



WATER RESOURCES

Flood Remediation Plans & Flood Plain Management

Byersville Creek 2-Zone Flood Line Study

Clients and Location: Otonabee Conservation and City of Peterborough, Ontario

The floodway refers to the portion of the flood plain where development and site alteration would cause risk to public safety and/or property damage. The flood fringe is the portion of the flood plain where development may be permitted subject to certain municipal standards and procedures. **GREENLAND** was retained in 2004 by the City of Peterborough to evaluate the potential for development encroachment within the Byersville Creek flood plain by applying 2-Zone planning principals. The analysis was to define parcels of land that would adhere to applicable Ontario Ministry of Natural Resources (OMNR) guidelines for 2-Zone floodplain management.

GREENLAND conducted a quality assessment of available digital mapping (to FDRP standards) and hydraulic cross-sections surveyed in previous studies to ensure accuracy. HEC-RAS™ was used to develop both steady and unsteady flow simulations using output from an updated, certified, hydrologic model for the study region. The unsteady flow model has the advantage, when applied in relatively flat topographic regions, of simulating the reduction of peak flows resulting from floodplain storage and flow attenuation. Two models were developed to evaluate development potential (i) the existing watercourse without encroachments and (ii) the watercourse with varying degrees of encroachment. Depth-velocity product criteria specified by the OMNR were applied to a range of potential encroachment scenarios to determine the viability of adopting a 2-Zone floodplain management policy.

