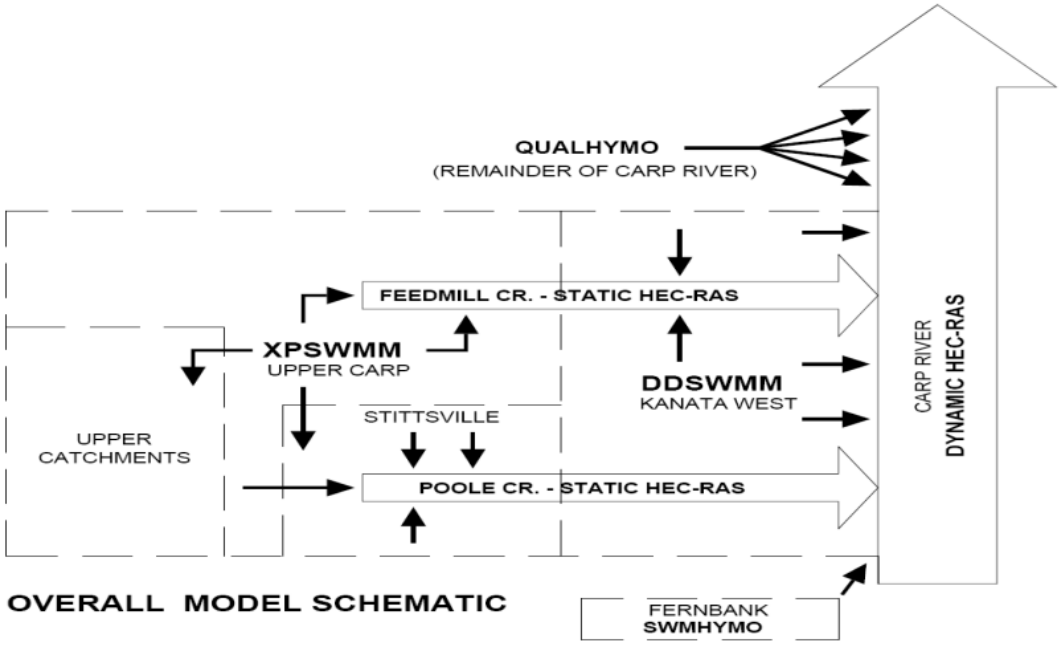
WATER RESOURCES

Municipal Peer Review and Modelling Support

Carp River Restoration Plan
Third Party Review and Model Keeper Assignments

Client and Location: City of Ottawa, Ontario

GREENLAND was appointed to complete a Third Party Review of the Carp River Restoration Plan for the City of Ottawa. This initially included a review of all hydrologic and hydraulic models constructed from five (5) software packages that were used to create the Carp River Restoration Plan and to support the 22 Class EA documents prepared for servicing and planning for the Kanata West development area (700 ha). This high profile project also involved assessing various elements of the restoration plan pertaining to flood storage, sediment transport, and positioning of adjacent storm water management (SWM) facilities. *This initial open and transparent assignment was completed April 2009.*



OVERALL MODEL SCHEMATIC

As a result of recommendations prepared during the initial Third Party Review, GREENLAND was subsequently retained by the City of Ottawa to oversee changes to the Carp River models and review development applications that impacted stormwater drainage servicing schemes for the watershed. GREENLAND also provided technical support for questions raised by the public and review agencies assisting the City to respond to 88 Part II Order requests that were cleared by the Minister of the

Environment in March 2012. The hydrology and hydraulic models were calibrated with flow measurements obtained from a network of flow gauges administered by the Mississippi Valley Conservation Authority. A report was tabled with August 2011 and later accepted by the City of Ottawa and all Provincial and Federal regulatory approval agencies.

Thereafter, a suite of six (6) software packages used to replicate the Upper Carp River system in the Kanata district of the City of Ottawa were replaced in 2014 by GREENLAND and using PCSWMM. This new state-of-the-art model incorporated all of the various models for the existing and proposed neighborhoods to represent both the street and sewer networks. This network included over 20,000 nodes and were linked to three (3) watercourses for which flood levels were determined by routing flows dynamically through the flood corridor. The model was also calibrated to flow gauge data and matched flows further downstream with earlier hydrology developed from an existing Environment Canada - Water Survey gauge. This model was then used to review development applications for 700 ha to confirm hydraulic grade lines, major minor flow conditions and stormwater management strategies for the Carp River and to comply with 22 Class EA reports by other engineering consultants.