2005), a flood event dropped approximately 100mm of rain in 3 hours, resulting in a peak discharge exceeding the Regional (Hurricane Hazel) in some areas, causing mass erosion, bed degradation, floodplain disconnection, and shore off a segment of sanitary trunk sewer and manhole. Throughout the City mass erosion occurred as a result of this event, further destabilizing the equilibrium of the riparian corridors, and creating systemic risks associated with exposed sanitary sewer manholes which were previously buried.

Over the past seven (7) years, the City and Aquafor have undertaken what is referred to as the Manhole Study, addressing the highest risk sanitary exposures within natural valley systems including the Humber River, Don River, Highland Creek, Chapman Creek, Mimico Creek, and Morningside Creek.

In total, eleven (11) areas of risky secrets were exposed as a result of mass channel erosion. For each site, work was undertaken to find the optimal design methodology, posing the classic question, Realign the creek away from the infrastructure? Reconstruct the sanitary sewer away from the creek? Or a combination thereof?

Learning Objectives

1. A practical look at stream restoration within urban municipalities, giving due consideration long term protection of infrastructure;
2. Integration of natural channel design techniques into a restoration solution which will provide long term protection while meeting current standards, requirements, and codes of practice; and
3. An understanding of the importance of maintaining a balanced stream system network, providing stormwater drainage, sanitary sewer drainage, and sensitive environmental functionality.