

ADVANCED LID DESIGN: BIORETENTION FACILITIES WORKSHOP

Green infrastructure, including low impact development (LID) practices, are becoming an increasingly common approach to stormwater management control. Bioretention is one type of LID measure that is designed to treat runoff from paved areas by using the natural properties of soil and vegetation to remove contaminants. Water management practitioners need to be familiar with the 'ins and outs' of bioretention design including sizing and siting, inlet and outlet design, material specification, construction planning, as well as the associated lifecycle inspection and maintenance requirements that should be considered during the design process.

Using an example project site, participants will be guided through a bioretention design problem including:

- Bioretention basics and terminology
- Review of performance studies
- Screening design options
- Sizing for hydrologic and water quality objectives
- Site planning and placement of bioretention areas
- Site grading and drainage
- Planting design
- Material specifications
- Detailed design options for inlets/pretreatment
- Detailed design options for outlets/flow control
- Construction planning and sequencing, with erosion and sediment control
- Maintenance planning
- Design documentation
- Certification/Assumption protocols

The day will be a series of short presentations interspersed with problem solving periods when the participants will work in small teams to develop their designs. Participants are requested to bring a device capable of accessing the internet.

Upon completion of this course participants will be able to:

- Carry out sizing calculations required to design a bioretention system
- Identify key factors that affect siting and material selection for bioretention facilities
- Define appropriate erosion and sediment control strategies that will protect bioretention facilities during construction
- Recognize design features that will support inspection and maintenance requirements

Instructors:**Jennifer Hill**

Jen Hill is a Research Scientist at Toronto Region Conservation Authority, and technical author to the revised Ontario Conservation Authorities' online guide for the design of low impact development (LID) strategies. She is a member of the Sustainable Technologies Evaluation Program (STEP) training team, an expert panelist for Sustainable Buildings Canada, and participates in review panels for non-governmental organizations and municipalities.

Before joining STEP she completed her PhD in water resources engineering at the University of Toronto; focusing her research on green roofs as LID. Jen's holistic understanding of LID is based on a broad foundation including Landscape Architecture and Chemistry.

Bill Trenouth

Bill Trenouth is a Program Manager working at Credit Valley Conservation in the Watershed Management Department on projects related to low impact development (LID) implementation and stormwater system aggregation. Bill is also a LID instructor and delivers training related to the design, construction, inspection, maintenance and monitoring of LID practices through the STEP Water partnership. Bill completed his Ph.D. in Water Resources Engineering at the University of Guelph in 2017.