

## CENTENNIAL WETLANDS PROJECTS



### Location

Sherwood Park, AB

### Key Team Members

David Yue, P.Eng.

Brad Kerr, P.Eng.

Brandon Rivet, C.E.T.

### Duration

2004 - 2017

### Client

Strathcona County

## Project Overview and Scope of Work

Centennial Wetland is a major storm water management facility located within the northwest Sherwood Park area. It occupies over 8 hectares of land and is one of the first facilities actively designed to enhance storm water discharge quality from urban drainage. Sameng Inc. has been the prime engineering consultant responsible for several phases of the project.

Major engineering components of this project have included: definition of facility operational philosophy, constructed wetland design, uplands design, dyke facilities, control structures, storm sewers, floatables and grit removal devices, emergency spillways, real-time control of lake outlets and infrastructure tie-in and coordination with the Anthony Henday ring road project.

## Project Highlights

### Stormwater Facility – Constructed Wetlands

- The facility consists of two cells: north and south. In order to preserve the natural features of the area, the design normal water levels were kept close to the natural fluctuations observed in this area. Innovative control structures design and operational procedure allow the two cells to operate in series and at different water levels while maintaining effective flow attenuation for the entire facility. The addition of RTC in the current phase will optimize this operation.
- Both the north and south cells are actively designed as wetland treatment facilities to improve the quality of the discharge waters. The outlet structures were designed to allow active vegetation control by allowing seasonal water level operations. The objective of operating the facility is to achieve a balance of aesthetics, water quality and flood protection.

## CENTENNIAL WETLANDS PROJECTS



### Project Highlights Continued

#### Piping and Other Conveyance Systems

- Sameng Inc. has also been the primary engineering consultant for the preliminary and detailed design of the conveyance systems both flowing into and out of the stormwater facility. All of the development in this area discharges into the facility. Sameng has designed the main South Drainage Channel complete with erosion control structures which has been in operation for nearly 10 years. Discharge from the stormwater facility has been staged and involves the installation of a large diameter storm pipe along Sherwood Drive and across Highway 16. This infrastructure has been completed in 2014 which required significant amount of design coordination with the Sherwood Drive and Highway 16 grade separation construction.

#### Real Time Control of Flows

- In order to ensure downstream water courses are not impacted. The last phase of the project involves controlling the flow being discharged from the entire system based on real time measurements. Sameng developed the system concept based on flow depth measurements at Highway 16 and at the two cells of the stormwater facility. A control logic has been developed to optimize the storage and water discharge that achieves the maximum level of flood protection for the overall watershed. Sameng is currently working with county staff in the implementation of the control logic. Communication of information between facilities use the county's radio system.