

Prince Rupert SWMF and Sewer Improvements City of Edmonton

With the assistance of Sameng, the City of Edmonton has improved the level of flood protection in the Prince Rupert neighbourhood in north-central Edmonton by constructing a stormwater management facility, new storm sewers, and catchbasin improvements. The Prince Rupert SWMF is located in a park at the center of the neighbourhood and the dry pond incorporates LID bioretention features.

Location

Edmonton, AB

Key Team Members

David Yue, P. Eng.

Al Lang, P. Eng.

Maxime Bélanger,
M.Sc., P. Eng.

Nathan Forsyth,
P.Eng.

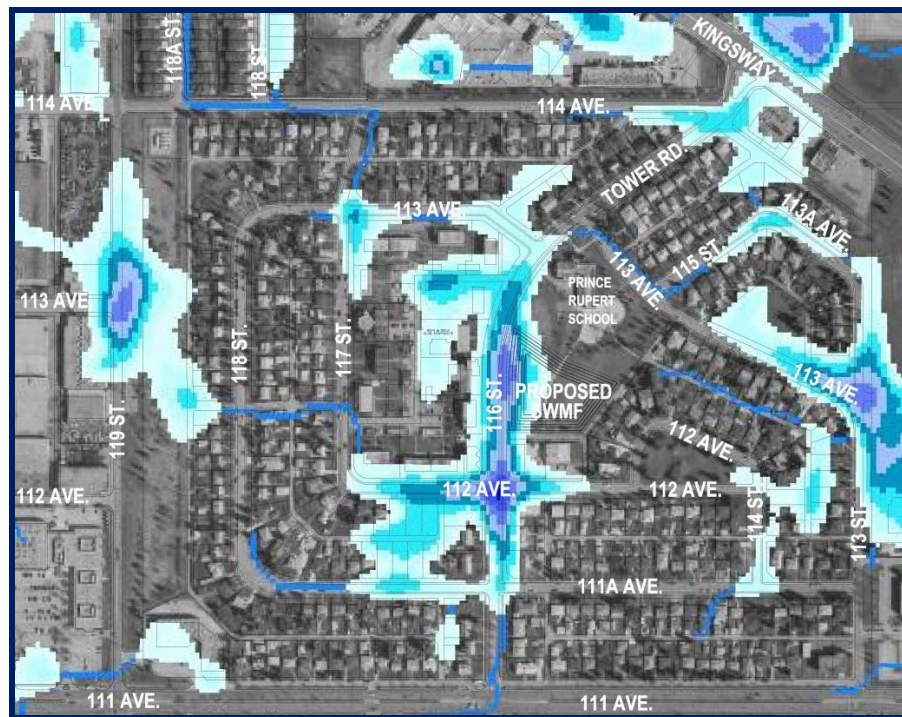
Brandon Rivet,
C.E.T.

EDA Collaborative

Duration

2013 – 2016

Sameng was retained by the City of Edmonton in 2013 to provide preliminary design, detailed design, tender services, general engineering during construction, and project commissioning for the project. The project also involved geotechnical engineering by Thurber Engineering, landscape design by EDA Collaborative, stakeholder meetings and public consultations, and a risk assessment, value engineering and constructability workshop.



Prince Rupert - Depression Areas

For this project, Sameng developed a detailed combined stormwater and sanitary model using Mike Urban. Sameng constructed a new computer model using the most up-to-date trunk models and local pipe information from the City's DRAINS database. Sameng built the model to include a coupled minor system (sewers) and major system (surface drainage). The integration of surface drainage flows allowed the model to provide a more accurate representation of the surface flooding mechanism and sewer flows during large rainfall events.



The project team worked with the City of Edmonton to design a LID bioswale design at the bottom of the SWMF, from the two inlets to the outlet. This would provide low-flow conveyance and quality treatment for some of the new storm sewers in the neighbourhood. The pond acts as a storage facility during larger events.

In addition to the new stormwater management facility, the proposed design included the addition and reconnection of catchbasins to a new storm sewer system, the use of catchbasin flow restrictors to direct flow towards the newly installed storm sewers and prevent surcharge in the existing combined sewers, and the connection of the local storm system to the deep 111 Avenue storm tunnel via a drop shaft. Simulation results of the improved system show a 1-in-100 year level of flood protection throughout the study area.

Construction of the project concluded in 2015, and will mitigate future flooding in the Prince Rupert neighbourhood.

