

Day Two - Track Two

Thursday, March 22nd, 2018

9:30 a.m. – 10:00 a.m.

The Stream Failed. Or Did It? Expectations for Natural Channel Designs after Construction

Presenter: Jeff Muirhead, Stantec

Biography



Jeff is a water resources engineer working in the stream restoration group with Stantec in Waterloo, Ontario. Jeff's work focuses on stream design and fluvial geomorphology and how they relate to river stability and aquatic habitat. Jeff has an M.A.Sc. in Eco-Hydraulics and Stream Restoration from the University of Waterloo and a B.Eng in Water Resources Engineering from the University of Guelph.

Abstract

Natural Channel Design (NCD) for stream restoration is not only beneficial for flood detention, bank stability, and aquatic habitat, but is often required for watercourse works in today's regulatory environment. With an increasing number of NCD projects being completed, the question becomes: what are the expectations for an NCD project, and how do we approach post-construction issues? Brierwood Creek, an NCD project in Southwestern Manitoba, is an instructive case study for several construction and contract related issues facing the stream restoration industry today. Construction of the Brierwood Creek NCD was completed in the fall of 2016, amidst unseasonably wet conditions. Freeze-up occurred 3 days after reintroduction of flows. A 25–50 year return period flow inundated the creek valley for several weeks in spring 2017. While channel profile and riffle elevations remained largely unaltered, significant bank erosion occurred throughout the reach. The assessments, discussions, negotiations, and repairs which occurred post-flood (and continued through 2017) touched on multiple topics which regularly pose challenges to owners, contractors, regulators, and designers in the stream restoration industry. This presentation shares the flood damage to the Brierwood Creek NCD project, outlines the post-flood sequence of events, and openly discusses the post-construction issues experienced here – all of which are crucial to resolve for the success of the NCD industry.

Learning Objectives

1. How long does it take for an NCD project to stabilize? Should we adjust our expectations/time horizons accordingly;
2. What can/should be considered a "failure" in NCD projects; and
3. How can we adjust contracts to reflect the multi-year rehabilitation process required in these projects.